Human Papillomavirus and Related Diseases Report

BRAZIL

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ICO
Institut Català d'Oncologia

Executive summary

Human papillomavirus (HPV) infection is now a well-established cause of cervical cancer and there is growing evidence of HPV being a relevant factor in other anogenital cancers (anus, vulva, vagina and penis) and head and neck cancers. HPV types 16 and 18 are responsible for about 70% of all cervical cancer cases worldwide. HPV vaccines that prevent against HPV 16 and 18 infection are now available and have the potential to reduce the incidence of cervical and other anogenital cancers.

This report provides key information for Brazil on cervical cancer, other anogenital cancers and head and neck cancers, HPV-related statistics, factors contributing to cervical cancer, cervical cancer screening practices, and HPV vaccine introduction. The report is intended to strengthen the guidance for health policy implementation of primary and secondary cervical cancer prevention strategies in the country.

Table 1: Key Statistics

Population			
Women at risk for cervical cancer (Female population aged >=15 yrs)			87.8 million
Burden of cervical cancer and other HPV-related cancers			
Annual number of cervical cancer cases			17743
Annual number of cervical cancer deaths			9168
Crude incidence rates per 100,000 population:		Male	Female
	Cervical cancer	-	16.4
	Anal cancer	0.88	1.78
	Vulva cancer	-	1.40
	Vaginal cancer	-	0.35
	Penile cancer	1.59	-
	Oropharyngeal cancer	4.27	0.78
	Oral cavity cancer	6.93	2.40
	Laryngeal cancer	6.30	1.31
Burden of cervical HPV infection			
Prevalence (%) of HPV 16 and/or HPV 18 among women with:			
	Normal cytology		5.4
	Low-grade cervical lesions (LSIL/CIN-1)		30.9
	High-grade cervical lesions (HSIL/CIN-2/CIN-3/CIS)		56.8
	Cervical cancer		68.2
Other factors contributing to cervical cancer			
Smoking prevalence (%) [95% UI], women			10.2 [7.20-13]
Total fertility rate (live births per women)			1.7
Oral contraceptive use (%)			34.2
HIV prevalence (%) [95% UI], women (15-49 years)			- [—]
Sexual behaviour			
Percentage of 15-year-old who have had sexual intercourse (men/women)			29.6/8.8
Range of median age at first sexual intercourse (men/women)			16.7-16.9/18.8-20.7
Cervical screening practices and recommendations			
Existence of official national recommendations			Yes
Starting year of current recommendations			2016
Active invitation to screening			No
Screening ages (years), primary screening test used, and screening interval or frequency of screenings			25-64 (cytology, 3 years)
HPV vaccine in females			
HPV vaccination programme			Introduced
Year of introduction			2014
Year of estimation of HPV vaccination coverage			2021
HPV coverage – first dose (%)			81
HPV coverage – last dose (%)			67

* Please see the specific sections for more information.

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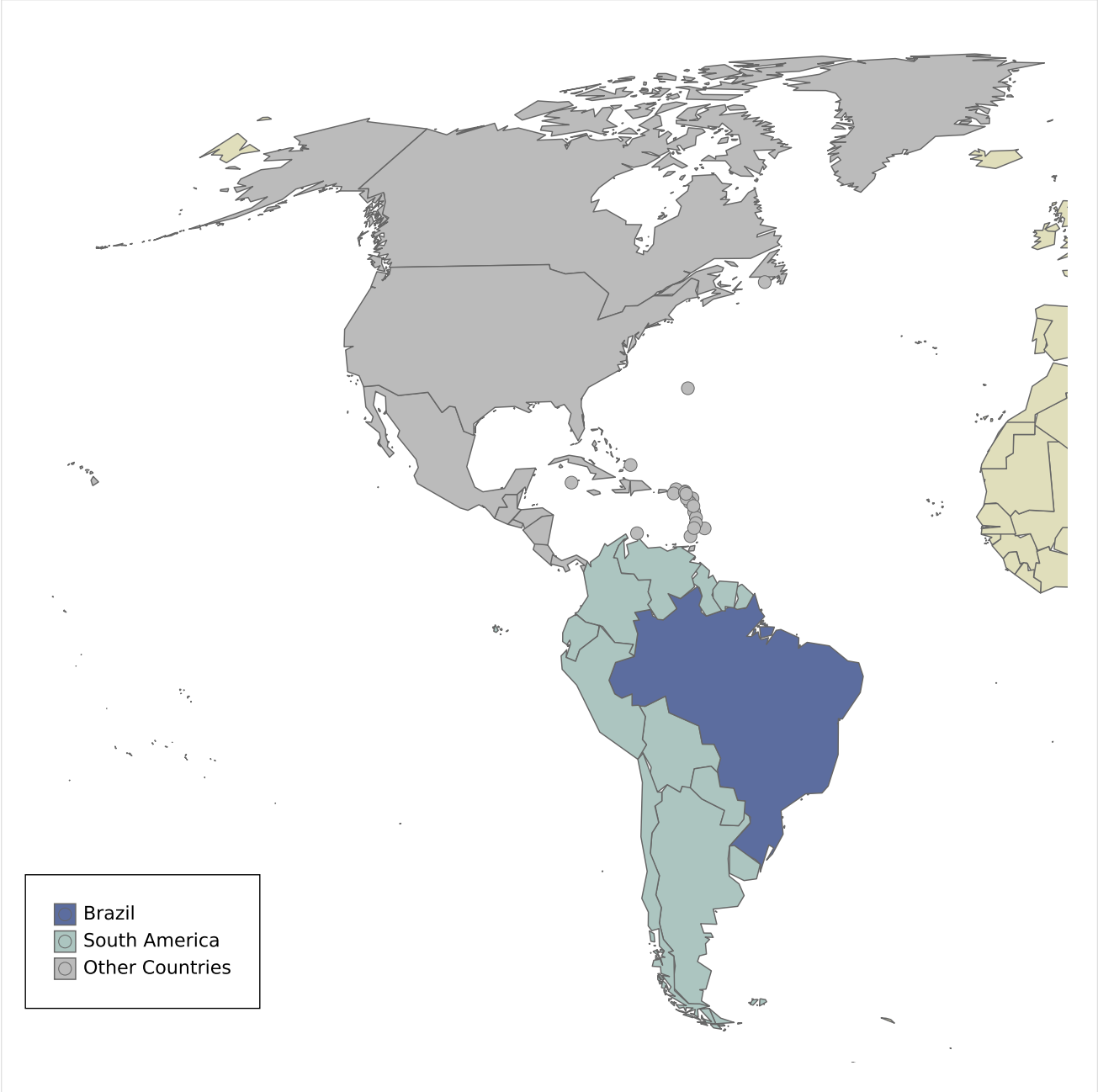
1 Introduction

Figure 1: Brazil and South America



Information Centre aims to compile and centralise updated data and statistics on human papillomavirus (HPV) and related cancers. This report aims to summarise the data available to fully evaluate the burden of disease in Brazil and to facilitate stakeholders and relevant bodies of decision makers to formulate recommendations on the prevention of cervical cancer and other HPV-related cancers. Data include relevant cancer statistic estimates, epidemiological determinants of cervical cancer such as demographics, socioeconomic factors, risk factors, burden of HPV infection in women and men, cervical screening and immunization practices. The report is structured into the following sections:

Section 2, Demographic and socioeconomic factors. This section summarises the socio-demographic profile of Brazil. For analytical purposes, Brazil is classified in the geographical region of South America (Figure 1, lighter blue), which is composed of the following countries: Bolivia (Plurinational State of), Chile, Colombia, Ecuador, Falkland Islands (Malvinas), French Guiana, Guyana, Peru, Paraguay,

Suriname, Uruguay, and Venezuela (Bolivarian Republic of). Throughout the report, Brazil estimates will be complemented with corresponding regional estimates.

Section 3, Burden of HPV related cancers. This section describes the current burden of invasive cervical cancer and other HPV-related cancers in Brazil ith estimates of prevalence, incidence, and mortality rates. Information in other HPV-related cancers includes other anogenital cancers (anus, vulva, vagina, and penis) and head and neck cancers (oral cavity, oropharyngeal, and larynx).

Section 4, HPV related statistics. This section reports on prevalence of HPV and HPV type-specific distribution in Brazil, in women with normal cytology, precancerous lesions and invasive cervical cancer. In addition, the burden of HPV in other anogenital cancers (anus, vulva, vagina, and penis), head and neck cancers (oral cavity, oropharynx, and larynx) and men are presented.

Section 5, Factors contributing to cervical cancer. This section describes factors that can modify the natural history of HPV and cervical carcinogenesis such as smoking, parity, oral contraceptive use, and co-infection with HIV.

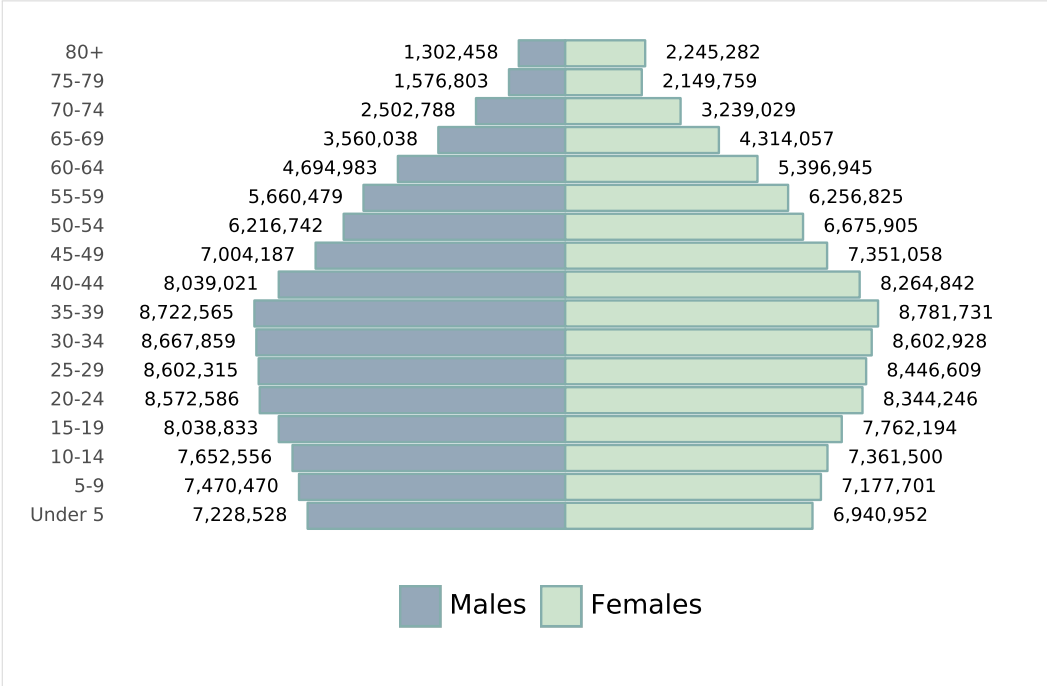
Section 6, Sexual and reproductive health behaviour indicators. This section presents sexual and reproductive behaviour indicators that may be used as proxy measures of risk for HPV infection and anogenital cancers, such as age at first sexual intercourse, average number of sexual partners, and anal intercourse among others.

Section 7, HPV preventive strategies. This section presents preventive strategies that include basic characteristics and performance of cervical cancer screening status, status of HPV vaccine licensure introduction, and recommendations in national immunisation programmes.

Section 8, Protective factors for cervical cancer. This section presents male circumcision and the use of condoms.

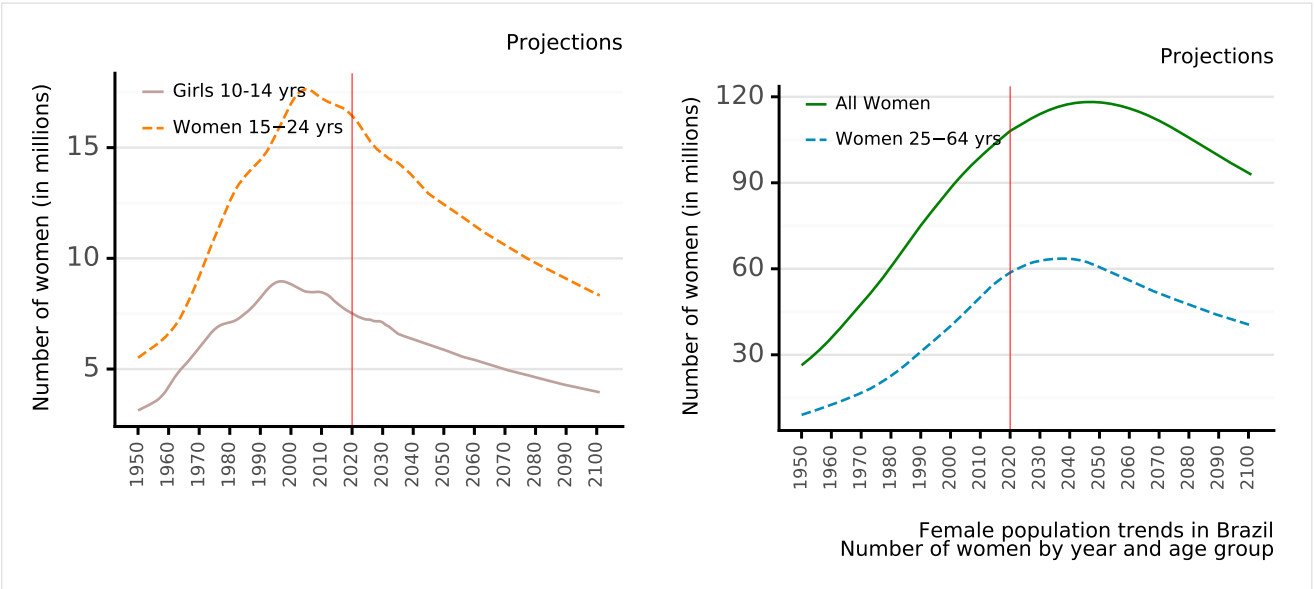
2 Demographic and socioeconomic factors

Figure 2: Population pyramid of Brazil for 2022



Data accessed on 30 Jul 2022
Please refer to original source for methods of estimation.
Year of estimate: 2022
Data Sources:
United Nations, Department of Economic and Social Affairs, Population Division (2022). World Population Prospects 2022, Online Edition. [Accessed on July 30, 2022].

Figure 3: Population trends in four selected age groups in Brazil



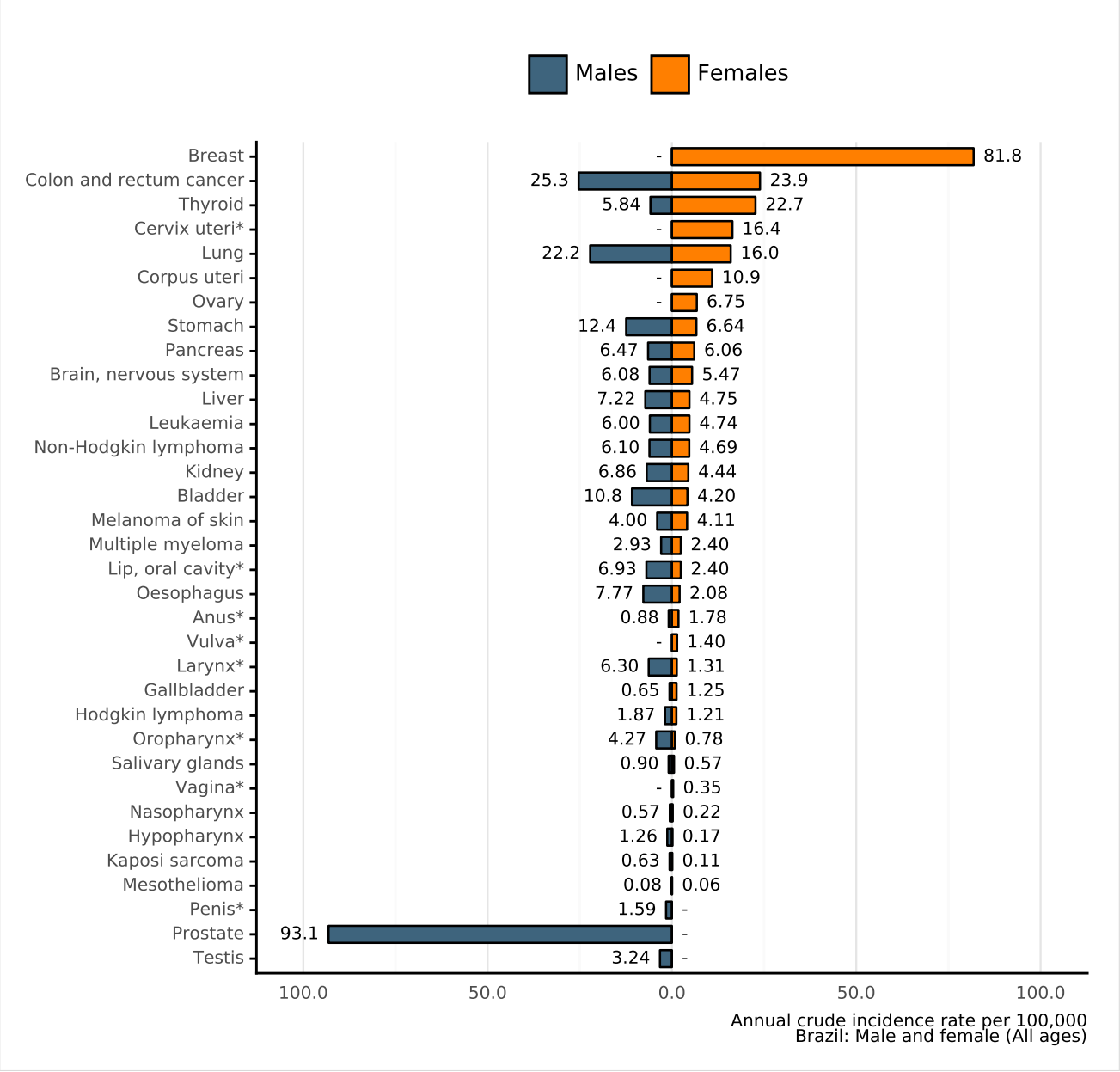
Data accessed on 30 Jul 2022
Please refer to original source for methods of estimation.
Year of estimate: 2022
Data Sources:
United Nations, Department of Economic and Social Affairs, Population Division (2022). World Population Prospects 2022, Online Edition. [Accessed on July 30, 2022].

3 Burden of HPV related cancers

HPV is the cause of almost all cervical cancer cases and is responsible for an important fraction of other anogenital and head and neck cancer. Here, we present the most recent estimations on the burden of HPV-associated cancer.

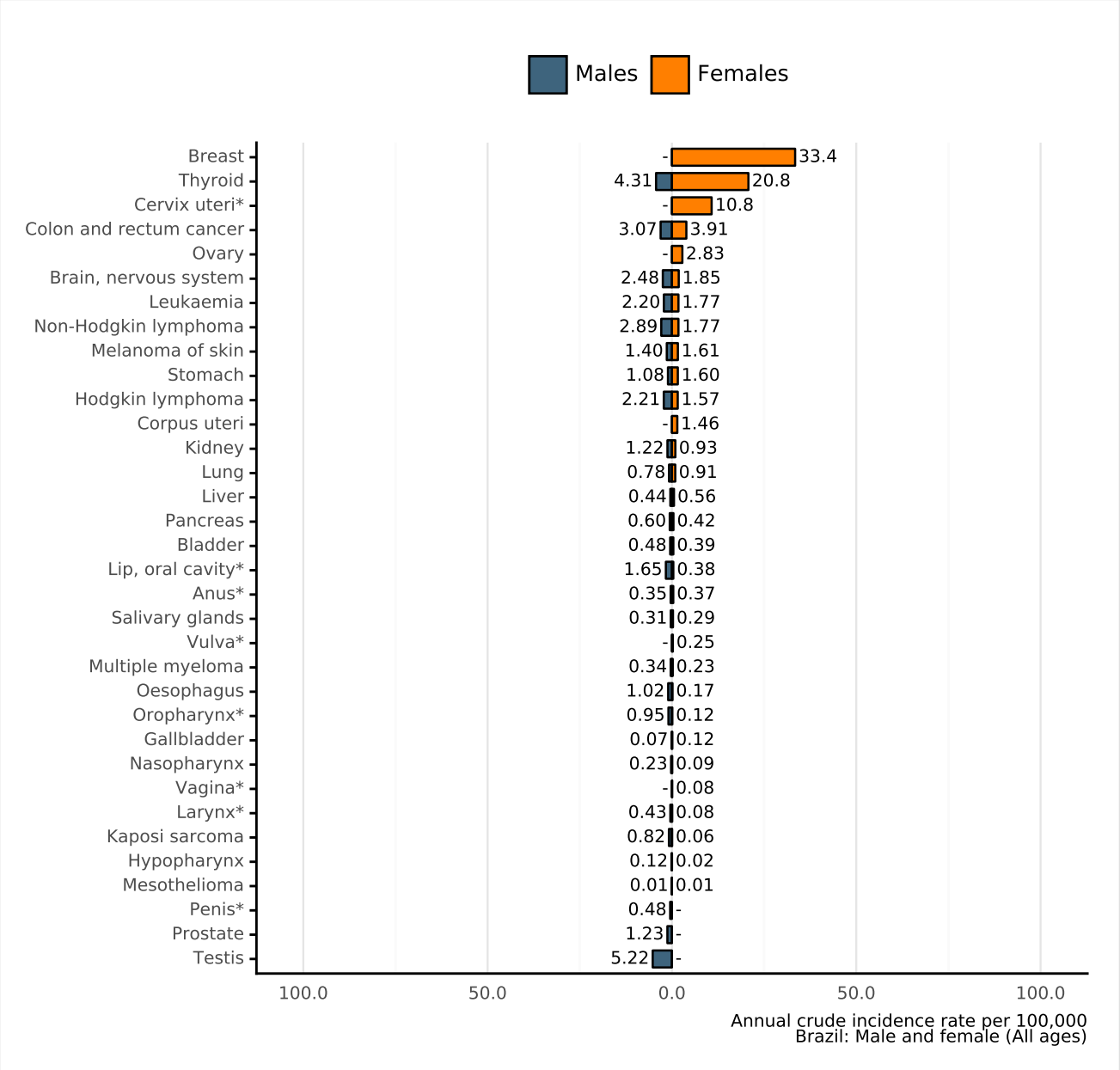
3.1 HPV related cancers incidence

Figure 4: Comparison of HPV related cancers incidence to other cancers in men and women of all ages in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
Non-melanoma skin cancer is not included
Rates per 100,000 men per year.
Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 5: Comparison of HPV related cancers incidence to other cancers among men and women 15-44 years of age in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021

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Non-melanoma skin cancer is not included
Rates per 100,000 men per year.
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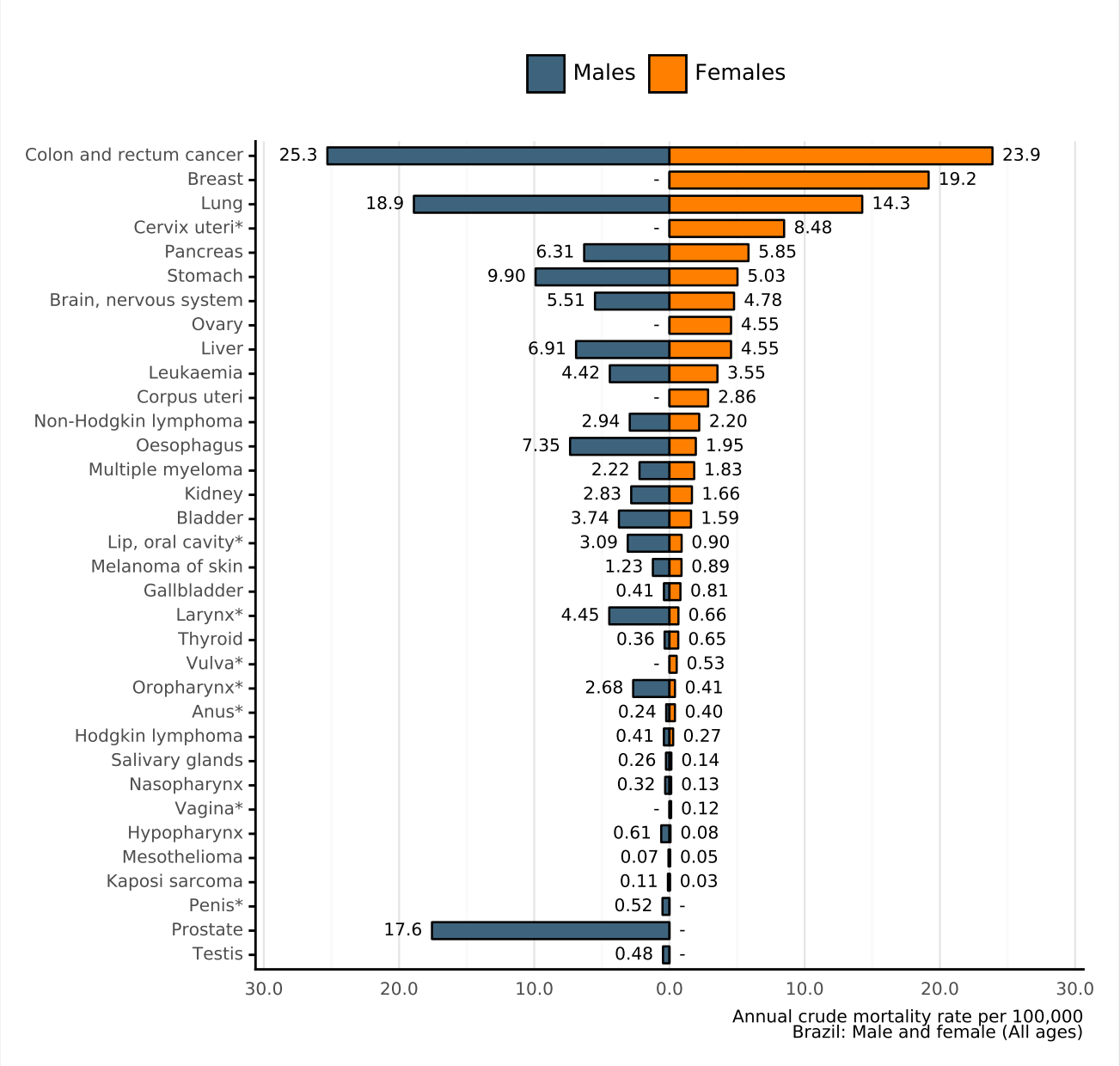
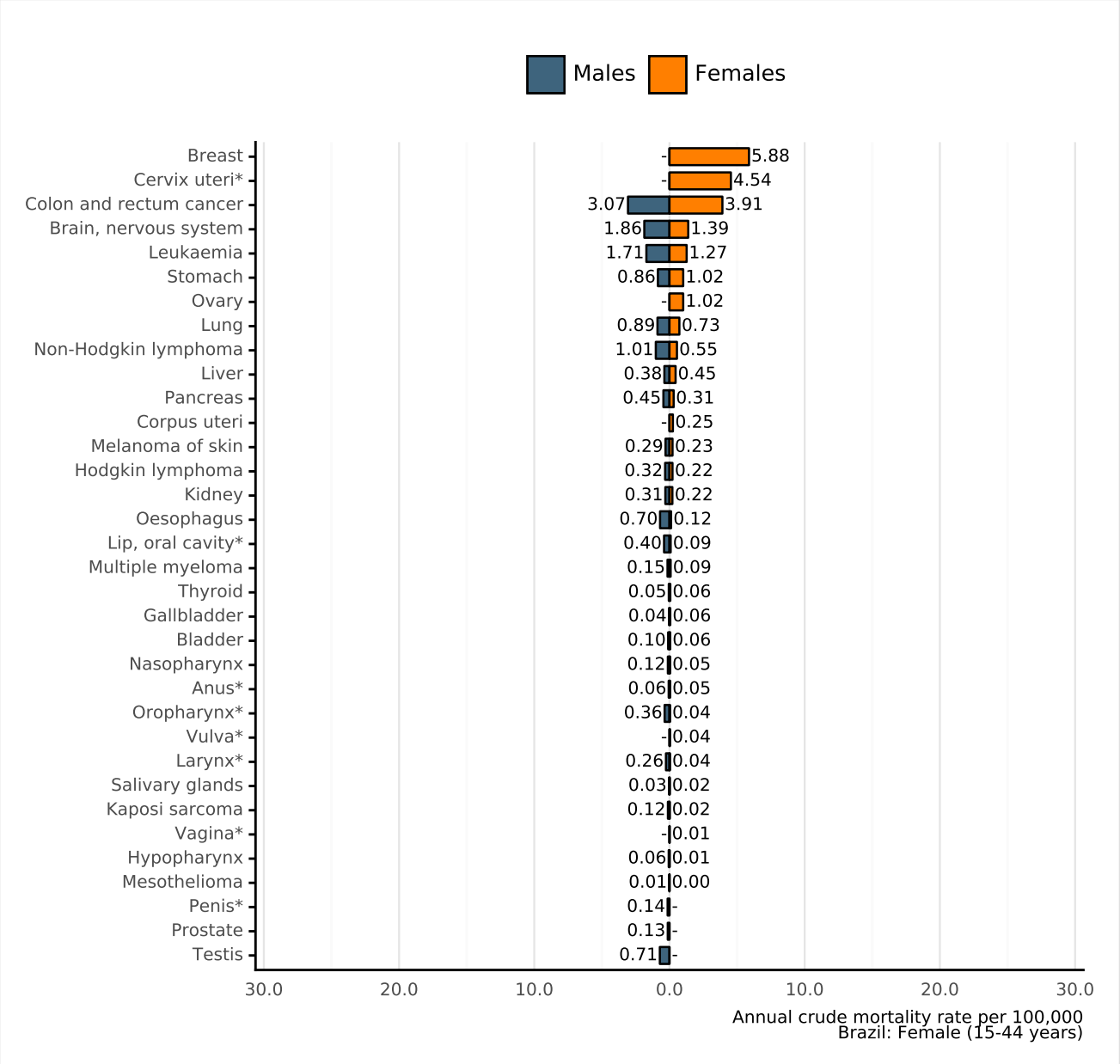
3.2 HPV related cancers mortality

Figure 6: Comparison of HPV related cancers mortality to other cancers in men and women of all ages in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
Non-melanoma skin cancer is not included
Rates per 100,000 men per year.
Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 7: Comparison of HPV related cancers mortality to other cancers among men and women 15-44 years of age in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021

For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
Non-melanoma skin cancer is not included
Rates per 100,000 men per year.
Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

3.3 Cervical cancer

Cancer of the cervix uteri is the 4^{th} most common cancer among women worldwide, with an estimated 604,127 new cases and 341,831 deaths in 2020. Worldwide, mortality rates of cervical cancer are substantially lower than incidence with a ratio of mortality to incidence to 57% (GLOBOCAN 2020). The majority of cases are squamous cell carcinoma followed by adenocarcinomas. *(Vaccine 2006, Vol. 24, Suppl 3; Vaccine 2008, Vol. 26, Suppl 10; Vaccine 2012, Vol. 30, Suppl 5; IARC Monographs 2007, Vol. 90)*

This section describes the current burden of invasive cervical cancer in Brazil and in comparison to geographic region, including estimates of the annual number of new cases, deaths, incidence, and mortality rates.

3.3.1 Cervical cancer incidence in Brazil

Key Stats.

About **17,743 new cervical cancer cases** are diagnosed **annually** in **Brazil** (estimations for 2020).

Cervical cancer **ranks* as the 4th leading cause** of female cancer in **Brazil**.

Cervical cancer is the **3rd most common** female cancer in **women aged 15 to 44 years in Brazil**.

* Ranking of cervical cancer incidence to other cancers among all women according to highest incidence rates (ranking 1st) excluding non-melanoma skin cancer. Ranking is based on crude incidence rates (actual number of cervical cancer cases). Ranking using age-standardized rate (ASR) may differ.

Table 2: Cervical cancer incidence in Brazil (estimates for 2020)

Indicator	Brazil	South America	World
Annual number of new cancer cases	17,743	41,734	604,127
Uncertainty intervals of new cancer cases [95% UI]	[16,977-18,544]	[38,925-44,746]	[582,031-627,062]
Crude incidence rate[b]	16.4	19.1	15.6
Age-standardized incidence rate[b]	12.7	15.4	13.3
Cumulative risk (%) at 75 years old[a]	1.33	1.59	1.39

Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Cumulative risk (incidence) is the probability or risk of individuals getting from the disease during ages 0-74 years. For cancer, it is expressed as the % of new born children who would be expected to develop from a particular cancer before the age of 75 if they had the rates of cancer observed in the period in the absence of competing causes.
[b] Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Table 3: Cervical cancer incidence in Brazil by cancer registry

Cancer registry	Period	N cases[a]	Crude rate[b]	ASR[b]
Belem[1]	1989-1991	931	44.4	64.8
Brasilia[2]	1998-2001	1154	27.5	37.7
Campinas[3]	1991-1995	294	13.2	14.2
Cuiaba[4]	2003-2006	432	27.6	36.5
Fortaleza[4]	2003-2006	934	18.8	21.7
Goiania[4]	2003-2007	836	26.7	28.5
Pernambuco (Recife)[5]	1980-1980	419	65.1	83.2
Porto Alegre[1]	1990-1992	497	24.6	22.1
Sao Paulo[4]	2003-2007	4657	16.3	15.2
Aracaju[4]	2003-2006	233	22.2	25.5
Belo Horizonte[4]	2003-2005	609	16.5	16.1
Aracaju[6]	2008-2012	210	13.9	13.1
Curitiba[6]	2008-2011	490	13	10.7
Florianopolis[6]	2008-2010	123	19.3	15.6
Goiânia[6]	2008-2012	555	16.3	14.5
Jau[6]	2008-2012	40	11.8	9
Pocos de Caldas[6]	2008-2011	26	8.3	6.8

Data accessed on 5 Oct 2018

Please refer to original source (available at http://ci5.iarc.fr/CI5-XI/Default.aspx)

ASR: Age-standardized rate, Standardized rates have been estimated using the direct method and the World population as the reference.

[a] Accumulated number of cases during the period in the population covered by the corresponding registry.

[b] Rates per 100,000 women per year.

Data Sources:

[1] Parkin, D.M., Whelan, S.L., Ferlay, J., Raymond, L., and Young, J., eds (1997). Cancer Incidence in Five Continents, Vol. VII. IARC Scientific Publications No. 143, Lyon, IARC.

[2] Curado. M. P., Edwards, B., Shin. H.R., Storm. H., Ferlay. J., Heanue. M. and Boyle. P., eds (2007). Cancer Incidence in Five Continents, Vol. IX. IARC Scientific Publications No. 160, Lyon, IARC.

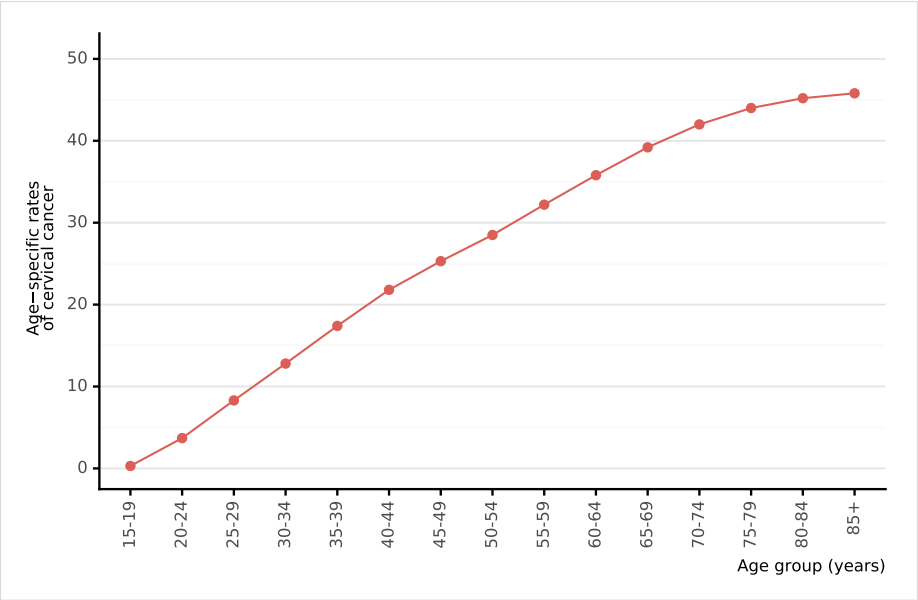
[3] Parkin, D.M., Whelan, S.L., Ferlay, J., Teppo, L., and Thomas, D.B., eds (2002). Cancer Incidence in Five Continents, Vol. VIII. IARC Scientific Publications No. 155, Lyon, IARC.

[4] Forman D, Bray F, Brewster DH, Gombe Mbalawa C, Kohler B, Piñeros M, Steliarova-Foucher E, Swaminathan R and Ferlay J eds (2013). Cancer Incidence in Five Continents, Vol. X (electronic version) Lyon, IARC. http://ci5.iarc.fr

[5] Muir, C.S.,Waterhouse, J.,Mack, T.,Powell, J.,Whelan, S.L., eds (1987). Cancer Incidence in Five Continents, Vol. V. IARC Scientific Publications No. 88, Lyon, IARC.

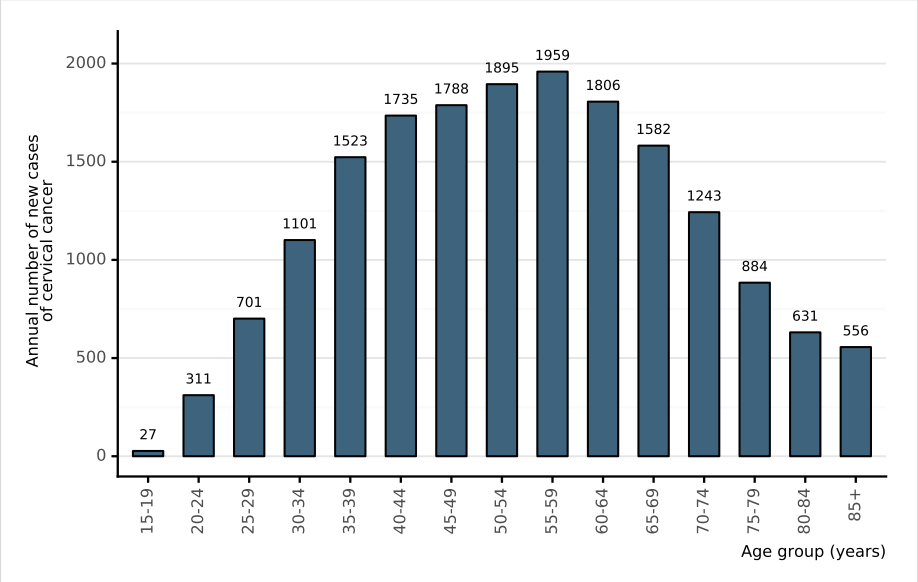
[6] Bray F, Colombet M, Mery L, Piñeros M, Znaor A, Zanetti R and Ferlay J, editors (2017). Cancer Incidence in Five Continents, Vol. XI (electronic version). Lyon: International Agency for Research on Cancer. Available from: http://ci5.iarc.fr, accessed [05 October 2018].

Figure 8: Age-specific incidence rates of cervical cancer in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 9: Annual number of new cases of cervical cancer in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

- For age-standardised incidence rates of cervical cancer of Brazil (estimates for 2020) please refer to Figure 73
- For annual number of new cases of cervical cancer by age group in Brazil (estimates for 2020) please refer to Figure 74
- For comparison of age-specific cervical cancer incidence rates in Brazil, within the region, and the rest of world please refer to Figure 75

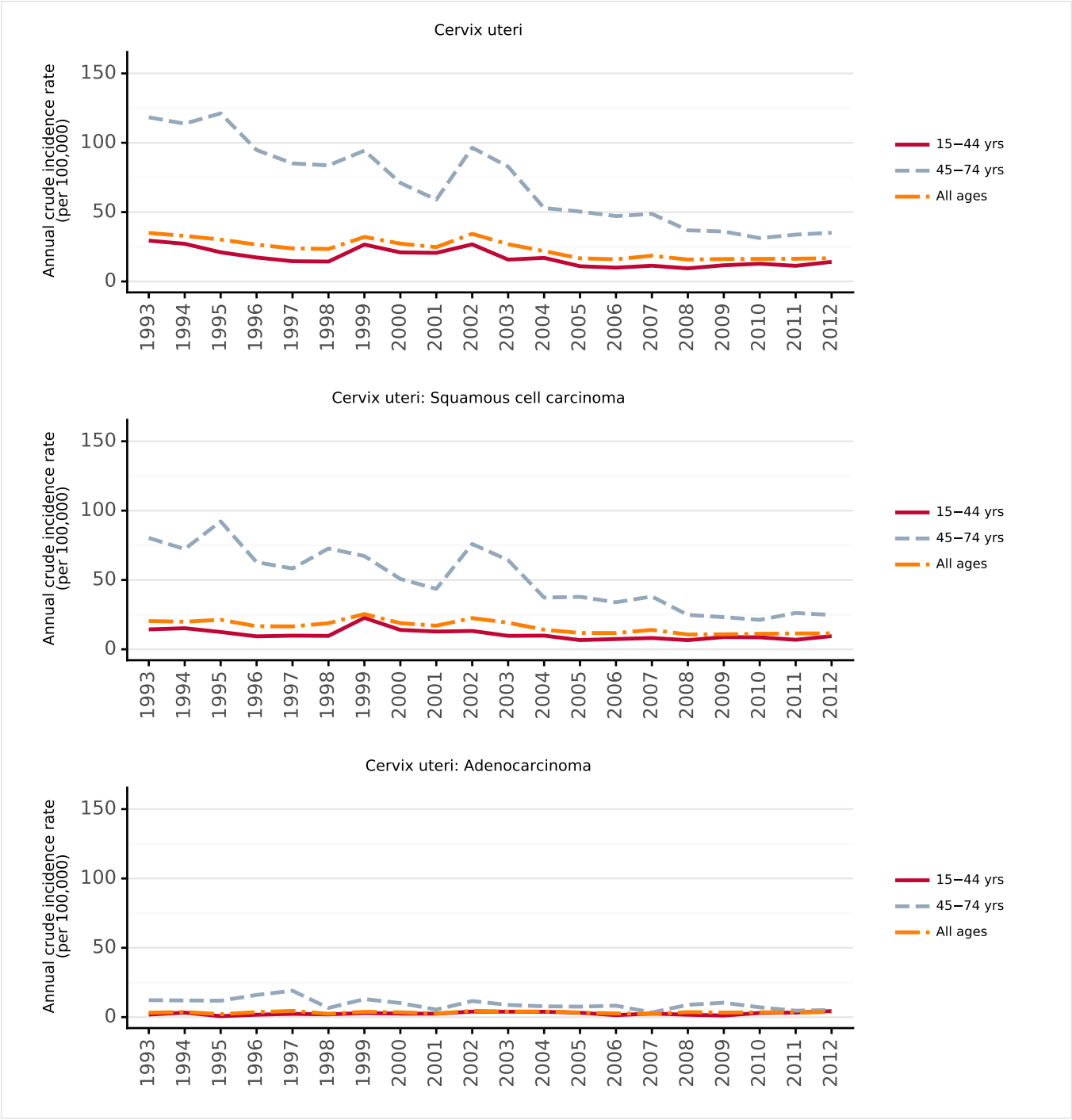
3.3.2 Cervical cancer incidence by histology in Brazil

Table 4: Age-standardised incidence rates of cervical cancer in Brazil by histological type and cancer registry

Cancer registry[1]	Period	Squamo	Adeno	Other	Unspec.
Aracaju	2008-2012	9.6	2.2	0.5	0
Curitiba	2008-2011	8.1	1.6	0.1	0.2
Florianopolis	2008-2010	10.6	2.9	0.3	1.2
Goiânia	2008-2012	9.9	3.1	0.5	0.5
Jau	2008-2012	6.1	1.9	0.5	0.2
Pocos de Caldas	2008-2011	4.9	1.6	0.3	-

Data accessed on 5 Oct 2018
Rates per 100,000 women per year.
Standarized rates have been estimated using the direct method and the World population as the references.
Adeno: adenocarcinoma; Other: Other carcinoma; Squamous: Squamous cell carcinoma; Unspec: Unspecified carcinoma;
Data Sources:
[1] Bray F, Colombet M, Mery L, Piñeros M, Znaor A, Zanetti R and Ferlay J, editors (2017). Cancer Incidence in Five Continents, Vol. XI (electronic version). Lyon: International Agency for Research on Cancer. Available from: http://ci5.iarc.fr, accessed [05 October 2018].

Figure 10: Time trends in cervical cancer incidence in Brazil (cancer registry data)



Data accessed on 28 Aug 2018

The following regional cancer registries provided data and contributed to their national estimate: Goiania

[a] Estimated annual percentage change based on the trend variable from the net drift for 15 years, from 1988-2002.

Data Sources:

Ferlay J, Colombet M and Bray F. Cancer Incidence in Five Continents, CI5plus: IARC CancerBase No. 9 [Internet]. Lyon, France: International Agency for Research on Cancer; 2018. Available from: http://ci5.iarc.fr

Vaccarella S, Lortet-Tieulent J, Plummer M, Franceschi S, Bray F. Worldwide trends in cervical cancer incidence: Impact of screening against changes in disease risk factors. eur J Cancer 2013;49:3262-73.

3.3.3 Cervical cancer mortality in Brazil

Key Stats.

About **9,168 cervical cancer deaths occur annually in Brazil** are diagnosed **annually** (estimations for 2020).

Cervical cancer **ranks* as the 4th leading cause of cancer deaths** of female cancer deaths in **Brazil**.

Cervical cancer is the **2nd leading cause of cancer deaths** in **women aged 15 to 44 years in Brazil**.

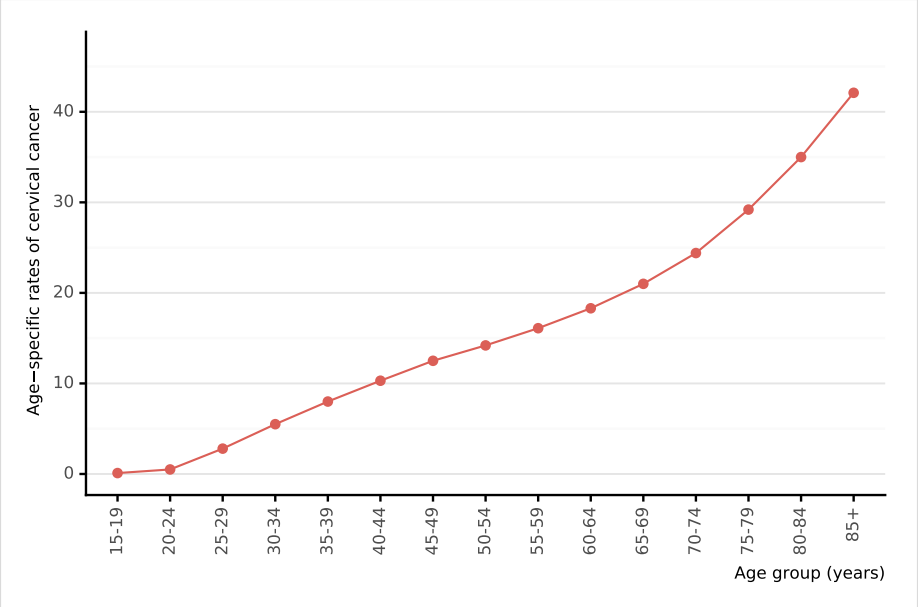
* Ranking of cervical cancer incidence to other cancers among all women according to highest incidence rates (ranking 1st) excluding non-melanoma skin cancer. Ranking is based on crude incidence rates (actual number of cervical cancer cases). Ranking using age-standardized rate (ASR) may differ.

Table 5: Cervical cancer mortality in Brazil (estimates for 2020)

Indicator	Brazil	South America	World
Annual number of deaths	9,168	22,221	341,831
Uncertainty intervals of mortality cancer cases [95% UI]	[8,853-9,494]	[21,594-22,866]	[324,231-360,386]
Crude mortality rate[b]	8.48	10.2	8.84
Age-standardized mortality rate[b]	6.34	7.81	7.25
Cumulative risk (%) at 75 years old[a]	0.67	0.82	0.82

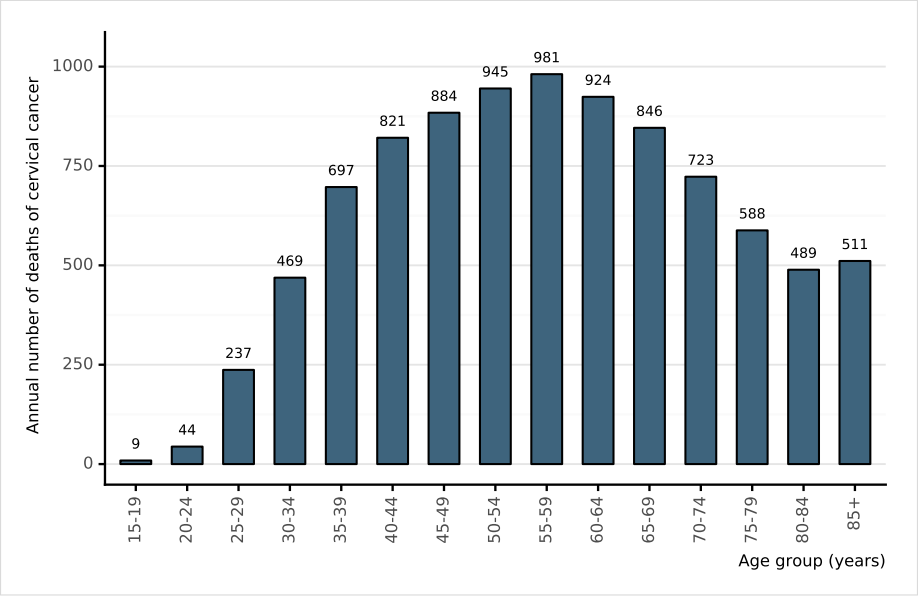
Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Cumulative risk (mortality) is the probability or risk of individuals dying from the disease during ages 0-74 years. For cancer, it is expressed as the % of new born children who would be expected to die from a particular cancer before the age of 75 if they had the rates of cancer observed in the period in the absence of competing causes.
[b] Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 11: Age-specific mortality rates of cervical cancer in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 12: Annual number of deaths of cervical cancer in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
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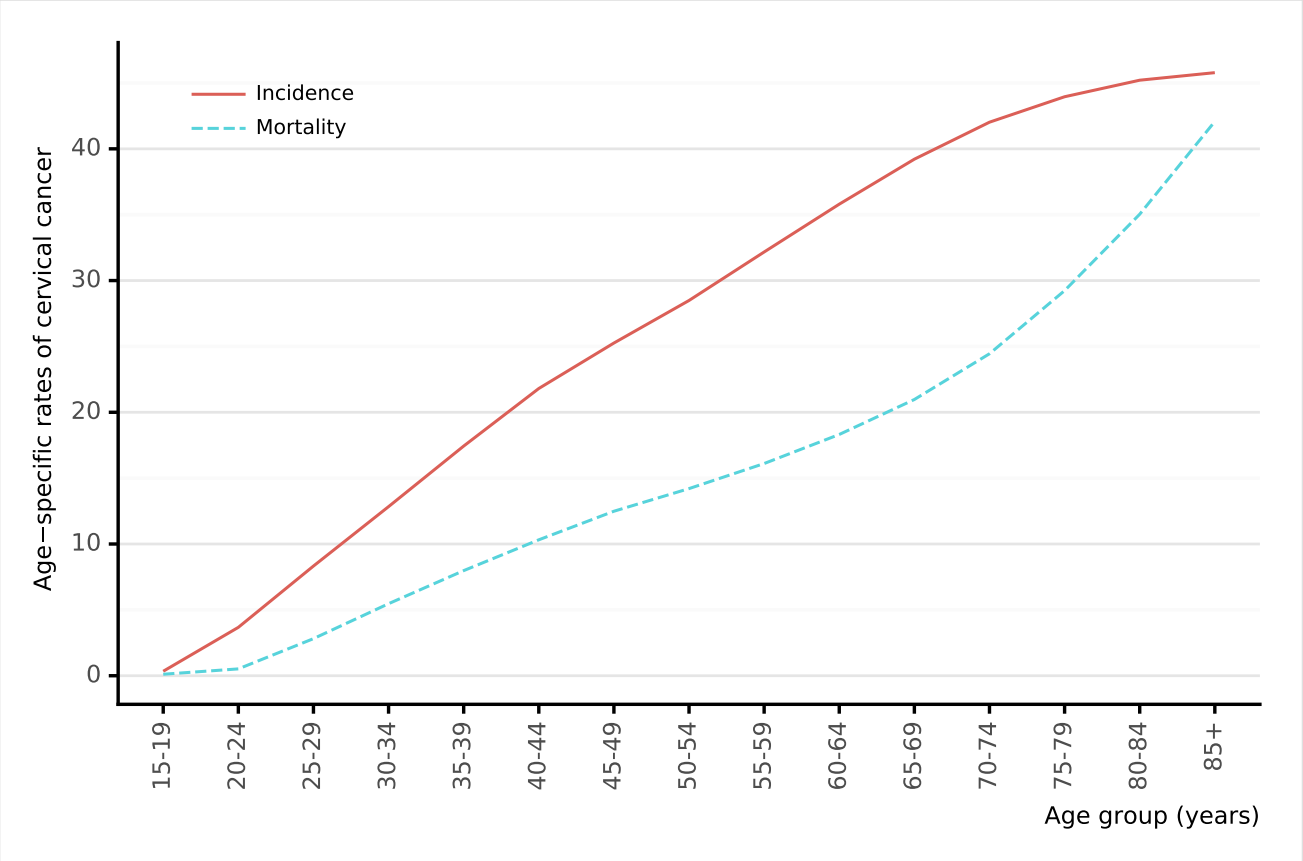
- For age-standardised mortality rates of cervical cancer of Brazil (estimates for 2020) please refer to Figure 105
- For annual number of deaths of cervical cancer by age group in Brazil (estimates for 2020) please refer to Figure 106
- For comparison of age-specific cervical cancer mortality rates in Brazil, within the region, and the rest of world please refer to Figure 107

3.3.4 Cervical cancer incidence and mortality comparison in Brazil

Figure 13: Comparison of age-specific cervical cancer incidence and mortality rates in Brazil (estimates for 2020)



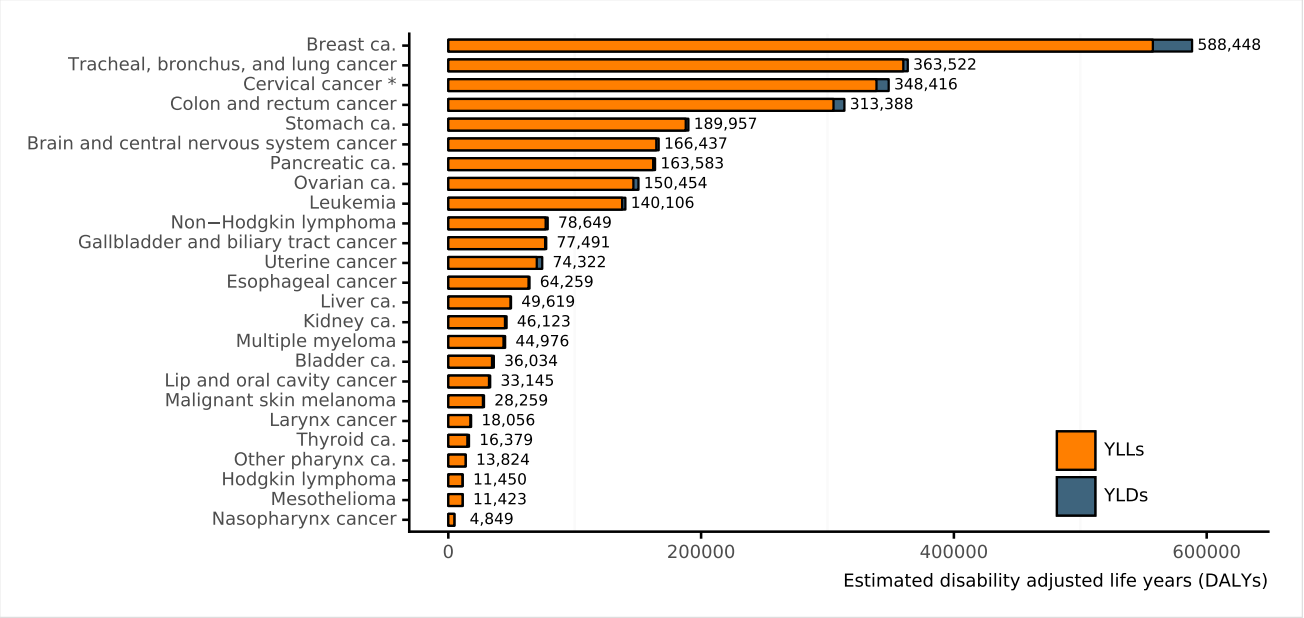
Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Table 6: Premature deaths and disability from cervical cancer in Brazil, Americas and the rest of the world (estimates for 2019)

	Brazil		Americas		World	
Indicator	**Number**	**Rate**	**Number**	**Rate**	**Number**	**Rate**
DALYs (95% UI)[a]	348,416 (324,215-404,298)	314 (292-365)	1,412,411 (1,274,478-1,573,926)	275 (248-306)	8,955,013 (7,547,733-9,978,462)	232 (196-259)
YLLs (95% UI)[b]	338,761 (315,606-392,718)	306 (285-354)	1,368,848 (1,234,552-1,524,455)	266 (240-296)	8,712,962 (7,365,279-9,728,886)	226 (191-252)
YLDs (95% UI)[c]	9,656 (6,809-13,076)	9 (6-12)	43,563 (30,364-58,147)	8 (6-11)	242,051 (171,644-326,024)	6 (4-8)

Data accessed on 29 Apr 2021
Rate per 100,000 women
[a] DALYs (95% UI): estimated disability adjusted life years (95% uncertainty interval)
[b] YLLs (95% UI): years of life lost (95% uncertainty interval)
[c] YLDs (95% UI): estimated years lived with disability (95% uncertainty interval)
Data Sources:
GBD 2019 Diseases and Injuries Collaborators. Global burden of 369 diseases and injuries in 204 countries and territories, 1990-2019: a systematic analysis for the Global Burden of Disease Study 2019. Lancet. 2020 Oct 17;396(10258):1204-1222

Figure 14: Comparison of annual premature deaths and disability from cervical cancer in Brazil to other cancers among women (estimates for 2019)



Data accessed on 29 Apr 2021

YLLs: years of life lost

YLDs: years lived with disability

Data Sources:

GBD 2019 Diseases and Injuries Collaborators. Global burden of 369 diseases and injuries in 204 countries and territories, 1990-2019: a systematic analysis for the Global Burden of Disease Study 2019. Lancet. 2020 Oct 17;396(10258):1204-1222

3.4 Anogenital cancers other than the cervix

Data on HPV role in anogenital cancers other than cervix are limited, but there is an increasing body of evidence strongly linking HPV DNA with cancers of anus, vulva, vagina, and penis. Although these cancers are much less frequent compared to cervical cancer, their association with HPV make them potentially preventable and subject to similar preventative strategies as those for cervical cancer. (Vaccine 2006, Vol. 24, Suppl 3; Vaccine 2008, Vol. 26, Suppl 10; Vaccine 2012, Vol. 30, Suppl 5; IARC Monographs 2007, Vol. 90).

3.4.1 Anal cancer

Anal cancer is rare in the general population with an average worldwide incidence of 1 per 100,000, but is reported to be increasing in more developed regions. Globally, there are an estimated 29,000 new cases in 2018 every year (de Martel C et al. Lancet Glob Health 2020;8(2):e180-e190). Women have higher incidences of anal cancer than men. Incidence is particularly high among populations of men who have sex with men (MSM), women with history of cervical or vulvar cancer, and immunosuppressed populations, including those who are HIV-infected and patients with a history of organ transplantation. These cancers are predominantly squamous cell carcinoma, adenocarcinomas, or basaloid and cloacogenic carcinomas.

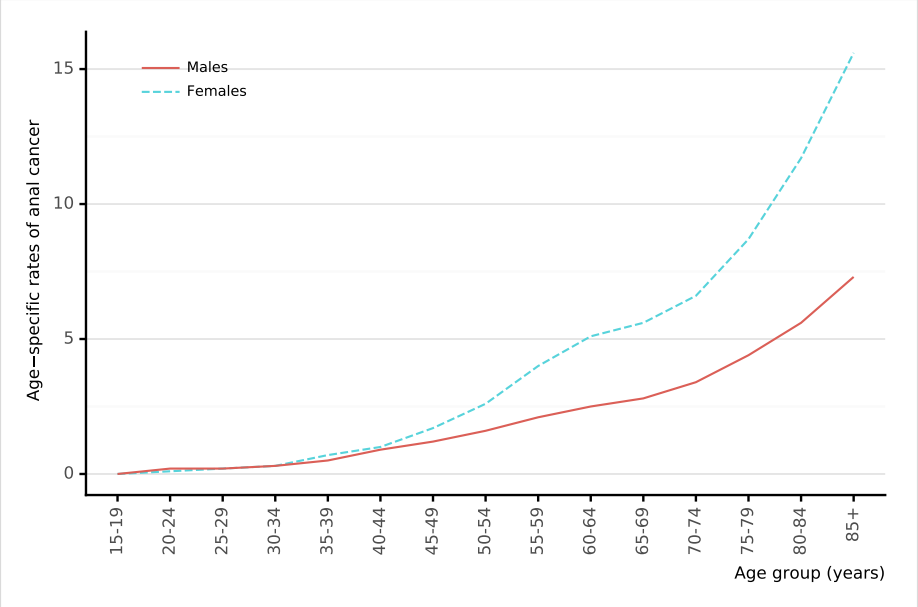
3.4.1.1 Anal cancer incidence in Brazil

Table 7: Anal cancer incidence in Brazil (estimates for 2020)

Indicator	Brazil	South America	World
MEN			
Annual number of new cancer cases	920	1,484	21,706
Uncertainty intervals of new cancer cases [95% UI]	[662-1,278]	[1,015-2,171]	[18,432-25,561]
Crude incidence rate[b]	0.88	0.70	0.55
Age-standardized incidence rate[b]	0.73	0.61	0.49
Cumulative risk (%) at 75 years old[a]	0.08	0.07	0.06
WOMEN			
Annual number of new cancer cases	1,923	3,038	29,159
Uncertainty intervals of new cancer cases [95% UI]	[1,588-2,329]	[2,372-3,890]	[25,656-33,140]
Crude incidence rate[c]	1.78	1.39	0.75
Age-standardized incidence rate[c]	1.25	1.01	0.58
Cumulative risk (%) at 75 years old[a]	0.14	0.12	0.07

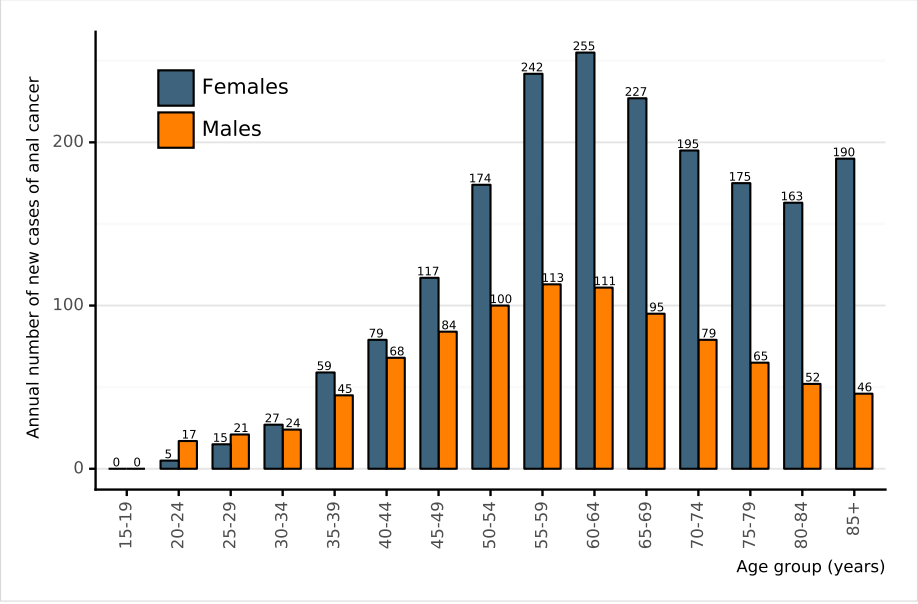
Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Cumulative risk (incidence) is the probability or risk of individuals getting from the disease during ages 0-74 years. For cancer, it is expressed as the % of new born children who would be expected to develop from a particular cancer before the age of 75 if they had the rates of cancer observed in the period in the absence of competing causes.
[b] Rates per 100,000 men per year.
[c] Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 15: Age-specific incidence rates of anal cancer in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 men per year.
[b] Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 16: Annual number of new cases of anal cancer in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

3.4.1.2 Anal cancer mortality in Brazil

Table 8: Anal cancer mortality in Brazil (estimates for 2020)

Indicator	Brazil	South America	World
MEN			
Annual number of new cancer cases	254	408	9,416
Uncertainty intervals of new cancer cases [95% UI]	[197-328]	[339-491]	[7,282-12,175]
Crude incidence rate[b]	0.24	0.19	0.24
Age-standardized incidence rate[b]	0.20	0.16	0.21
Cumulative risk (%) at 75 years old[a]	0.02	0.02	0.02
WOMEN			
Annual number of new cancer cases	437	732	9,877
Uncertainty intervals of new cancer cases [95% UI]	[377-507]	[636-843]	[7,795-12,516]
Crude incidence rate[c]	0.40	0.33	0.26
Age-standardized incidence rate[c]	0.27	0.23	0.19
Cumulative risk (%) at 75 years old[a]	0.03	0.03	0.02

Data accessed on 27 Jan 2021

For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] Cumulative risk (mortality) is the probability or risk of individuals dying from the disease during ages 0-74 years. For cancer, it is expressed as the % of new born children who would be expected to die from a particular cancer before the age of 75 if they had the rates of cancer observed in the period in the absence of competing causes.

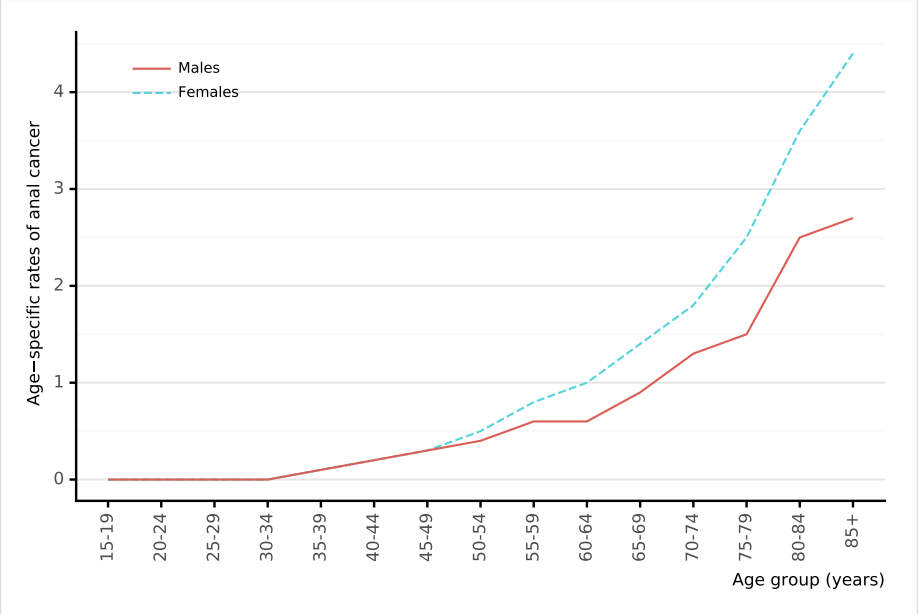
[b] Rates per 100,000 men per year.

[c] Rates per 100,000 women per year.

Data Sources:

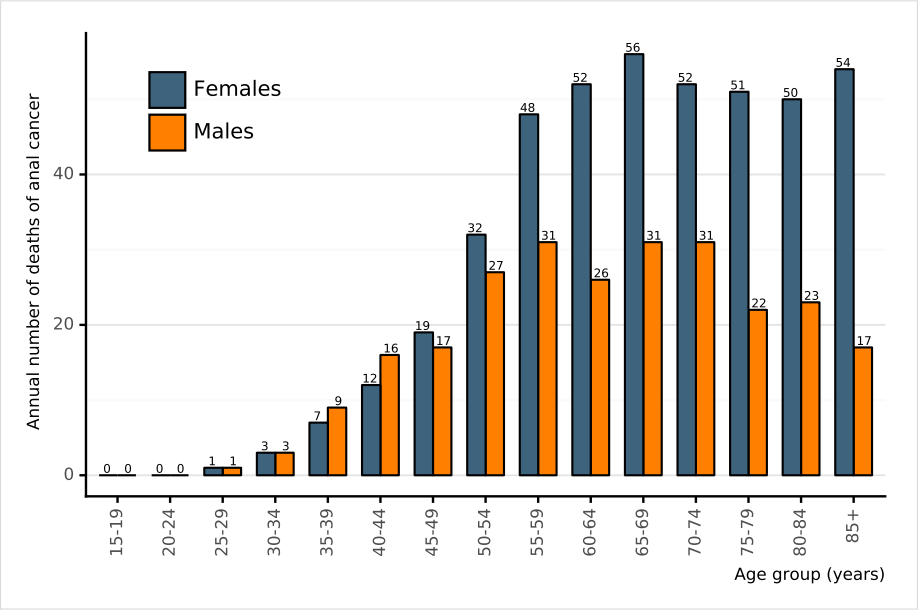
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 17: Age-specific mortality rates of anal cancer in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 men per year.
[b] Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

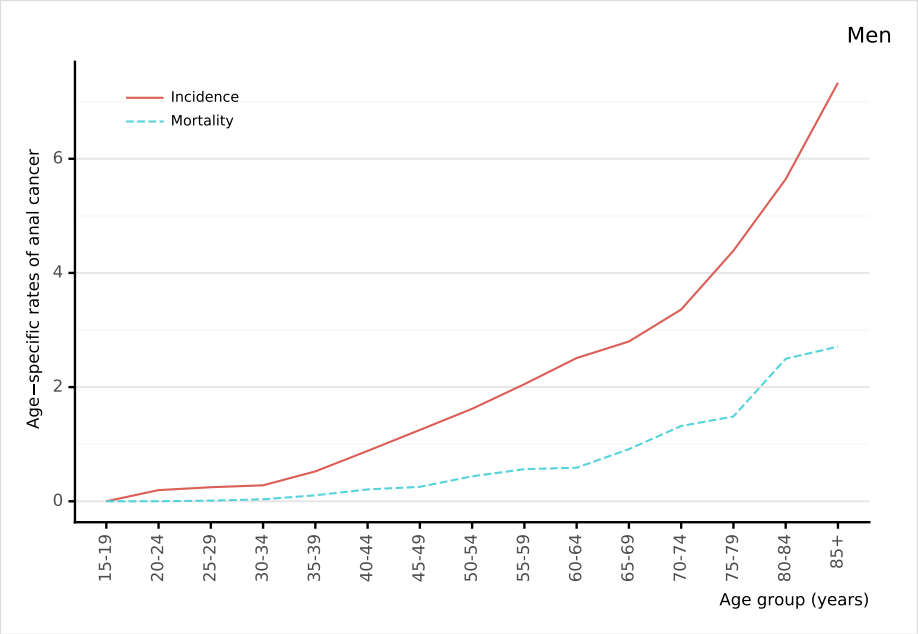
Figure 18: Annual number of deaths of of anal cancer in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

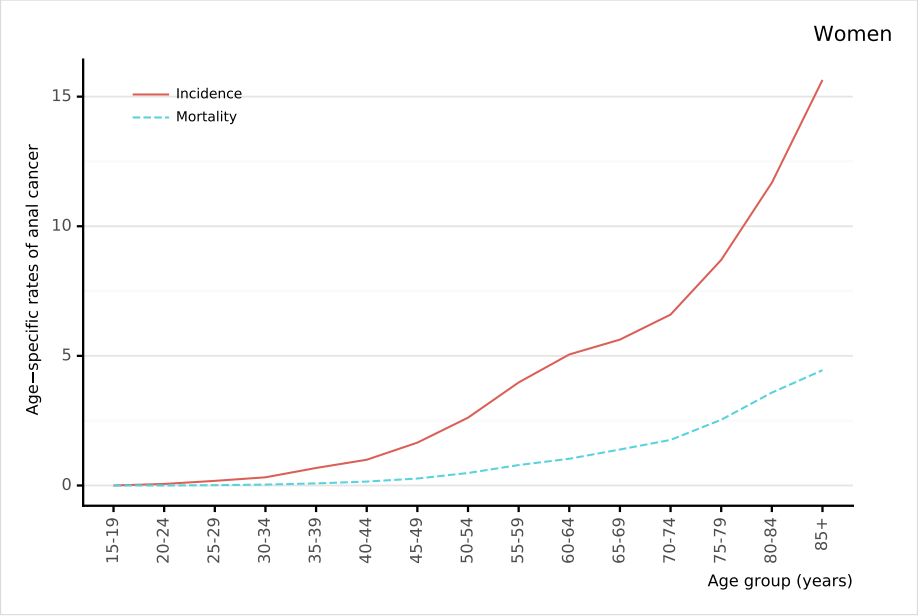
3.4.1.3 Anal cancer incidence and mortality comparison in Brazil

Figure 19: Comparison of age-specific anal cancer incidence and mortality rates among men in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 men per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 20: Comparison of age-specific anal cancer incidence and mortality rates among women in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

3.4.2 Vulva cancer

Cancer of the vulva is rare among women worldwide, with an estimated 44,000 new cases in 2018, representing 6% of all gynaecologic cancers (de Martel C et al. Lancet Glob Health 2020;8(2):e180-e190). Worldwide, about 60% of all vulvar cancer cases occur in more developed countries. Vulvar cancer has two distinct histological patterns with two different risk factor profiles: (1) basaloid/warty types (2) keratinising types. Basaloid/warty lesions are more common in young women, are very often associated with HPV DNA detection (75-100%), and have a similar risk factor profile as cervical cancer. Keratinising vulvar carcinomas represent the majority of the vulvar lesions (>60%), they occur more often in older women and are more rarely associated with HPV (IARC Monograph Vol 100B).

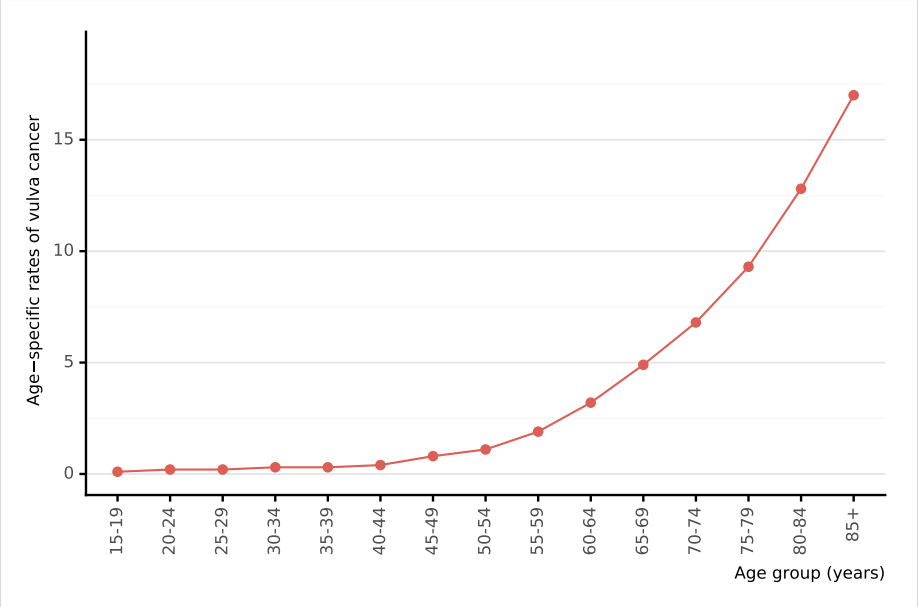
3.4.2.1 Vulva cancer incidence in Brazil

Table 9: Vulva cancer incidence in Brazil (estimates for 2020)

Indicator	Brazil	South America	World
Annual number of new cancer cases	1,519	2,946	45,240
Uncertainty intervals [95% UI]	[1,266-1,822]	[2,286-3,796]	[40,656-50,342]
Crude incidence rate[b]	1.40	1.35	1.17
Age-standardized incidence rate[b]	0.96	0.93	0.85
Cumulative risk (%) at 75 years old[a]	0.10	0.10	0.09

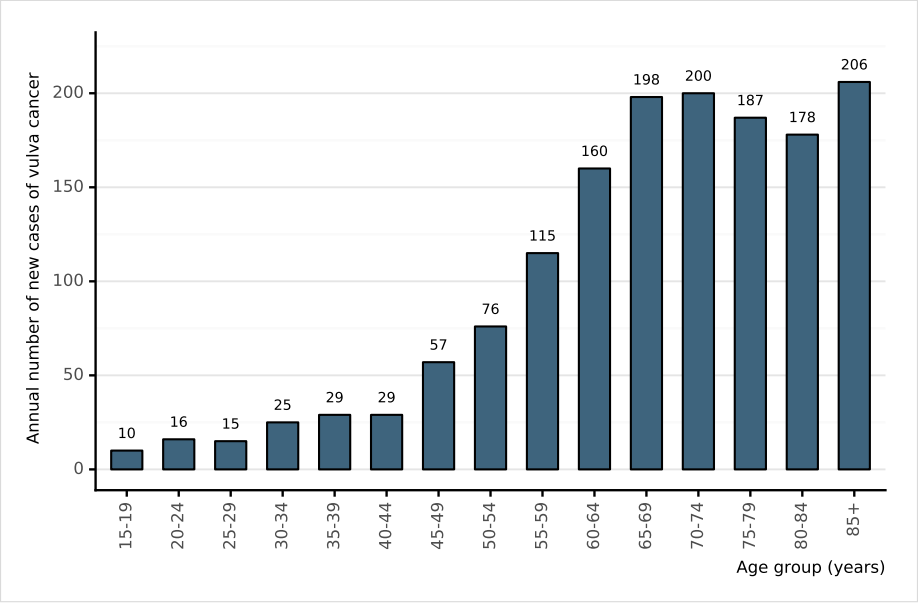
Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Cumulative risk (incidence) is the probability or risk of individuals getting from the disease during ages 0-74 years. For cancer, it is expressed as the % of new born children who would be expected to develop from a particular cancer before the age of 75 if they had the rates of cancer observed in the period in the absence of competing causes.
[b] Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 21: Age-specific incidence rates of vulva cancer in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 22: Annual number of new cases of vulva cancer in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

3.4.2.2 Vulva cancer mortality in Brazil

Table 10: Vulva cancer mortality in Brazil (estimates for 2020)

Indicator	Brazil	South America	World
Annual number of deaths	577	1,099	17,427
Uncertainty intervals [95% UI]	[501-665]	[976-1,238]	[14,497-20,950]
Crude mortality rate[b]	0.53	0.50	0.45
Age-standardized mortality rate[b]	0.33	0.31	0.30
Cumulative risk (%) at 75 years old[a]	0.03	0.03	0.03

Data accessed on 27 Jan 2021

For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

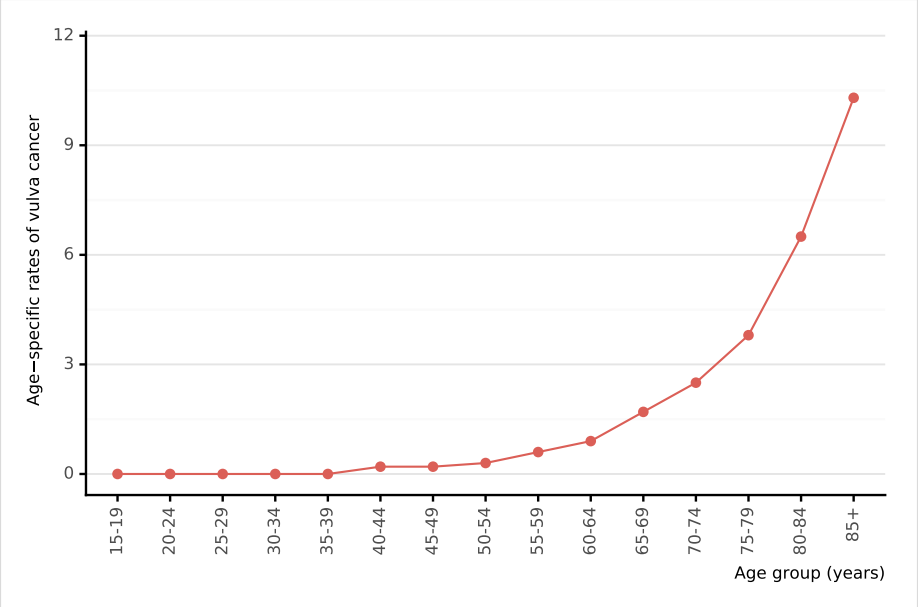
[a] Cumulative risk (mortality) is the probability or risk of individuals dying from the disease during ages 0-74 years. For cancer, it is expressed as the % of new born children who would be expected to die from a particular cancer before the age of 75 if they had the rates of cancer observed in the period in the absence of competing causes.

[b] Rates per 100,000 women per year.

Data Sources:

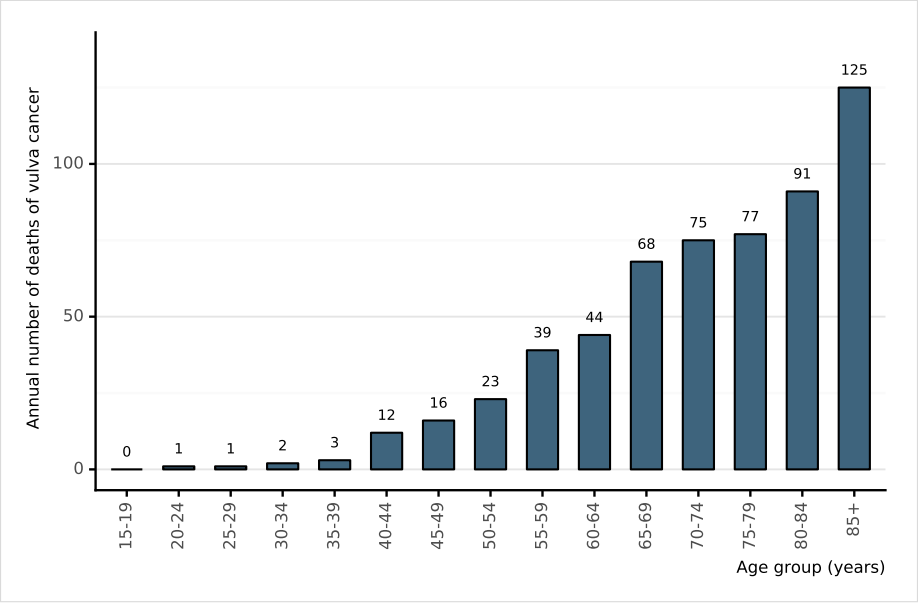
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 23: Age-specific mortality rates of vulva cancer in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

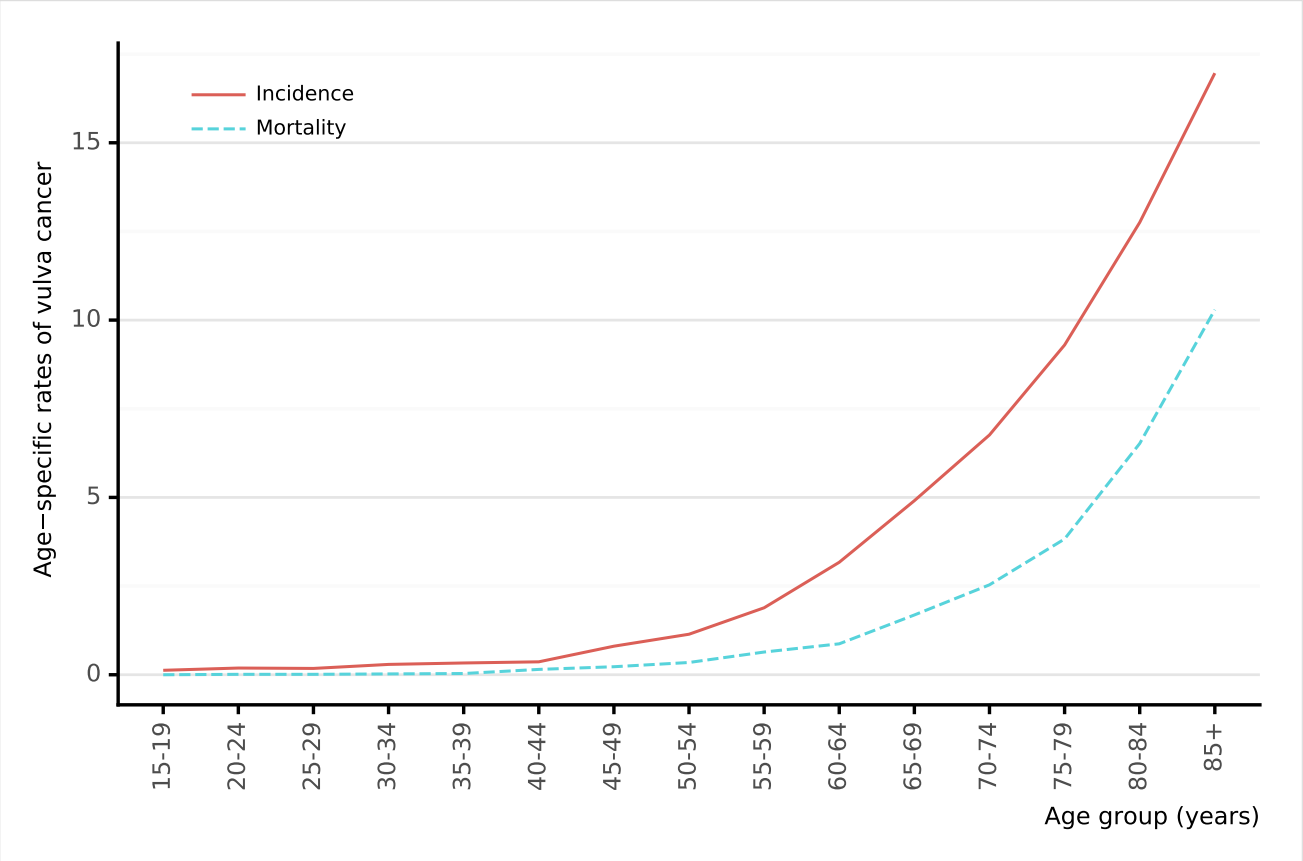
Figure 24: Annual number of deaths of vulva cancer in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

3.4.2.3 Vulva cancer incidence and mortality comparison in Brazil

Figure 25: Comparison of age-specific vulva cancer incidence and mortality rates in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021

For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] Rates per 100,000 women per year.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

3.4.3 Vaginal cancer

Cancer of the vagina is a rare cancer, with an estimated 18,000 new cases in 2018, representing 3% of all gynaecologic cancers (de Martel C et al. Lancet Glob Health 2020;8(2):e180-e190). Similar to cervical cancer, the majority of vaginal cancer cases (68%) occur in less developed countries. Most vaginal cancers are squamous cell carcinoma (90%) generally attributable to HPV, followed by clear cell adenocarcinomas and melanoma. Vaginal cancers are primarily reported in developed countries. Metastatic cervical cancer can be misclassified as cancer of the vagina. Invasive vaginal cancer is diagnosed primarily in old women (>= 65 years) and the diagnosis is rare in women under 45 years whereas the peak incidence of carcinoma in situ is observed between ages 55 and 70 (Vaccine 2008, Vol. 26, Suppl 10).

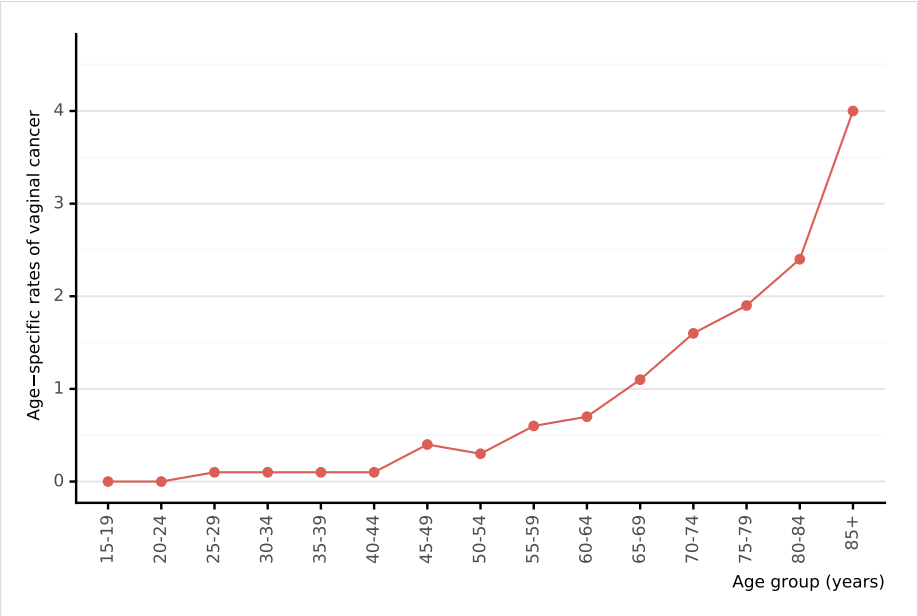
3.4.3.1 Vaginal cancer incidence in Brazil

Table 11: Vaginal cancer incidence in Brazil (estimates for 2020)

Indicator	Brazil	South America	World
Annual number of new cancer cases	377	971	17,908
Uncertainty intervals [95% UI]	[263-540]	[633-1,490]	[14,678-21,848]
Crude incidence rate[b]	0.35	0.44	0.46
Age-standardized incidence rate[b]	0.25	0.32	0.36
Cumulative risk (%) at 75 years old[a]	0.03	0.04	0.04

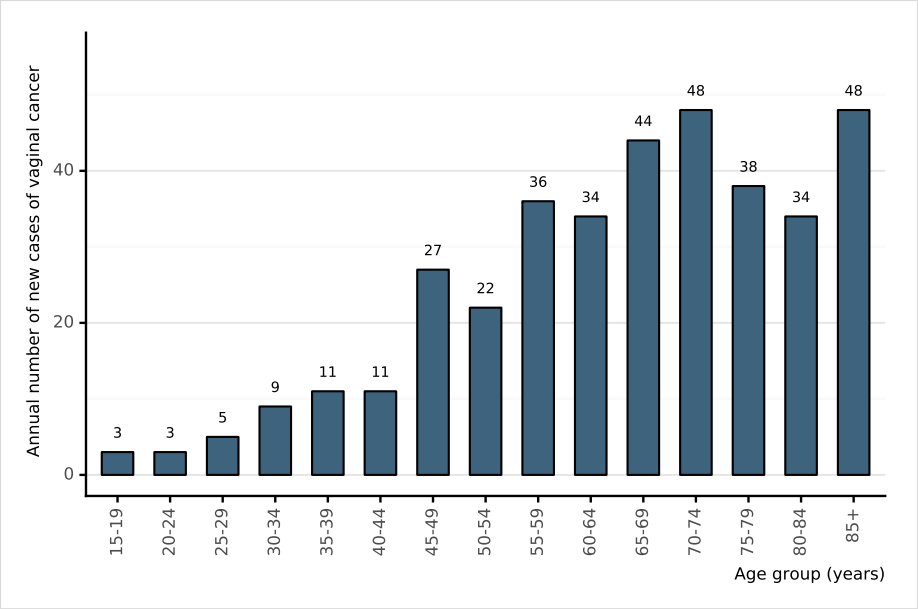
Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Cumulative risk (incidence) is the probability or risk of individuals getting from the disease during ages 0-74 years. For cancer, it is expressed as the % of new born children who would be expected to develop from a particular cancer before the age of 75 if they had the rates of cancer observed in the period in the absence of competing causes.
[b] Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 26: Age-specific incidence rates of vaginal cancer in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 27: Annual number of new cases of vaginal cancer in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

3.4.3.2 Vaginal cancer mortality in Brazil

Table 12: Vaginal cancer mortality in Brazil (estimates for 2020)

Indicator	Brazil	South America	World
Annual number of deaths	134	328	7,995
Uncertainty intervals [95% UI]	[101-177]	[258-418]	[5,983-10,684]
Crude mortality rate[b]	0.12	0.15	0.21
Age-standardized mortality rate[b]	0.08	0.10	0.16
Cumulative risk (%) at 75 years old[a]	0.01	0.01	0.02

Data accessed on 27 Jan 2021

For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

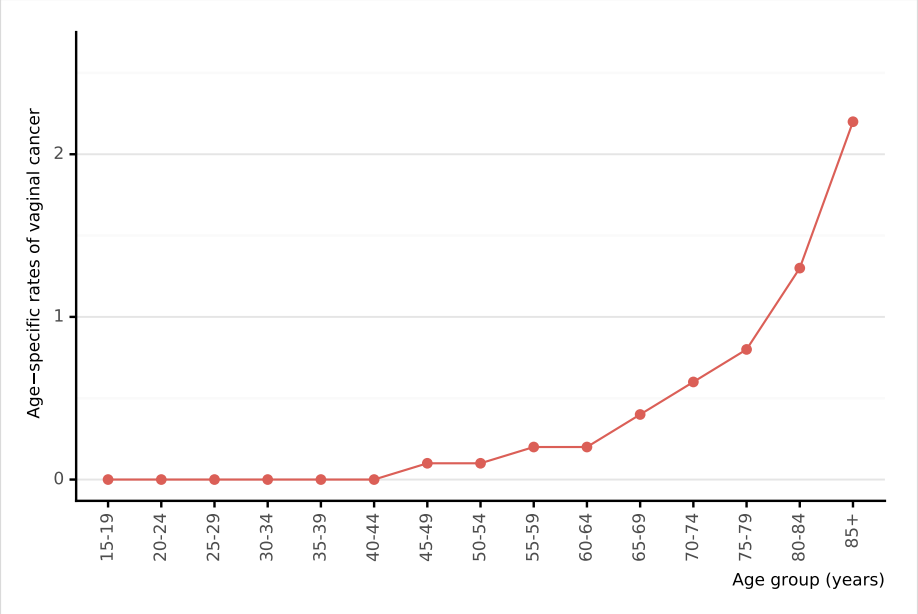
[a] Cumulative risk (mortality) is the probability or risk of individuals dying from the disease during ages 0-74 years. For cancer, it is expressed as the % of new born children who would be expected to die from a particular cancer before the age of 75 if they had the rates of cancer observed in the period in the absence of competing causes.

[b] Rates per 100,000 women per year.

Data Sources:

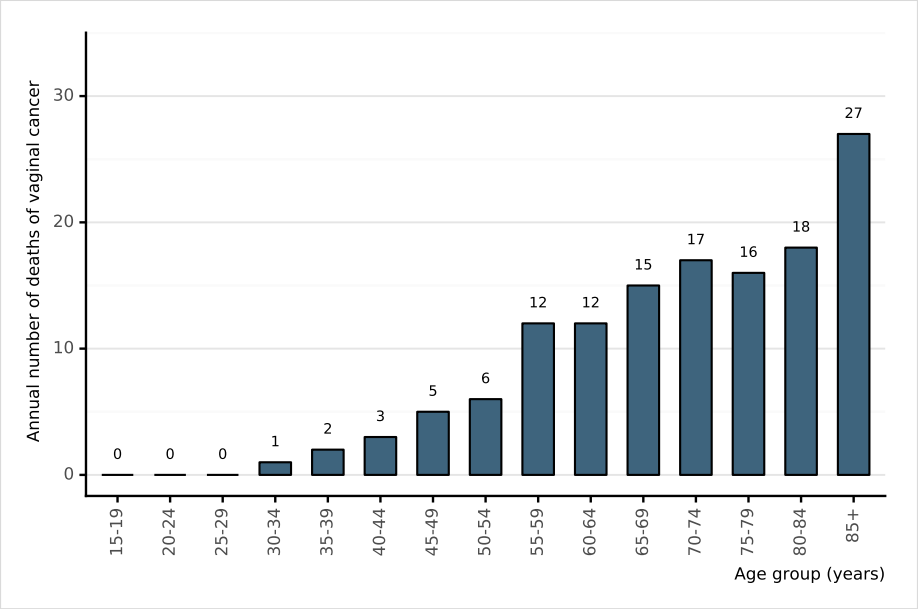
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 28: Age-specific mortality rates of vaginal cancer in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

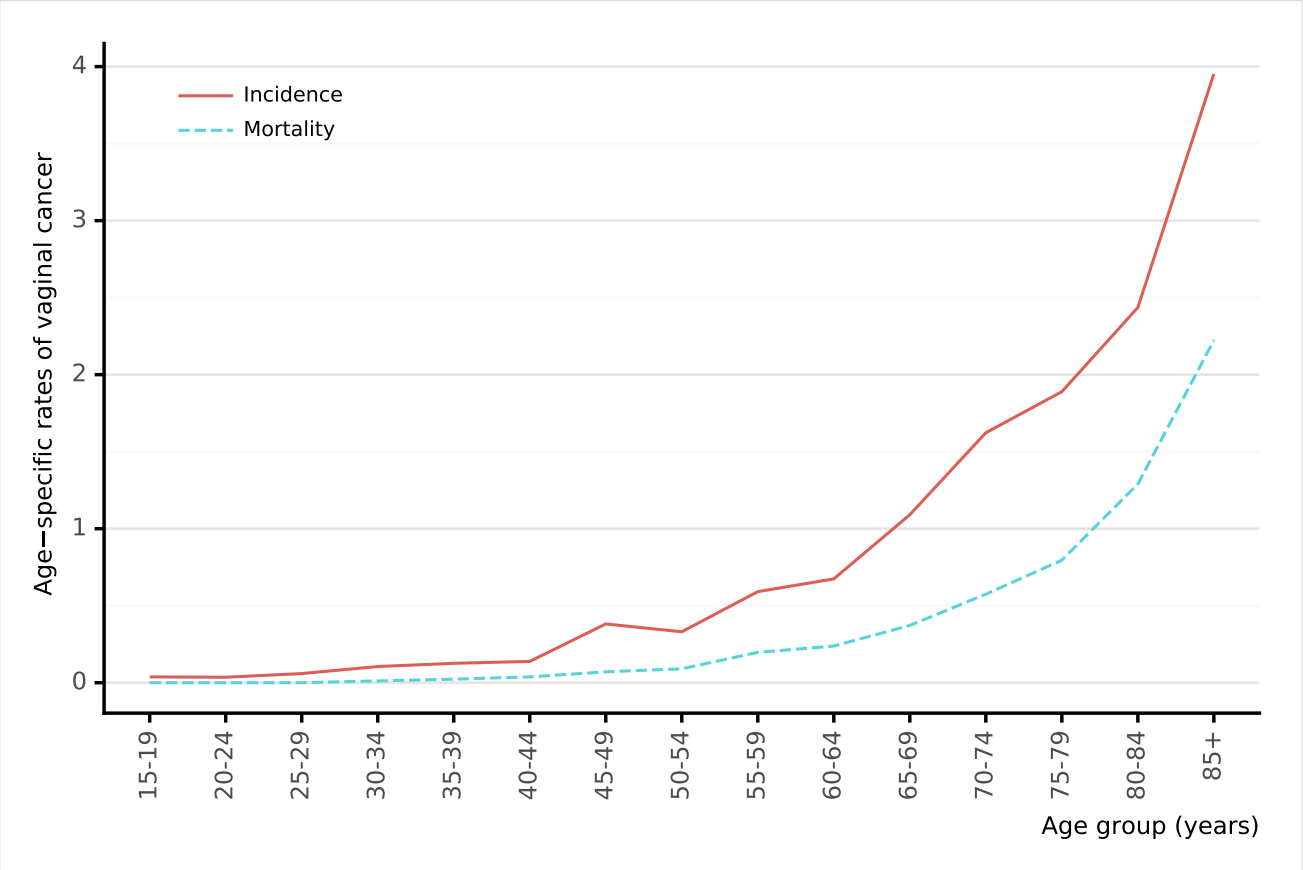
Figure 29: Annual number of deaths of vaginal cancer in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

3.4.3.3 Vaginal cancer incidence and mortality comparison in Brazil

Figure 30: Comparison of age-specific vaginal cancer incidence and mortality rates in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

3.4.4 Penile cancer

The annual burden of penile cancer has been estimated to be 34,000 cases in 2018 worldwide with incidence rates strongly correlating with those of cervical cancer (de Martel C et al. Lancet Glob Health 2020;8(2):e180-e190). Penile cancer is rare and most commonly affects men aged 50-70 years. Incidence rates are higher in less developed countries than in more developed countries, accounting for up to 10% of male cancers in some parts of Africa, South America and Asia. Precursor cancerous penile lesions (PeIN) are rare.

Cancers of the penis are primarily of squamous cell carcinomas (SCC) (95%) and the most common penile SCC histologic sub-types are keratinising (49%), mixed warty-basaloid (17%), verrucous (8%) warty (6%), and basaloid (4%). HPV is most commonly detected in basaloid and warty tumours but is less common in keratinising and verrucous tumours. Approximately 60-100% of PeIN lesions are HPV DNA positive.

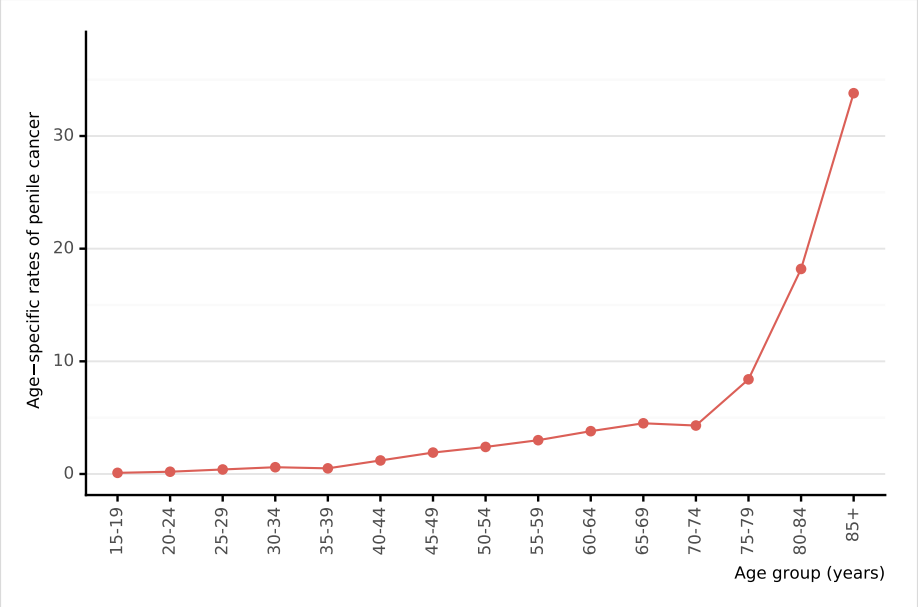
3.4.4.1 Penile cancer incidence in Brazil

Table 13: Penile cancer incidence in Brazil (estimates for 2020)

Indicator	Brazil	South America	World
Annual number of new cancer cases	1,658	3,688	36,068
Uncertainty intervals [95% UI]	[1,417-1,940]	[2,830-4,806]	[30,963-42,015]
Crude incidence rate[b]	1.59	1.74	0.92
Age-standardized incidence rate[b]	1.33	1.46	0.80
Cumulative risk (%) at 75 years old[a]	0.12	0.14	0.09

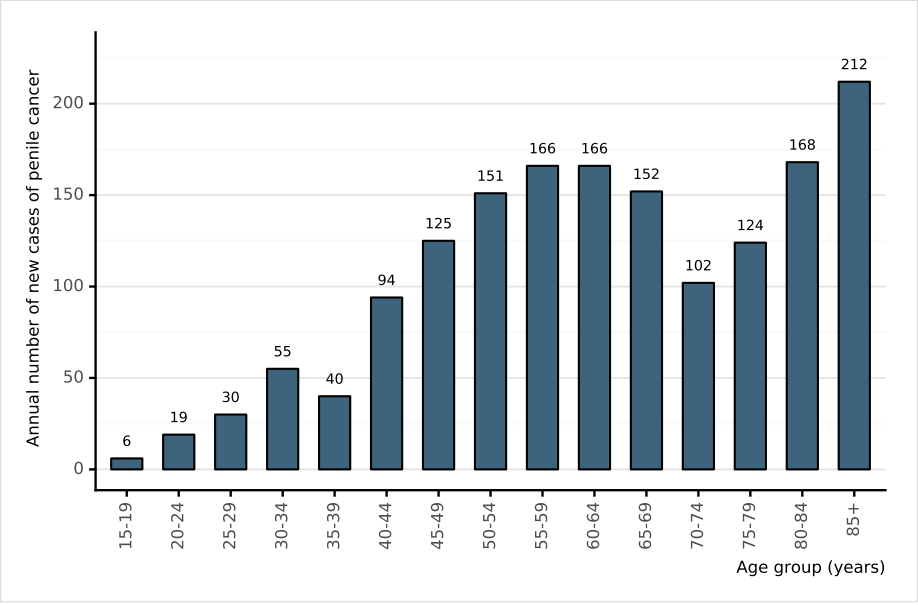
Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Cumulative risk (incidence) is the probability or risk of individuals getting from the disease during ages 0-74 years. For cancer, it is expressed as the % of new born children who would be expected to develop from a particular cancer before the age of 75 if they had the rates of cancer observed in the period in the absence of competing causes.
[b] Rates per 100,000 men per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 31: Age-specific incidence rates of penile cancer in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 men per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 32: Annual number of new cases of penile cancer in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

3.4.4.2 Penile cancer mortality in Brazil

Table 14: Penile cancer mortality in Brazil (estimates for 2020)

Indicator	Brazil	South America	World
Annual number of deaths	539	1,198	13,211
Uncertainty intervals [95% UI]	[477-609]	[1,062-1,351]	[10,687-16,332]
Crude mortality rate[b]	0.52	0.56	0.34
Age-standardized mortality rate[b]	0.42	0.47	0.29
Cumulative risk (%) at 75 years old[a]	0.04	0.05	0.03

Data accessed on 27 Jan 2021

For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

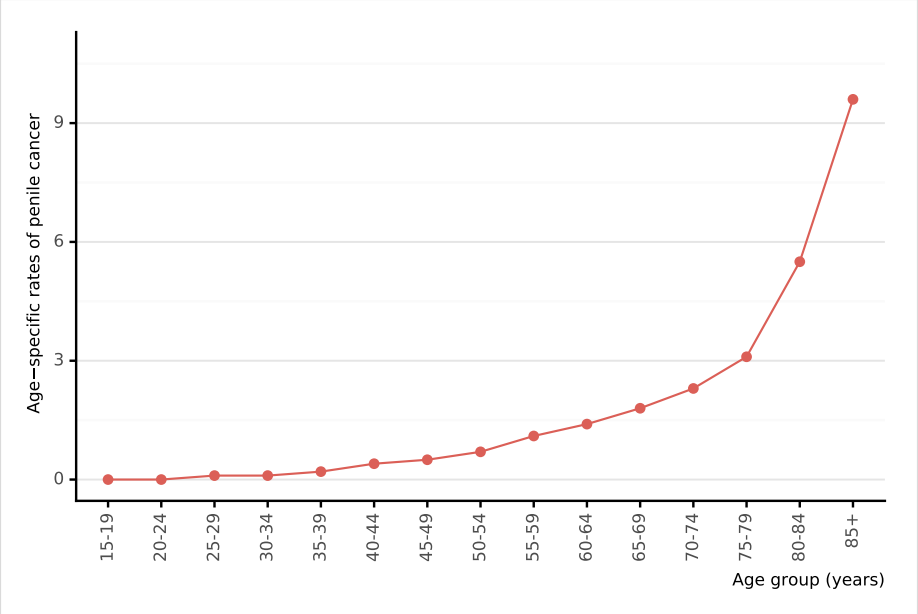
[a] Cumulative risk (mortality) is the probability or risk of individuals dying from the disease during ages 0-74 years. For cancer, it is expressed as the % of new born children who would be expected to die from a particular cancer before the age of 75 if they had the rates of cancer observed in the period in the absence of competing causes.

[b] Rates per 100,000 men per year.

Data Sources:

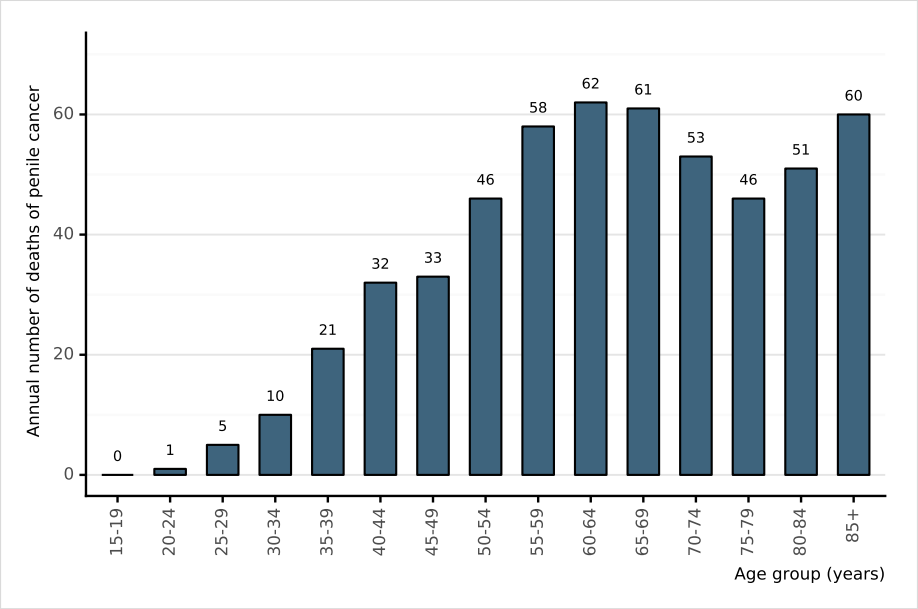
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 33: Age-specific mortality rates of penile cancer in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 men per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

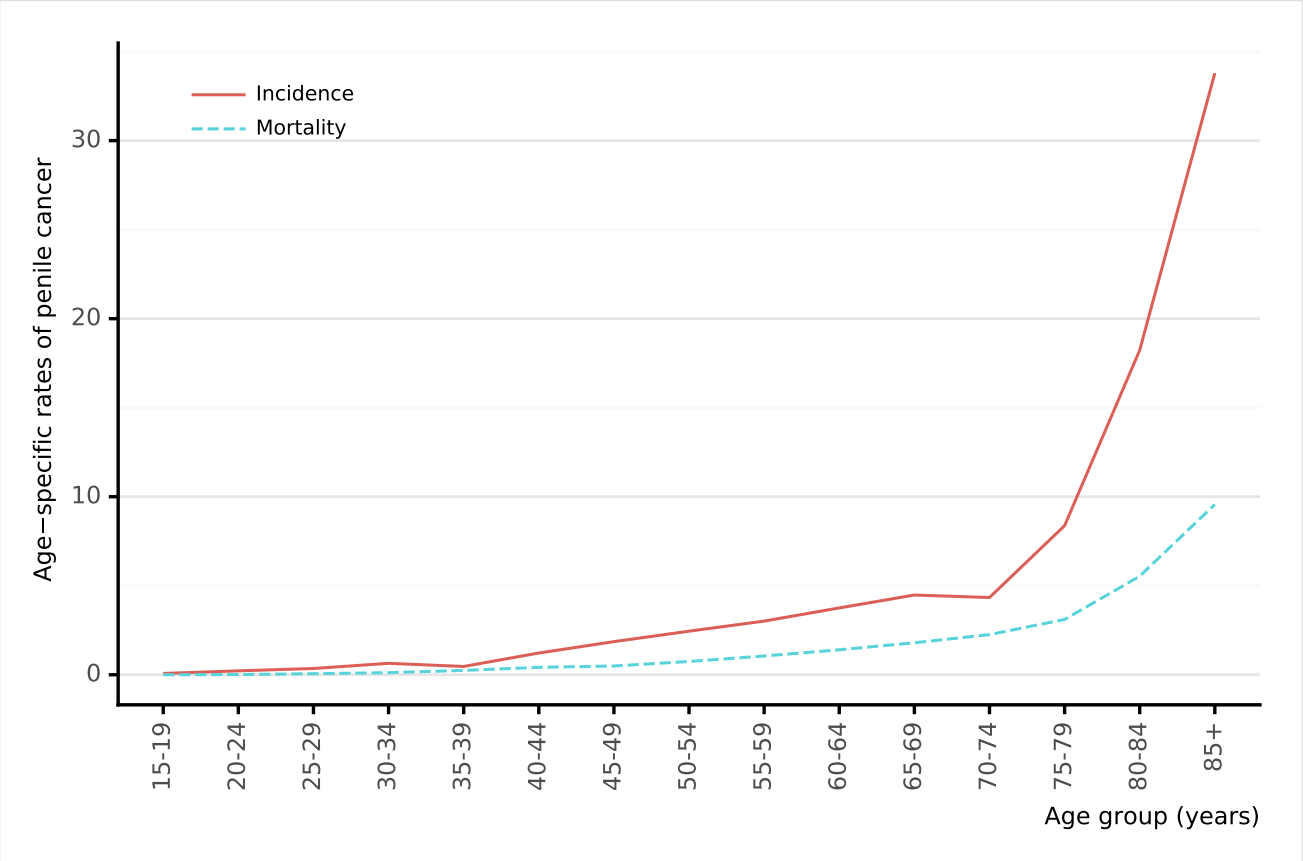
Figure 34: Annual number of deaths of penile cancer in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

3.4.4.3 Penile cancer incidence and mortality comparison in Brazil

Figure 35: Comparison of age-specific penile cancer incidence and mortality rates in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 men per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

3.5 Head and neck cancers

The majority of head and neck cancers are associated with high tobacco and alcohol consumption. However, increasing trends in the incidence at specific sites suggest that other aetiological factors are involved, and infection by certain high-risk types of HPV (i.e. HPV16) have been reported to be associated with head and neck cancers, in particular with oropharyngeal cancer. Current evidence suggests that HPV16 is associated with tonsil cancer (including Waldeyer ring cancer), base of tongue cancer and other oropharyngeal cancer sites. Associations with other head and neck cancer sites such as oral cancer are neither strong nor consistent when compared to molecular-epidemiological data on HPV and oropharyngeal cancer. Association with laryngeal cancer is still unclear (IARC Monograph Vol 100B)

3.5.1 Oropharyngeal cancer

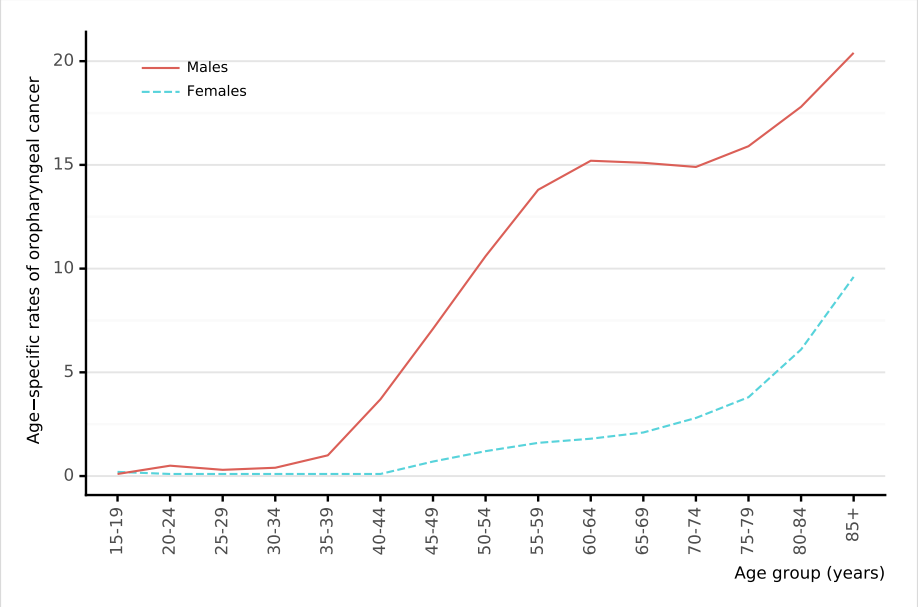
3.5.1.1 Oropharyngeal cancer incidence in Brazil

Table 15: Oropharyngeal cancer incidence in Brazil (estimates for 2020)

Indicator	Brazil	South America	World
MEN			
Annual number of new cancer cases	4,460	5,971	79,045
Uncertainty intervals of new cancer cases [95% UI]	[4,072-4,885]	[5,017-7,107]	[72,769-85,862]
Crude incidence rate sa[b]	4.27	2.82	2.01
Age-standardized incidence rate sa[b]	3.63	2.48	1.79
Cumulative risk (%) at 75 years old[a]	0.41	0.29	0.22
WOMEN			
Annual number of new cancer cases	848	1,321	19,367
Uncertainty intervals of new cancer cases [95% UI]	[715-1,006]	[931-1,875]	[16,279-23,041]
Crude incidence rate sa[c]	0.78	0.60	0.50
Age-standardized incidence rate sa[c]	0.56	0.44	0.40
Cumulative risk (%) at 75 years old[a]	0.06	0.05	0.05

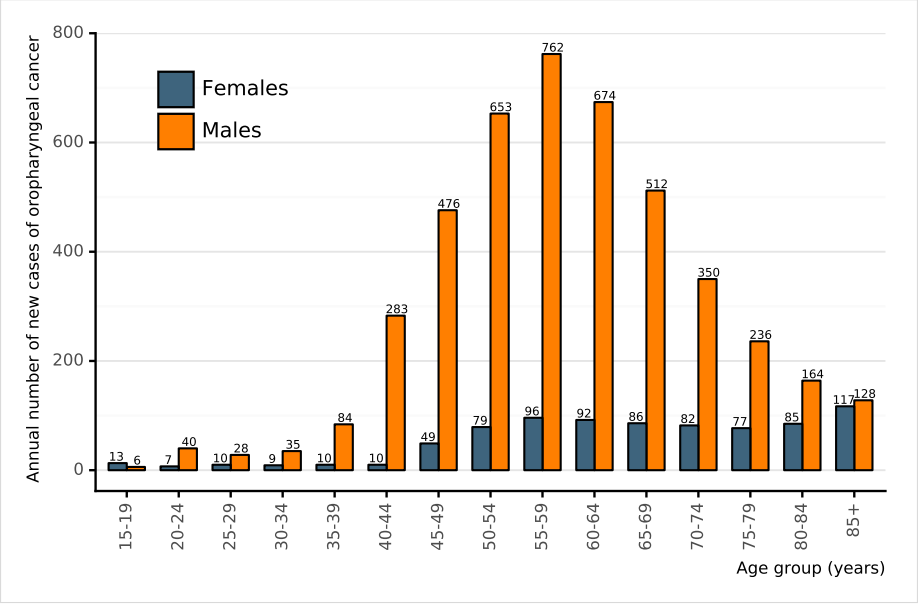
Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Cumulative risk (incidence) is the probability or risk of individuals getting from the disease during ages 0-74 years. For cancer, it is expressed as the % of new born children who would be expected to develop from a particular cancer before the age of 75 if they had the rates of cancer observed in the period in the absence of competing causes.
[b] Rates per 100,000 men per year.
[c] Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 36: Age-specific incidence rates of oropharyngeal cancer in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 men per year.
[b] Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 37: Annual number of new cases of oropharyngeal cancer in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

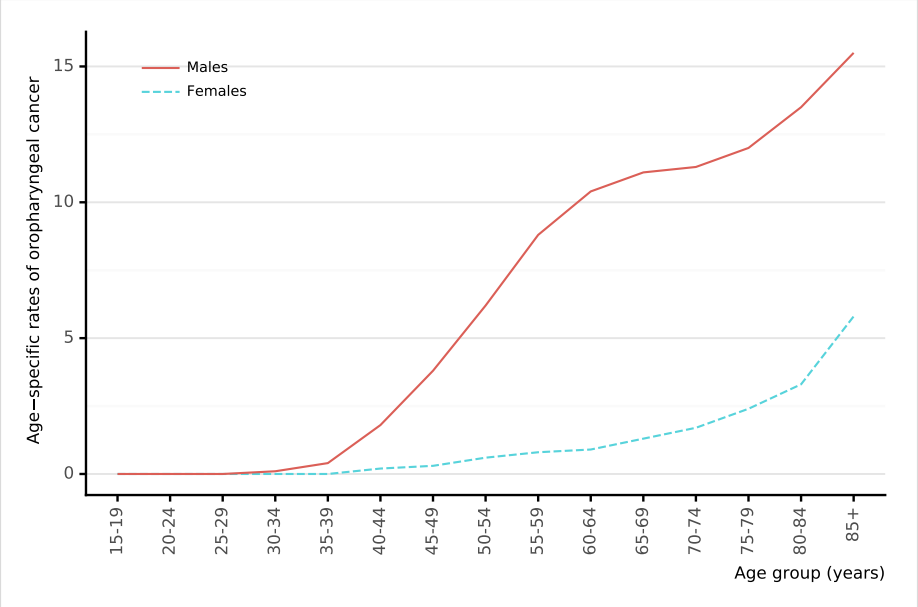
3.5.1.2 Oropharyngeal cancer mortality in Brazil

Table 16: Oropharyngeal cancer mortality in Brazil (estimates for 2020)

Indicator	Brazil	South America	World
MEN			
Annual number of deaths	2,804	3,415	39,590
Uncertainty intervals of mortality cancer cases [95% UI]	[2,613-3,009]	[3,226-3,616]	[35,255-44,458]
Crude mortality rate sa[b]	2.68	1.61	1.01
Age-standardized mortality rate sa[b]	2.27	1.40	0.89
Cumulative risk (%) at 75 years old[a]	0.27	0.17	0.11
WOMEN			
Annual number of deaths	439	632	8,553
Uncertainty intervals of mortality cancer cases [95% UI]	[384-501]	[548-729]	[6,684-10,945]
Crude mortality rate sa[c]	0.41	0.29	0.22
Age-standardized mortality rate sa[c]	0.27	0.20	0.17
Cumulative risk (%) at 75 years old[a]	0.03	0.02	0.02

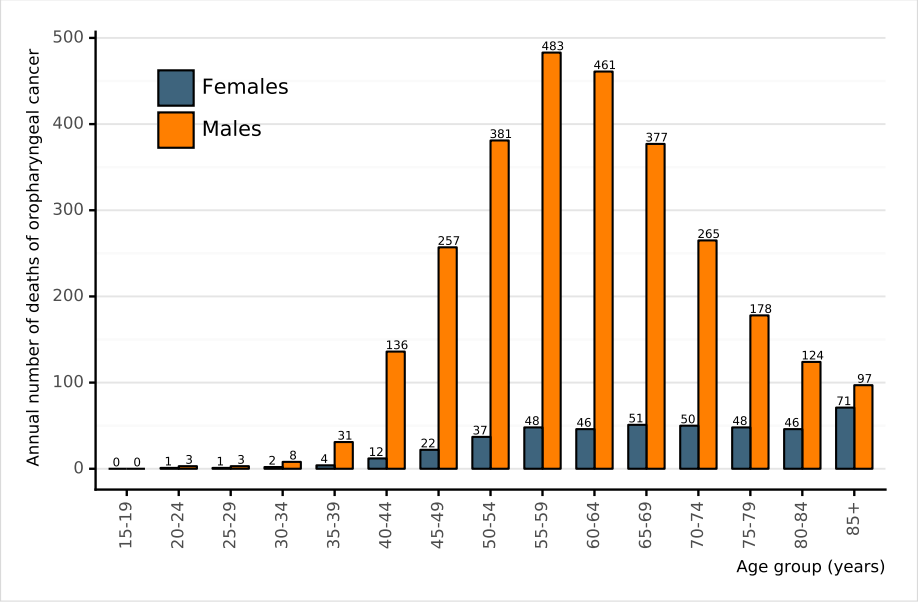
Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Cumulative risk (mortality) is the probability or risk of individuals dying from the disease during ages 0-74 years. For cancer, it is expressed as the % of new born children who would be expected to die from a particular cancer before the age of 75 if they had the rates of cancer observed in the period in the absence of competing causes.
[b] Rates per 100,000 men per year.
[c] Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 38: Age-specific mortality rates of oropharyngeal cancer in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 men per year.
[b] Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 39: Annual number of deaths of oropharyngeal cancer in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
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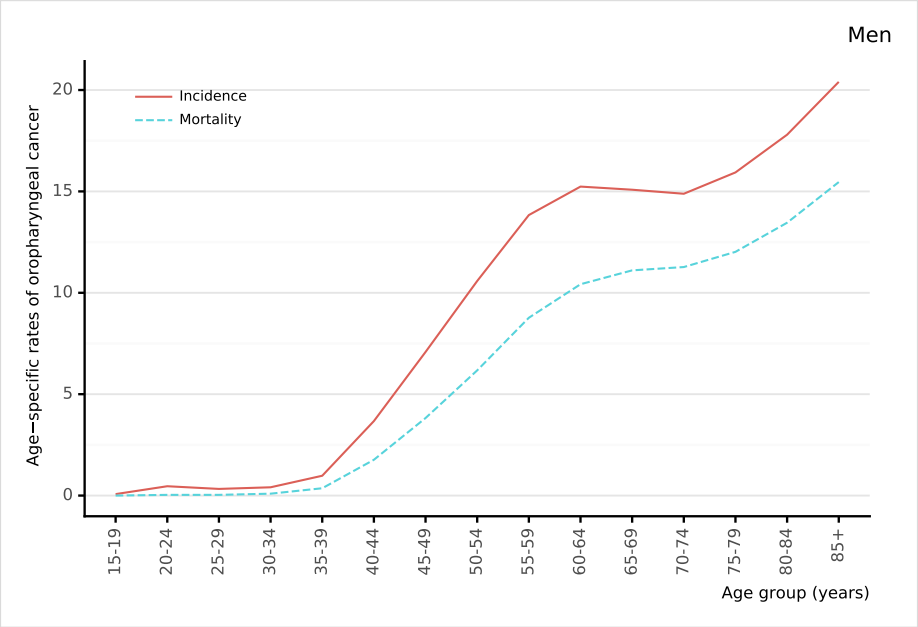
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

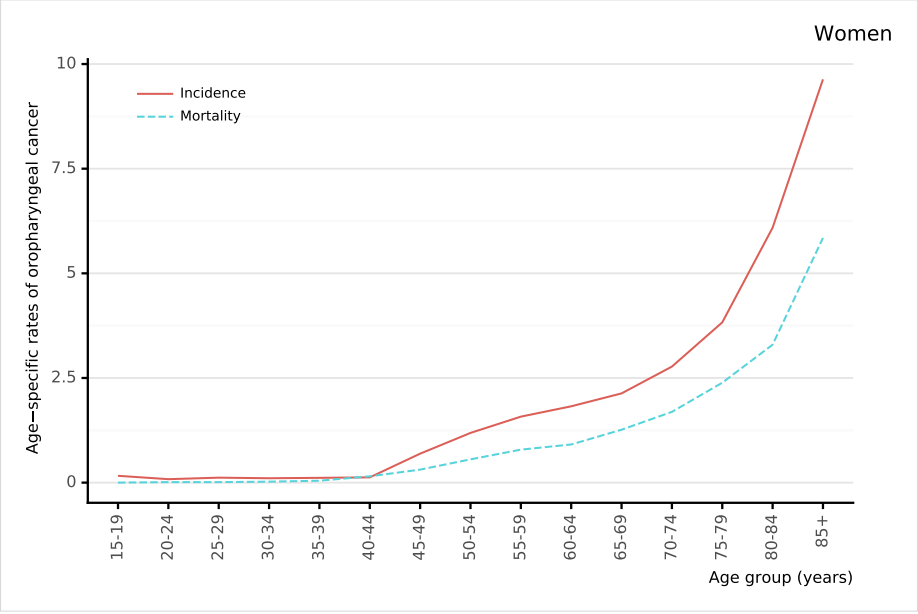
3.5.1.3 Oropharyngeal cancer incidence and mortality comparison in Brazil

Figure 40: Comparison of age-specific oropharyngeal cancer incidence and mortality rates among men in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 men per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 41: Comparison of age-specific oropharyngeal cancer incidence and mortality rates among women in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

3.5.2 Oral cavity cancer

3.5.2.1 Oral cavity cancer incidence in Brazil

Table 17: Oral cavity cancer incidence in Brazil (estimates for 2020)

Indicator	Brazil	South America	World
MEN			
Annual number of new cancer cases	7,241	9,636	264,211
Uncertainty intervals of new cancer cases [95% UI]	[6,780-7,733]	[8,570-10,835]	[251,153-277,948]
Crude incidence rate sa[b]	6.93	4.54	6.72
Age-standardized incidence rate sa[b]	5.86	3.95	5.96
Cumulative risk (%) at 75 years old[a]	0.67	0.46	0.68
WOMEN			
Annual number of new cancer cases	2,598	4,555	113,502
Uncertainty intervals of new cancer cases [95% UI]	[2,266-2,978]	[3,814-5,440]	[105,599-121,997]
Crude incidence rate sa[c]	2.40	2.08	2.94
Age-standardized incidence rate sa[c]	1.59	1.44	2.28
Cumulative risk (%) at 75 years old[a]	0.15	0.14	0.26

Data accessed on 27 Jan 2021

For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] Cumulative risk (incidence) is the probability or risk of individuals getting from the disease during ages 0-74 years. For cancer, it is expressed as the % of new born children who would be expected to develop from a particular cancer before the age of 75 if they had the rates of cancer observed in the period in the absence of competing causes.

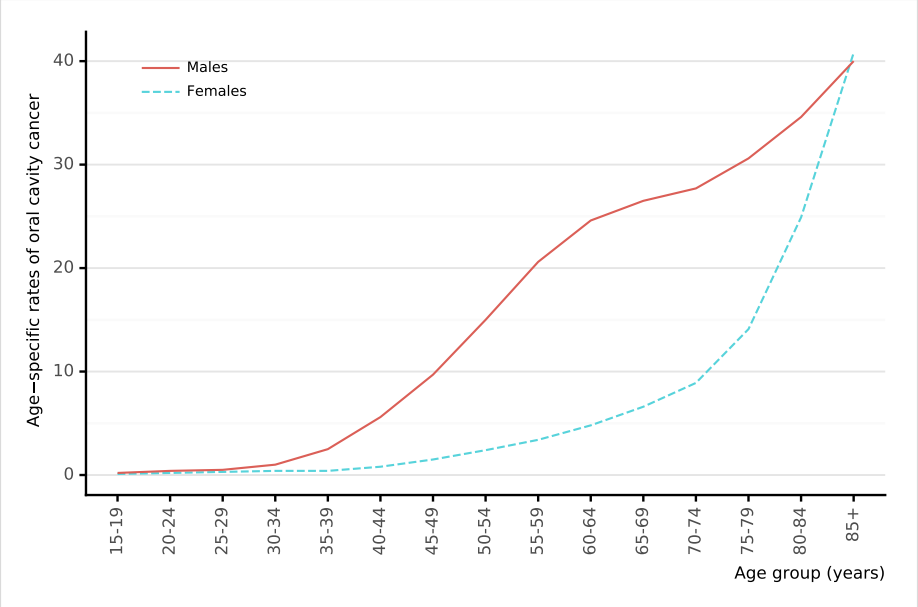
[b] Rates per 100,000 men per year.

[c] Rates per 100,000 women per year.

Data Sources:

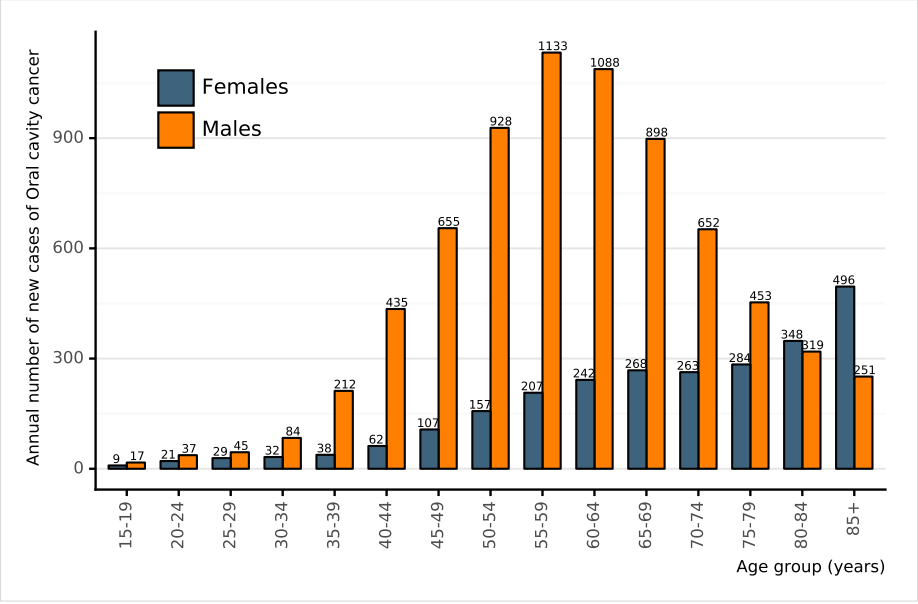
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 42: Age-specific incidence rates of oral cavity cancer in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 men per year.
[b] Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 43: Annual number of new cases of oral cavity cancer in Brazil (estimates for 2020)



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Data Sources:
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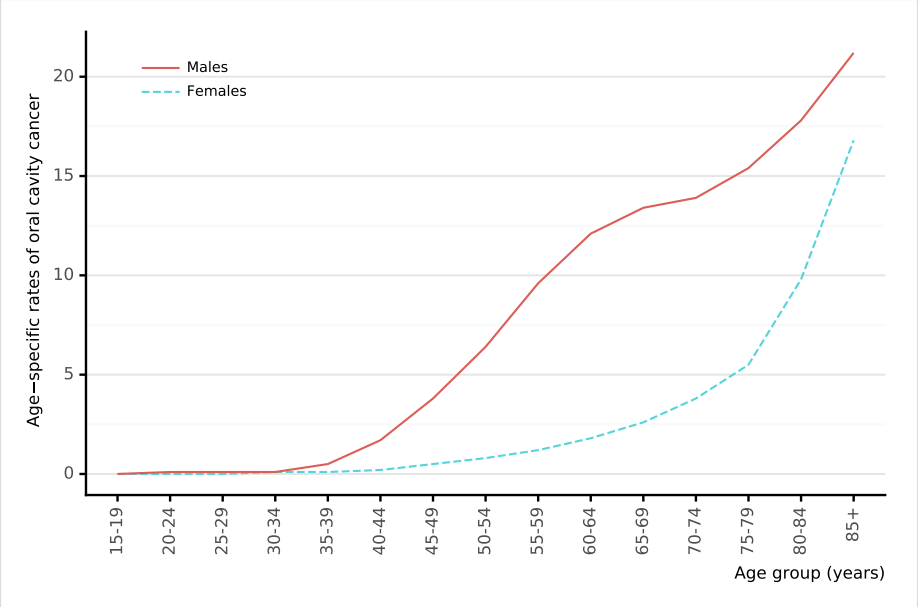
3.5.2.2 Oral cavity cancer incidence and mortality comparison in Brazil

Table 18: Oral cavity cancer mortality in Brazil (estimates for 2020)

Indicator	Brazil	South America	World
MEN			
Annual number of deaths	3,225	4,252	125,022
Uncertainty intervals of mortality cancer cases [95% UI]	[3,065-3,394]	[4,036-4,479]	[116,573-134,084]
Crude mortality rate sa[b]	3.09	2.00	3.18
Age-standardized mortality rate sa[b]	2.60	1.74	2.82
Cumulative risk (%) at 75 years old[a]	0.31	0.21	0.32
WOMEN			
Annual number of deaths	973	1,775	52,735
Uncertainty intervals of mortality cancer cases [95% UI]	[875-1,082]	[1,623-1,942]	[47,690-58,313]
Crude mortality rate sa[c]	0.90	0.81	1.36
Age-standardized mortality rate sa[c]	0.57	0.53	1.04
Cumulative risk (%) at 75 years old[a]	0.06	0.05	0.12

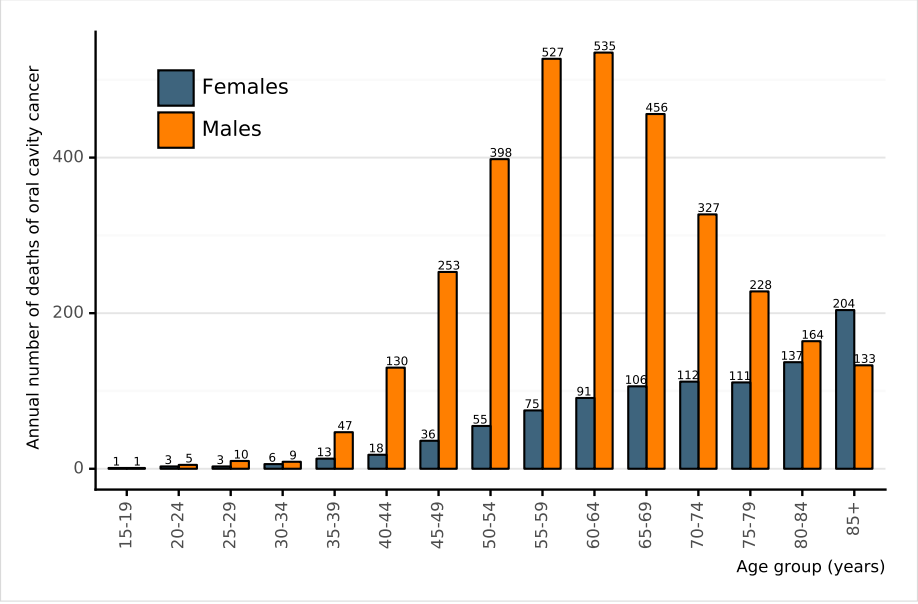
Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Cumulative risk (mortality) is the probability or risk of individuals dying from the disease during ages 0-74 years. For cancer, it is expressed as the % of new born children who would be expected to die from a particular cancer before the age of 75 if they had the rates of cancer observed in the period in the absence of competing causes.
[b] Rates per 100,000 men per year.
[c] Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 44: Age-specific mortality rates of oral cavity cancer in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 men per year.
[b] Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

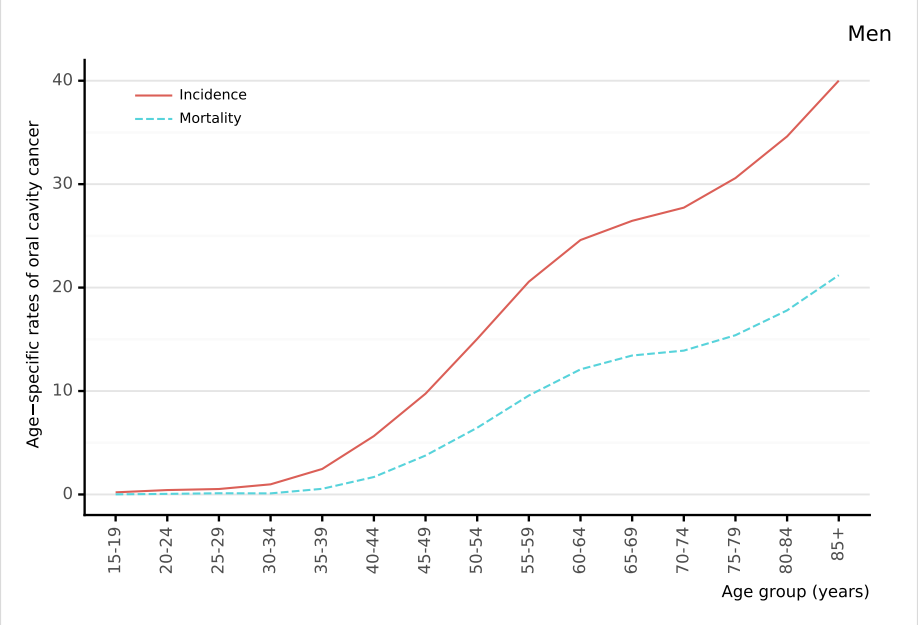
Figure 45: Annual number of deaths of oral cavity cancer in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

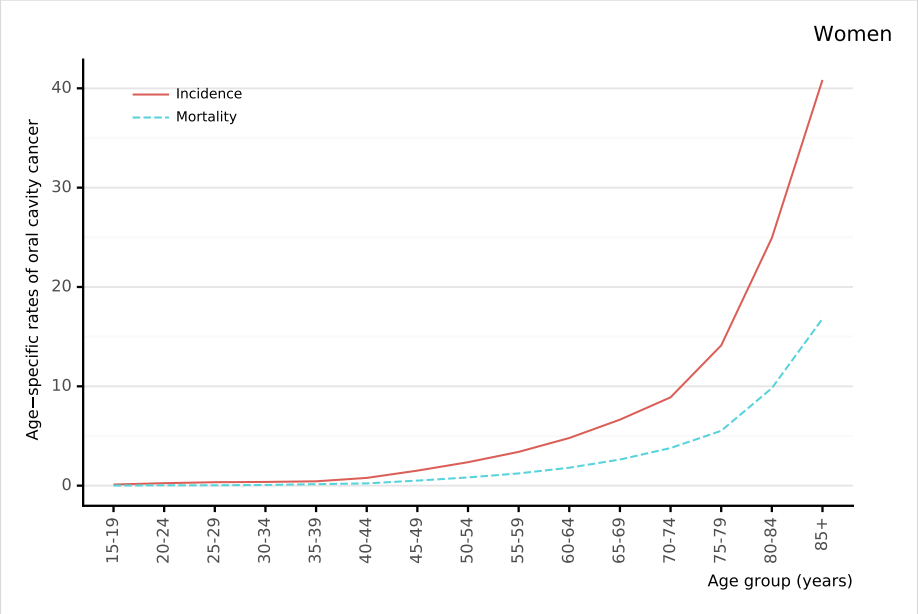
3.5.2.3 Oral cavity cancer incidence and mortality comparison in Brazil

Figure 46: Comparison of age-specific oral cavity cancer incidence and mortality rates among men in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 men per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 47: Comparison of age-specific oral cavity cancer incidence and mortality rates among women in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

3.5.3 Laryngeal cancer

3.5.3.1 Laryngeal cancer incidence in Brazil

Table 19: Laryngeal cancer incidence in Brazil (estimates for 2020)

Indicator	Brazil	South America	World
MEN			
Annual number of new cancer cases	6,580	10,230	160,265
Uncertainty intervals of new cancer cases [95% UI]	[6,165-7,023]	[9,033-11,585]	[150,633-170,513]
Crude incidence rate sa[b]	6.30	4.82	4.08
Age-standardized incidence rate sa[b]	5.33	4.18	3.59
Cumulative risk (%) at 75 years old[a]	0.66	0.52	0.45
WOMEN			
Annual number of new cancer cases	1,415	1,979	24,350
Uncertainty intervals of new cancer cases [95% UI]	[1,220-1,642]	[1,486-2,636]	[20,845-28,444]
Crude incidence rate sa[c]	1.31	0.90	0.63
Age-standardized incidence rate sa[c]	0.93	0.66	0.49
Cumulative risk (%) at 75 years old[a]	0.11	0.08	0.06

Data accessed on 27 Jan 2021

For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] Cumulative risk (incidence) is the probability or risk of individuals getting from the disease during ages 0-74 years. For cancer, it is expressed as the % of new born children who would be expected to develop from a particular cancer before the age of 75 if they had the rates of cancer observed in the period in the absence of competing causes.

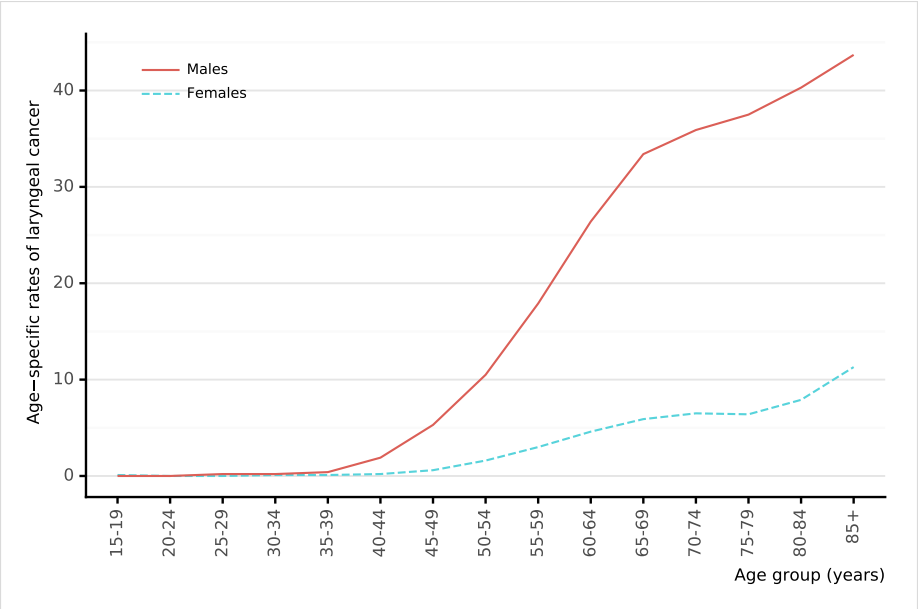
[b] Rates per 100,000 men per year.

[c] Rates per 100,000 women per year.

Data Sources:

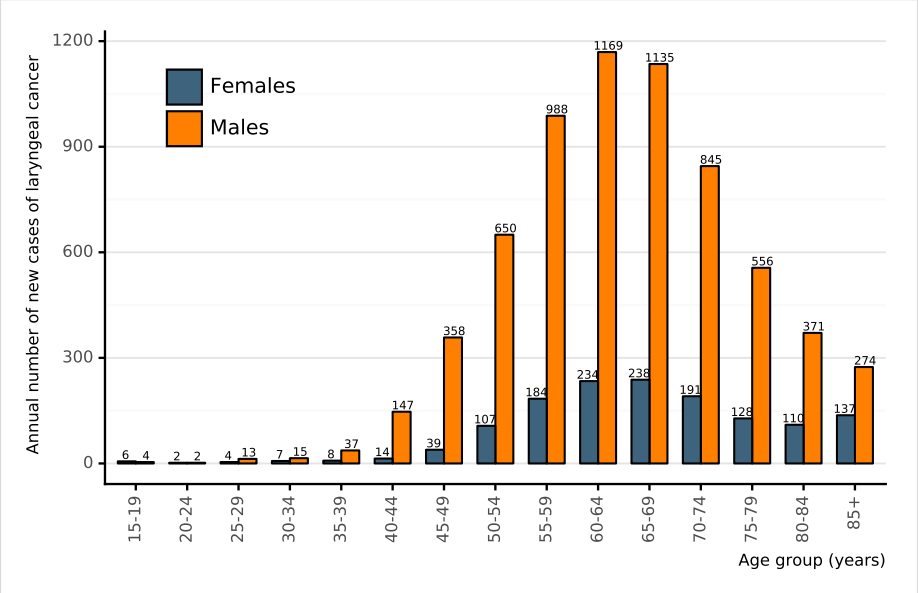
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 48: Age-specific incidence rates of laryngeal cancer in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 men per year.
[b] Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 49: Annual number of new cases of laryngeal cancer in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

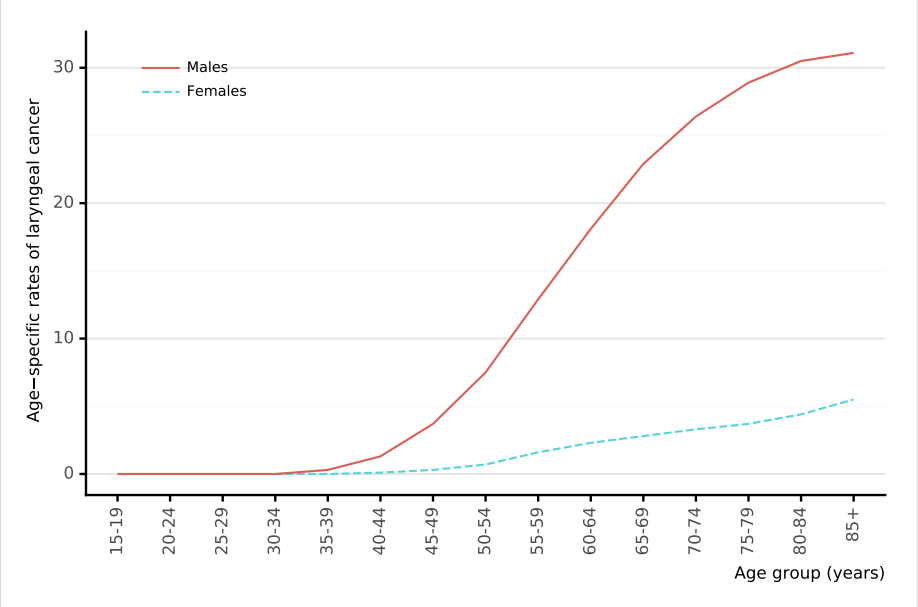
3.5.3.2 Laryngeal cancer incidence and mortality comparison in Brazil

Table 20: Laryngeal cancer mortality in Brazil (estimates for 2020)

Indicator	Brazil	South America	World
MEN			
Annual number of deaths	4,652	6,812	85,351
Uncertainty intervals of mortality cancer cases [95% UI]	[4,423-4,893]	[6,530-7,107]	[78,895-92,335]
Crude mortality rate sa[b]	4.45	3.21	2.17
Age-standardized mortality rate sa[b]	3.75	2.75	1.89
Cumulative risk (%) at 75 years old[a]	0.46	0.34	0.23
WOMEN			
Annual number of deaths	716	1,061	14,489
Uncertainty intervals of mortality cancer cases [95% UI]	[638-804]	[950-1,185]	[11,902-17,639]
Crude mortality rate sa[c]	0.66	0.49	0.37
Age-standardized mortality rate sa[c]	0.46	0.34	0.28
Cumulative risk (%) at 75 years old[a]	0.06	0.04	0.03

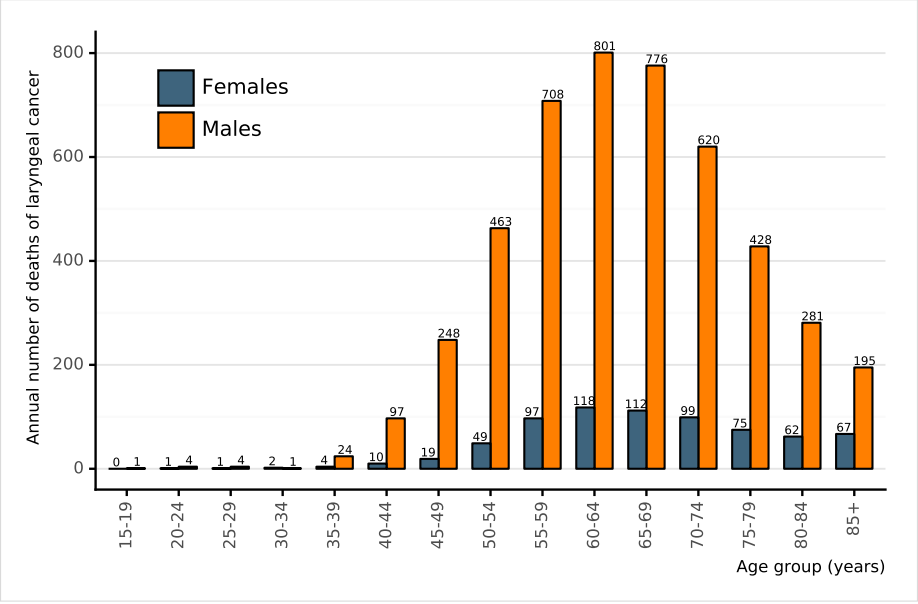
Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Cumulative risk (mortality) is the probability or risk of individuals dying from the disease during ages 0-74 years. For cancer, it is expressed as the % of new born children who would be expected to die from a particular cancer before the age of 75 if they had the rates of cancer observed in the period in the absence of competing causes.
[b] Rates per 100,000 men per year.
[c] Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 50: Age-specific mortality rates of laryngeal cancer in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 men per year.
[b] Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

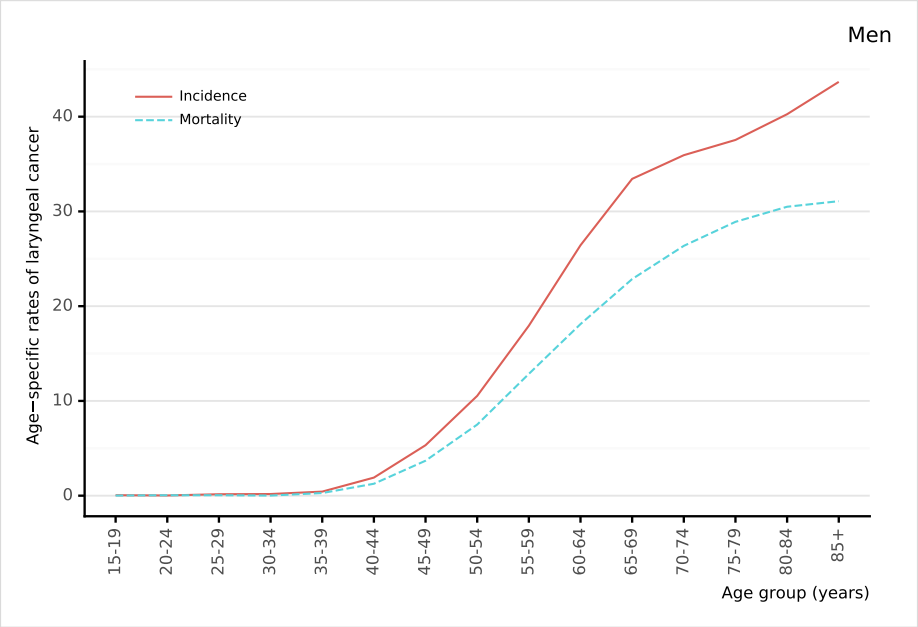
Figure 51: Annual number of deaths of of laryngeal cancer in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

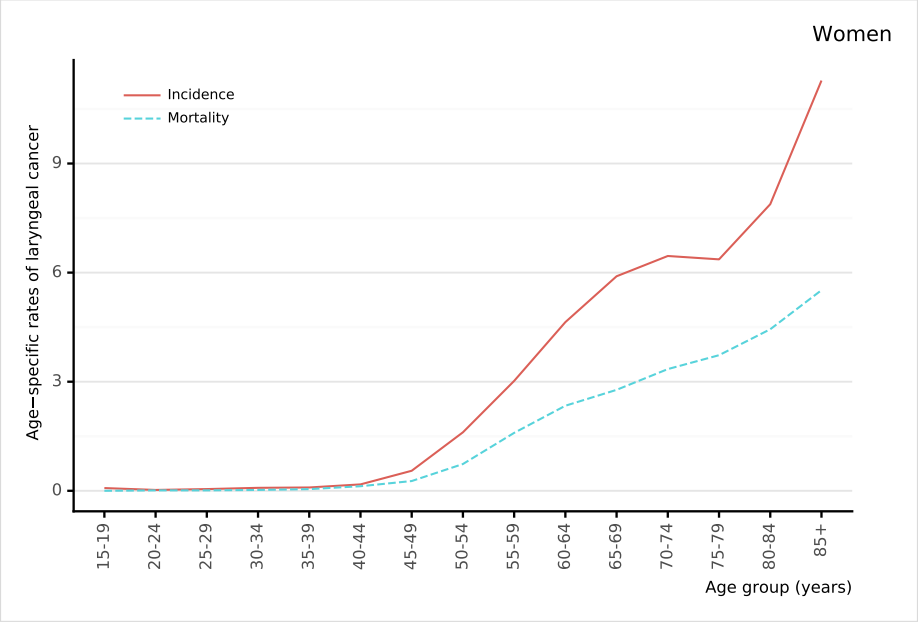
3.5.3.3 Laryngeal cancer incidence and mortality comparison in Brazil

Figure 52: Comparison of age-specific laryngeal cancer incidence and mortality rates among men in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 men per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 53: Comparison of age-specific laryngeal cancer incidence and mortality rates among women in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

4 HPV related statistics

HPV infection is commonly found in the anogenital tract of men and women with and without clinical lesions. The aetiological role of HPV infection among women with cervical cancer is well-established, and there is growing evidence of its central role in other anogenital sites. HPV is also responsible for other diseases such as recurrent juvenile respiratory papillomatosis and genital warts, both mainly caused by HPV types 6 and 11 (Lacey CJ, Vaccine 2006; 24(S3):35). For this section, the methodologies used to compile the information on HPV burden are derived from systematic reviews and meta-analyses of the literature. Due to the limitations of HPV DNA detection methods and study designs used, these data should be interpreted with caution and used only as a guide to assess the burden of HPV infection within the population. (Vaccine 2006, Vol. 24, Suppl 3; Vaccine 2008, Vol. 26, Suppl 10; Vaccine 2012,Vol. 30, Suppl 5; IARC Monographs 2007, Vol. 90).

4.1 HPV burden in women with normal cervical cytology, cervical precancerous lesions or invasive cervical cancer

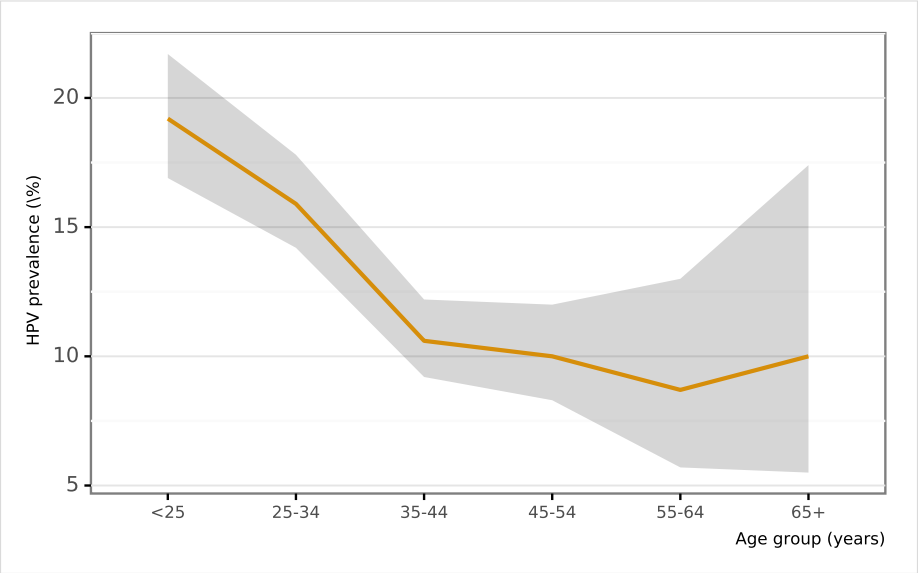
The statistics shown in this section focus on HPV infection in the cervix uteri. HPV cervical infection results in cervical morphological lesions ranging from normalcy (cytologically normal women) to different stages of precancerous lesions (CIN-1, CIN-2, CIN-3/CIS) and invasive cervical cancer. HPV infection is measured by HPV DNA detection in cervical cells (fresh tissue, paraffin embedded or exfoliated cells). The prevalence of HPV increases with lesion severity. HPV causes virtually 100% of cervical cancer cases, and an underestimation of HPV prevalence in cervical cancer is most likely due to the limitations of study methodologies. Worldwide, HPV16 and 18 (the two vaccine-preventable types) contribute to over 70% of all cervical cancer cases, between 41% and 67% of high-grade cervical lesions and 16-32% of low-grade cervical lesions. After HPV16/18, the six most common HPV types are the same in all world regions, namely 31, 33, 35, 45, 52 and 58; these account for an additional 20% of cervical cancers worldwide (Clifford G, Vaccine 2006;24(S3):26).

Methods: Prevalence and type distribution of human papillomavirus in cervical carcinoma, low-grade cervical lesions, high-grade cervical lesions and normal cytology: systematic review and meta-analysis

A systematic review of the literature was conducted regarding the worldwide HPV-prevalence and type distribution for cervical carcinoma, low-grade cervical lesions, high-grade cervical lesions and normal cytology from 1990 to 'data as of' indicated in each section. The search terms for the review were 'HPV' AND cerv* using Pubmed. There were no limits in publication language. References cited in selected articles were also investigated. Inclusion criteria were: HPV DNA detection by means of PCR or HC2, a minimum of 20 cases for cervical carcinoma, 20 cases for low-grade cervical lesions, 20 cases for highgrade cervical lesions and 100 cases for normal cytology and a detailed description of HPV DNA detection and genotyping techniques used. The number of cases tested and HPV positive extracted for each study were pooled to estimate the prevalence of HPV DNA and the HPV type distribution globally and by geographical region. Binomial 95% confidence intervals were calculated for each HPV prevalence. For more details refer to the methods document.

4.1.1 HPV prevalence in women with normal cervical cytology

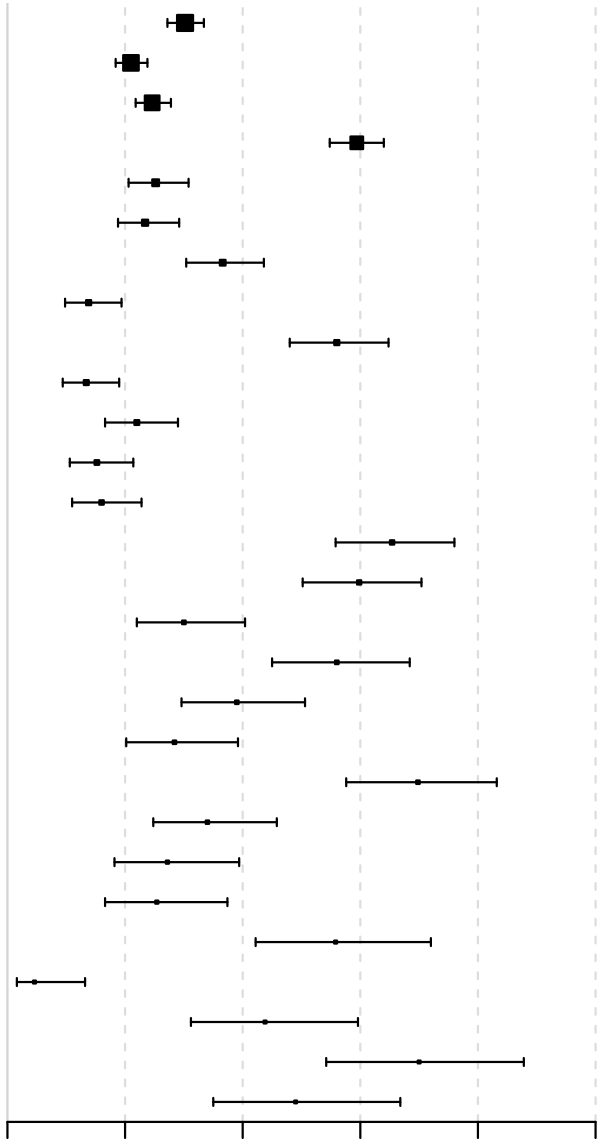
Figure 54: Crude age-specific HPV prevalence (%) and 95% confidence interval in women with normal cervical cytology in Brazil



Data updated on 30 Jun 2015 (data as of 30 Jun 2014)

Data Sources:
da Silva MC, Arch Gynecol Obstet 2012; 286: 1015 | Fernandes JV, Int J Gynaecol Obstet 2009; 105: 21 | Miranda PM, Genet Mol Res 2012; 11: 1752 | Muñoz N, Sex Transm Dis 1996; 23: 504 | Noronha VL, DST J Bras Doenças Sex Transm 2005; 17: 49 | Rama CH, Rev Saude Publica 2008; 42: 123 | Trottier H, Cancer Epidemiol Biomarkers Prev 2006; 15: 1274
Based on systematic reviews and meta-analysis performed by ICO. The ICO HPV Information Centre has updated data until June 2014. Reference publications: 1) Bruni L, J Infect Dis 2010; 202: 1789. 2) De Sanjosé S, Lancet Infect Dis 2007; 7: 453

Figure 55: HPV prevalence among women with normal cervical cytology in Brazil, by study



Trottier 2006 (Sao Paulo)	18−59	1988	15.1 (13.6−16.7)
Lorenzi 2013 (Barretos (Sao Paulo))	18−76	1921	10.5 (9.2−11.9)
Girianelli 2010[c]	25−59	1800	12.3 (10.9−13.9)
Roteli−Martins 2011[b]	15−25	1509	29.7 (27.4−32.0)
Carestiato 2006 (Rio de Janeiro)	11−70	672	12.6 (10.3−15.4)
Oliveira 2007 (Pacoti, Ceara)[b]	13−49	579	11.7 (9.4−14.6)
Franco 1995 (Paraiba)[b]	15−65	525	18.3 (15.2−21.8)
Noronha 2005 (Para)	30−45	433	6.9 (4.9−9.7)
Figueiredo Alves 2013 (Goiana)[b]	15−19	432	28.0 (24.0−32.4)
da Silva 2012 (Paiçandú (Paraná))	15−83	418	6.7 (4.7−9.5)
Miranda 2012[d]	18−65	399	11.0 (8.3−14.5)
de Abreu 2012[e]	15−83	370	7.6 (5.3−10.7)
Augusto 2014 (Niterói City)	14−79	338	8.0 (5.5−11.4)
Coser 2013 (Cruz Alta)	−	327	32.7 (27.9−38.0)
Rocha 2013 (Coari (Amazonas State))	18−78	314	29.9 (25.1−35.2)
Pinto 2011 (Pará)	>=13	233	15.0 (11.0−20.2)
Oliveira 2010 (Niterói City (Rio de Janeiro))	14−24	225	28.0 (22.5−34.2)
Lorenzato 2000 (Recife)	13−84	215	19.5 (14.8−25.3)
Pinto 2011 (Tucuruí)[b]	>=13	211	14.2 (10.1−19.6)
Lippman 2010 (Sao Pulo)	18−40	209	34.9 (28.8−41.6)
Muñoz 1996 (Sao Paulo)	26−77	194	17.0 (12.4−22.9)
de Oliveira 2013 (Rio Grande)[b]	>=14	162	13.6 (9.1−19.7)
Cassel 2014 (Porto Alegre)	−	158	12.7 (8.3−18.7)
Entiauspe 2014 (Pelotas)	18−45	136	27.9 (21.1−36.0)
Silva 2009 (Maricá)	14−79	130	2.3 (0.8−6.6)
Silva 2009 (Itaboraí)	14−79	128	21.9 (15.6−29.8)
Tamegão−Lopes 2014 (Juruti (Pará))	−	120	35.0 (27.1−43.9)
Fernandes 2009 (Natal)	15−65	110	24.5 (17.5−33.4)

Data updated on 30 Jun 2015 (data as of 30 Jun 2014)

The samples for HPV testing come from cervical specimens (fresh/fixed biopsies or exfoliated cells)
[a] Number of women tested
[b] Women from the general population, including some with cytological cervical abnormalities
[c] Duque de Caxias and Nova Iguaçu (State of Rio de Janeiro)
[d] Ouro Preto city (Minas Gerais)
[e] Maringá, Paiçandú and Uniao da Vitoria (Paraná State)

Data Sources:

Augusto EF, Rev Lat Am Enfermagem 2014; 22: 100 | Carestiato FN, Braz J Infect Dis 2006; 10: 331 | Cassel AP, Genet Mol Biol 2014; 37: 360 | Coser J, Genet Mol Res 2013; 12: 4276 | da Silva MC, Arch Gynecol Obstet 2012; 286: 1015 | de Abreu AL, Am J Trop Med Hyg 2012; 87: 1149 | de Oliveira GR, Rev Bras Ginecol Obstet 2013; 35: 226 | Entiauspe LG, Braz J Microbiol 2014; 45: 689 | Fernandes JV, Int J Gynaecol Obstet 2009; 105: 21 | Figueiredo Alves RR, BMC Public Health 2013; 13: 1041 | Franco EL, J Infect Dis 1995; 172: 756 | Girianelli VR, Rev Bras Ginecol Obstet 2010; 32: 39 | Lippman SA, Int J STD AIDS 2010; 21: 105 | Lorenzato F, Int J Gynecol Cancer 2000; 10: 143 | Lorenzi AT, Gynecol Oncol 2013; 131: 131 | Miranda PM, Genet Mol Res 2012; 11: 1752 | Muñoz N, Sex Transm Dis 1996; 23: 504 | Noronha VL, DST J Bras Doenças Sex Transm 2005; 17: 49 | Oliveira FA, Mem Inst Oswaldo Cruz 2007; 102: 751 | Oliveira LH, Rev Soc Bras Med Trop 2010; 43: 4 | Pinto Dda S, Cad Saude Publica 2011; 27: 769 | Rocha DA, Infect Dis Obstet Gynecol 2013; 2013: 514859 | Roteli-Martins CM, Int J Gynecol Pathol 2011; 30: 173 | Silva KC, Mem Inst Oswaldo Cruz 2009; 104: 885 | Tamegão-Lopes BP, Infect Agents Cancer 2014; 9: 25 | Trottier H, Cancer Epidemiol Biomarkers Prev 2006; 15: 1274

Based on systematic reviews and meta-analysis performed by ICO. The ICO HPV Information Centre has updated data until June 2014. Reference publications: 1) Bruni L, J Infect Dis 2010; 202: 1789. 2) De Sanjosé S, Lancet Infect Dis 2007; 7: 453

4.1.2 HPV type distribution among women with normal cervical cytology, precancerous cervical lesions and cervical cancer

Table 21: Prevalence of HPV16 and HPV18 by cytology in Brazil

	No. tested	HPV 16/18 Prevalence % (95% CI)
Normal cytology[1,2]	2731	5.4 (4.6-6.3)
Low-grade lesions[3,4]	554	30.9 (27.2-34.8)
High-grade lesions[5,6]	1463	56.8 (54.2-59.3)
Cervical cancer[7,8]	1364	68.2 (65.7-70.6)

Data updated on 19 May 2017 (data as of 30 Jun 2015 / 30 Nov 2014)

The samples for HPV testing come from cervical specimens (fresh/fixed biopsies or exfoliated cells)
[a] Number of women tested
[b] 95% Confidence Interval
Data Sources:

[1] Augusto EF, Rev Lat Am Enfermagem 2014; 22: 100 | Cassel AP, Genet Mol Biol 2014; 37: 360 | da Silva MC, Arch Gynecol Obstet 2012; 286: 1015 | de Abreu AL, Am J Trop Med Hyg 2012; 87: 1149 | Fernandes J, Ann Med Health Sci Res 2013; 3: 504 | Girianelli VR, Rev Bras Ginecol Obstet 2010; 32: 39 | Lorenzato F, Int J Gynecol Cancer 2000; 10: 143 | Miranda PM, Genet Mol Res 2012; 11: 1752 | Muñoz N, Sex Transm Dis 1996; 23: 504 | Noronha VL, DST J Bras Doenças Sex Transm 2005; 17: 49 | Rocha DA, Infect Dis Obstet Gynecol 2013; 2013: 514859 | Tamegão-Lopes BP, Infect Agents Cancer 2014; 9: 25

[2] Based on systematic reviews and meta-analysis performed by ICO. The ICO HPV Information Centre has updated data until November 2014. Reference publications: 1) Bruni L, J Infect Dis 2010; 202: 1789. 2) De Sanjosé S, Lancet Infect Dis 2007; 7: 453

[3] Contributing studies: Carestiato FN, Rev Soc Bras Med Trop 2006; 39: 428 | Fernandes JV, Int J Gynaecol Obstet 2009; 105: 21 | Franco E, Rev Panam Salud Publica 1999; 6: 223 | Freitas TP, Rev Inst Med Trop Sao Paulo 2007; 49: 297 | Krambeck WM, Clin Exp Obstet Gynecol 2008; 35: 175 | Lorenzato F, Int J Gynecol Cancer 2000; 10: 143 | Pitta DR, Rev Bras Ginecol Obstet 2010; 32: 315 | Resende LS, BMC Infect Dis 2014; 14: 214 | Ribeiro AA, Int J Gynecol Pathol 2011; 30: 288 | Tomita LY, Int J Cancer 2010; 126: 703

[4] Based on meta-analysis performed by IARC's Infections and Cancer Epidemiology Group up to November 2011, the ICO HPV Information Centre has updated data until June 2015. Reference publications: 1) Guan P, Int J Cancer 2012;131:2349 2) Clifford GM, Cancer Epidemiol Biomarkers Prev 2005;14:1157

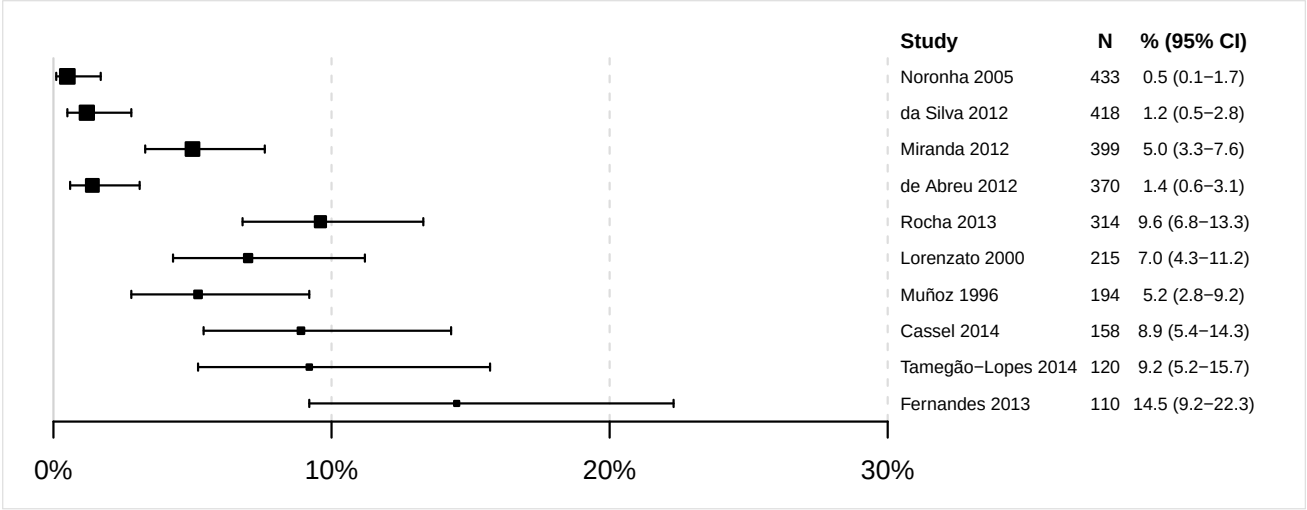
[5] Contributing studies: Camara GN, Mem Inst Oswaldo Cruz 2003; 98: 879 | Carestiato FN, Rev Soc Bras Med Trop 2006; 39: 428 | Chagas BS, PLoS ONE 2015; 10: e0132570 | Fernandes JV, BMC Res Notes 2010; 3: 96 | Fernandes JV, Int J Gynaecol Obstet 2009; 105: 21 | Freitas TP, Rev Inst Med Trop Sao Paulo 2007; 49: 297 | Krambeck WM, Clin Exp Obstet Gynecol 2008; 35: 175 | Lorenzato F, Int J Gynecol Cancer 2000; 10: 143 | Pitta DR, Rev Bras Ginecol Obstet 2010; 32: 315 | Resende LS, BMC Infect Dis 2014; 14: 214 | Ribeiro AA, Int J Gynecol Pathol 2011; 30: 288 | Terra AP, Tumori 2007; 93: 572 | Tomita LY, Int J Cancer 2010; 126: 703

[6] Based on meta-analysis performed by IARC's Infections and Cancer Epidemiology Group up to November 2011, the ICO HPV Information Centre has updated data until June 2015. Reference publications: 1) Guan P, Int J Cancer 2012;131:2349 2) Smith JS, Int J Cancer 2007;121:621 3) Clifford GM, Br J Cancer 2003;89:101.

[7] Contributing studies: Bosch FX, J Natl Cancer Inst 1995; 87: 796 | Cambruzzi E, Pathol Oncol Res 2005; 11: 114 | de Oliveira CM, BMC Cancer 2013; 13: 357 | Eluf-Neto J, Br J Cancer 1994; 69: 114 | Lorenzato F, Int J Gynecol Cancer 2000; 10: 143 | Rabelo-Santos SH, Mem Inst Oswaldo Cruz 2003; 98: 181 | Serrano B, Cancer Epidemiol 2014 | Tomita LY, Int J Cancer 2010; 126: 703

[8] Based on meta-analysis performed by IARC's Infections and Cancer Epidemiology Group up to November 2011, the ICO HPV Information Centre has updated data until June 2015. Reference publications: 1) Guan P, Int J Cancer 2012;131:2349 2) Li N, Int J Cancer 2011;128:927 3) Smith JS, Int J Cancer 2007;121:621 4) Clifford GM, Br J Cancer 2003;88:63 5) Clifford GM, Br J Cancer 2003;89:101.

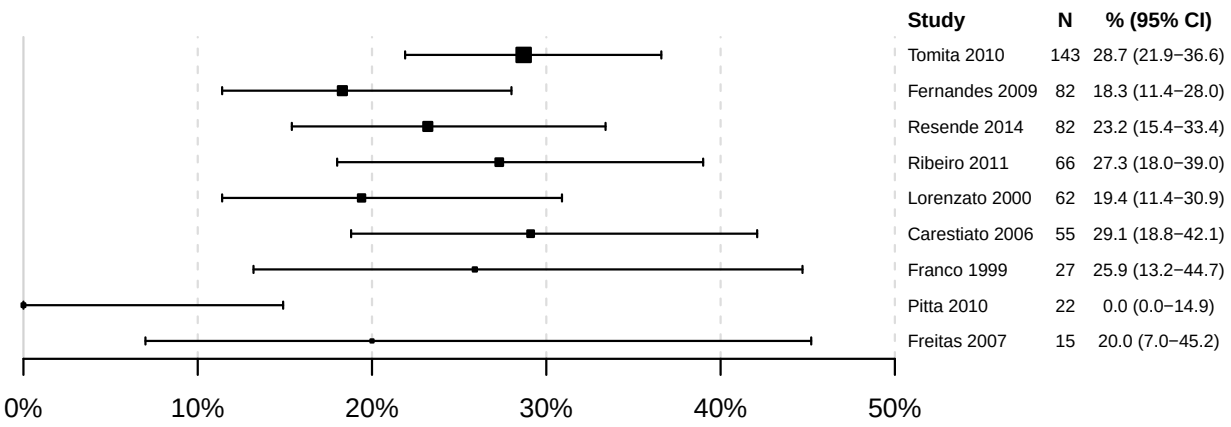
Figure 56: HPV 16 prevalence among women with normal cervical cytology in Brazil, by study



Data updated on 30 Jun 2015 (data as of 30 Jun 2014)

The samples for HPV testing come from cervical specimens (fresh/fixed biopsies or exfoliated cells)
[a] Number of women tested
Data Sources:
Cassel AP, Genet Mol Biol 2014; 37: 360 | da Silva MC, Arch Gynecol Obstet 2012; 286: 1015 | de Abreu AL, Am J Trop Med Hyg 2012; 87: 1149 | Fernandes J, Ann Med Health Sci Res 2013; 3: 504 | Lorenzato F, Int J Gynecol Cancer 2000; 10: 143 | Miranda PM, Genet Mol Res 2012; 11: 1752 | Muñoz N, Sex Transm Dis 1996; 23: 504 | Noronha VL, DST J Bras Doenças Sex Transm 2005; 17: 49 | Rocha DA, Infect Dis Obstet Gynecol 2013; 2013: 514859 | Tamegão-Lopes BP, Infect Agents Cancer 2014; 9: 25
Based on systematic reviews and meta-analysis performed by ICO. The ICO HPV Information Centre has updated data until June 2014. Reference publications: 1) Bruni L, J Infect Dis 2010; 202: 1789. 2) De Sanjosé S, Lancet Infect Dis 2007; 7: 453

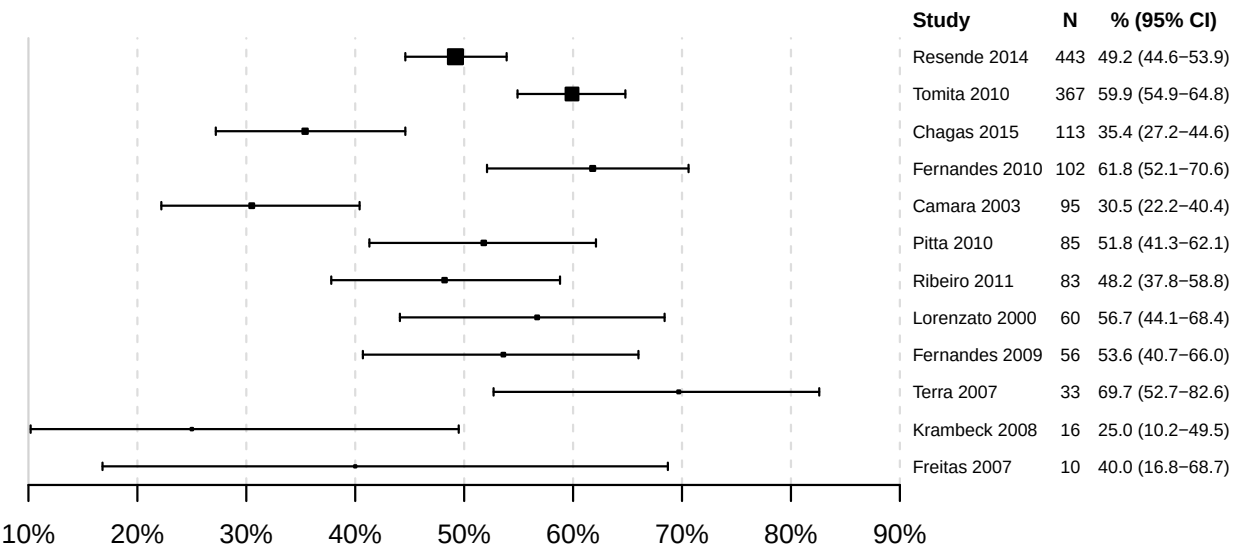
Figure 57: HPV 16 prevalence among women with low-grade cervical lesions in Brazil, by study



Data updated on 27 Jan 2017 (data as of 30 Jun 2015)

The samples for HPV testing come from cervical specimens (fresh/fixed biopsies or exfoliated cells)
[a] Number of women tested
Data Sources:
Carestiato FN, Rev Soc Bras Med Trop 2006; 39: 428 | Fernandes JV, Int J Gynaecol Obstet 2009; 105: 21 | Franco E, Rev Panam Salud Publica 1999; 6: 223 | Freitas TP, Rev Inst Med Trop Sao Paulo 2007; 49: 297 | Krambeck WM, Clin Exp Obstet Gynecol 2008; 35: 175 | Lorenzato F, Int J Gynecol Cancer 2000; 10: 143 | Pitta DR, Rev Bras Ginecol Obstet 2010; 32: 315 | Resende LS, BMC Infect Dis 2014; 14: 214 | Ribeiro AA, Int J Gynecol Pathol 2011; 30: 288 | Tomita LY, Int J Cancer 2010; 126: 703
Based on meta-analysis performed by IARC's Infections and Cancer Epidemiology Group up to November 2011, the ICO HPV Information Centre has updated data until June 2015. Reference publications: 1) Guan P, Int J Cancer 2012;131:2349 2) Clifford GM, Cancer Epidemiol Biomarkers Prev 2005;14:1157

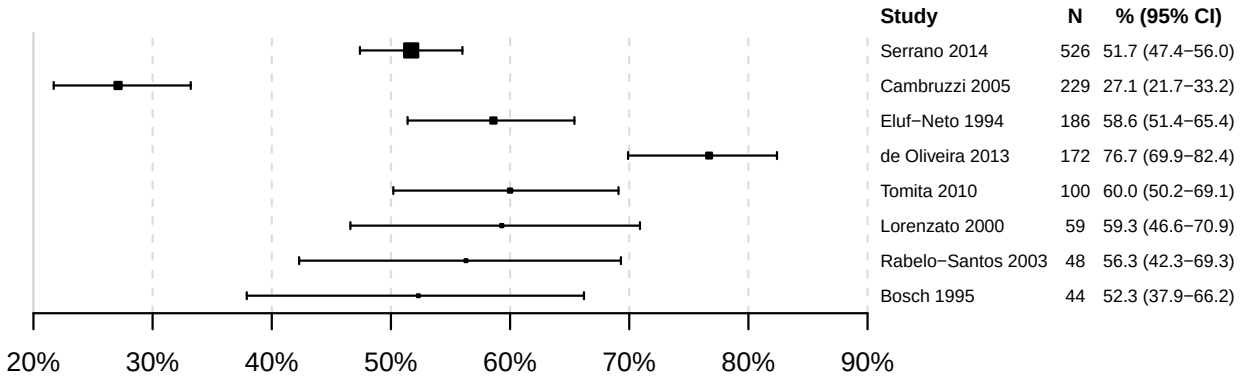
Figure 58: HPV 16 prevalence among women with high-grade cervical lesions in Brazil, by study



Data updated on 27 Jan 2017 (data as of 30 Jun 2015)

The samples for HPV testing come from cervical specimens (fresh/fixed biopsies or exfoliated cells)
[a] Number of women tested
Data Sources:
Camara GN, Mem Inst Oswaldo Cruz 2003; 98: 879 | Carestiato FN, Rev Soc Bras Med Trop 2006; 39: 428 | Chagas BS, PLoS ONE 2015; 10: e0132570 | Fernandes JV, BMC Res Notes 2010; 3: 96 | Fernandes JV, Int J Gynaecol Obstet 2009; 105: 21 | Freitas TP, Rev Inst Med Trop Sao Paulo 2007; 49: 297 | Krambeck WM, Clin Exp Obstet Gynecol 2008; 35: 175 | Lorenzato F, Int J Gynecol Cancer 2000; 10: 143 | Pitta DR, Rev Bras Ginecol Obstet 2010; 32: 315 | Resende LS, BMC Infect Dis 2014; 14: 214 | Ribeiro AA, Int J Gynecol Pathol 2011; 30: 288 | Terra AP, Tumori 2007; 93: 572 | Tomita LY, Int J Cancer 2010; 126: 703
Based on meta-analysis performed by IARC's Infections and Cancer Epidemiology Group up to November 2011, the ICO HPV Information Centre has updated data until June 2015. Reference publications: 1) Guan P, Int J Cancer 2012;131:2349 2) Smith JS, Int J Cancer 2007;121:621 3) Clifford GM, Br J Cancer 2003;89:101.

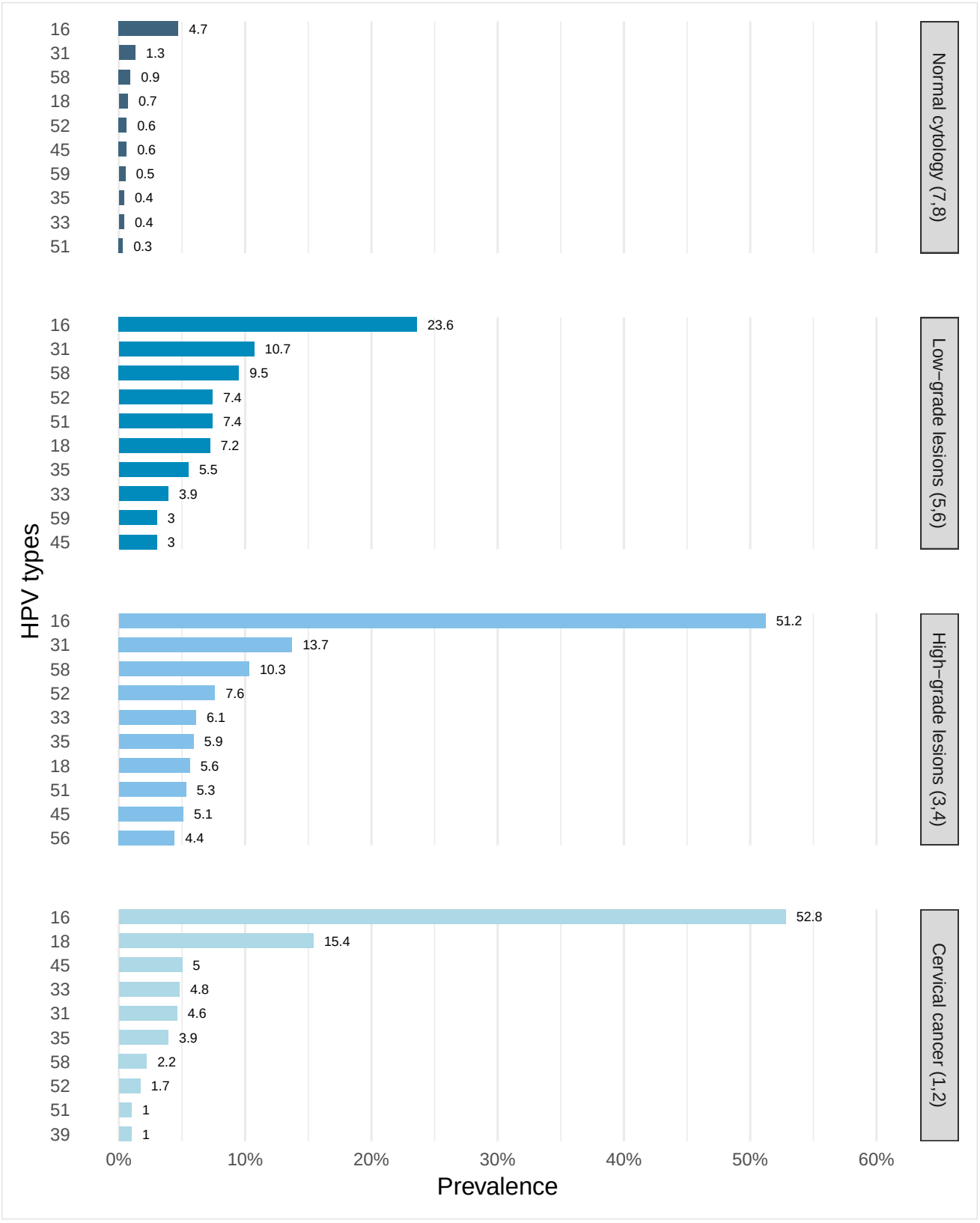
Figure 59: HPV 16 prevalence among women with invasive cervical cancer in Brazil, by study



Data updated on 19 May 2017 (data as of 30 Jun 2015)

The samples for HPV testing come from cervical specimens (fresh/fixed biopsies or exfoliated cells)
[a] Number of women tested
Data Sources:
Bosch FX, J Natl Cancer Inst 1995; 87: 796 | Cambruzzi E, Pathol Oncol Res 2005; 11: 114 | de Oliveira CM, BMC Cancer 2013; 13: 357 | Eluf-Neto J, Br J Cancer 1994; 69: 114 | Lorenzato F, Int J Gynecol Cancer 2000; 10: 143 | Rabelo-Santos SH, Mem Inst Oswaldo Cruz 2003; 98: 181 | Serrano B, Cancer Epidemiol 2014 | Tomita LY, Int J Cancer 2010; 126: 703
Based on meta-analysis performed by IARC's Infections and Cancer Epidemiology Group up to November 2011, the ICO HPV Information Centre has updated data until June 2015. Reference publications: 1) Guan P, Int J Cancer 2012;131:2349 2) Li N, Int J Cancer 2011;128:927 3) Smith JS, Int J Cancer 2007;121:621 4) Clifford GM, Br J Cancer 2003;88:63 5) Clifford GM, Br J Cancer 2003;89:101.

Figure 60: Comparison of the ten most frequent HPV oncogenic types in Brazil among women with and without cervical lesions



Data updated on 30 Jun 2015 (data as of 30 Jun 2015)

Data Sources:

[1] Contributing studies: Bosch FX, J Natl Cancer Inst 1995; 87: 796 | Cambruzzi E, Pathol Oncol Res 2005; 11: 114 | de Oliveira CM, BMC Cancer 2013; 13: 357 | Eluf-Neto J, Br J Cancer 1994; 69: 114 | Lorenzato F, Int J Gynecol Cancer 2000; 10: 143 | Rabelo-Santos SH, Mem Inst Oswaldo Cruz 2003; 98: 181 | Serrano B, Cancer Epidemiol 2014 | Tomita LY, Int J Cancer 2010; 126: 703

[2] Based on meta-analysis performed by IARC's Infections and Cancer Epidemiology Group up to November 2011, the ICO HPV Information Centre has updated data until June 2015. Reference publications: 1) Guan P, Int J Cancer 2012;131:2349 2) Li N, Int J Cancer 2011;128:927 3) Smith JS, Int J Cancer 2007;121:621 4) Clifford GM, Br J Cancer 2003;88:63 5) Clifford GM, Br J Cancer 2003;89:101.

[3] Contributing studies: Camara GN, Mem Inst Oswaldo Cruz 2003; 98: 879 | Carestiato FN, Rev Soc Bras Med Trop 2006; 39: 428 | Chagas BS, PLoS ONE 2015; 10: e0132570 | Fernandes JV, BMC Res Notes 2010; 3: 96 | Fernandes JV, Int J Gynaecol Obstet 2009; 105: 21 | Freitas TP, Rev Inst Med Trop Sao Paulo 2007; 49: 297 | Krambeck WM, Clin Exp Obstet Gynecol

2008; 35: 175 | Lorenzato F, Int J Gynecol Cancer 2000; 10: 143 | Pitta DR, Rev Bras Ginecol Obstet 2010; 32: 315 | Resende LS, BMC Infect Dis 2014; 14: 214 | Ribeiro AA, Int J Gynecol Pathol 2011; 30: 288 | Terra AP, Tumori 2007; 93: 572 | Tomita LY, Int J Cancer 2010; 126: 703

[4] Based on meta-analysis performed by IARC's Infections and Cancer Epidemiology Group up to November 2011, the ICO HPV Information Centre has updated data until June 2015. Reference publications: 1) Guan P, Int J Cancer 2012;131:2349 2) Smith JS, Int J Cancer 2007;121:621 3) Clifford GM, Br J Cancer 2003;89:101.

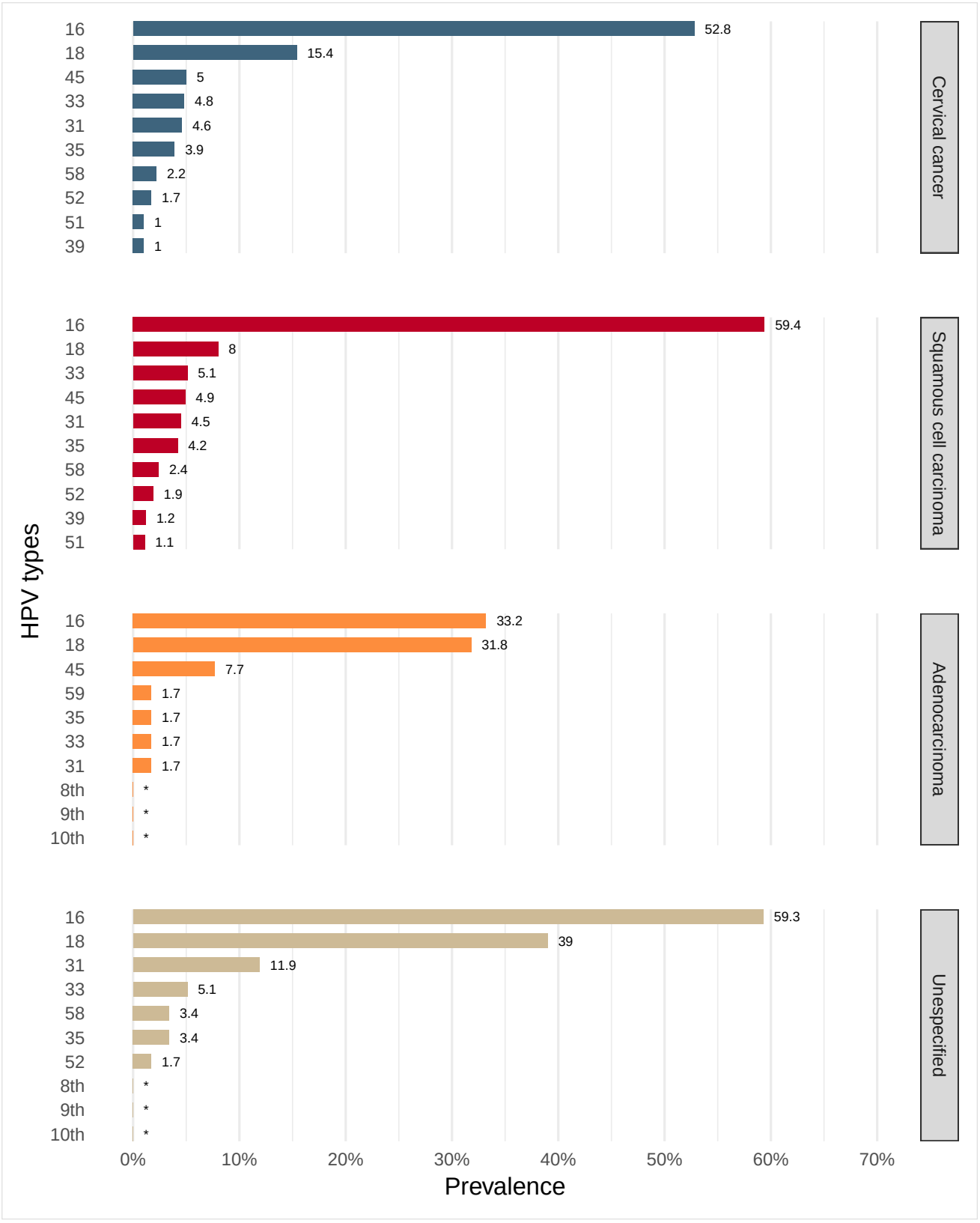
[5] Contributing studies: Carestiato FN, Rev Soc Bras Med Trop 2006; 39: 428 | Fernandes JV, Int J Gynaecol Obstet 2009; 105: 21 | Franco E, Rev Panam Salud Publica 1999; 6: 223 | Freitas TP, Rev Inst Med Trop Sao Paulo 2007; 49: 297 | Krambeck WM, Clin Exp Obstet Gynecol 2008; 35: 175 | Lorenzato F, Int J Gynecol Cancer 2000; 10: 143 | Pitta DR, Rev Bras Ginecol Obstet 2010; 32: 315 | Resende LS, BMC Infect Dis 2014; 14: 214 | Ribeiro AA, Int J Gynecol Pathol 2011; 30: 288 | Tomita LY, Int J Cancer 2010; 126: 703

[6] Based on meta-analysis performed by IARC's Infections and Cancer Epidemiology Group up to November 2011, the ICO HPV Information Centre has updated data until June 2015. Reference publications: 1) Guan P, Int J Cancer 2012;131:2349 2) Clifford GM, Cancer Epidemiol Biomarkers Prev 2005;14:1157

[7] Augusto EF, Rev Lat Am Enfermagem 2014; 22: 100 | Cassel AP, Genet Mol Biol 2014; 37: 360 | da Silva MC, Arch Gynecol Obstet 2012; 286: 1015 | de Abreu AL, Am J Trop Med Hyg 2012; 87: 1149 | Fernandes J, Ann Med Health Sci Res 2013; 3: 504 | Girianelli VR, Rev Bras Ginecol Obstet 2010; 32: 39 | Lorenzato F, Int J Gynecol Cancer 2000; 10: 143 | Miranda PM, Genet Mol Res 2012; 11: 1752 | Muñoz N, Sex Transm Dis 1996; 23: 504 | Noronha VL, DST J Bras Doenças Sex Transm 2005; 17: 49 | Rocha DA, Infect Dis Obstet Gynecol 2013; 2013: 514859 | Tamegão-Lopes BP, Infect Agents Cancer 2014; 9: 25

[8] Based on systematic reviews and meta-analysis performed by ICO. The ICO HPV Information Centre has updated data until November 2014. Reference publications: 1) Bruni L, J Infect Dis 2010; 202: 1789. 2) De Sanjosé S, Lancet Infect Dis 2007; 7: 453

Figure 61: Comparison of the ten most frequent HPV oncogenic types in Brazil among women with invasive cervical cancer by histology



Data updated on 30 Jun 2015 (data as of 30 Jun 2015)

* No data available. No more types than shown were tested or were positive

Data Sources:

[1] Contributing studies: Bosch FX, J Natl Cancer Inst 1995; 87: 796 | Cambruzzi E, Pathol Oncol Res 2005; 11: 114 | de Oliveira CM, BMC Cancer 2013; 13: 357 | Eluf-Neto J, Br J Cancer 1994; 69: 114 | Lorenzato F, Int J Gynecol Cancer 2000; 10: 143 | Rabelo-Santos SH, Mem Inst Oswaldo Cruz 2003; 98: 181 | Serrano B, Cancer Epidemiol 2014 | Tomita LY, Int J Cancer 2010; 126: 703

[2] Based on meta-analysis performed by IARC's Infections and Cancer Epidemiology Group up to November 2011, the ICO HPV Information Centre has updated data until June 2014. Reference publications: 1) Guan P, Int J Cancer 2012;131:2349 2) Li N, Int J Cancer 2011;128:927 3) Smith JS, Int J Cancer 2007;121:621 4) Clifford GM, Br J Cancer 2003;88:63 5) Clifford GM, Br J Cancer 2003;89:101.

[3] Based on meta-analysis performed by IARC's Infections and Cancer Epidemiology Group up to November 2011, the ICO HPV Information Centre has updated data until June 2015.

Reference publications: 1) Guan P, Int J Cancer 2012;131:2349 2) Li N, Int J Cancer 2011;128:927 3) Smith JS, Int J Cancer 2007;121:621 4) Clifford GM, Br J Cancer 2003;88:63 5) Clifford GM, Br J Cancer 2003;89:101.

Table 22: Type-specific HPV prevalence in women with normal cervical cytology, precancerous cervical lesions and invasive cervical cancer in Brazil

	Normal cytology[1,2]		Low-grade lesions[3,4]		High-grade lesions[5,6]		Cervical cancer[7,8]	
HPV Type	No. tested	HPV Prev % (95% CI)	No. tested	HPV Prev % (95% CI)	No. tested	HPV Prev % (95% CI)	No. tested	HPV Prev % (95% CI)
ONCOGENIC HPV TYPES								
High-risk HPV types								
16	2731	4.7 (4.0-5.5)	554	23.6 (20.3-27.4)	1463	51.2 (48.6-53.8)	1364	52.8 (50.1-55.4)
18	2417	0.7 (0.4-1.1)	554	7.2 (5.3-9.7)	1447	5.6 (4.5-6.9)	1364	15.4 (13.6-17.4)
31	2018	1.3 (0.9-1.9)	457	10.7 (8.2-13.9)	1364	13.7 (12.0-15.6)	1135	4.6 (3.5-6.0)
33	2297	0.4 (0.2-0.8)	435	3.9 (2.5-6.2)	1056	6.1 (4.8-7.7)	1135	4.8 (3.7-6.2)
35	1860	0.4 (0.2-0.8)	435	5.5 (3.7-8.1)	1161	5.9 (4.6-7.4)	1087	3.9 (2.9-5.2)
39	1648	0.2 (0.1-0.5)	380	2.1 (1.1-4.1)	1048	1.6 (1.0-2.6)	1087	1.0 (0.6-1.8)
45	2018	0.6 (0.4-1.1)	402	3.0 (1.7-5.1)	1251	5.1 (4.0-6.5)	1087	5.0 (3.8-6.4)
51	1860	0.3 (0.1-0.6)	380	7.4 (5.1-10.4)	1161	5.3 (4.2-6.8)	1135	1.0 (0.5-1.7)
52	1860	0.6 (0.3-1.1)	380	7.4 (5.1-10.4)	1279	7.6 (6.3-9.2)	1135	1.7 (1.1-2.6)
56	1490	0.3 (0.1-0.7)	380	2.1 (1.1-4.1)	1263	4.4 (3.4-5.7)	1135	0.5 (0.2-1.1)
58	1889	0.9 (0.6-1.4)	517	9.5 (7.2-12.3)	1319	10.3 (8.8-12.1)	1135	2.2 (1.5-3.2)
59	2417	0.5 (0.3-0.8)	232	3.0 (1.5-6.1)	624	1.4 (0.8-2.7)	1087	0.6 (0.3-1.2)
Probable/possible carcinogen								
26	1260	0.0 (0.0-0.3)	232	0.0 (0.0-1.6)	522	0.2 (0.0-1.1)	901	0.1 (0.0-0.6)
30	418	0.0 (0.0-0.9)	-	-	95	0.0 (0.0-3.9)	526	0.2 (0.0-1.1)
34	612	0.0 (0.0-0.6)	143	0.0 (0.0-2.6)	462	0.0 (0.0-0.8)	798	0.0 (0.0-0.5)
53	2259	0.2 (0.1-0.5)	298	3.4 (1.8-6.1)	734	1.2 (0.6-2.3)	901	0.2 (0.1-0.8)
66	2029	0.3 (0.1-0.6)	298	2.0 (0.9-4.3)	836	1.6 (0.9-2.6)	1087	0.0 (0.0-0.4)
67	1436	0.3 (0.1-0.7)	62	0.0 (0.0-5.8)	155	0.0 (0.0-2.4)	757	0.5 (0.2-1.4)
68	1740	0.2 (0.1-0.6)	298	0.7 (0.2-2.4)	605	0.7 (0.3-1.7)	1087	0.8 (0.4-1.6)
69	1436	0.1 (0.0-0.5)	62	0.0 (0.0-5.8)	155	0.0 (0.0-2.4)	757	0.1 (0.0-0.7)
70	1380	0.4 (0.2-0.8)	62	0.0 (0.0-5.8)	268	0.4 (0.1-2.1)	987	0.1 (0.0-0.6)
73	1260	0.1 (0.0-0.4)	232	0.4 (0.1-2.4)	522	1.3 (0.7-2.7)	1087	0.6 (0.3-1.3)
82	1750	0.1 (0.0-0.3)	298	0.7 (0.2-2.4)	718	0.6 (0.2-1.4)	1087	0.1 (0.0-0.5)
85	-	-	-	-	-	-	-	-
97	-	-	-	-	-	-	-	-
LOW RISK HPV TYPES								
6	1889	0.9 (0.6-1.4)	171	2.3 (0.9-5.9)	647	2.9 (1.9-4.5)	1007	0.0 (0.0-0.4)
11	2259	0.3 (0.1-0.6)	144	0.0 (0.0-2.6)	647	2.0 (1.2-3.4)	1007	0.1 (0.0-0.6)
32	-	-	-	-	-	-	100	0.0 (0.0-3.7)
40	1630	0.1 (0.0-0.4)	-	-	-	-	857	0.0 (0.0-0.4)
42	1740	0.1 (0.0-0.4)	-	-	-	-	857	0.0 (0.0-0.4)
43	1260	0.1 (0.0-0.4)	-	-	-	-	585	0.0 (0.0-0.7)
44	1490	0.3 (0.1-0.8)	-	-	-	-	857	0.0 (0.0-0.4)
54	1490	0.3 (0.1-0.7)	-	-	-	-	857	0.0 (0.0-0.4)
55	-	-	-	-	-	-	-	-
57	952	0.2 (0.1-0.8)	-	-	-	-	159	0.0 (0.0-2.4)
61	2149	0.7 (0.5-1.2)	-	-	-	-	857	0.1 (0.0-0.7)
62	1186	0.5 (0.2-1.1)	-	-	-	-	231	0.9 (0.2-3.1)
64	-	-	-	-	-	-	-	-
71	648	0.0 (0.0-0.6)	-	-	-	-	331	0.3 (0.1-1.7)
72	1750	0.2 (0.1-0.5)	-	-	-	-	231	0.4 (0.1-2.4)
74	1066	0.0 (0.0-0.4)	-	-	-	-	585	0.0 (0.0-0.7)
81	2149	0.3 (0.2-0.7)	-	-	-	-	231	0.0 (0.0-1.6)
83	1659	0.4 (0.2-0.9)	-	-	-	-	331	0.0 (0.0-1.1)
84	1186	0.2 (0.0-0.6)	-	-	-	-	331	0.3 (0.1-1.7)
86	-	-	-	-	-	-	-	-
87	-	-	-	-	-	-	-	-
89	962	0.2 (0.1-0.8)	-	-	-	-	59	0.0 (0.0-6.1)
90	-	-	-	-	-	-	-	-
91	418	0.2 (0.0-1.3)	-	-	-	-	526	0.0 (0.0-0.7)

Data updated on 30 Jun 2015 (data as of 30 Jun 2015 / 30 Nov 2014)

The samples for HPV testing come from cervical specimens (fresh/fixed biopsies or exfoliated cells)

Data Sources:

[1] Augusto EF, Rev Lat Am Enfermagem 2014; 22: 100 | Cassel AP, Genet Mol Biol 2014; 37: 360 | da Silva MC, Arch Gynecol Obstet 2012; 286: 1015 | de Abreu AL, Am J Trop Med Hyg 2012; 87: 1149 | Fernandes J, Ann Med Health Sci Res 2013; 3: 504 | Girianelli VR, Rev Bras Ginecol Obstet 2010; 32: 39 | Lorenzato F, Int J Gynecol Cancer 2000; 10: 143 | Miranda PM, Genet Mol Res 2012; 11: 1752 | Muñoz N, Sex Transm Dis 1996; 23: 504 | Noronha VL, DST J Bras Doenças Sex Transm 2005; 17: 49 | Rocha DA, Infect Dis Obstet Gynecol 2013; 2013: 514859 | Tamegão-Lopes BP, Infect Agents Cancer 2014; 9: 25

[2] Based on systematic reviews and meta-analysis performed by ICO. The ICO HPV Information Centre has updated data until November 2014. Reference publications: 1) Bruni L, J Infect Dis 2010; 202: 1789. 2) De Sanjosé S, Lancet Infect Dis 2007; 7: 453

[3] Contributing studies: Carestiato FN, Rev Soc Bras Med Trop 2006; 39: 428 | Fernandes JV, Int J Gynaecol Obstet 2009; 105: 21 | Franco E, Rev Panam Salud Publica 1999; 6: 223 | Freitas TP, Rev Inst Med Trop Sao Paulo 2007; 49: 297 | Krambeck WM, Clin Exp Obstet Gynecol 2008; 35: 175 | Lorenzato F, Int J Gynecol Cancer 2000; 10: 143 | Pitta DR, Rev Bras Ginecol Obstet 2010; 32: 315 | Resende LS, BMC Infect Dis 2014; 14: 214 | Ribeiro AA, Int J Gynecol Pathol 2011; 30: 288 | Tomita LY, Int J Cancer 2010; 126: 703

[4] Based on meta-analysis performed by IARC's Infections and Cancer Epidemiology Group up to November 2011, the ICO HPV Information Centre has updated data until June 2015.

Reference publications: 1) Guan P, Int J Cancer 2012;131:2349 2) Clifford GM, Cancer Epidemiol Biomarkers Prev 2005;14:1157

[5] Contributing studies: Camara GN, Mem Inst Oswaldo Cruz 2003; 98: 879 | Carestiato FN, Rev Soc Bras Med Trop 2006; 39: 428 | Chagas BS, PLoS ONE 2015; 10: e0132570 | Fernandes JV, BMC Res Notes 2010; 3: 96 | Fernandes JV, Int J Gynaecol Obstet 2009; 105: 21 | Freitas TP, Rev Inst Med Trop Sao Paulo 2007; 49: 297 | Krambeck WM, Clin Exp Obstet Gynecol 2008; 35: 175 | Lorenzato F, Int J Gynecol Cancer 2000; 10: 143 | Pitta DR, Rev Bras Ginecol Obstet 2010; 32: 315 | Resende LS, BMC Infect Dis 2014; 14: 214 | Ribeiro AA, Int J Gynecol Pathol 2011; 30: 288 | Terra AP, Tumori 2007; 93: 572 | Tomita LY, Int J Cancer 2010; 126: 703

[6] Based on meta-analysis performed by IARC's Infections and Cancer Epidemiology Group up to November 2011, the ICO HPV Information Centre has updated data until June 2015. Reference publications: 1) Guan P, Int J Cancer 2012;131:2349 2) Smith JS, Int J Cancer 2007;121:621 3) Clifford GM, Br J Cancer 2003;89:101.

[7] Contributing studies: Bosch FX, J Natl Cancer Inst 1995; 87: 796 | Cambruzzi E, Pathol Oncol Res 2005; 11: 114 | de Oliveira CM, BMC Cancer 2013; 13: 357 | Eluf-Neto J, Br J Cancer 1994; 69: 114 | Lorenzato F, Int J Gynecol Cancer 2000; 10: 143 | Rabelo-Santos SH, Mem Inst Oswaldo Cruz 2003; 98: 181 | Serrano B, Cancer Epidemiol 2014 | Tomita LY, Int J Cancer 2010; 126: 703

[8] Based on meta-analysis performed by IARC's Infections and Cancer Epidemiology Group up to November 2011, the ICO HPV Information Centre has updated data until June 2015. Reference publications: 1) Guan P, Int J Cancer 2012;131:2349 2) Li N, Int J Cancer 2011;128:927 3) Smith JS, Int J Cancer 2007;121:621 4) Clifford GM, Br J Cancer 2003;88:63 5) Clifford GM, Br J Cancer 2003;89:101.

Table 23: Type-specific HPV prevalence among invasive cervical cancer cases in Brazil by histology

	Any Histology		Squamous cell carcinoma		Adenocarcinoma		Unespecified	
HPV Type	No. tested	HPV Prev % (95% CI)	No. tested	HPV Prev % (95% CI)	No. tested	HPV Prev % (95% CI)	No. tested	HPV Prev % (95% CI)
ONCOGENIC HPV TYPES								
High-risk HPV types								
16	1364	52.8 (50.1-55.4)	959	59.4 (56.3-62.5)	346	33.2 (28.5-38.4)	59	59.3 (46.6-70.9)
18	1364	15.4 (13.6-17.4)	959	8.0 (6.5-9.9)	346	31.8 (27.1-36.9)	59	39.0 (27.6-51.7)
31	1135	4.6 (3.5-6.0)	959	4.5 (3.3-6.0)	117	1.7 (0.5-6.0)	59	11.9 (5.9-22.5)
33	1135	4.8 (3.7-6.2)	959	5.1 (3.9-6.7)	117	1.7 (0.5-6.0)	59	5.1 (1.7-13.9)
35	1087	3.9 (2.9-5.2)	911	4.2 (3.1-5.7)	117	1.7 (0.5-6.0)	59	3.4 (0.9-11.5)
39	1087	1.0 (0.6-1.8)	911	1.2 (0.7-2.1)	117	0.0 (0.0-3.2)	59	0.0 (0.0-6.1)
45	1087	5.0 (3.8-6.4)	911	4.9 (3.7-6.5)	117	7.7 (4.1-14.0)	59	0.0 (0.0-6.1)
51	1135	1.0 (0.5-1.7)	959	1.1 (0.6-2.0)	117	0.0 (0.0-3.2)	59	0.0 (0.0-6.1)
52	1135	1.7 (1.1-2.6)	959	1.9 (1.2-2.9)	117	0.0 (0.0-3.2)	59	1.7 (0.3-9.0)
56	1135	0.5 (0.2-1.1)	959	0.6 (0.3-1.4)	117	0.0 (0.0-3.2)	59	0.0 (0.0-6.1)
58	1135	2.2 (1.5-3.2)	959	2.4 (1.6-3.6)	117	0.0 (0.0-3.2)	59	3.4 (0.9-11.5)
59	1087	0.6 (0.3-1.2)	911	0.4 (0.2-1.1)	117	1.7 (0.5-6.0)	59	0.0 (0.0-6.1)
Probable/possible carcinogen								
26	901	0.1 (0.0-0.6)	-	-	-	-	-	-
30	526	0.2 (0.0-1.1)	455	0.2 (0.0-1.2)	71	0.0 (0.0-5.1)	-	-
34	798	0.0 (0.0-0.5)	699	0.0 (0.0-0.5)	99	0.0 (0.0-3.7)	-	-
53	901	0.2 (0.1-0.8)	-	-	-	-	-	-
66	1087	0.0 (0.0-0.4)	911	0.0 (0.0-0.4)	117	0.0 (0.0-3.2)	59	0.0 (0.0-6.1)
67	757	0.5 (0.2-1.4)	599	0.7 (0.3-1.7)	99	0.0 (0.0-3.7)	59	0.0 (0.0-6.1)
68	1087	0.8 (0.4-1.6)	911	0.9 (0.4-1.7)	117	0.9 (0.2-4.7)	59	0.0 (0.0-6.1)
69	757	0.1 (0.0-0.7)	-	-	-	-	-	-
70	987	0.1 (0.0-0.6)	-	-	-	-	-	-
73	1087	0.6 (0.3-1.3)	-	-	-	-	-	-
82	1087	0.1 (0.0-0.5)	911	0.1 (0.0-0.6)	117	0.0 (0.0-3.2)	59	0.0 (0.0-6.1)
85	-	-	-	-	-	-	-	-
97	-	-	-	-	-	-	-	-
LOW RISK HPV TYPES								
6	1007	0.0 (0.0-0.4)	-	-	-	-	-	-
11	1007	0.1 (0.0-0.6)	-	-	-	-	-	-
32	100	0.0 (0.0-3.7)	-	-	-	-	-	-
40	857	0.0 (0.0-0.4)	-	-	-	-	-	-
42	857	0.0 (0.0-0.4)	699	0.0 (0.0-0.5)	99	0.0 (0.0-3.7)	59	0.0 (0.0-6.1)
43	585	0.0 (0.0-0.7)	-	-	-	-	-	-
44	857	0.0 (0.0-0.4)	699	0.0 (0.0-0.5)	99	0.0 (0.0-3.7)	59	0.0 (0.0-6.1)
54	857	0.0 (0.0-0.4)	-	-	-	-	-	-
55	-	-	-	-	-	-	-	-
57	159	0.0 (0.0-2.4)	-	-	-	-	-	-
61	857	0.1 (0.0-0.7)	-	-	-	-	-	-
62	231	0.9 (0.2-3.1)	-	-	-	-	-	-
64	-	-	-	-	-	-	-	-
71	331	0.3 (0.1-1.7)	-	-	-	-	-	-
72	231	0.4 (0.1-2.4)	-	-	-	-	-	-
74	585	0.0 (0.0-0.7)	-	-	-	-	-	-
81	231	0.0 (0.0-1.6)	-	-	-	-	-	-
83	331	0.0 (0.0-1.1)	-	-	-	-	-	-
84	331	0.3 (0.1-1.7)	-	-	-	-	-	-
86	-	-	-	-	-	-	-	-
87	-	-	-	-	-	-	-	-
89	59	0.0 (0.0-6.1)	-	-	-	-	-	-
90	-	-	-	-	-	-	-	-
91	526	0.0 (0.0-0.7)	-	-	-	-	-	-

Data updated on 19 May 2017 (data as of 30 Jun 2015)

The samples for HPV testing come from cervical specimens (fresh/fixed biopsies or exfoliated cells)
[a] Number of women tested
[b] 95% Confidence Interval
Data Sources:
Contributing studies: Bosch FX, J Natl Cancer Inst 1995; 87: 796 | Cambruzzi E, Pathol Oncol Res 2005; 11: 114 | de Oliveira CM, BMC Cancer 2013; 13: 357 | Eluf-Neto J, Br J Cancer 1994; 69: 114 | Lorenzato F, Int J Gynecol Cancer 2000; 10: 143 | Rabelo-Santos SH, Mem Inst Oswaldo Cruz 2003; 98: 181 | Serrano B, Cancer Epidemiol 2014 | Tomita LY, Int J Cancer 2010; 126: 703
Based on meta-analysis performed by IARC's Infections and Cancer Epidemiology Group up to November 2011, the ICO HPV Information Centre has updated data until June 2015. Reference publications: 1) Guan P, Int J Cancer 2012;131:2349 2) Li N, Int J Cancer 2011;128:927 3) Smith JS, Int J Cancer 2007;121:621 4) Clifford GM, Br J Cancer 2003;88:63 5) Clifford GM, Br J Cancer 2003;89:101.

4.1.3 HPV type distribution among HIV+ women with normal cervical cytology

Table 24: Studies on HPV prevalence among HIV+ women with normal cytology in Brazil

Study	HPV detection method and targeted HPV types	HPV Prevalence			
		No. Tested[a]	%	(95% CI)[b]	Prevalence of 5 most frequent HPVs, HPV type (%)
-	-	-	-	-	

Data updated on 31 Dec 2011 (data as of 31 Dec 2011)

DBH: Dot Blot Hybridization; EIA: Enzyme ImmunoAssay; HC2: Hybrid Capture 2; PCR: Polymerase Chain Reaction; TS: Type Specific
[a] Number of women tested
[b] 95% Confidence Interval
Data Sources:
Systematic review and meta-analysis were performed by the ICO HPV Information Centre up to December 2011. Selected studies had to include at least 20 HIV positive women who had both normal cervical cytology and HPV test results (PCR or HC2).

4.1.4 Terminology

Cytologically normal women
No abnormal cells are observed on the surface of their cervix upon cytology.

Cervical Intraepithelial Neoplasia (CIN) / Squamous Intraepithelial Lesions (SIL)
SIL and CIN are two commonly used terms to describe precancerous lesions or the abnormal growth of squamous cells observed in the cervix. SIL is an abnormal result derived from cervical cytological screening or Pap smear testing. CIN is a histological diagnosis made upon analysis of cervical tissue obtained by biopsy or surgical excision. The condition is graded as CIN 1, 2 or 3, according to the thickness of the abnormal epithelium (1/3, 2/3 or the entire thickness).

Low-grade cervical lesions (LSIL/CIN-1)
Low-grade cervical lesions are defined by early changes in size, shape, and number of abnormal cells formed on the surface of the cervix and may be referred to as mild dysplasia, LSIL, or CIN-1.

High-grade cervical lesions (HSIL/ CIN-2 / CIN-3 / CIS)
High-grade cervical lesions are defined by a large number of precancerous cells on the surface of the cervix that are distinctly different from normal cells. They have the potential to become cancerous cells and invade deeper tissues of the cervix. These lesions may be referred to as moderate or severe dysplasia, HSIL, CIN-2, CIN-3 or cervical carcinoma in situ (CIS).

Carcinoma in situ (CIS)
Preinvasive malignancy limited to the epithelium without invasion of the basement membrane. CIN 3 encompasses the squamous carcinoma in situ.

Invasive cervical cancer (ICC) / Cervical cancer
If the high-grade precancerous cells invade the basement membrane is called ICC. ICC stages range from stage I (cancer is in the cervix or uterus only) to stage IV (the cancer has spread to distant organs, such as the liver).

Invasive squamous cell carcinoma
Invasive carcinoma composed of cells resembling those of squamous epithelium.

Adenocarcinoma
Invasive tumour with glandular and squamous elements intermingled.

4.2 HPV burden in anogenital cancers other than cervix

Methods: Prevalence and type distribution of human papillomavirus in carcinoma of the vulva, vagina, anus and penis: systematic review and meta-analysis

A systematic review of the literature was conducted on the worldwide HPV-prevalence and type distribution for anogenital carcinomas other than cervix from January 1986 to 'data as of' indicated in each section. The search terms for the review were 'HPV' AND (anus OR anal) OR (penile) OR vagin* OR vulv* using Pubmed. There were no limits in publication language. References cited in selected articles were also investigated. Inclusion criteria were: HPV DNA detection by means of PCR, a minimum of 10 cases by lesion and a detailed description of HPV DNA detection and genotyping techniques used. The number of cases tested and HPV positive cases were extracted for each study to estimate the prevalence of HPV DNA and the HPV type distribution. Binomial 95% confidence intervals were calculated for each HPV prevalence.

4.2.1 Anal cancer and precancerous anal lesions

Anal cancer is similar to cervical cancer with respect to overall HPV DNA positivity, with approximately 100% of anal squamous cell carcinoma cases associated with HPV infection worldwide (de Martel C et al. Lancet Glob Health 2020;8(2):e180-e190). HPV16 is the most common type detected, representing 73% of all HPV-positive tumours. HPV18 is the second most common type detected and is found in approximately 5% of cases. HPV DNA is also detected in the majority of precancerous anal lesions (AIN) (91.5% in AIN1 and 93.9% in AIN2/3) (De Vuyst H et al. Int J Cancer 2009; 124: 1626-36). In this section, the burden of HPV among cases of anal cancers and precancerous anal lesions in Brazil are presented.

Table 25: Studies on HPV prevalence among anal cancer cases in Brazil (male and female)

Study	HPV detection method and targeted HPV types	HPV Prevalence			
		No. Tested	%	(95% CI)[a]	Prevalence of 5 most frequent HPVs, HPV type (%)
No data available	-	-	-	-	

Data updated on 30 Jun 2015 (data as of 30 Jun 2015)

DBH: Dot Blot Hybridization; EIA: Enzyme ImmunoAssay; HC2: Hybrid Capture 2; ISH: In Situ Hybridization; LBA: Line-Blot Assay; LiPA: Line Probe Assay; PCR: Polymerase Chain Reaction; RFLP: Restriction Fragment Length Polymorphism; RLBH: Reverse Line Blot Hybridization; RT-PCR: Real Time Polymerase Chain Reaction; SBH: Southern Blot Hybridization; SPF: Short Primer Fragment; TS: Type Specific;
[a] 95% Confidence Interval
Data Sources:
Based on systematic reviews (up to 2008) performed by ICO for the IARC Monograph on the Evaluation of Carcinogenic Risks to Humans volume 100B and IARC's Infections and Cancer Epidemiology Group. The ICO HPV Information Centre has updated data until June 2015. Reference publications: 1) Bouvard V, Lancet Oncol 2009;10:321 2) De Vuyst H, Int J Cancer 2009;124:1626

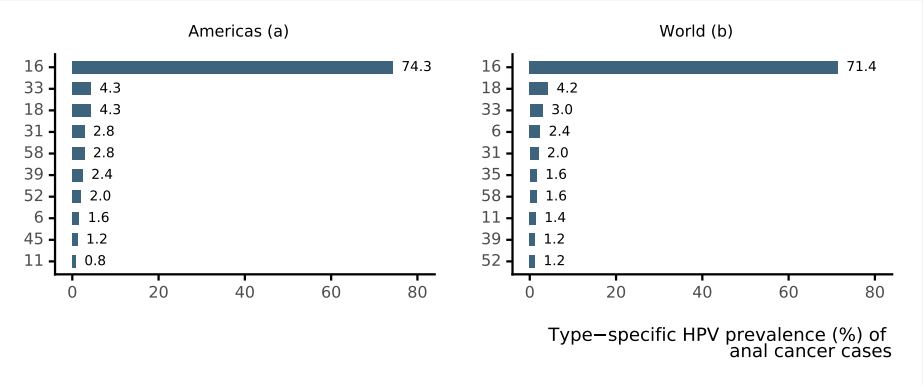
Table 26: Studies on HPV prevalence among cases of AIN2/3 in Brazil

Study	HPV detection method and targeted HPV types	HPV Prevalence			
		No. Tested	%	(95% CI)[a]	Prevalence of 5 most frequent HPVs, HPV type (%)
No data available	-	-	-	-	

Data updated on 30 Jun 2015 (data as of 30 Jun 2015)

DBH: Dot Blot Hybridization; EIA: Enzyme ImmunoAssay; HC2: Hybrid Capture 2; ISH: In Situ Hybridization; LBA: Line-Blot Assay; LiPA: Line Probe Assay; PCR: Polymerase Chain Reaction; RFLP: Restriction Fragment Length Polymorphism; RLBH: Reverse Line Blot Hybridization; RT-PCR: Real Time Polymerase Chain Reaction; SBH: Southern Blot Hybridization; SPF: Short Primer Fragment; TS: Type Specific;
AIN 2/3: Anal intraepithelial neoplasia of grade 2/3
[a] 95% Confidence Interval
Data Sources:
Based on systematic reviews (up to 2008) performed by ICO for the IARC Monograph on the Evaluation of Carcinogenic Risks to Humans volume 100B and IARC's Infections and Cancer Epidemiology Group. The ICO HPV Information Centre has updated data until June 2015. Reference publications: 1) Bouvard V, Lancet Oncol 2009;10:321 2) De Vuyst H, Int J Cancer 2009;124:1626

Figure 62: Comparison of the ten most frequent HPV types in anal cancer cases in Americas and the World



Data updated on 9 Feb 2017 (data as of 30 Jun 2014)

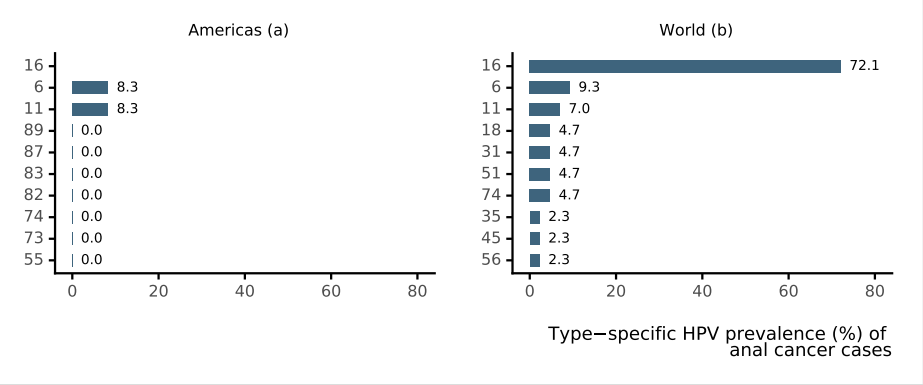
[a] Includes cases from Chile, Colombia, Ecuador, Guatemala, Honduras, Mexico, Paraguay and United States

[b] Includes cases from Europe (Bosnia-Herzegovina, Czech Republic, France, Germany, Poland, Portugal, Slovenia, Spain and United Kingdom); America (Chile, Colombia, Ecuador, Guatemala, Honduras, Mexico, Paraguay and United States); Africa (Mali, Nigeria and Senegal); Asia (Bangladesh,India and South Korea)

Data Sources:

Data from Alemany L, Int J Cancer 2015; 136: 98. This study has gathered the largest international series of anal cancer cases and precancerous lesions worldwide using a standard protocol with a highly sensitive HPV DNA detection assay.

Figure 63: Comparison of the ten most frequent HPV types in AIN 2/3 cases in Americas and the World



Data updated on 7 Feb 2017 (data as of 30 Jun 2014)

AIN 2/3: Anal intraepithelial neoplasia of grade 2/3

[a] Includes cases from Chile, Colombia, Ecuador, Guatemala, Honduras, Mexico, Paraguay

[b] Includes cases from Europe (Bosnia-Herzegovina, Czech Republic, France, Germany, Poland, Portugal, Slovenia, Spain and United Kingdom); America (Chile, Colombia, Ecuador, Guatemala, Honduras, Mexico, Paraguay)

Data Sources:

Data from Alemany L, Int J Cancer 2015; 136: 98. This study has gathered the largest international series of anal cancer cases and precancerous lesions worldwide using a standard protocol with a highly sensitive HPV DNA detection assay.

4.2.2 Vulvar cancer and precancerous vulvar lesions

HPV attribution for vulvar cancer is 48% among age 15-54 years, 28% among age 55-64 years, and 15% among age 65+ worldwide (de Martel C et al. Lancet Glob Health 2020;8(2):e180-e190). Vulvar cancer has two distinct histological patterns with two different risk factor profiles: (1) basaloid/warty types (2) keratinising types. Basaloid/warty lesions are more common in young women, are frequently found adjacent to VIN, are very often associated with HPV DNA detection (86%), and have a similar risk factor profile as cervical cancer. Keratinising vulvar carcinomas represent the majority of the vulvar lesions (>60%). These lesions develop from non HPV-related chronic vulvar dermatoses, especially lichen sclerosus and/or squamous hyperplasia, their immediate cancer precursor lesion is differentiated VIN, they occur more often in older women, and are rarely associated with HPV (6%) or with any of the other risk factors typical of cervical cancer. HPV prevalence is frequently detected among cases of high-grade VIN (VIN2/3) (85.3%). HPV 16 is the most common type detected followed by HPV 33 (De Vuyst H et al. Int J Cancer 2009; 124: 1626-36). In this section, the HPV burden among cases of vulvar cancer cases and precancerous vulvar lesions in Brazil are presented.

Table 27: Studies on HPV prevalence among vulvar cancer cases in Brazil

Study	HPV detection method and targeted HPV types	HPV Prevalence			
		No. Tested	%	(95% CI)[a]	Prevalence of 5 most frequent HPVs, HPV type (%)
de Sanjosé 2013[b]	PCR-SPF10, EIA, (HPV 6, 11, 16, 18, 26, 30, 31, 33, 34, 35, 39, 40, 42, 43, 44, 45, 51, 52, 53, 54, 56, 58, 59, 61, 66, 67, 68, 69, 70, 73, 74, 82, 83, 87, 89, 91)	324	40.1	(34.9-45.5)	HPV 16 (25.3), HPV 18 (2.8), HPV 45 (2.5), HPV 33 (2.2), HPV 6 (1.2)
Pinto 1999	PCR L1-Consensus primer, PCR-E6, TS (HPV 06/11, 16, 18, 40, 42, 43, 44, 45, 51, 52, 54, 56, 58)	158	24.1	(18.1-31.3)	HPV 16 (16.5), HPV 18 (9.5), HPV 6/11 (1.3), HPV 45 (0.6)

Data updated on 30 Jun 2015 (data as of 30 Jun 2015)

DBH: Dot Blot Hybridization; EIA: Enzyme ImmunoAssay; HC2: Hybrid Capture 2; ISH: In Situ Hybridization; LBA: Line-Blot Assay; LiPA: Line Probe Assay; PCR: Polymerase Chain Reaction; RFLP: Restriction Fragment Length Polymorphism; RLBH: Reverse Line Blot Hybridization; RT-PCR: Real Time Polymerase Chain Reaction; SBH: Southern Blot Hybridization; SPF: Short Primer Fragment; TS: Type Specific;
[a] 95% Confidence Interval
[b] Includes cases from Argentina, Brazil, Chile, Colombia, Ecuador, Guatemala, Honduras, Mexico, Paraguay, Uruguay, and Venezuela
Data Sources:
de Sanjosé S, Eur J Cancer 2013; 49: 3450 | Pinto AP, Gynecol Oncol 1999; 74: 61
Based on systematic reviews (up to 2008) performed by ICO for the IARC Monograph on the Evaluation of Carcinogenic Risks to Humans volume 100B and IARC's Infections and Cancer Epidemiology Group. The ICO HPV Information Centre has updated data until June 2015. Reference publications: 1) Bouvard V, Lancet Oncol 2009;10:321 2) De Vuyst H, Int J Cancer 2009;124:1626

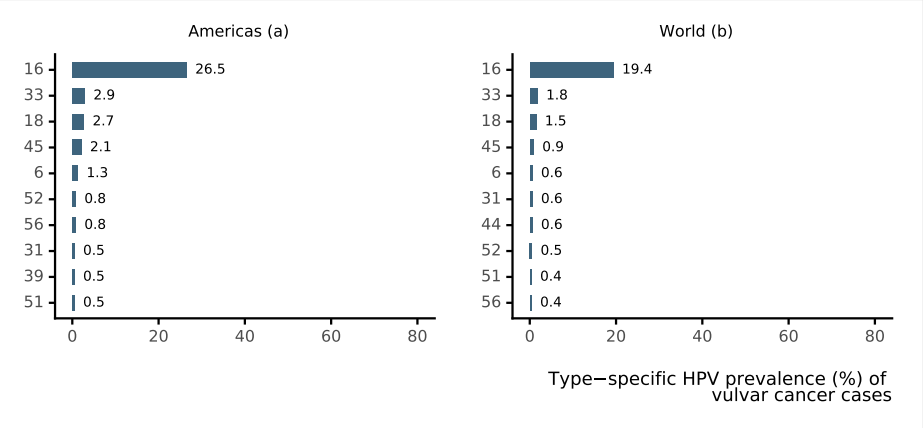
Table 28: Studies on HPV prevalence among VIN 2/3 cases in Brazil

Study[b]	HPV detection method and targeted HPV types	HPV Prevalence			
		No. Tested	%	(95% CI)[a]	Prevalence of 5 most frequent HPVs, HPV type (%)
de Sanjosé 2013	PCR-SPF10, EIA, (HPV 6, 11, 16, 18, 26, 30, 31, 33, 34, 35, 39, 40, 42, 43, 44, 45, 51, 52, 53, 54, 56, 58, 59, 61, 66, 67, 68, 69, 70, 73, 74, 82, 83, 87, 89, 91)	126	77.8	(69.8-84.2)	HPV 16 (57.1), HPV 33 (8.7), HPV 6 (4.8), HPV 31 (4.0), HPV 11 (1.6)

Data updated on 30 Jun 2015 (data as of 30 Jun 2015)

DBH: Dot Blot Hybridization; EIA: Enzyme ImmunoAssay; HC2: Hybrid Capture 2; ISH: In Situ Hybridization; LBA: Line-Blot Assay; LiPA: Line Probe Assay; PCR: Polymerase Chain Reaction; RFLP: Restriction Fragment Length Polymorphism; RLBH: Reverse Line Blot Hybridization; RT-PCR: Real Time Polymerase Chain Reaction; SBH: Southern Blot Hybridization; SPF: Short Primer Fragment; TS: Type Specific;
VIN 2/3: Vulvar intraepithelial neoplasia of grade 2/3
[a] 95% Confidence Interval
[b] Includes cases from Argentina, Brazil, Chile, Colombia, Ecuador, Guatemala, Honduras, Mexico, Paraguay, Uruguay, and Venezuela
Data Sources:
de Sanjosé S, Eur J Cancer 2013; 49: 3450
Based on systematic reviews (up to 2008) performed by ICO for the IARC Monograph on the Evaluation of Carcinogenic Risks to Humans volume 100B and IARC's Infections and Cancer Epidemiology Group. The ICO HPV Information Centre has updated data until June 2015. Reference publications: 1) Bouvard V, Lancet Oncol 2009;10:321 2) De Vuyst H, Int J Cancer 2009;124:1626

Figure 64: Comparison of the ten most frequent HPV types in cases of vulvar cancer in Americas and the World



Data updated on 30 Jun 2015 (data as of 30 Jun 2015)

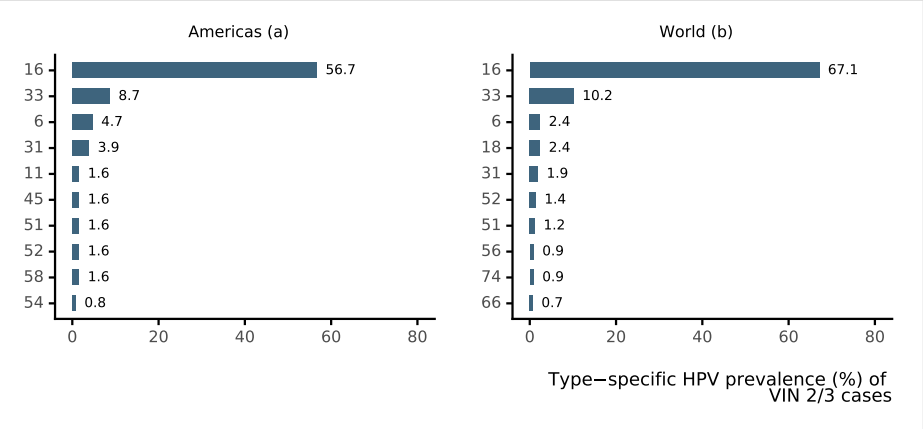
[a] Includes cases from Argentina, Brazil, Chile, Colombia, Ecuador, Guatemala, Honduras, Mexico, Paraguay, Uruguay, United States of America and Venezuela

[b] Includes cases from America (Argentina, Brazil, Chile, Colombia, Ecuador, Guatemala, Honduras, Mexico, Paraguay, Uruguay, United States of America and Venezuela); Africa (Mali, Mozambique, Nigeria, and Senegal); Oceania (Australia and New Zealand); Europe (Austria, Belarus, Bosnia-Herzegovina, Czech Republic, France, Germany, Greece, Italy, Poland, Portugal, Spain and United Kingdom); and in Asia (Bangladesh, India, Israel, South Korea, Kuwait, Lebanon, Philippines, Taiwan and Turkey)

Data Sources:

Data from de Sanjosé S, Eur J Cancer 2013; 49: 3450. This study has gathered the largest international series of vulva cancer cases and precancerous lesions worldwide using a standard protocol with a highly sensitive HPV DNA detection assay.

Figure 65: Comparison of the ten most frequent HPV types in VIN 2/3 cases in Americas and the World



Data updated on 30 Jun 2014 (data as of 30 Jun 2014)

VIN 2/3: Vulvar intraepithelial neoplasia of grade 2/3

[a] Includes cases from Argentina, Brazil, Chile, Colombia, Ecuador, Guatemala, Honduras, Mexico, Paraguay, Uruguay, and Venezuela.

[b] Includes cases from America (Argentina, Brazil, Chile, Colombia, Ecuador, Guatemala, Honduras, Mexico, Paraguay, Uruguay and Venezuela); Oceania (Australia and New Zealand); Europe (Austria, Belarus, Bosnia-Herzegovina, Czech Republic, France, Germany, Greece, Italy, Poland, Portugal, Spain and United Kingdom); and in Asia (Bangladesh, India, Israel, South Korea, Kuwait, Lebanon, Philippines, Taiwan and Turkey)

Data Sources:

Data from de Sanjosé S, Eur J Cancer 2013; 49: 3450. This study has gathered the largest international series of vulva cancer cases and precancerous lesions worldwide using a standard protocol with a highly sensitive HPV DNA detection assay.

4.2.3 Vaginal cancer and precancerous vaginal lesions

Vaginal and cervical cancers share similar risk factors and it is generally accepted that both carcinomas share the same aetiology of HPV infection although there is limited evidence available. Women with vaginal cancer are more likely to have a history of other ano-genital cancers, particularly of the cervix, and these two carcinomas are frequently diagnosed simultaneously. HPV DNA is detected among 78% of invasive vaginal carcinomas and 91% of high-grade vaginal neoplasias (VaIN2/3). HPV16 is the most common type in high-grade vaginal neoplasias and it is detected in at least 78% of HPV-positive carcinomas (de Martel C et al. Lancet Glob Health 2020;8(2):e180-e190; De Vuyst H et al. Int J Cancer 2009; 124:1626-36). In this section, the HPV burden among cases of vaginal cancer cases and precancerous vaginal lesions in Brazil are presented.

Table 29: Studies on HPV prevalence among vaginal cancer cases in Brazil

			HPV Prevalence		
Study[b]	**HPV detection method and targeted HPV types**	**No. Tested**	**%**	**(95% CI)[a]**	**Prevalence of 5 most frequent HPVs, HPV type (%)**
Alemany 2014	PCR-SPF10, EIA, (HPV 6, 11, 16, 18, 26, 30, 31, 33, 35, 39, 42, 45, 51, 52, 53, 56, 58, 59, 66, 67, 68, 69, 73, 82)	191	78	(71.6-83.3)	HPV 16 (42.4), HPV 31 (5.8), HPV 18 (4.2), HPV 33 (4.2), HPV 52 (3.1)

Data updated on 30 Jun 2015 (data as of 30 Jun 2015)

DBH: Dot Blot Hybridization; EIA: Enzyme ImmunoAssay; HC2: Hybrid Capture 2; ISH: In Situ Hybridization; LBA: Line-Blot Assay; LiPA: Line Probe Assay; PCR: Polymerase Chain Reaction; RFLP: Restriction Fragment Length Polymorphism; RLBH: Reverse Line Blot Hybridization; RT-PCR: Real Time Polymerase Chain Reaction; SBH: Southern Blot Hybridization; SPF: Short Primer Fragment; TS: Type Specific;
[a] 95% Confidence Interval
[b] Includes cases from Argentina, Brazil, Chile, Colombia, Ecuador, Guatemala, Mexico, Paraguay, Uruguay, United States of America and Venezuela
Data Sources:
Alemany L, Eur J Cancer 2014; 50: 2846
Based on systematic reviews (up to 2008) performed by ICO for the IARC Monograph on the Evaluation of Carcinogenic Risks to Humans volume 100B and IARC's Infections and Cancer Epidemiology Group. The ICO HPV Information Centre has updated data until June 2015. Reference publications: 1) Bouvard V, Lancet Oncol 2009;10:321 2) De Vuyst H, Int J Cancer 2009;124:1626

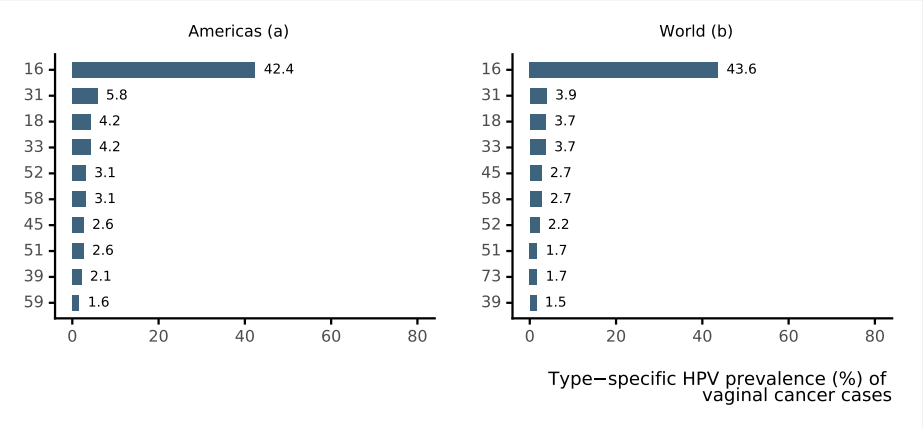
Table 30: Studies on HPV prevalence among VaIN 2/3 cases in Brazil

			HPV Prevalence		
Study	**HPV detection method and targeted HPV types**	**No. Tested**	**%**	**(95% CI)[a]**	**Prevalence of 5 most frequent HPVs, HPV type (%)**
Alemany 2014	PCR-SPF10, EIA, (HPV 6, 11, 16, 18, 26, 30, 31, 33, 35, 39, 42, 45, 51, 52, 53, 56, 58, 59, 66, 67, 68, 69, 73, 82, 89)	80	92.5	(84.6-96.5)	HPV 16 (46.3), HPV 52 (6.3), HPV 73 (6.3), HPV 18 (6.3), HPV 51 (3.8)

Data updated on 30 Jun 2015 (data as of 30 Jun 2015)

DBH: Dot Blot Hybridization; EIA: Enzyme ImmunoAssay; HC2: Hybrid Capture 2; ISH: In Situ Hybridization; LBA: Line-Blot Assay; LiPA: Line Probe Assay; PCR: Polymerase Chain Reaction; RFLP: Restriction Fragment Length Polymorphism; RLBH: Reverse Line Blot Hybridization; RT-PCR: Real Time Polymerase Chain Reaction; SBH: Southern Blot Hybridization; SPF: Short Primer Fragment; TS: Type Specific;
VAIN 2/3: Vaginal intraepithelial neoplasia of grade 2/3
[a] 95% Confidence Interval
Data Sources:
Alemany L, Eur J Cancer 2014; 50: 2846
Based on systematic reviews (up to 2008) performed by ICO for the IARC Monograph on the Evaluation of Carcinogenic Risks to Humans volume 100B and IARC's Infections and Cancer Epidemiology Group. The ICO HPV Information Centre has updated data until June 2015. Reference publications: 1) Bouvard V, Lancet Oncol 2009;10:321 2) De Vuyst H, Int J Cancer 2009;124:1626

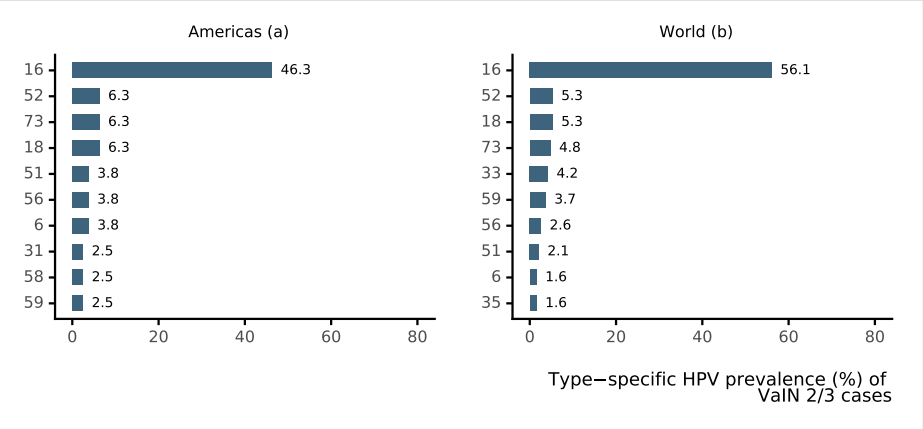
Figure 66: Comparison of the ten most frequent HPV types in cases of vaginal cancer in Americas and the World



Data updated on 30 Jun 2015 (data as of 30 Jun 2015)

[a] Includes cases from Argentina, Brazil, Chile, Colombia, Ecuador, Guatemala, Mexico, Paraguay, Uruguay, United States of America and Venezuela.
[b] Includes cases from Europe (Austria, Belarus, Czech Republic, France, Germany, Greece, Poland, Spain and United Kingdom); America (Argentina, Brazil, Chile, Colombia, Ecuador, Guatemala, Mexico, Paraguay, Uruguay, United states of America and Venezuela); Africa (Mozambique, Nigeria); Asia (Bangladesh, India, Israel, South Korea, Kuwait, Philippines, Taiwan and Turkey); and Oceania (Australia)
Data Sources:
Data from Alemany L, Eur J Cancer 2014; 50: 2846. This study has gathered the largest international series of vaginal cancer cases and precancerous lesions worldwide using a standard protocol with a highly sensitive HPV DNA detection assay.

Figure 67: Comparison of the ten most frequent HPV types in VaIN 2/3 cases in Americas and the World



Data updated on 30 Jun 2014 (data as of 30 Jun 2014)

VAIN 2/3: Vaginal intraepithelial neoplasia of grade 2/3
[a] Includes cases from Argentina, Brazil, Chile, Colombia, Ecuador, Guatemala, Mexico, Paraguay, Uruguay, United States of America and Venezuela.
[b] Includes cases from Europe (Austria, Belarus, Czech Republic, France, Germany, Greece, Poland, Spain and United Kingdom); America (Argentina, Brazil, Chile, Colombia, Ecuador, Guatemala, Mexico, Paraguay, Uruguay, United states of America and Venezuela); Asia (Bangladesh, India, Israel, South Korea, Kuwait, Philippines, Taiwan and Turkey); and Oceania (Australia)
Data Sources:
Data from Alemany L, Eur J Cancer 2014; 50: 2846. This study has gathered the largest international series of vaginal cancer cases and precancerous lesions worldwide using a standard protocol with a highly sensitive HPV DNA detection assay.

4.2.4 Penile cancer and precancerous penile lesions

HPV DNA is detectable in approximately 51% of all penile cancers (de Martel C et al. Lancet Glob Health 2020;8(2):e180-e190). Among HPV-related penile tumours, HPV16 is the most common type detected, followed by HPV18 and HPV types 6/11 (Miralles C et al. J Clin Pathol 2009;62:870-8). Over 95% of invasive penile cancers are SCC and the most common penile SCC histologic sub-types are keratinising (49%), mixed warty-basaloid (17%), verrucous (8%), warty (6%), and basaloid (4%). HPV is commonly detected in basaloid and warty tumours but is less common in keratinising and verrucous tumours. In this section, the HPV burden among cases of penile cancer cases and precancerous penile lesions in Brazil are presented.

Table 31: Studies on HPV prevalence among penile cancer cases in Brazil

Study	HPV detection method and targeted HPV types	HPV Prevalence			
		No. Tested	%	(95% CI)[a]	Prevalence of 5 most frequent HPVs, HPV type (%)
Afonso 2012	PCR-MY09/11, PCR L1-Consensus primer, PCR-E6, RFLP (HPV 6, 11, 16, 18, 26, 31, 33, 35, 45, 53, 62, 70, 71, 73)	133	56.4	(47.9-64.5)	HPV 16 (17.3), HPV 45 (12.8), HPV 6 (6.8), HPV 18 (3.8), HPV 31 (3.0)
Bezerra 2001	PCR consensus primers and probing forHPV types: 6, 11, 16, 18, 31, 33, 34, 35, 39, 40, 42, 43, 44, 45, 51, 52, 54, 56 and 58	82	30.5	(21.6-41.1)	
Calmon 2013	PCR-GP5+/6+, PCR L1-Consensus primer, qPCR, LiPA (HPV 6, 11, 16, 18, 26, 31, 33, 35, 39, 40, 43, 44, 45, 51, 52, 53, 54, 56, 58, 59, 66, 68, 69, 70, 71, 73, 74, 82)	47	48.9	(35.3-62.8)	HPV 16 (40.4), HPV 11 (10.6), HPV 35 (2.1)
Fonseca 2013	PCR-GP5+/6+, Sequencing (HPV 6, 11, 16, 18, 33, 45, 51, 52, 53, 58, 68)	82	61.0	(50.2-70.8)	HPV 11 (39.0), HPV 6 (19.5), HPV 16 (18.3), HPV 53 (11.0), HPV 33 (2.4)
Levi 1998	PCR MY09/11 and probing for 6,11,16,18,31	50	56.0	(42.3-68.8)	
Scheiner 2008	PCR-GP5+/6+, PCR-MY09/11, RFLP (HPV 6, 16, 18, 31, 33, 45, 71)	80	72.5	(61.9-81.1)	HPV 16 (15.0), HPV 6 (5.0), HPV 18 (1.3), HPV 31 (1.3), HPV 33 (1.3)

Data updated on 5 Mar 2015 (data as of 30 Jun 2014)

DBH: Dot Blot Hybridization; EIA: Enzyme ImmunoAssay; HC2: Hybrid Capture 2; ISH: In Situ Hybridization; LBA: Line-Blot Assay; LiPA: Line Probe Assay; PCR: Polymerase Chain Reaction; RFLP: Restriction Fragment Length Polymorphism; RLBH: Reverse Line Blot Hybridization; RT-PCR: Real Time Polymerase Chain Reaction; SBH: Southern Blot Hybridization; SPF: Short Primer Fragment; TS: Type Specific;
[a] 95% Confidence Interval
Data Sources:
Afonso LA, Mem Inst Oswaldo Cruz 2012; 107: 18 | Bezerra AL, Cancer 2001; 91: 2315 | Calmon MF, PLoS ONE 2013; 8: e53260 | Fonseca AG, Int Braz J Urol 2013; 39: 542 | Levi JE, Int J Cancer 1998; 76: 779 | Scheiner MA, Int Braz J Urol 2008; 34: 467
The ICO HPV Information Centre has updated data until June 2014. Reference publications (up to 2008): 1) Bouvard V, Lancet Oncol 2009;10:321 2) Miralles-Guri C,J Clin Pathol 2009;62:870

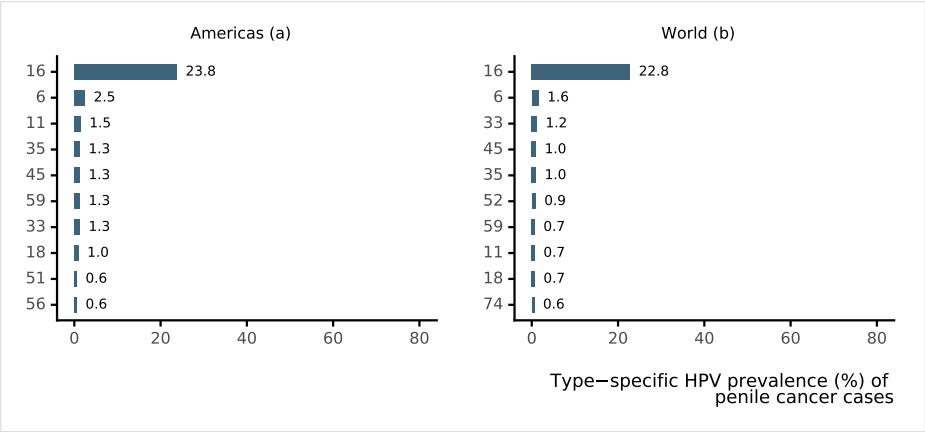
Table 32: Studies on HPV prevalence among PeIN 2/3 cases in Brazil

Study	HPV detection method and targeted HPV types	HPV Prevalence			
		No. Tested	%	(95% CI)[a]	Prevalence of 5 most frequent HPVs, HPV type (%)
No data available	-	-	-	-	

Data updated on 10 Feb 2015 (data as of 30 Jun 2014)

PeIN 2/3: Penile intraepithelial neoplasia of grade 2/3
DBH: Dot Blot Hybridization; EIA: Enzyme ImmunoAssay; HC2: Hybrid Capture 2; ISH: In Situ Hybridization; LBA: Line-Blot Assay; LiPA: Line Probe Assay; PCR: Polymerase Chain Reaction; RFLP: Restriction Fragment Length Polymorphism; RLBH: Reverse Line Blot Hybridization; RT-PCR: Real Time Polymerase Chain Reaction; SBH: Southern Blot Hybridization; SPF: Short Primer Fragment; TS: Type Specific;
[a] 95% Confidence Interval
Data Sources:
The ICO HPV Information Centre has updated data until June 2014. Reference publication (up to 2008): Bouvard V, Lancet Oncol 2009;10:321

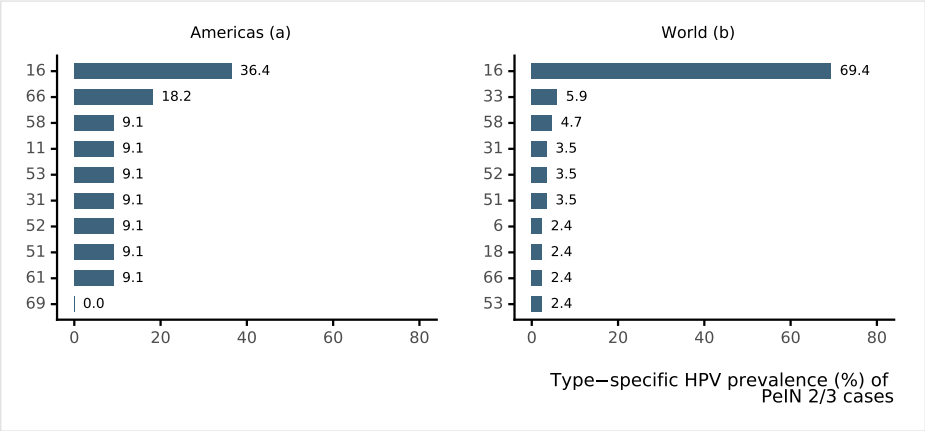
Figure 68: Comparison of the ten most frequent HPV types in cases of penile cancer in Americas and the World



Data updated on 9 Feb 2017 (data as of 30 Jun 2015)

[a] Includes cases from Chile, Colombia, Ecuador, Guatemala, Honduras, Mexico, Paraguay, Venezuela and United States
[b] Includes cases from Australia, Bangladesh, India, South Korea, Lebanon, Philippines, Chile, Colombia, Ecuador, Guatemala, Honduras, Mexico, Paraguay, Venezuela and United States, Mozambique, Nigeria, Senegal, Czech Republic, France, Greece, Poland, Portugal, Spain and United Kingdom.
Data Sources:
Alemany L, Eur Urol 2016; 69: 953

Figure 69: Comparison of the ten most frequent HPV types in PeIN 2/3 cases in Americas and the World



Data updated on 9 Feb 2017 (data as of 30 Jun 2015)

PeIN 2/3: Penile intraepithelial neoplasia of grade 2/3
[a] Includes cases from Chile, Colombia, Ecuador, Guatemala, Honduras, Mexico, Paraguay, Venezuela.
[b] Includes cases from Australia, Bangladesh, India, South Korea, Lebanon, Philippines, Chile, Colombia, Ecuador, Guatemala, Honduras, Mexico, Paraguay, Venezuela, Mozambique, Nigeria, Senegal, Czech Republic, France, Greece, Poland, Portugal, Spain and United Kingdom.
Data Sources:
Oliveira MC, Auris Nasus Larynx 2009; 36: 450 | Ribeiro KB, Int J Epidemiol 2011; 40: 489 | Rivero ER, Braz Oral Res 2006; 20: 21
Based on systematic reviews and meta-analysis performed by ICO. Reference publications: 1) Ndiaye C, Lancet Oncol 2014; 15: 1319 2) Kreimer AR, Cancer Epidemiol Biomarkers Prev 2005; 14: 467

4.3 HPV burden in men

The information to date regarding anogenital HPV infection is primarily derived from cross-sectional studies of selected populations such as general population, university students, military recruits, and studies that examined husbands of control women, as well as from prospective studies. Special subgroups include mainly studies that examined STD (sexually transmitted diseases) clinic attendees, MSM (men who have sex with men), HIV positive men, and partners of women with HPV lesions, CIN (cervical intraepithelial neoplasia), cervical cancer or cervical carcinoma in situ. Globally, prevalence of external genital HPV infection in men is higher than cervical HPV infection in women, but persistence is less likely. As with genital HPV prevalence, high numbers of sexual partners increase the acquisition of oncogenic HPV infections (Vaccine 2012, Vol. 30, Suppl 5). In this section, the HPV burden among men in Brazil is presented.

Methods

HPV burden in men was based on published systematic reviews and meta-analyses (Dunne EF, J Infect Dis 2006; 194: 1044, Smith JS, J Adolesc Health 2011; 48: 540, Olesen TB, Sex Transm Infect 2014; 90: 455, and Hebnes JB, J Sex Med 2014; 11: 2630) up to October 31, 2015. The search terms for the review were human papillomavirus, men, polymerase chain reaction (PCR), hybrid capture (HC), and viral DNA. References cited in selected articles were also investigated. Inclusion criteria were: HPV DNA detection by means of PCR or HC (ISH if data are not available for the country), and a detailed description of HPV DNA detection and genotyping techniques used. The number of cases tested and HPV positive cases were extracted for each study to estimate the anogenital prevalence of HPV DNA. Binomial 95% confidence intervals were calculated for each anogenital HPV prevalence.

Table 33: Studies on HPV prevalence among men in Brazil

Study	Anatomic sites samples	HPV detection method	Population	Age (years)	No. Tested	HPV Prevalence	
						%	(95% CI)[a]
Franceschi 2002	Glans, corona, urethra	PCR-GP5+/6+	Husbands of control women	24-81	56	39.3	(26.5-53.2)
Giuliano 2008[b]	Corona sulcus, glans, shaft and scrotum	PCR-PGMY09/11 and GP5/6+	General population	18-70	382	72.3	(67.5-76.7)
Nyitray 2011	Anal canal	PCR-PGMY09/11	HIV- MSW from general population and population from a STD clinic	18-70	1305	12.2	(10.5-14.1)
Nyitray 2011	Anal canal	PCR-PGMY09/11	HIV- MSM from general population and population from a STD clinic	18-70	176	47.2	(39.6-54.8)
Rosenblatt 2004	Shaft, dorsal and prebalanic area, prepuce, urethral meatus	HC2 HR	Partners of women without CIN	-	60	15.0	(7.1-26.6)
Vardas 2011[c]	Penis	RT-PCR-Multiplex or Biplex	Heterosexual men enrolled in a HPV vaccine trial	Median 20 (15-24)	3132	21.2	(19.8-22.7)

Data updated on 31 Oct 2015 (data as of 31 Oct 2015)

HC2: Hybrid Capture 2; ISH: In Situ Hybridization; PCR: Polymerase Chain Reaction; RT-PCR: Real Time Polymerase Chain Reaction; SPF: Short Primer Fragment; TS: Type Specific; MSM: Men who have sex with men; MSW:Men who have sex with women; STD: sexually transmitted diseases

[a] 95% Confidence Interval

[b] Giuliano AR, Cancer Epidemiol Biomarkers Prev 2008; 17: 2036

[c] Includes cases from Australia, Brazil, Canada, Croatia, Germany, Mexico, Spain, and USA.

Data Sources:

Franceschi S, Br J Cancer 2002; 86: 705 | Giuliano AR, Cancer Epidemiol Biomarkers Prev 2008; 17: 2036 | Nyitray AG, J Infect Dis 2011; 203: 49 | Rosenblatt C, Int J Gynaecol Obstet 2004; 84: 156 | Vardas E, J Infect Dis 2011; 203: 58

Based on published systematic reviews, the ICO HPV Information Centre has updated data until October 2015. Reference publications: 1) Dunne EF, J Infect Dis 2006; 194: 1044 2) Smith JS, J Adolesc Health 2011; 48: 540 3) Olesen TB, Sex Transm Infect 2014; 90: 455 4) Hebnes JB, J Sex Med 2014; 11: 2630.

Table 34: Studies on HPV prevalence among men from special subgroups in Brazil

Study	Anatomic sites samples	HPV detection method	Population	Age (years)	No. Tested	HPV Prevalence	
						%	(95% CI)[a]
de Lima Rocha 2012	Coronal sulcus, glans, and prepuce	PCR-GP5+/6+	Sexual partners of women with cervical HPV infection	18-60	43	51.2	(35.5-66.7)
Franceschi 2002	Glans, corona, urethra	PCR-GP5+/6+	Husbands of women with invasive cervical cancer	27-79	53	35.8	(23.1-50.2)
Freire 2014	Shaft, glans, balanopreputial sulcus and urethral	PCR-Papillocheck	Men referred to the Urological Division	18-81	355	72.1	(67.1-76.7)
Goldstone 2011[b]	Anus	RT-PCR-Multiplex or Biplex	HIV- MSM	Median 22 (16-27)	602	42.4	(38.4-46.4)
Goldstone 2011[b]	Penis	RT-PCR-Multiplex or Biplex	HIV- MSM	Median 22 (16-27)	602	18.4	(15.4-21.8)
Guimarães 2011	Anus	PCR-DBH	HIV+	>=18	445	65.6	(61.0-70.0)
Nicolau 2005	Glans, urethra, internal and external prepuce, scrotum, anus	HC2 HR, LR	Partners of women with HPV	19-53	50	70.0	(55.4-82.1)
Nyitray 2011	Anal canal	PCR-PGMY09/11	HIV- MSM from general population and population from a STD clinic	18-70	176	47.2	(39.6-54.8)
Rombaldi 2006	Prepuce, preglans, shaft, urethral canal	PCR-L1, MY09/11	Partners of women with CIN	18-56	99	54.5	(44.2-64.6)
Rosenblatt 2004	Shaft, dorsal and prebalanic area, prepuce, urethral meatus	HC2 HR	Partners of women with CIN	-	30	76.7	(57.7-90.1)

Data updated on 31 Oct 2015 (data as of 31 Oct 2015)

DBH: Dot Blot Hybridization; EIA: Enzyme ImmunoAssay; HC2: Hybrid Capture 2; LiPA: Line Probe Assay; PCR: Polymerase Chain Reaction; RFLP: Restriction Fragment Length Polymorphism; RLH: Reverse Line Hybridisation; RT-PCR: Real Time Polymerase Chain Reaction; SPF: Short Primer Fragment; TS: Type Specific; MSM: Men who have sex with men; MSW:Men who have sex with women; STD: sexually transmitted diseases

[a] 95% Confidence Interval

[b] Includes cases from Australia, Brazil, Canada, Croatia, Germany, Mexico, Spain, and USA.

Data Sources:

de Lima Rocha MG, PLoS ONE 2012; 7: 128 | Franceschi S, Br J Cancer 2002; 86: 705 | Freire MP, Int Braz J Urol 2014; 40: 67 | Goldstone S, J Infect Dis 2011; 203: 66 | Guimarães MD, J Acquir Immune Defic Syndr 2011; 57 Suppl 3: S217 | Nicolau SM, Urology 2005; 65: 251 | Nyitray AG, J Infect Dis 2011; 203: 49 | Rombaldi RL, Braz J Med Biol Res 2006; 39: 177 | Rosenblatt C, Int J Gynaecol Obstet 2004; 84: 156

Based on published systematic reviews, the ICO HPV Information Centre has updated data until October 2015. Reference publications: 1) Dunne EF, J Infect Dis 2006; 194: 1044 2) Smith JS, J Adolesc Health 2011; 48: 540 3) Olesen TB, Sex Transm Infect 2014; 90: 455 4) Hebnes JB, J Sex Med 2014; 11: 2630.

4.4 HPV burden in the head and neck

The last evaluation of the International Agency for Research in Cancer (IARC) on the carcinogenicity of HPV in humans concluded that (a) there is enough evidence for the carcinogenicity of HPV type 16 in the oral cavity, oropharynx (including tonsil cancer, base of tongue cancer and other oropharyngeal cancer sites), and (b) limited evidence for laryngeal cancer (IARC Monograph Vol 100B). There is increasing evidence that HPV-related oropharyngeal cancers constitute an epidemiological, molecular and clinical distinct form as compared to non HPV-related ones. Some studies indicate that the most likely explanation for the origin of this distinct form of head and neck cancers associated with HPV is a sexually acquired oral HPV infection that is not cleared, persists and evolves into a neoplastic lesion. Around 30% of oropharyngeal cancers (which mainly comprises the tonsils and base of tongue sites) are caused by HPV with HPV16 being the most frequent type (de Martel C et al. Int J Cancer 2017;141(4):664-670). Attributable fraction varies greatly worldwide, being highest in more developed countries (60% in Republic of Korea, 51% in North America, 50% in Eastern Europe, 46% in Japan, 42% in North-Western Europe, 41% in Australia/New Zealand, 24% in South Europe, 23% in China, 22% in India, and 13% in elsewhere) (de Martel C et al. Lancet Glob Health 2020;8(2):e180-e190). In this section, the HPV burden in the head and neck in Brazil is presented.

4.4.1 Burden of oral HPV infection in healthy population

Table 35: Studies on oral HPV prevalence among healthy in Brazil

Study	Specimen collection method / anatomic site	HPV detection method[a]	Population	% males	Age (years)[b]	No. tested[c]	HPV prevalence % (95% CI)	High-Risk HPV prevalence % (95% CI)	5 most frequent HPVs, HPV type (n)[d]
do 2006	Brush/swab / Most parts of Oropharynx	PCR-MY09/11	Convenient samples from out-patients	57.9	16-52	50	10 (4.3-21.4)	6 (2.1-16.2)	HPV61 (2); X (2); 16 (1); 18 (1); 52 (1)
Esquenazi 2010	Brush/swab / Oral mucosa and mastication sites	PCR-GP5+/6+ MY09/11	Convenient samples from general population	40	20-31	100	0 (0.0-3.7)	-	-
Kreimer 2011	Oral rinse / Oral mucosa	PCR-PGMY09/11	Convenient samples from general population	100	18-74	499	2.8 (1.7-4.7)	1.4 (0.7-2.9)	HPV16 (4); 51 (2); 61 (2); 6 (1); 58 (1) 62(1); 66 (1); 70 (1); 83 (1); 84 (1)
Ribeiro 2011	Brush/swab & oral rinse & gargle / Oral mucosa and throat	PCR-PGMY09/11	Age-matched controls	-	-	898	0.2 (0.1-0.8)	-	-
Cavenaghi 2013	Oral rinse and gargle / Oral mucosa and throat	PCR-MY09/11	Convenient samples from general population	39	4-89	145	2.1 (0.7-5.9)	0.7 (0.1-3.8)	HPV44 (2); 58 (1)
Machado 2014	Brush/swab / Most parts of mouth	PCR-PGMY09/11	Convenient samples from out-patients	100	18-68	514	1.2 (0.5-2.5)	0.2 (0.0-1.1)	HPVX (2); 6 (1); 11 (1); 52 (1); 53 (1); 89 (1)
Araujo 2014	Brush/swab / Most parts of mouth	PCR-MY09/11	Convenient samples from out-patients	38	18-79	166	24.1 (18.2-31.1)	-	HPV18 (5); 6 (3); 58 (1)

Data updated on 19 Oct 2021 (data as of 19 May 2015)

(95% CI): 95% Confidence Interval
[a] TS: type-specific; RT-PCR: real-time PCR; qPCR: quantitative PCR
[b] NS: not specified
[c] number of cases tested for HPV DNA
[d] number of cases positive for the specific HPV-type
Data Sources:
Araujo MV, Cad Saude Publica 2014;30(5):1115-9 | Cavenaghi VB, Braz J Otorhinolaryngol 2013;79(5):599-602 | do Sacramento PR, J Med Virol 2006;78(5):614-8 | Esquenazi D, Braz J Otorhinolaryngol 2010;76(1):78-84 | Kreimer AR, Cancer Epidemiol Biomarkers Prev 2011;20(1):172-82 | Machado AP, Braz J Infect Dis 2014;18(3):266-70 | Ribeiro KB, Int J Epidemiol 2011;40(2):489-502
Systematic review and meta-analysis was performed by ICO HPV Information Centre until May 19, 2015. Reference publication: Mena M et al. J Infect Dis 2019;219(10):1574-1585.

4.4.2 HPV burden in head and neck cancers

Table 36: Studies on HPV prevalence among cases of oral cavity cancer in Brazil

Study	HPV detection method and targeted HPV types	HPV Prevalence			
		No. Tested	%	(95% CI)[a]	Prevalence of 5 most frequent HPVs, HPV type (%)
MEN					
Oliveira 2009	GP5+/GP6+ (L1) DBH (6. 11. 16. 18. 31. 33. 34. 35. 39. 40. 42. 43. 44. 45. 51. 52. 54. 56. 58)	57	31.6	(21.0-44.5)	-
WOMEN					
Oliveira 2009	GP5+/GP6+ (L1) DBH (6. 11. 16. 18. 31. 33. 34. 35. 39. 40. 42. 43. 44. 45. 51. 52. 54. 56. 58)	31	25.8	(13.7-43.2)	-
BOTH OR UNSPECIFIED					
Oliveira 2009	GP5+/GP6+ (L1) DBH (6. 11. 16. 18. 31. 33. 34. 35. 39. 40. 42. 43. 44. 45. 51. 52. 54. 56. 58)	88	29.5	(21.0-39.8)	HPV 18 (28.4) HPV 16 (5.7)
Ribeiro 2011[b]	PGMY09/11 (L1) Amplification with TS primers (16)	132	0	-	-
Rivero 2006	GP5+/GP6+ (L1) CSA-ISH (DAKO) (6. 11. 16. 18)	40	0	-	-

Data updated on 9 May 2016 (data as of 31 Dec 2015)

DBH: Dot Blot Hybridization; EIA: Enzyme ImmunoAssay; HC2: Hybrid Capture 2; ISH: In Situ Hybridization; LBA: Line-Blot Assay; LiPA: Line Probe Assay; PCR: Polymerase Chain Reaction; RFLP: Restriction Fragment Length Polymorphism; RLBH: Reverse Line Blot Hybridization; RT-PCR: Real Time Polymerase Chain Reaction; SBH: Southern Blot Hybridization; SPF: Short Primer Fragment; TS: Type Specific;
Only for European countries
[a] 95% Confidence Interval
[b] Includes cases from Argentina, Brazil, Cuba, Russia, Slovakia, Czech Republic, Romania and Poland
Data Sources:
Oliveira MC, Auris Nasus Larynx 2009; 36: 450 | Ribeiro KB, Int J Epidemiol 2011; 40: 489 | Rivero ER, Braz Oral Res 2006; 20: 21
Based on systematic reviews and meta-analysis performed by ICO. Reference publications: 1) Ndiaye C, Lancet Oncol 2014; 15: 1319 2) Kreimer AR, Cancer Epidemiol Biomarkers Prev 2005; 14: 467

Table 37: Studies on HPV prevalence among cases of oropharyngeal cancer in Brazil

Study	HPV detection method and targeted HPV types	HPV Prevalence			
		No. Tested	%	(95% CI)[a]	Prevalence of 5 most frequent HPVs, HPV type (%)
MEN					
No data available	-	-	-	-	-
WOMEN					
No data available	-	-	-	-	-
BOTH OR UNSPECIFIED					
Cortezzi 2004	GP5+/GP6+ (L1) DBH (6. 11. 16. 18. 31. 33. 34. 39. 42. 45. 51. 52. 54. 56)	21	14.3	(5.0-34.6)	HPV 16 (14.3)
Ribeiro 2011	PGMY09/11 (L1) Amplification with TS primers (16)	136	0.7	(0.1-4.0)	HPV 16 (0.7)

Data updated on 9 May 2016 (data as of 31 Dec 2015)

DBH: Dot Blot Hybridization; EIA: Enzyme ImmunoAssay; HC2: Hybrid Capture 2; ISH: In Situ Hybridization; LBA: Line-Blot Assay; LiPA: Line Probe Assay; PCR: Polymerase Chain Reaction; RFLP: Restriction Fragment Length Polymorphism; RLBH: Reverse Line Blot Hybridization; RT-PCR: Real Time Polymerase Chain Reaction; SBH: Southern Blot Hybridization; SPF: Short Primer Fragment; TS: Type Specific
Only for European countries
[a] 95% Confidence Interval
Data Sources:
Cortezzi SS, Cancer Genet Cytogenet 2004; 150: 44 | Ribeiro KB, Int J Epidemiol 2011; 40: 489
Based on systematic reviews and meta-analysis performed by ICO. Reference publications: 1) Ndiaye C, Lancet Oncol 2014; 15: 1319 2) Kreimer AR, Cancer Epidemiol Biomarkers Prev 2005; 14: 467

Table 38: Studies on HPV prevalence among cases of hypopharyngeal or laryngeal cancer in Brazil

Study	HPV detection method and targeted HPV types	HPV Prevalence			
		No. Tested	%	(95% CI)[a]	Prevalence of 5 most frequent HPVs, HPV type (%)
MEN					
No data available	-	-	-	-	-
WOMEN					
No data available	-	-	-	-	-
BOTH OR UNSPECIFIED					
Miranda 2009	GP5+/GP6+ (L1) Amplification with TS primers (16. 18. 33) and sequencing	27	7.4	(2.1-23.4)	HPV 16 (7.4) HPV 6 (3.7)

Continued on next page

Table 38 – continued from previous page

Study	HPV detection method and targeted HPV types	No. Tested	%	(95% CI)[a]	Prevalence of 5 most frequent HPVs, HPV type (%)
Ribeiro 2011[b]	PGMY09/11 (L1) Amplification with TS primers (16)	239	0.8	(0.2-3.0)	HPV 16 (0.8)

Data updated on 9 May 2016 (data as of 31 Dec 2015)

DBH: Dot Blot Hybridization; EIA: Enzyme ImmunoAssay; HC2: Hybrid Capture 2; ISH: In Situ Hybridization; LBA: Line-Blot Assay; LiPA: Line Probe Assay; PCR: Polymerase Chain Reaction; RFLP: Restriction Fragment Length Polymorphism; RLBH: Reverse Line Blot Hybridization; RT-PCR: Real Time Polymerase Chain Reaction; SBH: Southern Blot Hybridization; SPF: Short Primer Fragment; TS: Type Specific

Only for European countries

[a] 95% Confidence Interval

[b] Includes cases from Argentina, Brazil, Cuba, Russia, Slovakia, Czech Republic, Romania and Poland

Data Sources:

Miranda FA, J Histochem Cytochem 2009; 57: 665 | Ribeiro KB, Int J Epidemiol 2011; 40: 489

Based on systematic reviews and meta-analysis performed by ICO. Reference publications: 1) Ndiaye C, Lancet Oncol 2014; 15: 1319 2) Kreimer AR, Cancer Epidemiol Biomarkers Prev 2005; 14: 467

5 Factors contributing to cervical cancer

HPV is a necessary cause of cervical cancer, but it is not a sufficient cause. Other cofactors are necessary for progression from cervical HPV infection to cancer. Tobacco smoking, high parity, long-term hormonal contraceptive use, and co-infection with HIV have been identified as established cofactors. Co-infection with Chlamydia trachomatis and herpes simplex virus type-2, immunosuppression, and certain dietary deficiencies are other probable cofactors. Genetic and immunological host factors and viral factors other than type, such as variants of type, viral load and viral integration, are likely to be important but have not been clearly identified. (Muñoz N, Vaccine 2006; 24(S3): 1-10). In this section, the prevalence of smoking, parity (fertility), oral contraceptive use, and HIV in Brazil are presented.

Table 39: Factors contributing to cervical carcinogenesis (cofactors) in Brazil

INDICATOR		MALE	FEMALE	TOTAL
Smoking				
Smoking of any tobacco adjusted prevalence (%) [95% UI]	Current[a]	18 [13.4-23.8]	10.2 [7.2-13]	14 [10.3-18.2]
	Daily[b]	14.5 [10.2-18.9]	7.8 [5.4-10.2]	11.1 [7.8-14.4]
Cigarette smoking adjusted prevalence (%) [95% UI]	Current[c]	18 [13.4-23.8]	10.2 [7.2-13]	14 [10.3-18.2]
	Daily[d]	14.5 [10.2-18.9]	7.8 [5.4-10.2]	11.1 [7.8-14.4]
Parity				
Total fertility rate per woman		-	1.7	-
Age-specific fertility rate (per 1000 women)	15-19 yrs	-	-	-
	20-24 yrs	-	-	-
	25-29 yrs	-	-	-
	30-34 yrs	-	-	-
	35-39 yrs	-	-	-
	40-44 yrs	-	-	-
	45-49 yrs	-	-	-
Hormonal contraception				
Oral contraceptive use (%) among women who are married or in union		-	34.2	-
Injectable contraception use (%) among women who are married or in union		-	5.25	-
Implant contraceptive use (%) among women who are married or in union		-	0.05	-
HIV				
Estimated percent of adults aged 15-49 who are living with HIV [95% UI]		- [—]	- [—]	0.5 [0.4-0.7]
Estimated percent of young adults aged 15-24 who are living with HIV [95% UI]		- [—]	- [—]	- [—]
HIV prevalence (%) among sex workers		-	4.9000001	5.3000002
HIV prevalence (%) among men who have sex with men		18.299999	-	18.299999
Estimated number of people living with HIV [95% UI]		-	-	900000 [690000-1100000]
Estimated number of adults (15+ yrs) living with HIV [95% UI]		- [—]	- [—]	- [—]
Estimated number of AIDS-related deaths [95% UI]		-	-	15000 [11000-19000]

Data accessed on 12 Nov 2019

Crude adjusted prevalence (%) estimates of tabacco use among people aged >= 15 years by country, for the year 2016.

[a] "Current" means smoking at the time of the survey, including both daily and non-daily or occasional smoking. "Tobacco smoking" means smoking any form of tobacco, including cigarettes, cigars, pipes, or any other smoked tobacco products and excluding smokeless products.

[b] "Daily" means smoking every day at the time of the survey. "Tobacco smoking" means smoking any form of tobacco, including cigarettes, cigars, pipes, or any other smoked tobacco products and excluding smokeless products.

[c] "Current" means smoking at the time of the survey, including both daily and non-daily or occasional smoking.

[d] "Daily" means smoking every day at the time of the survey.

Year of estimate: 2016

Data Sources:

WHO global report on trends in prevalence of tobacco use 2000–2025, third edition. Geneva: World Health Organization; 2019. Available at https://www.who.int/publications/i/item/who-global-report-on-trends-in-prevalence-of-tobacco-use-2000-2025-third-edition

United Nations, Department of Economic and Social Affairs, Population Division (2019). World Contraceptive Use 2019 (POP/DB/CP/Rev2019). https://www.un.org/en/development/desa/population/publications/dataset/contraception/wcu2019.asp. Available at: [Accessed on November 18, 2019].

UNAIDS database [internet]. Available at: http://aidsinfo.unaids.org/ [Accessed on November 21, 2019]

[1] National RDS Study on knowledge, attitudes and practices and prevalence of HIV, syphilis, Hepatitis B and C among female sex workers. Brazil, 2016

6 Sexual and reproductive health behaviour indicators

Sexual intercourse is the primary route of transmission of genital HPV infection. Information about sexual and reproductive health behaviours is essential to the design of effective preventive strategies against anogenital cancers. In this section, we describe sexual and reproductive health indicators that may be used as proxy measures of risk for HPV infection and anogenital cancers. Several studies have reported that earlier sexual debut is a risk factor for HPV infection, although the reason for this relationship is still unclear. In this section, information on sexual and reproductive health behaviour in Brazil are presented.

Table 40: Percentage of 15-year-olds who have had sexual intercourse in Brazil

Indicator	Male	Female
Percentage of 15-year-old subjects who report sexual intercourse	29.6	8.8

Data accessed on 16 Mar 2017
Please refer to original source for methods of estimation
The main sources of data were surveys by the MEASURE DHS (Demographic and Health Surveys) project and published estimates from Reproductive National Health Surveys.
Year of estimation: not reported
Data Sources:
Sexual behaviour in context: a global perspective. Wellings K, Collumbien M, Slaymaker E, et al. Lancet. 2006 Nov 11;368(9548):1706-28. Review. Erratum in: Lancet. 2007 Jan 27;369(9558):274. PMID:17098090.

Table 41: Median age at first sex in Brazil

			MALE		FEMALE		TOTAL	
Study[1]	Year/period	Birth cohort N	N	Median age at first sex	N	Median age at first sex	N	Median age at first sex
Brazil DHS 1998[a]	1998	1949-1978	-	-	-	19.1	-	-
Brazil DHS 1998	1998	1949-1978	-	-	9225	19.4	-	-
Brazil DHS 1998	1998	1949-1973	-	-	7472	19.5	-	-
Brazil DHS 1998[a]	1998	1939-1973	-	16.9	-	-	-	-
Brazil DHS 1998[b]	1998	1974-1978	-	-	1389	-	-	-
Brazil DHS 1998	1998	1954-1958	-	-	1433	19.9	-	-
Brazil DHS 1998	1998	1949-1953	-	-	1147	20.7	-	-
Brazil DHS 1998[c]	1998	1939-1973	-	16.7	-	-	-	-
Brazil DHS 1998[c]	1998	1949-1978	-	-	-	19.6	-	-
Brazil DHS 1998[b]	1998	1979-1983	-	-	808	-	-	-
Brazil DHS 1998	1998	1959-1963	-	-	1662	19.6	-	-
Brazil DHS 1998	1998	1969-1973	-	-	1745	18.8	-	-
Brazil DHS 1998	1998	1939-1973	-	16.7	-	-	-	-
Brazil DHS 1998	1998	1964-1968	-	-	1849	19.4	-	-

Data accessed on 16 Mar 2017
Please refer to original source for methods of estimation
[a] Rural.
[b] Data omitted because less than 50 percent of respondents had intercourse for the first time before reaching the beginning of the age group.
[c] Urban.
Data Sources:
[1] Ministerio da Saude [Brazil]. Pesquisa Nacional sobre Demografia e Saúde 1996, Brazil. Institute for resource development. Macro Systems Inc. Columbia, Maryland USA

Table 42: Marriage patterns in Brazil

Indicator		Male	Female
Average age at first marriage[1]		31.9	29.7
Age-specific % of ever married[2]	15-19 years	4.34	15.36
	20-24 years	27.73	43.03
	25-29 years	53.24	63.08
	30-34 years	70.03	74.32
	35-39 years	78.12	79.41
	40-44 years	82.11	81.89
	45-49 years	85.18	83.88
	50-54 years	87.72	85.1
	55-59 years	89.99	86.26
	60-64 years	90.84	86.79
	65-69 years	91.03	87.45
	70-74 years	91.6	88.16
	+75	91.91	88.61

Data accessed on 20 Feb 2020

Please refer to original source for methods of estimation.

[a] 2010 Census

[b] National statistics

Data Sources:

[1] The world bank: health nutrition and population statistics. Updated 20-Dec-2019. Accessed on February 20 2020. Available at http://data.worldbank.org/data-catalog/health-nutrition-and-population-statistics

[2] United Nations, Department of Economic and Social Affairs, Population Division (2019). World Marriage Data 2019 (POP/DB/Marr/Rev2019). Available at: https://population.un.org/MarriageData/Index.html#/home Accessed on February 24, 2020.

Table 43: Average number of sexual partners in Brazil

Study	Period of estimate	Year/Period	Birth cohort	Male Mean(N)	Female Mean(N)	Total Mean(N)
-	-	-	-	-(-)	-(-)	-(-)

Data accessed on 8 Aug 2013

Please refer to original source for methods of estimation

Table 44: Lifetime prevalence of anal intercourse among women in Brazil

			FEMALE		
Study	**Year/Period**	**Birth cohort**	**N surveyed**	**N sexual active**	**% among sexually active**
-	-	-	-	-	-

Data accessed on 8 Aug 2013
Please refer to original source for methods of estimation

7 HPV preventive strategies

It is established that well-organised cervical screening programmes or widespread good quality cytology can reduce cervical cancer incidence and mortality. The introduction of HPV vaccination could also effectively reduce the burden of cervical cancer in the coming decades. This section presents indicators on basic characteristics and performance of cervical cancer screening, status of HPV vaccine licensure and introduction in Brazil.

7.1 Cervical cancer screening practices

Screening strategies differ between countries. Some countries have population-based programmes, where in each round of screening women in the target population are individually identified and invited to attend screening. This type of programme can be implemented nationwide or only in specific regions of the country. In opportunistic screening, invitations depend on the individual's decision or on encounters with health-care providers. The most frequent method for cervical cancer screening is cytology, and there are alternative methods such as HPV DNA tests and visual inspection with acetic acid (VIA). VIA is an alternative to cytology-based screening in low-resource settings (the 'see and treat' approach). HPV DNA testing is being introduced into some countries as an adjunct to cytology screening ('co-testing') or as the primary screening test to be followed by a secondary, more specific test, such as cytology.

Table 45: Main characteristics of cervical cancer screening in Brazil

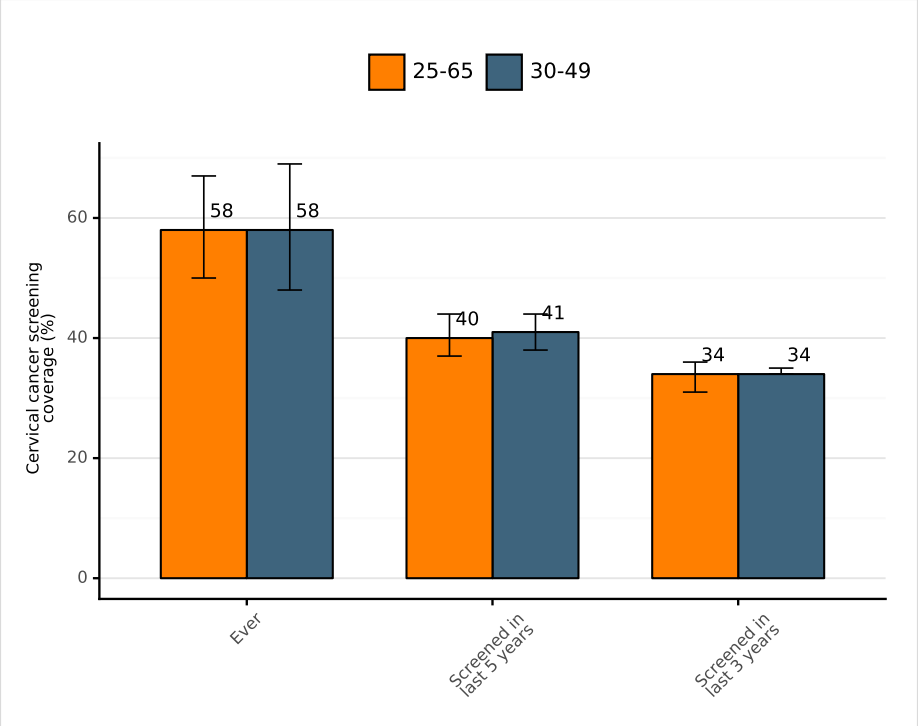
Region	Existence of official national recommendations	Starting year of current recommendations	Active invitation to screening	Screening ages (years), primary screening test used, and screening interval or frequency of screenings
Brazil	Yes	2016	No	25-64 (cytology, 3 years)

Data accessed on 31 Aug 2022

Data Sources:

Bruni L, Serrano B, Roura E, Alemany L, Cowan M, Herrero R, et al. Cervical cancer screening programmes and age-specific coverage estimates for 202 countries and territories worldwide: a review and synthetic analysis. Lancet Glob Health. 2022;10(8):e1115.

Figure 70: Estimated coverage* of cervical cancer screening in Brazil



Data accessed on 31 Aug 2022

* Estimated coverage and 95% confidence interval in 2019

Data Sources:

Bruni L, Serrano B, Roura E, Alemany L, Cowan M, Herrero R, et al. Cervical cancer screening programmes and age-specific coverage estimates for 202 countries and territories worldwide: a review and synthetic analysis. Lancet Glob Health. 2022;10(8):e1115.

7.2 HPV vaccination

Table 46: National HPV Immunization programme in Brazil

	Female	Male
HPV vaccination programme	Introduced	Introduced
Year of introduction	2014	2017
Year of estimation of HPV vaccination coverage	2021	2021
HPV coverage – first dose (%)	81	58
HPV coverage – last dose (%)	67	44

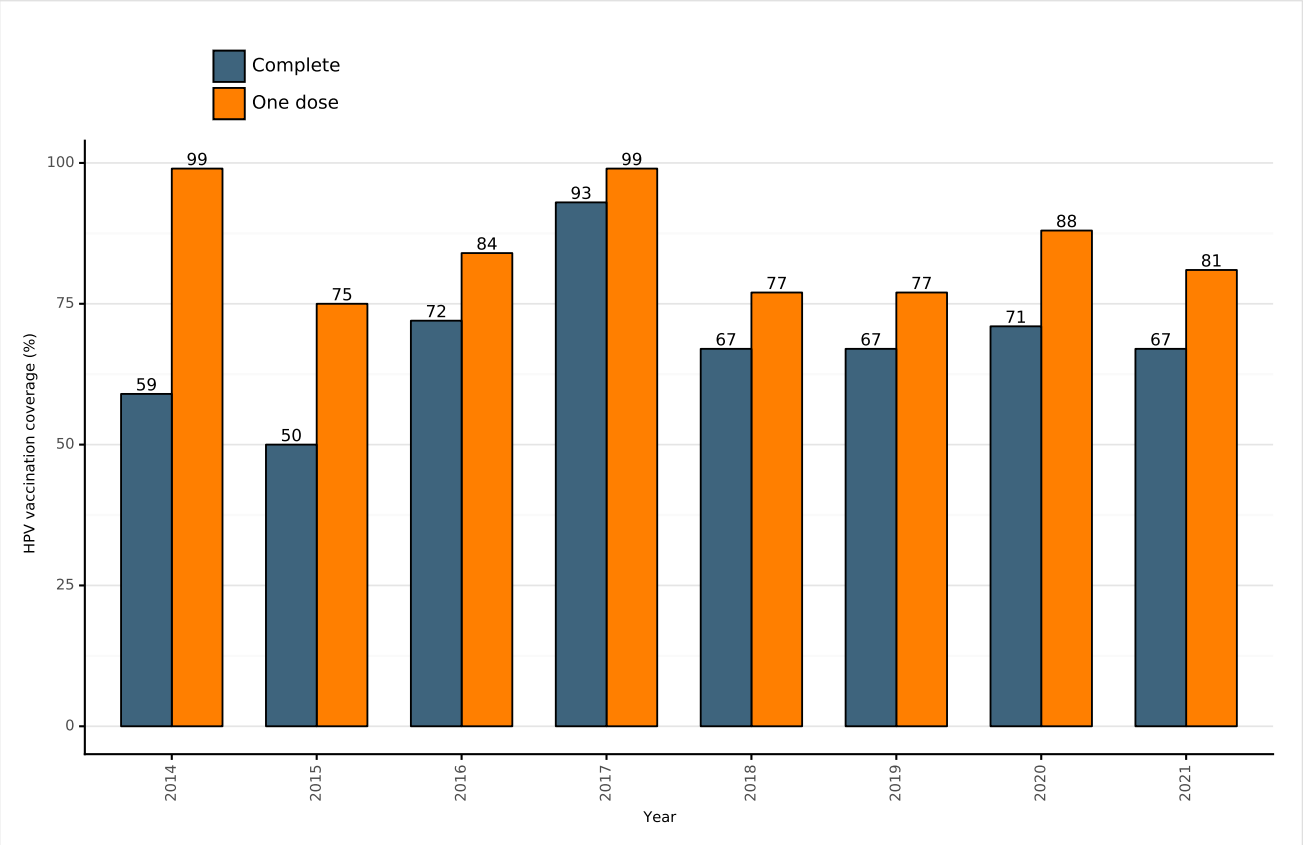
Data accessed on 24 Oct 2022

Data Sources:

Human papillomavirus (HPV) vaccination coverage. World Health Organization. 2022. Available from: https://immunizationdata.who.int/pages/coverage/hpv.html, accessed [24 Oct 2022]

Bruni L, Saura-Lázaro A, Montoliu A, Brotons M, Alemany L, Diallo MS, et al. HPV vaccination introduction worldwide and WHO and UNICEF estimates of national HPV immunization coverage 2010-2019. Prev Med. 2021;144(106399):106399.

Figure 71: HPV vaccination coverage in females by year in Brazil



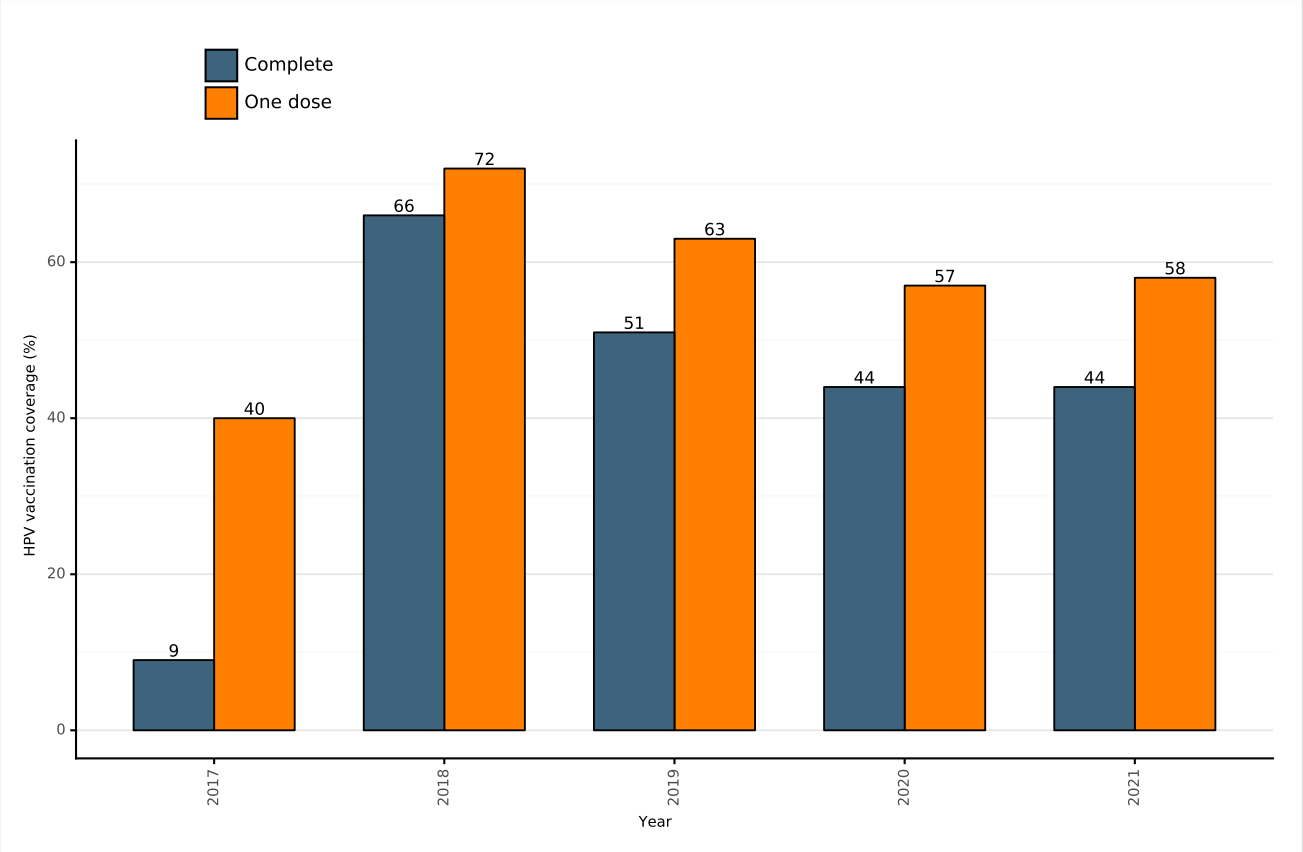
Data accessed on 24 Oct 2022

Data Sources:

Human papillomavirus (HPV) vaccination coverage. World Health Organization. 2022. Available from: https://immunizationdata.who.int/pages/coverage/hpv.html, accessed [24 Oct 2022]

Bruni L, Saura-Lázaro A, Montoliu A, Brotons M, Alemany L, Diallo MS, et al. HPV vaccination introduction worldwide and WHO and UNICEF estimates of national HPV immunization coverage 2010-2019. Prev Med. 2021;144(106399):106399.

Figure 72: HPV vaccination coverage in males by year in Brazil



Data accessed on 24 Oct 2022

Data Sources:

Human papillomavirus (HPV) vaccination coverage. World Health Organization. 2022. Available from: https://immunizationdata.who.int/pages/coverage/hpv.html, accessed [24 Oct 2022]

Bruni L, Saura-Lázaro A, Montoliu A, Brotons M, Alemany L, Diallo MS, et al. HPV vaccination introduction worldwide and WHO and UNICEF estimates of national HPV immunization coverage 2010-2019. Prev Med. 2021;144(106399):106399.

8 Protective factors for cervical cancer

Male circumcision and the use of condoms have shown a significant protective effect against HPV transmission.

Table 47: Prevalence of male circumcision in Brazil

Reference	Prevalence % (95% CI)	Methods
Castellsague 2005	7.6 (2.5-16.8)	N=66: Stable partners of control women in an international multicenter case-control study on cervical cancer
Giuliano 2008	14.9 (11.5-18.9)	N=382: General population
Drain 2006	<20	Data from Demographic and Health Surveys (DHS) and other publications to categorize the country-wide prevalence of male circumcision as <20%, 20-80%, or >80%.
WHO 2007	<20	Data from Demographic and Health Surveys (DHS) and other publications to categorize the country-wide prevalence of male circumcision as <20%, 20-80%, or >80%.

Data accessed on 31 Aug 2015
Please refer to country-specific reference(s) for full methodologies.
Data Sources:
Castellsagué X, Am J Epidemiol 2005; 162: 907 | Drain PK, BMC Infect Dis 2006; 6: 172 | Giuliano AR, Cancer Epidemiol Biomarkers Prev 2008; 17: 2036 | WHO 2007: Male circumcision: Global trends and determinants of prevalence, safety and acceptability
Based on systematic reviews and meta-analysis performed by ICO. The ICO HPV Information Centre has updated data until August 2015. Reference publication: Albero G, Sex Transm Dis. 2012 Feb;39(2):104-13.

Table 48: Prevalence of condom use in Brazil

Indicator	Age range	Year of estimate	Prevalence %[a]
Condom use	15-49	2013	10.3299101797839

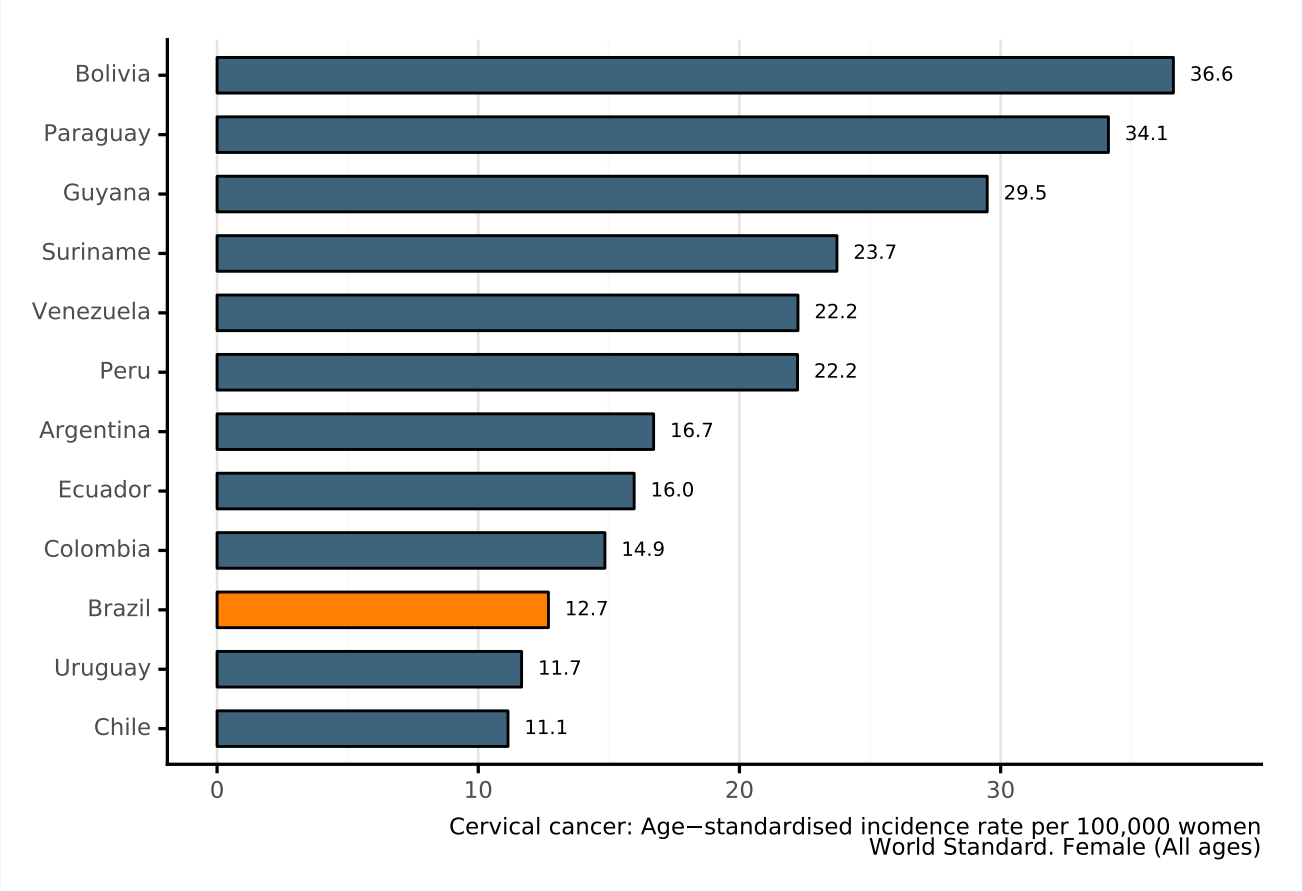
Data accessed on 18 Nov 2019
Please refer to original source for methods of estimation.
[a] Condom use: Proportion of male partners who are using condoms with their female partners of reproductive age to whom they are married or in union by country.
Data Sources:
2013 PNS
United Nations, Department of Economic and Social Affairs, Population Division (2019). World Contraceptive Use 2019 (POP/DB/CP/Rev2019). https://www.un.org/en/development/desa/population/publications/dataset/contraception/wcu2019.asp. Available at: [Accessed on November 18, 2019].

9 Annex

9.1 Incidence

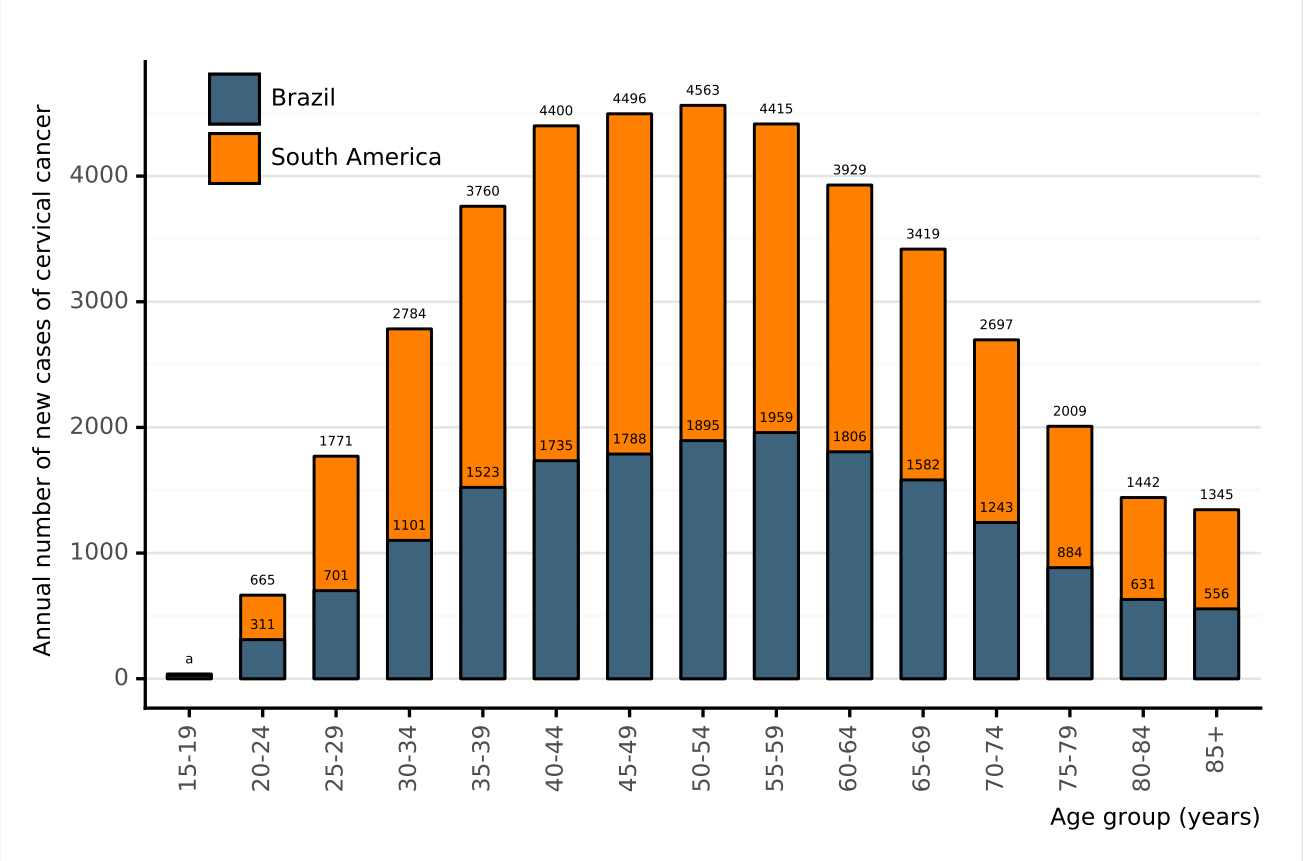
9.1.1 Cervical cancer incidence in Brazil across South America

Figure 73: Age-standardised incidence rates of cervical cancer of Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 74: Annual number of new cases of cervical cancer by age group in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021

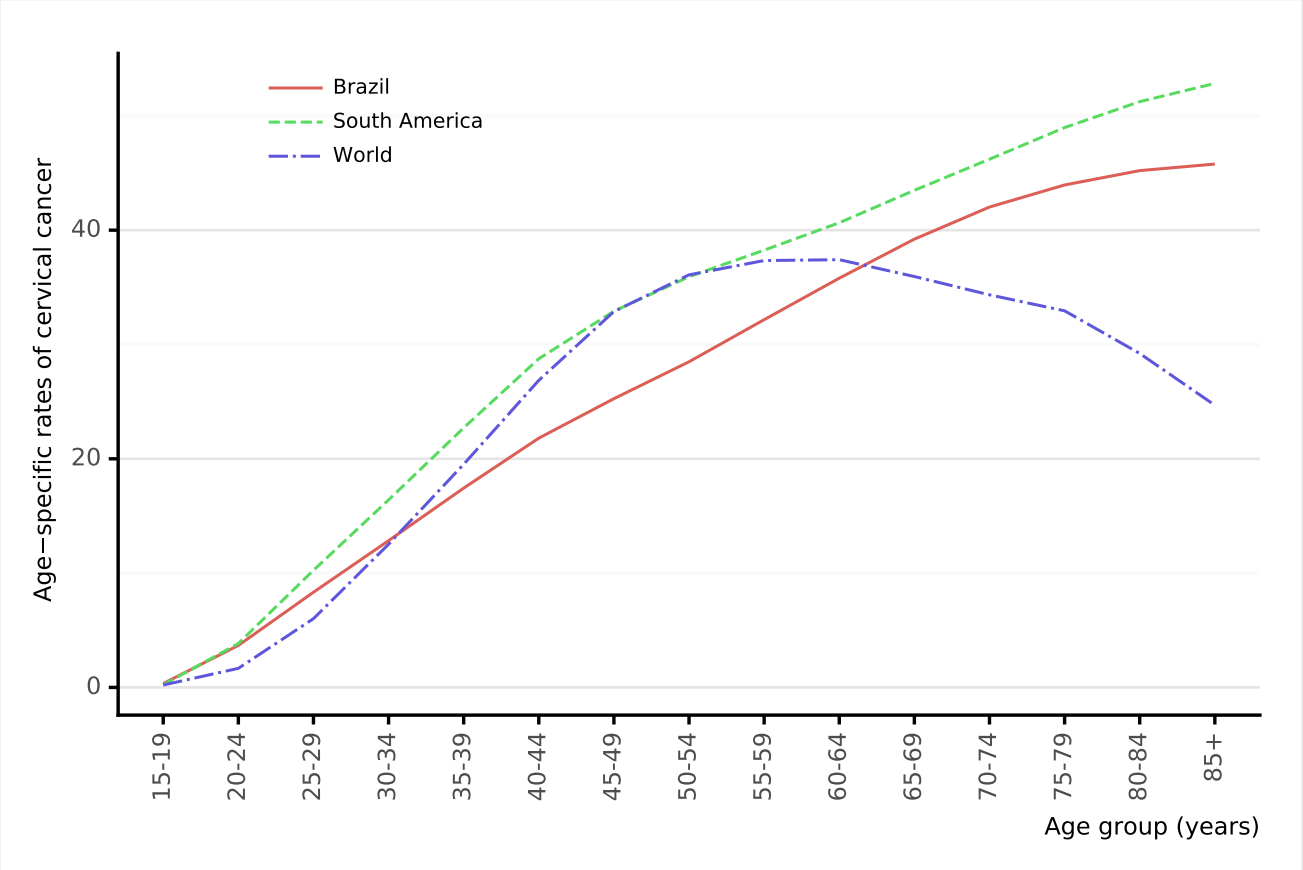
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] 27 cases for Brazil and 38 cases for South America in the 15-19 age group.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 75: Comparison of age-specific cervical cancer incidence rates in Brazil, within the region, and the rest of world



Data accessed on 27 Jan 2021

For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

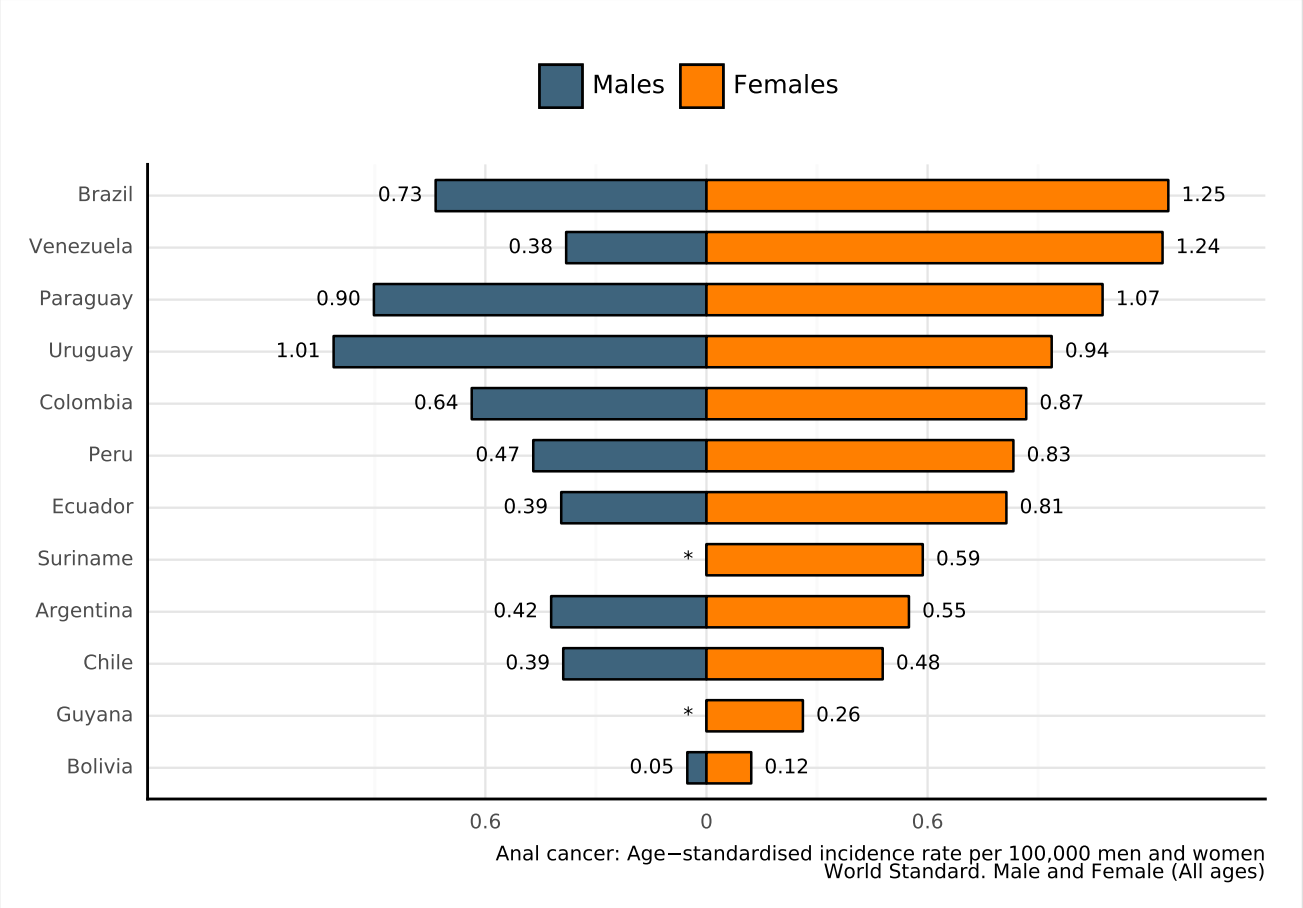
[a] Rates per 100,000 women per year.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

9.1.2 Anal cancer incidence in Brazil across South America

Figure 76: Age-standardised incidence rates of anal cancer of Brazil (estimates for 2020)



Data accessed on 27 Jan 2021

For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] Rates per 100,000 men per year.

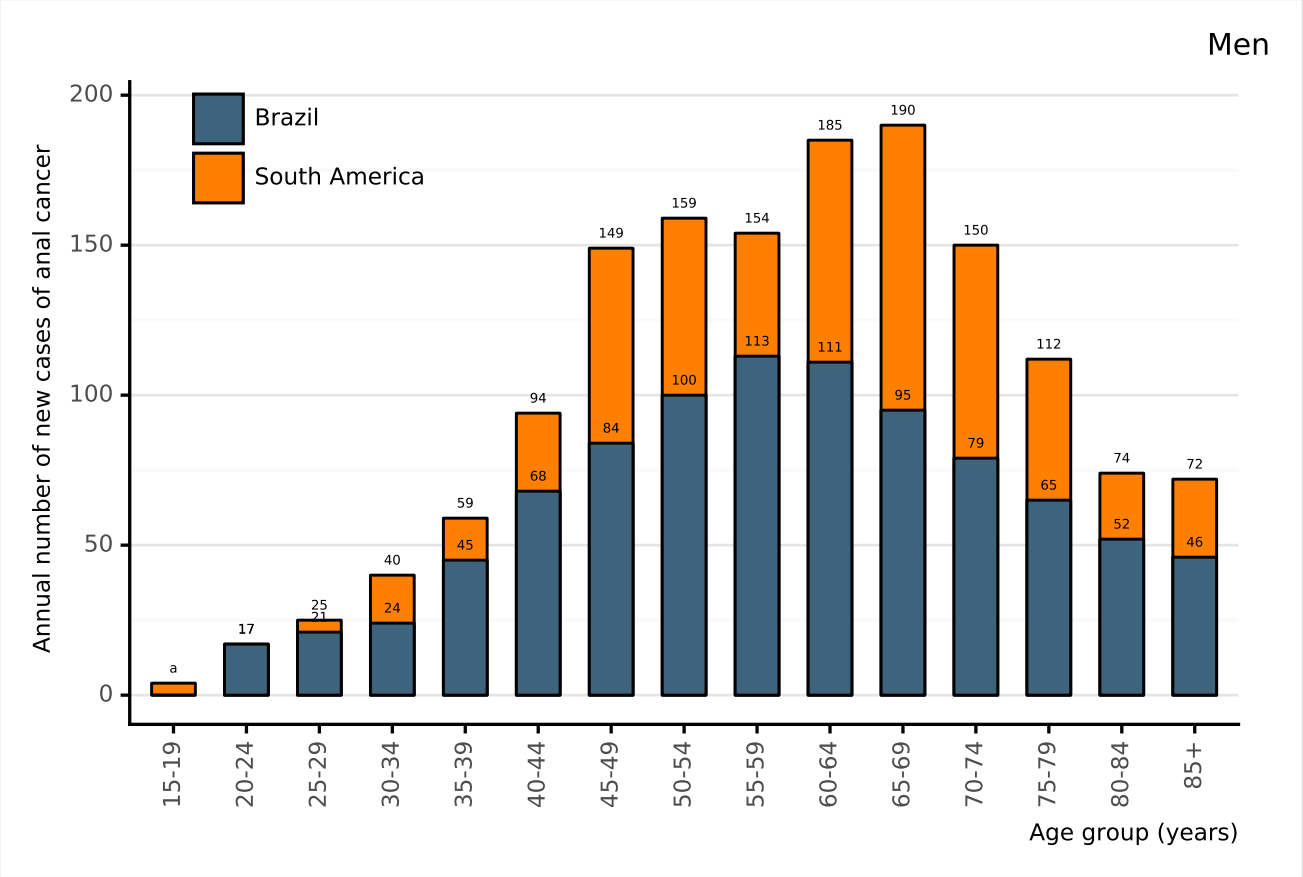
[b] Rates per 100,000 women per year.

* Rates are not available

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 77: Annual number of new cases of anal cancer among men by age group in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021

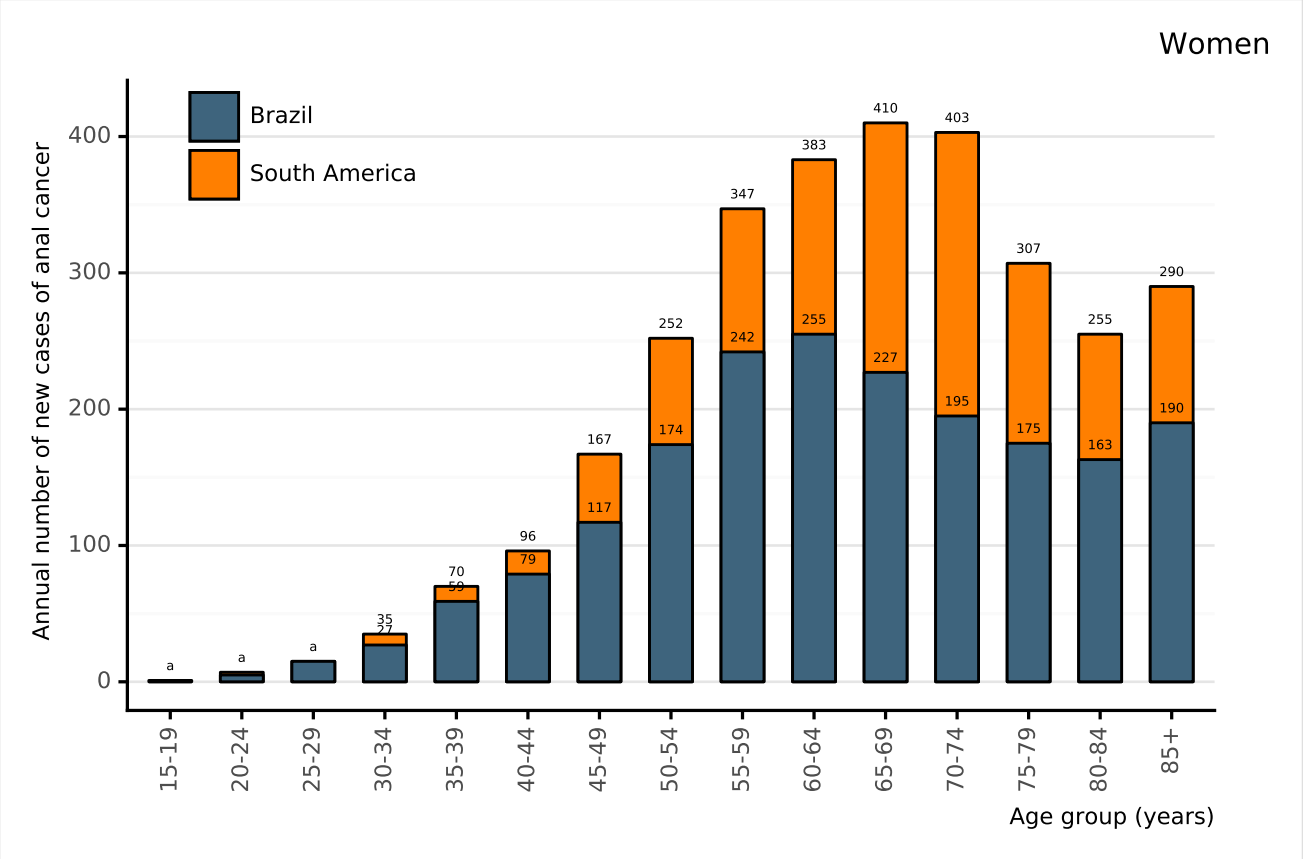
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] 0 cases for Brazil and 4 cases for South America in the 15-19 age group.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 78: Annual number of new cases of anal cancer among women by age group in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021

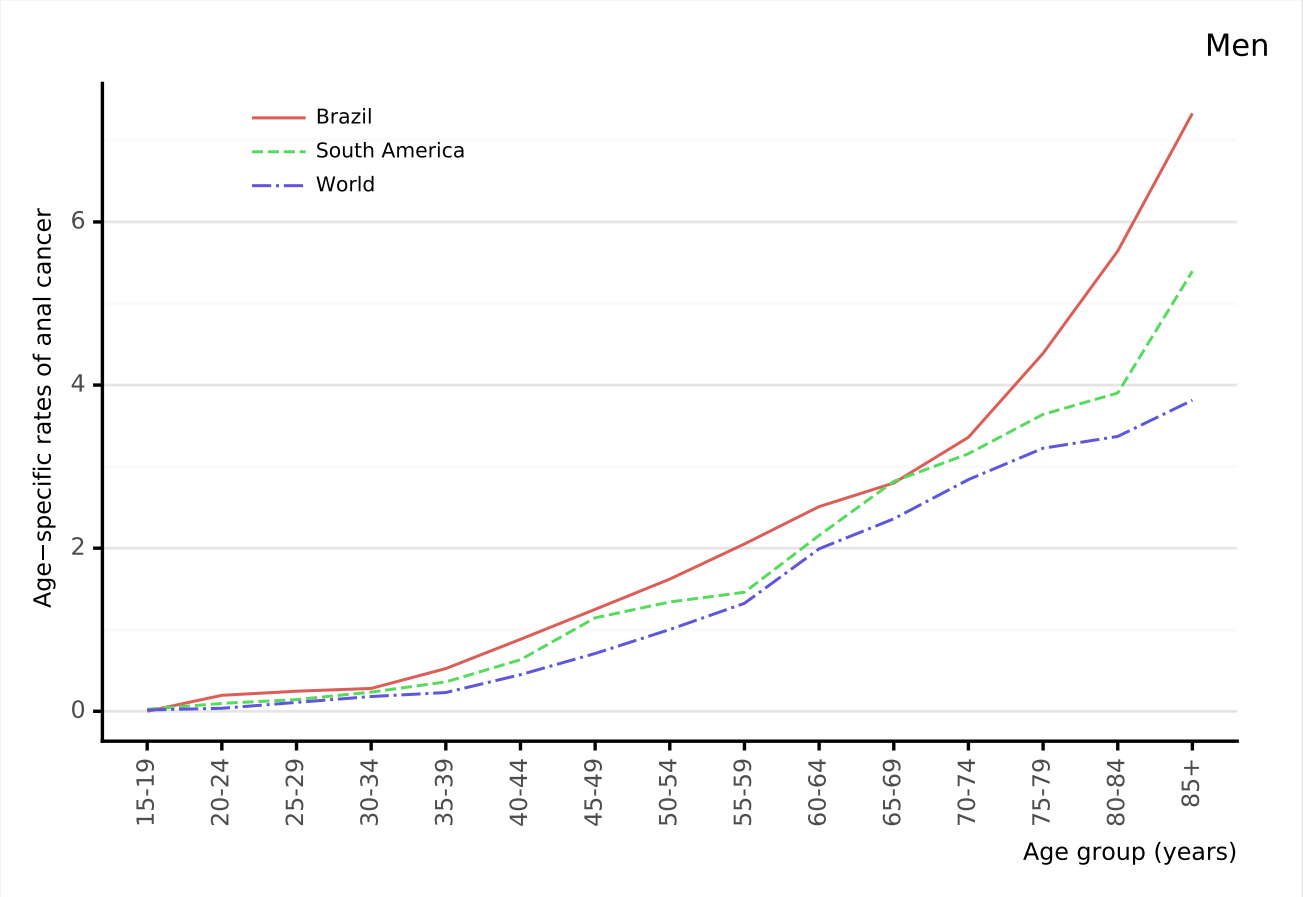
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] 0 cases for Brazil and 1 cases for South America in the 15-19 age group. 5 cases for Brazil and 7 cases for South America in the 20-24 age group. 15 cases for Brazil and 15 cases for South America in the 25-29 age group.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 79: Comparison of age-specific anal cancer incidence rates among men by age in Brazil, within the region, and the rest of world



Data accessed on 27 Jan 2021

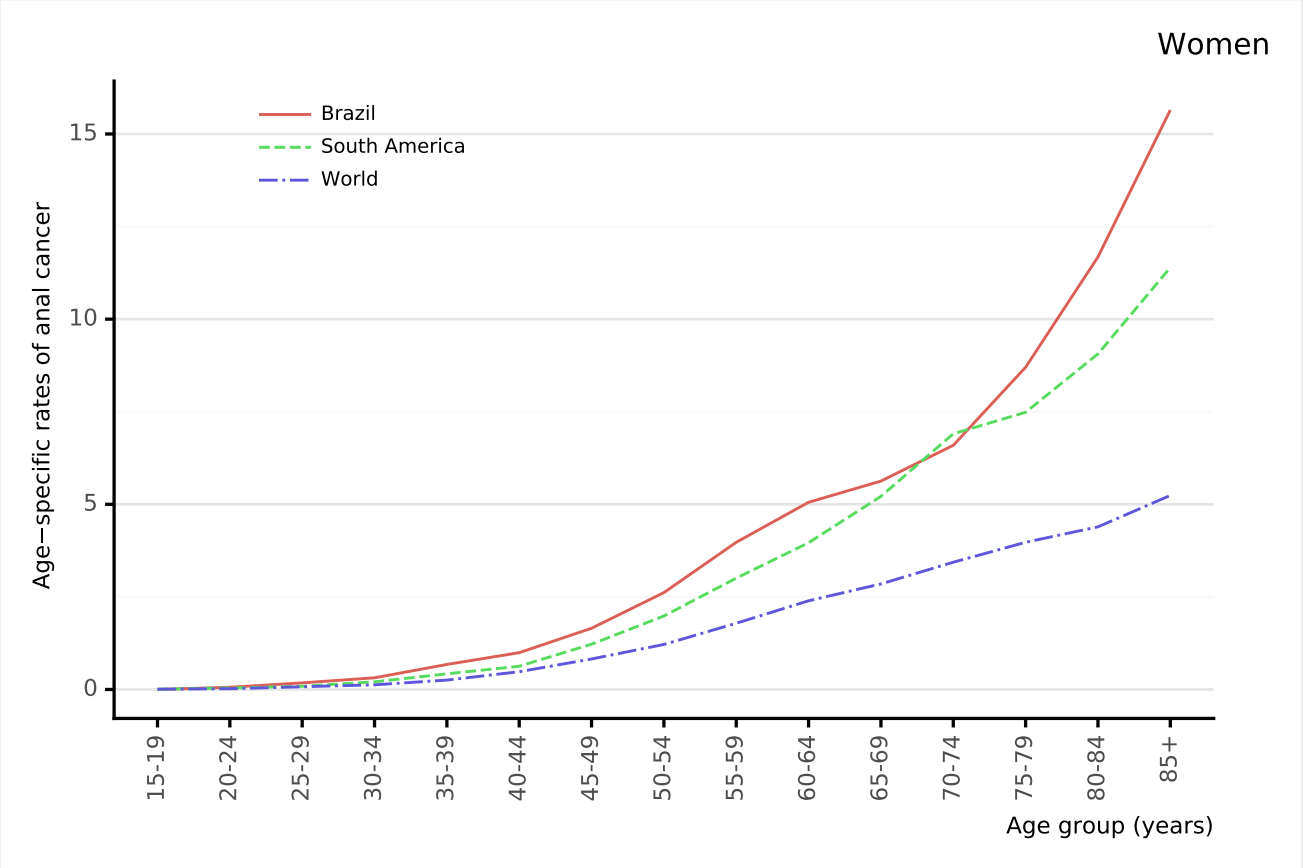
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] Rates per 100,000 men per year.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 80: Comparison of age-specific anal cancer incidence rates among women by age in Brazil, within the region, and the rest of world



Data accessed on 27 Jan 2021

For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

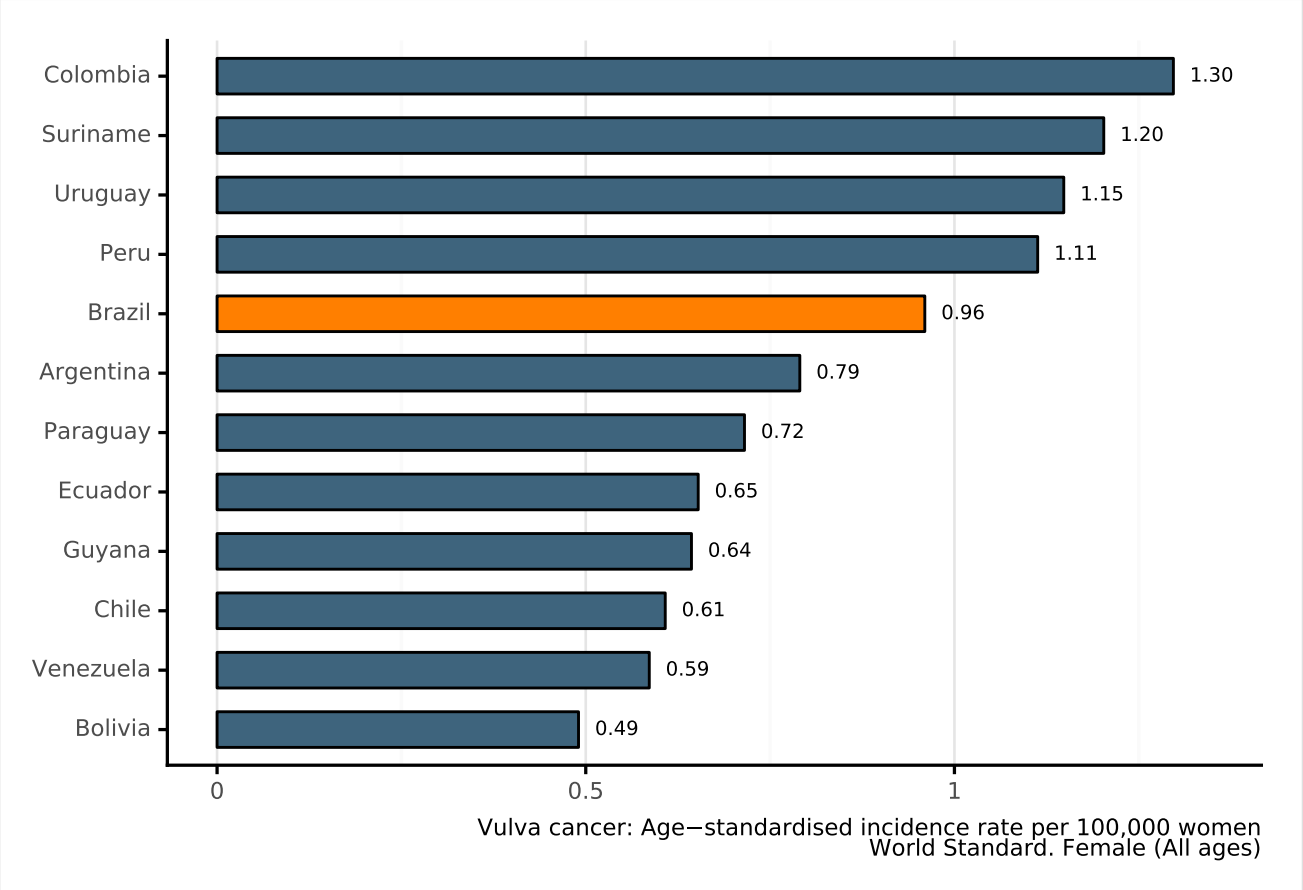
[a] Rates per 100,000 women per year.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

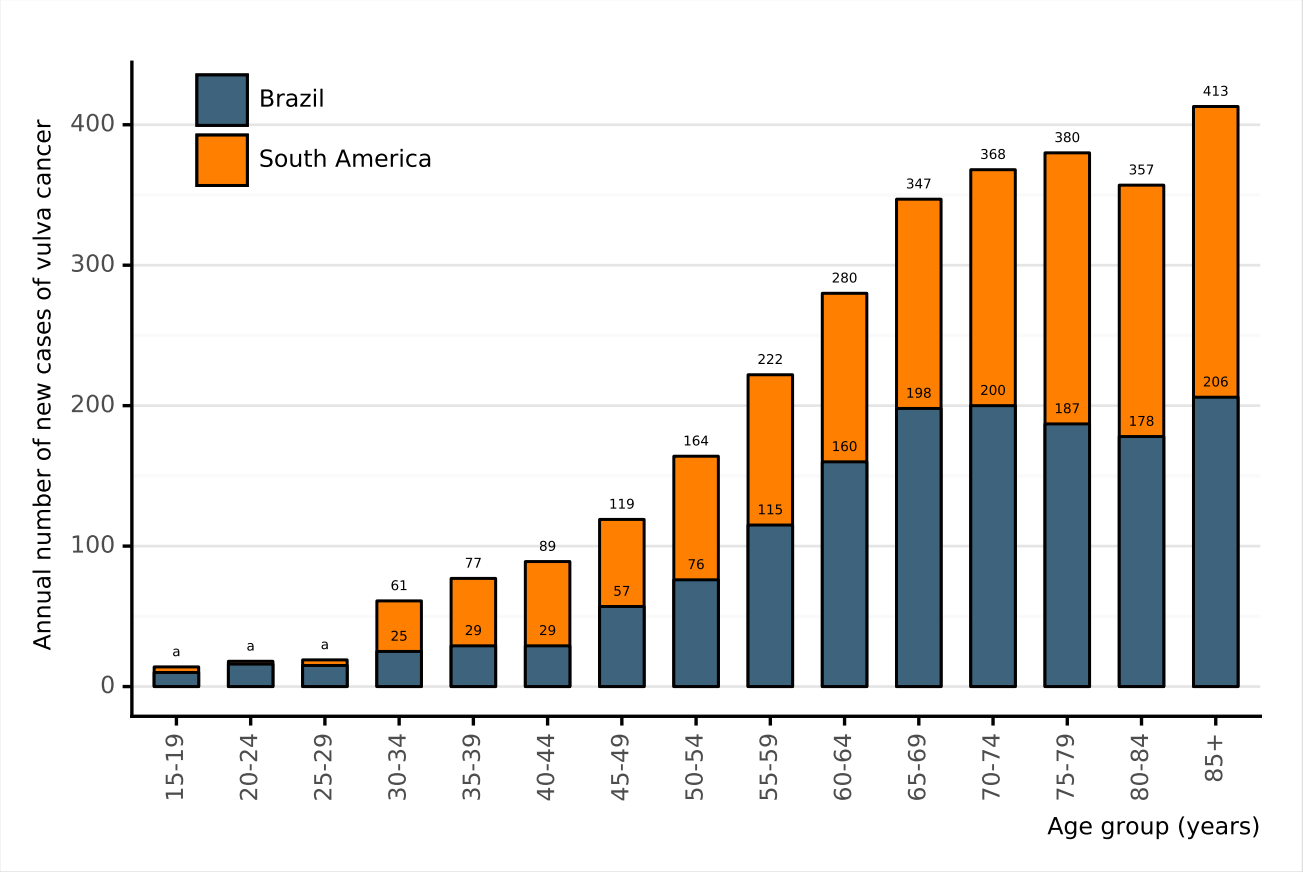
9.1.3 Vulva cancer incidence in Brazil across South America

Figure 81: Age-standardised incidence rates of vulva cancer of Brazil (estimates for 2020)



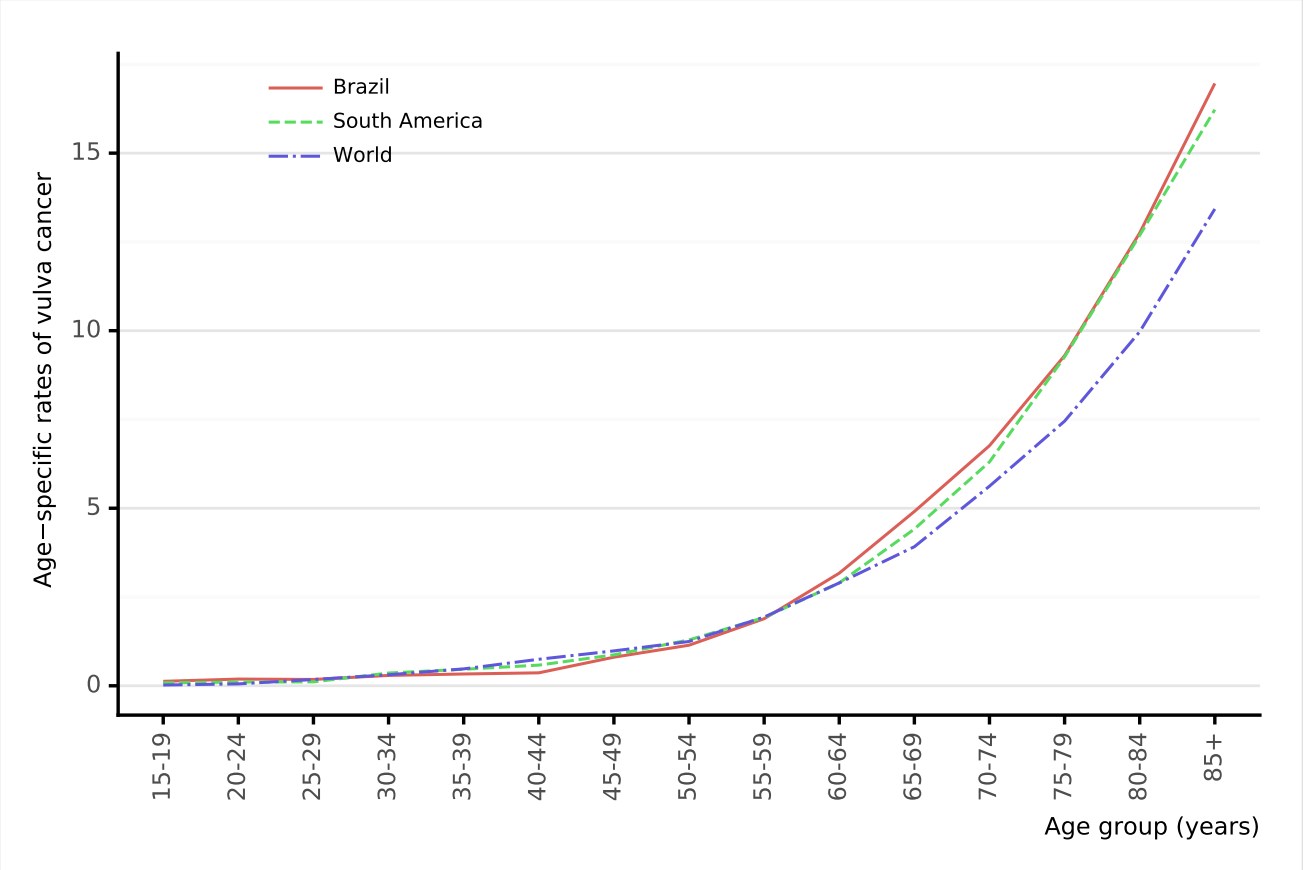
Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 82: Annual number of new cases of vulva cancer by age group in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] 10 cases for Brazil and 14 cases for South America in the 15-19 age group. 16 cases for Brazil and 18 cases for South America in the 20-24 age group. 15 cases for Brazil and 19 cases for South America in the 25-29 age group.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 83: Comparison of age-specific vulva cancer incidence rates in Brazil, within the region, and the rest of world



Data accessed on 27 Jan 2021

For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

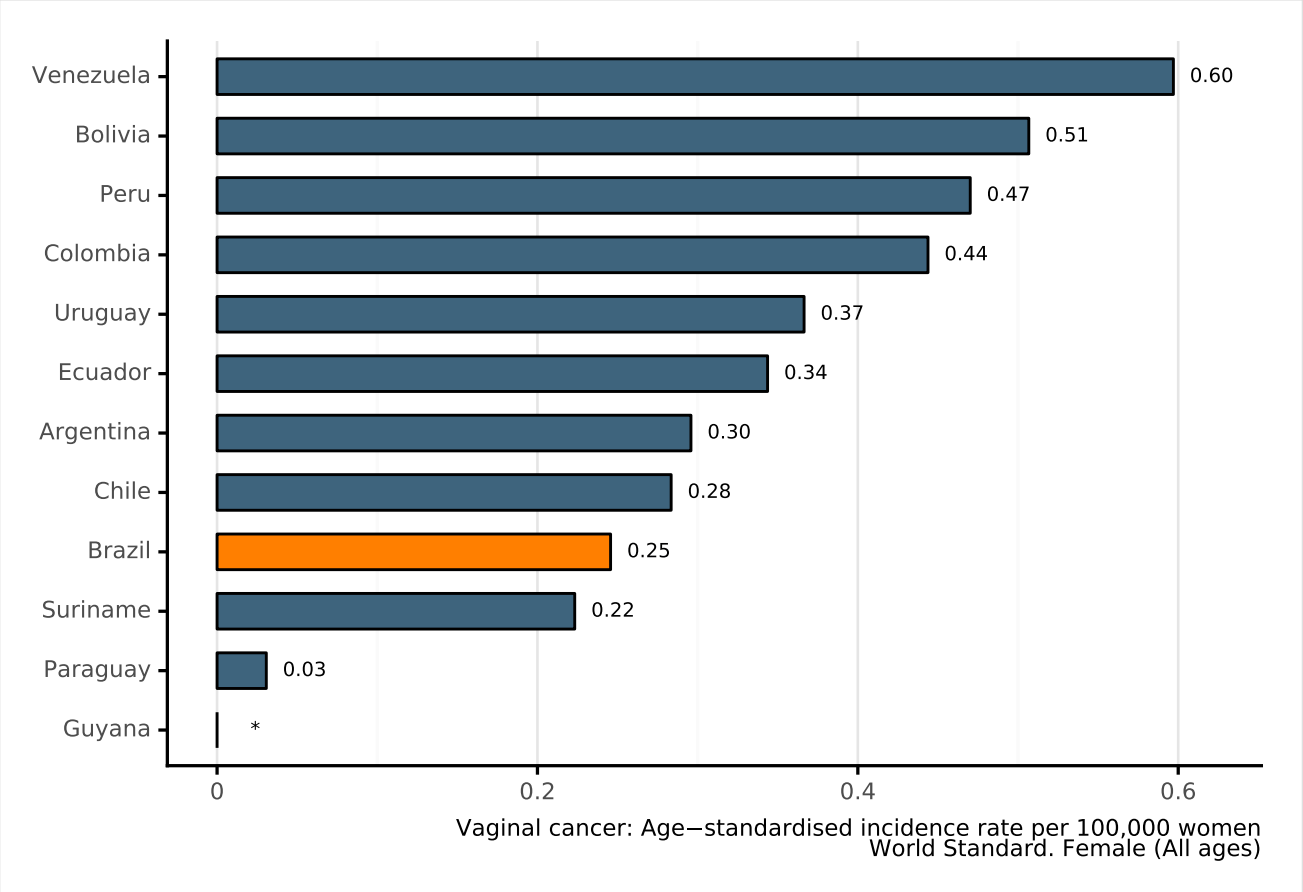
[a] Rates per 100,000 women per year.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

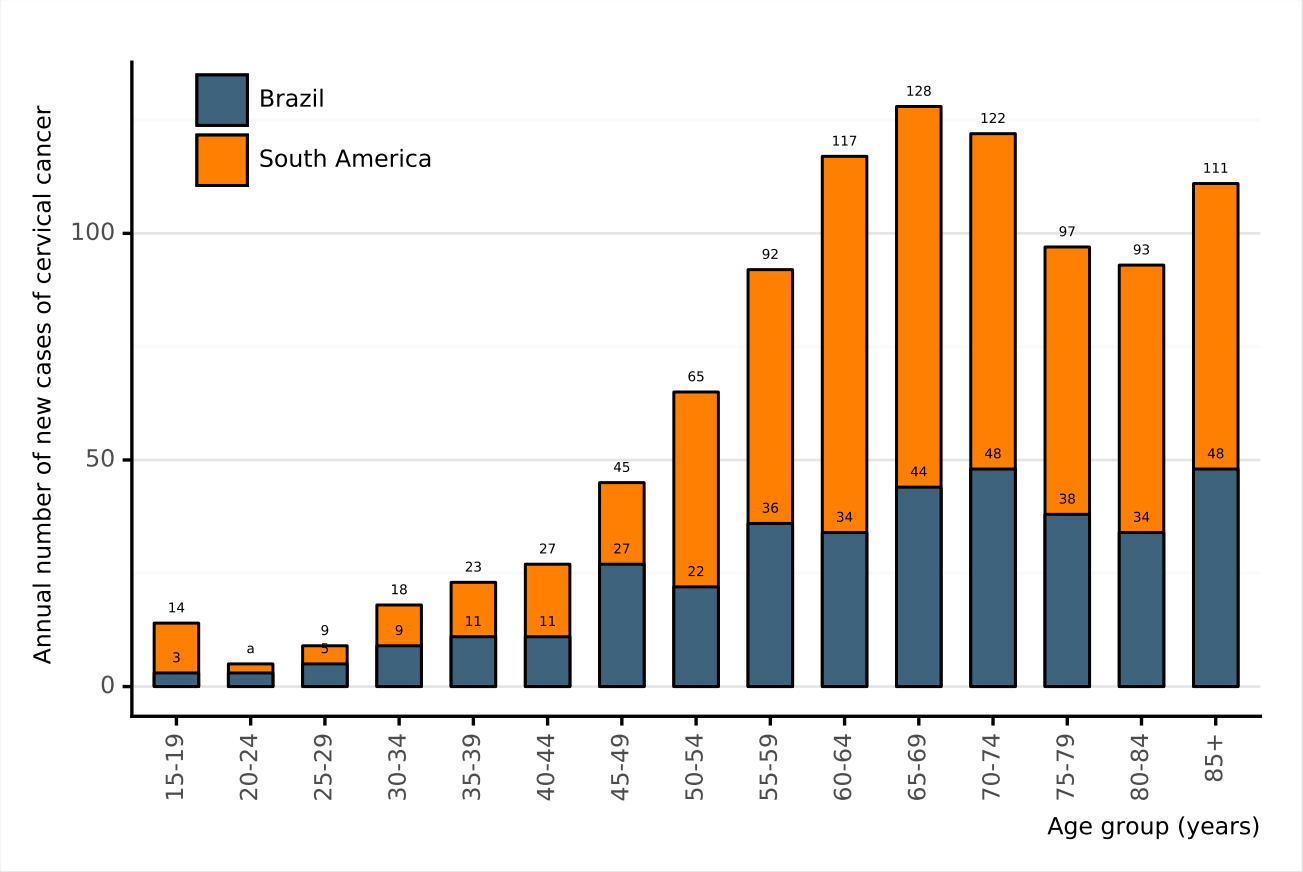
9.1.4 Vaginal cancer incidence in Brazil across South America

Figure 84: Age-standardised incidence rates of vaginal cancer of Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 women per year.
* Rates are not available
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 85: Annual number of new cases of cervical cancer by age group in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021

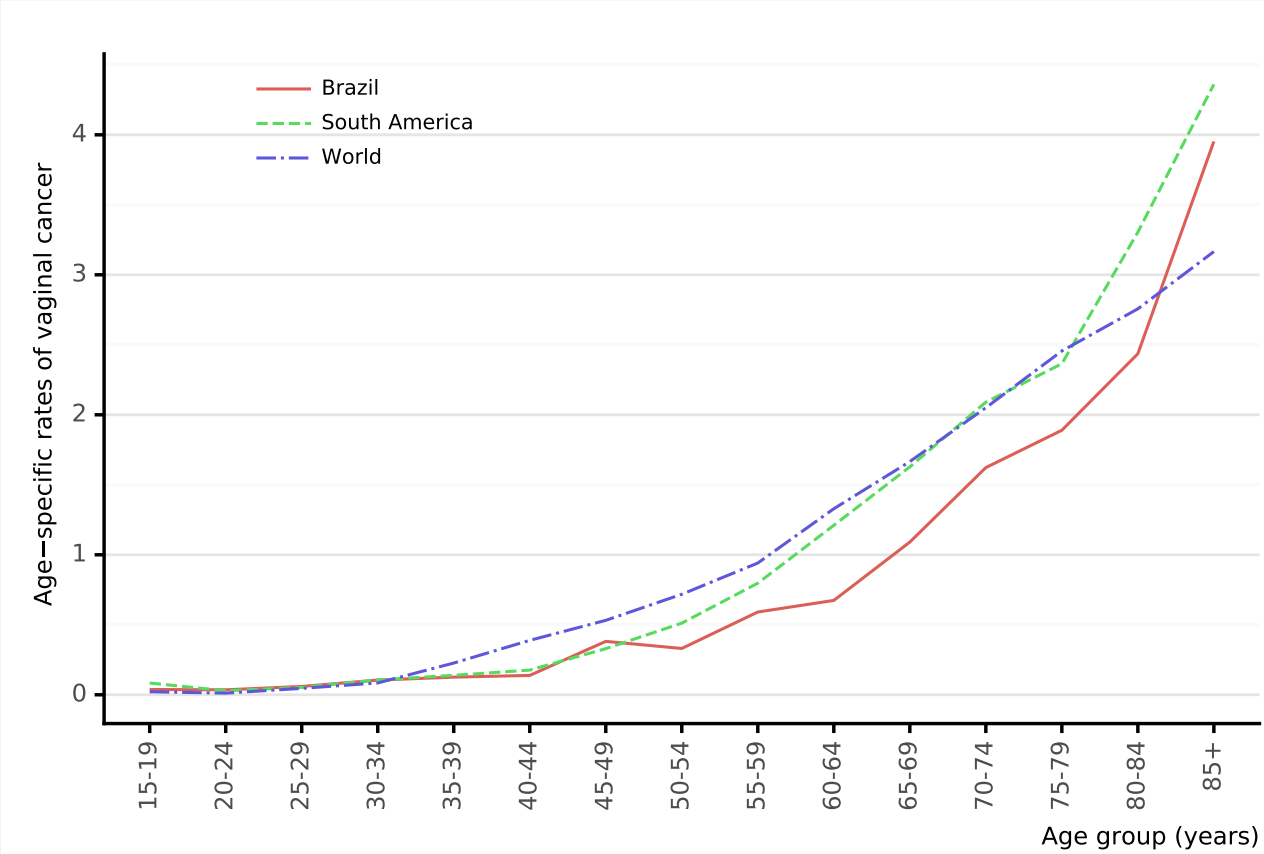
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] 3 cases for Brazil and 5 cases for South America in the 20-24 age group.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

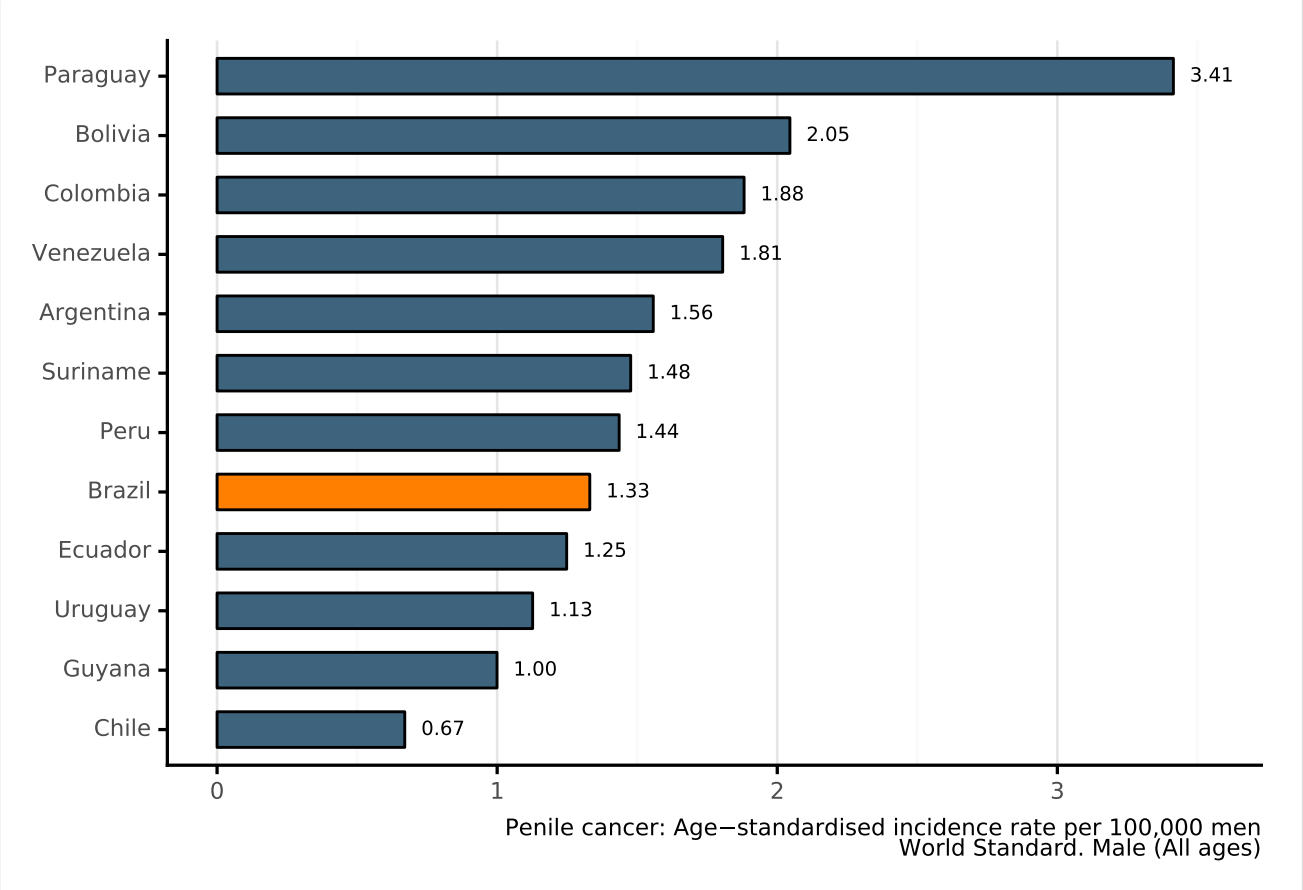
Figure 86: Comparison of age-specific vaginal cancer incidence rates in Brazil, within the region, and the rest of world



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

9.1.5 Penile cancer incidence in Brazil across South America

Figure 87: Age-standardised incidence rates of penile cancer of Brazil (estimates for 2020)



Data accessed on 27 Jan 2021

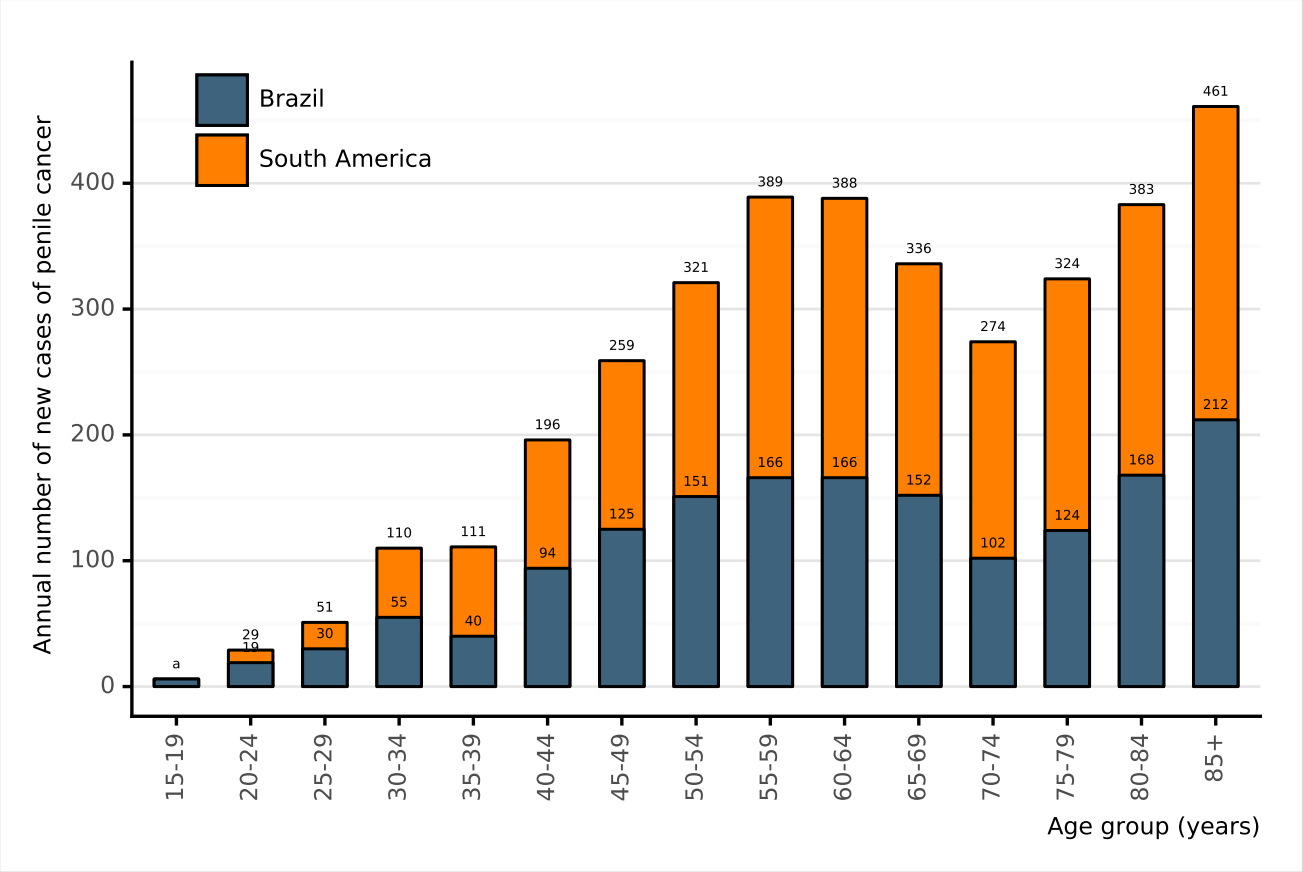
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] Rates per 100,000 men per year.

Data Sources:

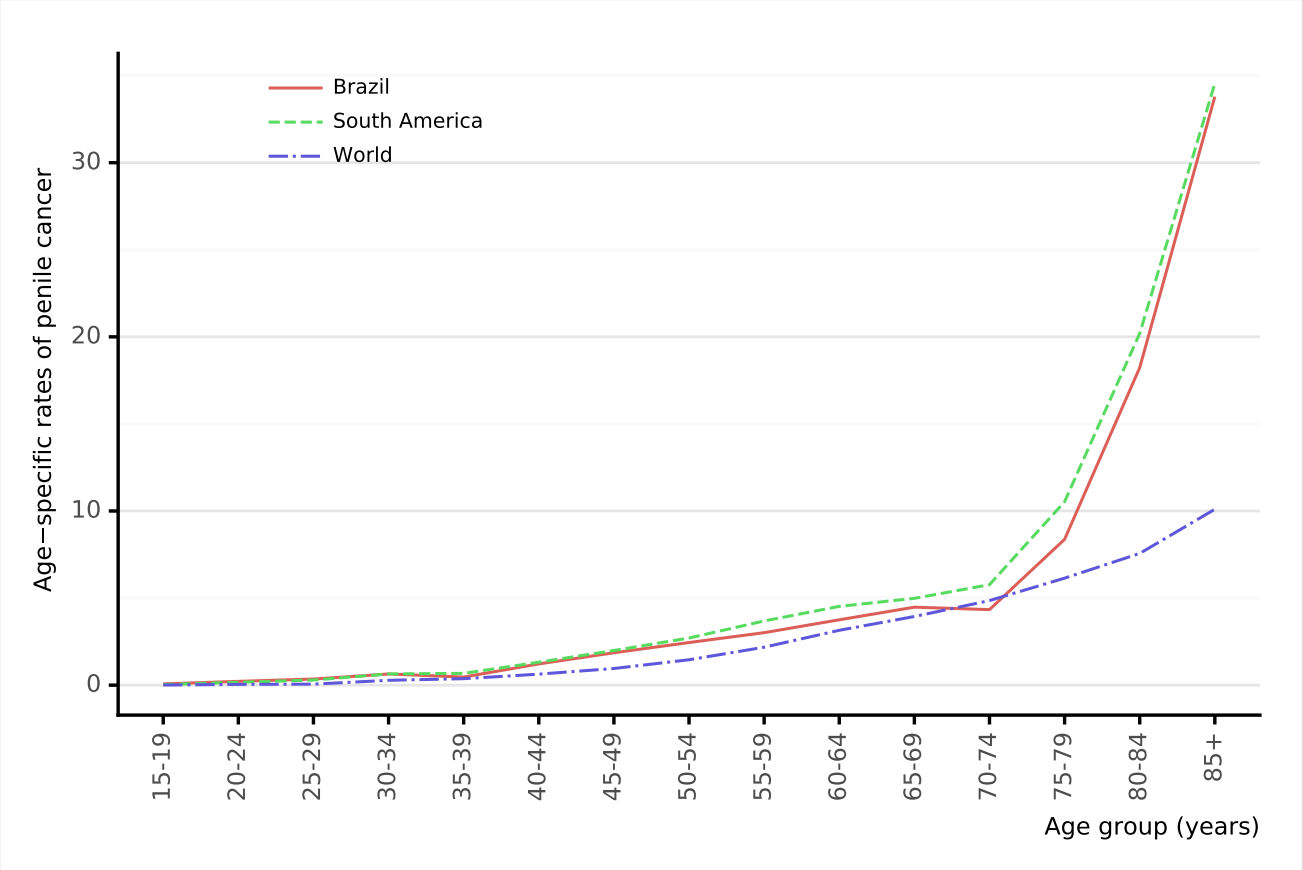
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 88: Annual number of new cases of penile cancer by age group in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] 6 cases for Brazil and 6 cases for South America in the 15-19 age group.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 89: Comparison of age-specific penile cancer incidence rates in Brazil, within the region, and the rest of world



Data accessed on 27 Jan 2021

For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

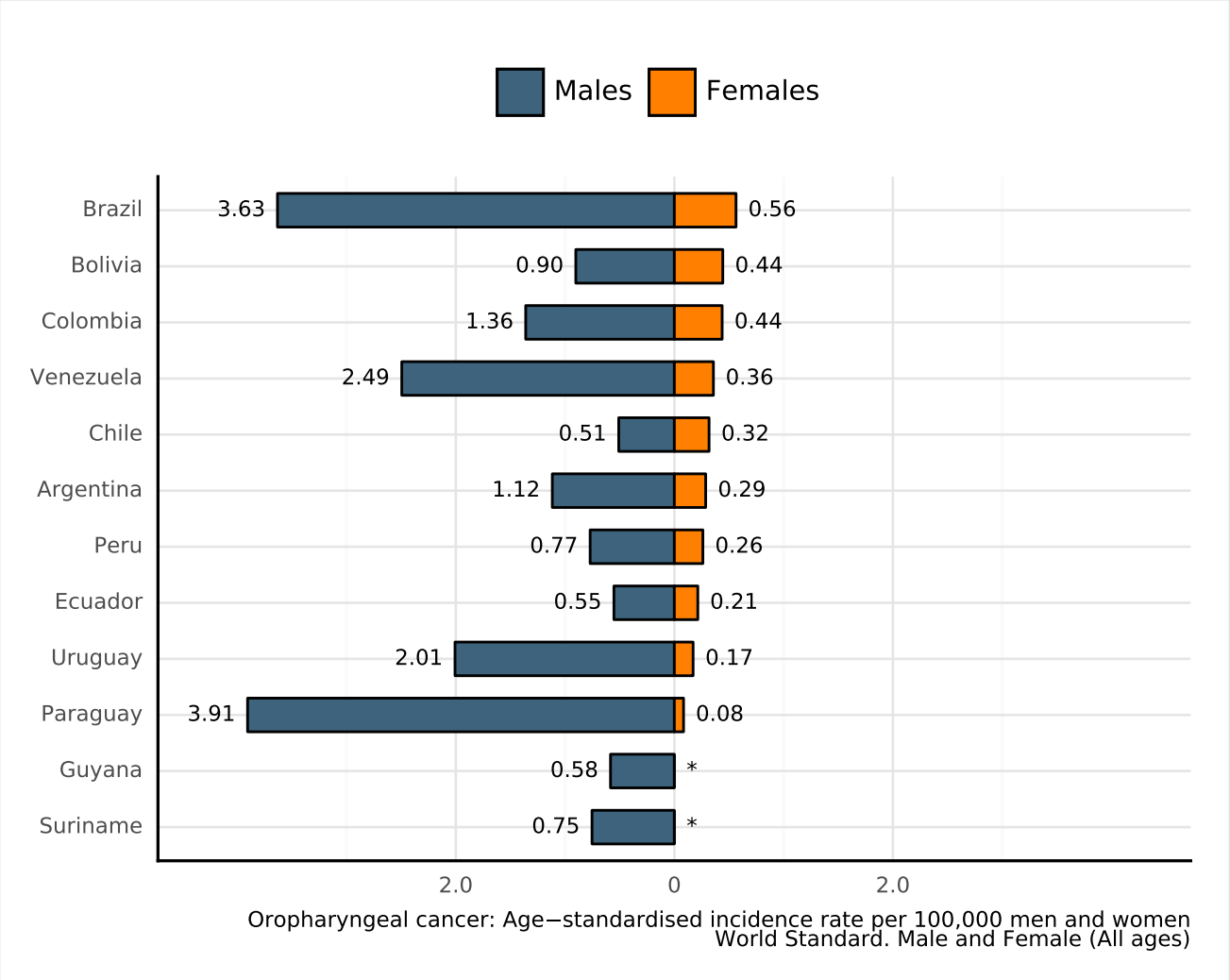
[a] Rates per 100,000 men per year.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

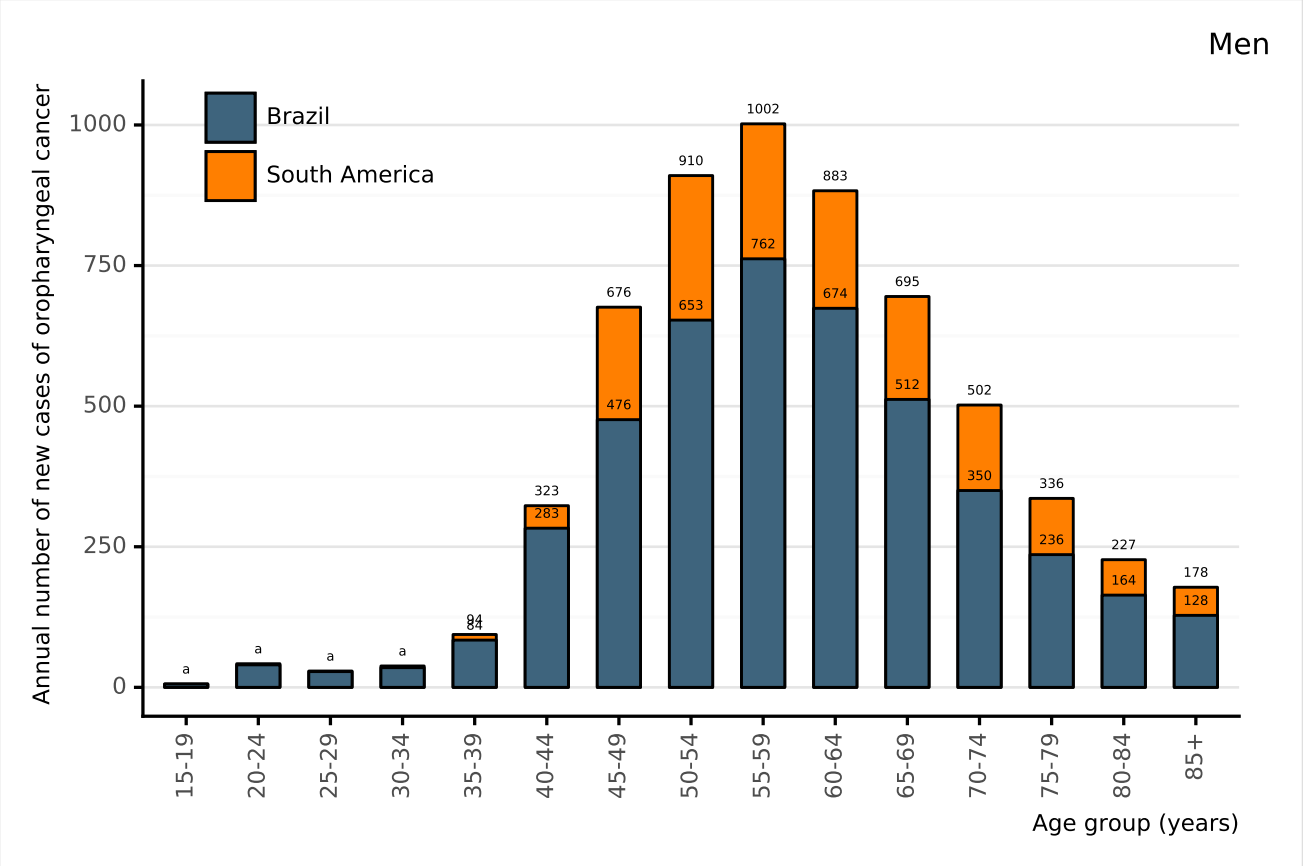
9.1.6 Oropharyngeal cancer incidence in Brazil across South America

Figure 90: Age-standardised incidence rates of oropharyngeal cancer of Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 men per year.
[b] Rates per 100,000 women per year.
* Rates are not available
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 91: Annual number of new cases of oropharyngeal cancer among men by age group in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021

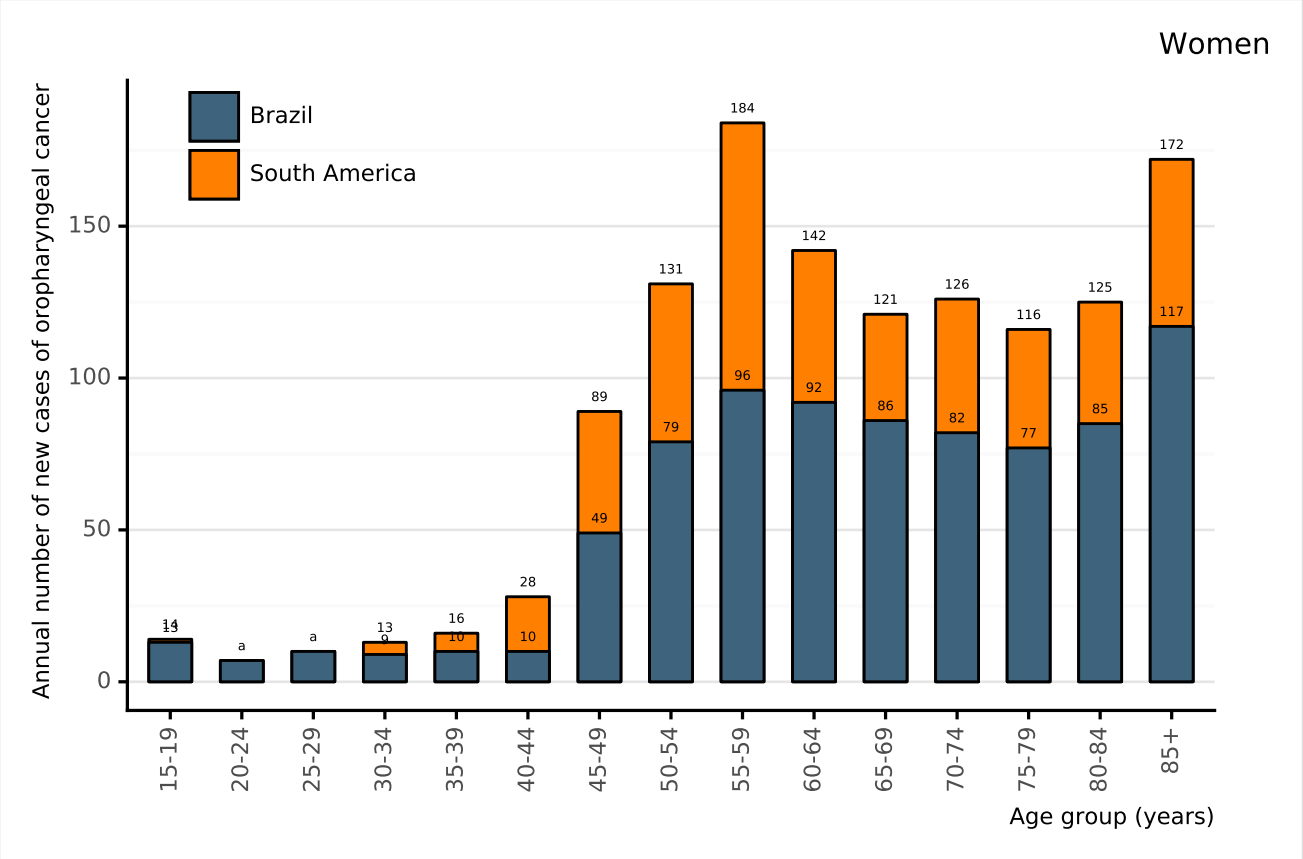
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] 6 cases for Brazil and 6 cases for South America in the 15-19 age group. 40 cases for Brazil and 42 cases for South America in the 20-24 age group. 28 cases for Brazil and 29 cases for South America in the 25-29 age group. 35 cases for Brazil and 38 cases for South America in the 30-34 age group.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 92: Annual number of new cases of oropharyngeal cancer among women by age group in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021

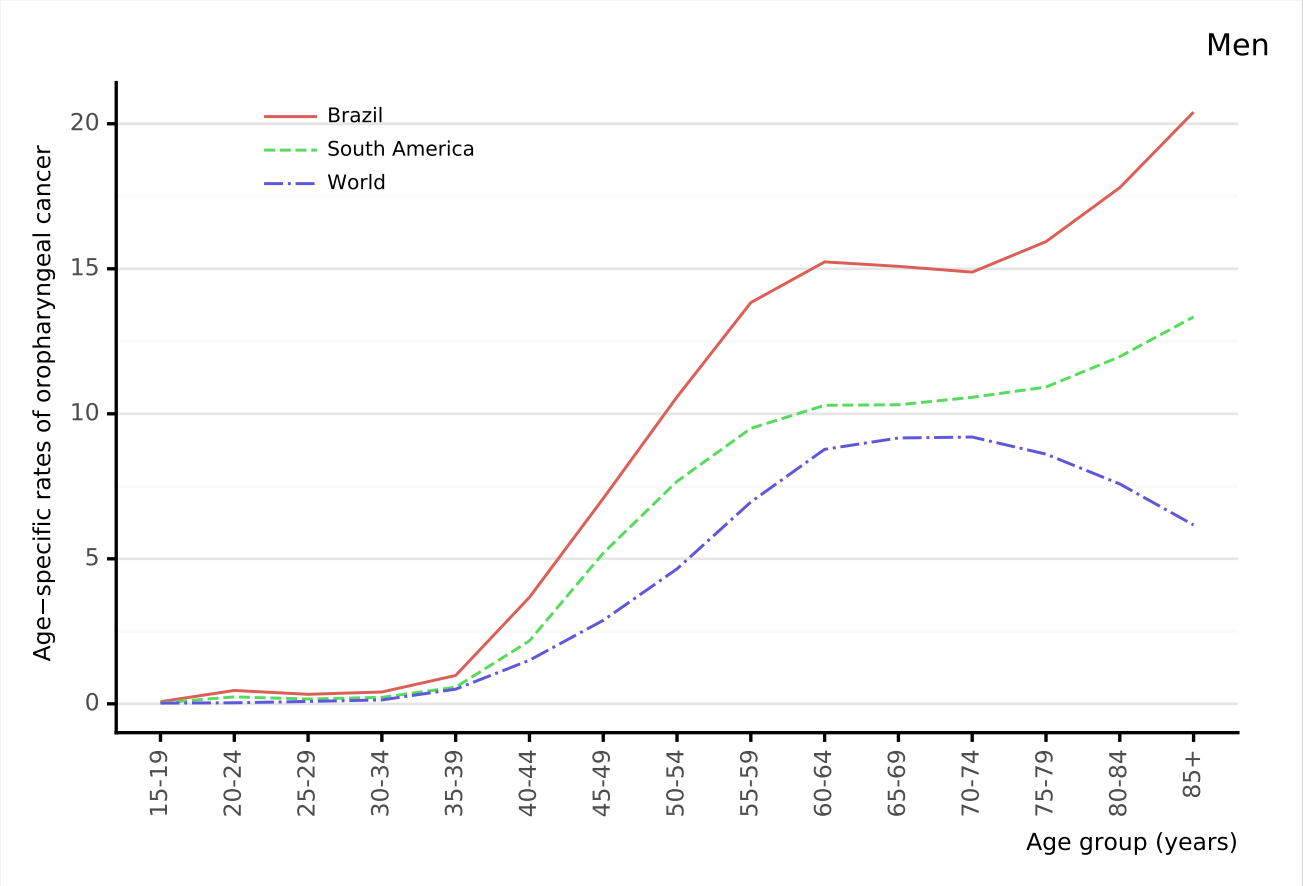
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] 7 cases for Brazil and 7 cases for South America in the 20-24 age group. 10 cases for Brazil and 10 cases for South America in the 25-29 age group.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 93: Comparison of age-specific oropharyngeal cancer incidence rates among men by age in Brazil, within the region, and the rest of world



Data accessed on 27 Jan 2021

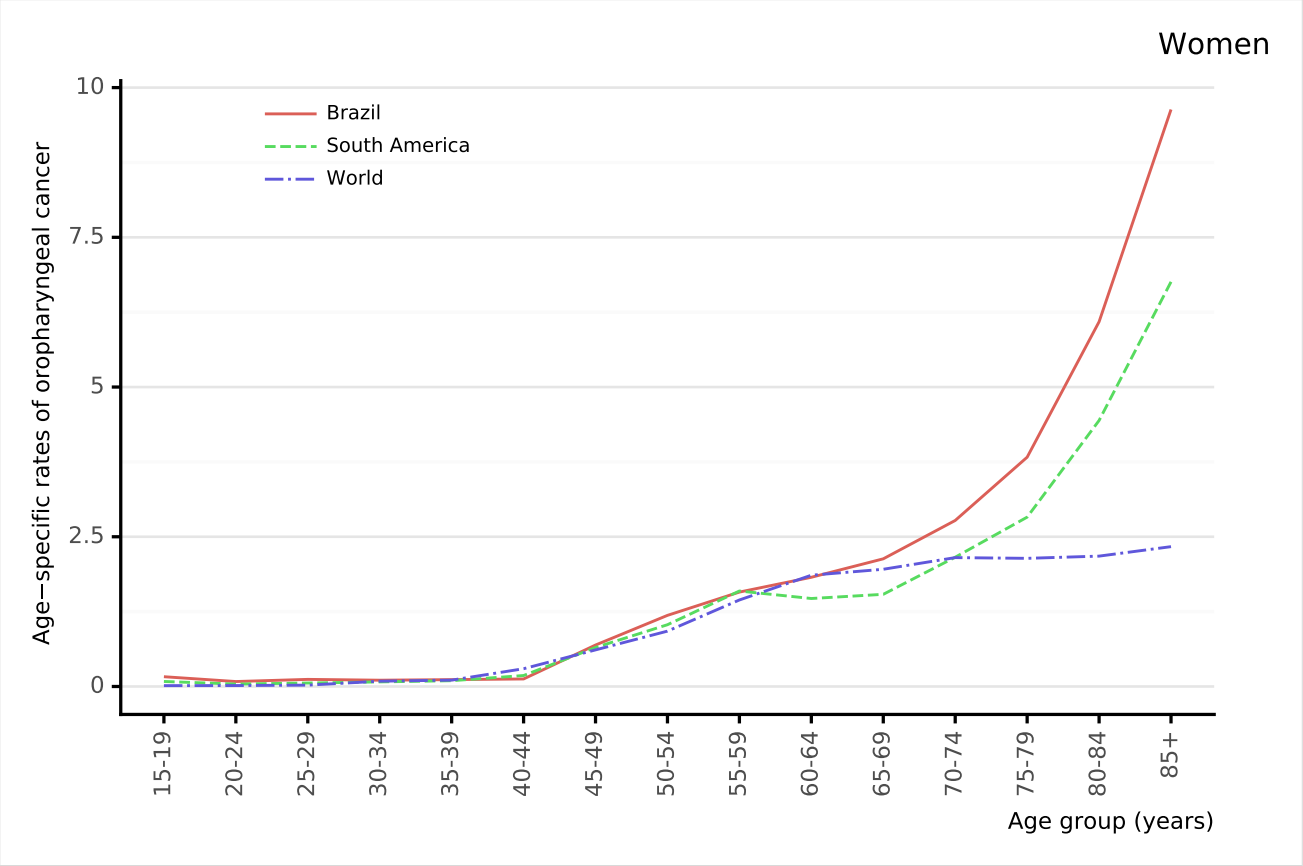
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] Rates per 100,000 men per year.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 94: Comparison of age-specific oropharyngeal cancer incidence rates among women by age in Brazil, within the region, and the rest of world



Data accessed on 27 Jan 2021

For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

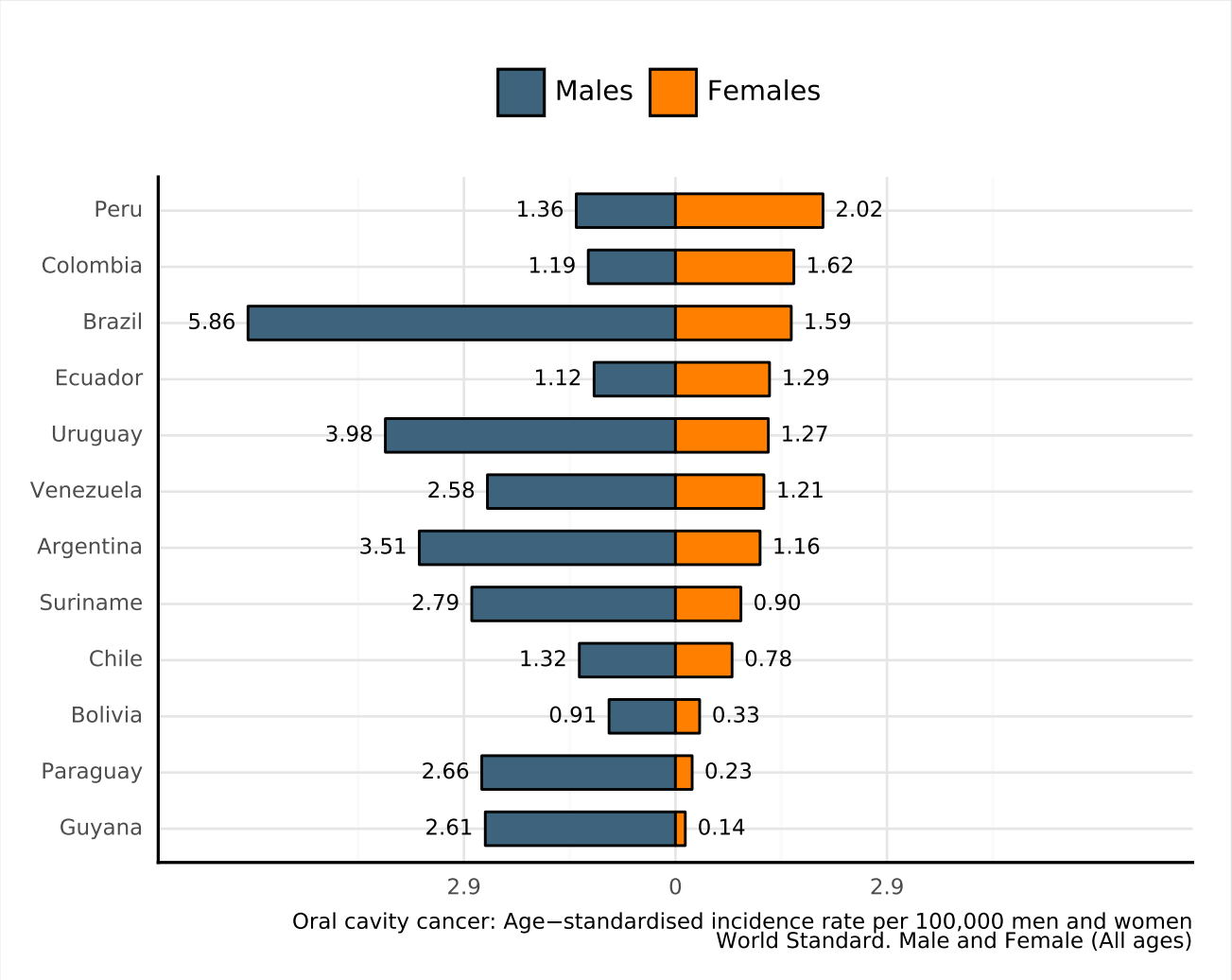
[a] Rates per 100,000 women per year.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

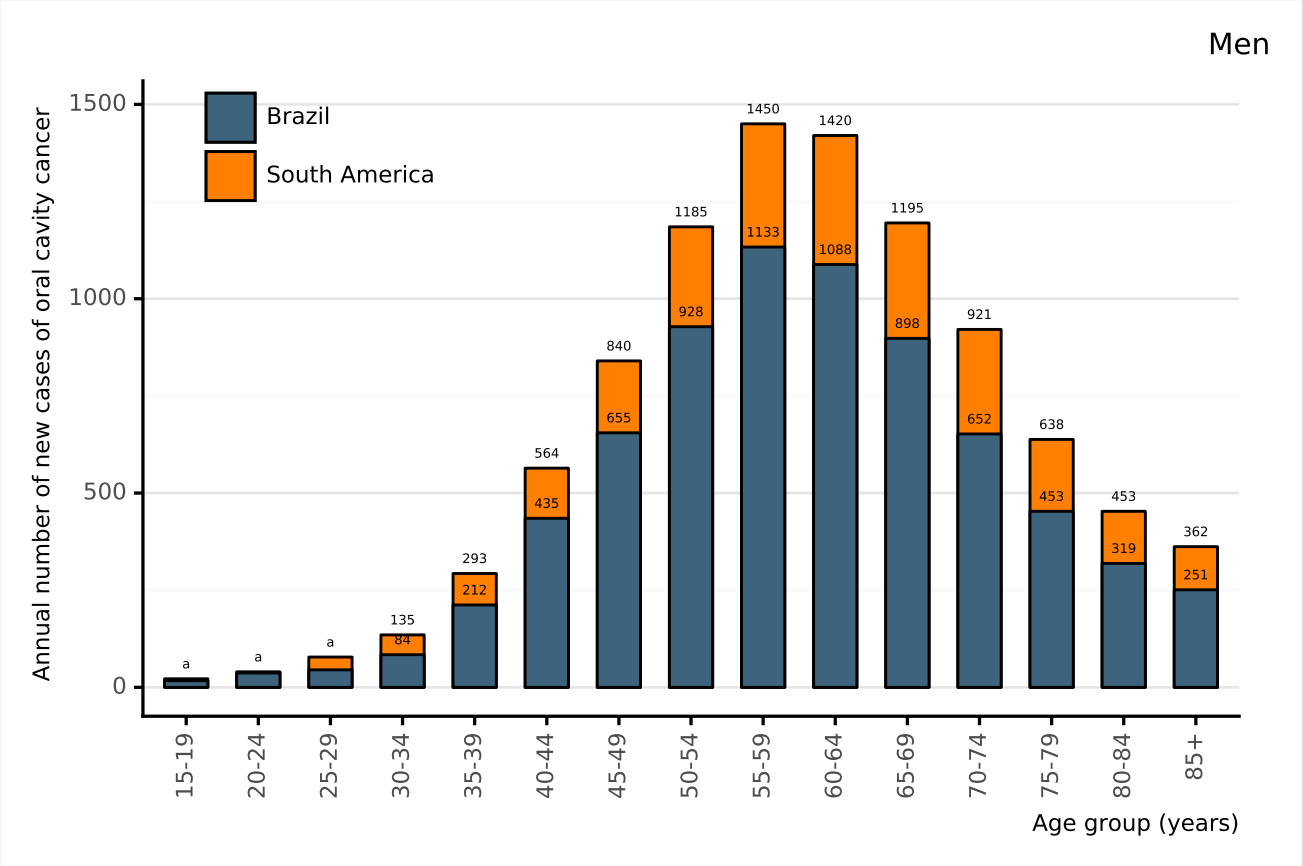
9.1.7 Oral cavity cancer incidence in Brazil across South America

Figure 95: Age-standardised incidence rates of oral cavity cancer of Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 men per year.
[b] Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 96: Annual number of new cases of oral cavity cancer among men by age group in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021

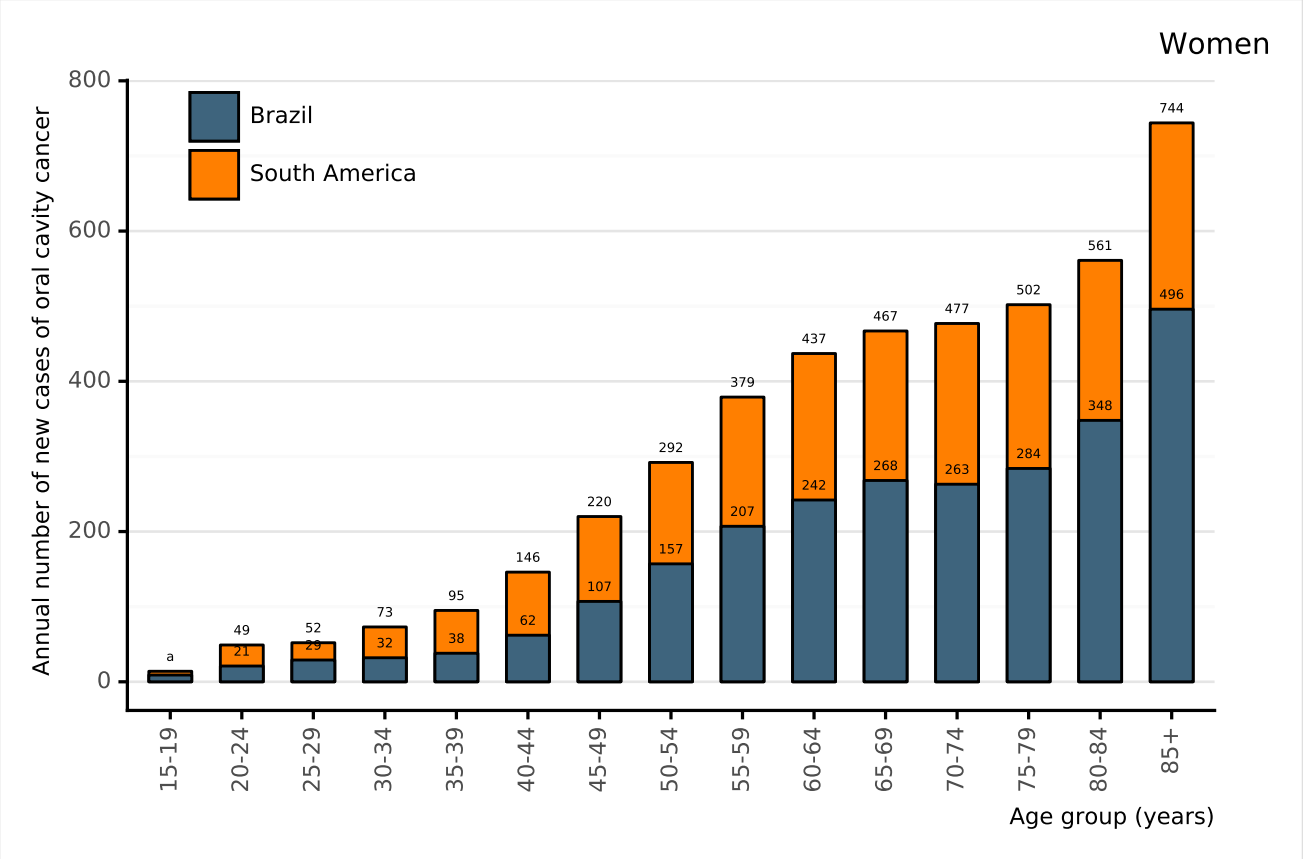
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] 17 cases for Brazil and 22 cases for South America in the 15-19 age group. 37 cases for Brazil and 40 cases for South America in the 20-24 age group. 45 cases for Brazil and 78 cases for South America in the 25-29 age group.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 97: Annual number of new cases of oral cavity cancer among women by age group in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021

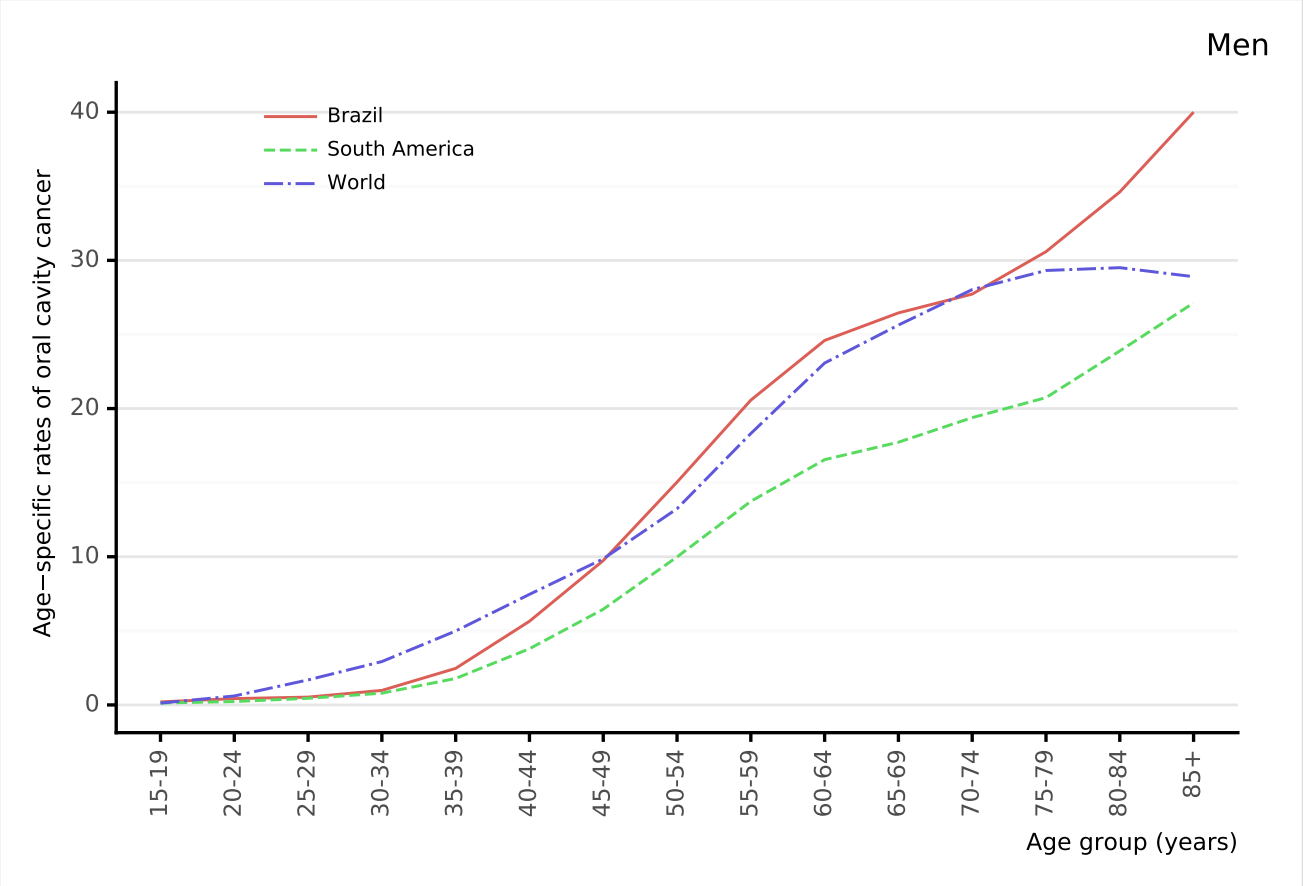
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] 9 cases for Brazil and 14 cases for South America in the 15-19 age group.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 98: Comparison of age-specific oral cavity cancer incidence rates among men by age in Brazil, within the region, and the rest of world



Data accessed on 27 Jan 2021

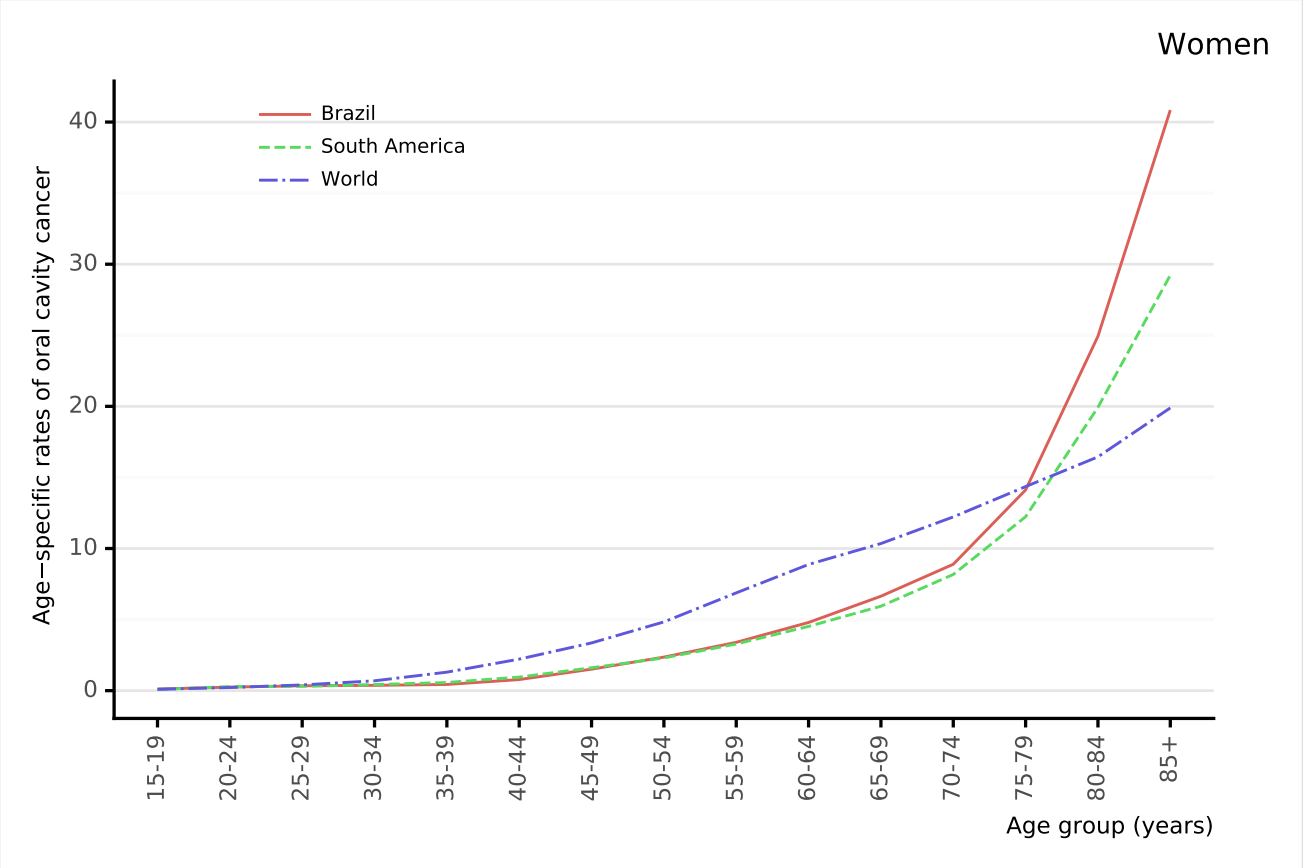
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] Rates per 100,000 men per year.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 99: Comparison of age-specific oral cavity cancer incidence rates among women by age in Brazil, within the region, and the rest of world



Data accessed on 27 Jan 2021

For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

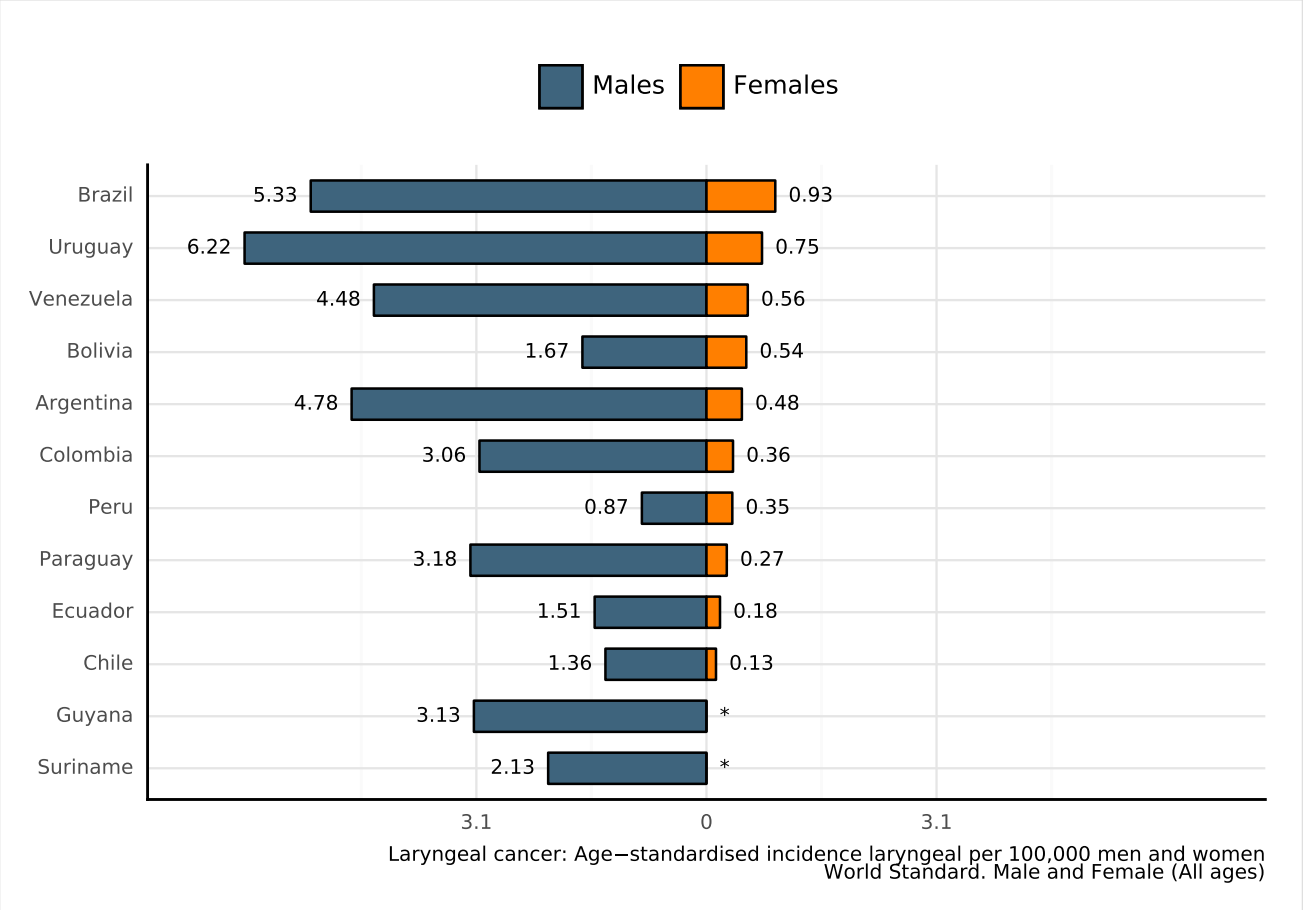
[a] Rates per 100,000 women per year.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

9.1.8 Laryngeal cancer incidence in Brazil across South America

Figure 100: Age-standardised incidence rates of laryngeal cancer of Brazil (estimates for 2020)



Data accessed on 27 Jan 2021

For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] Rates per 100,000 men per year.

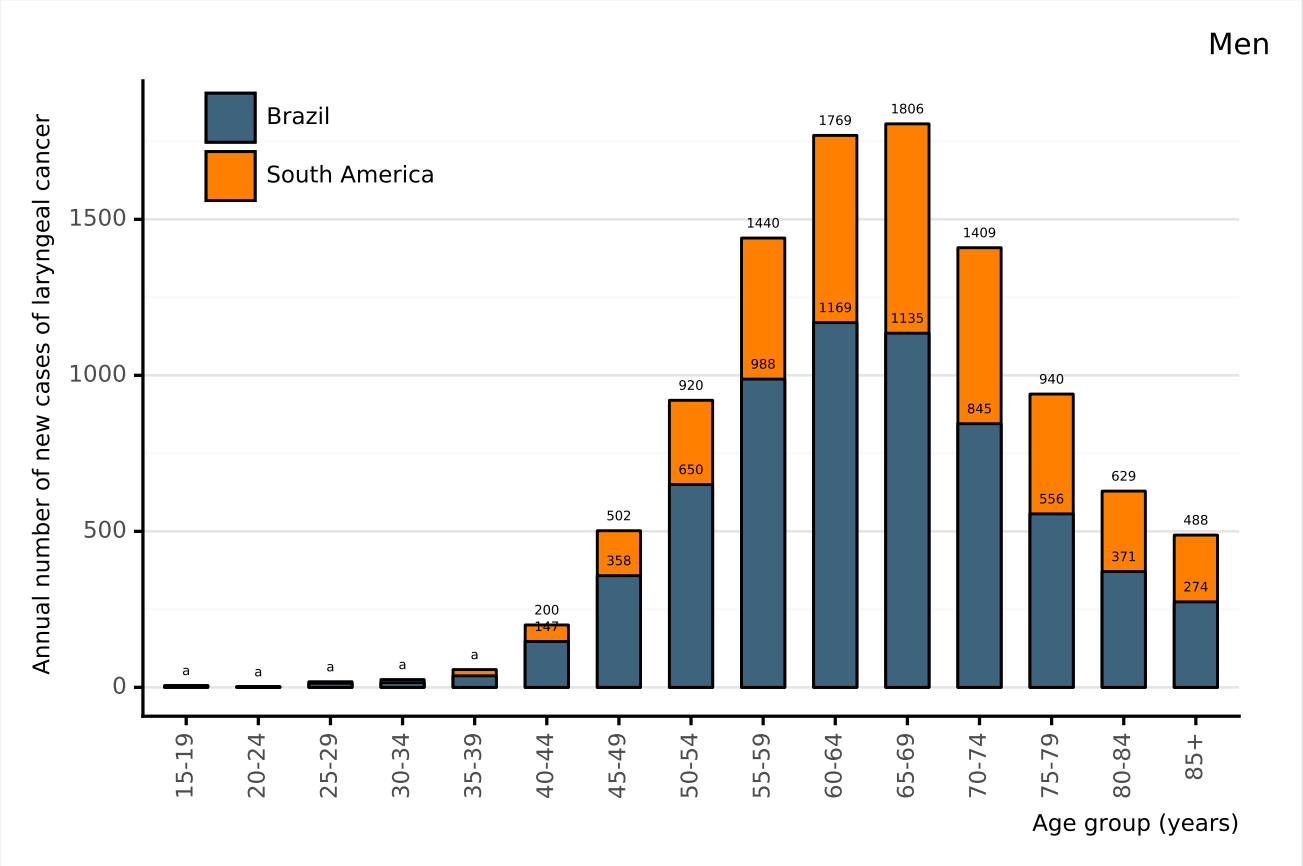
[b] Rates per 100,000 women per year.

* Rates are not available

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 101: Annual number of new cases of laryngeal cancer among men by age group in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021

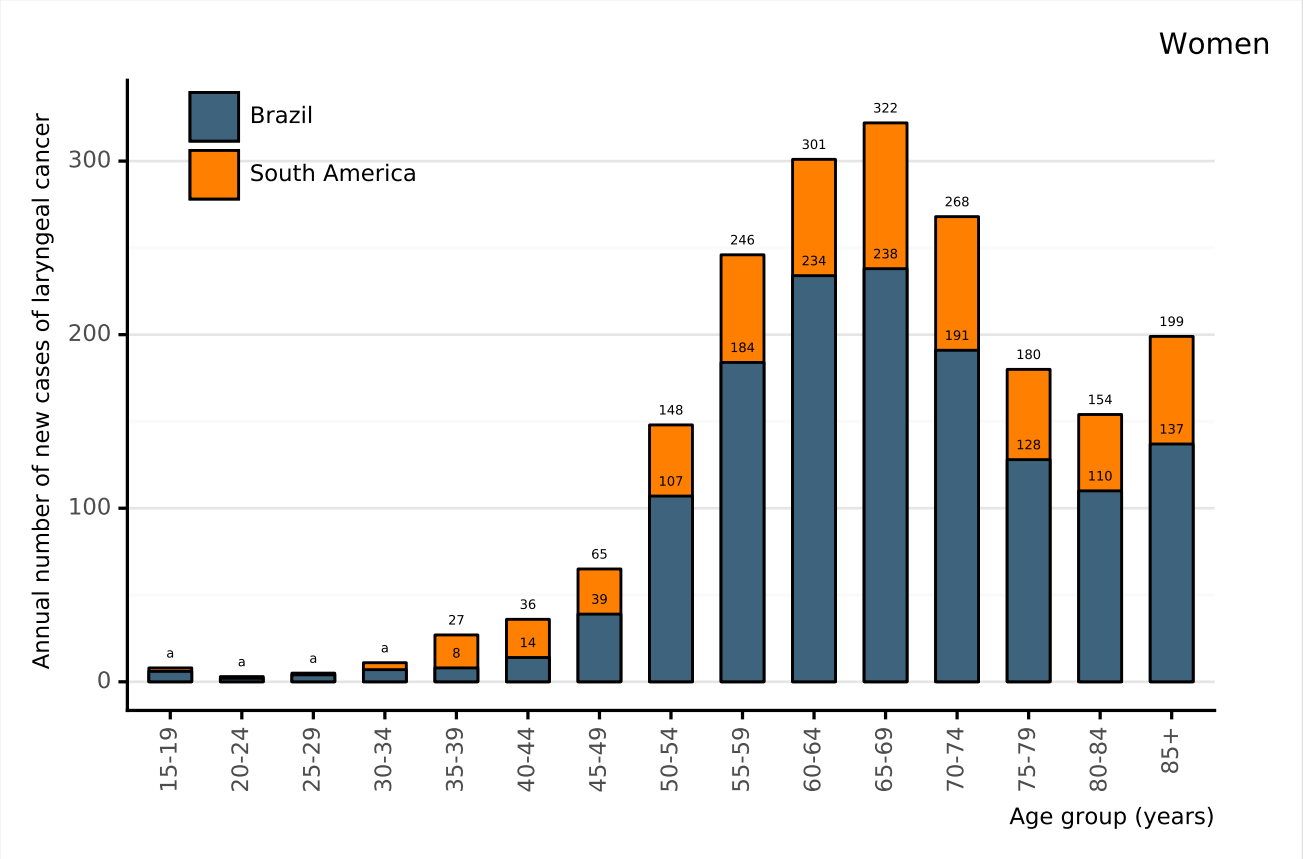
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] 4 cases for Brazil and 6 cases for South America in the 15-19 age group. 2 cases for Brazil and 2 cases for South America in the 20-24 age group. 13 cases for Brazil and 18 cases for South America in the 25-29 age group. 15 cases for Brazil and 25 cases for South America in the 30-34 age group. 37 cases for Brazil and 57 cases for South America in the 35-39 age group.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 102: Annual number of new cases of laryngeal cancer among women by age group in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021

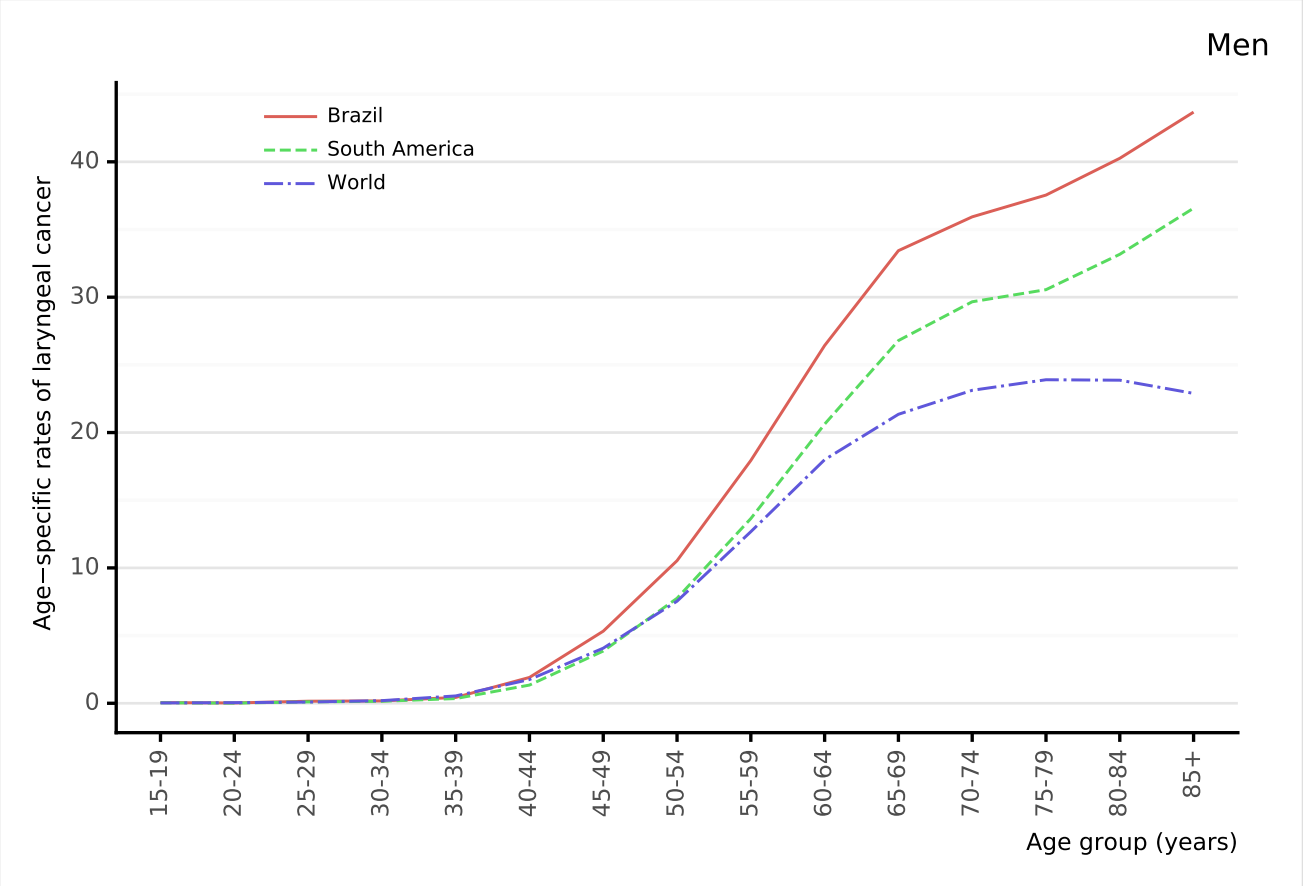
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] 6 cases for Brazil and 8 cases for South America in the 15-19 age group. 2 cases for Brazil and 3 cases for South America in the 20-24 age group. 4 cases for Brazil and 5 cases for South America in the 25-29 age group. 7 cases for Brazil and 11 cases for South America in the 30-34 age group.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 103: Comparison of age-specific laryngeal cancer incidence rates among men by age in Brazil, within the region, and the rest of world



Data accessed on 27 Jan 2021

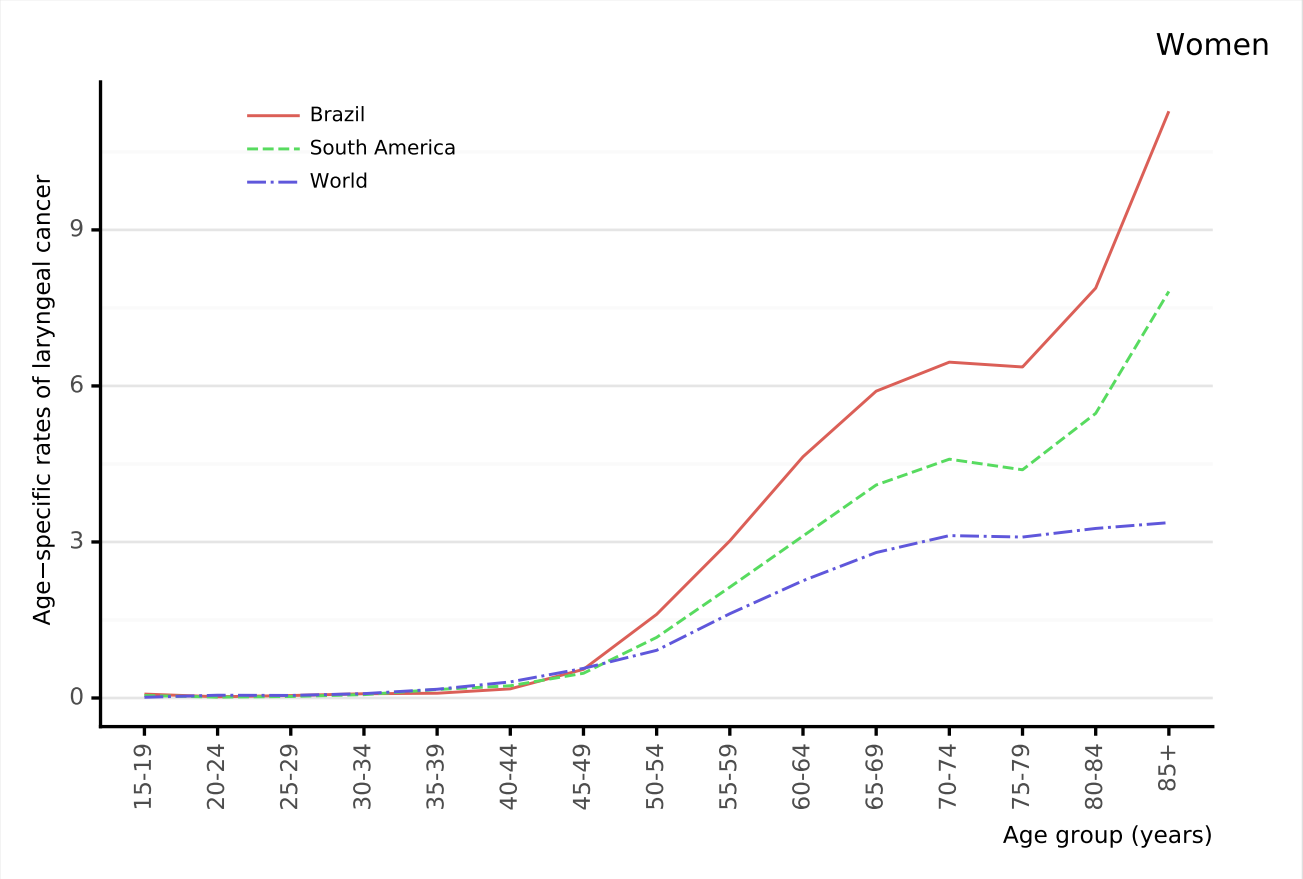
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] Rates per 100,000 men per year.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 104: Comparison of age-specific laryngeal cancer incidence rates among women by age in Brazil, within the region, and the rest of world



Data accessed on 27 Jan 2021

For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] Rates per 100,000 women per year.

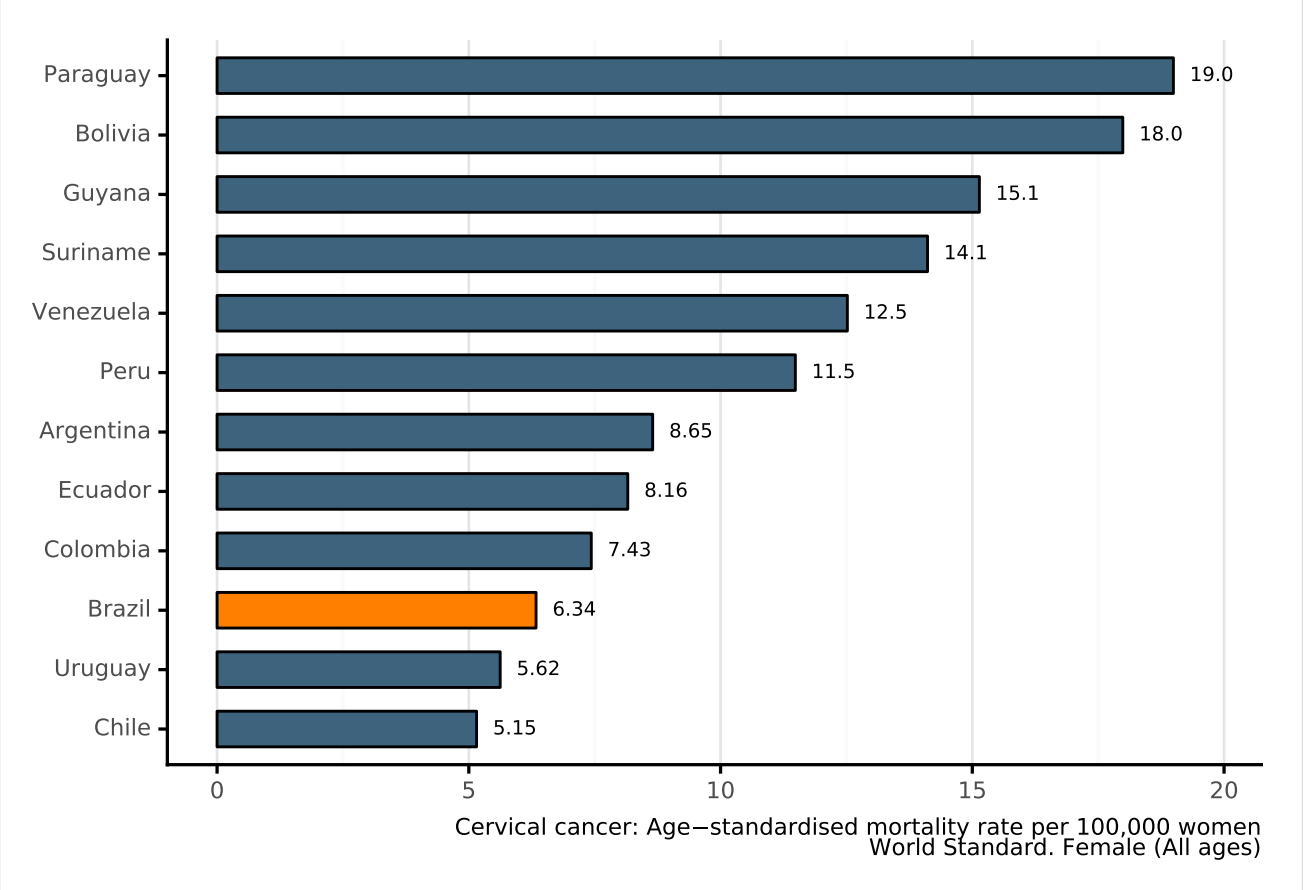
Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

9.2 Mortality

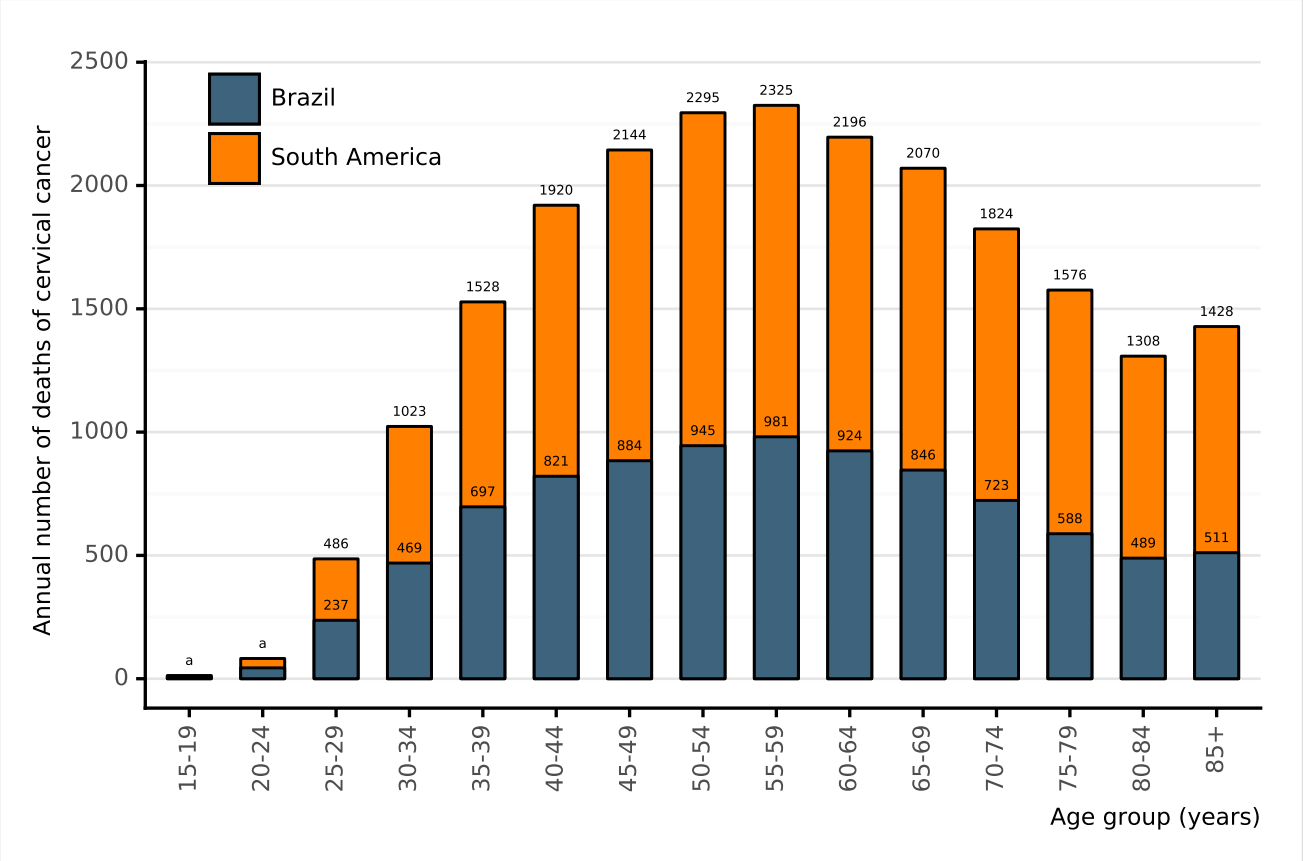
9.2.1 Cervical cancer mortality in Brazil across South America

Figure 105: Age-standardised mortality rates of cervical cancer of Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 106: Annual number of deaths of cervical cancer by age group in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021

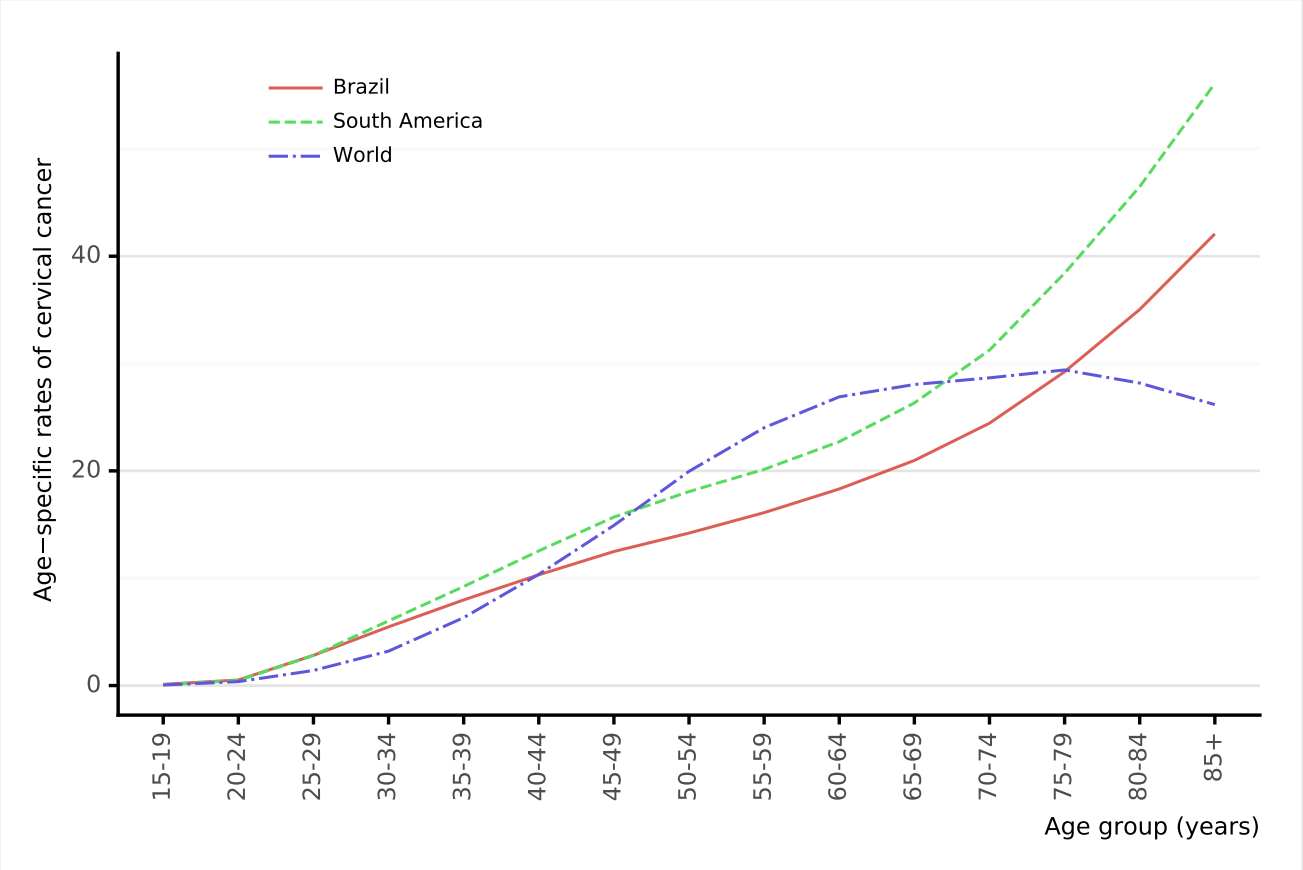
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] 9 cases for Brazil and 13 cases for South America in the 15-19 age group. 44 cases for Brazil and 82 cases for South America in the 20-24 age group.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 107: Comparison of age-specific cervical cancer mortality rates in Brazil, within the region, and the rest of world



Data accessed on 27 Jan 2021

For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

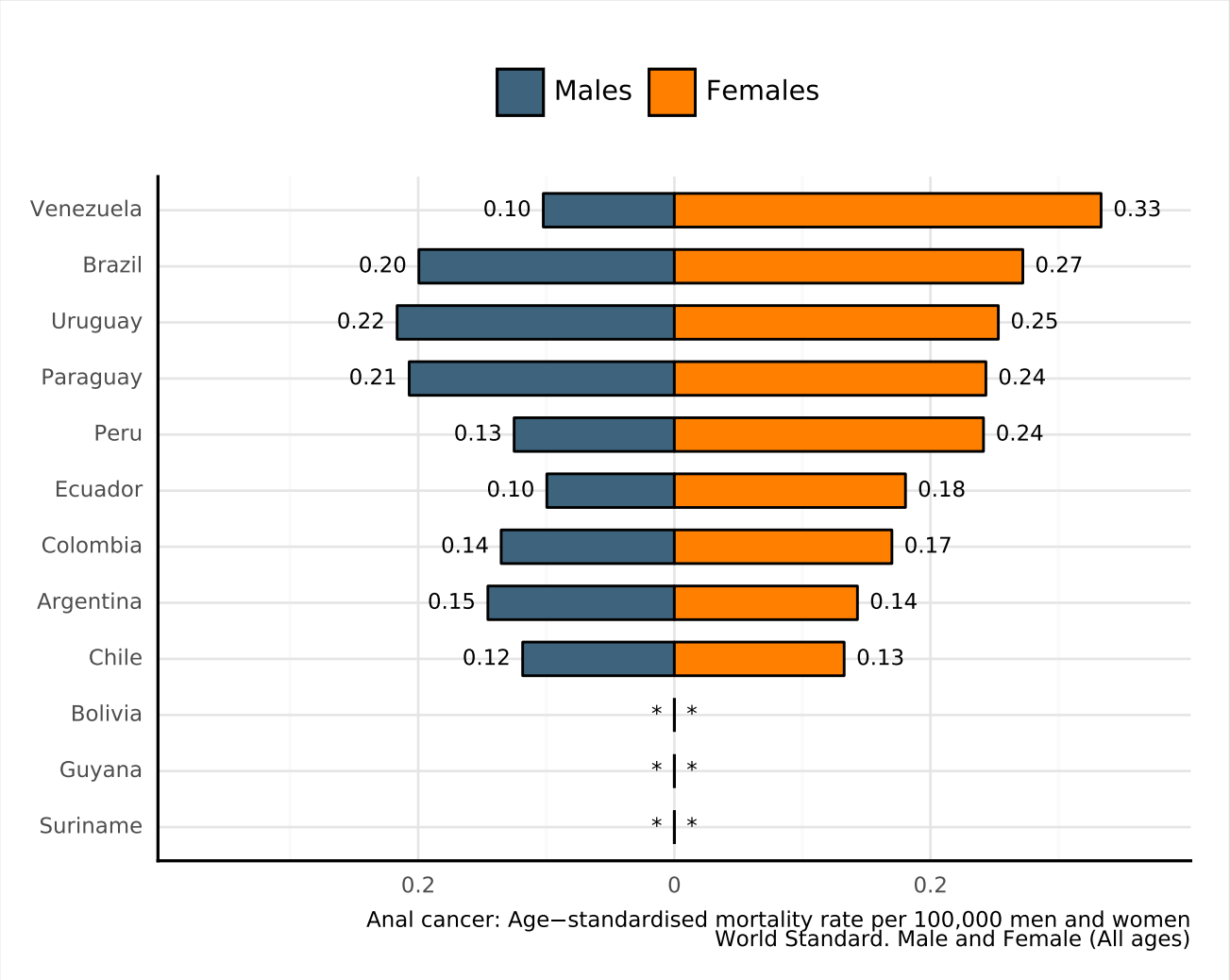
[a] Rates per 100,000 women per year.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

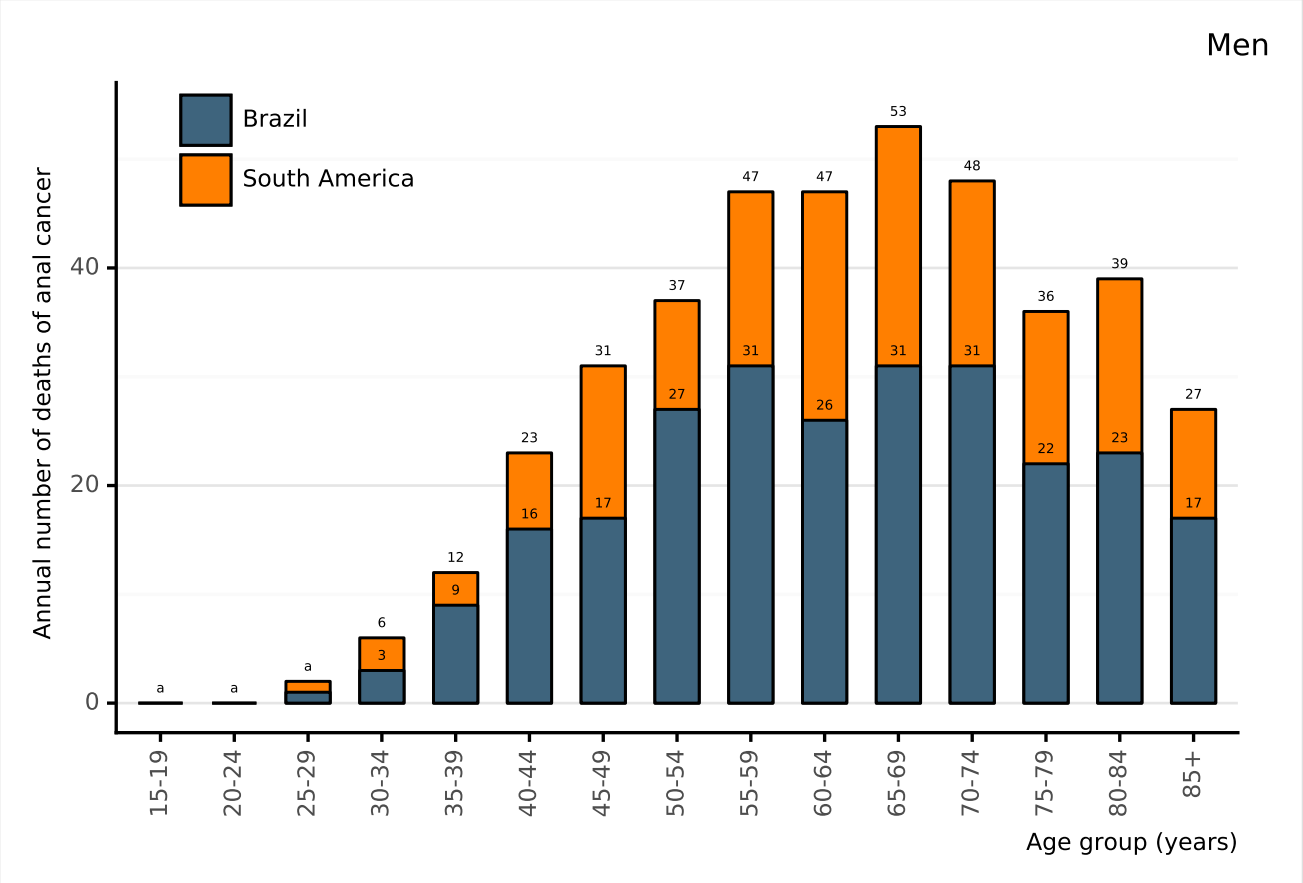
9.2.2 Anal cancer mortality in Brazil across South America

Figure 108: Age-standardised mortality rates of anal cancer of Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 men per year.
[b] Rates per 100,000 women per year.
* Rates are not available
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 109: Annual number of deaths of anal cancer among men by age group in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021

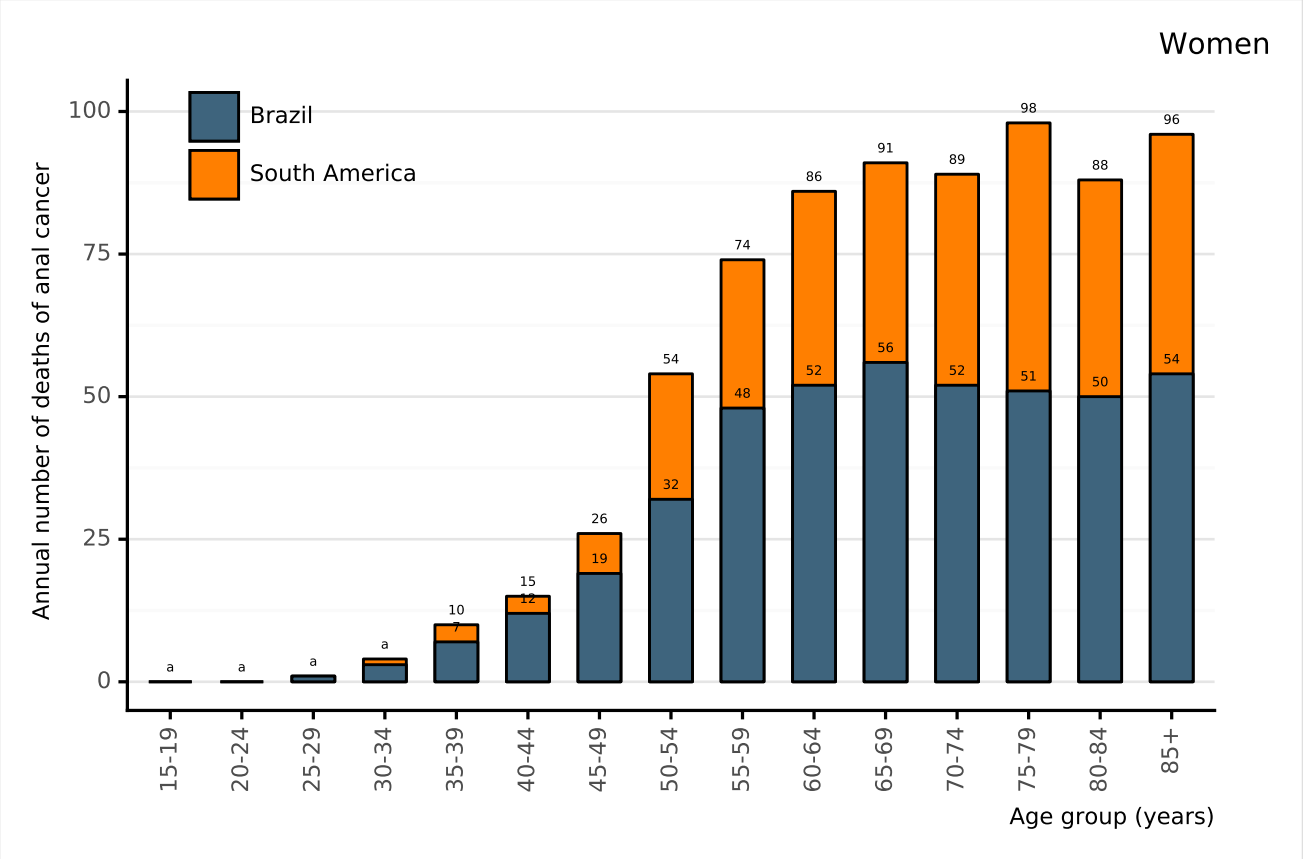
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] 0 cases for Brazil and 0 cases for South America in the 15-19 age group. 0 cases for Brazil and 0 cases for South America in the 20-24 age group. 1 cases for Brazil and 2 cases for South America in the 25-29 age group.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 110: Annual number of deaths of anal cancer among women by age group in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021

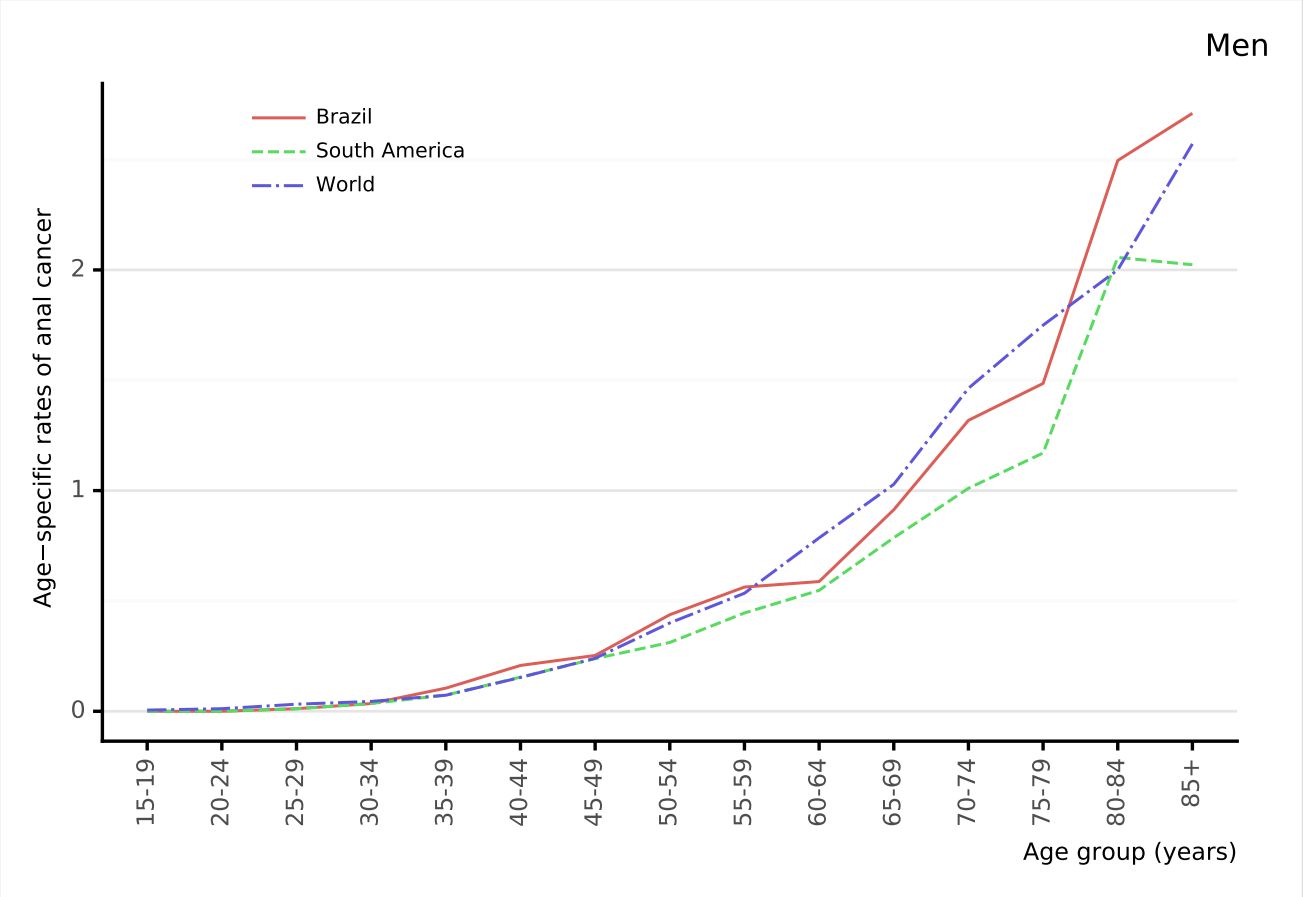
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] 0 cases for Brazil and 0 cases for South America in the 15-19 age group. 0 cases for Brazil and 0 cases for South America in the 20-24 age group. 1 cases for Brazil and 1 cases for South America in the 25-29 age group. 3 cases for Brazil and 4 cases for South America in the 30-34 age group.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 111: Comparison of age-specific anal cancer mortality rates among men by age in Brazil, within the region, and the rest of world



Data accessed on 27 Jan 2021

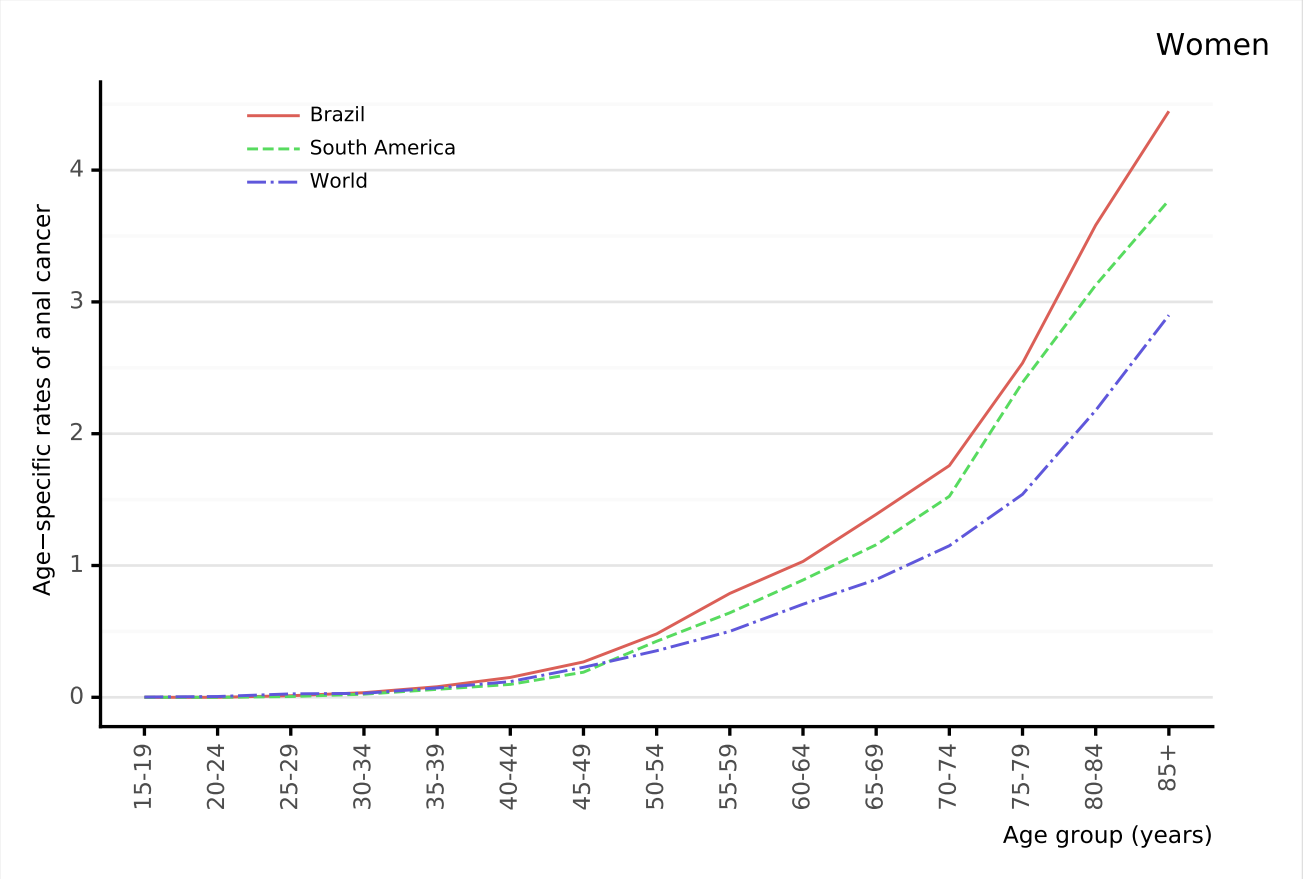
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] Rates per 100,000 men per year.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 112: Comparison of age-specific anal cancer mortality rates among women by age in Brazil, within the region, and the rest of world



Data accessed on 27 Jan 2021

For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

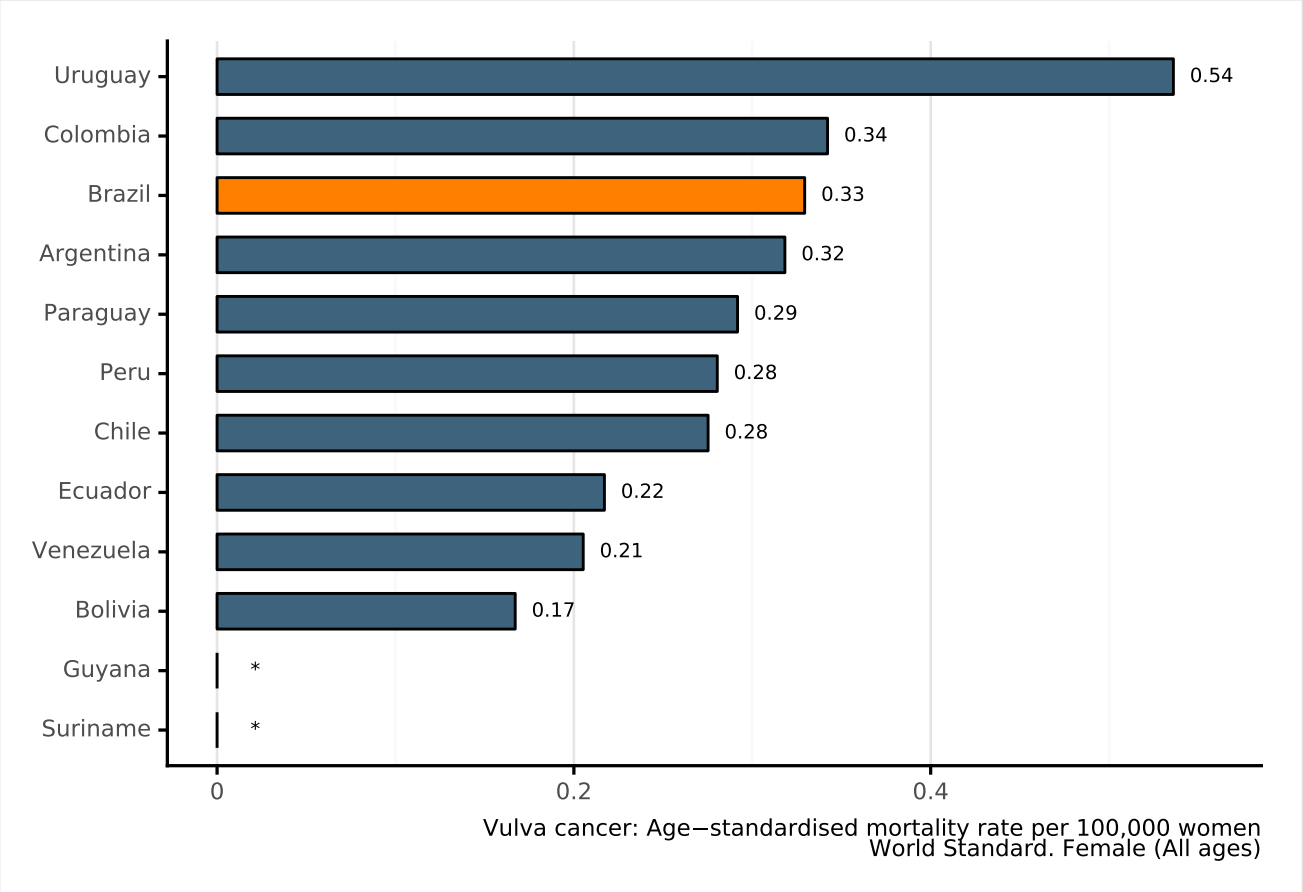
[a] Rates per 100,000 women per year.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

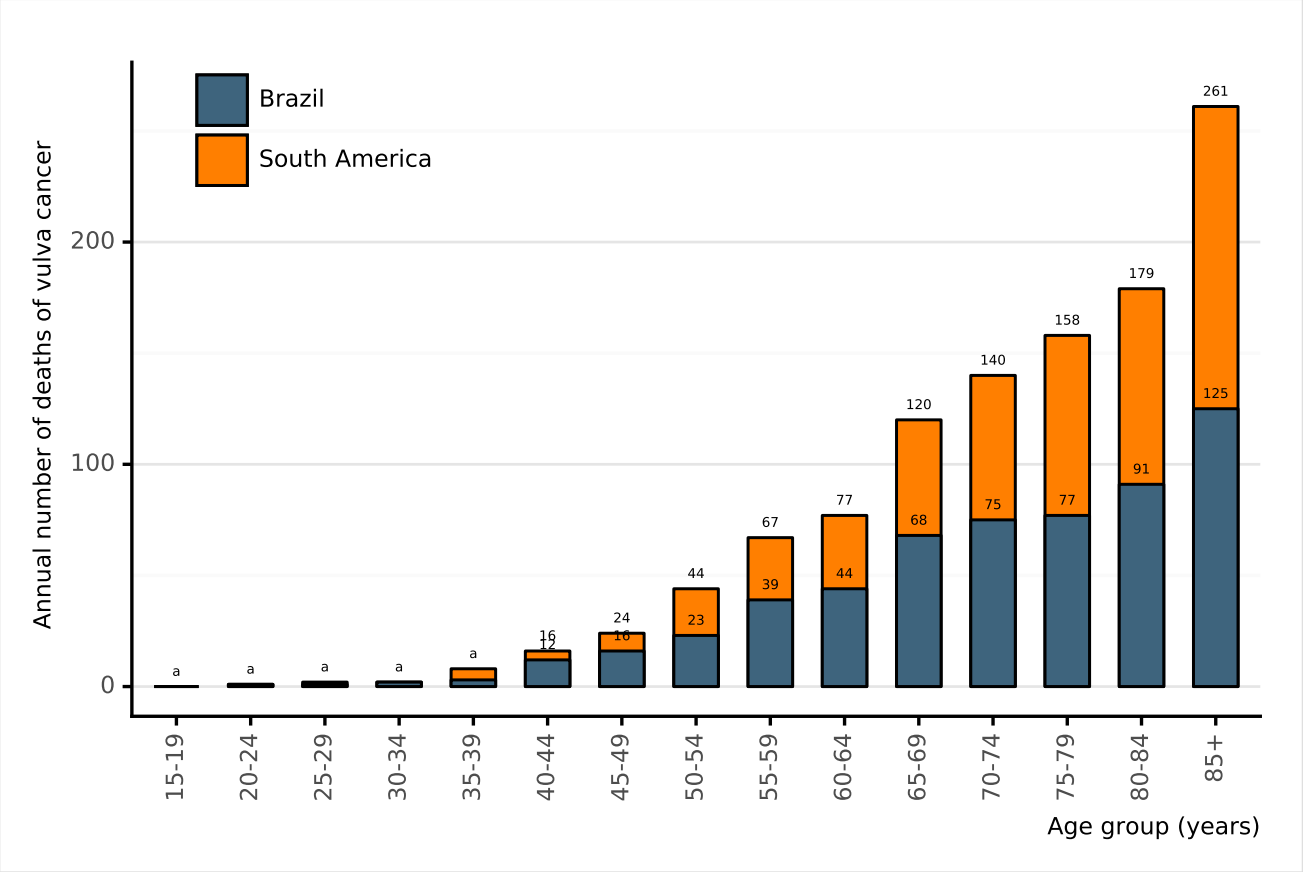
9.2.3 Vulva cancer mortality in Brazil across South America

Figure 113: Age-standardised mortality rates of vulva cancer of Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 women per year.
* Rates are not available
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 114: Annual number of deaths of vulva cancer by age group in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021

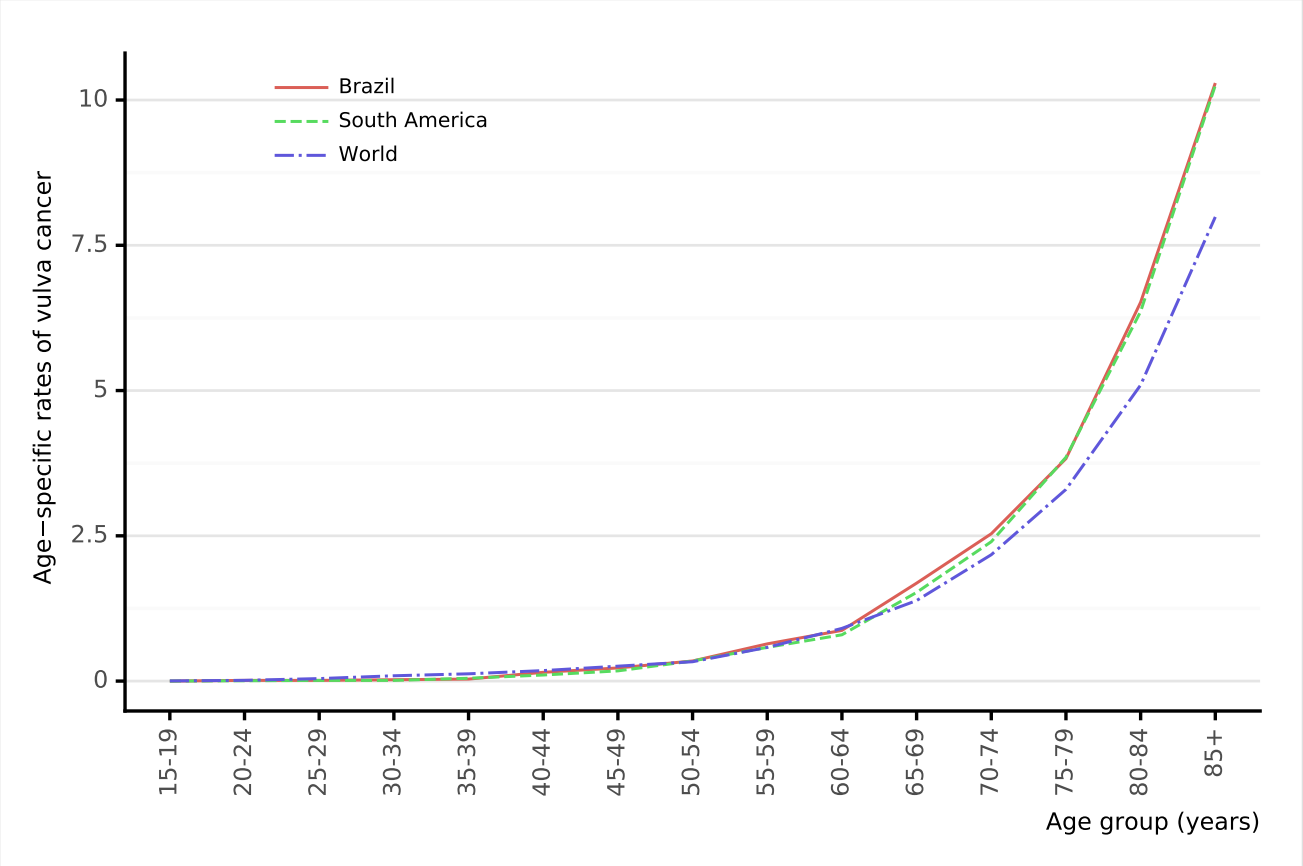
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] 0 cases for Brazil and 0 cases for South America in the 15-19 age group. 1 cases for Brazil and 1 cases for South America in the 20-24 age group. 1 cases for Brazil and 2 cases for South America in the 25-29 age group. 2 cases for Brazil and 2 cases for South America in the 30-34 age group. 3 cases for Brazil and 8 cases for South America in the 35-39 age group.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 115: Comparison of age-specific vulva cancer mortality rates in Brazil, within the region, and the rest of world



Data accessed on 27 Jan 2021

For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

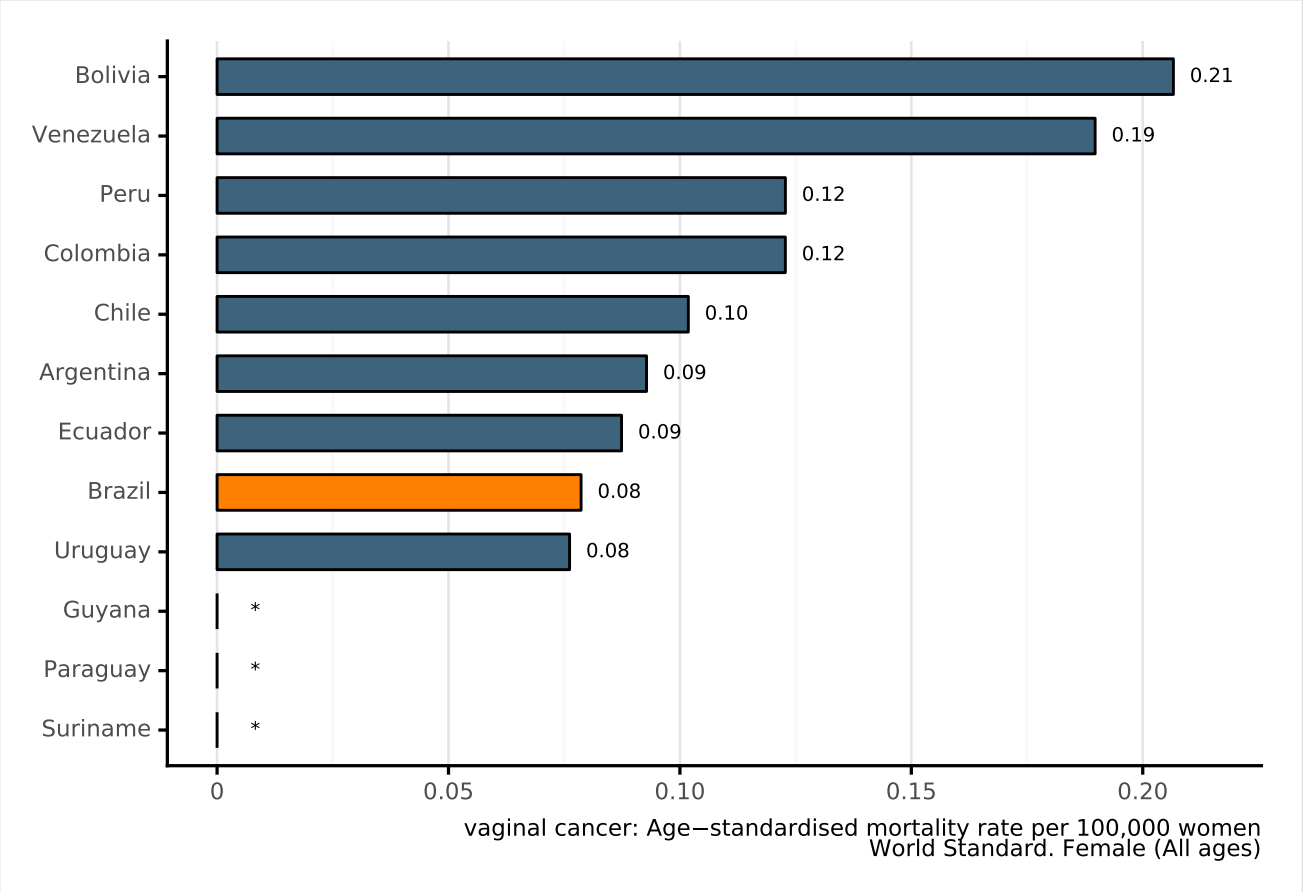
[a] Rates per 100,000 women per year.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

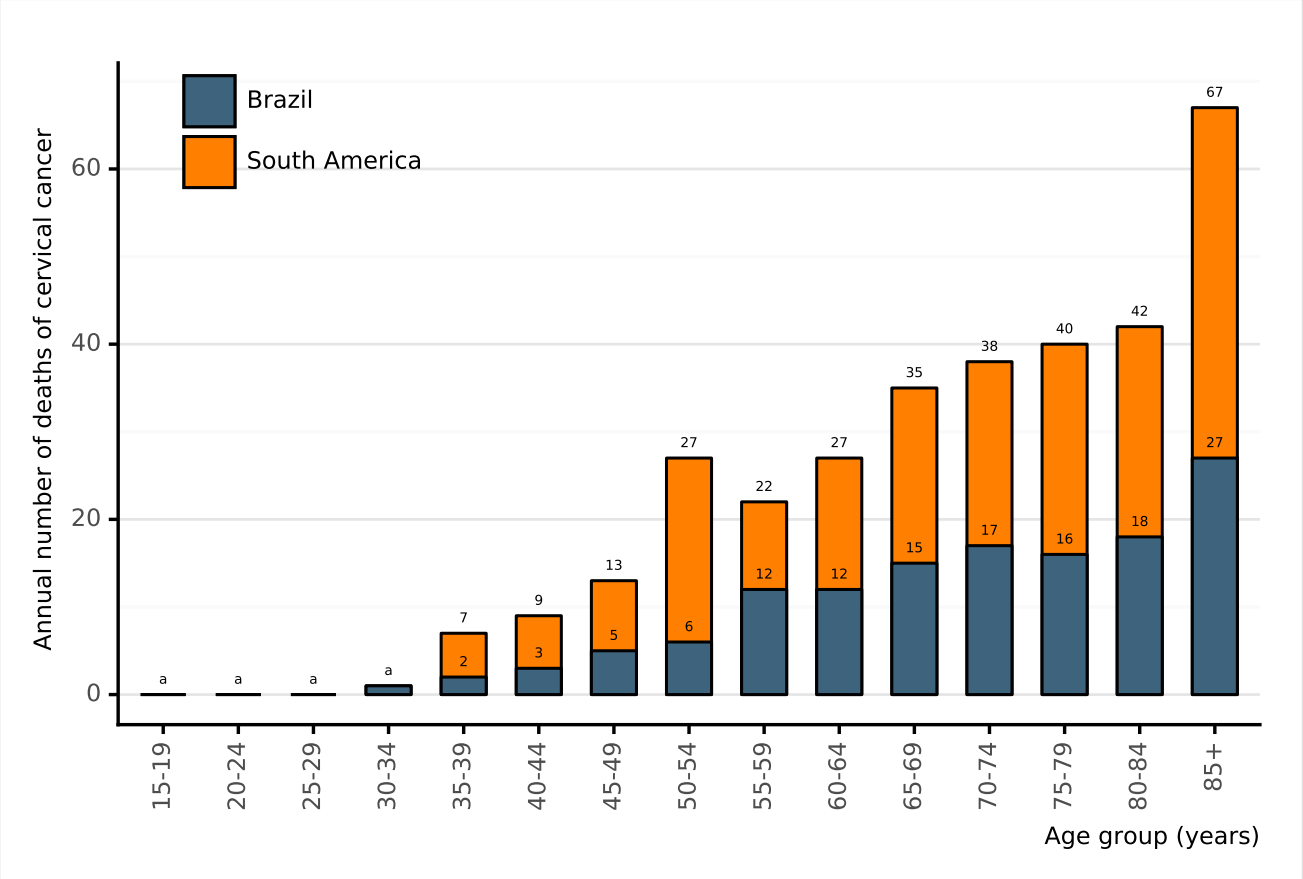
9.2.4 Vaginal cancer mortality in Brazil across South America

Figure 116: Age-standardised mortality rates of vaginal cancer of Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 women per year.
* Rates are not available
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 117: Annual number of deaths of cervical cancer by age group in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021

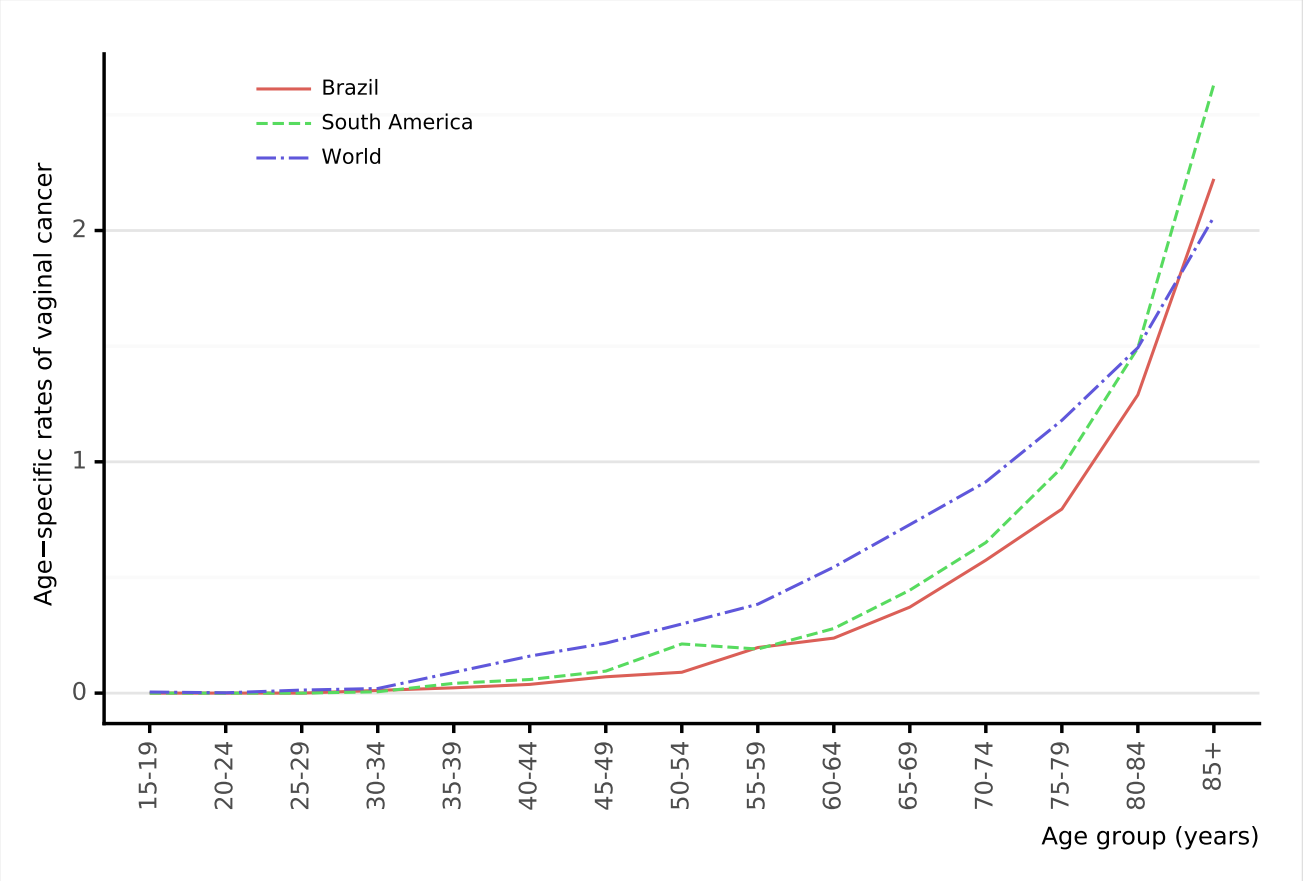
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] 0 cases for Brazil and 0 cases for South America in the 15-19 age group. 0 cases for Brazil and 0 cases for South America in the 20-24 age group. 0 cases for Brazil and 0 cases for South America in the 25-29 age group. 1 cases for Brazil and 1 cases for South America in the 30-34 age group.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 118: Comparison of age-specific vaginal cancer mortality rates in Brazil, within the region, and the rest of world



Data accessed on 27 Jan 2021

For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

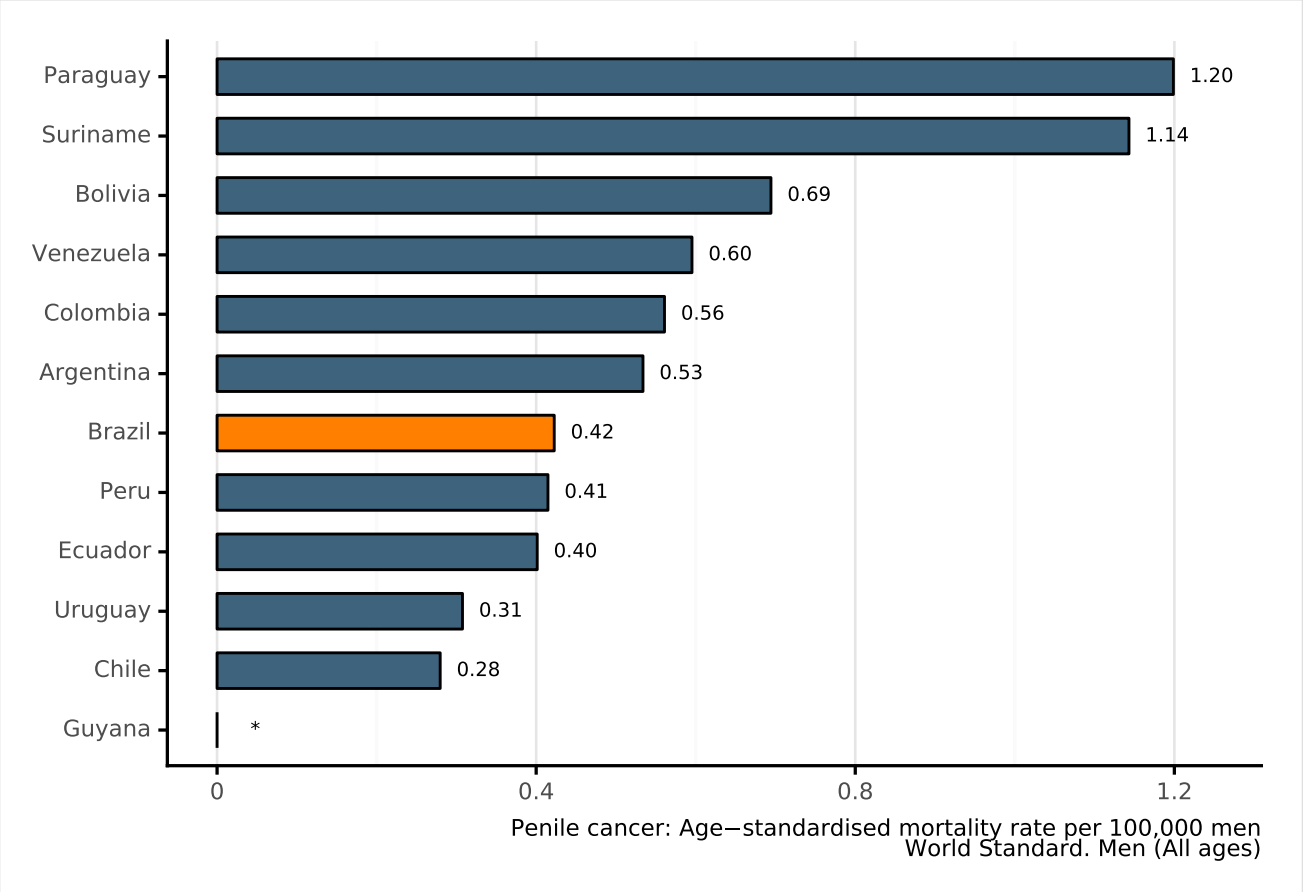
[a] Rates per 100,000 women per year.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

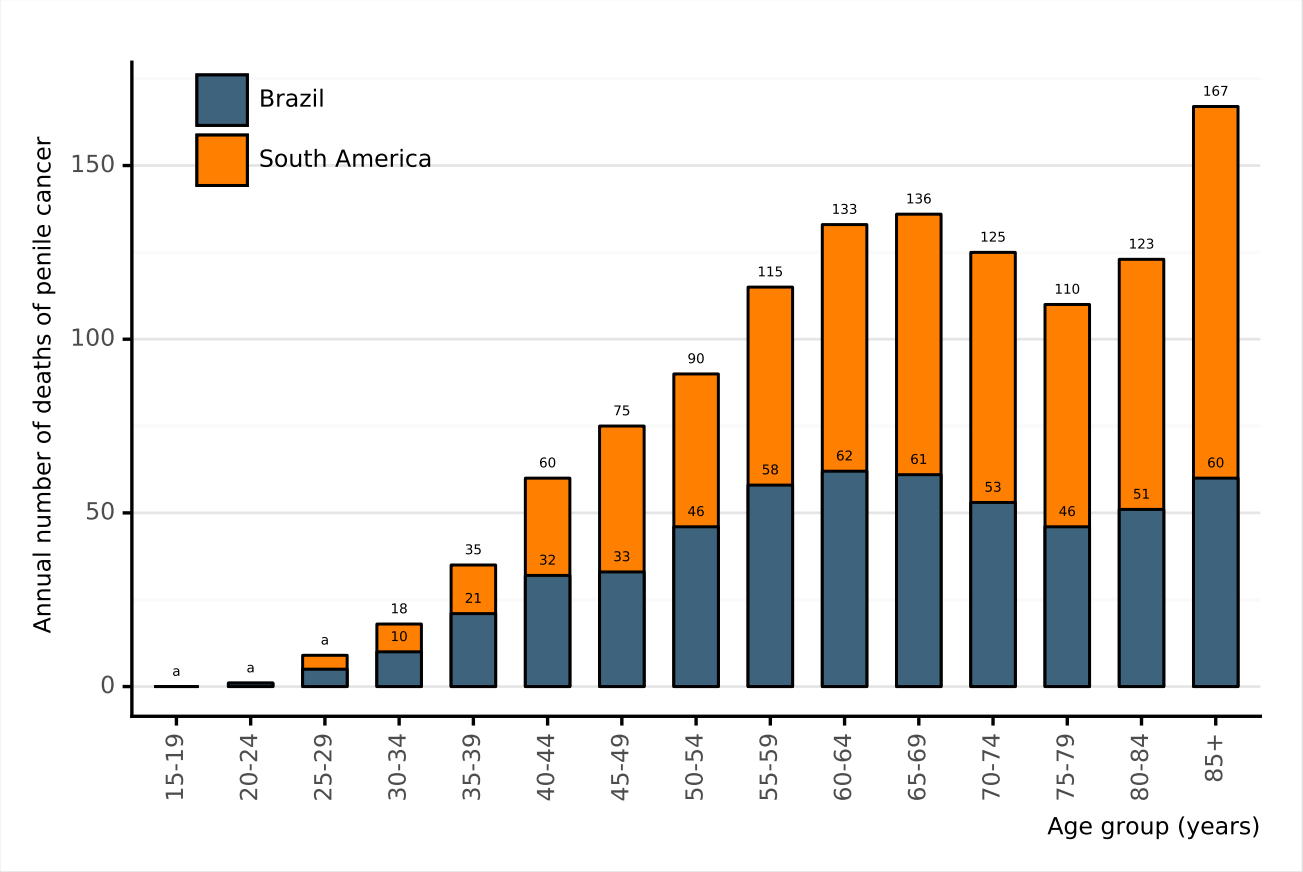
9.2.5 Penile cancer mortality in Brazil across South America

Figure 119: Age-standardised mortality rates of penile cancer of Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 men per year.
* Rates are not available
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 120: Annual number of new deaths of penile cancer by age group in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021

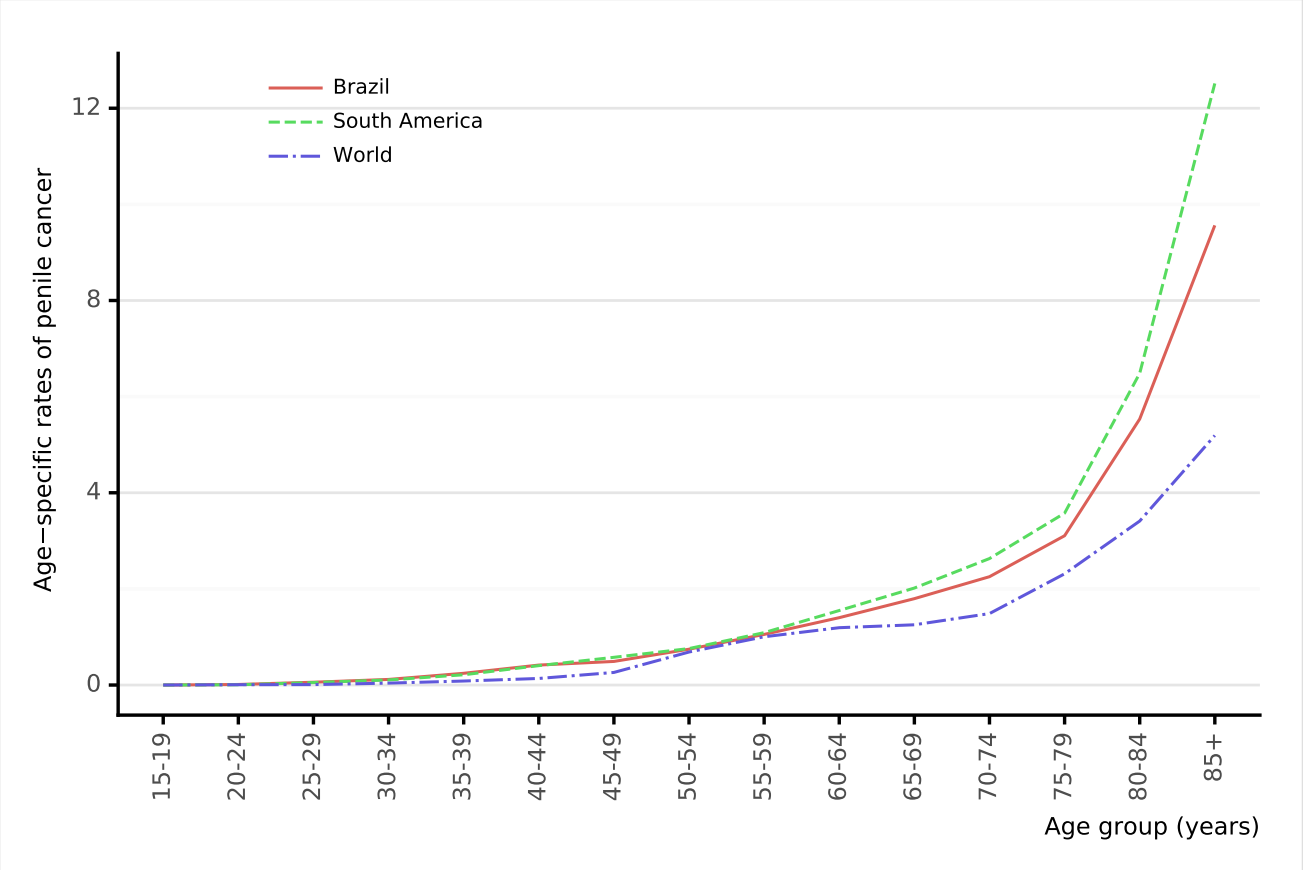
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] 0 cases for Brazil and 0 cases for South America in the 15-19 age group. 1 cases for Brazil and 1 cases for South America in the 20-24 age group. 5 cases for Brazil and 9 cases for South America in the 25-29 age group.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 121: Comparison of age-specific penile cancer mortality rates in Brazil, within the region, and the rest of world



Data accessed on 27 Jan 2021

For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

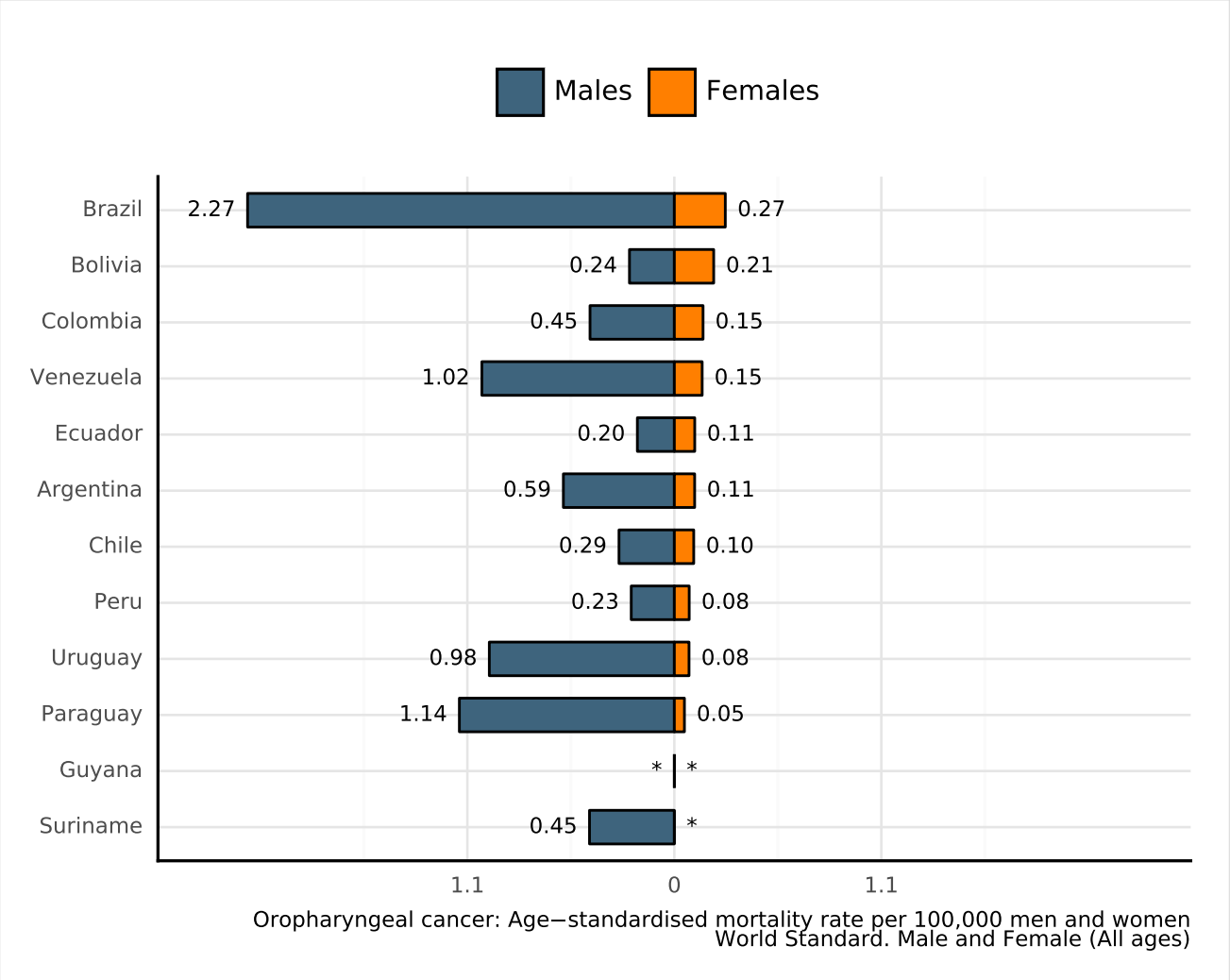
[a] Rates per 100,000 men per year.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

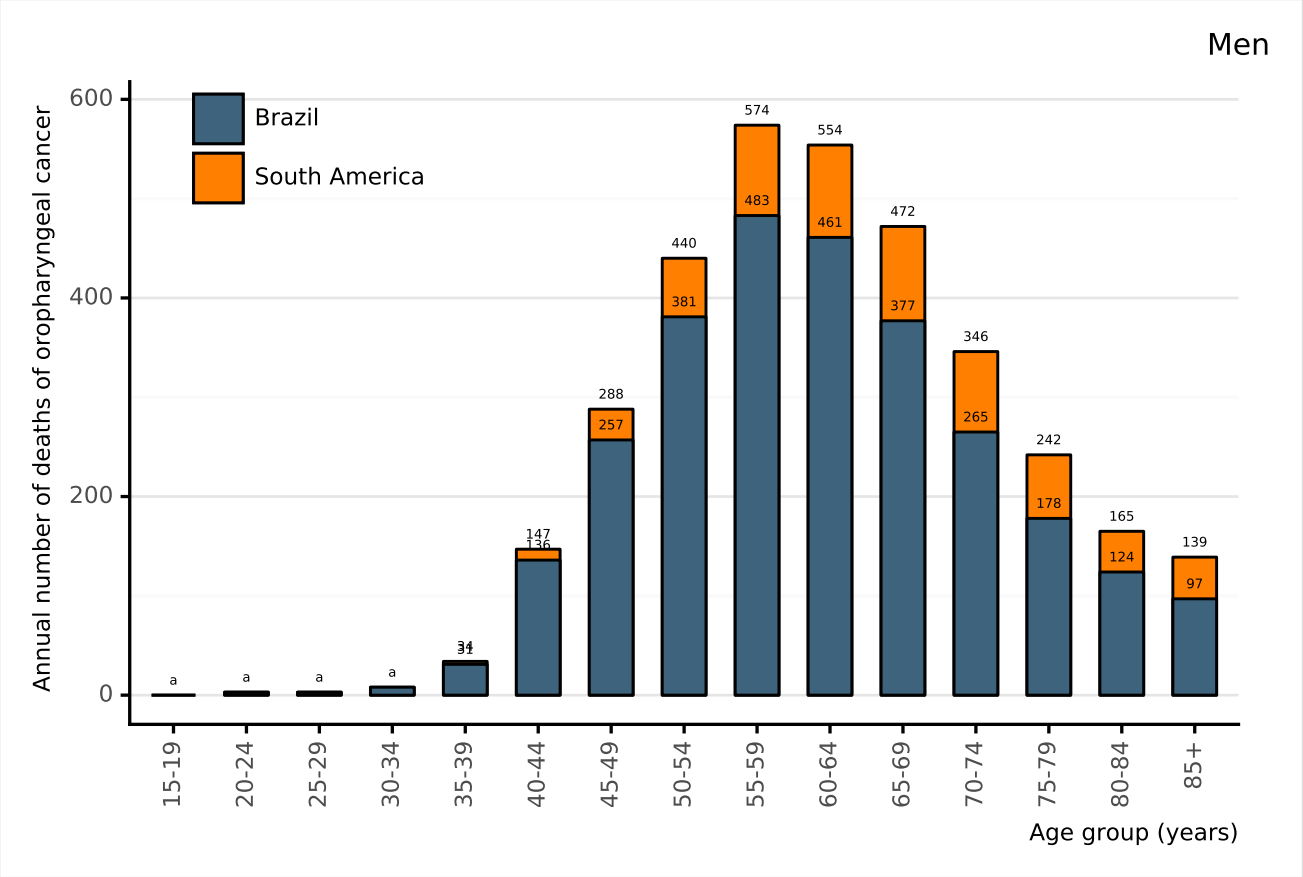
9.2.6 Oropharyngeal cancer mortality in Brazil across South America

Figure 122: Age-standardised mortality rates of oropharyngeal cancer of Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 men per year.
[b] Rates per 100,000 women per year.
* Rates are not available
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 123: Annual number of deaths of oropharyngeal cancer among men by age group in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021

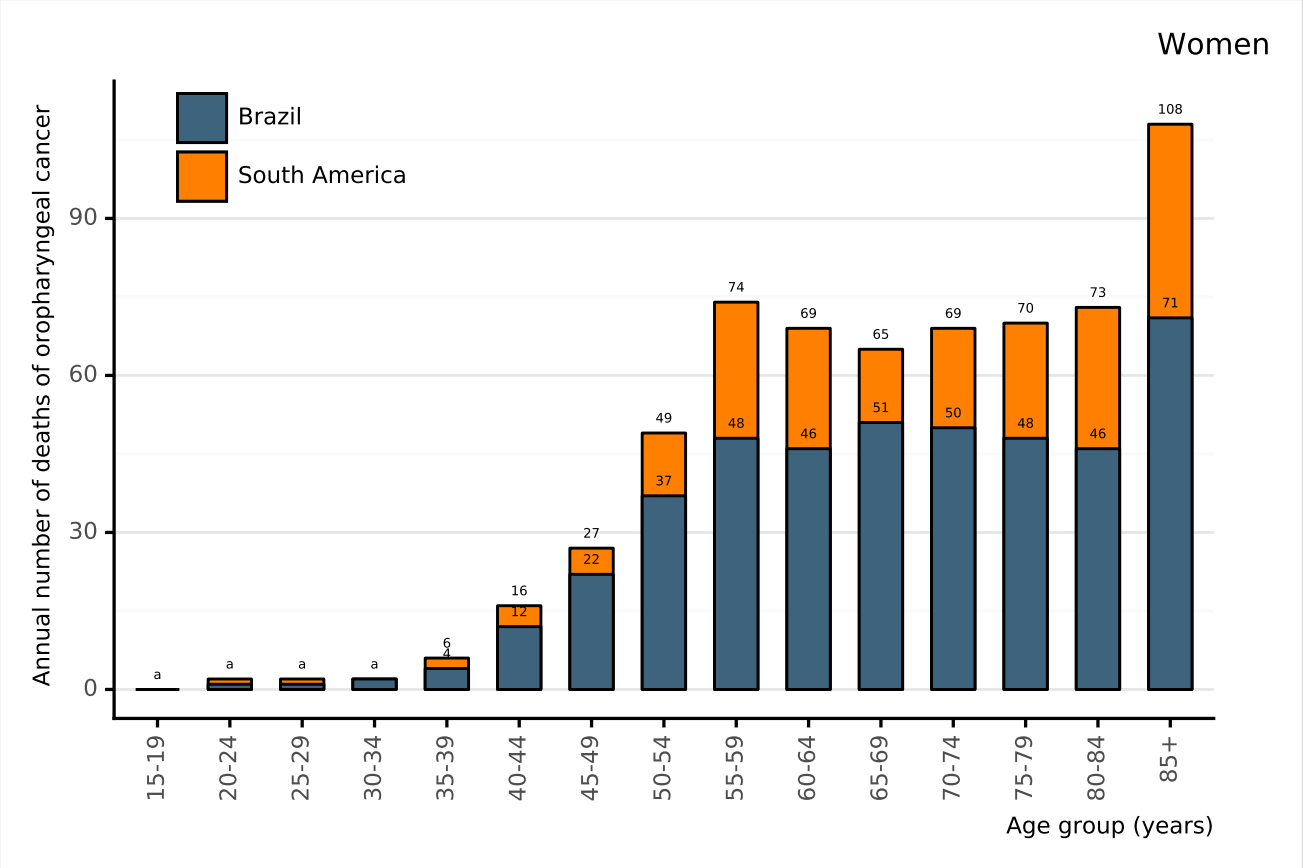
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] 0 cases for Brazil and 0 cases for South America in the 15-19 age group. 3 cases for Brazil and 3 cases for South America in the 20-24 age group. 3 cases for Brazil and 3 cases for South America in the 25-29 age group. 8 cases for Brazil and 8 cases for South America in the 30-34 age group.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 124: Annual number of deaths of oropharyngeal cancer among women by age group in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021

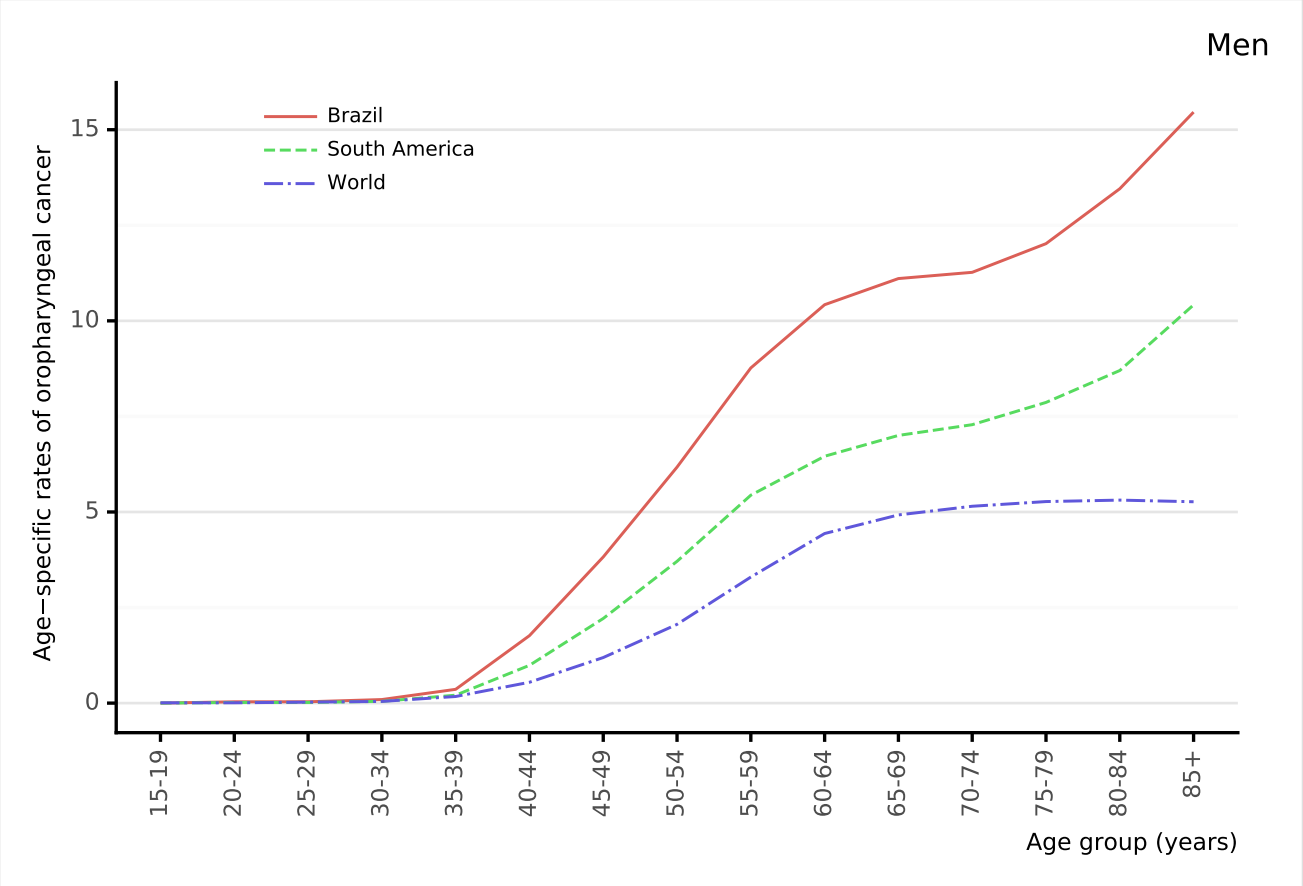
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] 0 cases for Brazil and 0 cases for South America in the 15-19 age group. 1 cases for Brazil and 2 cases for South America in the 20-24 age group. 1 cases for Brazil and 2 cases for South America in the 25-29 age group. 2 cases for Brazil and 2 cases for South America in the 30-34 age group.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 125: Comparison of age-specific oropharyngeal cancer mortality rates among men by age in Brazil, within the region, and the rest of world



Data accessed on 27 Jan 2021

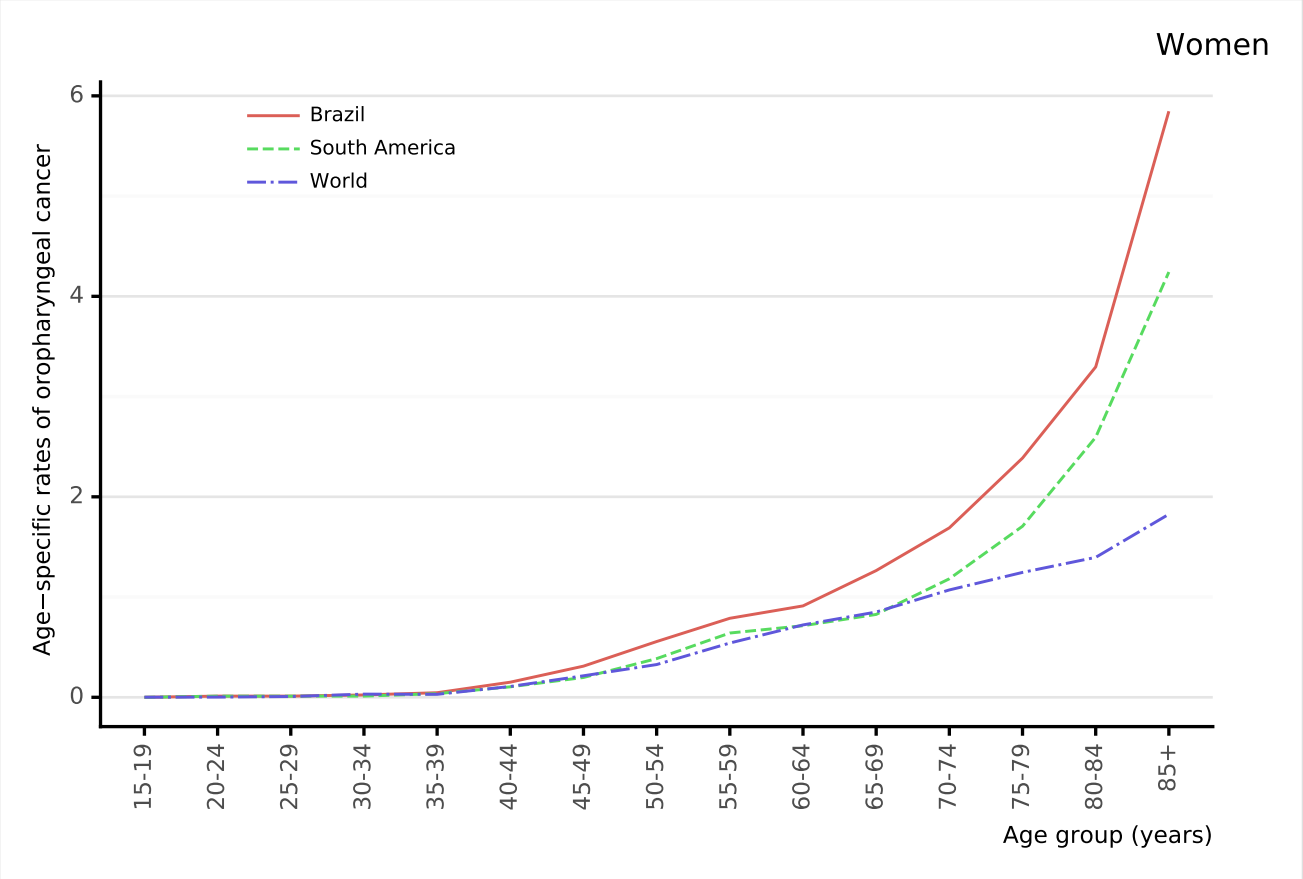
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] Rates per 100,000 men per year.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 126: Comparison of age-specific oropharyngeal cancer mortality rates among women by age in Brazil, within the region, and the rest of world



Data accessed on 27 Jan 2021

For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

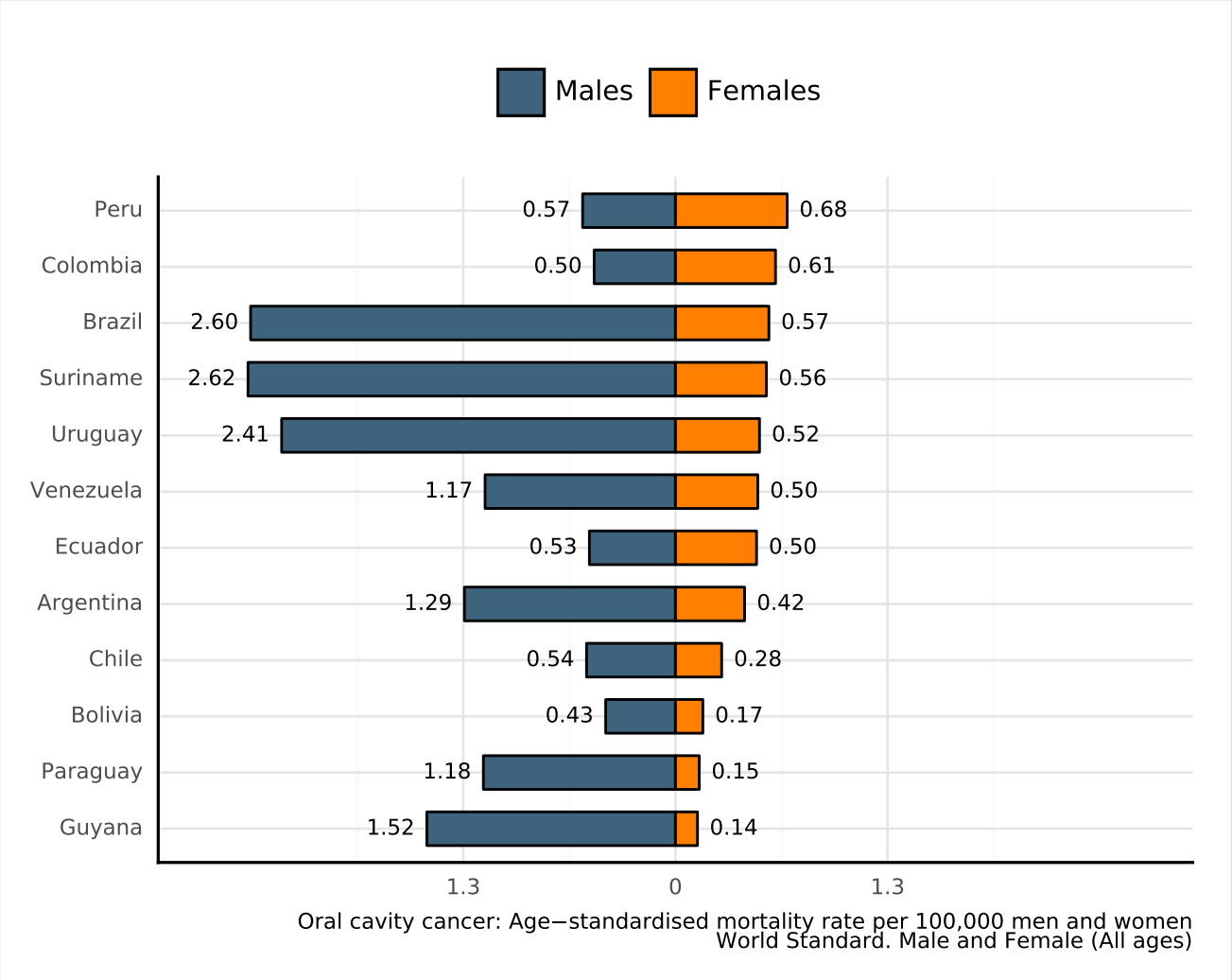
[a] Rates per 100,000 women per year.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

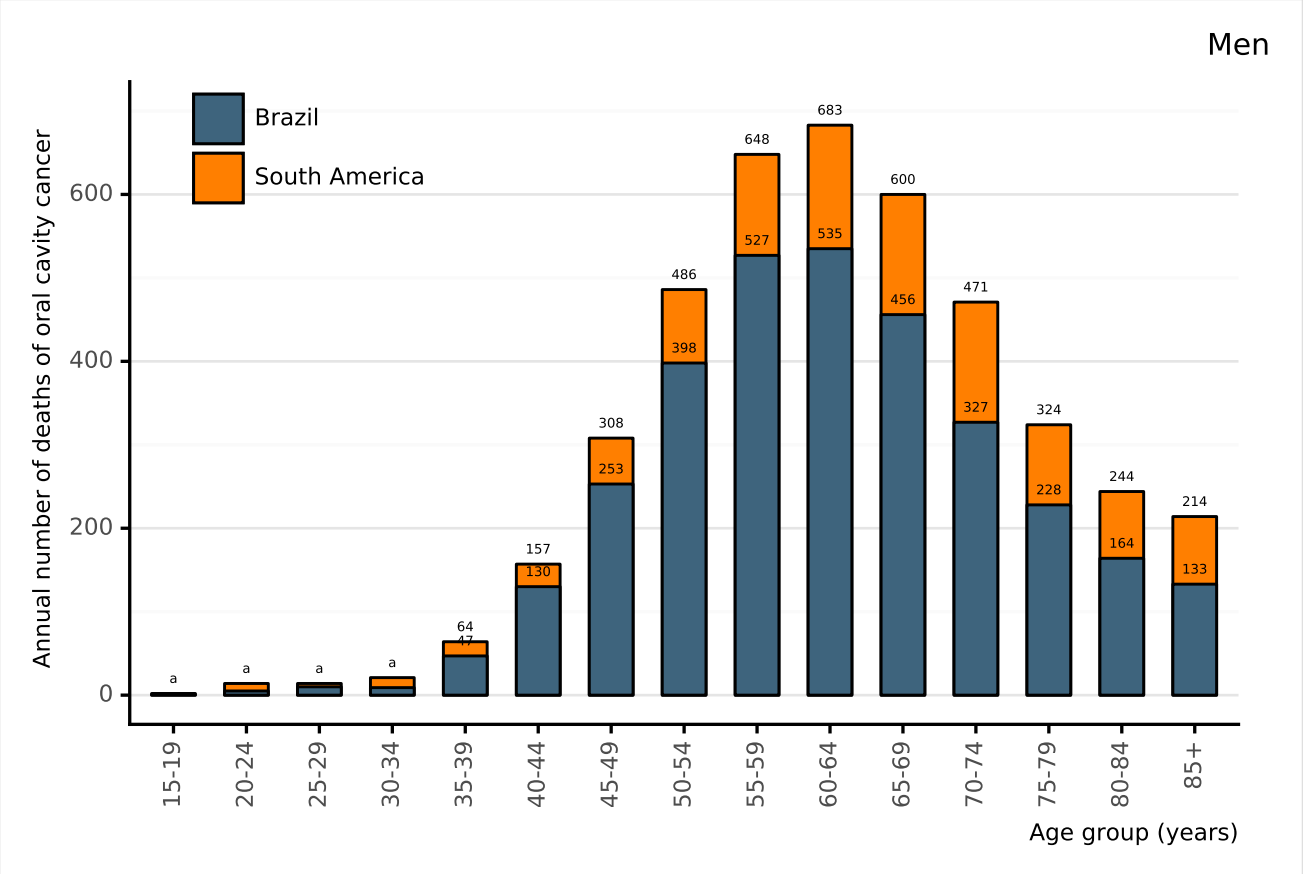
9.2.7 Oral cavity cancer mortality in Brazil across South America

Figure 127: Age-standardised mortality rates of oral cavity cancer of Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 men per year.
[b] Rates per 100,000 women per year.
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 128: Annual number of deaths of oral cavity cancer among men by age group in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021

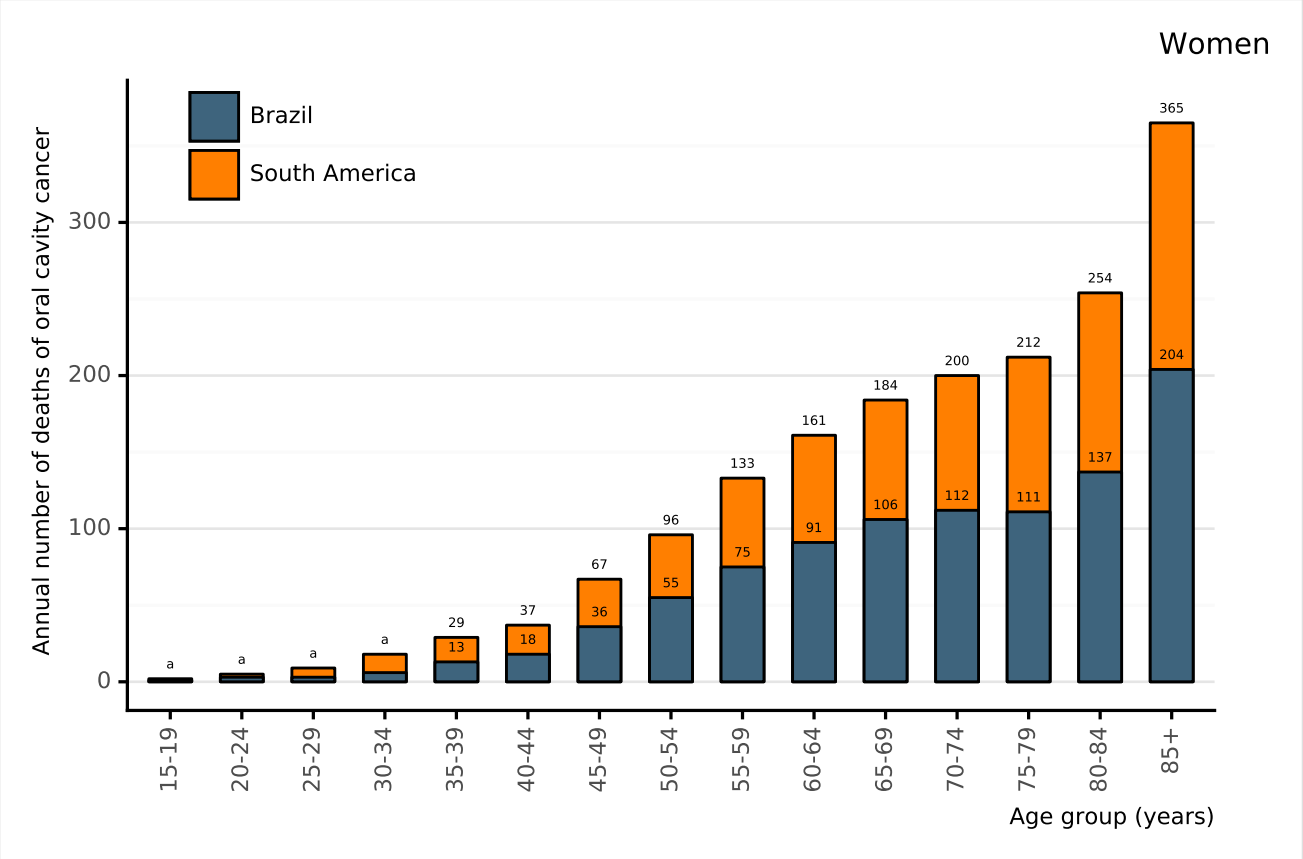
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] 1 cases for Brazil and 2 cases for South America in the 15-19 age group. 5 cases for Brazil and 14 cases for South America in the 20-24 age group. 10 cases for Brazil and 14 cases for South America in the 25-29 age group. 9 cases for Brazil and 21 cases for South America in the 30-34 age group.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 129: Annual number of deaths of oral cavity cancer among women by age group in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021

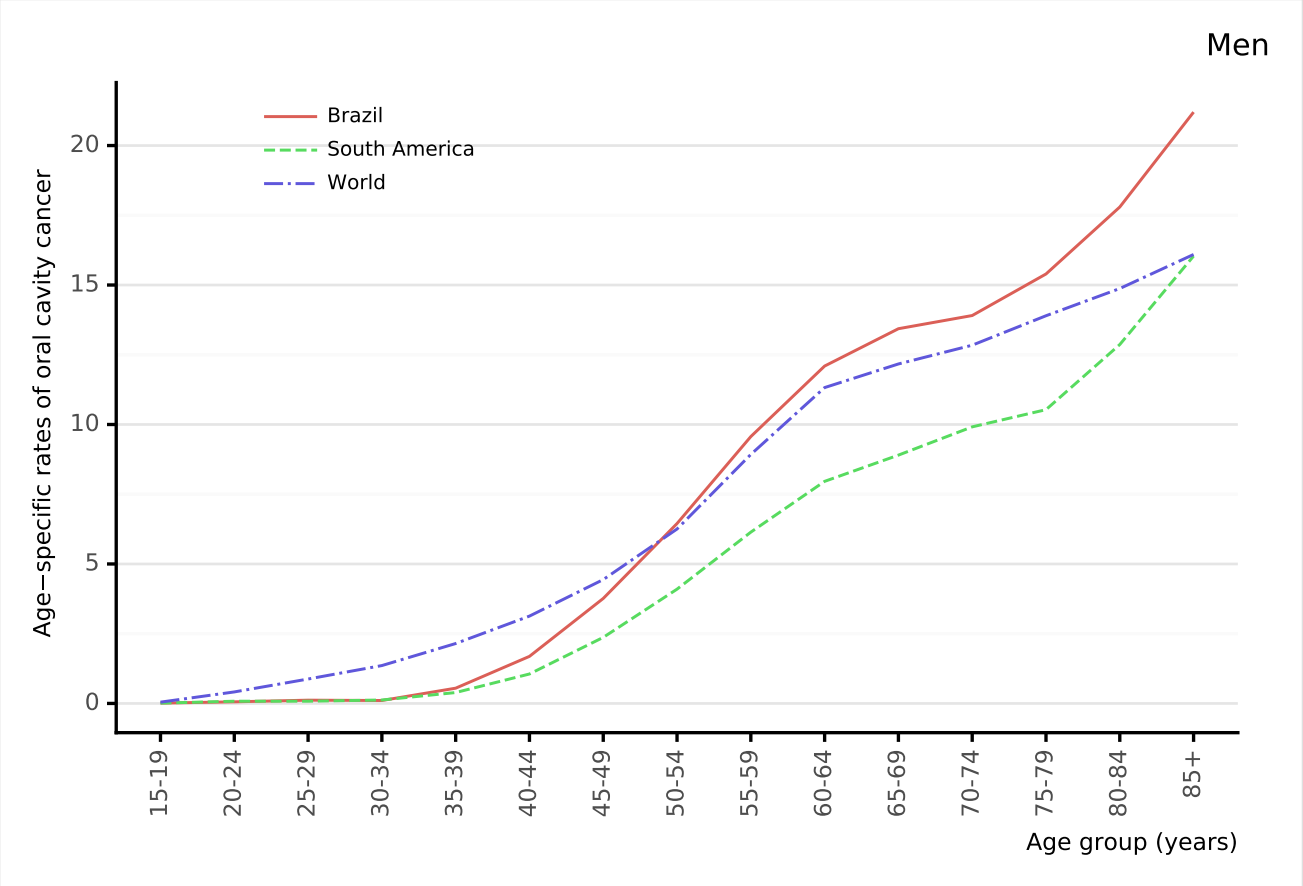
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] 1 cases for Brazil and 2 cases for South America in the 15-19 age group. 3 cases for Brazil and 5 cases for South America in the 20-24 age group. 3 cases for Brazil and 9 cases for South America in the 25-29 age group. 6 cases for Brazil and 18 cases for South America in the 30-34 age group.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 130: Comparison of age-specific oral cavity cancer mortality rates among men by age in Brazil, within the region, and the rest of world



Data accessed on 27 Jan 2021

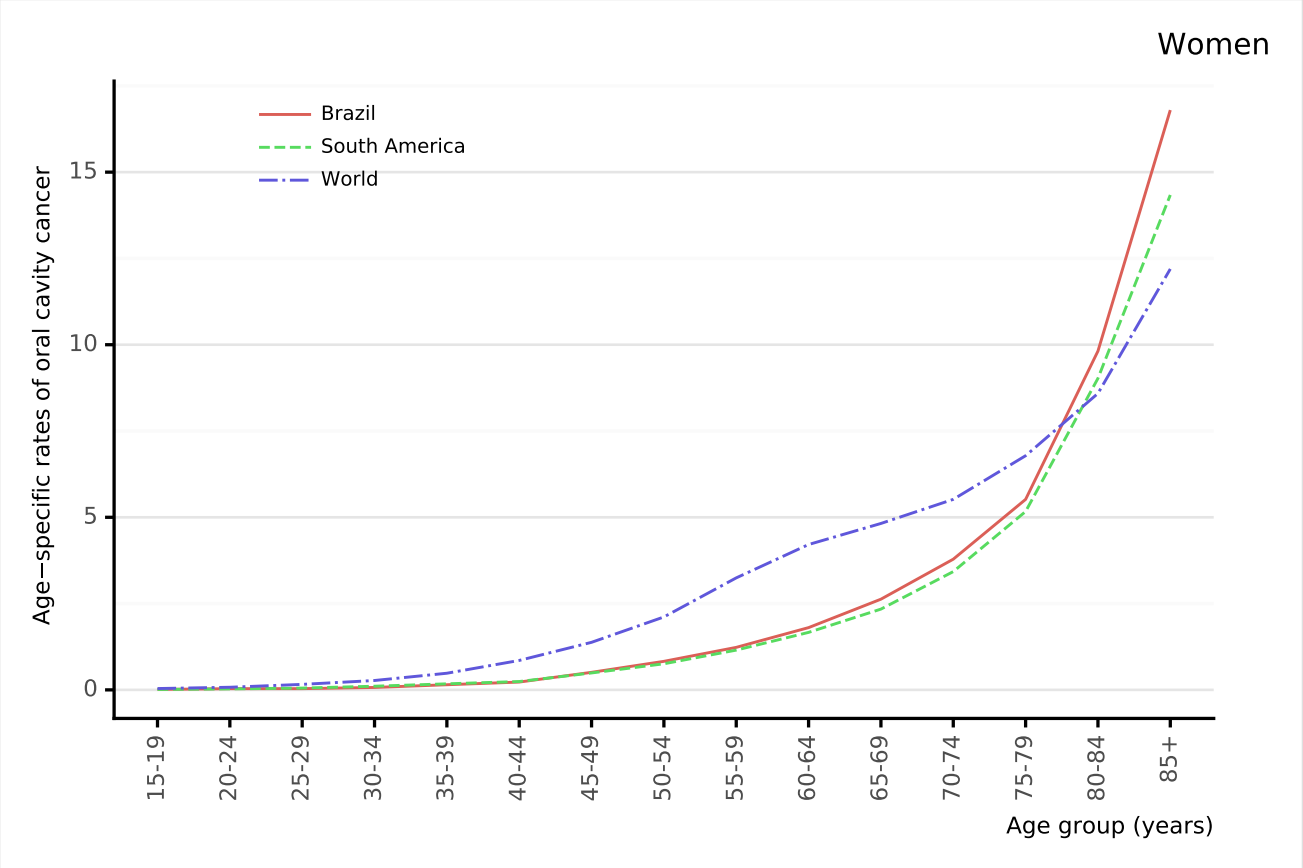
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] Rates per 100,000 men per year.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 131: Comparison of age-specific oral cavity cancer mortality rates among women by age in Brazil, within the region, and the rest of world



Data accessed on 27 Jan 2021

For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

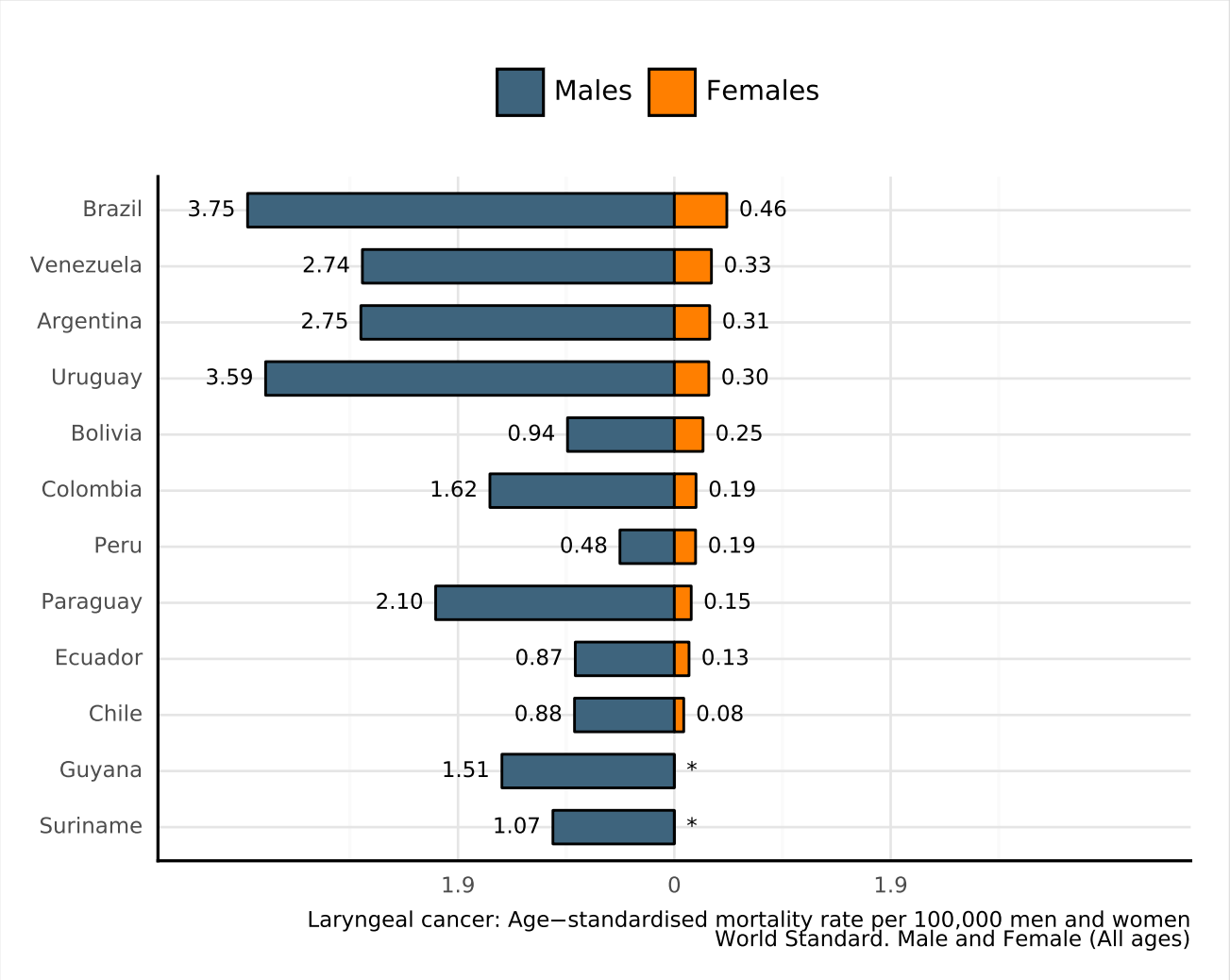
[a] Rates per 100,000 women per year.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

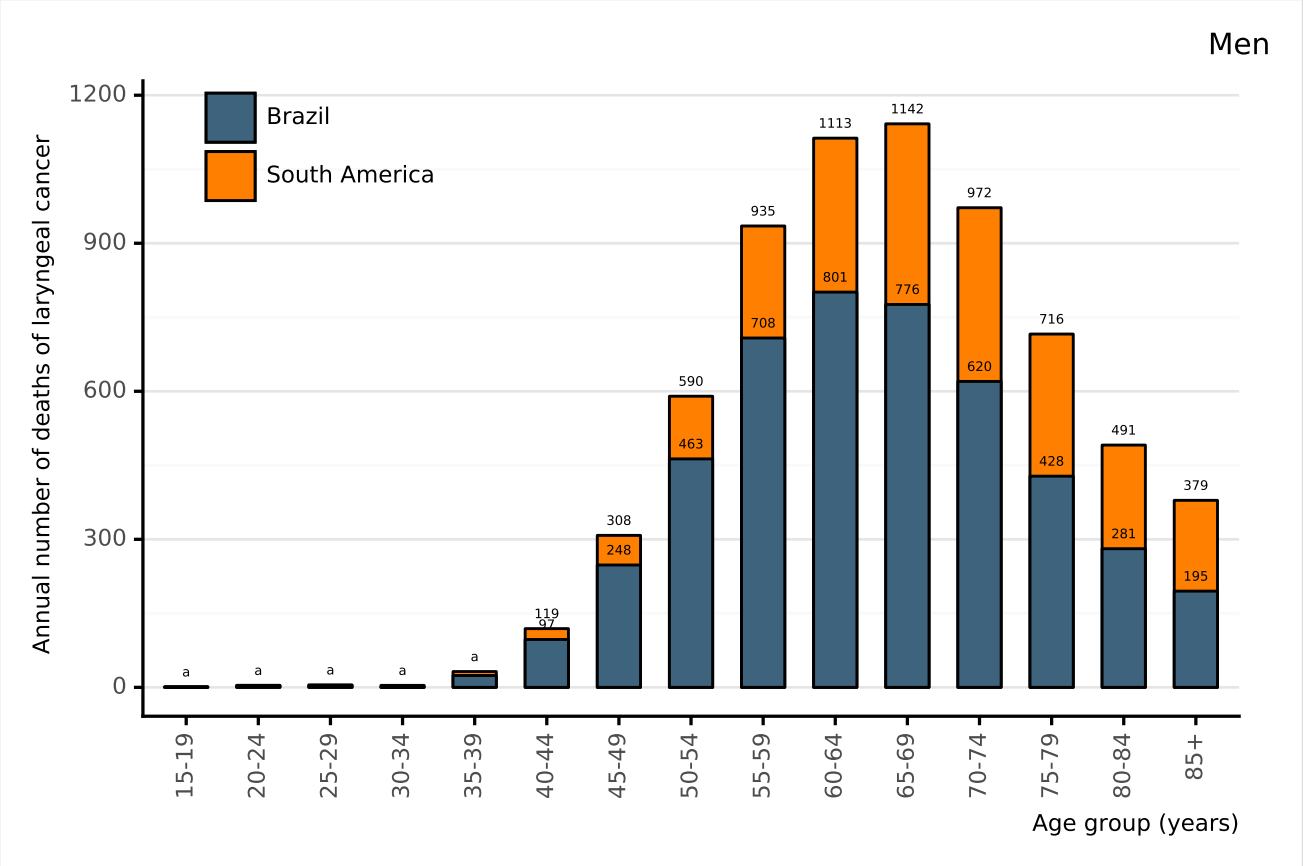
9.2.8 Laryngeal cancer mortality in Brazil across South America

Figure 132: Age-standardised mortality rates of laryngeal cancer of Brazil (estimates for 2020)



Data accessed on 27 Jan 2021
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods
[a] Rates per 100,000 men per year.
[b] Rates per 100,000 women per year.
* Rates are not available
Data Sources:
Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 133: Annual number of deaths of laryngeal cancer among men by age group in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021

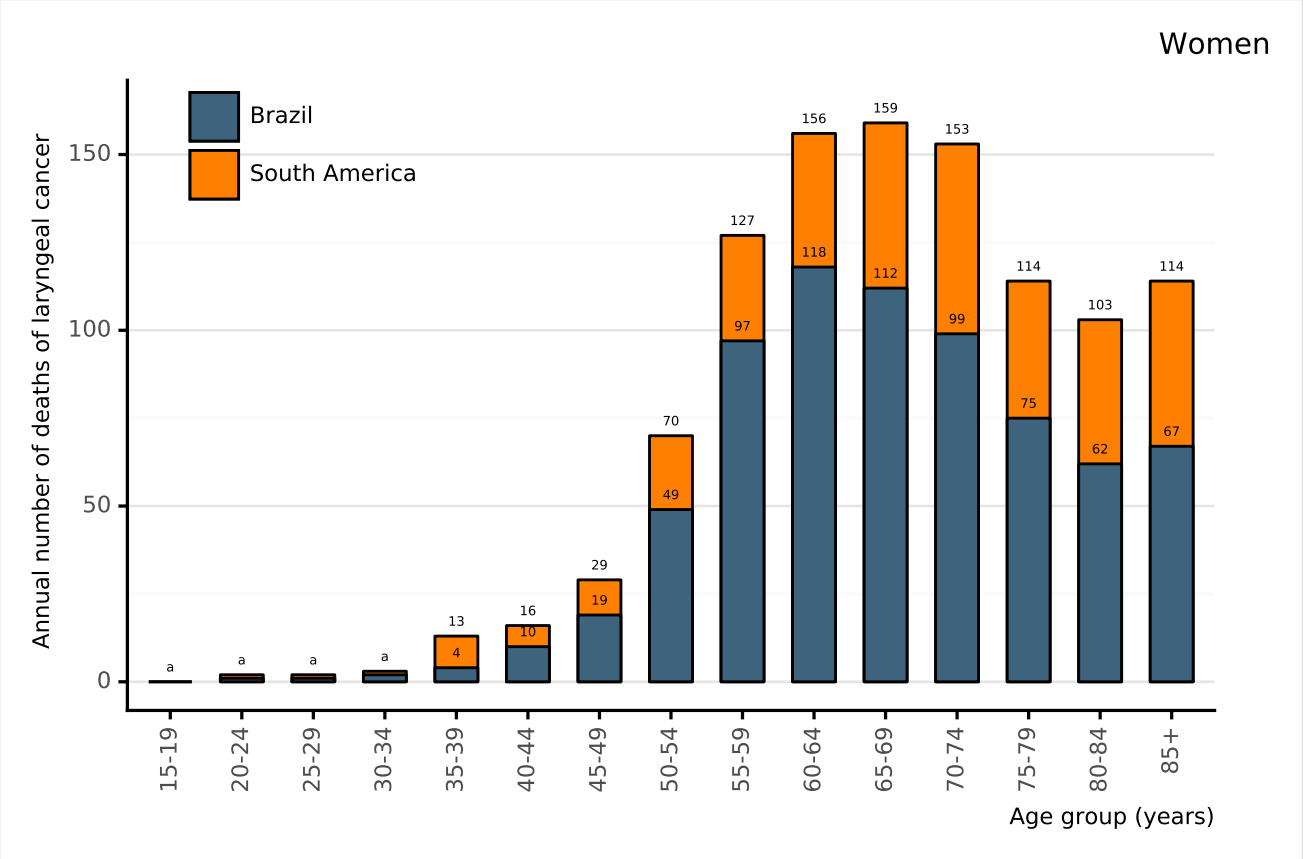
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] 1 cases for Brazil and 1 cases for South America in the 15-19 age group. 4 cases for Brazil and 4 cases for South America in the 20-24 age group. 4 cases for Brazil and 5 cases for South America in the 25-29 age group. 1 cases for Brazil and 4 cases for South America in the 30-34 age group. 24 cases for Brazil and 32 cases for South America in the 35-39 age group.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 134: Annual number of deaths of laryngeal cancer among women by age group in Brazil (estimates for 2020)



Data accessed on 27 Jan 2021

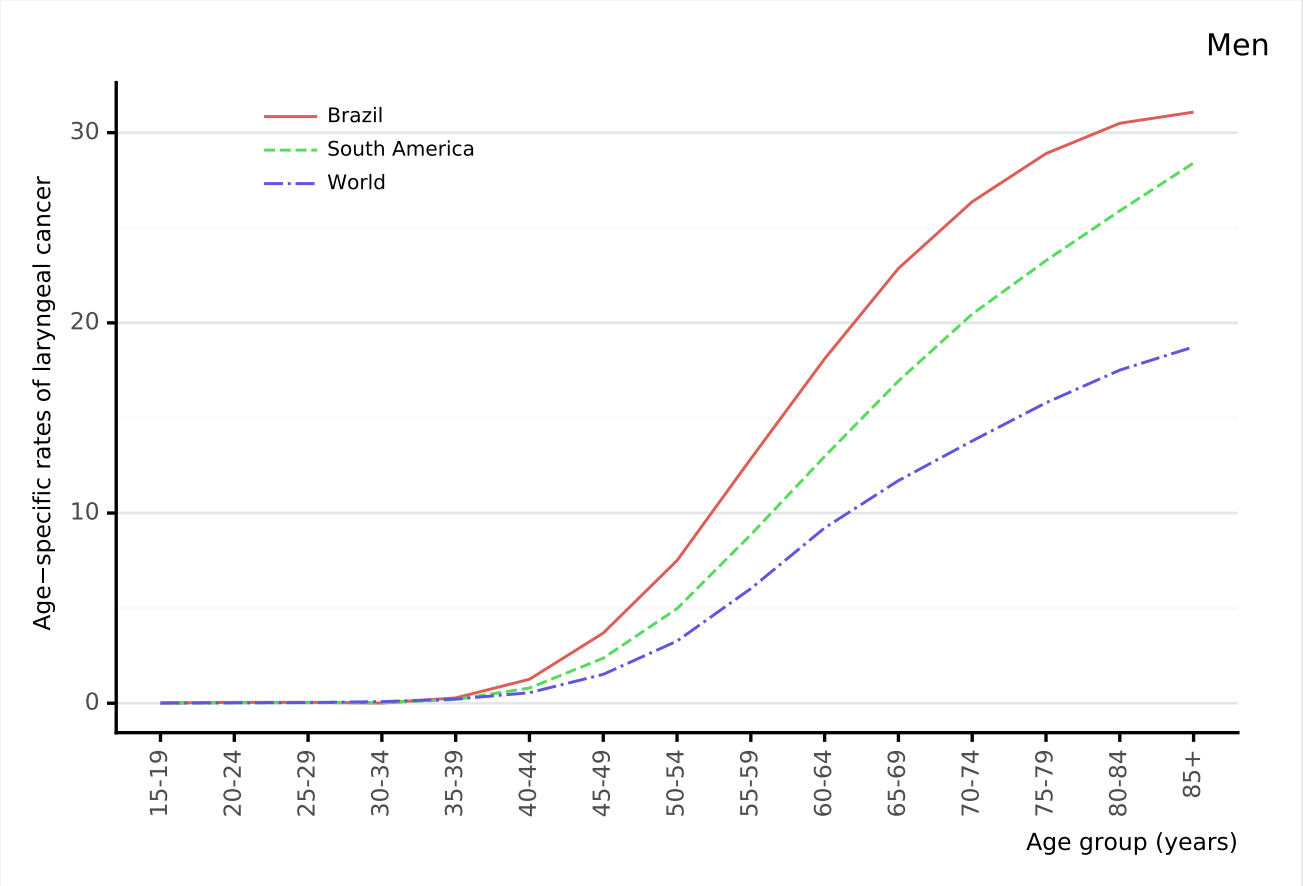
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] 0 cases for Brazil and 0 cases for South America in the 15-19 age group. 1 cases for Brazil and 2 cases for South America in the 20-24 age group. 1 cases for Brazil and 2 cases for South America in the 25-29 age group. 2 cases for Brazil and 3 cases for South America in the 30-34 age group.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 135: Comparison of age-specific laryngeal cancer mortality rates among men by age in Brazil, within the region, and the rest of world



Data accessed on 27 Jan 2021

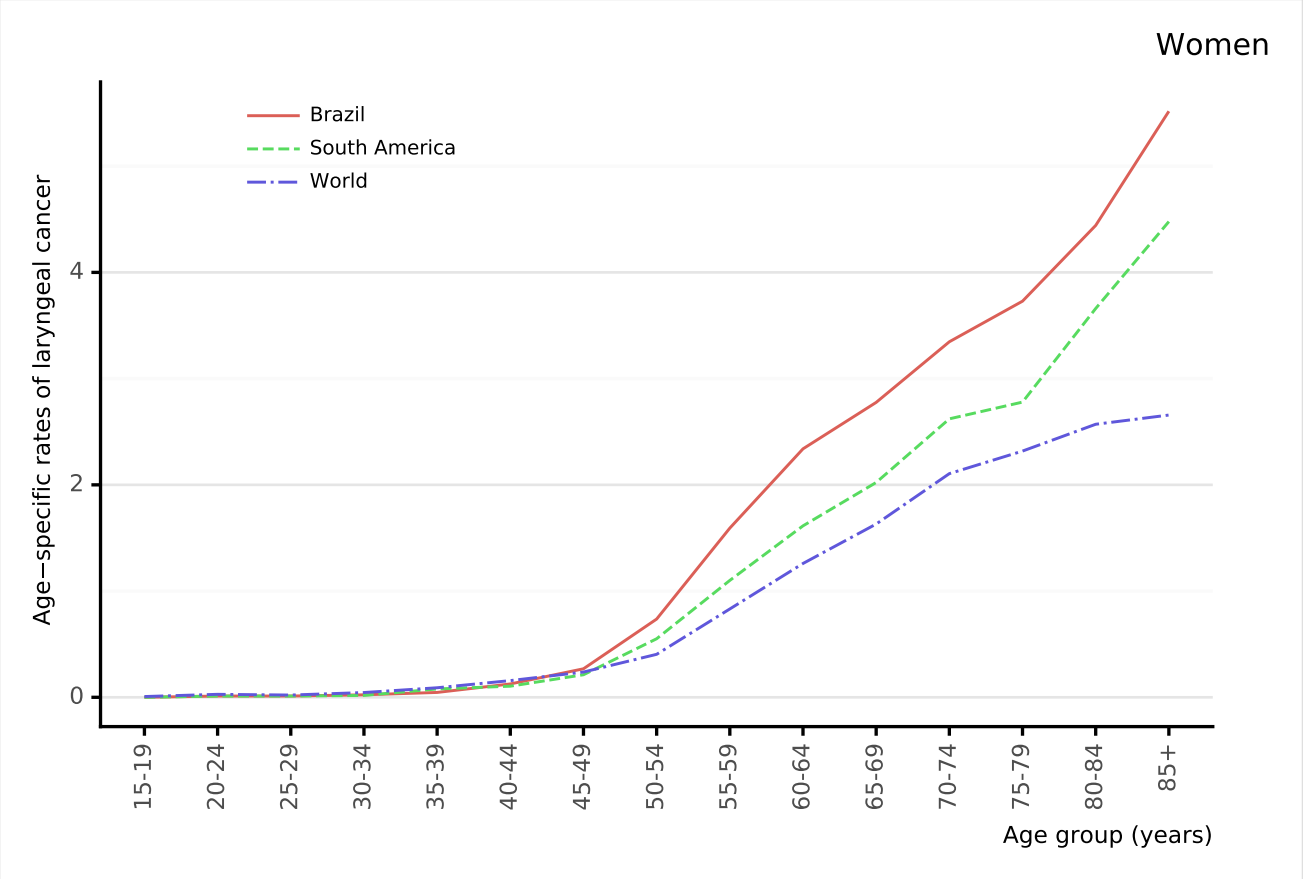
For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] Rates per 100,000 men per year.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

Figure 136: Comparison of age-specific laryngeal cancer mortality rates among women by age in Brazil, within the region, and the rest of world



Data accessed on 27 Jan 2021

For more detailed methods of estimation please refer to http://gco.iarc.fr/today/data-sources-methods

[a] Rates per 100,000 women per year.

Data Sources:

Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2020). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today, accessed [27 January 2021].

10 Glossary

Table 49: Glossary

Term	Definition
Incidence	Incidence is the number of new cases arising in a given period in a specified population. This information is collected routinely by cancer registries. It can be expressed as an absolute number of cases per year or as a rate per 100,000 persons per year (see Crude rate and ASR below). The rate provides an approximation of the average risk of developing a cancer.
Mortality	Mortality is the number of deaths occurring in a given period in a specified population. It can be expressed as an absolute number of deaths per year or as a rate per 100,000 persons per year.
Prevalence	The prevalence of a particular cancer can be defined as the number of persons in a defined population who have been diagnosed with that type of cancer, and who are still alive at the end of a given year, the survivors. Complete prevalence represents the number of persons alive at certain point in time who previously had a diagnosis of the disease, regardless of how long ago the diagnosis was, or if the patient is still under treatment or is considered cured. Partial prevalence , which limits the number of patients to those diagnosed during a fixed time in the past, is a particularly useful measure of cancer burden. Prevalence of cancers based on cases diagnosed within one, three and five are presented as they are likely to be of relevance to the different stages of cancer therapy, namely, initial treatment (one year), clinical follow-up (three years) and cure (five years). Patients who are still alive five years after diagnosis are usually considered cured since the death rates of such patients are similar to those in the general population. There are exceptions, particularly breast cancer. Prevalence is presented for the adult population only (ages 15 and over), and is available both as numbers and as proportions per 100,000 persons.
Crude rate	Data on incidence or mortality are often presented as rates. For a specific tumour and population, a crude rate is calculated simply by dividing the number of new cancers or cancer deaths observed during a given time period by the corresponding number of person years in the population at risk. For cancer, the result is usually expressed as an annual rate per 100,000 persons at risk.
ASR (age-standardised rate)	An age-standardised rate (ASR) is a summary measure of the rate that a population would have if it had a standard age structure. Standardization is necessary when comparing several populations that differ with respect to age because age has a powerful influence on the risk of cancer. The ASR is a weighted mean of the age-specific rates; the weights are taken from population distribution of the standard population. The most frequently used standard population is the World Standard Population. The calculated incidence or mortality rate is then called age-standardised incidence or mortality rate (world). It is also expressed per 100,000. The world standard population used in GLOBOCAN is as proposed by Segi [1] and modified by Doll and al. [2]. The age-standardised rate is calculated using 10 age-groups. The result may be slightly different from that computed using the same data categorised using the traditional 5 year age bands.

Continued on next page

Table 49 – continued from previous page

Term	Definition
Cumulative risk	Cumulative incidence/mortality is the probability or risk of individuals getting/dying from the disease during a specified period. For cancer, it is expressed as the number of new born children (out of 100, or 1000) who would be expected to develop/die from a particular cancer before the age of 75 if they had the rates of cancer observed in the period in the absence of competing causes.
Cytologically normal women	No abnormal cells are observed on the surface of their cervix upon cytology.
Cervical Intraepithelial Neoplasia (CIN) / Squamous Intraepithelial Lesions (SIL)	SIL and CIN are two commonly used terms to describe precancerous lesions or the abnormal growth of squamous cells observed in the cervix. SIL is an abnormal result derived from cervical cytological screening or Pap smear testing. CIN is a histological diagnosis made upon analysis of cervical tissue obtained by biopsy or surgical excision. The condition is graded as CIN 1, 2 or 3, according to the thickness of the abnormal epithelium (1/3, 2/3 or the entire thickness).
Low-grade cervical lesions (LSIL/CIN-1)	Low-grade cervical lesions are defined by early changes in size, shape, and number of ab-normal cells formed on the surface of the cervix and may be referred to as mild dysplasia, LSIL, or CIN-1.
High-grade cervical lesions (HSIL / CIN-2 / CIN-3 / CIS)	High-grade cervical lesions are defined by a large number of precancerous cells on the sur-face of the cervix that are distinctly different from normal cells. They have the potential to become cancerous cells and invade deeper tissues of the cervix. These lesions may be referred to as moderate or severe dysplasia, HSIL, CIN-2, CIN-3 or cervical carcinoma in situ (CIS).
Carcinoma in situ (CIS)	Preinvasive malignancy limited to the epithelium without invasion of the basement membrane. CIN 3 encompasses the squamous carcinoma in situ.
Invasive cervical cancer (ICC) / Cervical cancer	If the high-grade precancerous cells invade the basement membrane is called ICC. ICC stages range from stage I (cancer is in the cervix or uterus only) to stage IV (the cancer has spread to distant organs, such as the liver).
Adenocarcinoma	Invasive tumour with glandular and squamous elements intermingled

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Note to the reader

Anyone who is aware of relevant published data that may not have been included in the present report is encouraged to contact the HPV Information Centre for potential contributions.
Although efforts have been made by the HPV Information Centre to prepare and include as accurately as possible the data presented, mistakes may occur. Readers are requested to communicate any errors to the HPV Information Centre, so that corrections can be made in future volumes.

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