

Warsaw, Poland, 23-34 November 2023

HPV Prevention and Control Landscape and the way forward

Cervical cancer and HPV-related cancer disease burden: a country-level overview

Irmina Michalek | Joanna Didkowska

Epidemiology vs. HPV

When cancer epidemiologist analyses HPV-related diseases:

Both sexes	Males	Females
Oropharynx (C01, C09-C10) <ul style="list-style-type: none"> • Base of tongue • Tonsil • Oropharynx 	Penis (C60)	Vulva (C51)
Oral cavity (C02-C06) <ul style="list-style-type: none"> • Other (non-base) parts of tongue • Gum • Floor of mouth • Palate • Other parts of mouth 		Vagina (C52)
Larynx (C32)		Invasive cervical cancer (C53)
Anus (C21)		Cervical carcinoma in situ (D06)

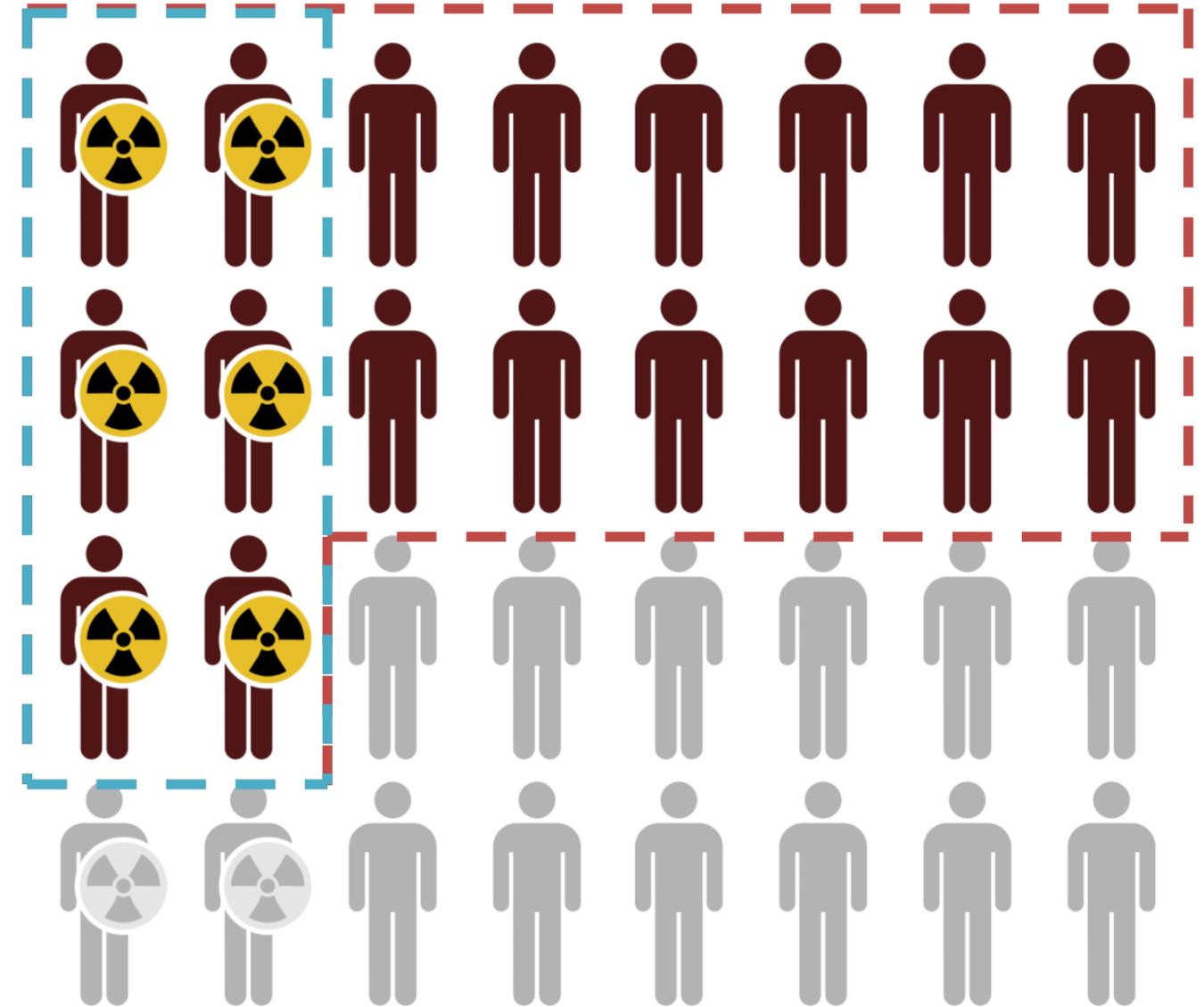
Epidemiology vs. HPV

When cancer epidemiologist analyses HPV-related diseases:

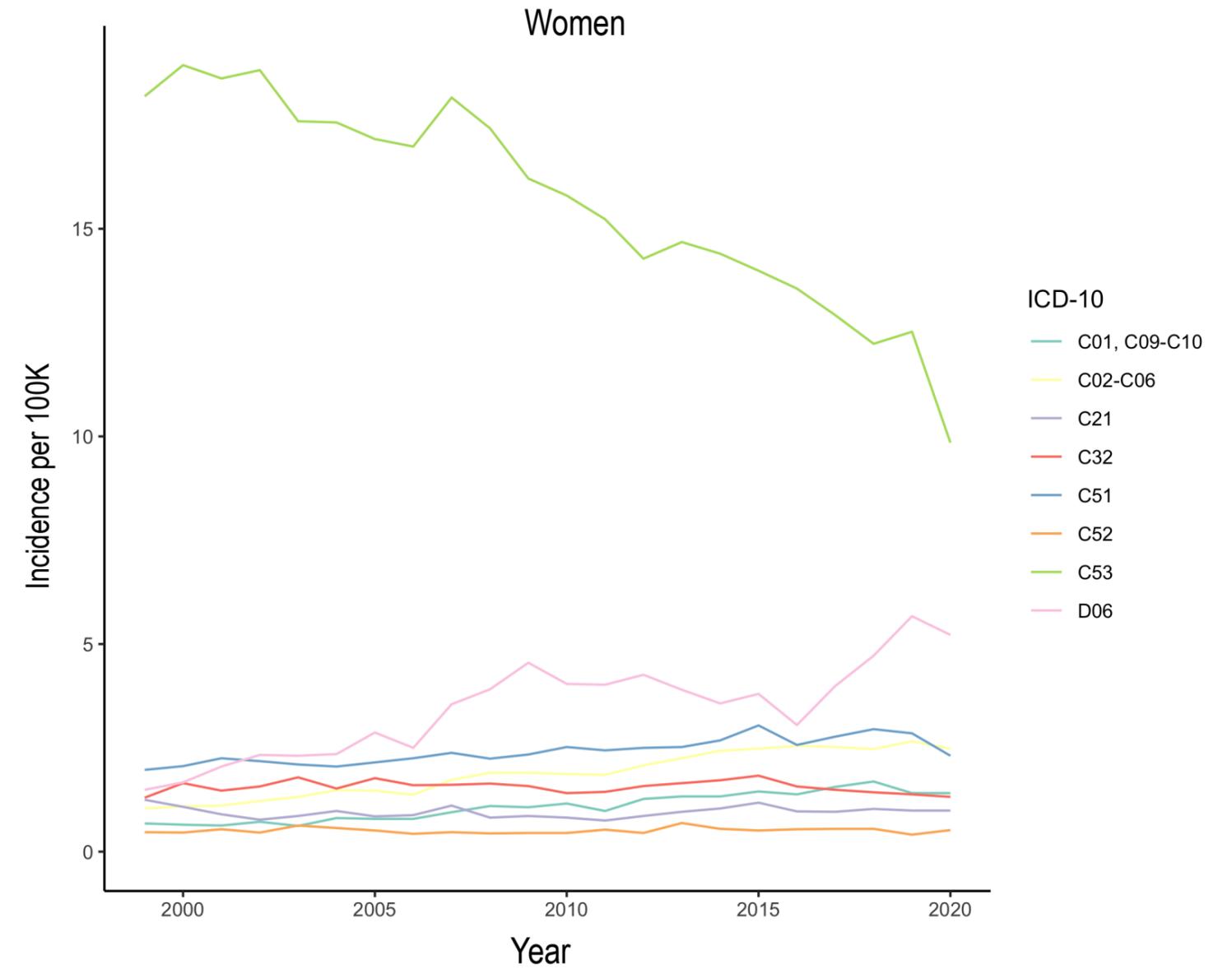
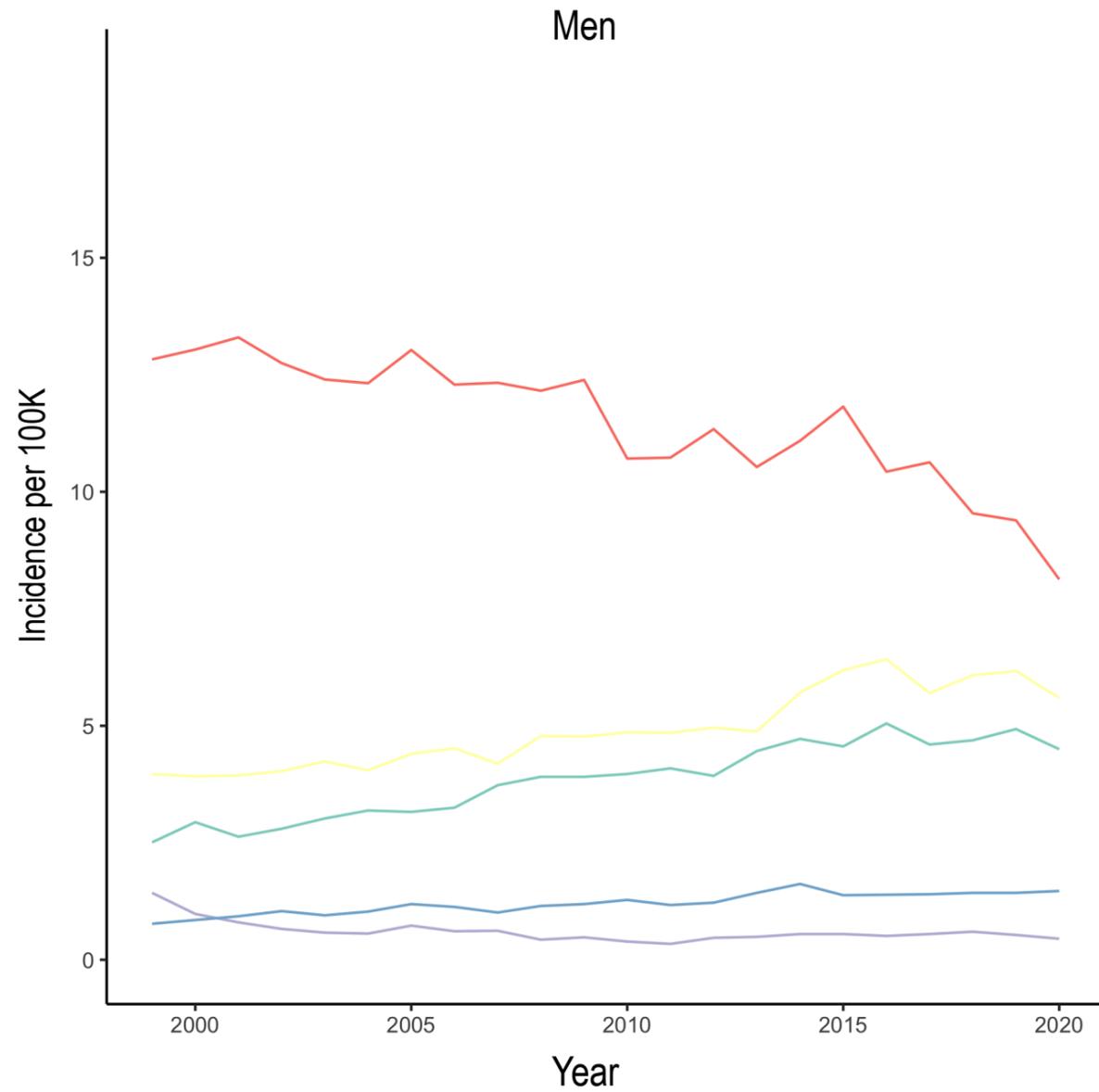
Attributable is capable of being attributed while **related** is standing in relation or connection

HPV-related – the disease in relation with HPV (some cases are caused by HPV)

HPV-attributable – incidents that are attributable to the risk factor (most probably caused by it)



Incidence* of HPV-related malignancies in Poland



The locations of tumours were identified according to the ICD-10 terminology: C01, C09-C10 - oropharynx; C02-C06 - oral cavity; C32 - larynx, C21 - anus, C51 - vulva, C52 - vagina, C53 - invasive cervical cancer, C60 - penis, D06 - cervical carcinoma in situ.

* Based on data from the Polish National Cancer Registry (onkologia.org.pl/raporty).

HPV types in cancers

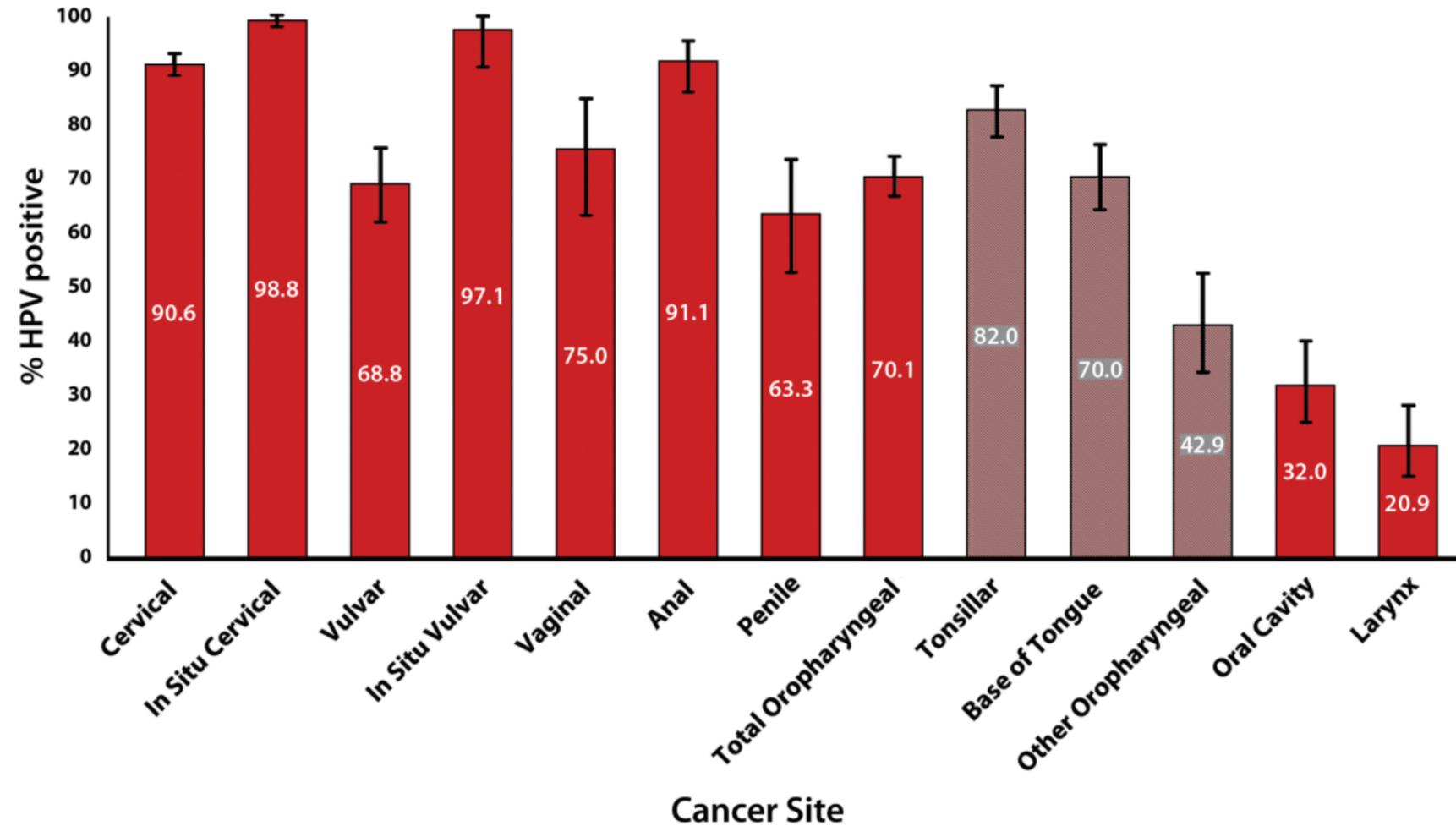


Figure 2. Human papillomavirus (HPV) detection by cancer site. The percent HPV-positive cancers was determined using all cancers for that anatomic site as denominator. Ninety-five percent Wilson confidence limits around the prevalence estimates are presented. These percentages reflect the HPV DNA that was detected. Finding HPV in a cancer tissue does not necessarily indicate a causal relationship. International Agency for Research on Cancer defined some cancers to have strong evidence for causal etiology such as cervical, vaginal, vulvar, anal, penile, and oropharyngeal cancers. Oral cavity and laryngeal cancers are considered to have less evidence for causal etiology (larynx) and/or inconsistent correlation with HPV DNA detection and percent causal (oral cavity and larynx). Cancer sites were determined using the following ICD-O-3 morphology codes: C53 (cervix), C51 (vulva), C52 (vagina), C21 (anus), C60 (penis), and C01.9, C02.4, C02.8, C05.1, C05.2, C05.9, C09.0, C09.1, C09.8, C09.9, C10.0, C10.2, C10.8, C10.9, C14.0, C14.2, and C14.8 (oropharynx), C02.0, C02.1, C02.2, C02.3, C02.9, C03.0, C03.1, C03.9, C04.0, C04.1, C04.8, C04.9, C05.0, C06.0, C06.1, C06.2, C06.8, C06.9 (oral tongue and oral cavity), C32.0, C32.1, C32.2, C32.3, C32.8, C32.9 (larynx). ICD-O-3 morphology codes: 9590–9729, 9827 (lymphoma), 8800–8991 (sarcoma), and 8720–8790 (melanoma) were not included.



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 Article

ARTICLE

US Assessment of HPV Types in Cancers: Implications for Current and 9-Valent HPV Vaccines

Mona Saraiya, Elizabeth R. Unger, Trevor D. Thompson, Charles F. Lynch, Brenda Y. Hernandez, Christopher W. Lyu, Martin Steinau, Meg Watson, Edward J. Wilkinson, Claudia Hopenhayn, Glenn Copeland, Wendy Cozen, Edward S. Peters, Youjie Huang, Maria Sibug Saber, Sean Altekruise, Marc T. Goodman; HPV Typing of Cancers Workgroup

HPV-related / attributable malignant tumours in Poland in 2020

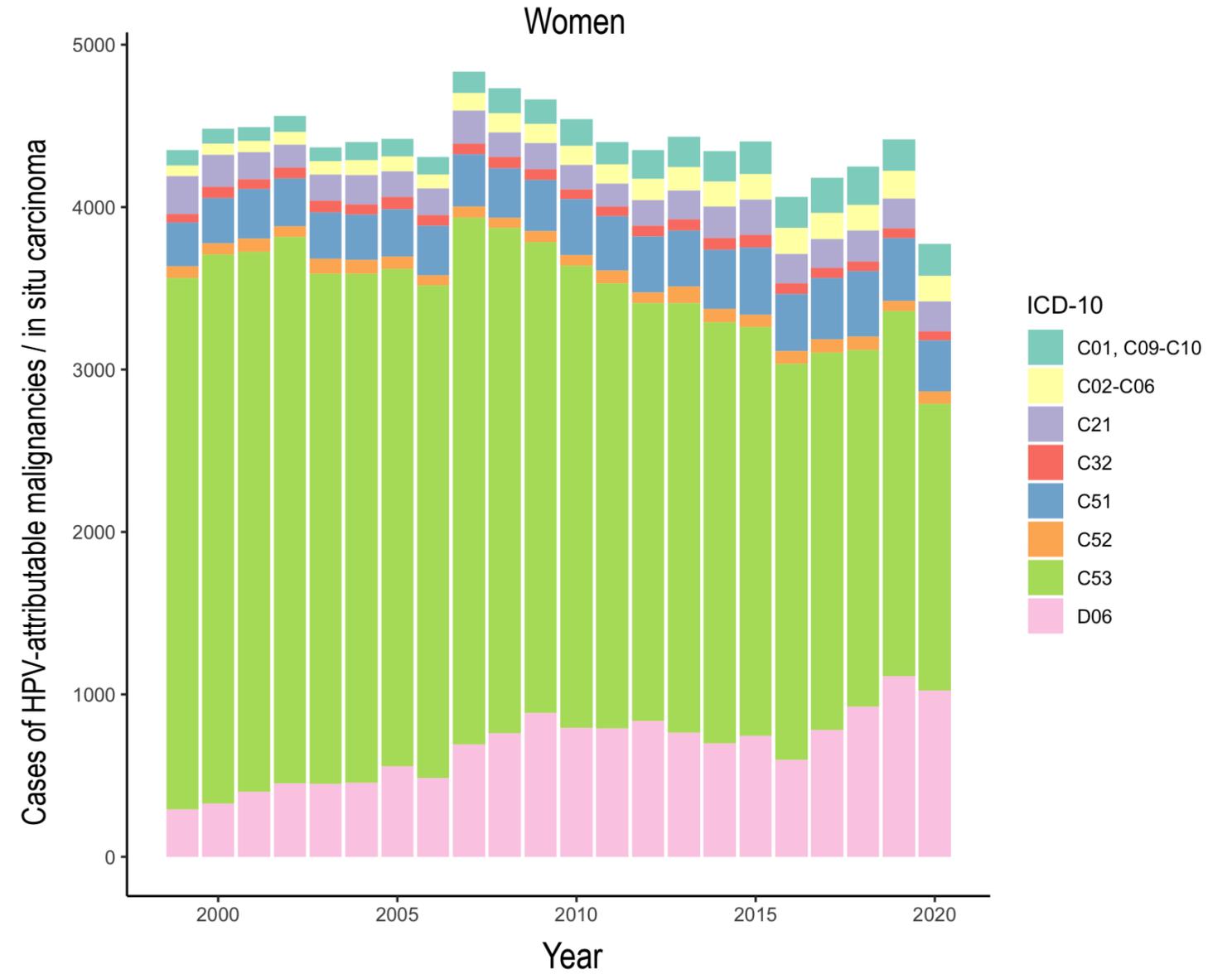
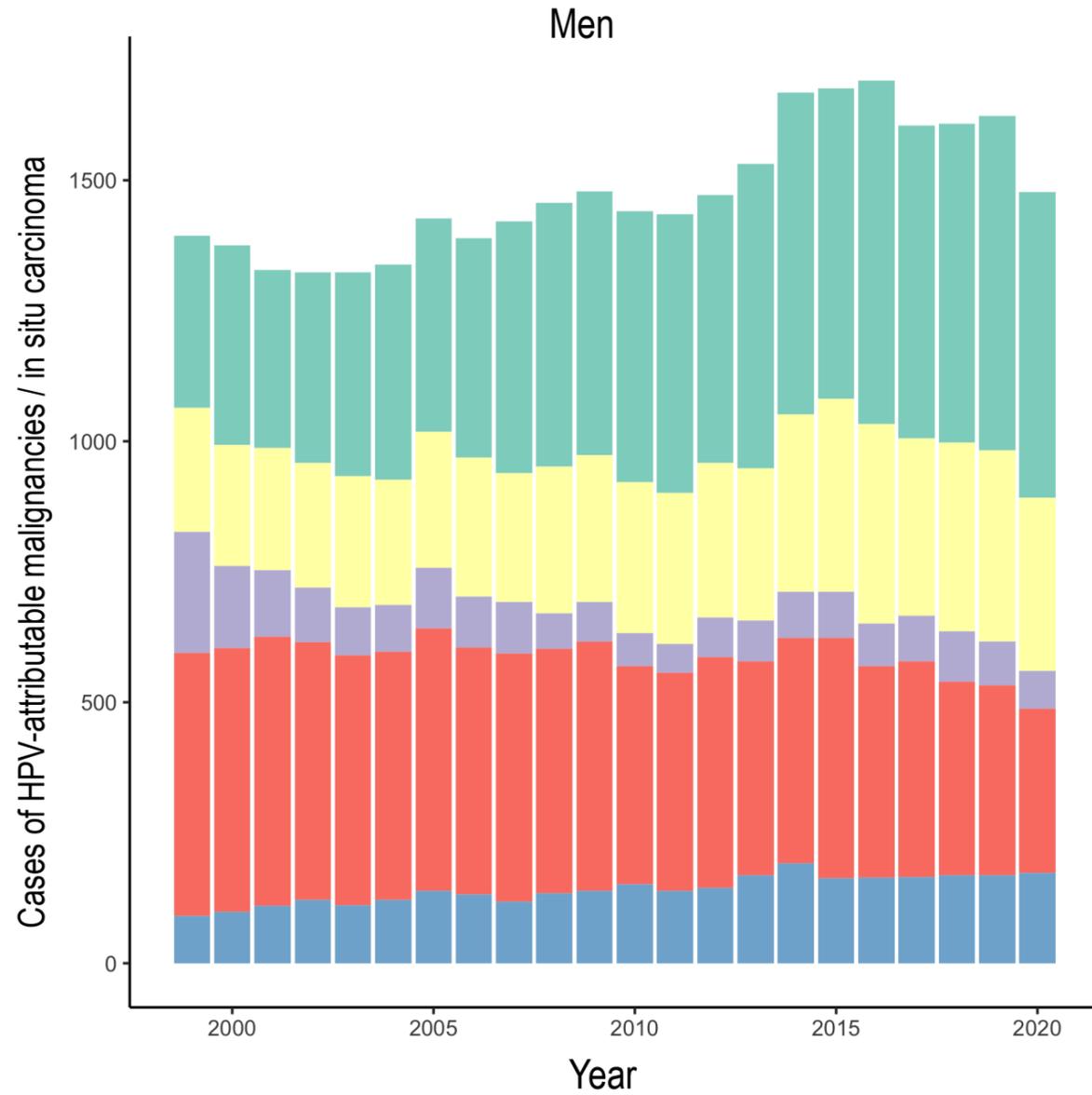
	Both sexes	Males	Females
All malignant neoplasms	147 744	73 467	74 277
HPV-related neoplasms	9 515	3 737	4 773
Attributable fraction	62%	40%	79%
HPV-attributable cancer cases	5 250	1 477	3 773

COVID-19-RELATED INCIDENCE GAP

HPV-related / attributable malignant tumours in Poland in 2019

	Both sexes	Males	Females
All malignant neoplasms	176 210	88 073	88 137
HPV-related neoplasms	9 695	4 166	5 529
Attributable fraction	62%	39%	80%
HPV-attributable cancer cases	6 041	1 623	4 418

The number of malignant tumours attributable to HPV in the Polish population

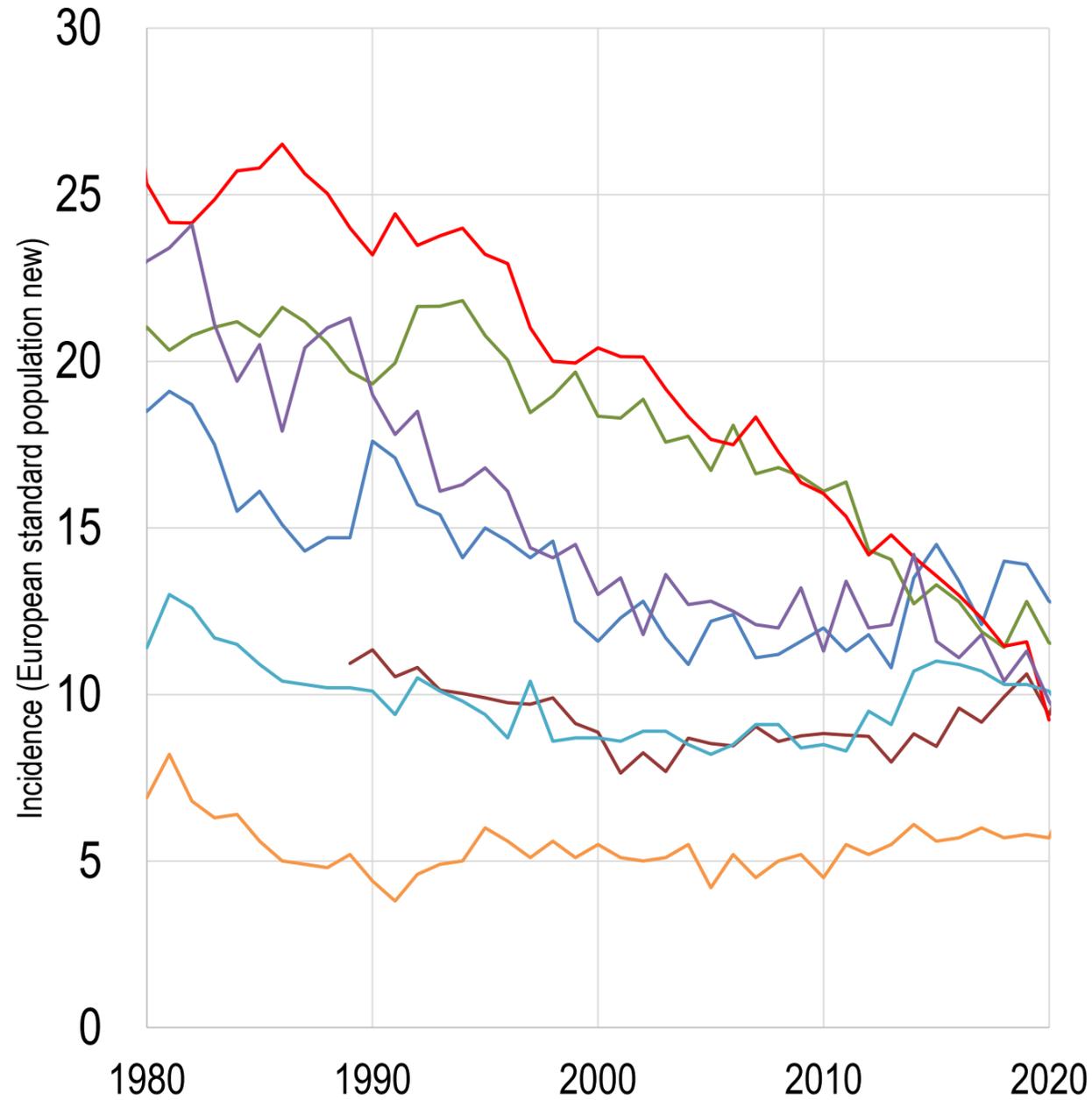


The locations of tumors were identified according to the ICD-10 terminology: C01, C09-C10 - oropharynx; C02-C06 - oral cavity; C32 - larynx, C21 - anus, C51 - vulva, C52 - vagina, C53 - invasive cervical cancer, C60 - penis, D06 - cervical carcinoma in situ.

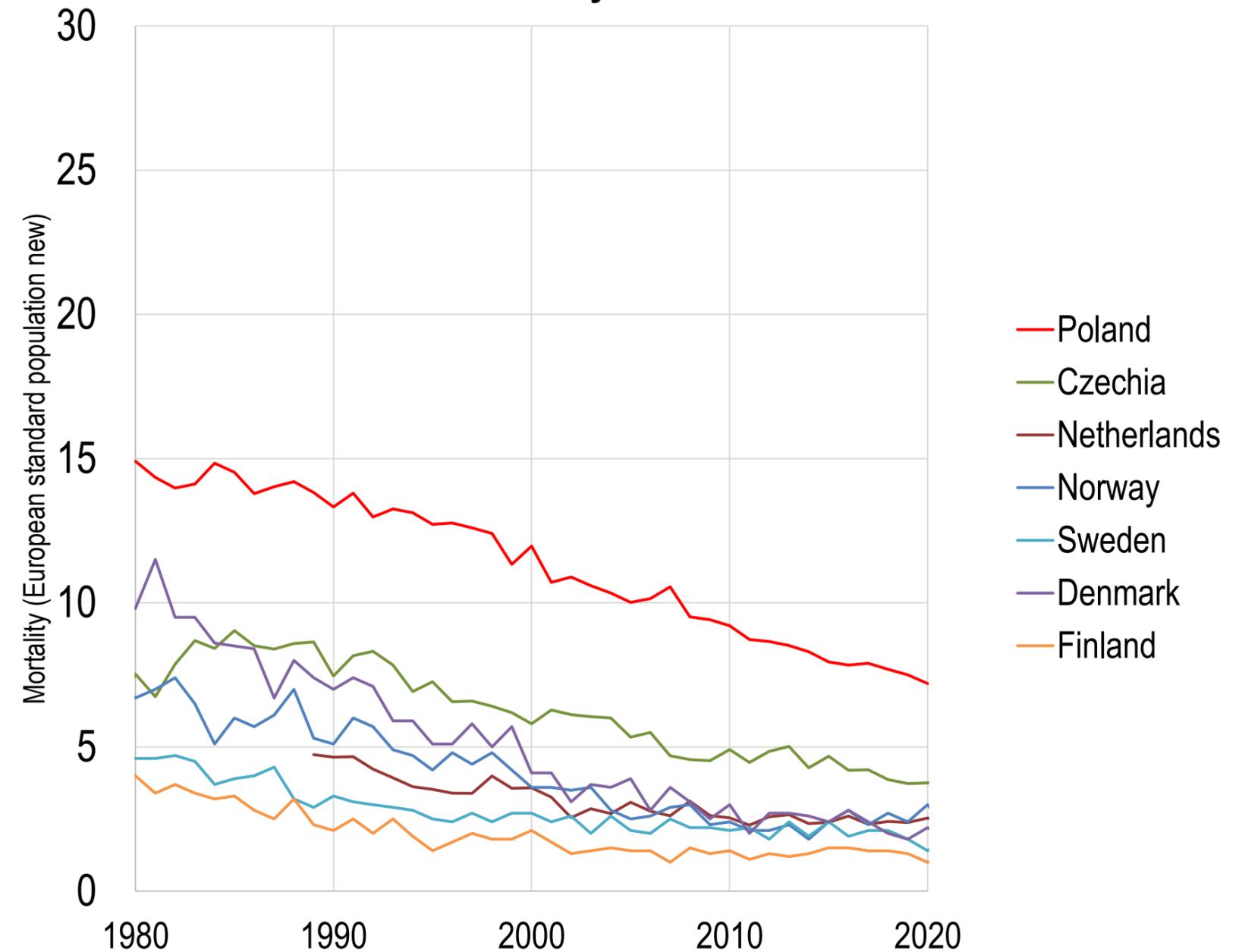
Note: The y-axis is different for both genders.

Cervical cancer - morbidity and mortality time trends Poland vs. Europe

Incidence



Mortality



OPEN **Survival of patients with cancers of the female genital organs in Poland, 2000–2019**

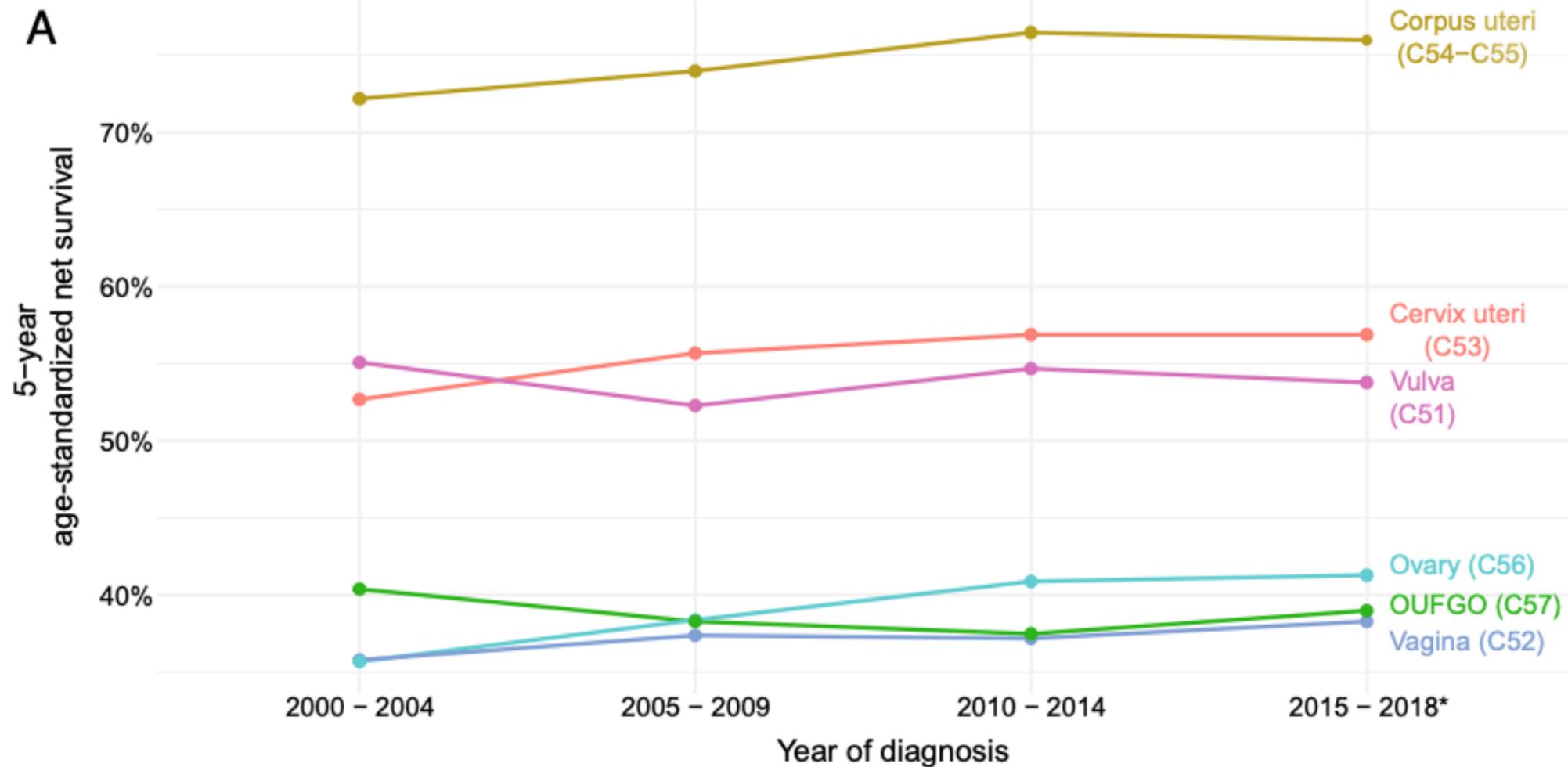
Florentino Luciano Caetano dos Santos¹, Urszula Wojciechowska², Irmina Maria Michalek³ & Joanna Didkowska⁴

	ICD-10 code	Number of cases					SMR (95% CI)	Median survival (95% CI) [years]	YLLs (95% CI) [years] τ = 74.9 years	Age-standardized net survival (95% CI)	
		Total	2000–2004	2005–2009	2010–2014	2015–2018				5-year	10-year
Vulva	C51	8732	1973	2151	2430	2178	5.0 (4.8–5.1)	3.4 (3.1–3.7)	6.1 (5.9–6.3)	54.5% (53.2–55.7%)	46.8% (45.1–48.4%)
Vagina	C52	1819	469	428	511	411	8.8 (8.3–9.3)	2.0 (1.8–2.2)	8.5 (8.2–8.9)	37.3% (34.8–39.8%)	29.9% (27.0–32.9%)
Cervix uteri	C53	58,099	17,209	16,373	14,381	10,136	9.7 (9.6–9.8)	6.5 (6.3–6.8)	11.6 (11.6–11.7)	55.4% (54.9–55.8%)	49.4% (48.8–50.0%)
Corpus uteri	C54–C55	96,866	20,053	24,204	27,887	24,722	3.1 (3.0–3.1)	*	3.0 (2.9–3.0)	75.4% (75.0–75.9%)	70.4% (69.7–71.1%)
Ovary	C56	64,461	15,383	16,746	17,706	14,626	12.1 (11.9–12.2)	3.7 (3.7–3.8)	11.2 (11.0–11.1)	39.8% (39.3–40.3%)	32.2% (31.5–32.9%)
OUFFGO	C57	1948	455	503	542	448	11.5 (10.9–12.1)	1.7 (1.5–2.0)	9.0 (8.6–9.5)	38.5% (36.2–40.8%)	33.1% (30.3–36.0%)
Overall	C51–C57	231,925	55,542	60,405	63,457	52,521	6.1 (6.0–6.1)	8.8 (8.6–8.9)	7.8 (7.7–7.8)	58.2% (57.9–58.5%)	51.5% (51.5–52.3%)

Table 1. Cases of female genital organs cancers by year of diagnosis, five and ten-year age-standardized net survival (cohort approach), age- and year-standardized mortality (SMR) ratios, and age-standardized cause-specific years of life lost (YLL) with respective 95% confidence intervals (95% CI)—Poland, 2000–2019. *OUFFGO* other and unspecified female genital organs. *50% of the initial cohort population never achieved during the study period.

Cervical cancer – epidemiology in Poland

scientific reports



* – Period analysis; OUFGO – Other and unspecified female genital organs

OPEN [Survival of patients with cancers of the female genital organs in Poland, 2000–2019](#)

Florentino Luciano Caetano dos Santos, Urszula Wojciechowska, Irmina Maria Michalek & Joanna Didkowska

Figure 2. (A) Age-standardized five-year net survival by period of diagnosis and cancer site (ICD-10 code), and (B) Net survival by age-group for malignant neoplasms of female genital organs—Poland, 2000–2019.

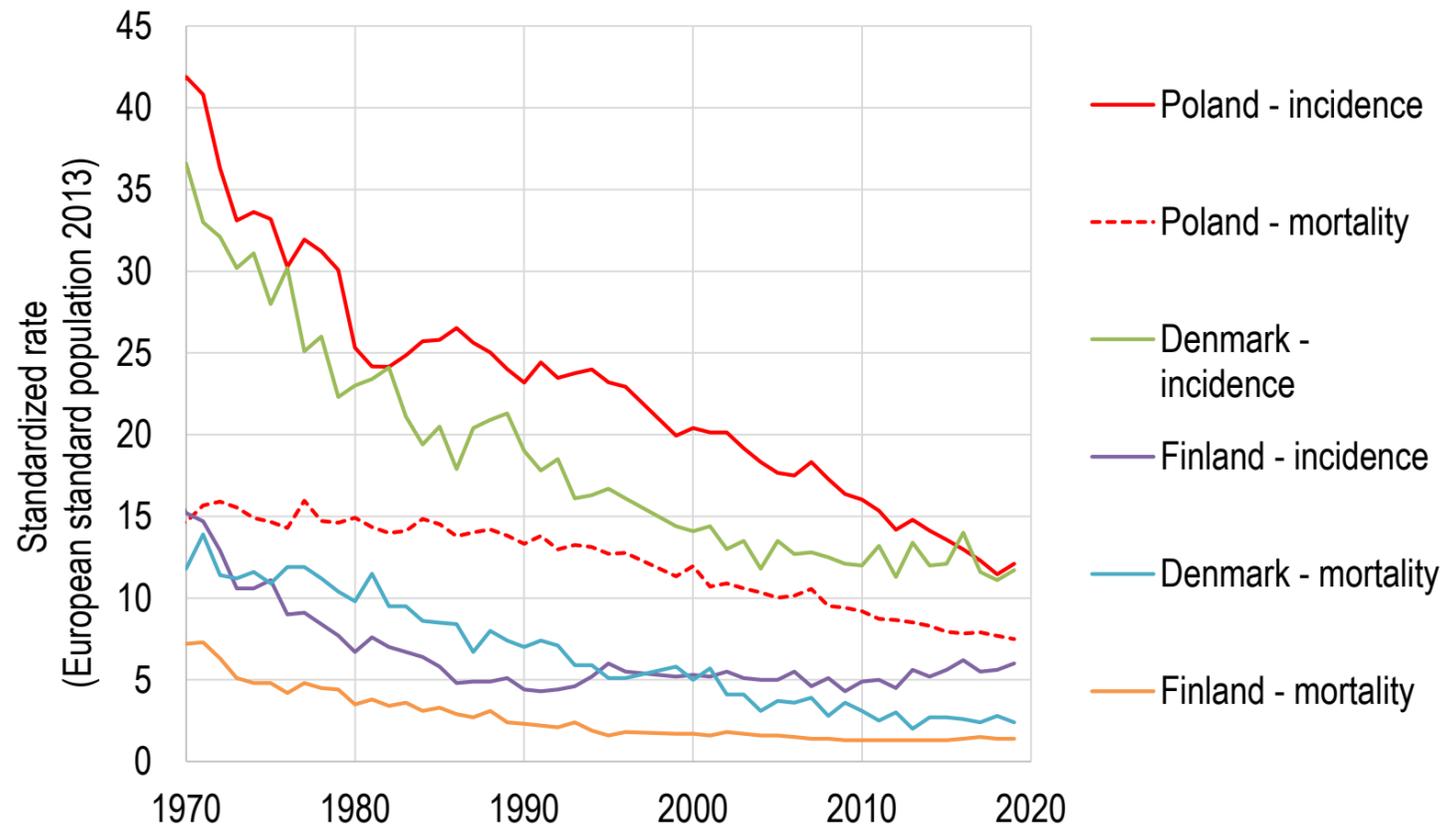
Cervical cancer – epidemiology in Poland

scientific reports

	ICD-10 code	Age-standardized 5-year net survival (95% CI)				Difference 2000–2004 vs. 2015–2018 [†]	P
		2000–2004	2005–2009	2010–2014	2015–2018 [†]		
Vulva	C51	55.1% (52.5–57.7%)	52.3% (49.9–54.7%)	54.7% (52.4–56.9%)	53.8% (51.6–55.9%)	– 1.3% (– 1.6% to – 1.0%)	P = 0.280
Vagina	C52	35.8% (31.1–40.6%)	37.4% (32.3–42.5%)	37.2% (32.7–41.7%)	38.3% (34.0–42.6%)	+ 2.5% (+ 1.3% to + 3.7%)	P = 0.297
Cervix uteri	C53	52.7% (51.8–53.5%)	55.7% (54.8–56.5%)	56.9% (56.0–57.8%)	56.9% (56.1–57.7%)	+ 4.2% (+ 4.2 to + 4.2)	P < 0.001
Corpus uteri	C54–C55	72.2% (71.2–73.1%)	74.0% (73.2–74.8%)	76.5% (75.8–77.2%)	76.0% (75.4–76.7%)	+ 3.8% (+ 3.8% to + 3.8%)	P < 0.001
Ovary	C56	35.7% (34.7–36.7%)	38.4% (37.5 to 39.3%)	40.9% (40.0–41.7%)	41.3% (40.4–42.1%)	+ 5.6% (+ 5.6% to + 5.6%)	P < 0.001
OUFGO	C57	40.4% (35.6–45.1%)	38.3% (33.9–42.7%)	37.5% (33.4–41.6%)	39.0% (35.0–43.0%)	– 1.4% (– 2.5% to – 0.3%)	P = 0.364
Overall	C51–C57	54.1% (53.5–54.7%)	56.8% (56.3–57.4%)	59.7% (59.2–60.2%)	59.5% (59.1–60.0%)	+ 5.4% (+ 5.4 to + 5.4%)	P < 0.001

Table 2. Age-standardized five-year net survival and 95% confidence intervals (95% CI) for malignant neoplasms of female genital organs, by period of diagnosis—Poland, 2000–2019. *OUFGO* other and unspecified female genital organs. [†] period analysis.

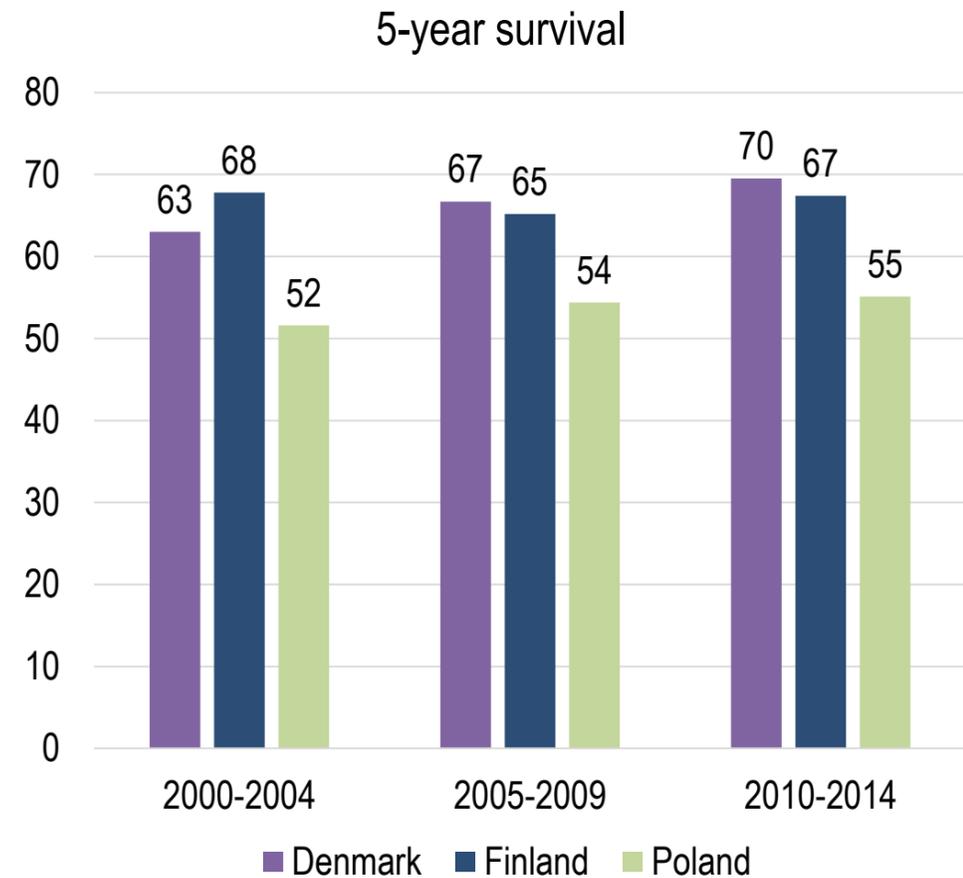
Mortality and survival – Poland vs. Europe



Incidence – SRR Poland/Denmark 0.98
 Mortality – SRR Poland / Denmark 3.13

Incidence – SRR Poland /Finland 1.91
 Mortality – SRR Poland / Finland 5.4

Incidence – SRR Denmark / Finland 1.95
 Mortality – SRR Denmark / Finland 1.71

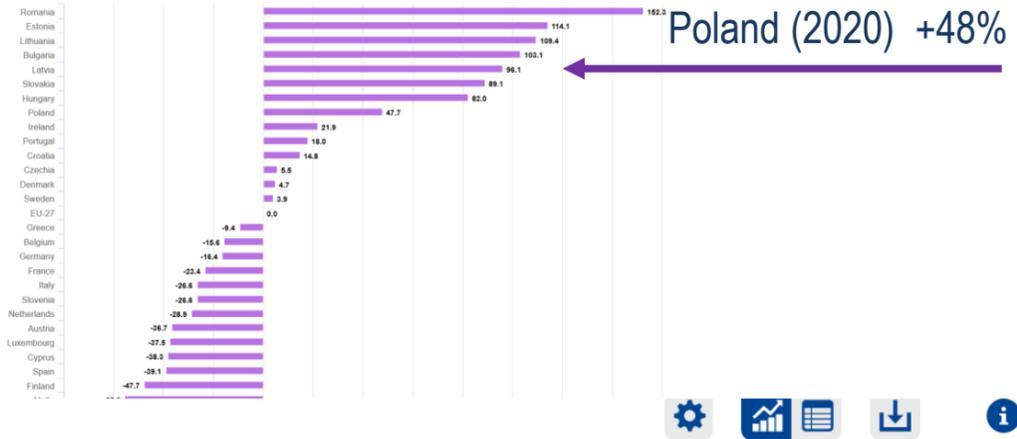


Survival 2010-2014

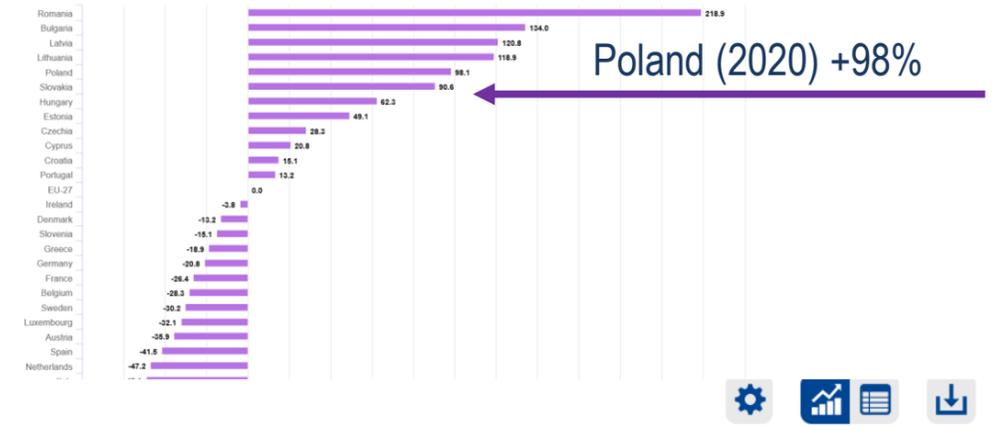
Denmark/Poland 1.3
 Finland/ Poland 1.2
 Denmark/Finland 1.03

Cervical cancer - Poland vs. EU estimation 2020 vs. 2022

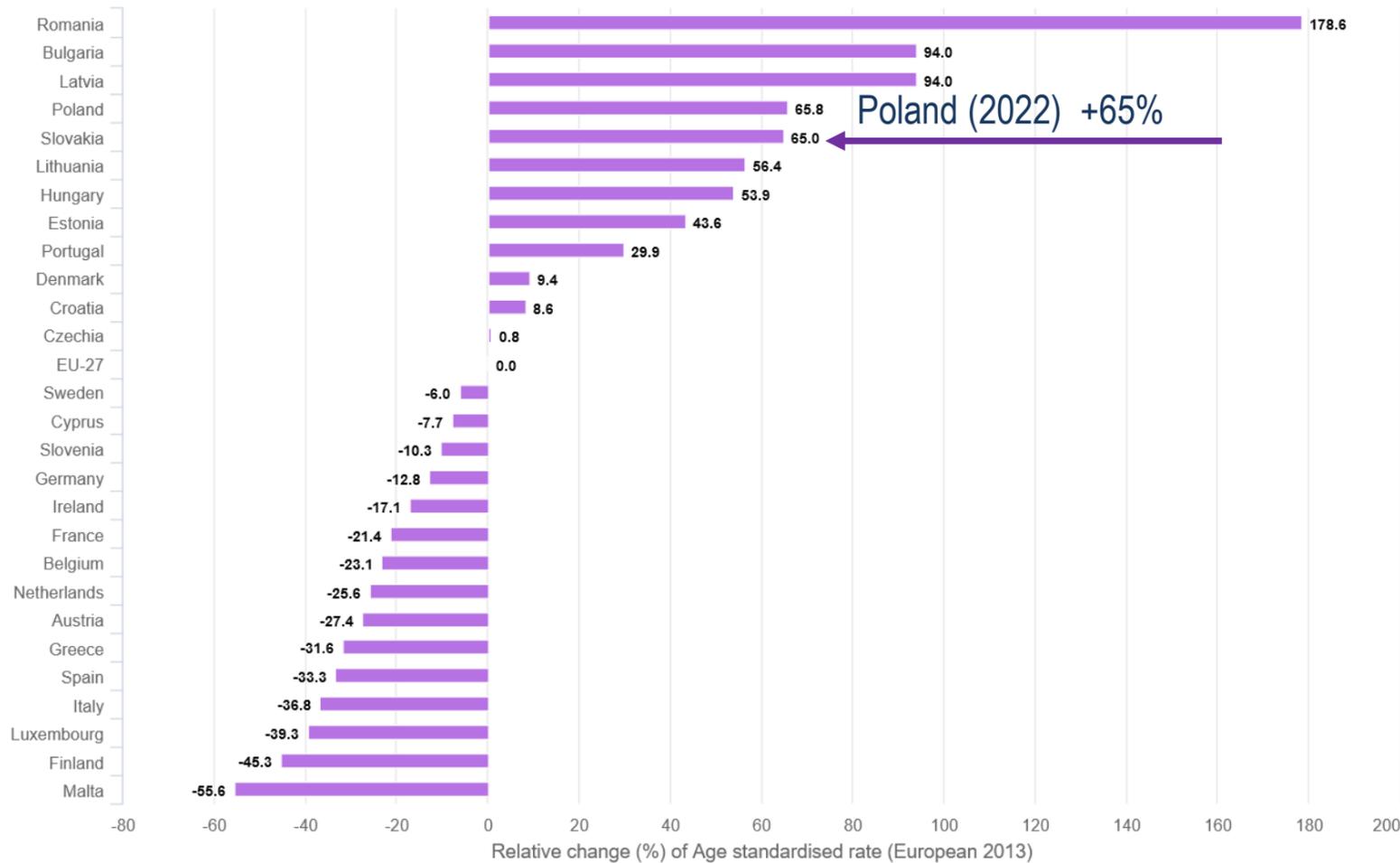
Morbidity



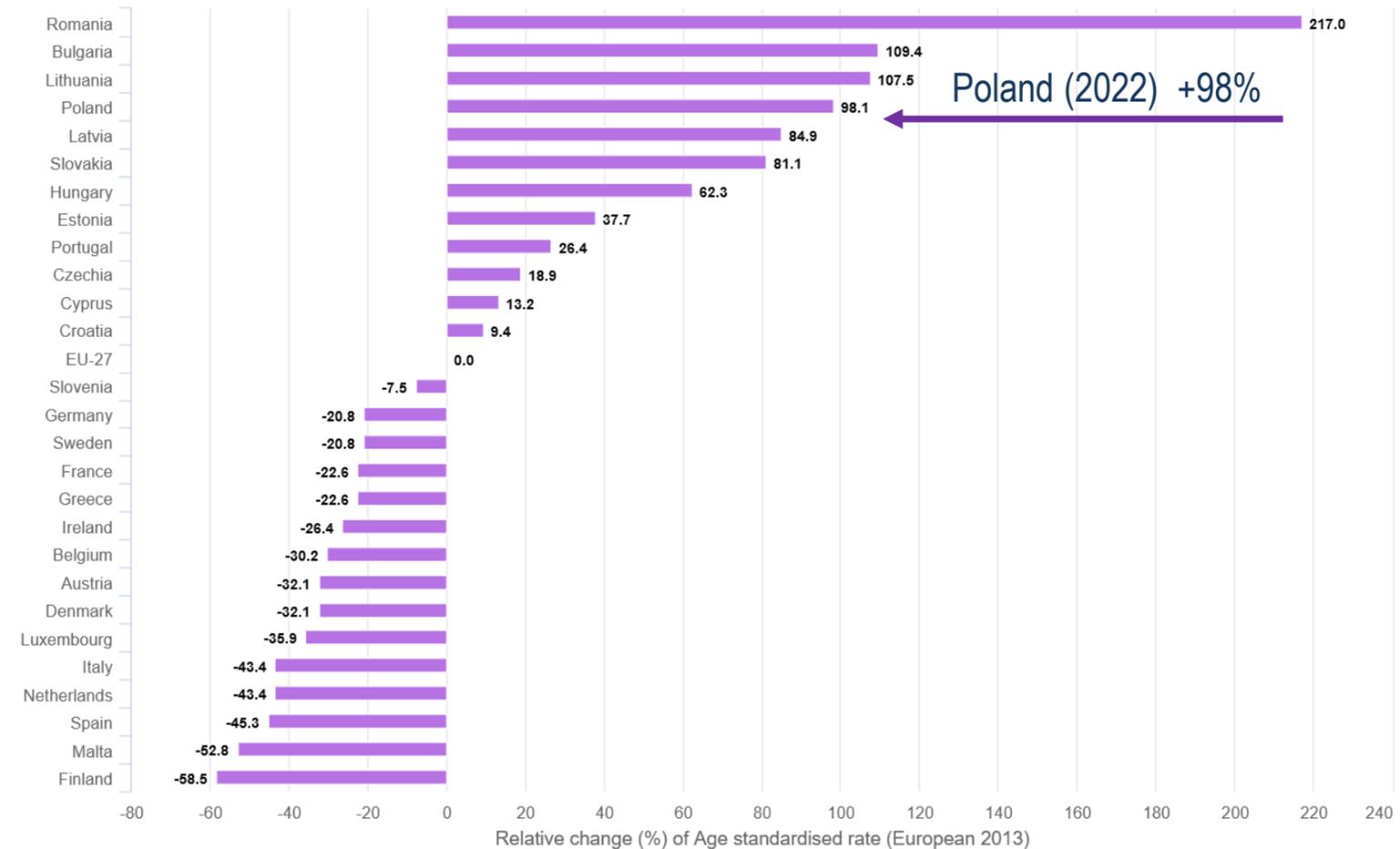
Mortality



Female, Cervix uteri, All ages, 2022



Female, Cervix uteri, All ages, 2022



Cervical screening in Poland

Title: Self-reported participation in cervical cancer screening among Polish women in 2004-2019.

Short title: Cervical Screening in Poland, 2004-2019

Authors' names, highest academic degrees, and affiliations:

Irmina Maria Michalek, MD, PhD¹; Marta Mańczuk, PhD¹; Florentino Luciano Caetano dos Santos, PhD², Anna Macios³; Joanna Didkowska, PhD¹, Andrzej Nowakowski, MD, PhD^{3,4}

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Table 1. Self-reported cervical screening participation and mortality due to cervical cancer per 100,000 women, by year - Polish women aged ≥ 15 years.

Year	Self-reported cervical screening participation (%)							Cervical cancer mortality / 100 K
	Never	Ever						
		Overall	<1 year	≥ 1 and <2 years	≥ 2 and <3 years	<3 years	≥ 3 years	
2004	29.9	70.1	20.8	10.7	10.0	41.4	28.7	8.59
2009	23.3	76.7	28.5	22.6	7.3	58.4	18.3	7.58
2014	14.6	85.4	30.1	20.7	10.8	61.6	23.7	6.46
2019	13.3	86.7	30.4	20.7	11.5	62.6	24.1	5.68
Change between 2004 and 2019	-16.6 pp	+16.6 pp	+9.6 pp	10.0 pp	+1.5 pp	+21.2 pp	-4.6 pp	-2.9

pp - percentage points

The data source for the calculations is Statistic Poland; however, it has been converted as outlined in the materials and methods section.

Soon in



Cervical screening in Poland

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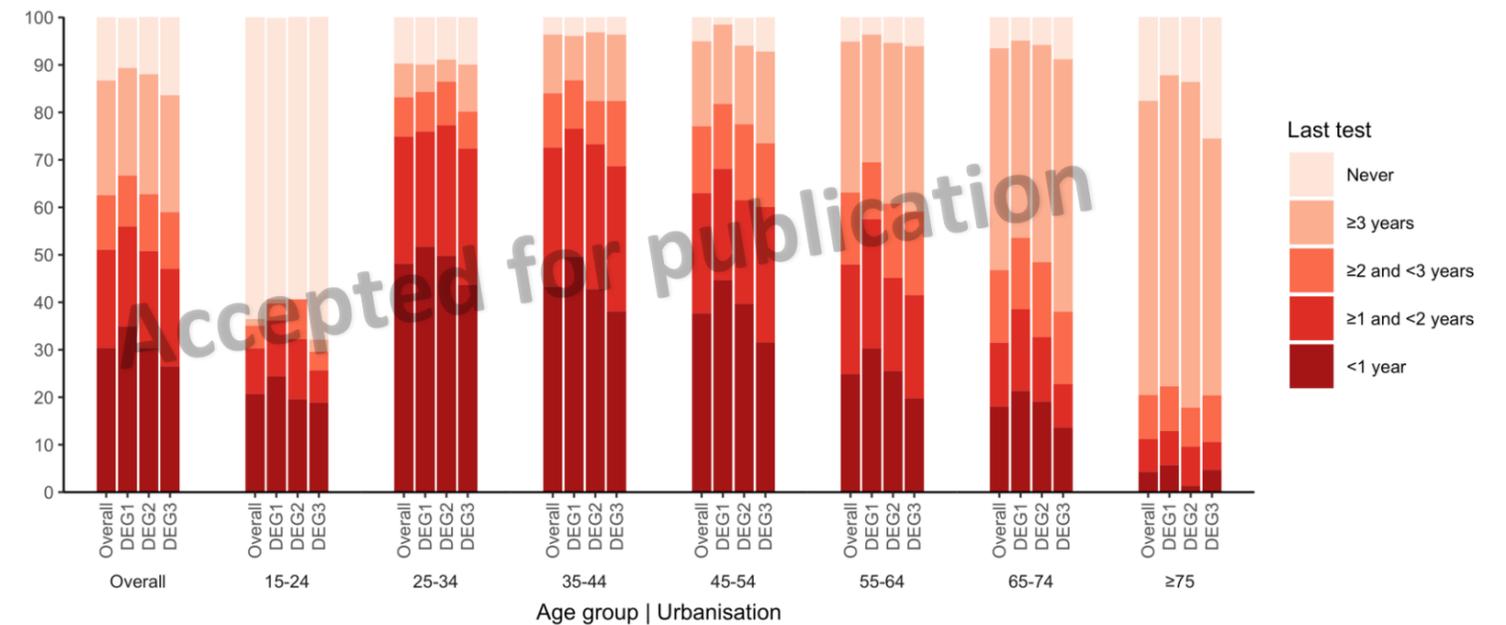
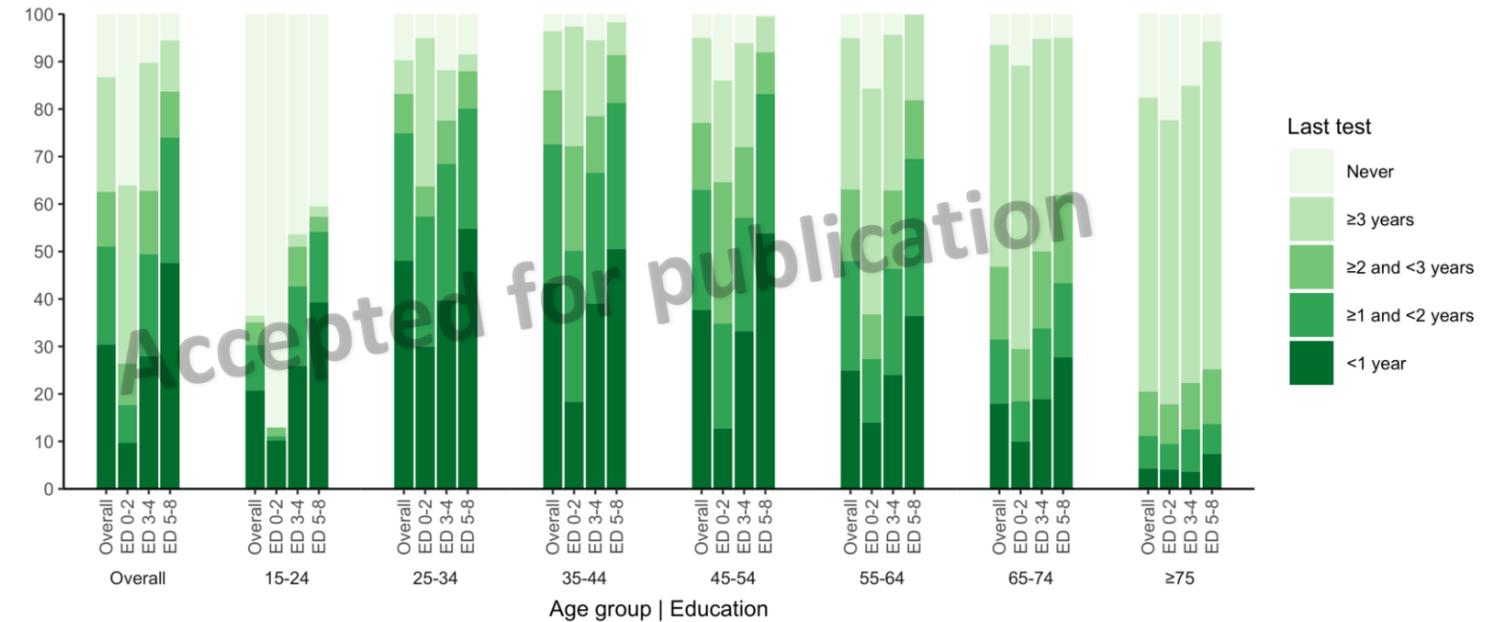
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Nationwide cancer database

Nationwide cancer database is a part of integrated information platform e-KRN+ run by the Polish National Cancer Registry (research entity of the National Research Institute of Oncology).

See statistics

What is the Polish National Cancer Registry?

1. What is a medical registry?
It is a population based registry collecting data on new

2. What are the main tasks of the Polish National Cancer Registry?

<https://onkologia.org.pl/en>

Thank you!