

ANNUAL REVIEW 2023



Participation in cervical cancer screening increased slightly from previous years to 72%. Most screenings were carried out using the HPV test rather than the long-established Pap test. The number of cervical cancers and serious precancerous lesions detected in risk group screening increased significantly compared to previous years. Responsibility for screening was transferred from municipalities to the wellbeing services counties from the beginning of 2023, so regional data is reported by wellbeing services county in this annual review.

SUMMARY

In 2021, about 284 000 women were invited to the cervical cancer screening programme, of which about 205 000, or 72%, participated. Human papillomavirus (HPV) infection detection tests accounted for 68% of all screening tests. Age group-based tests accounted for 95% of all tests, and risk group-based tests for 5%. In age group screening, 93% received a normal test result, 6% a recommendation for risk group screening and 1% a referral for further examination. For risk group screening, 63% had a normal test result, 5% had a repeat risk group recommendation, and 32% were referred for further examination. Follow-up examinations identified 50 cervical cancers and 1 416 severe precancerous lesions. Of these, risk group screenings detected 12 cancers (24%) and 590 serious precancerous lesions (42%).

1. INTRODUCTION

Cervical cancer screening started in Finland in 1963 and expanded into a national programme in the early 1970s. Screening aims to reduce the incidence and mortality of cervical cancer by detecting it and its precursors, which can be treated before they develop into cancer. Age-standardised incidence rates started to decline with screening in the 1970s and continued to fall until the 1990s, after which they remained stable, and mortality rates have continued to fall (Figure 1). Screening has therefore been effective in Finland, reducing incidence and mortality by about 80% (IARC 2005, Lönnberg et al. 2012, Pankakoski et al. 2022).

The incidence of cervical cancer has increased since the 1990s among women under 40 years old. The increase in incidence is at least partly related to the rise in HPV infections and increased smoking (Anttila et al. 1999), which are risk factors for cervical cancer. The HPV vaccination programme (THL 2022),

which started in 2013, will reduce the incidence of cervical cancer in younger women in the coming years, as studies have shown its effectiveness in preventing both precancerous lesions and cancer (Lei et al. 2020).

For decades, the primary screening method for cervical cancer has been the Pap test, which aims to detect cellular changes in a gynaecological cytology sample. In the 2000s, the HPV test, which detects papillomavirus infection, has been used more widely in screening because it has proven to be more sensitive in detecting cervical cancer precursors (Anttila et al. 2015). As of 2019, the HPV test has been used for most screenings, and the Cervical Cancer Screening Expert Group recommends it as the primary test for screening women aged 30 years and over. For women under 30 years, the Pap test is still recommended because they have a higher rate of self-healing HPV infections than older women.

2. CERVICAL CANCER SCREENING PROGRAMME IN FINLAND

In 2021, women aged 30-60 years were invited to the cervical cancer screening programme every five years, according to the then Government Decree on Screenings. Some municipalities also invited women aged 25 and/or 65 years. The screening test was free of charge for those invited. However, the patient fees for treatment and follow-up examinations in specialised medical care side were determined by the hospital district.

The screening tests were performed either at a health centre or at a screening laboratory. The pathology laboratory sent the women a response to the test result and, if necessary, a referral for further examination.

Municipalities decided independently whether to use the Pap test or the HPV test for screening.

Women with mild cellular changes (ASC-US, LSIL in women under 30 years) or simple HPV-positivity were recommended to be invited for risk group screening. Risk group screening was performed 12-24 months after the previous screening invitation. Those with more severe results were referred for cervical endoscopy, i.e. colposcopy and biopsy. Referral was also possible for a mild abnormality that had been repeated 2-3 times. Follow-up examinations, necessary surgical procedures and treatment of cervical cancer and its precursors were carried out in specialised medical care.

3. OPERATION OF THE SCREENING PROGRAMME IN 2021

3.1 INVITATIONS TO AND PARTICIPATION IN SCREENING

TABLE 1: Cervical cancer screening target population and invited women who were screened in 2021.

	Target population	Retrieved from	% of the population invited (coverage)	Verified by	% of those invited checked
Age group screening: 30-60	241 230	241 012	99.9	175 034	72.6
Age group screening: 25-65	309 902	271 339	87.6	194 889	71.8
Age and risk group screening: 25-69		283 913		204 746	72.1

The coverage of screening invitations in the target population was 100% in the age group 30-65 years, as defined by the Decree on Screenings, meaning that practically all age groups were invited for screening, 46% of 25-year-olds and 42% of 65-year-olds. In 2021, the screening programme sent out 283 913 invitations, of which 96% were for age group screening. Of those invited, 72% attended screening (Table 1). The participation rate was 71.8% for age group screening and 78.4% for risk group screening.

Participation rates in the younger age groups (25-40 years) continued to increase as in previous years, although they remain lower than for older age groups. 62% of 25-30-year-olds invited for screening participated in 2021, compared to 75% for 45-65-year-olds (Figure 1).

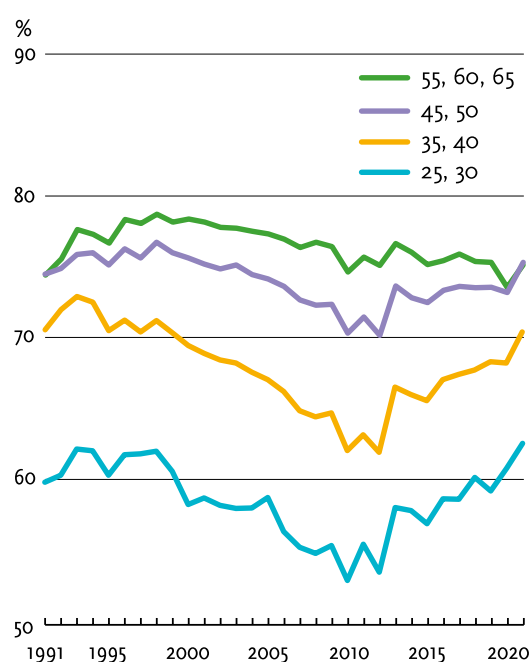


FIGURE 1: Participation in cervical cancer screening (%) by age group 1991-2021, age group invitations.

3.2 SCREENING RESULTS AT NATIONAL LEVEL

Overall, in the screening of the 30-60 age group, 92.9% received a normal test result, 5.8% a recommendation for risk group screening and 1.2% a referral for further examination (Table 2). In HPV-based screening, the number of abnormal

test results was higher than in Pap smear testing. Of those tested with HPV, 92.1% had a normal test result, while 6.6% were recommended for risk group screening and 1.3% were referred for further examination.

TABLE 2: Screening results by test method (Pap test, HPV test, total) in 2021.

	Checks n*	Negative or normal		Recommendation for risk group screening**		Referral for further examination**		Histological HSIL+		Screening test result not interpretable or missing n
		n	%	n	%	n	%	n	%	
PAP TEST										
Age group screening: 30-60	53 204	50 407	94.7	2 147	4.0	494	0.9	162	0.3	156
Age and risk group screening: 25-69	64 895	60 606	93.4	3 292	5.1	817	1.3	259	0.4	180
HPV TEST										
Age group screening: 30-60	109 135	112 218	92.1	8 010	6.6	1 535	1.3	676	0.6	67
Age and risk group screening: 30-69	139 840	126 580	90.5	8 720	6.2	4 467	3.2	1 258	0.9	73
TOTAL										
Age group screening: 30-60	175 034	162 625	92.9	10 157	5.8	2 029	1.2	838	0.5	223
Age and risk group screening: 25-69	204 756	187 195	91.4	12 016	5.9	5 287	2.6	1 518	0.7	258

* The table may contain more than one result from the same person.

** Based on screening test result (result requires either risk group screening or referral).

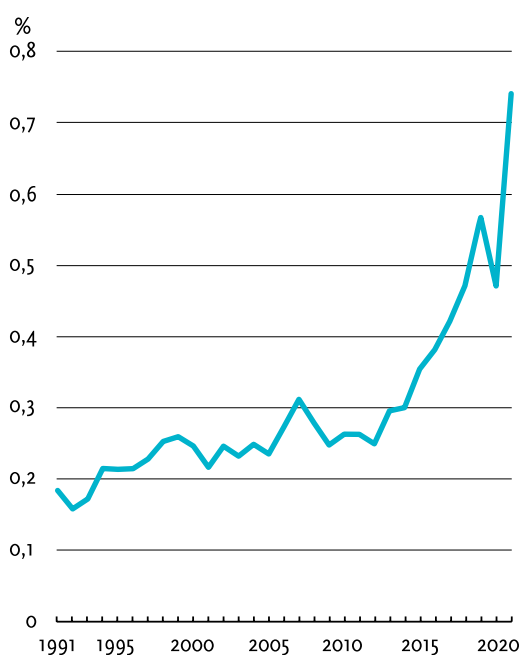


FIGURE 2: Histologically confirmed HSIL or higher (%) in women aged 25-69 years 1991-2021.

The number of cervical cancers and serious precancerous lesions detected in the screening programme continued to increase rapidly after a decline in 2020 (Figure 2). Follow-up screening in 2021 resulted in 50 cervical cancers and 1,416 serious precancerous lesions, of which 12 cancers and 590 serious precancerous lesions were detected in risk group screening. During 2021, a total of 212 cervical cancers and 2 344 serious precancers were diagnosed in Finland, so that around 60% of precancers and just under a quarter of cancers were detected in the screening programme. There were also more gaps than in previous years in the reporting of follow-up data from the screening programme, with results missing from 20% of those referred for follow-up.

3.3 SCREENING RESULTS BY WELLBEING SERVICE COUNTY

TABLE 3: Invitations, screenings and main findings in women aged 30-60 years in 2017-2021 by well-being service county, invitations by age group.

Hospital district	Invited		Screened		Recommendation for risk group screening		Referral for followup examination		Histological HSIL+		Screening test result not interpretable or missing
	n		n	%*	n	%*	n	%*	n	%*	
Åland	6 786		5 305	78.1	134	2.5	48	0.9	18	0.4	1
South Karelia	26 294		19 037	71.7	633	3.4	121	0.7	40	0.2	6
South Ostrobothnia	39 012		30 285	77.5	1 459	4.9	234	0.8	104	0.4	5
South Savo	27 104		20 661	75.8	1 650	8.1	151	0.8	66	0.4	2
City of Helsinki	166 005		114 085	69.4	7 510	6.2	1 352	1.1	519	0.4	41
Eastern Uusimaa	21 722		15 596	71.4	717	4.8	120	0.8	56	0.4	4
Kainuu	14 537		10 896	74.3	205	1.9	77	0.7	32	0.3	2
Kanta-Häme	36 567		25 371	68.9	1 405	5.9	272	1.2	106	0.5	8
Central Ostrobothnia	13 718		10 013	73.0	339	3.4	74	0.7	32	0.3	1
Central Finland	56 020		39 787	71.1	2 897	7.5	406	1.1	165	0.4	8
Central Uusimaa	45 236		33 153	73.0	1 600	5.0	245	0.8	144	0.5	26
Kymenlaakso	34 680		24 398	69.6	824	3.5	221	1.0	70	0.3	5
Lapland	36 862		26 742	72.3	691	2.7	212	0.8	101	0.4	20
Western Uusimaa	108 630		76 014	70.0	3 513	4.7	529	0.7	234	0.3	53
Pirkanmaa	112 262		80 231	71.7	5 422	6.8	926	1.2	416	0.5	12
Ostrobothnia	35 400		26 747	75.7	1 049	3.9	196	0.7	79	0.3	2
North Karelia	33 287		23 649	70.8	1 128	4.9	206	0.9	95	0.4	12
North Ostrobothnia	84 478		61 276	72.7	1 383	2.3	483	0.8	200	0.3	5
North Savo	52 180		32 062	61.1	1 369	4.4	305	1.0	112	0.4	99
Päijät-Häme	43 325		30 536	70.1	1 352	4.7	332	1.2	161	0.6	5
Satakunta	44 760		31 971	71.0	1 692	5.6	366	1.2	196	0.7	8
Vantaa and Kerava	62 545		42 765	68.8	2 501	5.8	421	1.0	197	0.4	20
Southwest Finland	104 264		78 107	75.0	3 664	4.7	849	1.1	409	0.5	25

* age-standardised (Finland 2014)

Screening became the responsibility of the wellbeing services counties from the beginning of 2023, but in this review, regional differences are already examined according to the division of welfare regions. The main screening test in 2021 was the HPV test in most of the wellbeing services counties. The Pap test alone was still used in the regions of North Savo, Lapland, South Karelia, Åland, Åland, South Savo, Ostrobothnia, Kainuu, North Ostrobothnia and Central Ostrobothnia.

As in previous years, participation in the screening varied significantly by region. The age-standardised participation rate for 2017-2021 varied between 61% (North Savo) and 78% (Åland) (Table 3). The age-standardised proportion of those with a risk group recommendation at age group screening varied by hospital district between 1.9% and 8.1%. The proportion of follow-up referrals ranged from 0.7% to 1.2% and the proportion of histological HSIL+ findings ranged from 0.2% to 0.7%.

3.4 SCREENING RESULTS BY POPULATION GROUP

About 90% of the screening invitations were sent to domestic language speakers of Finnish, Swedish and Sami. The age-standardised participation rate was 73% for native speakers and 57% for native speakers of other languages (Table 4). There were no differences in screening test results or follow-up findings between language groups.

By socio-economic status, participation rates were highest among white-collar workers (76-78%) and clearly lower among the unemployed (62%), retired people and people with an unknown socio-economic background

(52%) (Table 5). The proportion of referrals for further examination ranged from 2.3% to 2.9% and the proportion of serious pre-detections from 0.5% to 0.9%.

Participation in screening was higher among those with higher education (78%) than among those with primary education or no education (51%) (Table 6). The proportion of follow-up referrals and detection of precancerous lesions was lower among those with tertiary education than among those with a lower level of education.

TABLE 4: Invitations, screenings and main findings by language group in 2021.

Mother tongue	Retrieved from	Verified by		Recommendation on risk group screening		Referral for further examination		Histological HSIL+	
		n	%*	n	%*	n	%*	n	%*
Domestic	254 238	187 724	73,1	11 035	6.2	4 827	2.5	1 365	0.7
Other	28 149	16 038	57,4	916	5.6	435	2.5	145	0.7

* age-standardised (Finland 2014)

TABLE 5: Invitations, screenings and main findings by socio-economic status in 2021.

Socio-economic status	Retrieved from	Verified by		Recommendation on risk group screening		Referral for further examination		Histological HSIL+	
		n	n	%*	n	%*	n	%*	n
Entrepreneurs	16 543	11 968	69.9	632	5.7	304	2.9	83	0.7
Lower level white-collar	105 251	80 571	76.1	4 889	6.1	2 098	2.5	617	0.7
Upper level white-collar	57 548	45 392	77.8	2 377	5.6	1 094	2.4	294	0.6
Workers	33 564	23 300	69.1	1 485	6.6	679	2.7	224	0.9
Students	12 232	7 542	66.1	589	7.1	209	2.4	71	0.7
Retired	23 021	14 642	52.3	646	6.1	265	2.3	41	0.5
Unemployed	26 695	16 773	62.1	1 054	6.5	485	2.7	139	0.8
Other/data lacking	9 059	4 558	51.7	343	6.8	152	2.9	49	0.9

* age-standardised (Finland 2014)

TABLE 6: Invitations, screenings and main findings by level of education in 2021.

Level of education	Invited	Screened		Recommendation for risk group screening		Referral for follow-up examination		Histological HSIL+	
	n	n	%*	n	%*	n	%*	n	%*
Primary or data lacking	29 943	15 324	51.3	900	6.1	451	3.0	147	1.0
Secondary	113 771	79 880	70.2	5 163	6.6	2 194	2.7	684	0.8
Higher	140 199	109 542	77.5	5 952	5.7	2 641	2.4	687	0.6

* age-standardised (Finland 2014)

4. CERVICAL CANCER MODE OF DETECTION

Between 2017 and 2021, about 2% of cancers were detected before the screening age, 74% in those of screening age and 3% in those above screening age (Figure 3). In the screening age, 47% of cancers were detected in women who had not undergone screening

in the 5.5 years prior to diagnosis and 20% of cancers were detected after a negative screening test. Of cancers in screening age, 31% were detected in the screening programme.

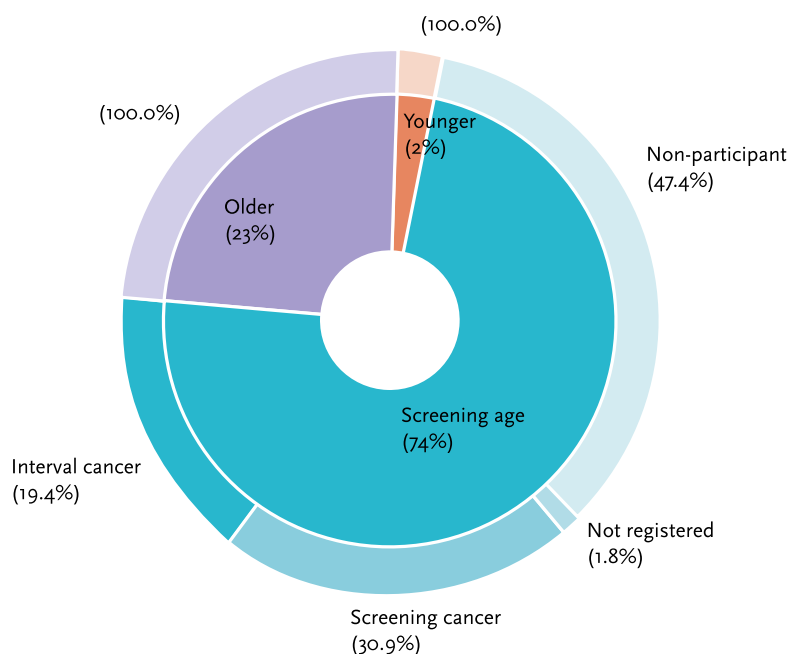


FIGURE 3: Cervical cancer detection mode 2017-2021 (percentages separately for screening age).

5. CERVICAL CANCER INCIDENCE AND MORTALITY

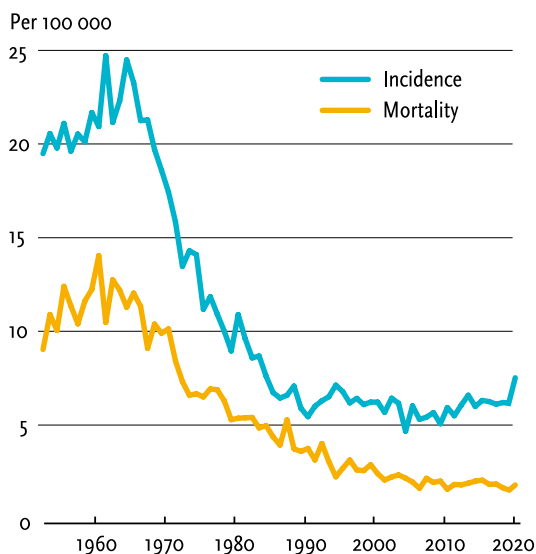


FIGURE 4: Age-standardised cervical cancer incidence and mortality in women in Finland 1953-2021.

The age-standardised incidence and mortality rates of cervical cancer have declined significantly over the decades, but during the 2000s incidence rates have started to rise while mortality rates have remained stable (Figure 4). Between 2016 and 2020, 175-180 cervical cancers were diagnosed annually in Finland, but in 2021 the number of cancers diagnosed was 212.

6. CONCLUSIONS

For the most part, the activities of the screening programme in 2021 were similar to those of previous years. The proportion of HPV tests out of all screening tests continued to increase well, as did screening participation. The coronavirus pandemic does not appear to have further affected the screening of those eligible for screening in 2021, unlike in the 2020 screening year when screening was suspended in the spring and resumed later in the autumn and into the following year. The number of people invited for risk group screening in 2021 was roughly the same as in 2017-2019, but the number of follow-up referrals increased by about three times.

The number of precancerous lesions found in follow-up examinations increased proportionately. The increase in follow-up referrals and detections in risk group

screening is explained by the move to HPV screening, where, according to the screening programme algorithm, repeated HPV positivity in a risk group test leads to a follow-up referral. In traditional Pap test-based screening, risk group screening has been less likely to result in follow-up referrals compared to HPV screening. The increase in the number of pre-screening cases will inevitably lead to an increase in overdiagnosis, as some of the more serious pre-screening cases will improve on their own. New screening methods, such as more accurate HPV genotyping or methylation, may in the future help to better distinguish precancerous lesions that develop into cancer.

Although there was a slight improvement in screening uptake nationwide, there is a worrying variation in uptake between

different population groups. Attention should be paid to improving participation in the wellbeing services counties, particularly for those with a lower level of education and speakers of languages other than the domestic languages.

The number of cervical cancers diagnosed in 2021 increased significantly compared to previous years to 212 cases. This may be explained by random variation, but the trend will need to be monitored closely in the coming years. On closer examination, the number of cervical cancers increased in particular in women aged 30-39 years of age. The number of cases in this age group

increased both in those not participating in the screening programme and in those who did.

The registration of screening data in the Cancer Registry has been improved by moving to a new data model, which will harmonise the reporting of screening data nationally and enable more real-time data utilisation. The aim is to make screening data available more quickly to be utilised by welfare regions and screening providers. The 2021 screening results were still partially reported using the previous data model. From 2022 onwards, all operators will report screening data using the new data model.

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LINKS AND PUBLICATIONS

FINNISH CANCER REGISTRY

cancerregistry.fi

INTERACTIVE SCREENING STATISTICS

cancerregistry.fi/statistics/screening-statistics/

CURRENT CARE GUIDELINES

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TERMINOLOGY

AGE GROUP SCREENING

In age-group screening, municipalities invite women aged 30–60 to be screened every five years on the basis of age. Some municipalities also invite women aged 25 and/or 65 to screening (65-year-olds invited nationwide from 2022)

BIOPSY

Tissue removed from the living body

CANCER INCIDENCE

The number of new cancer cases per population at risk, or per person-time of the population at risk, during a given period.

COLPOSCOPY

Cervical endoscopy

CYTOLOGY SAMPLE

Cell sample

HISTOLOGY SAMPLE

Tissue sample

HPV

Human Papilloma Virus

HPV TEST

An HPV test approved for screening detects high-risk HPV virus types from a gynaecological loose cell sample. Sampling is done in the same way as in the Pap test. If the HPV test is positive, a Pap test is also performed on the same sample.

MORTALITY

The number of deaths per population at risk, or per person-time of the population at risk, during a given period.

OPPORTUNISTIC TESTING	The testing of symptomless persons outside the organised screening programme (in private or public health care). Symptom-related testing and patient follow-up are also performed outside the screening programme.
OVERDIAGNOSIS	The detection of latent cancers or precancerous lesions that, if left untreated, would not have affect a person's health during their lifetime.
PAP TEST	Examination of a cytology sample.
RISK GROUP SCREENING	Invitation for risk group screening when an outcome in a previous examination requires follow-up every one or two years between age group screenings.
SCREENING COVERAGE	Proportion of target population invited to screening (call coverage) or share of screened target population (test coverage). Test coverage can also be assessed using the same calculation rules in activities outside the screening programme.
SCREENING RESULTS	
ASC-US	Atypical squamous cells of undetermined significance.
AGC-NOS	Atypical glandular cells not otherwise specified.
LSIL	Low-grade squamous intraepithelial lesion.
HSIL	High-grade squamous intraepithelial lesion.
AIS	Adenocarcinoma in situ.
LSIL+	LSIL+ includes LSIL- and stronger changes (LSIL, HSIL, AIS, cancer)
HSIL+	HSIL + includes HSIL- and stronger changes (HSIL, AIS, cancer). Precursors of cervical cancer include histological HSIL and histological AIS.