



HPV
INFORMATION
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Human Papillomavirus and Related Diseases Report

OCEANIA

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Abbreviations

Table 1: Abbreviations

Abbreviation	Full term
HPV	Human papillomavirus
PREHDICT Project	Health economic modelling of prevention strategies for HPV-related diseases in European countries
HPV Information Centre	ICO Information Centre on HPV and Cervical Cancer
GW	Genital warts
RRP	Recurrent respiratory papillomatosis
SIL	Squamous intraepithelial lesions
LSIL	Low-grade cervical lesions
HSIL	High-grade cervical lesions
ICC	Invasive cervical cancer
CIS	Carcinoma in situ
CIN	Cervical intraepithelial neoplasia
AIN2/3	Anal intraepithelial neoplasia of grade 2 and/or 3
VIN 2/3	Vulvar intraepithelial neoplasia of grade 2 and/or 3
VaIN 2/3	Vaginal intraepithelial neoplasia of grade 2 and/or 3
PeIN 2/3	Penile intraepithelial neoplasia of grade 2 and/or 3
95% CI	95% confidence interval
N	Number of cases tested
HPV Prev	HPV prevalence
ASR	Age-standardised rate
MSM	Men who have sex with men
Non MSM	Heterosexual men
SCC	Squamous cell carcinomas
STI	Sexually transmitted infections
HIV/AIDS	Human immunodeficiency virus/acquired immunodeficiency syndrome
TS	Type specific
EIA	Enzyme immunoassay
RLBM	Reverse line blotting method
RFLP	Restriction fragment length polymorphism
RHA	Reverse hybridisation assay
RLH	Reverse line hybridisation
LiPA	Line probe assay
SBH	Southern blot hybridisation
ISH	In situ hybridisation
MABA	Micro array-based assay
LBA	Line blot assay
HC2	Hybrid Capture 2
SAT	Suspension array technology
PCR	Polymerase chain reaction
SPF	Short primer fragment
q-PCR	Quantitative polymerase chain reaction
RLBH	Reverse line blot hybridisation
RT-PCR	Real-time polymerase chain reaction
DBH	Dot blot hybridisation
HR	High risk
DSA	Direct sequence analysis
MAA	Microchip array assay

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) as well as head and neck cancers. HPV types 16 and 18 are responsible for about 70% of all cervical cancer cases worldwide. HPV vaccines that prevent HPV 16 and 18 infections are now available and have the potential to reduce the incidence of cervical and other anogenital cancers.

This report provides key information for Oceania on: cervical cancer; other anogenital cancers, and head and neck cancers; HPV-related statistics; factors contributing to cervical cancer; cervical cancer screening practises; HPV vaccine introduction, and other relevant immunization indicators. The report is intended to strengthen the guidance for health policy implementation of primary and secondary cervical cancer prevention strategies in the region.

Oceania has an estimated population of 15.6 million women aged 15 years and older who are at risk of developing cervical cancer. Current estimates indicate that every year 2,195 women are diagnosed with cervical cancer and 1,063 die from the disease. Cervical cancer ranks* as the eight most frequent cancer among women in Oceania.

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

Table 2: Key statistics on Oceania and its regions

	Oceania	Australia & New Zealand	Melanesia	Micronesia	Polynesia
Population					
Women at risk for cervical cancer (Female population aged ≥ 15 yrs) in millions	15.6	12.0	3.2	0.2	0.2
Burden of cervical cancer					
Annual number of new cervical cancer cases	2,195	938	1,198	23	36
Standardised incidence rates per 100,000 population	10.2	5.5	33.3	8.7	11.0
Annual number of cervical cancer deaths	1,063	357	684	6	16
Standardised mortality rates per 100,000 population	4.5	1.5	20.7	2.7	5.1
Burden of cervical HPV infection					
Prevalence (%) of HPV 16 and/or HPV 18 among women with:					
Normal cytology	8.3	8.5	7.7	-	-
Low-grade cervical lesions (LSIL/CIN-1)	27.1	27.1	-	-	-
High-grade cervical lesions (HSIL/ CIN-2 / CIN-3 / CIS)	59.1	58.4	68.8	-	-
Cervical cancer	76.6	76.1	82.9	-	-

LSIL, low-grade intraepithelial lesions; HSIL, high-grade intraepithelial lesions; CIN, cervical intraepithelial neoplasia; CIS, carcinoma in-situ.
Please see the specific sections for more information.

Contents

Abbreviations	iii
Executive summary	iv
1 Introduction	1
2 Demographic and socioeconomic factors	3
3 Burden of HPV-related cancers	6
3.1 Cervical cancer	6
3.1.1 Incidence	6
3.1.2 Mortality	19
3.1.3 Comparison of incidence and mortality	31
3.2 Anogenital cancers other than the cervix	32
3.2.1 Anal cancer	34
3.2.2 Vulvar cancer	37
3.2.3 Vaginal cancer	39
3.2.4 Penile cancer	41
3.3 Head and neck cancers	43
3.3.1 Pharyngeal cancer (excluding nasopharynx)	45
4 HPV-related statistics	51
4.1 HPV burden in women with normal cervical cytology, cervical precancerous lesions or invasive cervical cancer	51
4.1.1 HPV prevalence in women with normal cervical cytology	52
4.1.2 HPV type distribution among women with normal cervical cytology, precancerous cervical lesions and cervical cancer	55
4.1.3 HPV type distribution among HIV+ women with normal cervical cytology	67
4.1.4 Terminology	68
4.2 HPV burden in anogenital cancers other than the cervix	69
4.2.1 Anal cancer and precancerous anal lesions	69
4.2.2 Vulvar cancer and precancerous vulvar lesions	71
4.2.3 Vaginal cancer and precancerous vaginal lesions	73
4.2.4 Penile cancer and precancerous penile lesions	75
4.3 HPV burden in men	77
4.4 HPV burden in the head and neck	78
4.4.1 Burden of oral HPV infection in healthy population	78
4.4.2 HPV burden in head and neck cancers	78
5 Factors contributing to cervical cancer	80
6 Sexual behaviour and reproductive health indicators	84
7 HPV preventive strategies	85
7.1 Cervical cancer screening practices	85
7.2 HPV vaccination	87
7.2.1 HPV vaccine licensure and introduction	87
8 Protective factors for cervical cancer	89
9 References	91
10 Glossary	94

List of Figures

1	Oceanic regions	1
2	Population pyramid of Oceania	3
3	Population trends in four selected age groups in Oceania for 2017	4
4	Age-standardised incidence rates (ASR) of cervical cancer in regions of Oceania (estimates for 2012)	6
5	Age-standardised incidence rates of cervical cancer in Oceania (estimates for 2012)	7
6	Age-standardised incidence rate of cervical cancer cases attributable to HPV by country in Oceania (estimates for 2012)	8
7	Ranking of cervical cancer versus other cancers among all women and women aged 15-44 years, according to incidence rates in Oceania (estimates for 2012)	10
8	Comparison of the ten most frequent cancers in all women in Oceania and its regions (estimates for 2012)	11
9	Comparison of the ten most frequent cancers in women aged 15-44 years by Oceania and its regions (estimates for 2012)	12
10	Age-specific incidence of cervical cancer in Oceania and its regions (estimates for 2012)	13
11	Annual number of new cases of cervical cancer by age group in Oceanic regions (estimates for 2012)	14
12	Annual number of cases and age-specific incidence rates of cervical cancer in Oceania and its regions (estimates for 2012)	15
13	Annual number of cases and age-specific incidence rates of cervical cancer in Oceania and its regions (estimates for 2012) (Continued)	16
14	Time trends in cervical cancer incidence type in Australia (cancer registry data)	18
15	Age-standardised mortality rates (ASR) of cervical cancer in Oceanic regions (estimates for 2012)	19
16	Age-standardised mortality rates of cervical cancer in Oceania (estimates for 2012)	20
17	Ranking of cervical cancer versus other cancers among all women and women aged 15-44 years, according to mortality rates in Oceania (estimates for 2012)	22
18	Comparison of the ten most frequent cancer deaths in women aged 15-44 years in Oceania and its regions (estimates for 2012)	23
19	Comparison of the ten most frequent cancer deaths in women of all ages in Oceania and its regions (estimates for 2012)	25
20	Age-specific mortality of cervical cancer in Oceania and its regions (estimates for 2012)	26
21	Annual number of deaths of cervical cancer by age group in Oceanic regions (estimates for 2012)	27
22	Annual number of deaths and age-specific mortality rates of cervical cancer in Oceania and its regions (estimates for 2012)	28
23	Annual number of deaths and age-specific mortality rates of cervical cancer in Oceania and its regions (estimates for 2012) (Continued)	29
24	Age-specific incidence and mortality rates of cervical cancer in Oceania and its regions (estimates for 2012)	31
25	Age-standardised incidence rates of anogenital cancers other than the cervix in Oceania (estimates for 2012)	32
26	Age-standardised incidence rate of other anogenital cancer cases attributable to HPV by country in Oceania (estimates for 2012)	33
27	Time trends in anal cancer incidence in Australia (cancer registry data)	36
28	Time trends in vulvar cancer incidence in Australia (cancer registry data)	38
29	Time trends in vaginal cancer incidence in Australia (cancer registry data)	40
30	Time trends in penile cancer incidence in Australia (cancer registry data)	42
31	Age-standardised incidence rates of head and neck cancer in Oceania (estimates for 2012)	43
32	Age-standardised incidence rate of head and neck cancer cases attributable to HPV by country in Oceania (estimates for 2012)	44
33	Comparison of cancer incidence and mortality of pharynx (excluding nasopharynx) in males by age group in Oceania and its regions. Includes ICD-10 codes: C09-10,C12-14 (estimates for 2012).	47
34	Comparison of cancer incidence and mortality of pharynx (excluding nasopharynx) in females by age group in Oceania and its regions. Includes ICD-10 codes: C09-10,C12-14 (estimates for 2012).	49
35	Prevalence of HPV among women with normal cervical cytology in Oceania	52
36	Crude age-specific HPV prevalence (%) and 95% confidence interval in women with normal cervical cytology in Oceania and its regions	53
37	Prevalence of HPV among women with normal cervical cytology in Oceania by country and study	54
38	Prevalence of HPV 16 among women with normal cervical cytology in Oceania by country and study	55
39	Prevalence of HPV 16 among women with low-grade cervical lesions in Oceania by country and study	56
40	Prevalence of HPV 16 among women with high-grade cervical lesions in Oceania by country and study	57
41	Prevalence of HPV 16 among women with invasive cervical cancer in Oceania by country and study	58
42	Comparison of the ten most frequent HPV oncogenic types among women with and without cervical lesions in Oceania and its regions	59
43	Comparison of the ten most frequent HPV oncogenic types among women with and without cervical lesions in Oceania and its regions (continued)	61
44	Comparison of the ten most frequent HPV oncogenic types among women with invasive cervical cancer by histology in Oceania and its regions	63

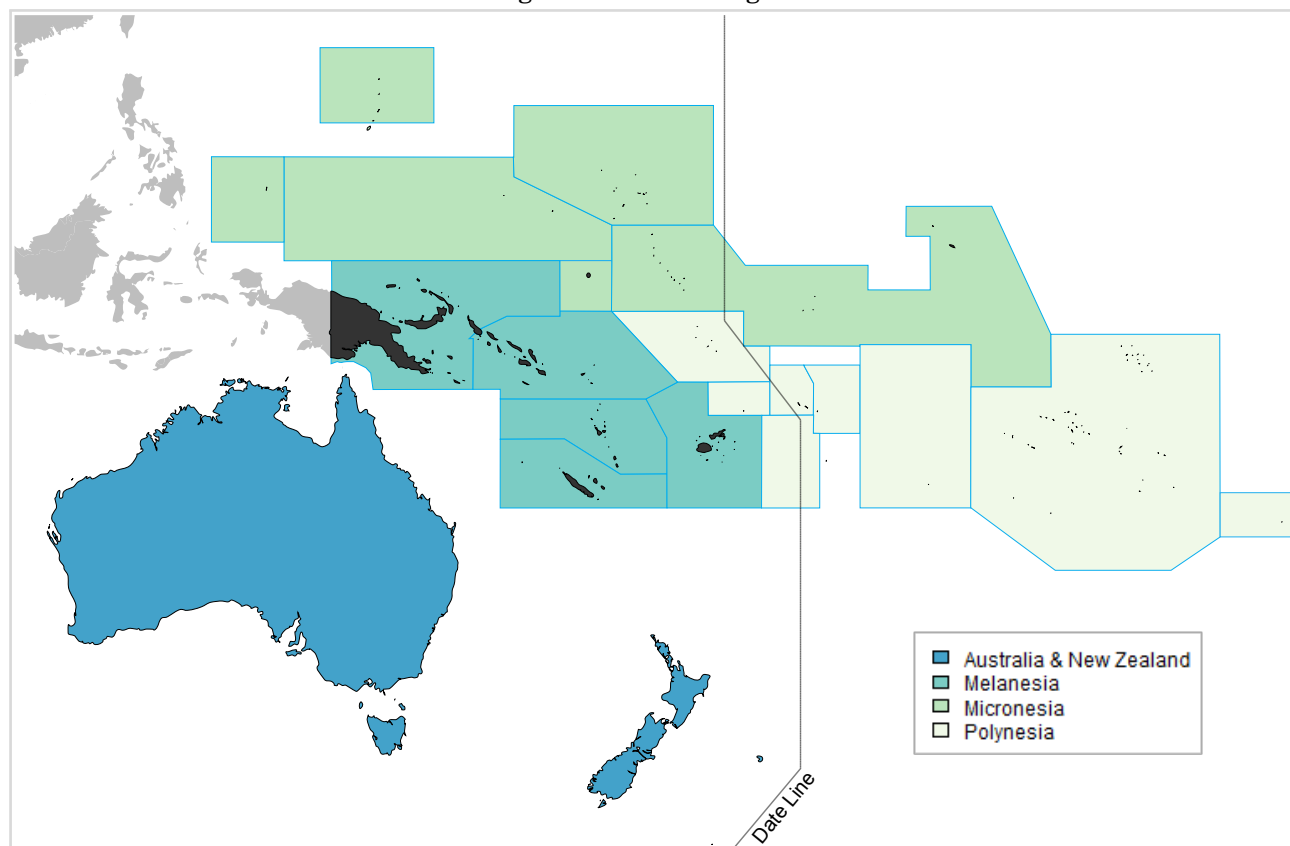
45	Comparison of the ten most frequent HPV oncogenic types among women with invasive cervical cancer by histology in Oceania and its regions (continued)	64
46	Comparison of the ten most frequent HPV types in anal cancer cases in Oceania and the World	70
47	Comparison of the ten most frequent HPV types in AIN 2/3 cases in Oceania and the World	70
48	Comparison of the ten most frequent HPV types in cases of vulvar cancer in Oceania and the World	72
49	Comparison of the ten most frequent HPV types in VIN 2/3 cases in Oceania and the World	72
50	Comparison of the ten most frequent HPV types in vaginal cancer cases in Oceania and the World	74
51	Comparison of the ten most frequent HPV types in VaIN 2/3 cases in Oceania and the World	74
52	Comparison of the ten most frequent HPV types in penile cancer cases in Oceania and the World	76
53	Comparison of the ten most frequent HPV types in PeIN 2/3 cases in Oceania and the World	76
54	Prevalence of female tobacco smoking in Oceania	80
55	Total fertility rates in Oceania	81
56	Prevalence of hormonal contraceptive use in Oceania	82
57	Prevalence of HIV in Oceania	83
58	Percentage of 15-year-old girls who report sexual intercourse in Oceania	84
59	Status of HPV vaccination programmes in Oceania	87
60	Prevalence of male circumcision in Oceania	89
61	Prevalence of condom use in Oceania	90

List of Tables

1	Abbreviations	iii
2	Key statistics on Oceania and its regions	iv
3	Population (in millions) estimates in Oceania for 2017	3
4	Sociodemographic indicators in Oceania	5
5	Incidence of cervical cancer in Oceania (estimates for 2012)	9
6	Cervical cancer mortality in Oceania (estimates for 2012)	20
7	Incidence of anal cancer in Oceania by cancer registry and sex	34
8	Incidence of vulvar cancer in Oceania by cancer registry	37
9	Incidence of vaginal cancer in Oceania by cancer registry	39
10	Incidence of penile cancer in Oceania by cancer registry	41
11	Cancer incidence of pharynx (excluding nasopharynx) in Oceania and its regions by sex. Includes ICD-10 codes: C09-10, C12-14 (estimates for 2012).	45
12	Cancer mortality of pharynx (excluding nasopharynx) in Oceania and its regions by sex. Includes ICD-10 codes: C09-10, C12-14 (estimates for 2012).	45
13	Prevalence of HPV 16/18 in women with normal cytology, precancerous cervical lesions and invasive cervical cancer in Oceania	55
14	Type-specific HPV prevalence in women with normal cervical cytology, precancerous cervical lesions and invasive cervical cancer in Oceania	65
15	Type-specific HPV prevalence among invasive cervical cancer cases in Oceania by histology	66
16	Oceanic studies on HPV prevalence among HIV women with normal cytology	67
17	Oceanic studies on HPV prevalence among anal cancer cases (male and female)	69
18	Oceanic studies on HPV prevalence among AIN 2/3 cases (male and female)	69
19	Oceanic studies on HPV prevalence among vulvar cancer cases	71
20	Oceanic studies on HPV prevalence among VIN 2/3 cases	71
21	Oceanic studies on HPV prevalence among vaginal cancer cases	73
22	Oceanic studies on HPV prevalence among VaIN 2/3 cases	73
23	Oceanic studies on HPV prevalence among penile cancer cases	75
24	Oceanic studies on HPV prevalence among PeIN 2/3 cases	75
25	Oceanic studies on anogenital HPV prevalence among men	77
26	Oceanic studies on anogenital HPV prevalence among men from special subgroups	77
27	Oceanic studies on oral HPV prevalence among healthy population	78
28	Oceanic studies on HPV prevalence among cases of oral cavity cancer	79
29	Oceanic studies on HPV prevalence in cases of oropharyngeal cancer	79
30	Oceanic studies on HPV prevalence in cases of hypopharyngeal or laryngeal cancer	79
31	Cervical cancer screening policies in Oceania	85
32	HPV vaccination policies for the female population in Oceania	88
33	References of studies included	91
34	Glossary	94

1 Introduction

Figure 1: Oceanic regions



The HPV Information Centre aims to compile and centralise updated data and statistics on human papillomavirus (HPV) and HPV-related cancers. This report aims to summarise the data available to fully evaluate the burden of disease in Oceania 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, and cervical screening and immunisation practises. The report is structured into the following sections:

Section 2, Demographic and socioeconomic factors. This section summarises the sociodemographic profile of Oceania. For analytical purposes, Oceania is divided into four regions: Australia & New Zealand, Melanesia, Micronesia, Polynesia (Figure 1).

Section 3, Burden of HPV-related cancers. This section describes the current burden of invasive cervical cancer and other HPV-related cancers in Oceania with estimates of prevalence, incidence and mortality rates.

Section 4, HPV-related statistics. This section summarises reports on prevalence of HPV and HPV type-specific distribution in women with normal cytology, women with precancerous lesions and invasive cervical cancer. In addition, the burden of HPV in other anogenital cancers (anus, vulva, vagina, and penis) is 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 the use of smoking, parity, oral contraceptive use and co-infection with HIV.

Section 6, Sexual behaviour and reproductive health indicators. This section presents sexual and reproductive behaviour indicators that may be used as proxy measures of risk for HPV infection and anogenital cancers.

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 the prevalence of male circumcision and condom use.

2 Demographic and socioeconomic factors

Table 3: Population (in millions) estimates in Oceania for 2017

Region / Country	Male			Female		
	10-14 years	15+ years	Total	10-14 years	15+ years	Total
Oceania^{1,±}	1.56	15.39	20.27	1.47	15.60	20.20
Australia & New Zealand^{1,±}	0.92	11.70	14.56	0.87	11.97	14.69
Australia ^{1,a,±}	0.76	9.92	12.31	0.73	10.06	12.33
New Zealand ^{1,±}	0.15	1.78	2.25	0.15	1.91	2.36
Melanesia^{1,±}	0.58	3.26	5.09	0.54	3.19	4.90
Fiji ^{1,±}	0.04	0.33	0.46	0.04	0.32	0.44
Papua N. Guinea ^{1,±}	0.47	2.55	4.05	0.44	2.50	3.89
Solomon Is. ^{1,±}	0.04	0.19	0.31	0.04	0.18	0.30
Vanuatu ^{1,±}	0.02	0.09	0.14	0.01	0.09	0.14
Micronesia^{1,b,±}	0.03	0.19	0.27	0.03	0.19	0.27
FS Micronesia ^{1,±}	0.01	0.04	0.05	0.01	0.03	0.05
Kiribati ^{1,±}	0.01	0.04	0.06	0.01	0.04	0.06
Marshall Is. ^{2,±}	0.00	0.02	0.04	0.00	0.02	0.04
Nauru ^{2,±}	0.00	0.00	0.00	0.00	0.00	0.01
Palau ^{2,±}	0.00	0.01	0.01	0.00	0.01	0.01
Polynesia^{1,c,±}	0.03	0.25	0.35	0.03	0.24	0.34
Samoa ^{1,±}	0.01	0.06	0.10	0.01	0.06	0.09
Tonga ^{1,±}	0.01	0.03	0.05	0.01	0.04	0.05
Tuvalu ^{2,±}	0.00	0.00	0.01	0.00	0.00	0.01
Cook Is.^{2,±}	0.00	0.00	0.00	0.00	0.00	0.00
Niue¹	-	-	-	-	-	-

Data accessed on 27 Mar 2017.

Please refer to original source for methods of estimation.

^a Including Christmas Island, Cocos (Keeling) Islands and Norfolk Island.

^b Including Marshall Islands, Nauru, Northern Mariana Islands, and Palau.

^c Including American Samoa, Cook Islands, Niue, Pitcairn, Tokelau, Tuvalu, and Wallis and Futuna Islands.

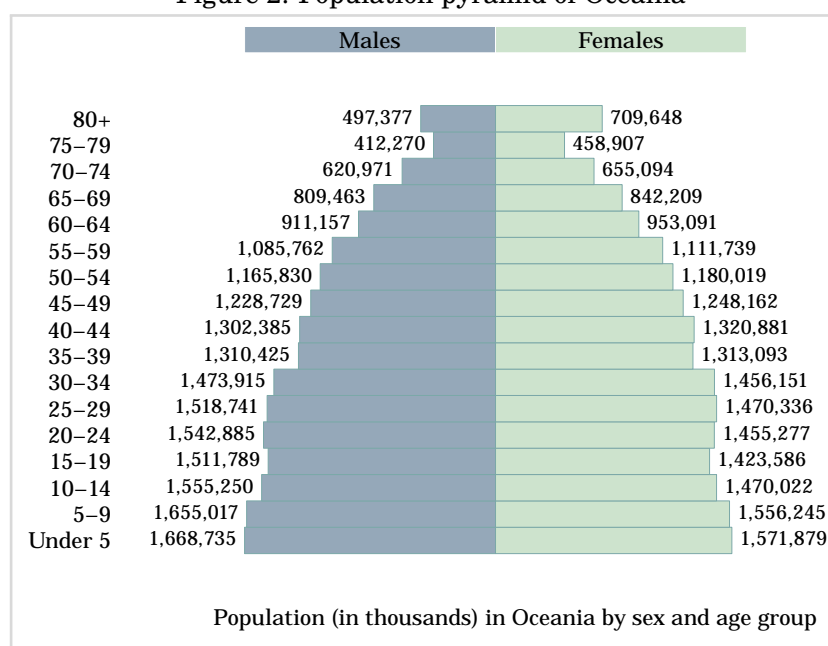
Year of estimate: [±] 2017;

Data sources:

¹ United Nations, Department of Economic and Social Affairs, Population Division (2015). World Population Prospects: The 2015 Revision, DVD Edition. Available at: <https://esa.un.org/unpd/wpp/Download/Standard/Population/>. [Accessed on March 21, 2017].

² International Programs Center for Demographic and Economic Studies, Population Division, U.S. Census Bureau. International Database. Available at <http://www.census.gov/population/international/data/idb/informationGateway.php>. [Accessed on March 21, 2017].

Figure 2: Population pyramid of Oceania



Data accessed on 27 Mar 2017.

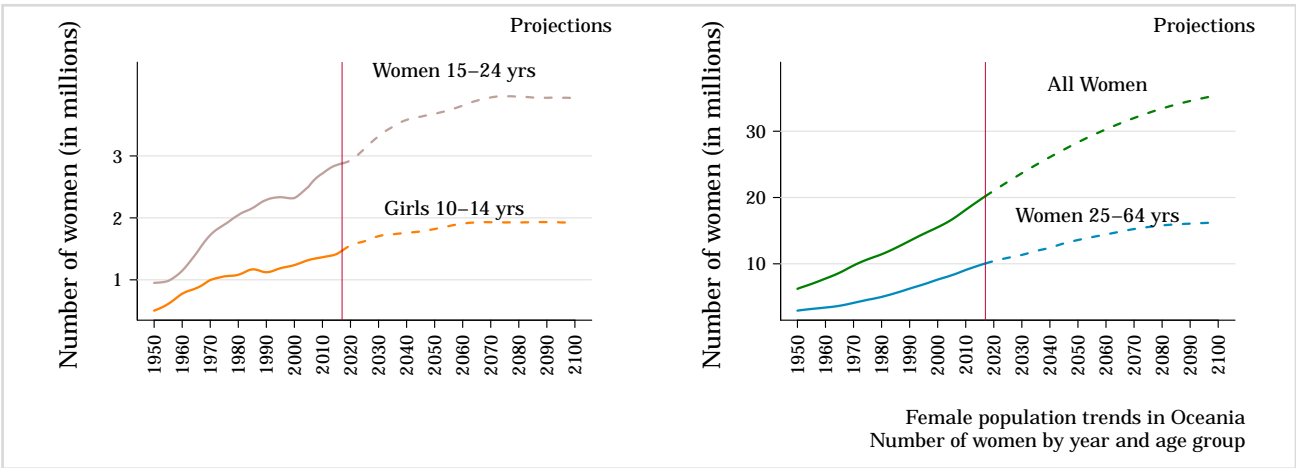
Please refer to original source for methods of estimation.

Year of estimate: 2017;

Data sources:

United Nations, Department of Economic and Social Affairs, Population Division (2015). World Population Prospects: The 2015 Revision, DVD Edition. Available at: <https://esa.un.org/unpd/wpp/Download/Standard/Population/>. [Accessed on March 21, 2017].

Figure 3: Population trends in four selected age groups in Oceania for 2017



Data accessed on 27 Mar 2017.

Please refer to original source for methods of estimation.

Year of estimate: 2017;

Data sources:

United Nations, Department of Economic and Social Affairs, Population Division (2015). World Population Prospects: The 2015 Revision, DVD Edition. Available at: <https://esa.un.org/unpd/wpp/Download/Standard/Population/>. [Accessed on March 21, 2017].

Table 4: Sociodemographic indicators in Oceania

Indicator	Male	Female	Total
Population in thousands ^{1,±}	20,270.7	20,196.3	40,467.0
Population growth rate (%) ^{1,∓}	-	-	1.5
Median age of the population (in years) ^{1,*}	-	-	32.9
Population living in urban areas (%) ^{2,*}	-	-	70.8
Crude birth rate (births per 1,000) ^{1,∓}	-	-	17.3
Crude death rate (deaths per 1,000) ^{1,∓}	-	-	6.9
Life expectancy at birth (in years) ^{3,a,b}	-	-	-
Adult mortality rate (probability of dying between 15 and 60 years old per 1,000) ⁴	-	-	-
Under age five mortality rate (per 1,000 live births) ^{3,c}	-	-	-
Density of physicians (per 1,000 population) ^{5,d}	-	-	-
Gross national income per capita (PPP current international \$) ^{6,e}	-	-	-
Adult literacy rate (%) (aged 15 and older) ^{7,*}	72	69.3	70.7
Youth literacy rate (%) (aged 15-24 years) ^{7,*}	74.6	70.5	72.6
Net primary school enrollment ratio ^{7,f,*}	89.8	84.7	87.3
Net secondary school enrollment ratio ^{7,f,°}	69.7	72.5	71.1

Data accessed on 27 Mar 2017.

Please refer to original source for methods of estimation.

^a World Population Prospects, the 2015 revision (WPP2015). New York (NY): United Nations DESA, Population Division.^b WHO annual life tables for 1985–2015 based on the WPP2015, on the data held in the WHO Mortality Database and on HIV mortality estimates prepared by UNAIDS. WHO Member States with a population of less than 90 000 in 2015 were not included in the analysis.^c Levels & Trends in Child Mortality. Report 2015. Estimates Developed by the UN Inter-agency Group for Child Mortality Estimation. New York (NY), Geneva and Washington (DC): United Nations Children's Fund, World Health Organization, World Bank and United Nations; 2015 (http://www.unicef.org/publications/files/Child_Mortality_Report_2015_Web_9_Sept_15.pdf, accessed 26 March 2016).^d Number of medical doctors (physicians), including generalist and specialist medical practitioners, per 1 000 population.^e GNI per capita based on purchasing power parity (PPP). PPP GNI is gross national income (GNI) converted to international dollars using purchasing power parity rates. An international dollar has the same purchasing power over GNI as a U.S. dollar has in the United States. GNI is the sum of value added by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad. Data are in current international dollars based on the 2011 ICP round.^f UIS Estimation

Year of estimate: ± 2017; ∓ 2010–2015; * 2015; ° 2013; ° 2014;

Data sources:¹ United Nations, Department of Economic and Social Affairs, Population Division (2015). World Population Prospects: The 2015 Revision, DVD Edition. Available at: <https://esa.un.org/unpd/wpp/Download/Standard/Population/>. [Accessed on March 21, 2017].² United Nations, Department of Economic and Social Affairs, Population Division (2014). World Urbanization Prospects: The 2014 Revision, CD-ROM Edition. Available at: <https://esa.un.org/unpd/wup/CD-ROM/>. [Accessed on March 21, 2017].³ World Health Statistics 2016. Geneva, World Health Organization, 2016. Available at: http://who.int/entity/gho/publications/world_health_statistics/2016/en/index.html. [Accessed on March 21, 2017].⁴ World Health Organization. Global Health Observatory data repository. Available at: <http://apps.who.int/gho/data/view.main.1360?lang=en>. [Accessed on March 21, 2017].⁵ The 2016 update, Global Health Workforce Statistics, World Health Organization, Geneva (<http://www.who.int/hrh/statistics/hwfstats/>). [Accessed on March 21, 2017].⁶ World Bank, World Development Indicators Database. Washington, DC. International Comparison Program database. Available at: <http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators#>. [Accessed on March 21, 2017].⁷ UNESCO Institute for Statistics Data Centre [online database]. Montreal, UNESCO Institute for Statistics. Available at: <http://stats.uis.unesco.org> [Accessed on March 21, 2017].

3 Burden of HPV-related cancers

3.1 Cervical cancer

Cancer of the cervix uteri is the 4th most common cancer among women worldwide, with an estimated 527,624 new cases and 265,672 deaths in 2012 (GLOBOCAN). 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 Oceania and its regions with estimates of the annual number of new cases, deaths, incidence and mortality.

3.1.1 Incidence

KEY STATS

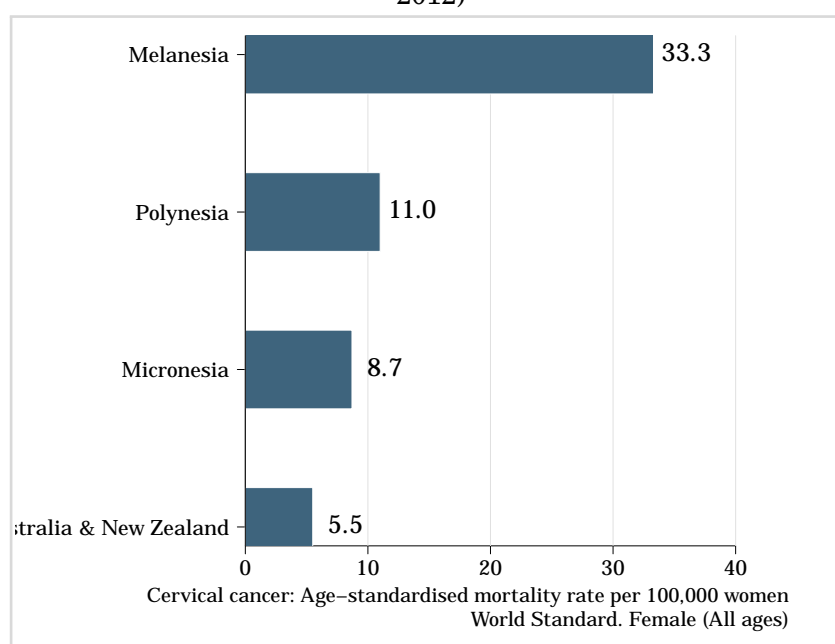
About 2,195 new cervical cancer cases are diagnosed annually in Oceania (estimates for 2012).

Cervical cancer ranks* as the 8th leading cause of female cancer in Oceania.

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

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

Figure 4: Age-standardised incidence rates (ASR) of cervical cancer in regions of Oceania (estimates for 2012)



Data accessed on 15 Nov 2015.

(Continued on next page)

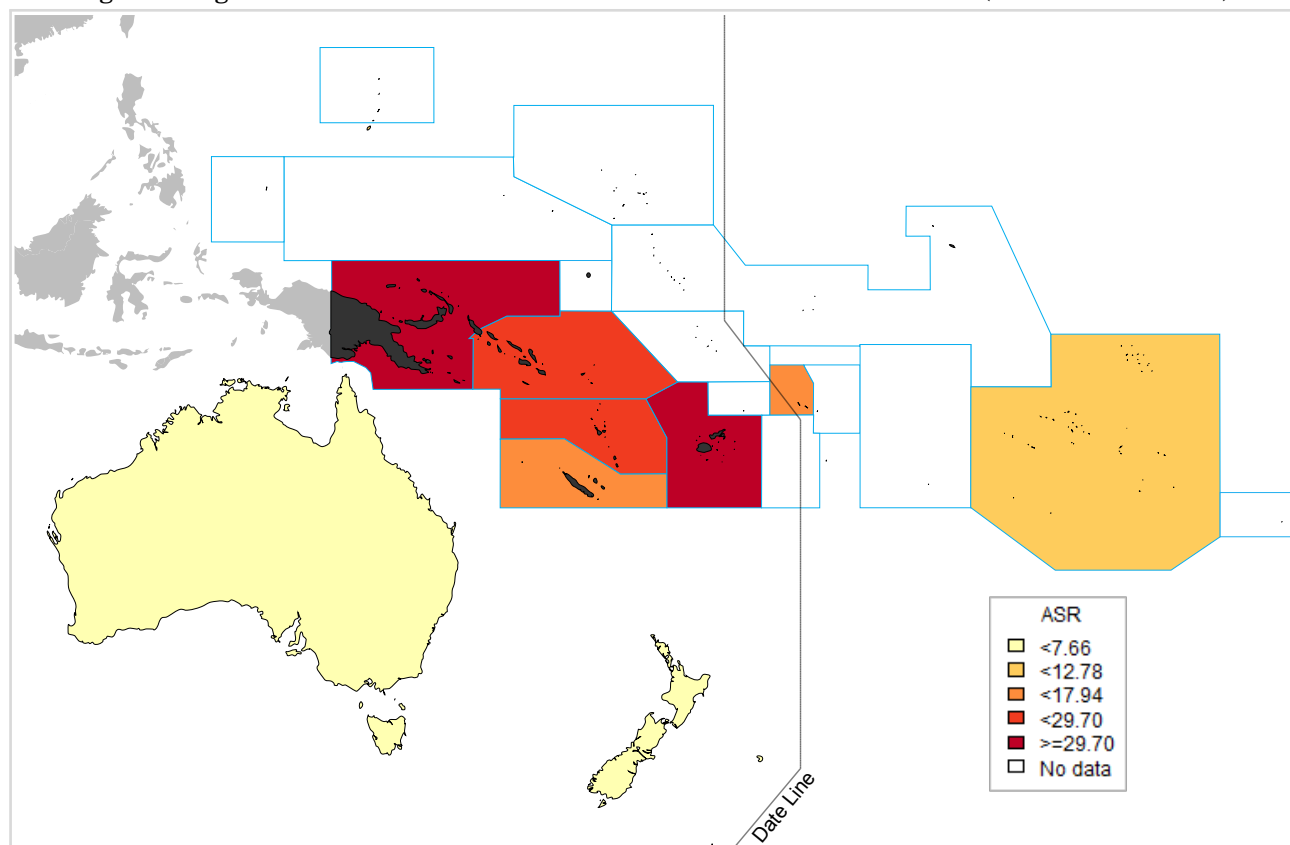
(Figure 4 – continued from previous page)

Rates per 100,000 women per year.

Data sources:

Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, Mathers C, Rebelo M, Parkin DM, Forman D, Bray F. GLOBOCAN 2012 v1.2, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer; 2013. Available from: <http://globocan.iarc.fr>.

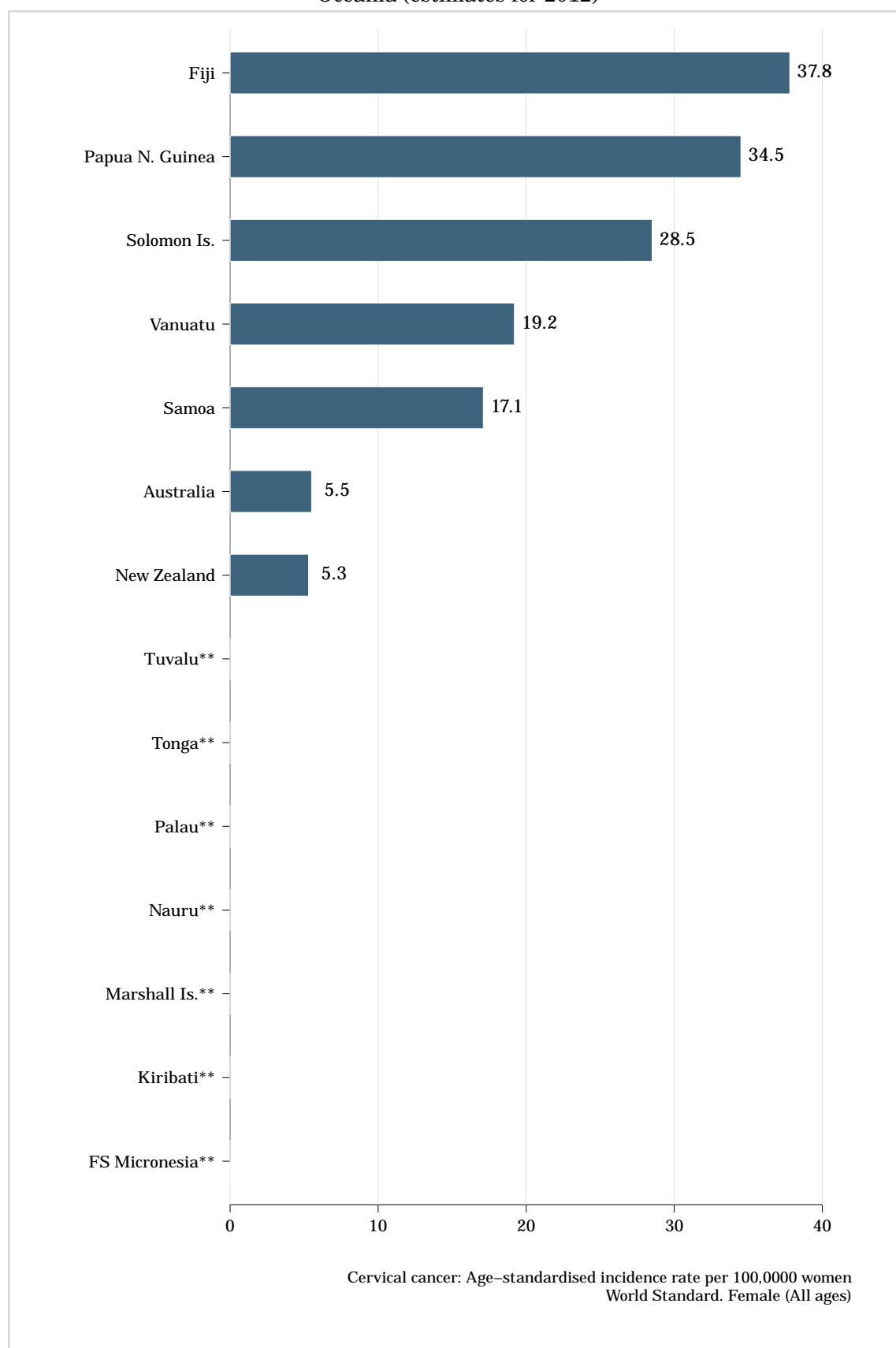
Figure 5: Age-standardised incidence rates of cervical cancer in Oceania (estimates for 2012)

**Data accessed on 15 Nov 2015.**

Rates per 100,000 women per year.

Data sources: Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, Mathers C, Rebelo M, Parkin DM, Forman D, Bray F. GLOBOCAN 2012 v1.2, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer; 2013. Available from: <http://globocan.iarc.fr>.

Figure 6: Age-standardised incidence rate of cervical cancer cases attributable to HPV by country in Oceania (estimates for 2012)



** No rates are available.

Data accessed on 15 Nov 2015.

Rates per 100,000 women per year.

Data sources: Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, Mathers C, Rebelo M, Parkin DM, Forman D, Bray F. GLOBOCAN 2012 v1.2, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer; 2013. Available from: <http://globocan.iarc.fr>.

Table 5: Incidence of cervical cancer in Oceania (estimates for 2012)

Area	N cases	Crude rate ^a	ASR ^a	Cumulative risk (%) ages 0-74 years ^b	Ranking of CC	
					All women	Women 15-44 years
Oceania	2,195	11.7	10.2	0.9	8	3
Australia & New Zealand	938	6.8	5.5	0.5	12	4
Australia	793	6.9	5.5	0.5	13	4
New Zealand	145	6.4	5.3	0.5	13	4
Melanesia	1,198	26.8	33.3	3.2	2	1
Fiji	161	37.5	37.8	3.7	2	2
Papua New Guinea	938	26.7	34.5	3.2	1	1
Solomon Islands	57	20.8	28.5	2.8	2	2
Vanuatu	19	15.4	19.2	1.9	2	2
Micronesia	23	8.5	8.7	0.9	6	4
FS Micronesia	-	-	-	-	-	-
Kiribati	-	-	-	-	-	-
Marshall Islands	-	-	-	-	-	-
Nauru	-	-	-	-	-	-
Palau	-	-	-	-	-	-
Polynesia	36	10.8	11.0	1.1	5	3
Samoa	13	14.5	17.1	1.6	2	1
Tonga	-	-	-	-	-	-
Tuvalu	-	-	-	-	-	-
Cook Islands	-	-	-	-	-	-
Niue	-	-	-	-	-	-

Data accessed on 15 Nov 2015.

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

Standardised rates have been estimated using the direct method and the World population as the reference.

Ranking of cervical cancer incidence to other cancers among all women ages 15-44 years according to highest incidence rates (ranking 1st). Ranking is based on crude incidence rates (actual number of cervical cancer cases). Ranking using ASR may differ.

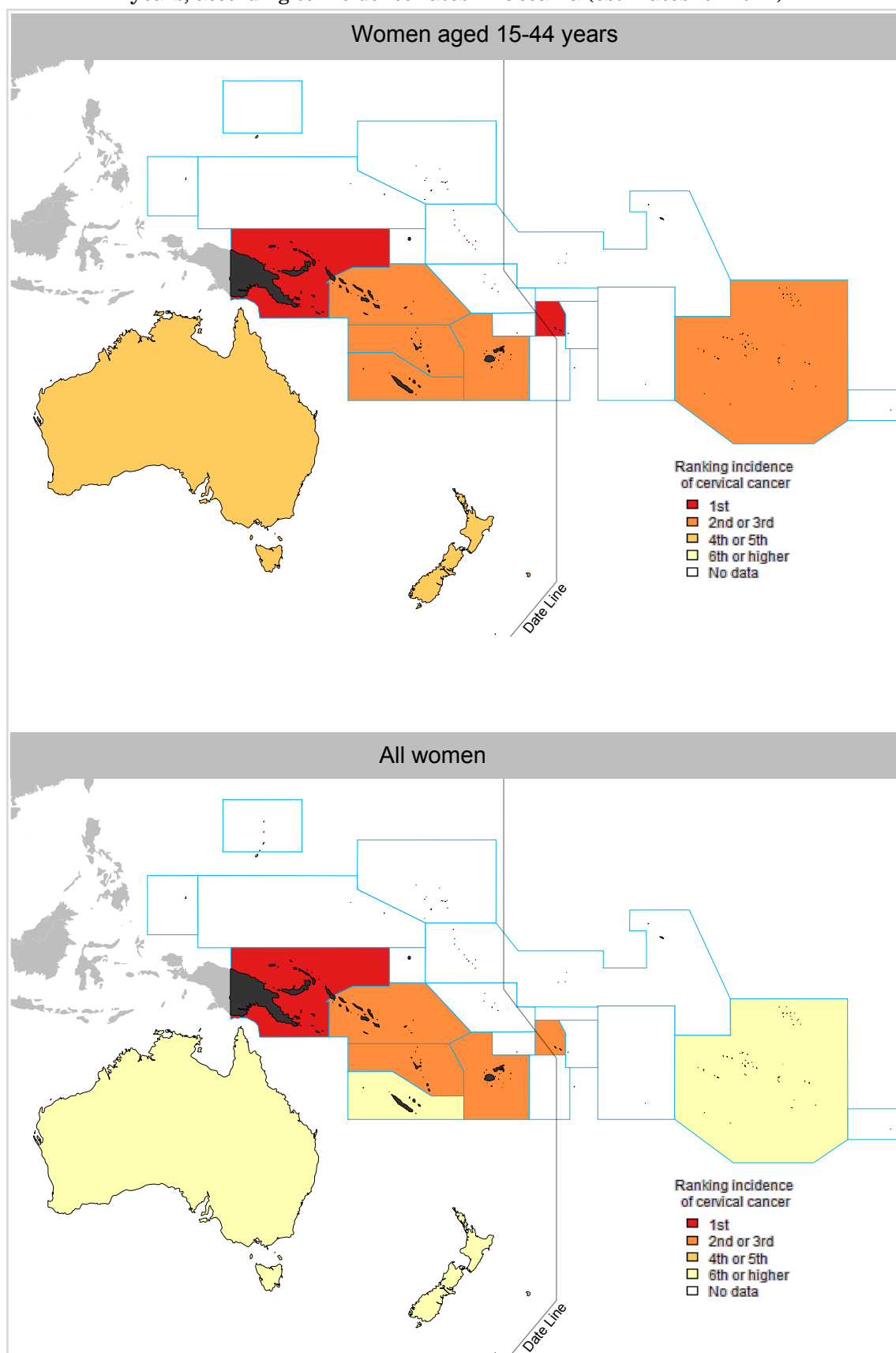
^a Rates per 100,000 women per year.

^b 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.

Data sources:

Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, Mathers C, Rebelo M, Parkin DM, Forman D, Bray F. GLOBOCAN 2012 v1.2, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer; 2013. Available from: <http://globocan.iarc.fr>.

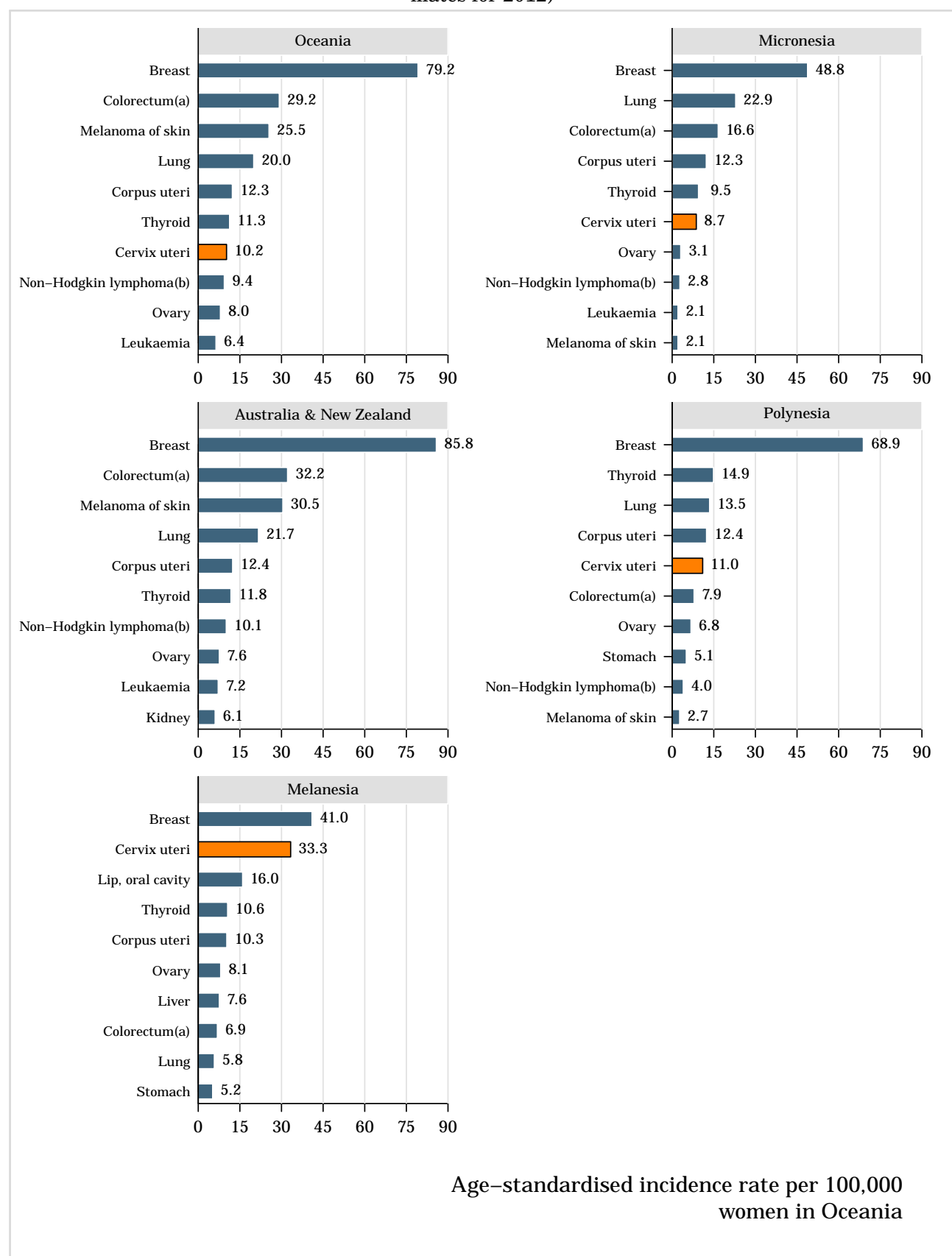
Figure 7: Ranking of cervical cancer versus other cancers among all women and women aged 15-44 years, according to incidence rates in Oceania (estimates for 2012)



Data accessed on 15 Nov 2015.

Data sources: Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, Mathers C, Rebelo M, Parkin DM, Forman D, Bray F. GLOBOCAN 2012 v1.2, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer; 2013. Available from: <http://globocan.iarc.fr>.

Figure 8: Comparison of the ten most frequent cancers in all women in Oceania and its regions (estimates for 2012)



Data accessed on 15 Nov 2015.

^a Includes anal cancer (C21).

^b Includes HIV disease resulting in malignant neoplasms (B21).

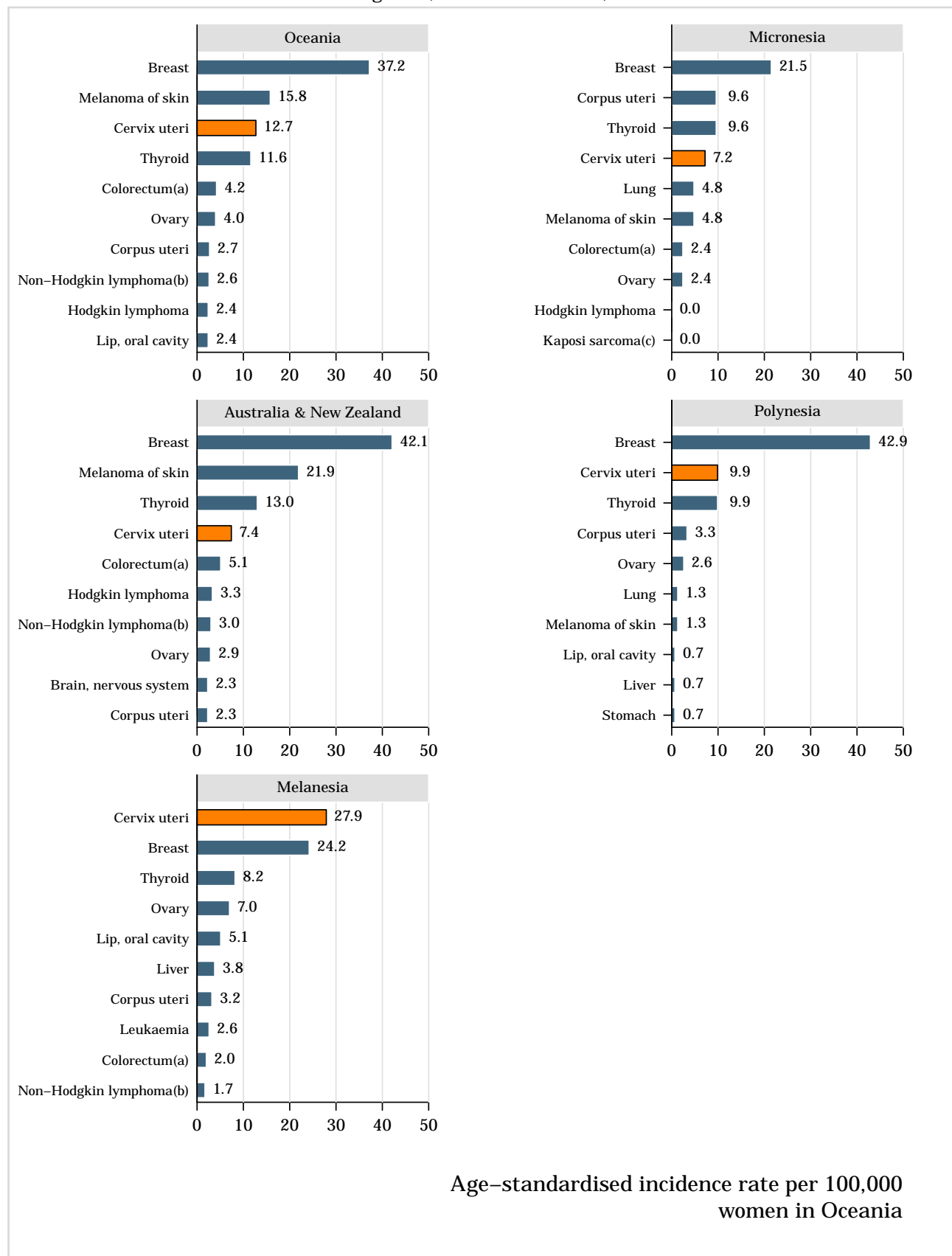
Data sources:

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(Figure 8 – continued from previous page)

Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, Mathers C, Rebelo M, Parkin DM, Forman D, Bray F. GLOBOCAN 2012 v1.2, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer; 2013. Available from: <http://globocan.iarc.fr>.

Figure 9: Comparison of the ten most frequent cancers in women aged 15-44 years by Oceania and its regions (estimates for 2012)



Data accessed on 15 Nov 2015.

^a Includes anal cancer (C21).

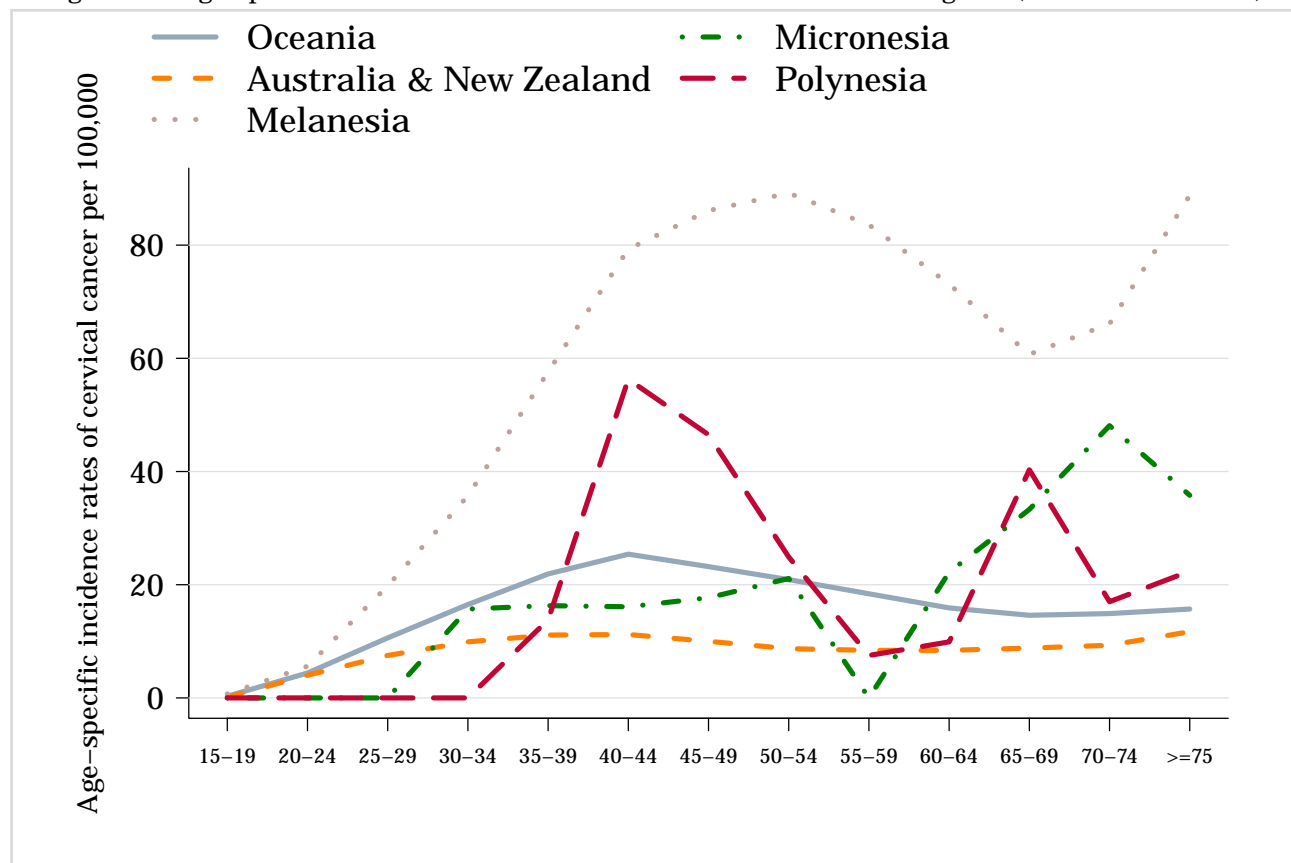
^b Includes HIV disease resulting in malignant neoplasms (B21).

^c Includes B21.0 (HIV disease resulting in Kaposi sarcoma).

Data sources:

Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, Mathers C, Rebelo M, Parkin DM, Forman D, Bray F. GLOBOCAN 2012 v1.2, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer; 2013. Available from: <http://globocan.iarc.fr>.

Figure 10: Age-specific incidence of cervical cancer in Oceania and its regions (estimates for 2012)

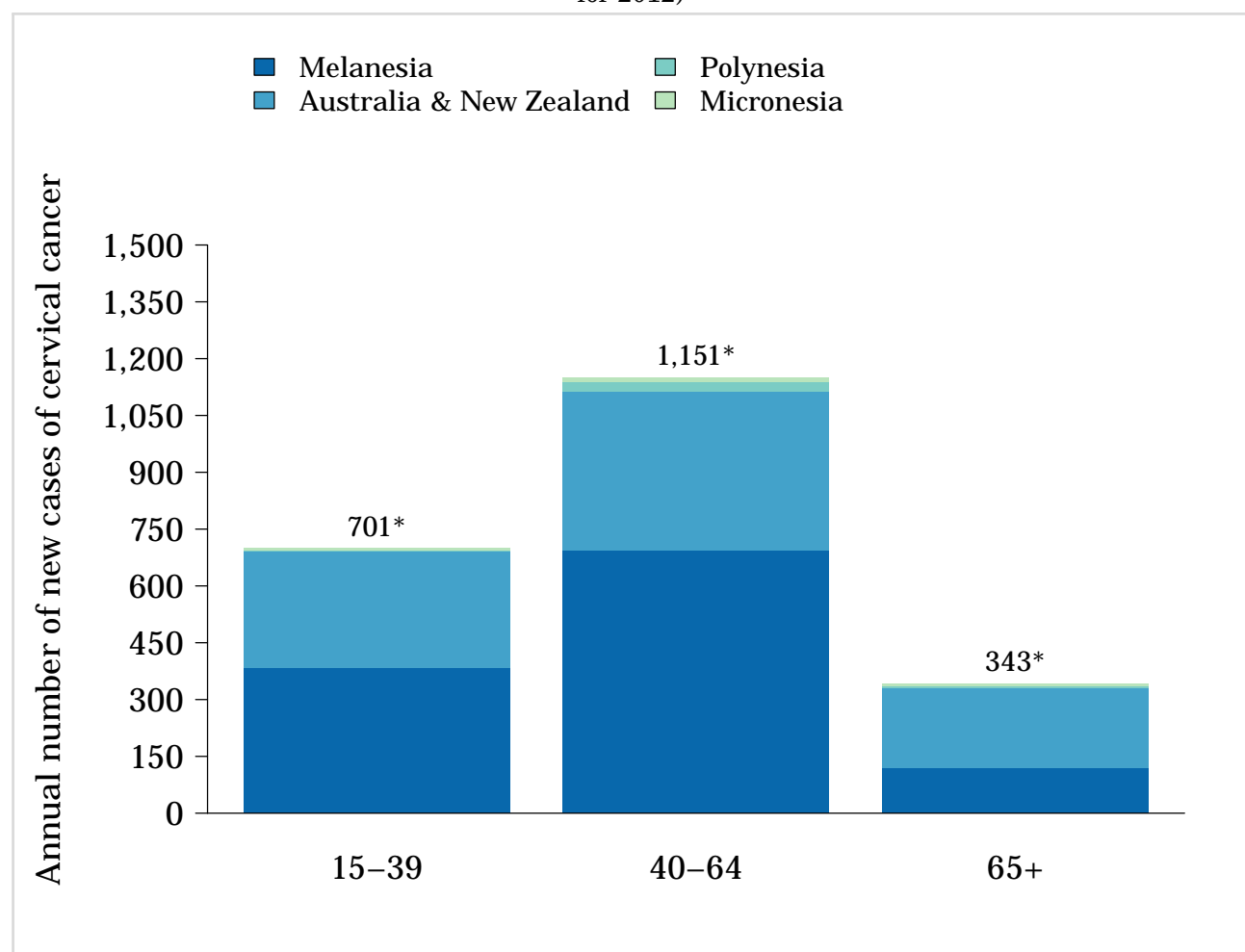


Data accessed on 15 Nov 2015.

Rates per 100,000 women per year.

Data sources: Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, Mathers C, Rebelo M, Parkin DM, Forman D, Bray F. GLOBOCAN 2012 v1.2, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer; 2013. Available from: <http://globocan.iarc.fr>.

Figure 11: Annual number of new cases of cervical cancer by age group in Oceanic regions (estimates for 2012)



* Melanesia 15-39 years: 384 cases. 40-64 years: 695 cases. 65+ years: 119 cases.

* Australia & New Zealand 15-39 years: 308 cases. 40-64 years: 418 cases. 65+ years: 212 cases.

* Polynesia 15-39 years: 3 cases. 40-64 years: 27 cases. 65+ years: 6 cases.

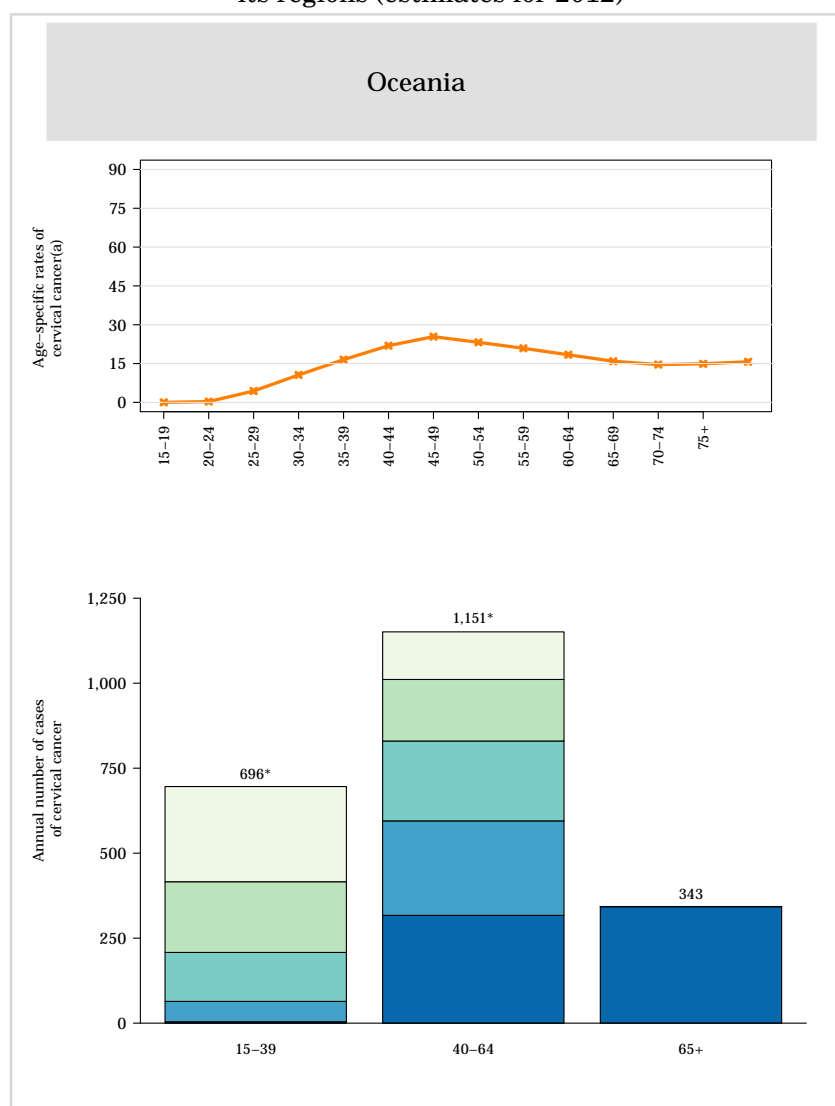
* Micronesia 15-39 years: 6 cases. 40-64 years: 11 cases. 65+ years: 6 cases.

Data accessed on 15 Nov 2015.

Data sources:

Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, Mathers C, Rebelo M, Parkin DM, Forman D, Bray F. GLOBOCAN 2012 v1.2, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer; 2013. Available from: <http://globocan.iarc.fr>.

Figure 12: Annual number of cases and age-specific incidence rates of cervical cancer in Oceania and its regions (estimates for 2012)



* Oceania 15-19 yrs: 4 cases. 20-24 yrs: 60 cases. 25-29 yrs: 144 cases. 30-34 yrs: 208 cases. 35-39 yrs: 280 cases. 40-44 yrs: 317 cases. 45-49 yrs: 278 cases. 50-54 yrs: 235 cases. 55-59 yrs: 181 cases. 60-64 yrs: 140 cases.

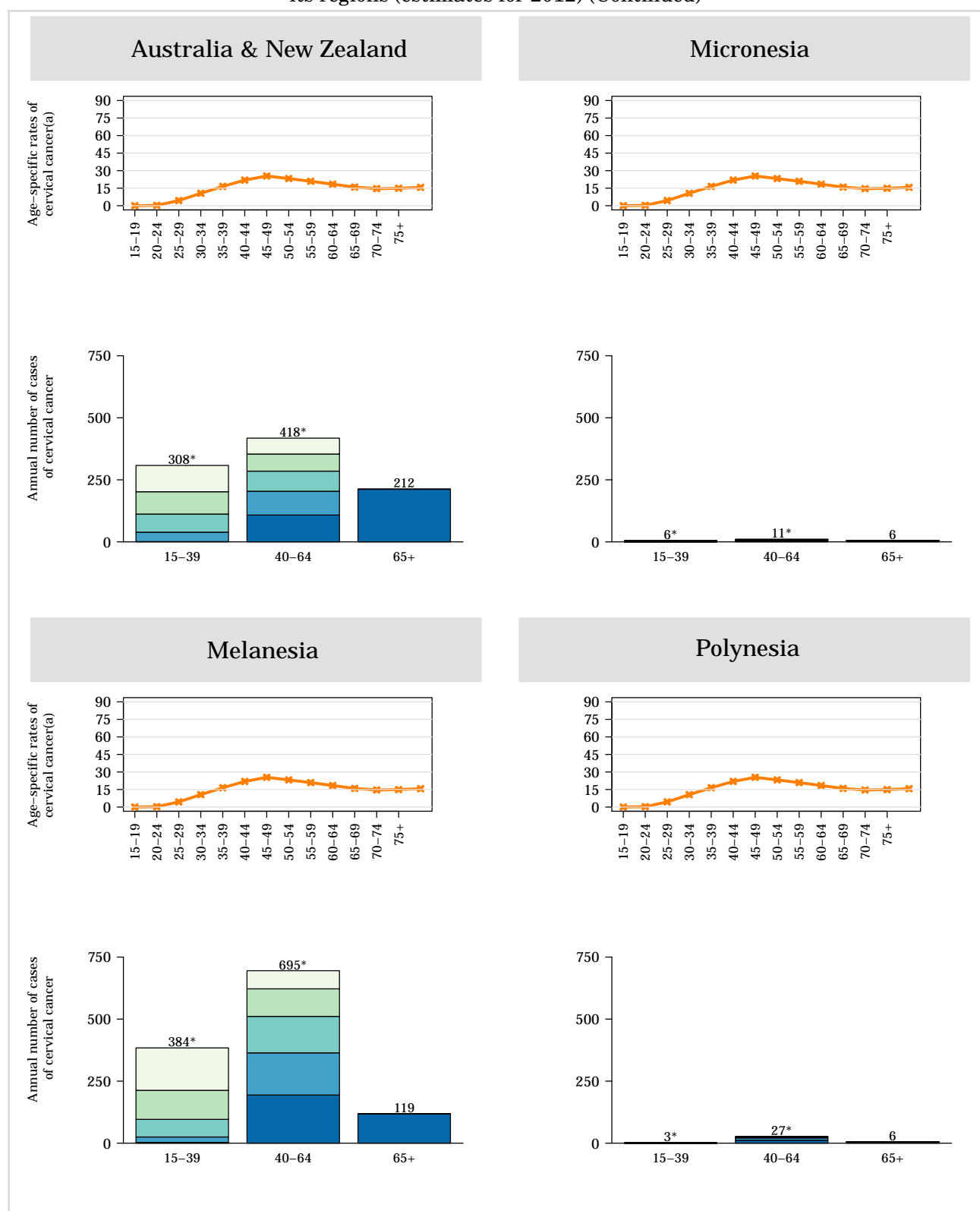
Data accessed on 15 Nov 2015.

^a Rates per 100,000 women per year.

Data sources:

Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, Mathers C, Rebelo M, Parkin DM, Forman D, Bray F. GLOBOCAN 2012 v1.2, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer; 2013. Available from: <http://globocan.iarc.fr>.

Figure 13: Annual number of cases and age-specific incidence rates of cervical cancer in Oceania and its regions (estimates for 2012) (Continued)



* Australia & New Zealand 15-19 yrs: 1 cases. 20-24 yrs: 38 cases. 25-29 yrs: 73 cases. 30-34 yrs: 90 cases. 35-39 yrs: 106 cases. 40-44 yrs: 108 cases. 45-49 yrs: 96 cases. 50-54 yrs: 81 cases. 55-59 yrs: 69 cases. 60-64 yrs: 64 cases.

* Melanesia 15-19 yrs: 3 cases. 20-24 yrs: 22 cases. 25-29 yrs: 71 cases. 30-34 yrs: 117 cases. 35-39 yrs: 171 cases. 40-44 yrs: 194 cases. 45-49 yrs: 170 cases. 50-54 yrs: 147 cases. 55-59 yrs: 111 cases. 60-64 yrs: 73 cases.

* Micronesia 15-19 yrs: 0 cases. 20-24 yrs: 0 cases. 25-29 yrs: 0 cases. 30-34 yrs: 3 cases. 35-39 yrs: 3 cases. 40-44 yrs: 3 cases. 45-49 yrs: 3 cases. 50-54 yrs: 3 cases. 55-59 yrs: 0 cases. 60-64 yrs: 2 cases.

* Polynesia 15-19 yrs: 0 cases. 20-24 yrs: 0 cases. 25-29 yrs: 0 cases. 30-34 yrs: 0 cases. 35-39 yrs: 3 cases. 40-44 yrs: 12 cases. 45-49 yrs: 9 cases. 50-54 yrs: 4 cases. 55-59 yrs: 1 cases. 60-64 yrs: 1 cases.

Data accessed on 15 Nov 2015.

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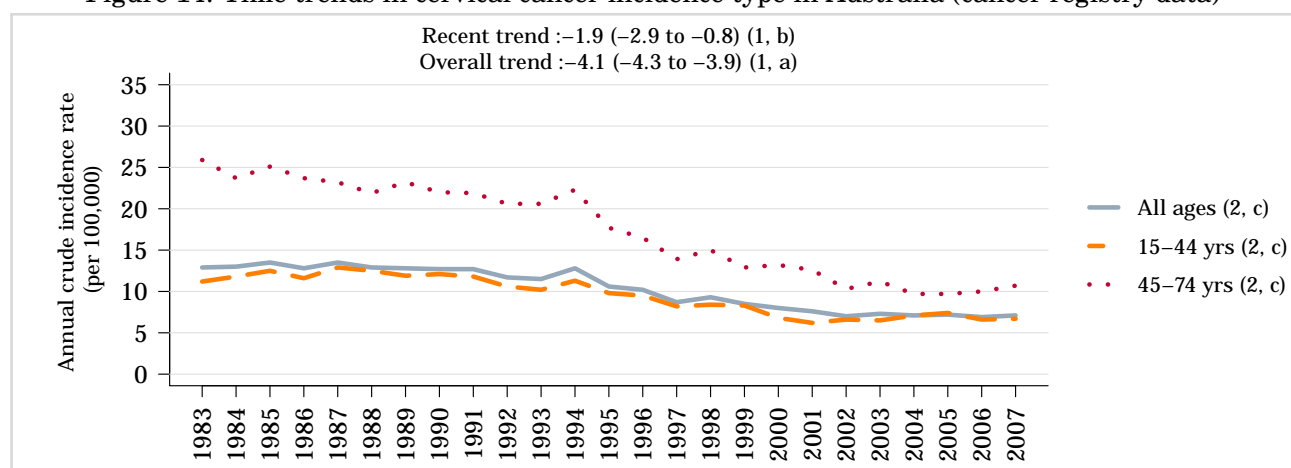
(Figure 13 – continued from previous page)

^a Rates per 100,000 women per year.

Data sources:

Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, Mathers C, Rebelo M, Parkin DM, Forman D, Bray F. GLOBOCAN 2012 v1.2, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer; 2013. Available from: <http://globocan.iarc.fr>.

Figure 14: Time trends in cervical cancer incidence type in Australia (cancer registry data)



Data accessed on 27 Apr 2015.

^a Estimated annual percentage change based on the trend variable from the net drift for the most recent two 5-year periods.

^b Estimated annual percentage change based on the trend variable from the net drift for 25 years, from 1984-2008.

^c The following regional cancer registries provided data and contributed to their national estimate: New South Wales, Queensland, South Australia, Tasmania, Victoria, Western Australia.

Data sources:

¹ 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.

² Ferlay J, Bray F, Steliarova-Foucher E and Forman D. Cancer Incidence in Five Continents, CI5plus: IARC CancerBase No. 9 [Internet]. Lyon, France: International Agency for Research on Cancer; 2014. Available from: <http://ci5.iarc.fr>

3.1.2 Mortality

KEY STATS

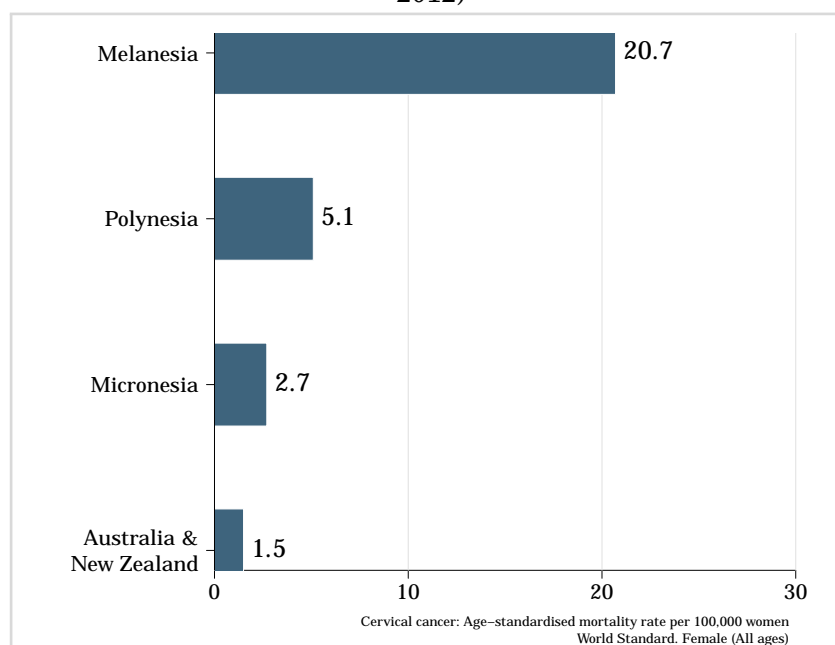
About **1,063 new cervical cancer deaths** occur **annually** in **Oceania** (estimates for 2012).

Cervical cancer **ranks*** as the **6th** leading cause of female cancer deaths in **Oceania**.

Cervical cancer is the **2nd** most common female cancer deaths in **women aged 15 to 44 years** in **Oceania**.

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

Figure 15: Age-standardised mortality rates (ASR) of cervical cancer in Oceanic regions (estimates for 2012)



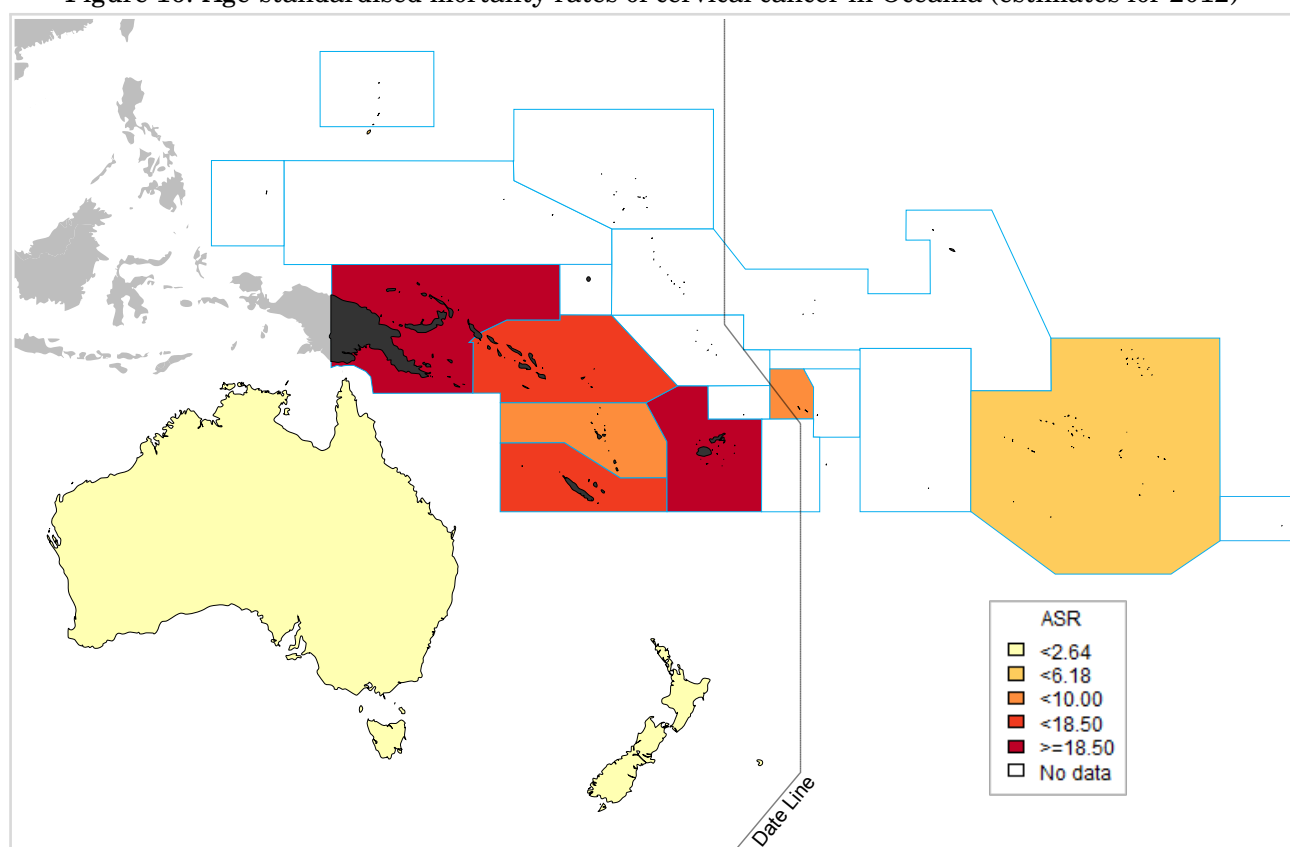
Data accessed on 15 Nov 2015.

Rates per 100,000 women per year.

Data sources:

Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, Mathers C, Rebelo M, Parkin DM, Forman D, Bray F. GLOBOCAN 2012 v1.2, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer; 2013. Available from: <http://globocan.iarc.fr>.

Figure 16: Age-standardised mortality rates of cervical cancer in Oceania (estimates for 2012)



Data accessed on 15 Nov 2015.

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

Rates per 100,000 women per year.

Data sources: Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, Mathers C, Rebelo M, Parkin DM, Forman D, Bray F. GLOBOCAN 2012 v1.2, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer; 2013. Available from: <http://globocan.iarc.fr>.

Table 6: Cervical cancer mortality in Oceania (estimates for 2012)

Area	N cases	Crude rate ^a	ASR ^a	Cumulative risk (%) ages 0-74 years ^b	Ranking of CC	
					All women	Women 15-44 years
Oceania	1,063	5.6	4.5	0.5	6	2
Australia & New Zealand	357	2.6	1.5	0.2	17	5
Australia	303	2.6	1.6	0.2	16	5
New Zealand	54	2.4	1.4	0.2	18	9
Melanesia	684	15.3	20.7	2.2	1	1
Fiji	84	19.6	20.9	2.6	2	2
Papua New Guinea	546	15.5	21.7	2.2	1	1
Solomon Islands	31	11.3	17.9	1.9	2	2
Vanuatu	8	6.5	9.8	1.1	2	4
Micronesia	6	2.2	2.7	0.4	6	23
FS Micronesia	-	-	-	-	-	-
Kiribati	-	-	-	-	-	-
Marshall Islands	-	-	-	-	-	-
Nauru	-	-	-	-	-	-
Palau	-	-	-	-	-	-
Polynesia	16	4.8	5.1	0.6	4	2
Samoa	5	5.6	6.9	0.7	1	1
Tonga	-	-	-	-	-	-
Tuvalu	-	-	-	-	-	-
Cook Islands	-	-	-	-	-	-
Niue	-	-	-	-	-	-

Data accessed on 15 Nov 2015.

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

(Continued on next page)

(Table 6 – continued from previous page)

Standardised rates have been estimated using the direct method and the World population as the reference.

Ranking of cervical cancer mortality to other cancers among all women ages 15-44 years according to highest mortality rates (ranking 1st). Ranking is based on crude mortality rates (actual number of cervical cancer deaths). Ranking using AST may differ.

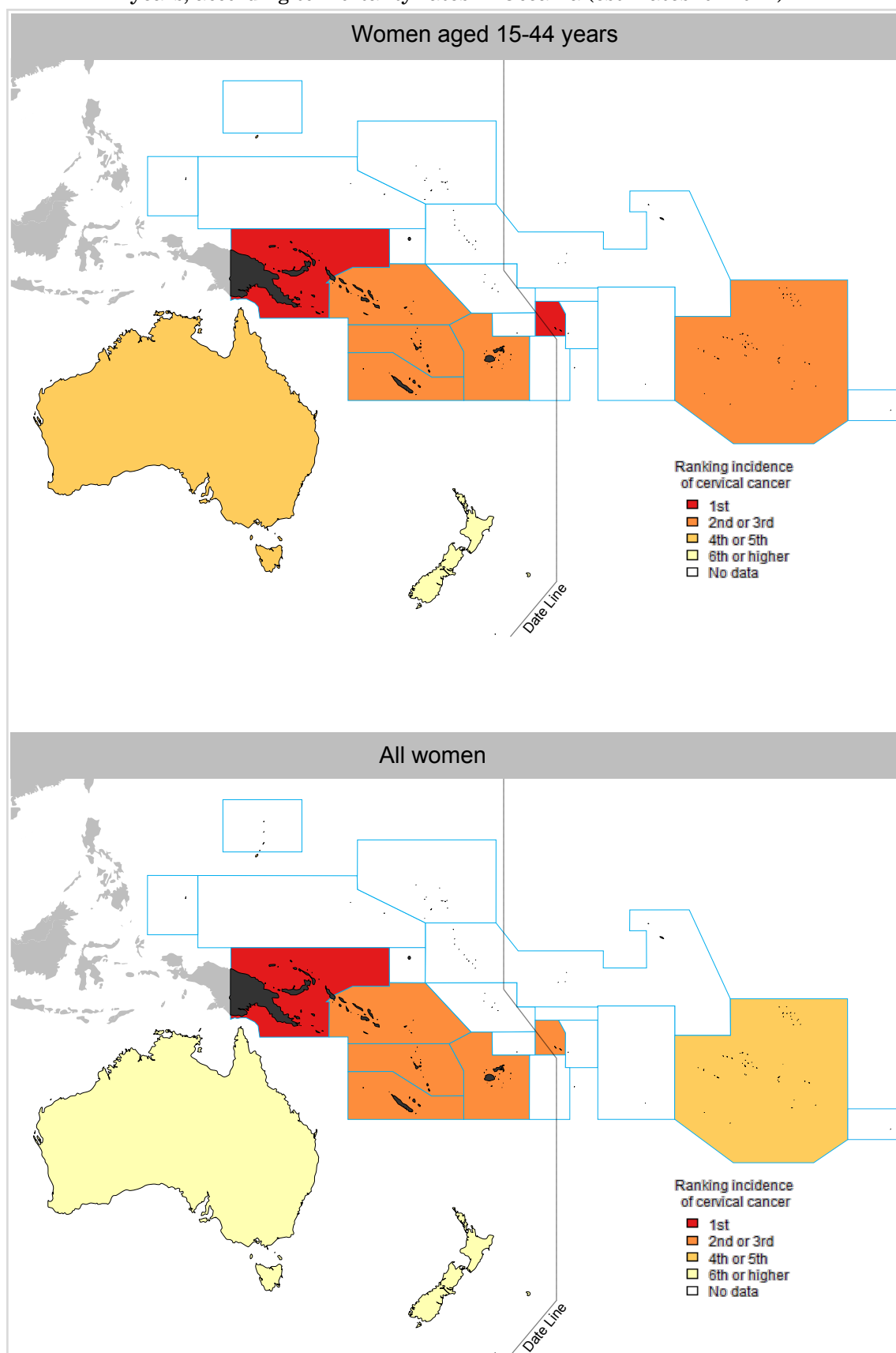
^a Rates per 100,000 women per year.

^b 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.

Data sources:

Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, Mathers C, Rebelo M, Parkin DM, Forman D, Bray F. GLOBOCAN 2012 v1.2, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer; 2013. Available from: <http://globocan.iarc.fr>.

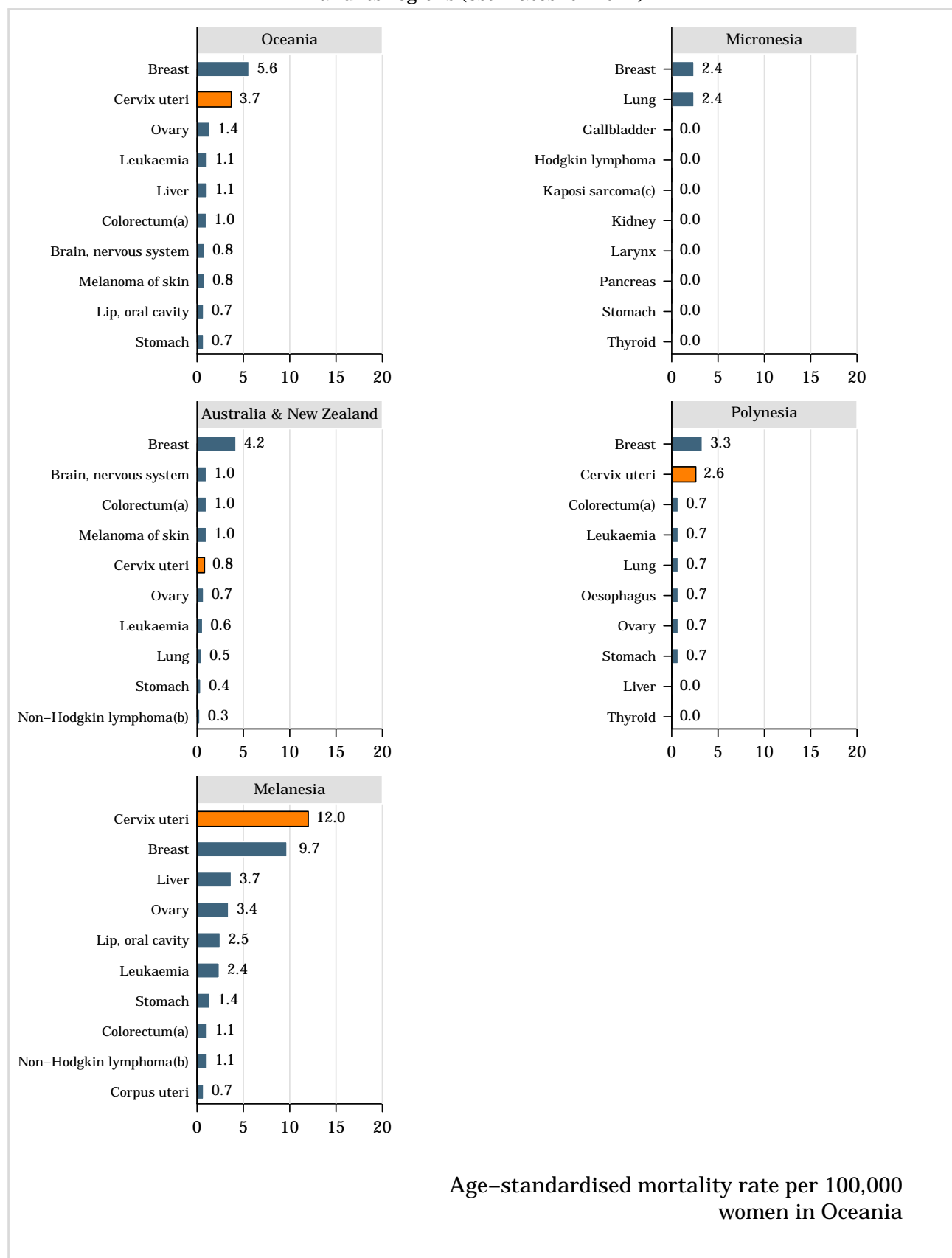
Figure 17: Ranking of cervical cancer versus other cancers among all women and women aged 15-44 years, according to mortality rates in Oceania (estimates for 2012)



Data accessed on 15 Nov 2015.

Data sources: Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, Mathers C, Rebelo M, Parkin DM, Forman D, Bray F. GLOBOCAN 2012 v1.2, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer; 2013. Available from: <http://globocan.iarc.fr>.

Figure 18: Comparison of the ten most frequent cancer deaths in women aged 15-44 years in Oceania and its regions (estimates for 2012)



Data accessed on 15 Nov 2015.

^a Includes anal cancer (C21).

^b Includes HIV disease resulting in malignant neoplasms (B21).

^c Includes B21.0 (HIV disease resulting in Kaposi sarcoma).

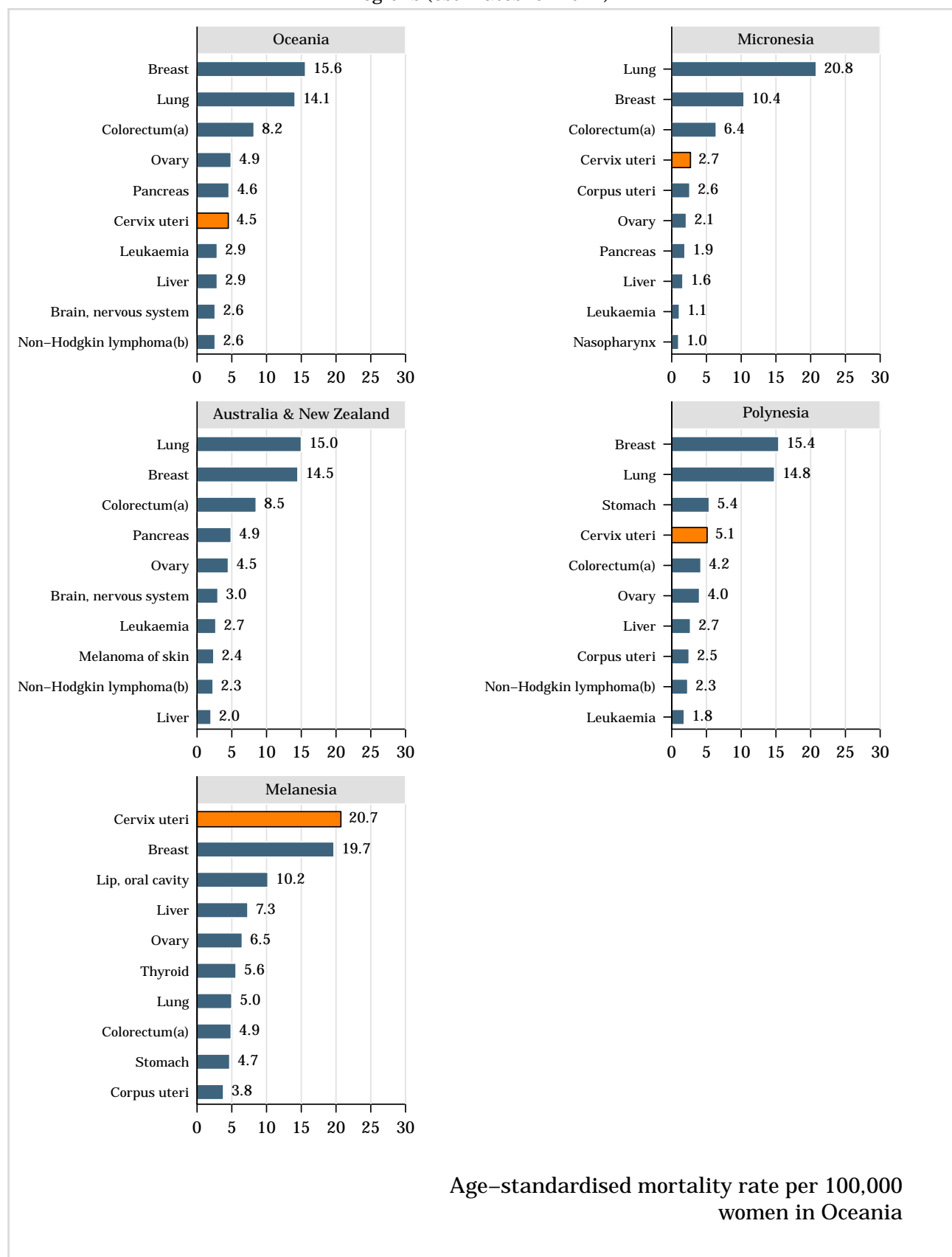
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(Figure 18 – continued from previous page)

Data sources:

Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, Mathers C, Rebelo M, Parkin DM, Forman D, Bray F. GLOBOCAN 2012 v1.2, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer; 2013. Available from: <http://globocan.iarc.fr>.

Figure 19: Comparison of the ten most frequent cancer deaths in women of all ages in Oceania and its regions (estimates for 2012)



Data accessed on 15 Nov 2015.

^a Includes anal cancer (C21).

^b Includes HIV disease resulting in malignant neoplasms (B21).

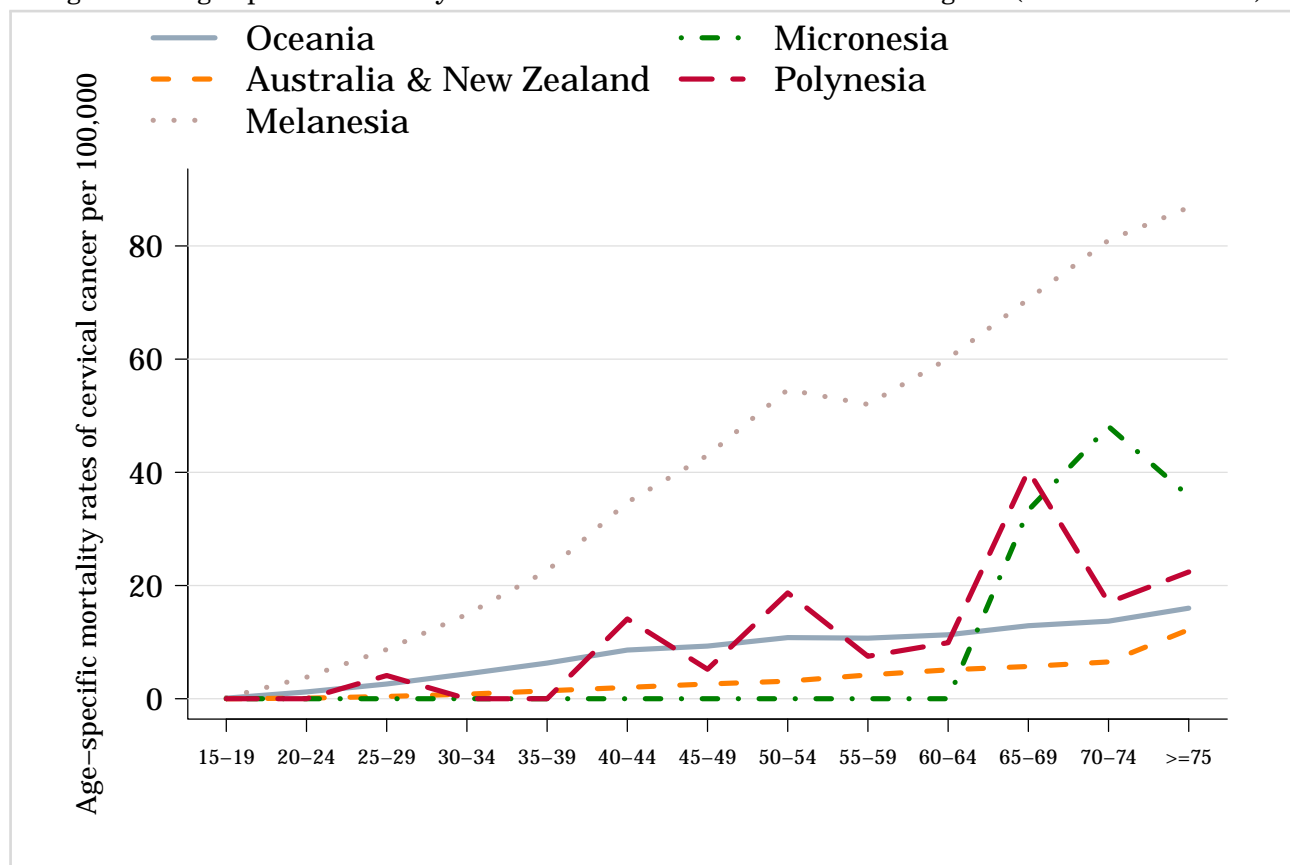
Data sources:

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(Figure 19 – continued from previous page)

Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, Mathers C, Rebelo M, Parkin DM, Forman D, Bray F. GLOBOCAN 2012 v1.2, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer; 2013. Available from: <http://globocan.iarc.fr>.

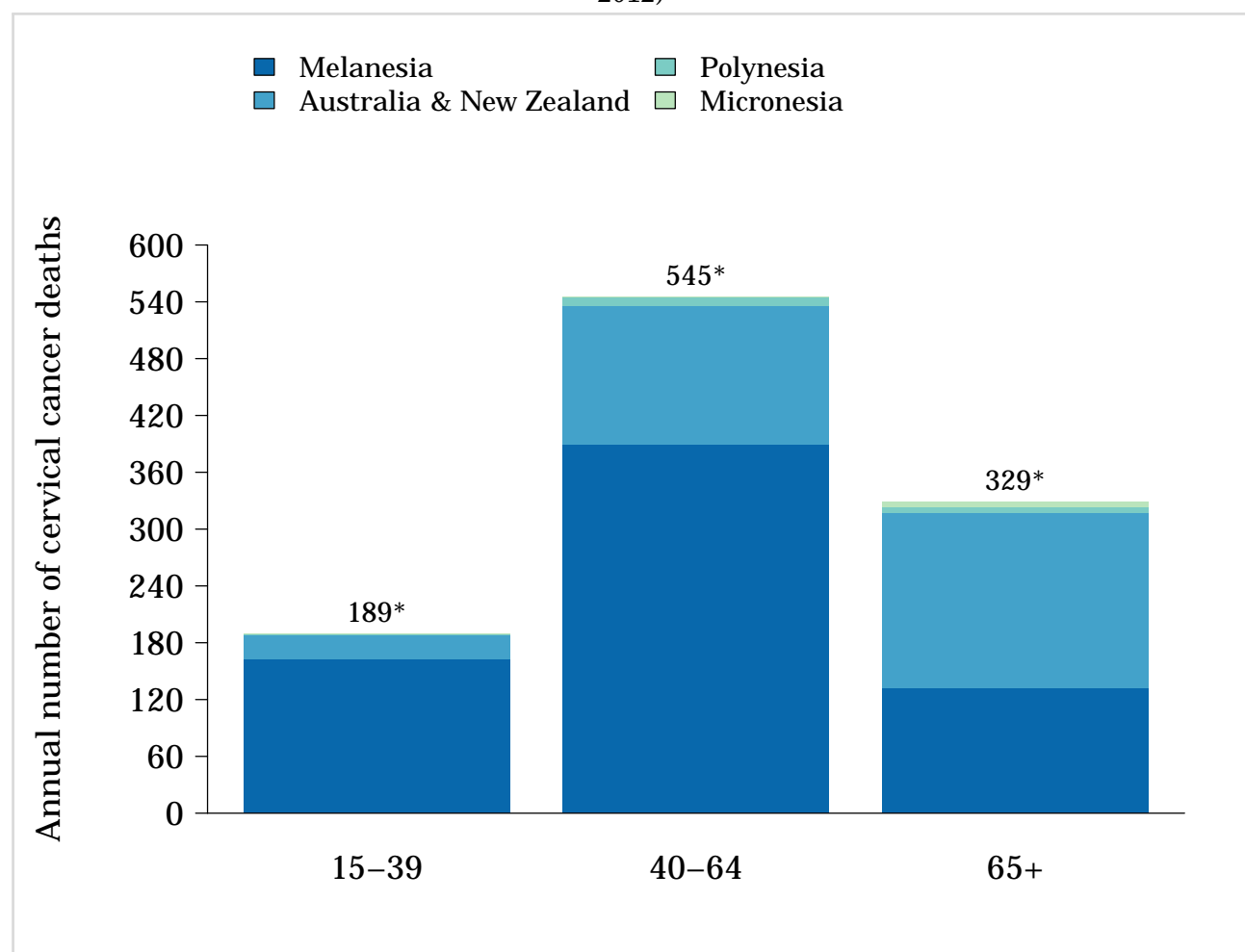
Figure 20: Age-specific mortality of cervical cancer in Oceania and its regions (estimates for 2012)

**Data accessed on 15 Nov 2015.**

Rates per 100,000 women per year.

Data sources: Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, Mathers C, Rebelo M, Parkin DM, Forman D, Bray F. GLOBOCAN 2012 v1.2, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer; 2013. Available from: <http://globocan.iarc.fr>.

Figure 21: Annual number of deaths of cervical cancer by age group in Oceanic regions (estimates for 2012)



* Melanesia 15-39 years: 163 cases. 40-64 years: 389 cases. 65+ years: 132 cases.

* Australia & New Zealand 15-39 years: 25 cases. 40-64 years: 147 cases. 65+ years: 185 cases.

* Polynesia 15-39 years: 1 cases. 40-64 years: 9 cases. 65+ years: 6 cases.

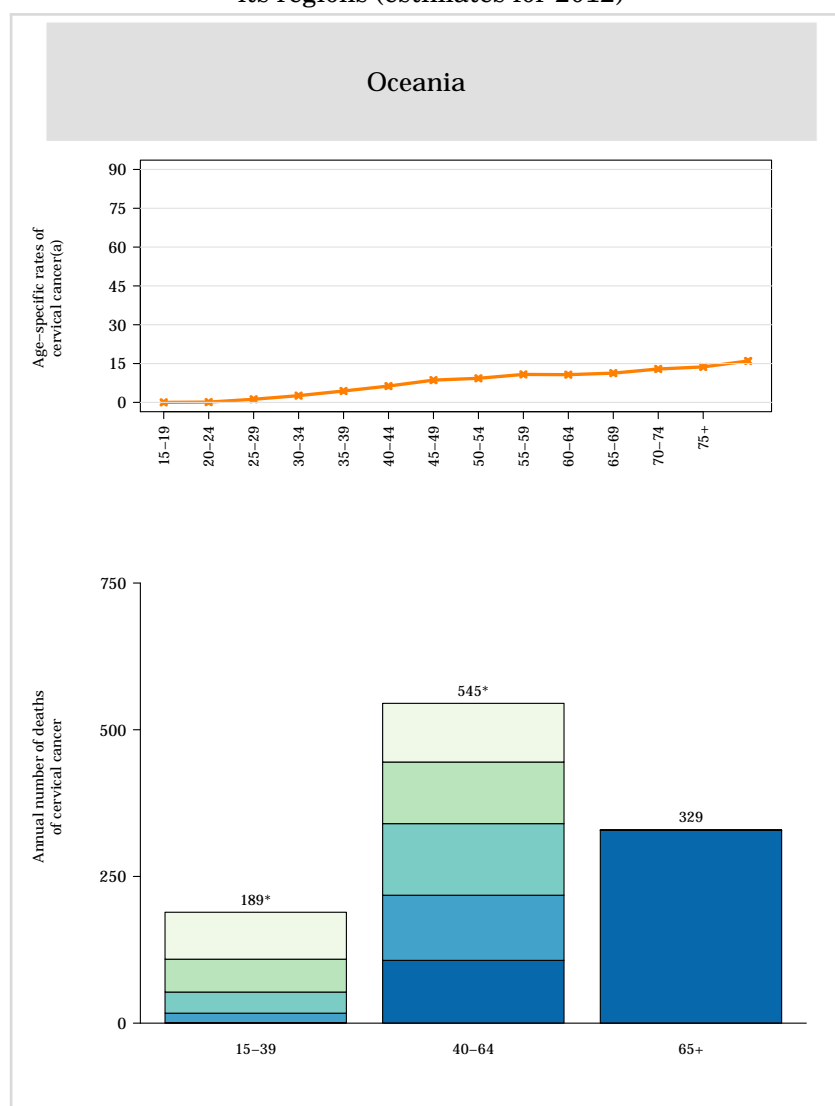
* Micronesia 15-39 years: 0 cases. 40-64 years: 0 cases. 65+ years: 6 cases.

Data accessed on 15 Nov 2015.

Data sources:

Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, Mathers C, Rebelo M, Parkin DM, Forman D, Bray F. GLOBOCAN 2012 v1.2, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer; 2013. Available from: <http://globocan.iarc.fr>.

Figure 22: Annual number of deaths and age-specific mortality rates of cervical cancer in Oceania and its regions (estimates for 2012)



* Oceania 15-19 yrs: 1 cases. 20-24 yrs: 16 cases. 25-29 yrs: 36 cases. 30-34 yrs: 56 cases. 35-39 yrs: 80 cases. 40-44 yrs: 107 cases. 45-49 yrs: 111 cases. 50-54 yrs: 122 cases. 55-59 yrs: 105 cases. 60-64 yrs: 100 cases.

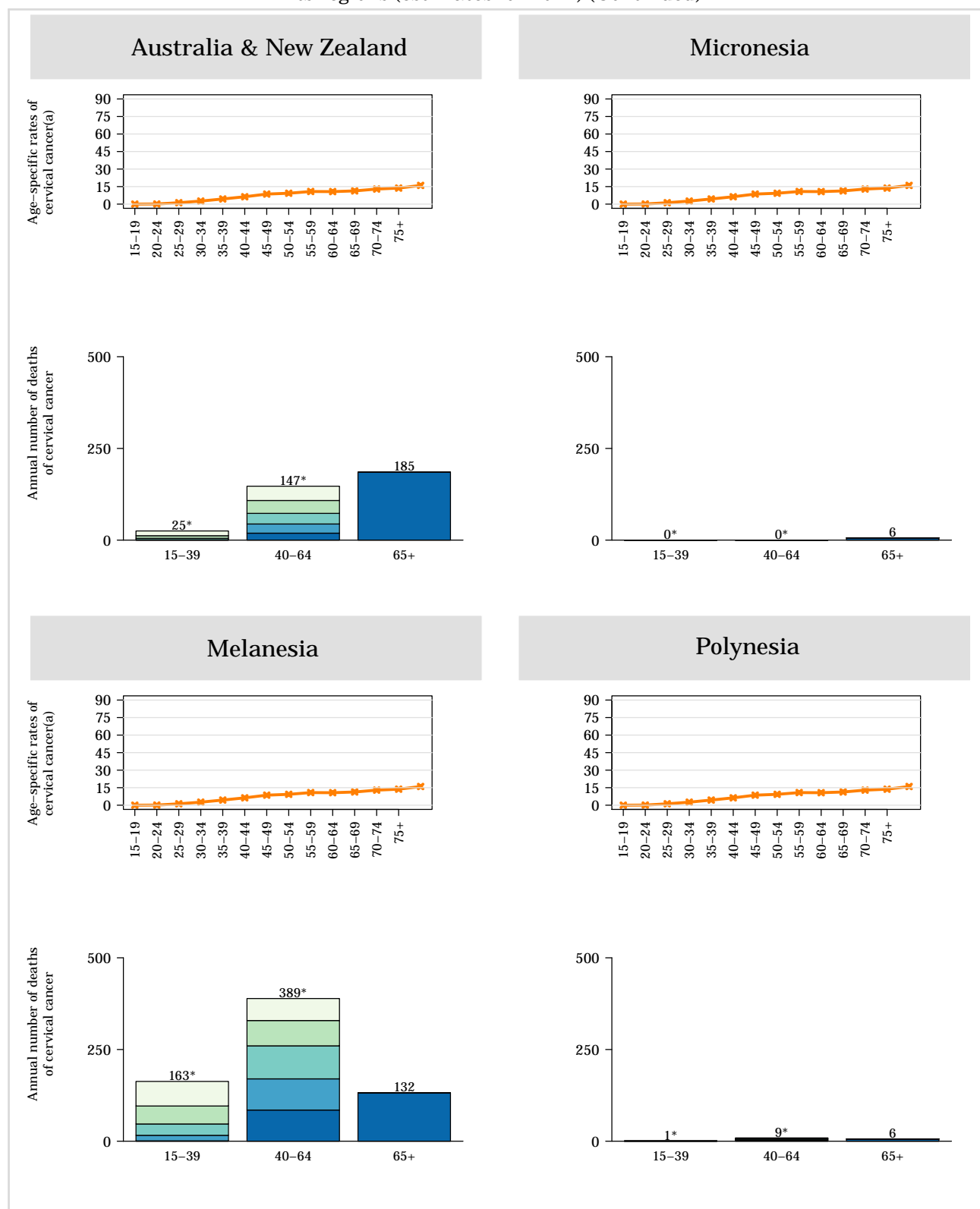
Data accessed on 15 Nov 2015.

^a Rates per 100,000 women per year.

Data sources:

Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, Mathers C, Rebelo M, Parkin DM, Forman D, Bray F. GLOBOCAN 2012 v1.2, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer; 2013. Available from: <http://globocan.iarc.fr>.

Figure 23: Annual number of deaths and age-specific mortality rates of cervical cancer in Oceania and its regions (estimates for 2012) (Continued)



* Australia & New Zealand 15-19 yrs: 0 cases. 20-24 yrs: 1 cases. 25-29 yrs: 4 cases. 30-34 yrs: 7 cases. 35-39 yrs: 13 cases. 40-44 yrs: 19 cases. 45-49 yrs: 25 cases. 50-54 yrs: 29 cases. 55-59 yrs: 35 cases. 60-64 yrs: 39 cases.

* Melanesia 15-19 yrs: 1 cases. 20-24 yrs: 15 cases. 25-29 yrs: 31 cases. 30-34 yrs: 49 cases. 35-39 yrs: 67 cases. 40-44 yrs: 85 cases. 45-49 yrs: 85 cases. 50-54 yrs: 90 cases. 55-59 yrs: 69 cases. 60-64 yrs: 60 cases.

* Micronesia 15-19 yrs: 0 cases. 20-24 yrs: 0 cases. 25-29 yrs: 0 cases. 30-34 yrs: 0 cases. 35-39 yrs: 0 cases. 40-44 yrs: 0 cases. 45-49 yrs: 0 cases. 50-54 yrs: 0 cases. 55-59 yrs: 0 cases. 60-64 yrs: 0 cases.

* Polynesia 15-19 yrs: 0 cases. 20-24 yrs: 0 cases. 25-29 yrs: 1 cases. 30-34 yrs: 0 cases. 35-39 yrs: 0 cases. 40-44 yrs: 3 cases. 45-49 yrs: 1 cases. 50-54 yrs: 3 cases. 55-59 yrs: 1 cases. 60-64 yrs: 1 cases.

Data accessed on 15 Nov 2015.

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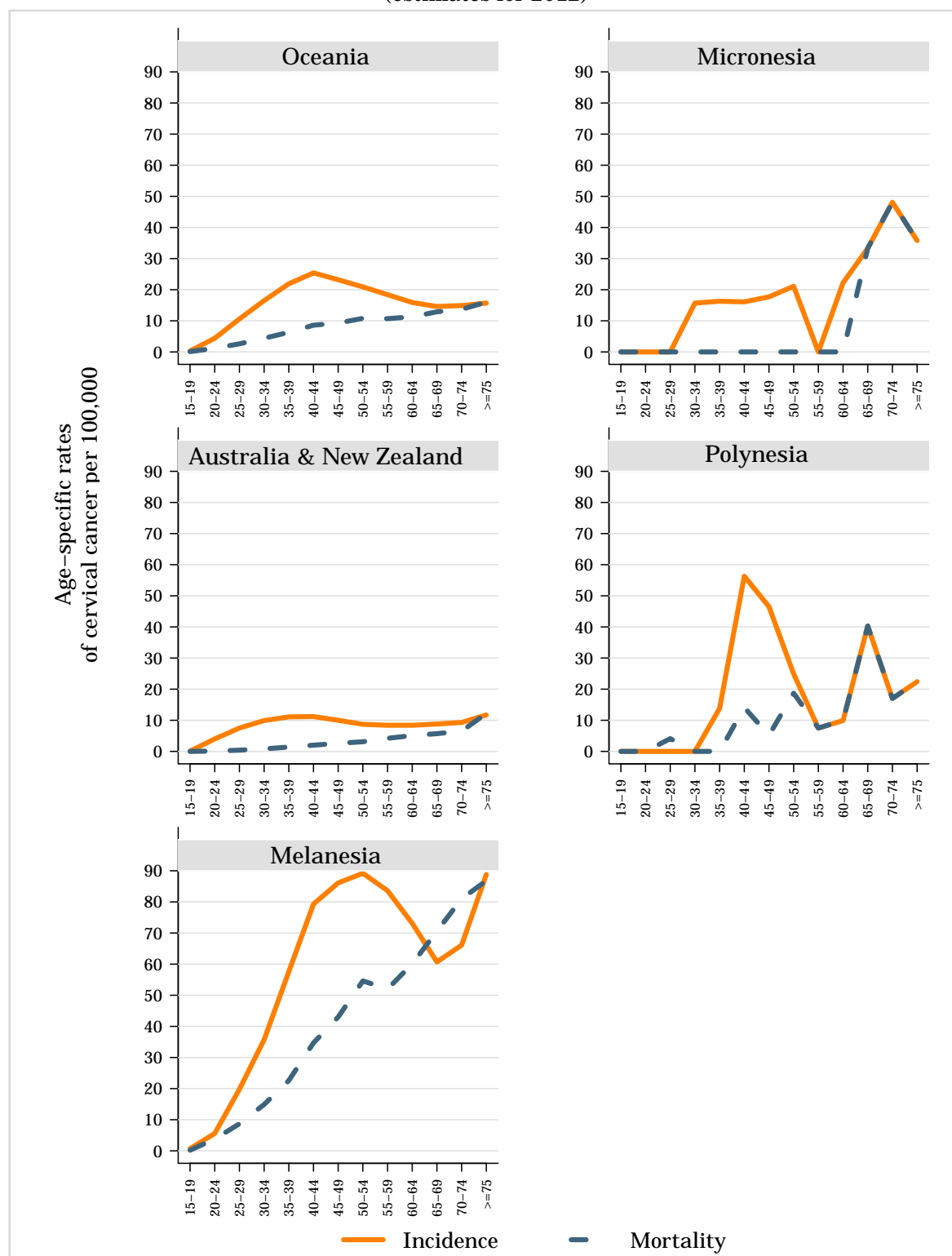
^a Rates per 100,000 women per year.

Data sources:

Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, Mathers C, Rebelo M, Parkin DM, Forman D, Bray F. GLOBOCAN 2012 v1.2, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer; 2013. Available from: <http://globocan.iarc.fr>.

3.1.3 Comparison of incidence and mortality

Figure 24: Age-specific incidence and mortality rates of cervical cancer in Oceania and its regions (estimates for 2012)



Data accessed on 15 Nov 2015.

Rates per 100,000 women per year.

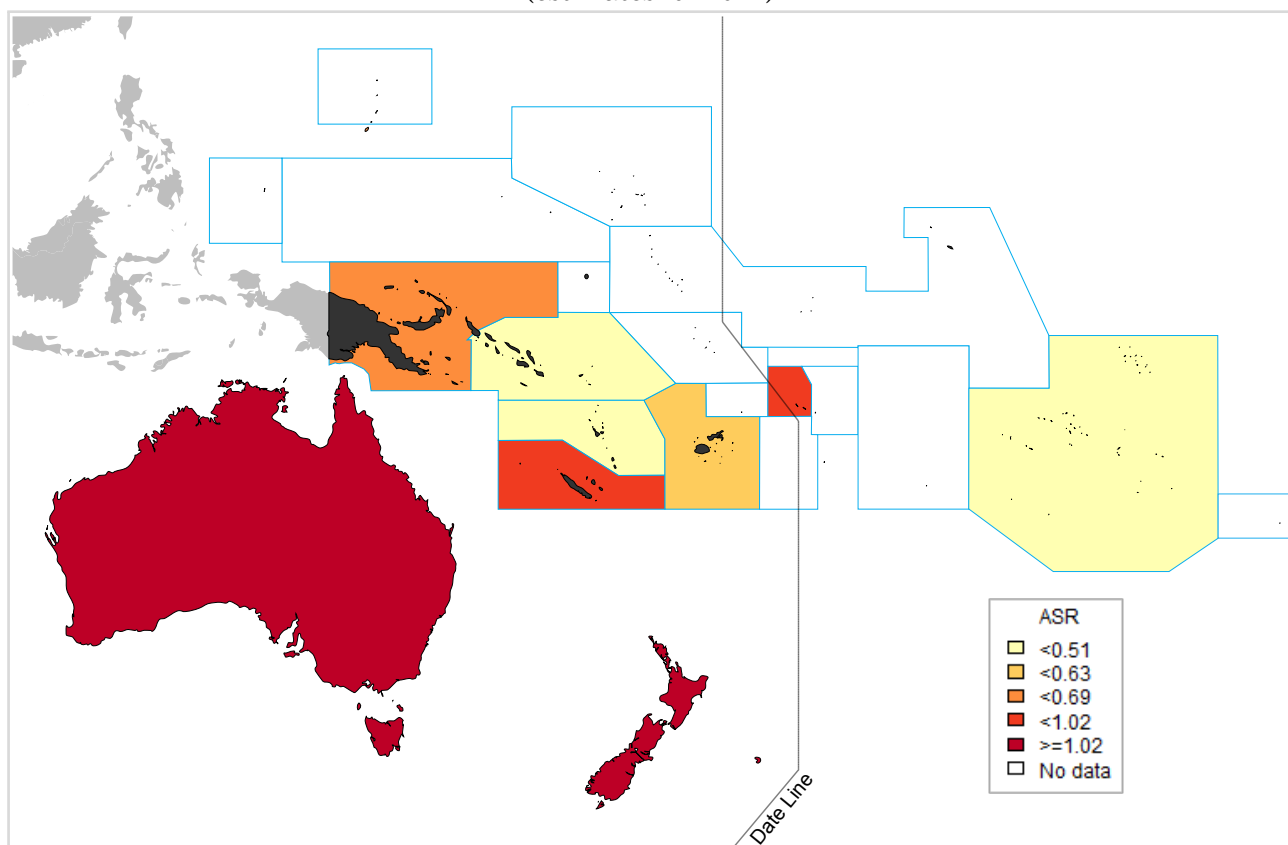
Data sources:

Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, Mathers C, Rebelo M, Parkin DM, Forman D, Bray F. GLOBOCAN 2012 v1.2, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer; 2013. Available from: <http://globocan.iarc.fr>.

3.2 Anogenital cancers other than the cervix

Data on the role of HPV in anogenital cancers other than the cervix are limited, but there is an increasing body of evidence strongly linking HPV DNA with cancers of the anus, vulva, vagina, and penis. Although these cancers are much less frequent compared to cancer of the cervix, 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*)

Figure 25: Age-standardised incidence rates of anogenital cancers other than the cervix in Oceania (estimates for 2012)



Data accessed on 08 May 2017.

ASR: Age-standardized rate, rates per 100,000 per year.

Please refer to original source for methods.

Other anogenital cancer cases (vulvar, vaginal, anal, and penile).

GLOBOCAN quality index for availability of incidence data:

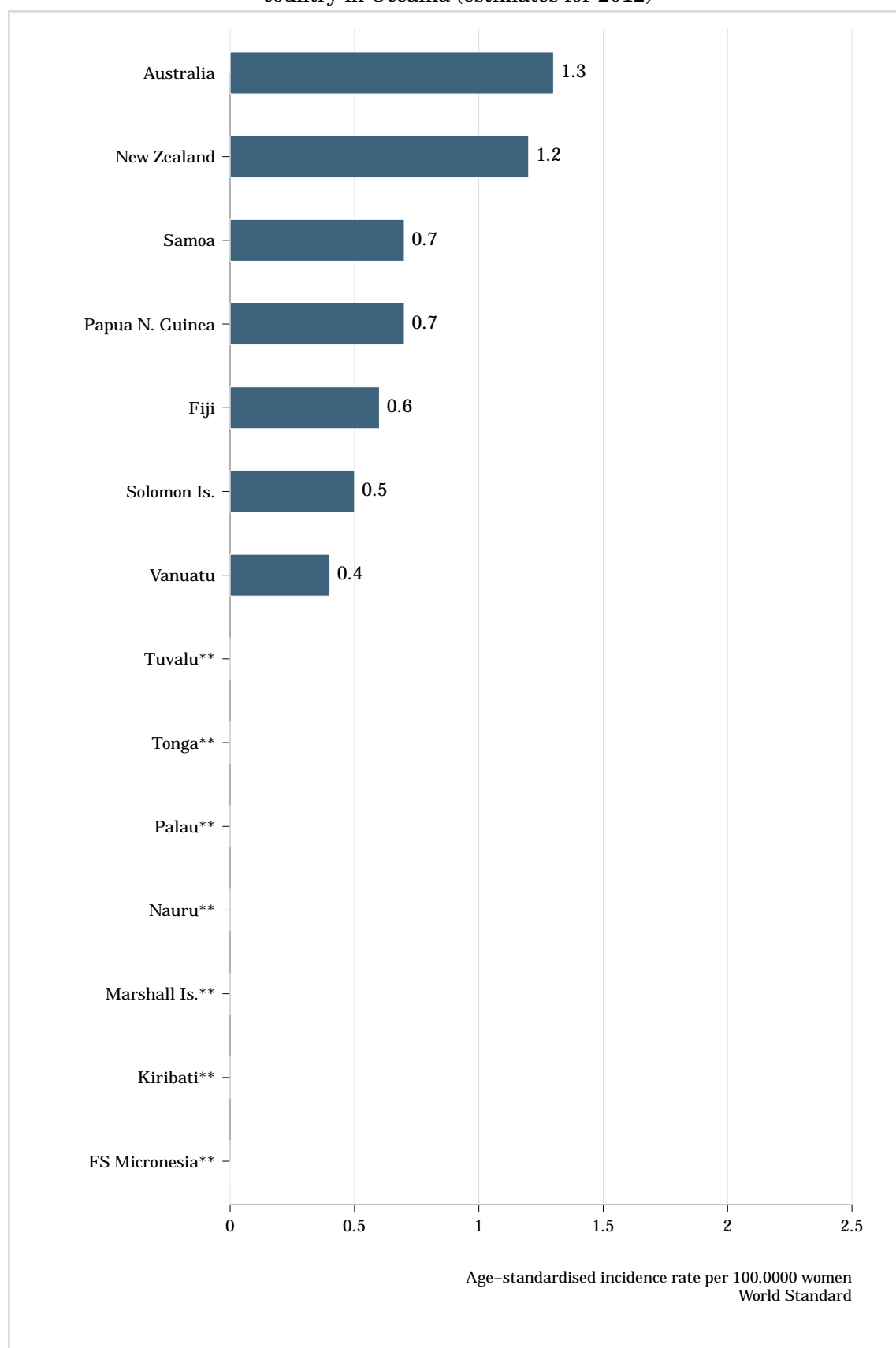
- For Australia, New Zealand: High quality national data or high quality regional (coverage greater than 50%).
- For Fiji, Guam, New Caledonia, French Polynesia, Vanuatu, Samoa: National data (rates).
- For Papua New Guinea, Solomon Islands: No data.

GLOBOCAN quality index of methods for calculating incidence: Methods to estimate the sex- and age-specific incidence rates of cancer for a specific country:

- For Australia, New Zealand, French Polynesia: Rates projected to 2012
- For Fiji, Vanuatu: Estimated from national mortality estimates using modelled survival
- For Guam, New Caledonia, Samoa: Most recent rates applied to 2012 population
- For Papua New Guinea: Age/sex specific rates for "all cancers" were partitioned using data on relative frequency of different cancers (by age and sex)
- For Solomon Islands: The rates are those of neighbouring countries or registries in the same area

Data sources: Worldwide burden of cancer attributable to HPV by site, country and HPV type. de Martel C, Plummer M, Vignat J, Franceschi S. *Int J Cancer*. 2017 Apr 1. doi: 10.1002/ijc.30716. [Epub ahead of print]. PMID:28369882.

Figure 26: Age-standardised incidence rate of other anogenital cancer cases attributable to HPV by country in Oceania (estimates for 2012)



** No rates are available.

Data accessed on 08 May 2017.

ASR: Age-standardized rate, rates per 100,000 per year.

Please refer to original source for methods.

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(Figure 26 – continued from previous page)

Other anogenital cancer cases (vulvar, vaginal, anal, and penile).

GLOBOCAN quality index for availability of incidence data:

- For Vanuatu, Fiji, Samoa: National data (rates).
- For Solomon Islands, Papua New Guinea: No data.
- For New Zealand, Australia: High quality national data or high quality regional (coverage greater than 50%).

GLOBOCAN quality index of methods for calculating incidence: Methods to estimate the sex- and age-specific incidence rates of cancer for a specific country:

- For Vanuatu, Fiji: Estimated from national mortality estimates using modelled survival
- For Solomon Islands: The rates are those of neighbouring countries or registries in the same area
- For Papua New Guinea: Age/sex specific rates for "all cancers" were partitioned using data on relative frequency of different cancers (by age and sex)
- For Samoa: Most recent rates applied to 2012 population
- For New Zealand, Australia: Rates projected to 2012

Data sources: de Martel C, Plummer M, Vignat J, Franceschi S. Worldwide burden of cancer attributable to HPV by site, country and HPV type. Int J Cancer. 2017

3.2.1 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 27,000 new cases every year (*de Martel C et al. Lancet Oncol 2012;13(6):607-15*). 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.

Table 7: Incidence of anal cancer in Oceania by cancer registry and sex

Country / Registry	Period	Male			Female		
		N cases ^a	Crude rate ^b	ASR ^b	N cases ^a	Crude rate ^c	ASR ^c
Australia & New Zealand							
Australia ¹							
Australian Capital Territory	2003-2007	6	0.7	0.6	7	0.8	0.6
New South Wales	2003-2007	229	1.4	0.9	248	1.5	0.9
Northern Territory	2003-2007	7	1.3	1.1	10	2.0	2.2
Northern Territory (Indigenous)	2003-2007	3	2.0	3.6	5	3.2	4.5
Northern Territory (Non-Indigenous)	2003-2007	4	1.0	0.7	5	1.5	1.7
Queensland	2003-2007	137	1.4	0.9	193	1.9	1.3
South	2003-2007	41	1.1	0.7	46	1.2	0.7
Tasmania	2003-2007	19	1.6	1.0	27	2.2	1.2
Victoria	2003-2007	155	1.2	0.9	205	1.6	1.0
Western	2003-2007	45	0.9	0.6	72	1.4	1.0
New Zealand ¹							
National	2003-2007	77	0.8	0.5	180	1.7	1.1
National (Maori)	2003-2007	8	0.5	0.9	15	0.9	1.1
National (Other)	2003-2007	69	0.9	0.5	164	2.0	1.2
National (Pacific Islander)	2003-2007	0	0.0	0.0	1	0.2	0.1
Melanesia							
Fiji							
-	-	-	-	-	-	-	-
Papua N. Guinea							
-	-	-	-	-	-	-	-
Solomon Is.							
-	-	-	-	-	-	-	-
Vanuatu							
-	-	-	-	-	-	-	-
Micronesia							
FS Micronesia							
-	-	-	-	-	-	-	-

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(Table 7 – continued from previous page)

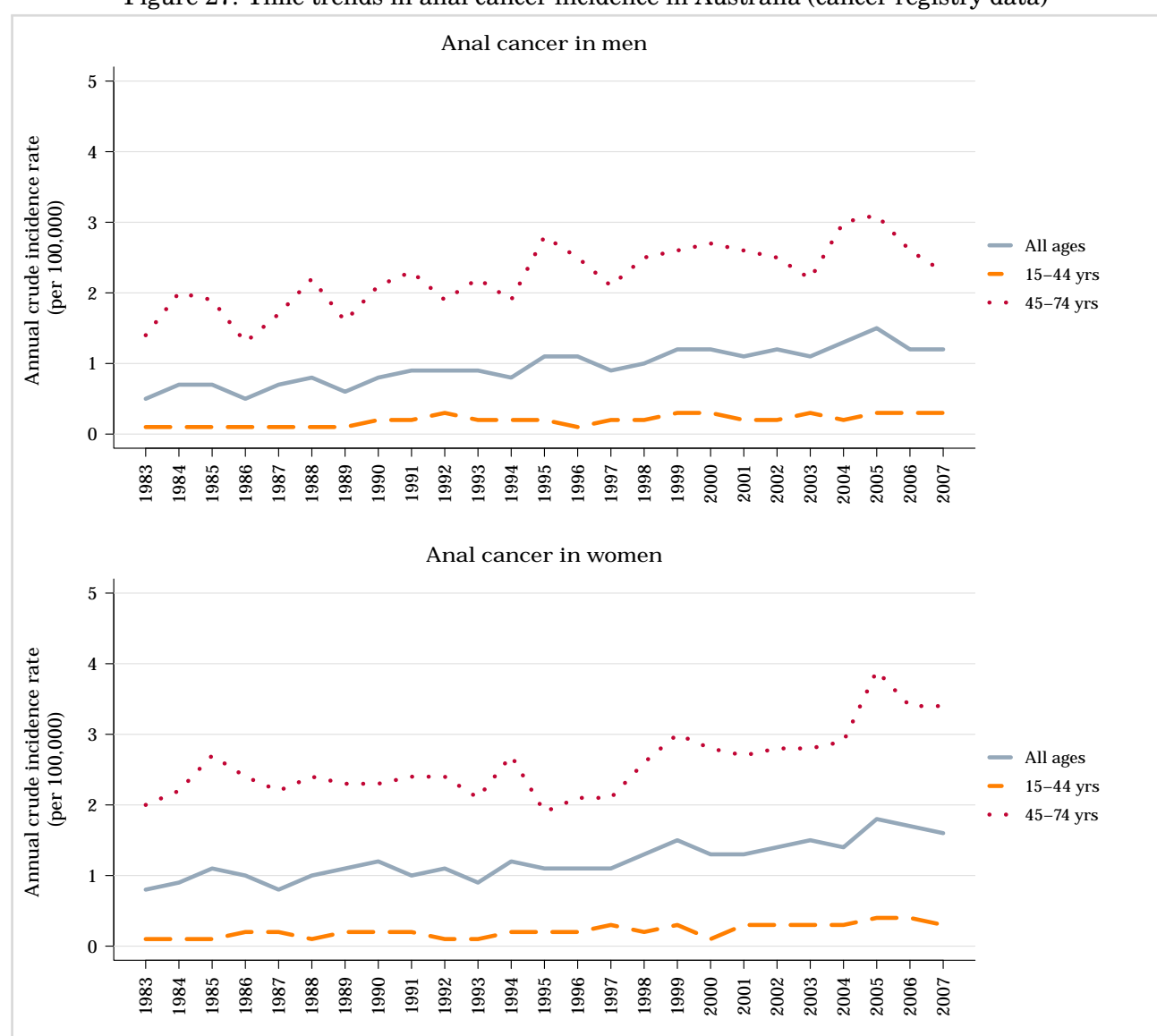
Country / Registry	Period	Male			Female		
		N cases ^a	Crude rate ^b	ASR ^b	N cases ^a	Crude rate ^c	ASR ^c
Kiribati	-	-	-	-	-	-	-
Marshall Is.	-	-	-	-	-	-	-
Nauru	-	-	-	-	-	-	-
Palau	-	-	-	-	-	-	-
Polynesia							
Cook Is.	-	-	-	-	-	-	-
Niue	-	-	-	-	-	-	-
Samoa	-	-	-	-	-	-	-
Tonga	-	-	-	-	-	-	-
Tuvalu	-	-	-	-	-	-	-

Data accessed on 05 May 2015.^aAccumulated number of cases during the period in the population covered by the corresponding registry.^bRates per 100,000 men per year.^cRates per 100,000 women per year.

Data sources:

¹Forman 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>

Figure 27: Time trends in anal cancer incidence in Australia (cancer registry data)



Data accessed on 27 Apr 2015.

The following regional cancer registries provided data and contributed to their national estimate: New South Wales, Queensland, South Australia, Tasmania, Victoria, Western Australia.

Data sources:

Ferlay J, Bray F, Steliarova-Foucher E and Forman D. Cancer Incidence in Five Continents, CI5plus: IARC CancerBase No. 9 [Internet]. Lyon, France: International Agency for Research on Cancer; 2014. Available from: <http://ci5.iarc.fr>

NOTE

Time trends in cancer incidence are shown only in countries with available data.

3.2.2 Vulvar cancer

Cancer of the vulva is rare among women worldwide, with an estimated 27,000 new cases in 2008, representing 4% of all gynaecologic cancers (*de Martel C et al. Lancet Oncol 2012;13(6):607-15*). 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*)

Table 8: Incidence of vulvar cancer in Oceania by cancer registry

Country	Cancer registry	Period	Female		
			N cases ^a	Crude rate ^b	ASR ^b
Australia & New Zealand					
Australia ¹	Australian Capital Territory	2003-2007	16	1.9	1.3
	New South Wales	2003-2007	445	2.6	1.4
	Northern Territory	2003-2007	15	3.0	3.0
	Northern Territory (Indigenous)	2003-2007	7	4.4	4.6
	Northern Territory (Non-Indigenous)	2003-2007	8	2.4	2.5
	Queensland	2003-2007	208	2.1	1.2
	South	2003-2007	107	2.7	1.2
	Tasmania	2003-2007	36	2.9	1.4
	Victoria	2003-2007	333	2.6	1.4
	Western	2003-2007	120	2.4	1.4
New Zealand ¹	National	2003-2007	245	2.3	1.4
	National (Maori)	2003-2007	23	1.4	1.7
	National (Other)	2003-2007	219	2.6	1.3
	National (Pacific Islander)	2003-2007	3	0.5	0.6
Melanesia					
Fiji	-	-	-	-	-
Papua New Guinea	-	-	-	-	-
Solomon Islands	-	-	-	-	-
Vanuatu	-	-	-	-	-
Micronesia					
FS Micronesia	-	-	-	-	-
Kiribati	-	-	-	-	-
Marshall Islands	-	-	-	-	-
Nauru	-	-	-	-	-
Palau	-	-	-	-	-
Polynesia					
Samoa	-	-	-	-	-
Tonga	-	-	-	-	-
Tuvalu	-	-	-	-	-
Cook Islands					
Niue					

Data accessed on 05 May 2015.

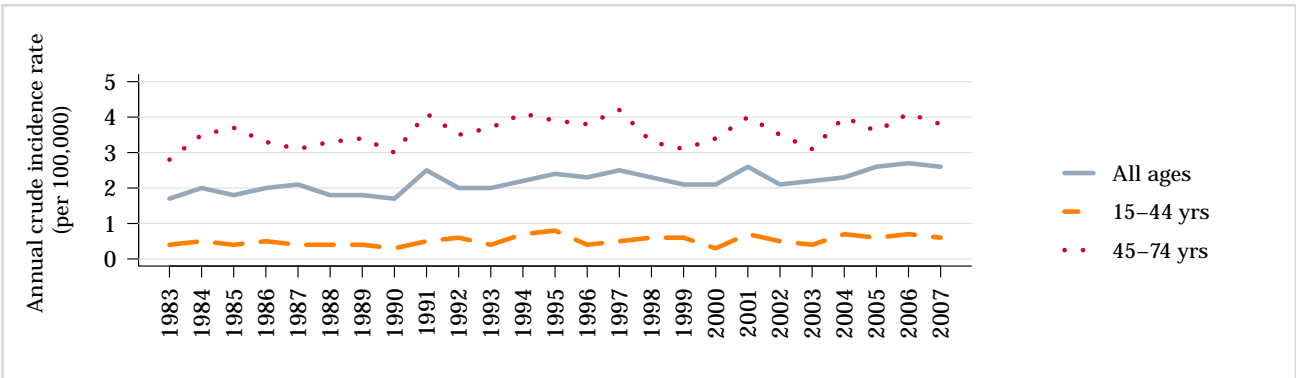
^aAccumulated number of cases during the period in the population covered by the corresponding registry.

^bRates per 100,000 women per year.

Data sources:

¹Forman 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>

Figure 28: Time trends in vulvar cancer incidence in Australia (cancer registry data)



Data accessed on 27 Apr 2015.
The following regional cancer registries provided data and contributed to their national estimate: New South Wales, Queensland, South Australia, Tasmania, Victoria, Western Australia.
Data sources:
Ferlay J, Bray F, Steliarova-Foucher E and Forman D. Cancer Incidence in Five Continents, CI5plus: IARC CancerBase No. 9 [Internet]. Lyon, France: International Agency for Research on Cancer; 2014. Available from: <http://ci5.iarc.fr>

NOTE

Time trends in cancer incidence are shown only in countries with available data.

3.2.3 Vaginal cancer

Cancer of the vagina is a rare cancer, with an estimated 13,000 new cases in 2008, representing 2% of all gynaecologic cancers (*de Martel C et al. Lancet Oncol 2012;13(6):607-15*). Although unreported and 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. 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*)

Table 9: Incidence of vaginal cancer in Oceania by cancer registry

Country name	Cancer registry	Period	Female		
			N cases ^a	Crude rate ^b	ASR ^b
Australia & New Zealand					
Australia ¹	Australian Capital Territory	2003-2007	6	0.7	0.5
	New South Wales	2003-2007	130	0.8	0.4
	Northern Territory	2003-2007	3	0.6	0.6
	Northern Territory (Indigenous)	2003-2007	1	0.6	1.0
	Northern Territory (Non-Indigenous)	2003-2007	2	0.6	0.6
	Queensland	2003-2007	62	0.6	0.4
	South	2003-2007	32	0.8	0.4
	Tasmania	2003-2007	6	0.5	0.2
	Victoria	2003-2007	62	0.5	0.3
	Western	2003-2007	53	1.1	0.7
New Zealand ¹	National	2003-2007	60	0.6	0.4
	National (Maori)	2003-2007	8	0.5	0.7
	National (Other)	2003-2007	50	0.6	0.3
	National (Pacific Islander)	2003-2007	2	0.3	0.4
Melanesia					
Fiji	-	-	-	-	-
Papua New Guinea	-	-	-	-	-
Solomon Islands	-	-	-	-	-
Vanuatu	-	-	-	-	-
Micronesia					
FS Micronesia	-	-	-	-	-
Kiribati	-	-	-	-	-
Marshall Islands	-	-	-	-	-
Nauru	-	-	-	-	-
Palau	-	-	-	-	-
Polynesia					
Samoa	-	-	-	-	-
Tonga	-	-	-	-	-
Tuvalu	-	-	-	-	-
Cook Islands					
Niue					

Data accessed on 05 May 2015.

Please refer to original source (available at <http://ci5.iarc.fr/CI5i-ix/ci5i-ix.htm>)

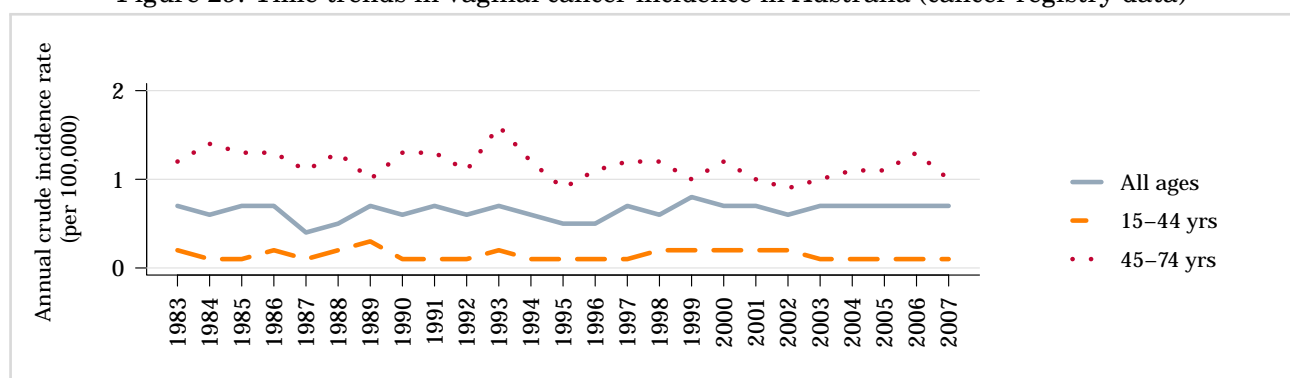
^a Accumulated number of cases during the period in the population covered by the corresponding registry.

^b Rates per 100,000 women per year.

Data sources:

¹ 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>

Figure 29: Time trends in vaginal cancer incidence in Australia (cancer registry data)



Data accessed on 27 Apr 2015.

The following regional cancer registries provided data and contributed to their national estimate: New South Wales, Queensland, South Australia, Tasmania, Victoria, Western Australia.

Data sources:

Ferlay J, Bray F, Steliarova-Foucher E and Forman D. Cancer Incidence in Five Continents, CI5plus: IARC CancerBase No. 9 [Internet]. Lyon, France: International Agency for Research on Cancer; 2014. Available from: <http://ci5.iarc.fr>

NOTE

Time trends in cancer incidence are shown only in countries with available data.

3.2.4 Penile cancer

The annual burden of penile cancer has been estimated to be 22,000 cases worldwide with incidence rates strongly correlating with those of cervical cancer (*de Martel C et al. Lancet Oncol 2012;13(6):607-15*). 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.

Table 10: Incidence of penile cancer in Oceania by cancer registry

Country name	Cancer registry	Period	Male		
			N cases ^a	Crude rate ^b	ASR ^b
Australia & New Zealand					
Australia ¹	Australian Capital Territory	2003-2007	1	0.1	0.1
	New South Wales	2003-2007	139	0.8	0.5
	Northern Territory	2003-2007	1	0.2	0.1
	Northern Territory (Indigenous)	2003-2007	0	0.0	0.0
	Northern Territory (Non-Indigenous)	2003-2007	1	0.3	0.2
	Queensland	2003-2007	68	0.7	0.5
	South	2003-2007	30	0.8	0.4
	Tasmania	2003-2007	7	0.6	0.3
	Victoria	2003-2007	87	0.7	0.4
	Western	2003-2007	39	0.8	0.6
New Zealand ¹	National	2003-2007	59	0.6	0.4
	National (Maori)	2003-2007	0	0.0	0.0
	National (Other)	2003-2007	57	0.7	0.4
	National (Pacific Islander)	2003-2007	2	0.3	0.5
Melanesia					
Fiji	-	-	-	-	-
Papua New Guinea	-	-	-	-	-
Solomon Islands	-	-	-	-	-
Vanuatu	-	-	-	-	-
Micronesia					
FS Micronesia	-	-	-	-	-
Kiribati	-	-	-	-	-
Marshall Islands	-	-	-	-	-
Nauru	-	-	-	-	-
Palau	-	-	-	-	-
Polynesia					
Samoa	-	-	-	-	-
Tonga	-	-	-	-	-
Tuvalu	-	-	-	-	-
Cook Islands					
Niue					

Data accessed on 05 May 2015.

Please refer to original source (available at <http://ci5.iarc.fr/CI5i-ix/ci5i-ix.htm>)

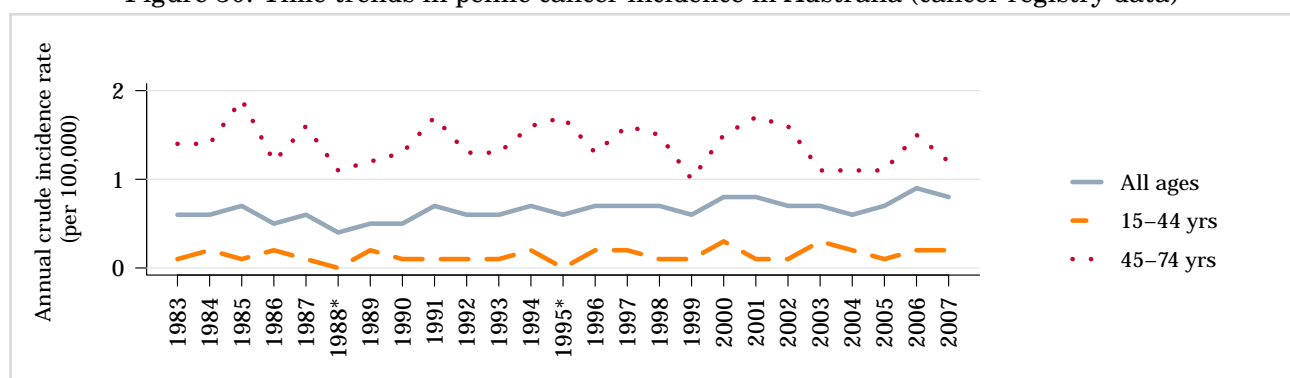
^a Accumulated number of cases during the period in the population covered by the corresponding registry.

^b Rates per 100,000 men per year.

Data sources:

¹ 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>

Figure 30: Time trends in penile cancer incidence in Australia (cancer registry data)



*No cases were registered for this age group.

Data accessed on 27 Apr 2015.

The following regional cancer registries provided data and contributed to their national estimate: New South Wales, Queensland, South Australia, Tasmania, Victoria, Western Australia.

Data sources:

Ferlay J, Bray F, Steliarova-Foucher E and Forman D. Cancer Incidence in Five Continents, CI5plus: IARC CancerBase No. 9 [Internet]. Lyon, France: International Agency for Research on Cancer; 2014. Available from: <http://ci5.iarc.fr>

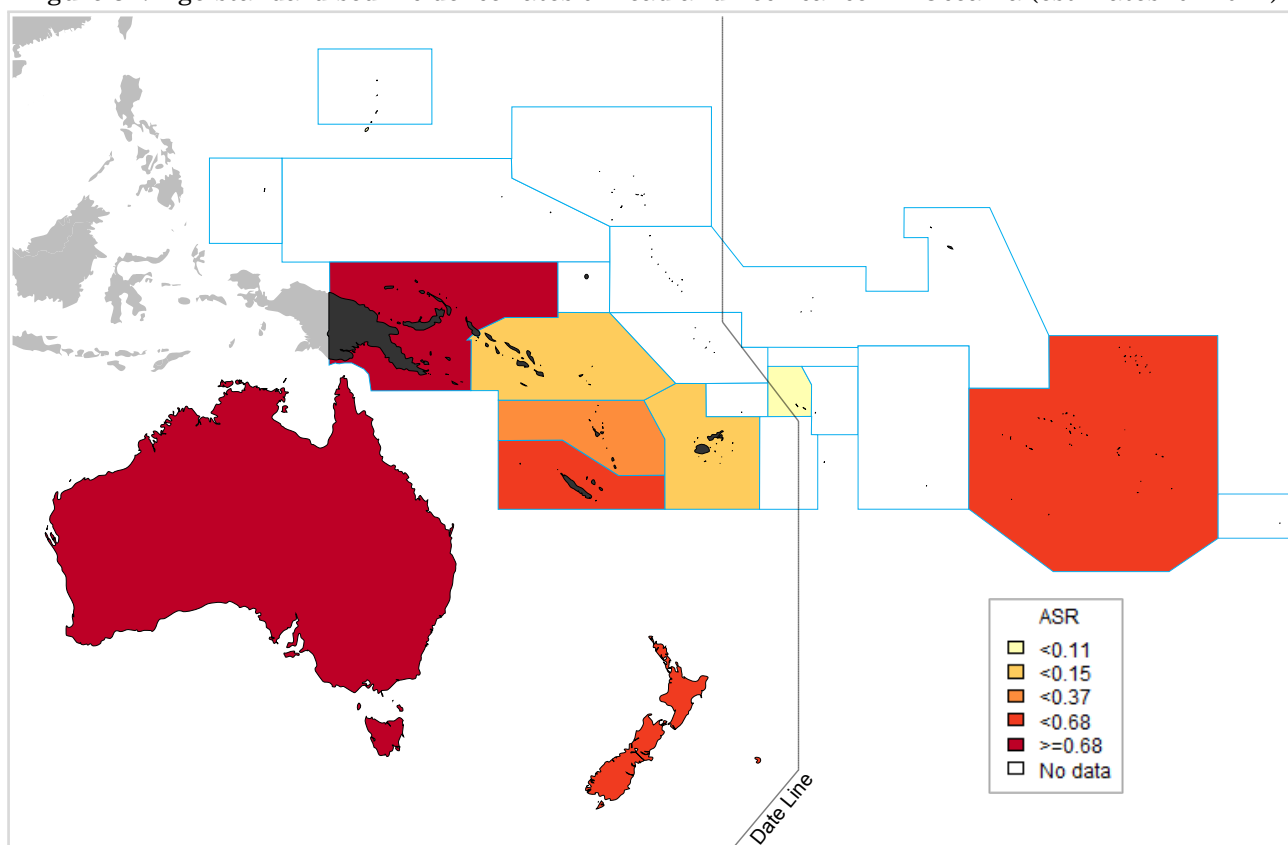
NOTE

Time trends in cancer incidence are shown only in countries with available data.

3.3 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).

Figure 31: Age-standardised incidence rates of head and neck cancer in Oceania (estimates for 2012)



Data accessed on 08 May 2017.

ASR: Age-standardized rate, rates per 100,000 per year.

Please refer to original source for methods.

Head and neck cancer cases (oropharynx, oral cavity and larynx).

GLOBOCAN quality index for availability of incidence data:

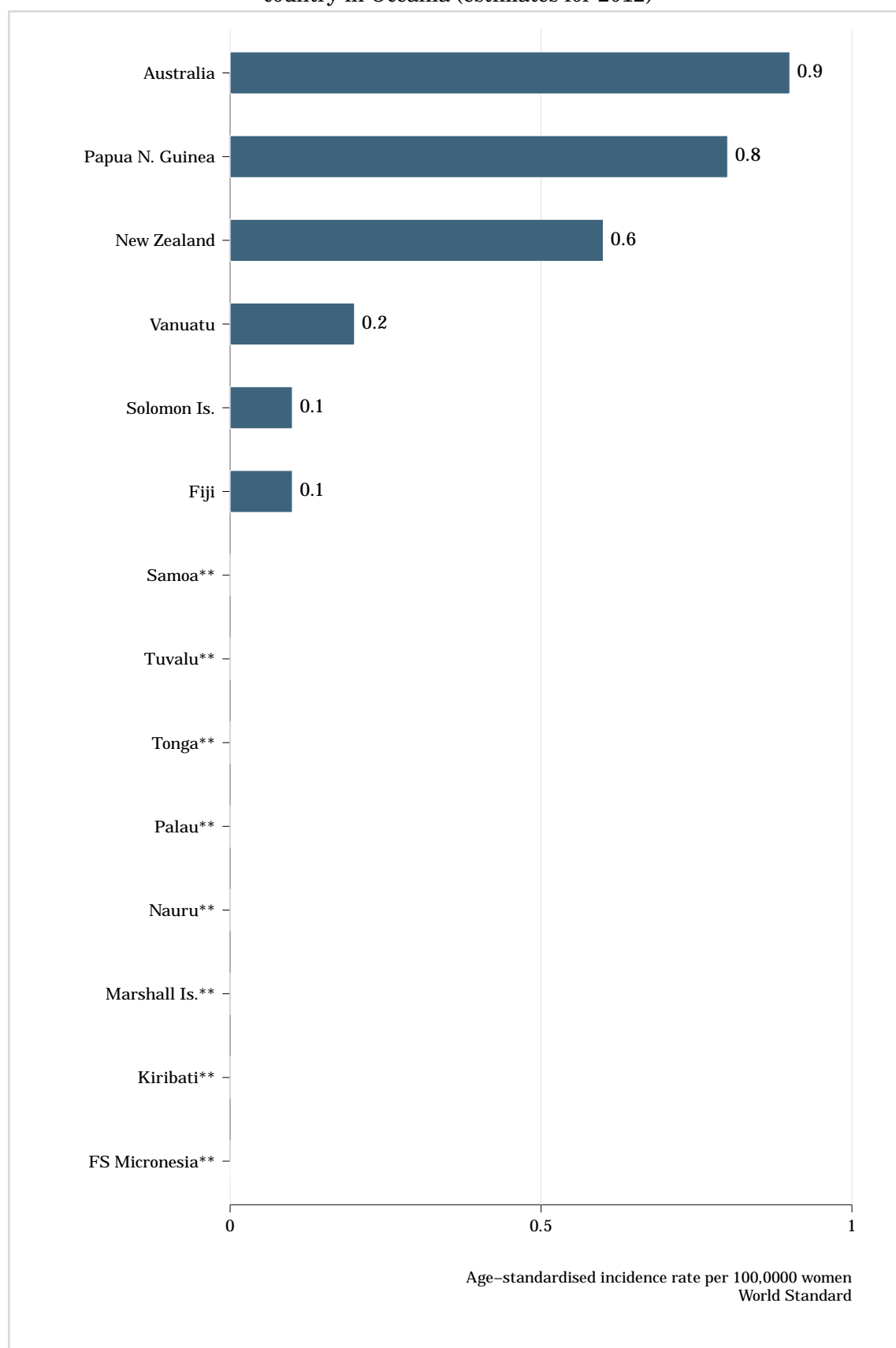
- For Australia, New Zealand: High quality national data or high quality regional (coverage greater than 50%).
- For Fiji, Guam, New Caledonia, French Polynesia, Vanuatu, Samoa: National data (rates).
- For Papua New Guinea, Solomon Islands: No data.

GLOBOCAN quality index of methods for calculating incidence: Methods to estimate the sex- and age-specific incidence rates of cancer for a specific country:

- For Australia, New Zealand, French Polynesia: Rates projected to 2012
- For Fiji, Vanuatu: Estimated from national mortality estimates using modelled survival
- For Guam, New Caledonia, Samoa: Most recent rates applied to 2012 population
- For Papua New Guinea: Age/sex specific rates for "all cancers" were partitioned using data on relative frequency of different cancers (by age and sex)
- For Solomon Islands: The rates are those of neighbouring countries or registries in the same area

Data sources: Worldwide burden of cancer attributable to HPV by site, country and HPV type. de Martel C, Plummer M, Vignat J, Franceschi S. *Int J Cancer*. 2017 Apr 1. doi: 10.1002/ijc.30716. [Epub ahead of print]. PMID:28369882.

Figure 32: Age-standardised incidence rate of head and neck cancer cases attributable to HPV by country in Oceania (estimates for 2012)



** No rates are available.

Data accessed on 08 May 2017.

ASR: Age-standardized rate, rates per 100,000 per year.

Please refer to original source for methods.

(Continued on next page)

(Figure 32 – continued from previous page)

Head and neck cancer cases (oropharynx, oral cavity and larynx).

GLOBOCAN quality index for availability of incidence data:

- For Samoa, Fiji, Vanuatu: National data (rates).
- For Solomon Islands, Papua New Guinea: No data.
- For New Zealand, Australia: High quality national data or high quality regional (coverage greater than 50%).

GLOBOCAN quality index of methods for calculating incidence: Methods to estimate the sex- and age-specific incidence rates of cancer for a specific country:

- For Samoa: Most recent rates applied to 2012 population
- For Fiji, Vanuatu: Estimated from national mortality estimates using modelled survival
- For Solomon Islands: The rates are those of neighbouring countries or registries in the same area
- For New Zealand, Australia: Rates projected to 2012
- For Papua New Guinea: Age/sex specific rates for "all cancers" were partitioned using data on relative frequency of different cancers (by age and sex)

Data sources: de Martel C, Plummer M, Vignat J, Franceschi S. Worldwide burden of cancer attributable to HPV by site, country and HPV type. Int J Cancer. 2017

3.3.1 Pharyngeal cancer (excluding nasopharynx)

Table 11: Cancer incidence of pharynx (excluding nasopharynx) in Oceania and its regions by sex.
Includes ICD-10 codes: C09-10, C12-14 (estimates for 2012).

Area	MALE				FEMALE			
	N cases	Crude ^a rate	ASR ^a	Cum risk ^b (%) ages 0-74	N cases	Crude ^a rate	ASR ^a	Cum risk ^b (%) ages 0-74
Oceania	715	3.8	3.0	0.4	160	0.8	0.6	0.1
Australia & New Zealand	633	4.6	3.2	0.4	146	1.1	0.7	0.1
Australia	555	4.9	3.3	0.4	130	1.1	0.7	0.1
New Zealand	78	3.6	2.4	0.3	16	0.7	0.4	0.0
Melanesia	71	1.5	3.4	0.6	14	0.3	0.4	0.0
Fiji	0	0.0	0.0	0.0	1	0.2	0.2	0.0
Papua N. Guinea	62	1.7	4.5	0.8	13	0.4	0.5	0.0
Solomon Is.	1	0.3	0.8	0.2	0	0.0	0.0	0.0
Vanuatu	1	0.8	1.6	0.4	0	0.0	0.0	0.0
Micronesia	0	0.0	0.0	0.0	0	0.0	0.0	0.0
FS Micronesia	-	-	-	-	-	-	-	-
Kiribati	-	-	-	-	-	-	-	-
Marshall Is.	-	-	-	-	-	-	-	-
Nauru	-	-	-	-	-	-	-	-
Palau	-	-	-	-	-	-	-	-
Polynesia	11	3.2	3.8	0.5	0	0.0	0.0	0.0
Samoa	0	0.0	0.0	0.0	0	0.0	0.0	0.0
Tonga	-	-	-	-	-	-	-	-
Tuvalu	-	-	-	-	-	-	-	-
Cook Is.	-	-	-	-	-	-	-	-
Niue	-	-	-	-	-	-	-	-

Data accessed on 15 Nov 2015.

^a Male: Rates per 100,000 men per year. Female: Rates per 100,000 women per year.^b 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.

Data sources:

Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, Mathers C, Rebelo M, Parkin DM, Forman D, Bray F. GLOBOCAN 2012 v1.2, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer; 2013. Available from: <http://globocan.iarc.fr>.

Table 12: Cancer mortality of pharynx (excluding nasopharynx) in Oceania and its regions by sex.
Includes ICD-10 codes: C09-10, C12-14 (estimates for 2012).

Area	MALE				FEMALE			
	N cases	Crude ^a rate	ASR ^a	Cum risk ^b (%) ages 0-74	N cases	Crude ^a rate	ASR ^a	Cum risk ^b (%) ages 0-74
Oceania	323	1.7	1.3	0.2	85	0.5	0.3	0.0
Australia & New Zealand	261	1.9	1.2	0.1	70	0.5	0.3	0.0
Australia	226	2.0	1.2	0.2	62	0.5	0.3	0.0
New Zealand	35	1.6	1.0	0.1	8	0.4	0.2	0.0
Melanesia	56	1.2	2.8	0.5	14	0.3	0.4	0.0
Fiji	1	0.2	0.4	0.0	1	0.2	0.2	0.0
Papua N. Guinea	48	1.3	3.6	0.6	11	0.3	0.5	0.0
Solomon Is.	1	0.3	0.8	0.2	0	0.0	0.0	0.0
Vanuatu	1	0.8	1.6	0.4	0	0.0	0.0	0.0

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(Table 12 – continued from previous page)

Area	MALE				FEMALE			
	N cases	Crude ^a rate	ASR ^a	Cum risk ^b (%) ages 0-74	N cases	Crude ^a rate	ASR ^a	Cum risk ^b (%) ages 0-74
Micronesia	0	0.0	0.0	0.0	0	0.0	0.0	0.0
FS Micronesia	-	-	-	-	-	-	-	-
Kiribati	-	-	-	-	-	-	-	-
Marshall Is.	-	-	-	-	-	-	-	-
Nauru	-	-	-	-	-	-	-	-
Palau	-	-	-	-	-	-	-	-
Polynesia	6	1.7	2.0	0.2	1	0.3	0.3	0.0
Samoa	0	0.0	0.0	0.0	0	0.0	0.0	0.0
Tonga	-	-	-	-	-	-	-	-
Tuvalu	-	-	-	-	-	-	-	-
Cook Is.	-	-	-	-	-	-	-	-
Niue	-	-	-	-	-	-	-	-

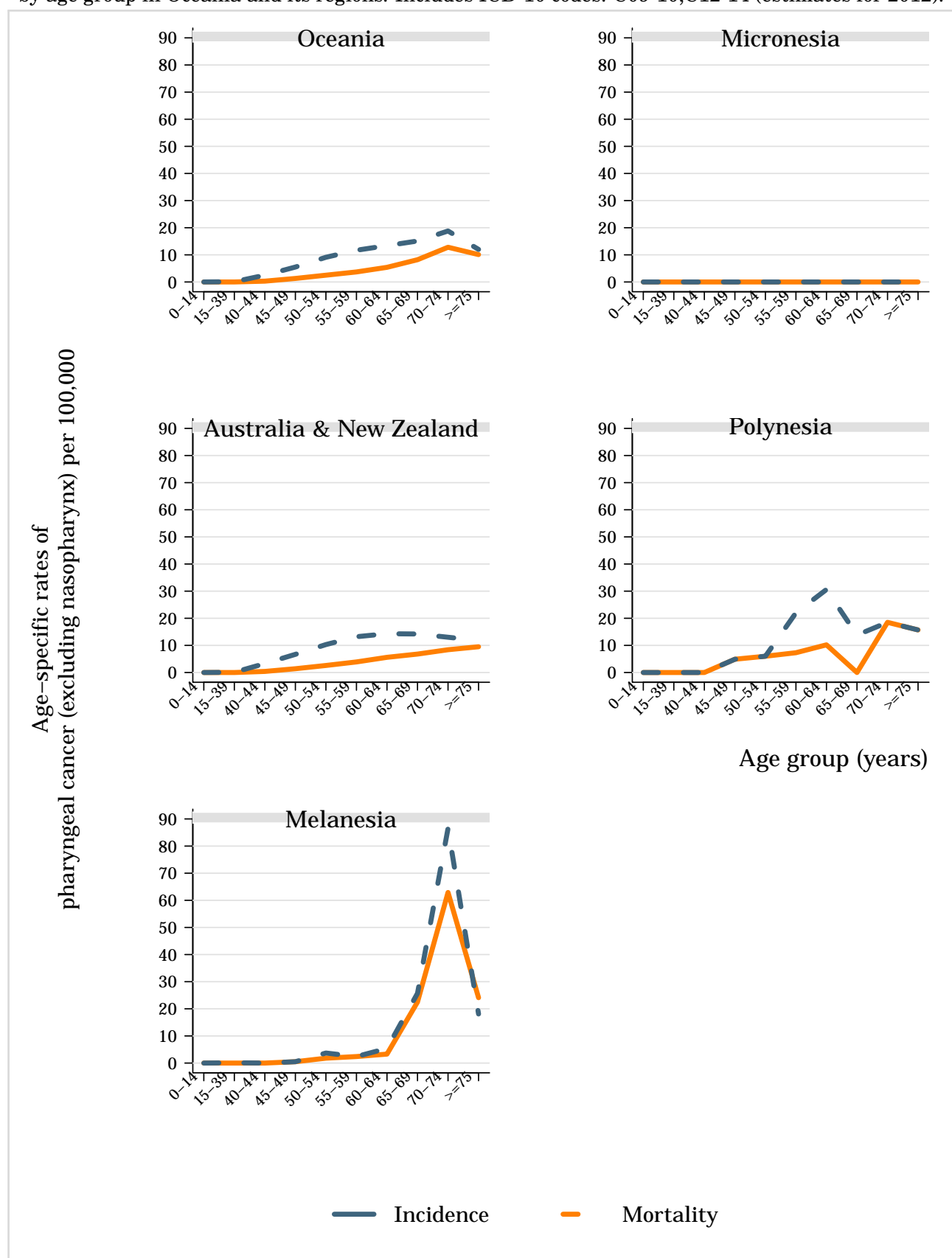
Data accessed on 15 Nov 2015.

^a Male: Rates per 100,000 men per year. Female: Rates per 100,000 women per year.^b 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.

Data sources:

Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, Mathers C, Rebelo M, Parkin DM, Forman D, Bray F. GLOBOCAN 2012 v1.2, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer; 2013. Available from: <http://globocan.iarc.fr>.

Figure 33: Comparison of cancer incidence and mortality of pharynx (excluding nasopharynx) in males by age group in Oceania and its regions. Includes ICD-10 codes: C09-10,C12-14 (estimates for 2012).



Data accessed on 15 Nov 2015.

For specific estimation methodology refer to http://globocan.iarc.fr/Pages/DataSource_and_methods.aspx

*European countries included in the Seven framework programme PREHDICT project (43 countries). Please refer to Introduction (link) to see PREHDICT project aim and coverage.

Male: Rates per 100,000 men per year. Female: Rates per 100,000 women per year.

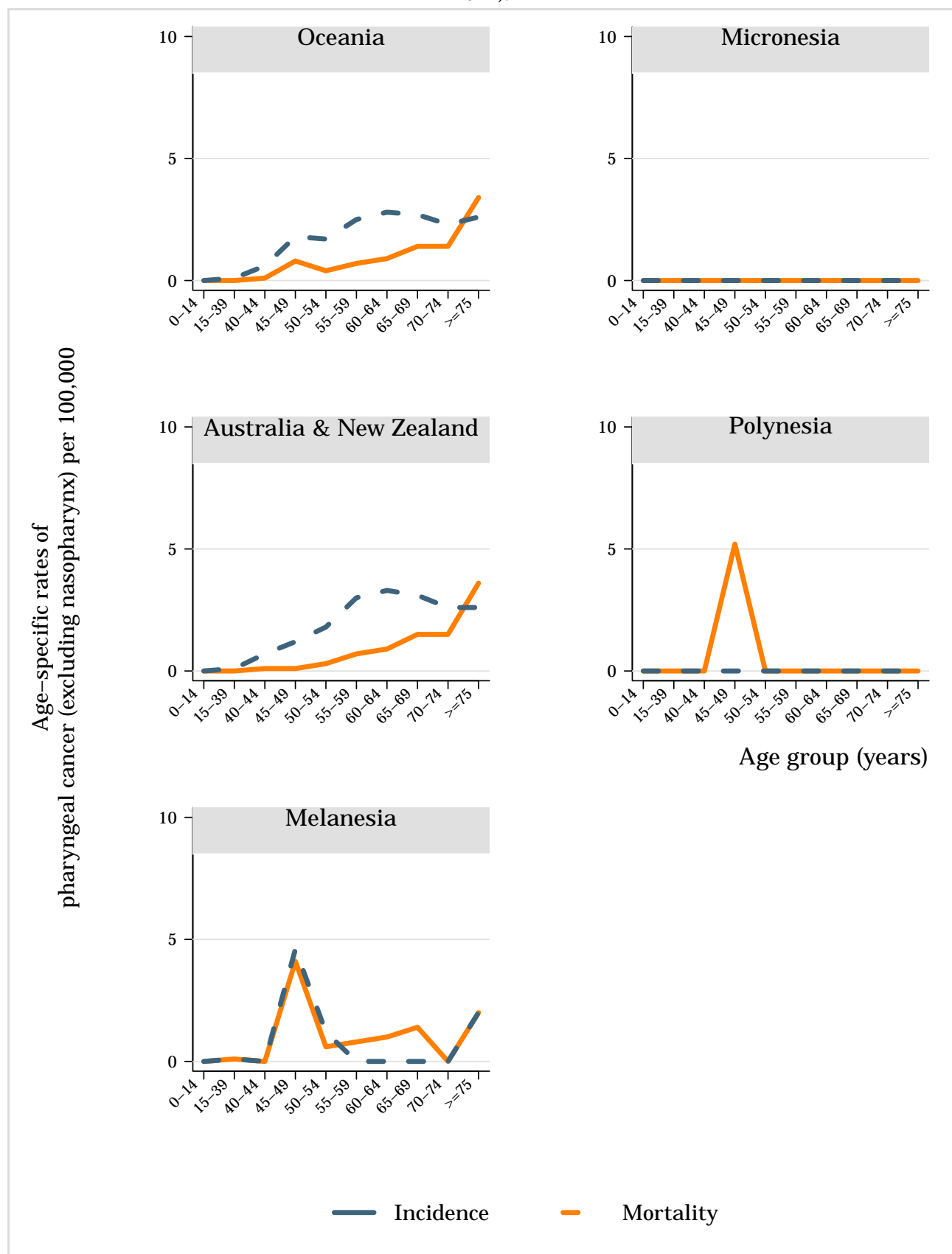
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(Figure 34 – continued from previous page)

Data sources:

Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, Mathers C, Rebelo M, Parkin DM, Forman D, Bray F. GLOBOCAN 2012 v1.2, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer; 2013. Available from: <http://globocan.iarc.fr>.

Figure 34: Comparison of cancer incidence and mortality of pharynx (excluding nasopharynx) in females by age group in Oceania and its regions. Includes ICD-10 codes: C09-10,C12-14 (estimates for 2012).



Data accessed on 15 Nov 2015.

For specific estimation methodology refer to http://globocan.iarc.fr/Pages/DataSource_and_methods.aspx

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(Figure 34 – continued from previous page)

Male: Rates per 100,000 men per year. Female: Rates per 100,000 women per year.

Data sources:

Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, Mathers C, Rebelo M, Parkin DM, Forman D, Bray F. GLOBOCAN 2012 v1.2, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer; 2013. Available from: <http://globocan.iarc.fr>.

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. This section presents the HPV burden at each of the anogenital tract sites. 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).

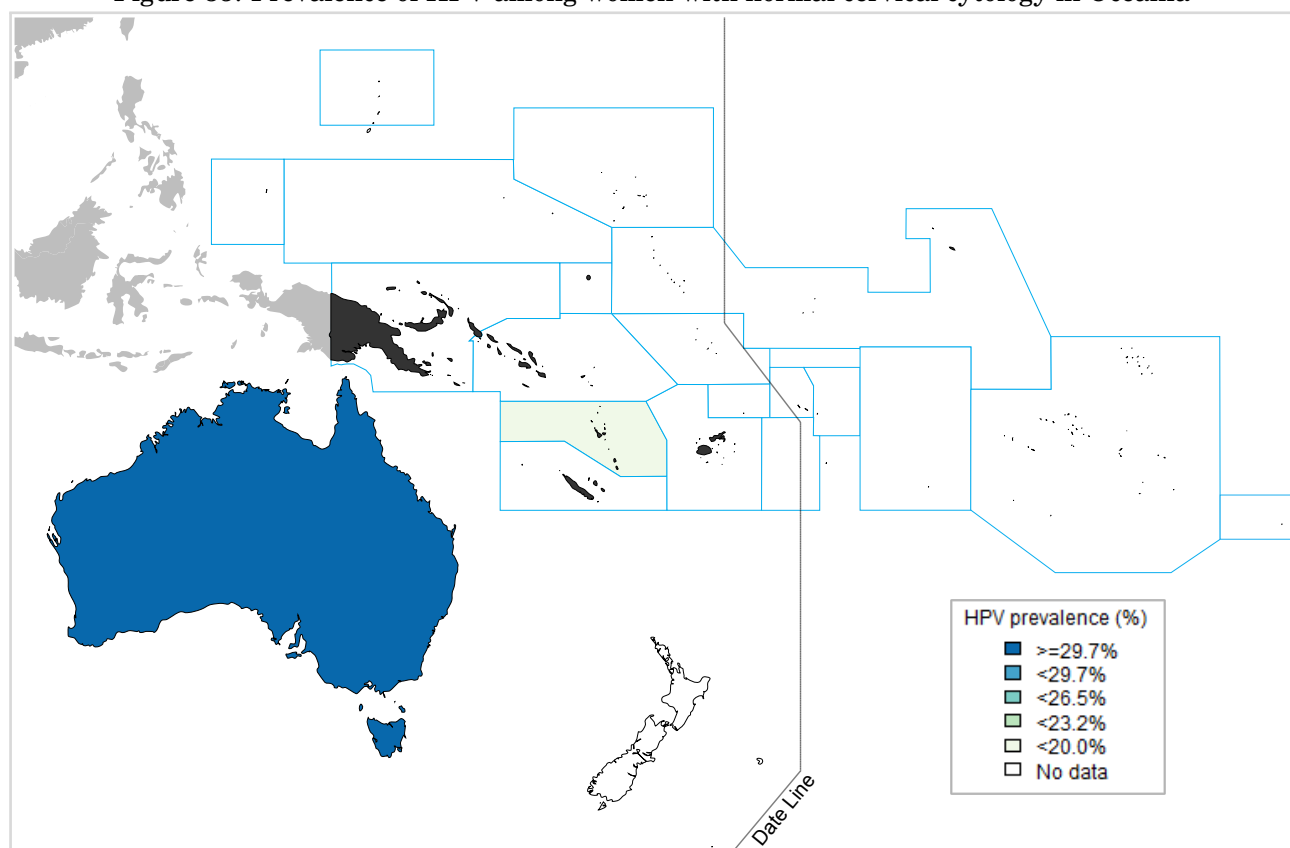
The prevalence of HPV increases with lesion severity. HPV causes virtually 100% of cervical cancer cases, and an underestimation of HPV prevalence in cervical cancer is most likely due to the limitations of study methodologies. Worldwide, HPV16 and 18 (the two vaccine-preventable types) contribute to 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 high-grade 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 35: Prevalence of HPV among women with normal cervical cytology in Oceania

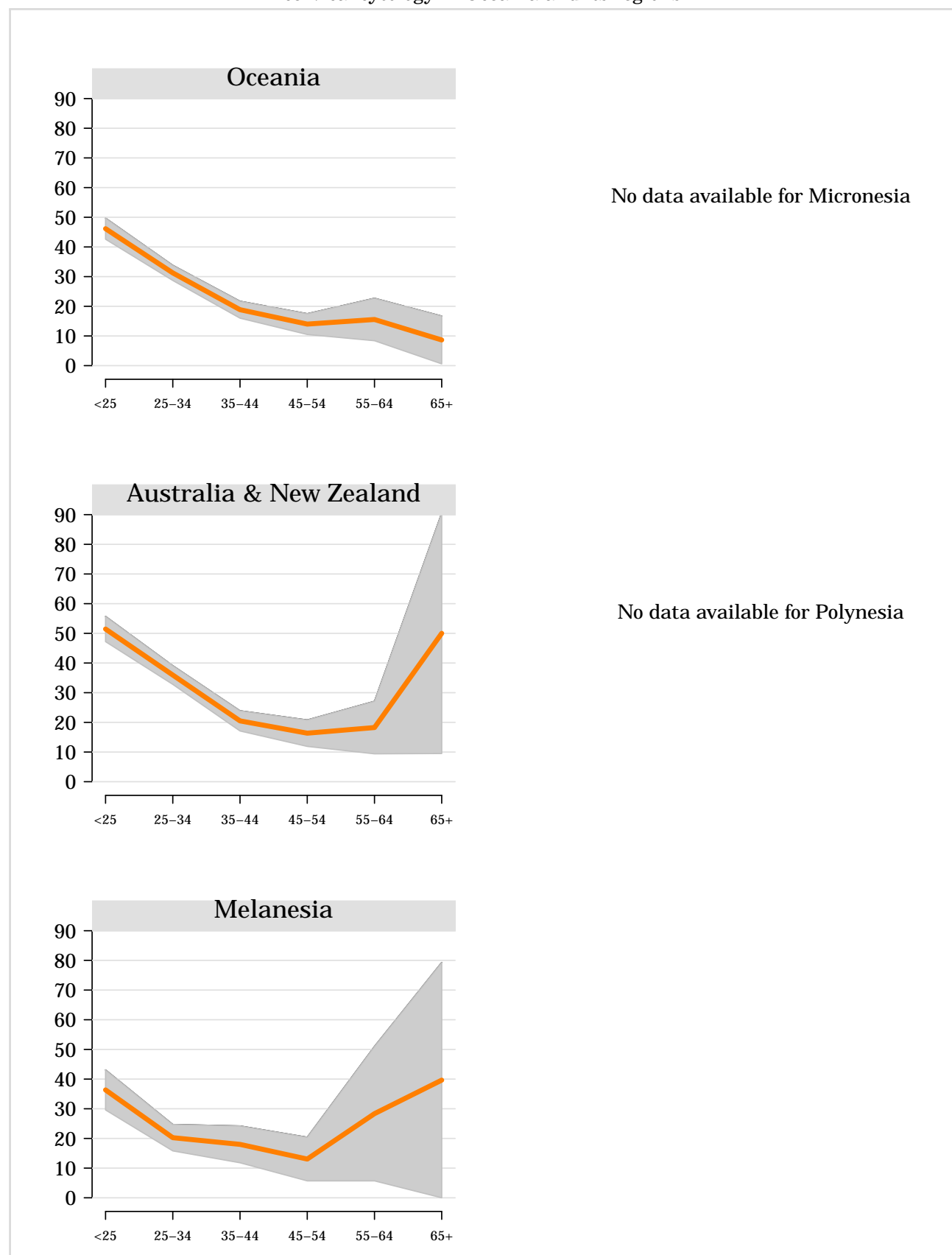


Data updated on 15 Dec 2016 (data as of 30 Jun 2015).

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

Data sources: See references in Section 9.

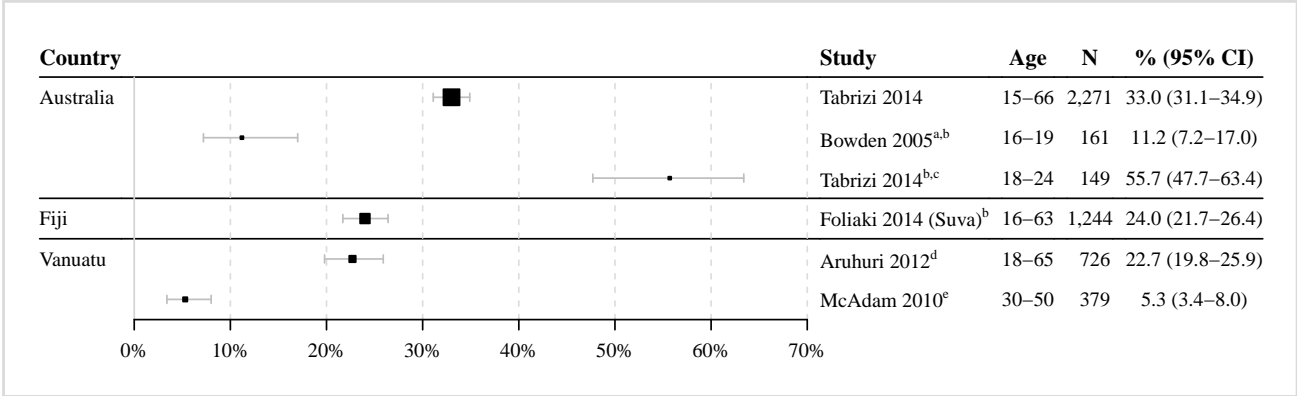
Figure 36: Crude age-specific HPV prevalence (%) and 95% confidence interval in women with normal cervical cytology in Oceania and its regions



Data updated on 15 Dec 2016 (data as of 30 Jun 2015).

Data sources: See references in Section 9.

Figure 37: Prevalence of HPV among women with normal cervical cytology in Oceania by country and study



Data updated on 15 Dec 2016 (data as of 30 Jun 2015).

95% CI: 95% Confidence Interval; N: number of women tested;

The samples for HPV testing come from cervical specimens (fresh/fixed biopsies or exfoliated cells). The line represents the 95% confidence interval and the shadowed square is proportional to the sample size.

^a Australian Capital Territory

^b Women from the general population, including some with cytological cervical abnormalities

^c Sydney, Melbourne, Perth

^d Santo Urban (Espiritu Santo Island) and Porto Vila (Efate Island)

^e Port Vila (Efate Island)

Data sources: See references in Section 9.

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

Table 13: Prevalence of HPV 16/18 in women with normal cytology, precancerous cervical lesions and invasive cervical cancer in Oceania

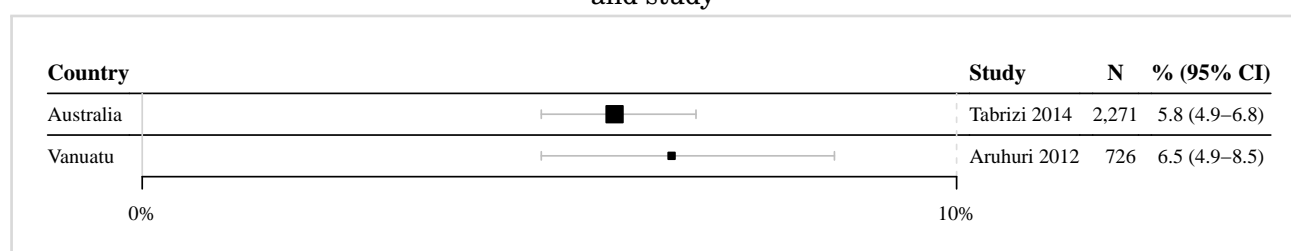
Country /Region	Normal cytology		Low-grade lesions		High-grade lesions		Cervical cancer	
	No. tested	HPV Prev (95% CI)	No. tested	HPV Prev (95% CI)	No. tested	HPV Prev (95% CI)	No. tested	HPV Prev (95% CI)
Oceania	2,997	8.3 (7.4-9.4)	473	27.1 (23.3-31.2)	1,629	59.1 (56.7-61.5)	855	76.6 (73.7-79.3)
Australia & New Zealand	2,271	8.5 (7.4-9.7)	473	27.1 (23.3-31.2)	1,517	58.4 (55.9-60.9)	785	76.1 (72.9-78.9)
Australia	2,271	8.5 (7.4-9.7)	473	27.1 (23.3-31.2)	1,099	55.8 (52.8-58.7)	785	76.1 (72.9-78.9)
New Zealand	-	--	-	--	418	65.3 (60.6-69.7)	-	--
Melanesia	726	7.7 (6.0-9.9)	-	--	112	68.8 (59.7-76.6)	70	82.9 (72.4-89.9)
Fiji	-	--	-	--	112	68.8 (59.7-76.6)	-	--
Papua N. Guinea	-	--	-	--	-	--	70	82.9 (72.4-89.9)
Solomon Is.	-	--	-	--	-	--	-	--
Vanuatu	726	7.7 (6.0-9.9)	-	--	-	--	-	--
Micronesia	-	--	-	--	-	--	-	--
FS Micronesia	-	--	-	--	-	--	-	--
Kiribati	-	--	-	--	-	--	-	--
Marshall Is.	-	--	-	--	-	--	-	--
Nauru	-	--	-	--	-	--	-	--
Palau	-	--	-	--	-	--	-	--
Polynesia	-	--	-	--	-	--	-	--
Samoa	-	--	-	--	-	--	-	--
Tonga	-	--	-	--	-	--	-	--
Tuvalu	-	--	-	--	-	--	-	--
Cook Is.	-	--	-	--	-	--	-	--
Niue	-	--	-	--	-	--	-	--

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

95% CI: 95% Confidence Interval; High-grade lesions: CIN-2, CIN-3, CIS or HSIL; Low-grade lesions: LSIL or CIN-1;

Data sources: See references in Section 9.

Figure 38: Prevalence of HPV 16 among women with normal cervical cytology in Oceania by country and study



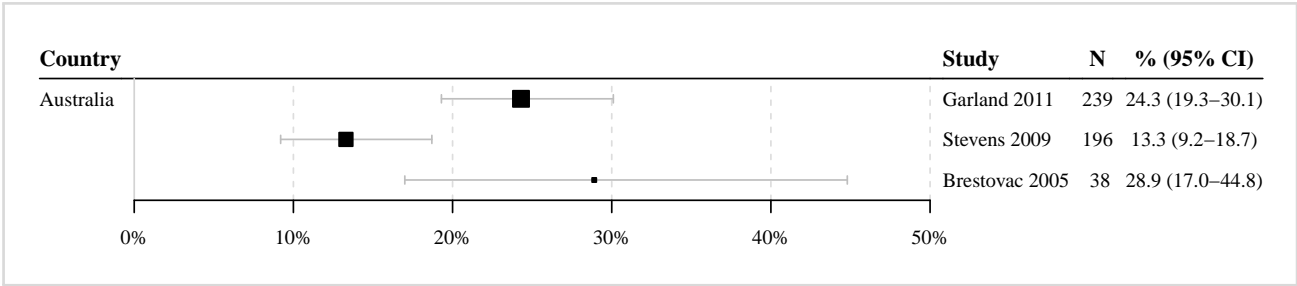
Data updated on 15 Dec 2016 (data as of 30 Jun 2015).

95% CI: 95% Confidence Interval; N: number of women tested;

The samples for HPV testing come from cervical specimens (fresh/fixed biopsies or exfoliated cells). The line represents the 95% confidence interval and the shadowed square is proportional to the sample size.

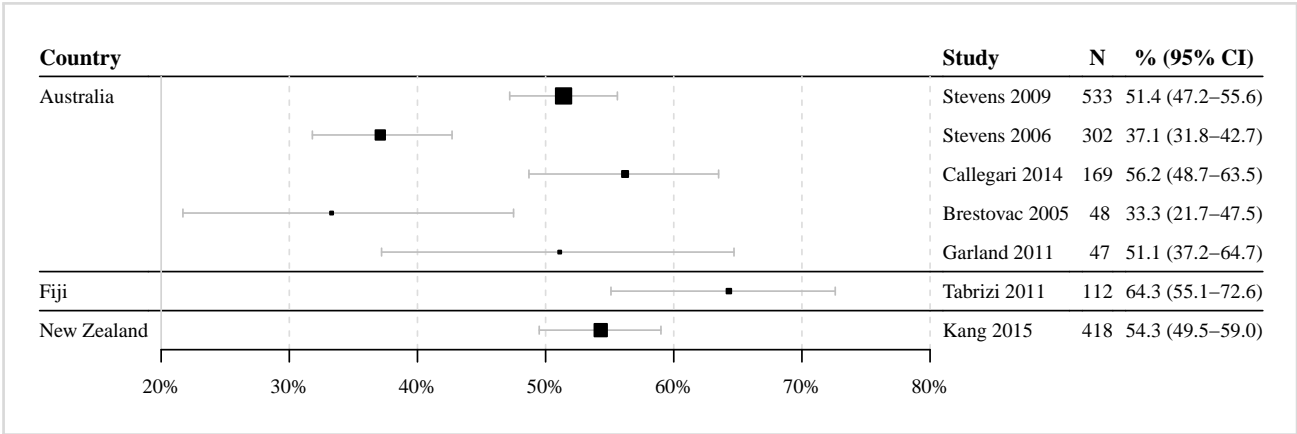
Data sources: See references in Section 9.

Figure 39: Prevalence of HPV 16 among women with low-grade cervical lesions in Oceania by country and study



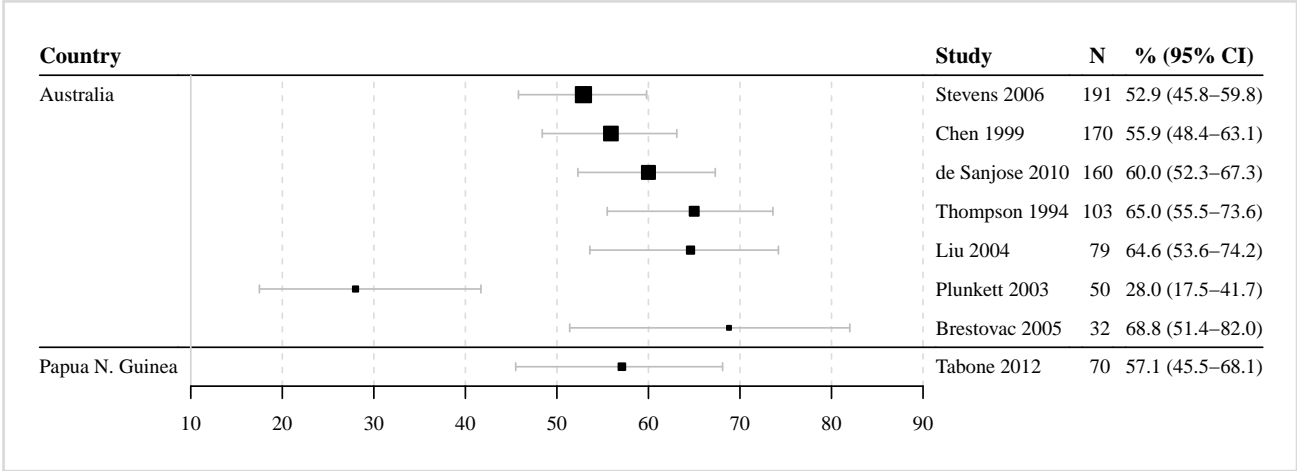
Data updated on 28 Jun 2017 (data as of 30 Jun 2015).
95% CI: 95% Confidence Interval; Low-grade lesions: LSIL or CIN-1; N: number of women tested;
The samples for HPV testing come from cervical specimens (fresh/fixed biopsies or exfoliated cells). The line represents the 95% confidence interval and the shadowed square is proportional to the sample size.
Data sources: See references in Section 9.

Figure 40: Prevalence of HPV 16 among women with high-grade cervical lesions in Oceania by country and study



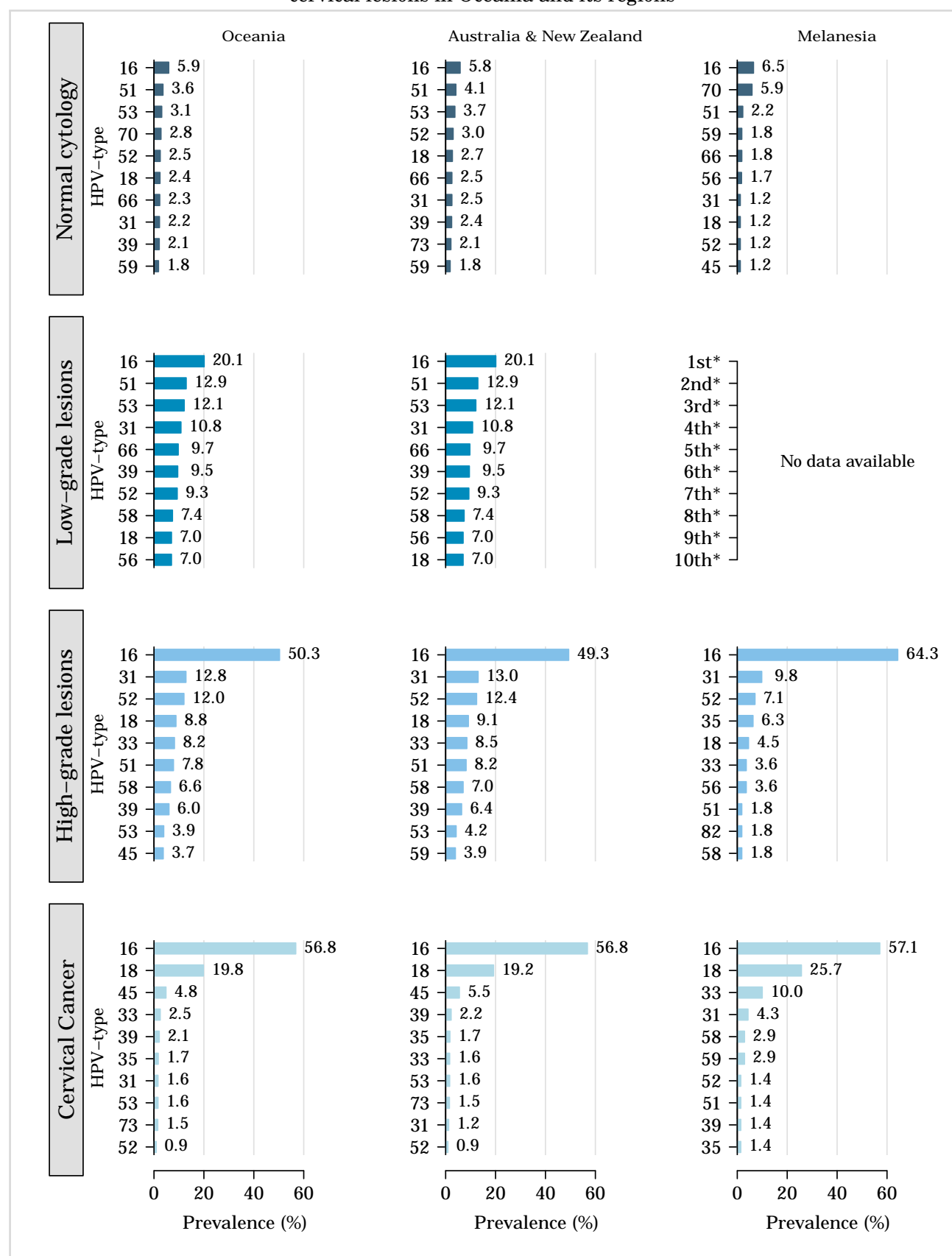
Data updated on 28 Jun 2017 (data as of 30 Jun 2015).
95% CI: 95% Confidence Interval; High-grade lesions: CIN-2, CIN-3, CIS or HSIL; N: number of women tested;
The samples for HPV testing come from cervical specimens (fresh/fixed biopsies or exfoliated cells). The line represents the 95% confidence interval and the shadowed square is proportional to the sample size.
Data sources: See references in Section 9.

Figure 41: Prevalence of HPV 16 among women with invasive cervical cancer in Oceania by country and study



Data updated on 28 Jun 2017 (data as of 30 Jun 2015).
95% CI: 95% Confidence Interval; N: number of women tested;
The samples for HPV testing come from cervical specimens (fresh/fixed biopsies or exfoliated cells). The line represents the 95% confidence interval and the shadowed square is proportional to the sample size.
Data sources: See references in Section 9.

Figure 42: Comparison of the ten most frequent HPV oncogenic types among women with and without cervical lesions in Oceania and its regions



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

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

High-grade lesions: CIN-2, CIN-3, CIS or HSIL; Low-grade lesions: LSIL or CIN-1;

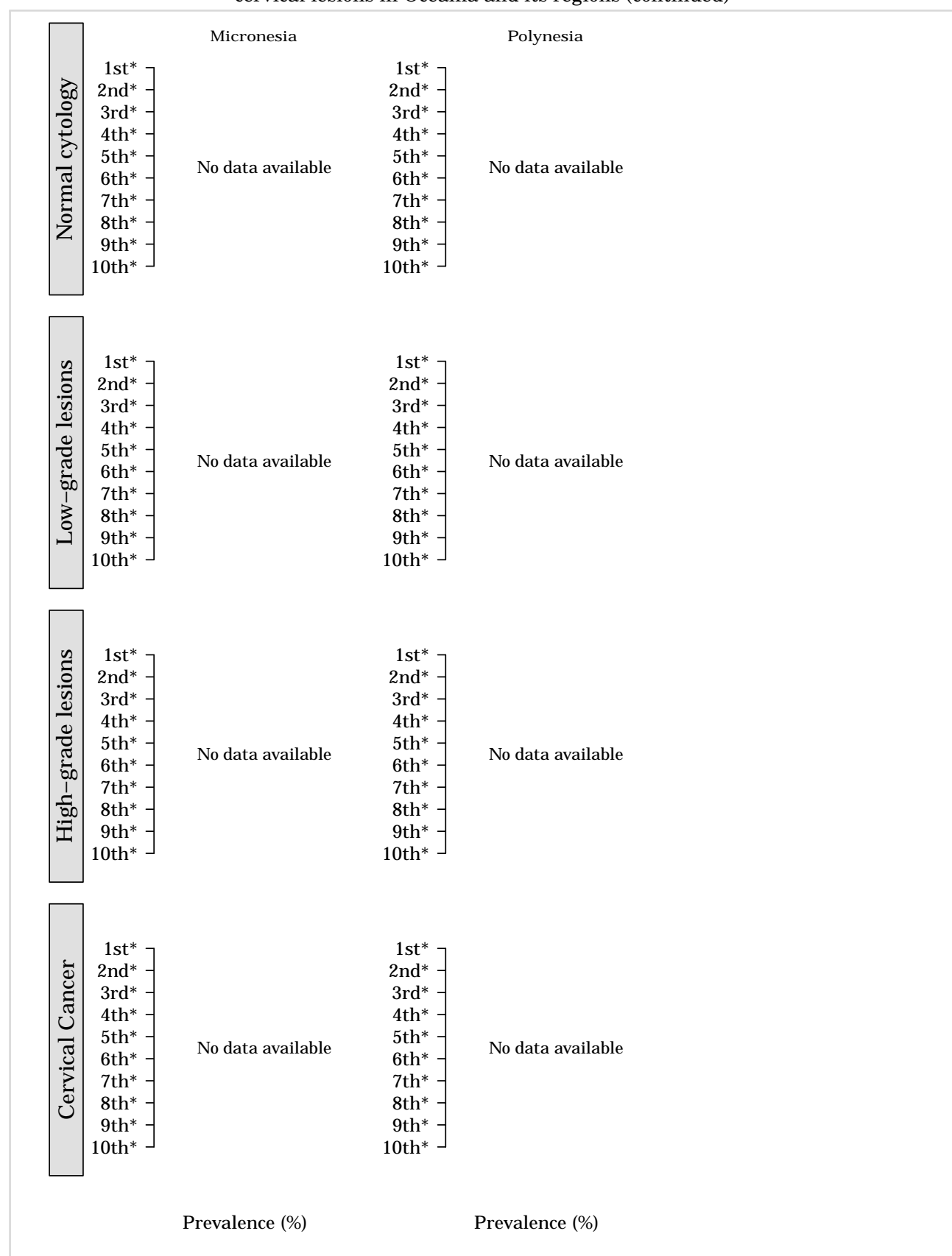
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(Figure 43 – continued from previous page)

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

Data sources: See references in Section 9.

Figure 43: Comparison of the ten most frequent HPV oncogenic types among women with and without cervical lesions in Oceania and its regions (continued)



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

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

High-grade lesions: CIN-2, CIN-3, CIS or HSIL; Low-grade lesions: LSIL or CIN-1;

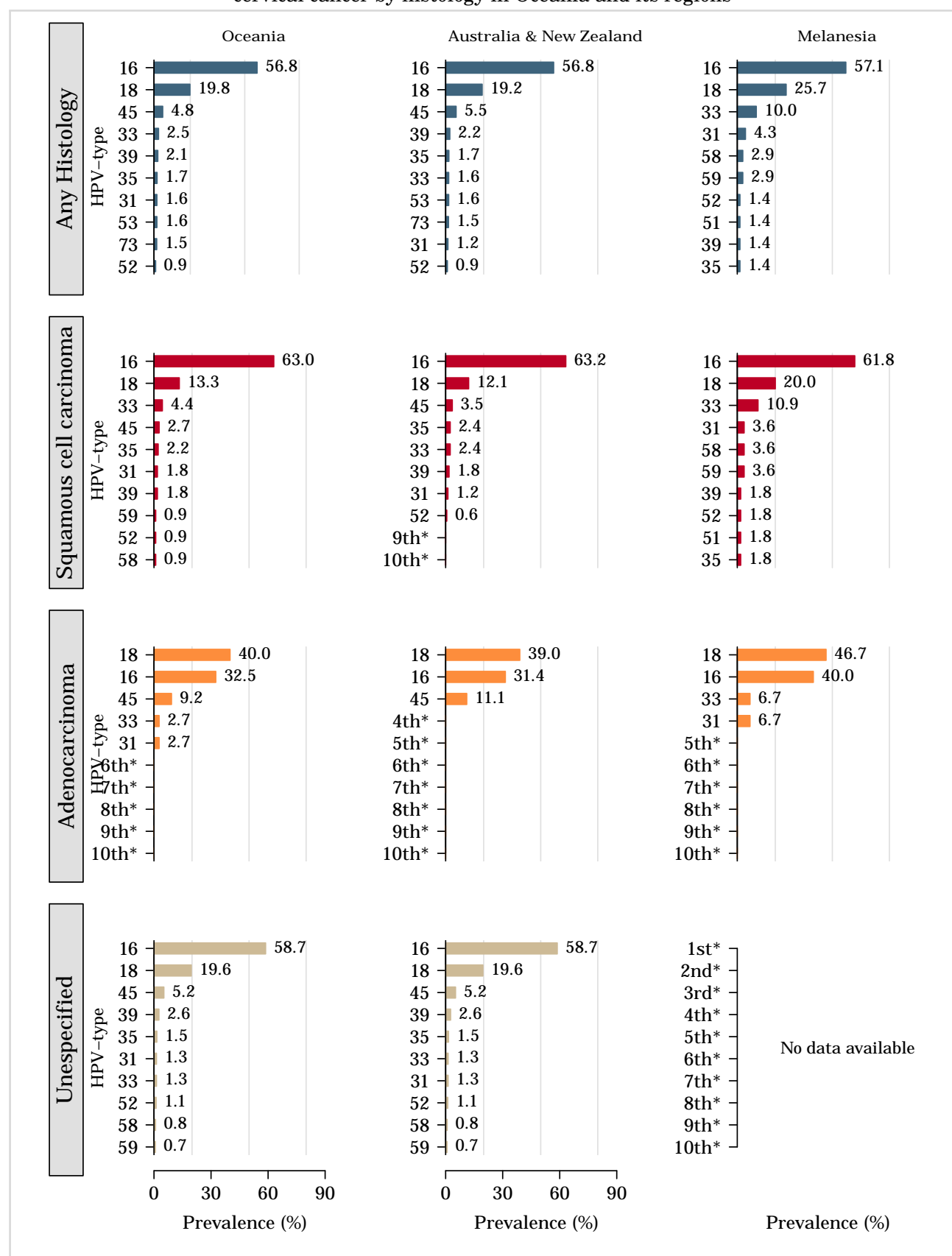
(Continued on next page)

(Figure 43 – continued from previous page)

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

Data sources: See references in Section 9.

Figure 44: Comparison of the ten most frequent HPV oncogenic types among women with invasive cervical cancer by histology in Oceania and its regions



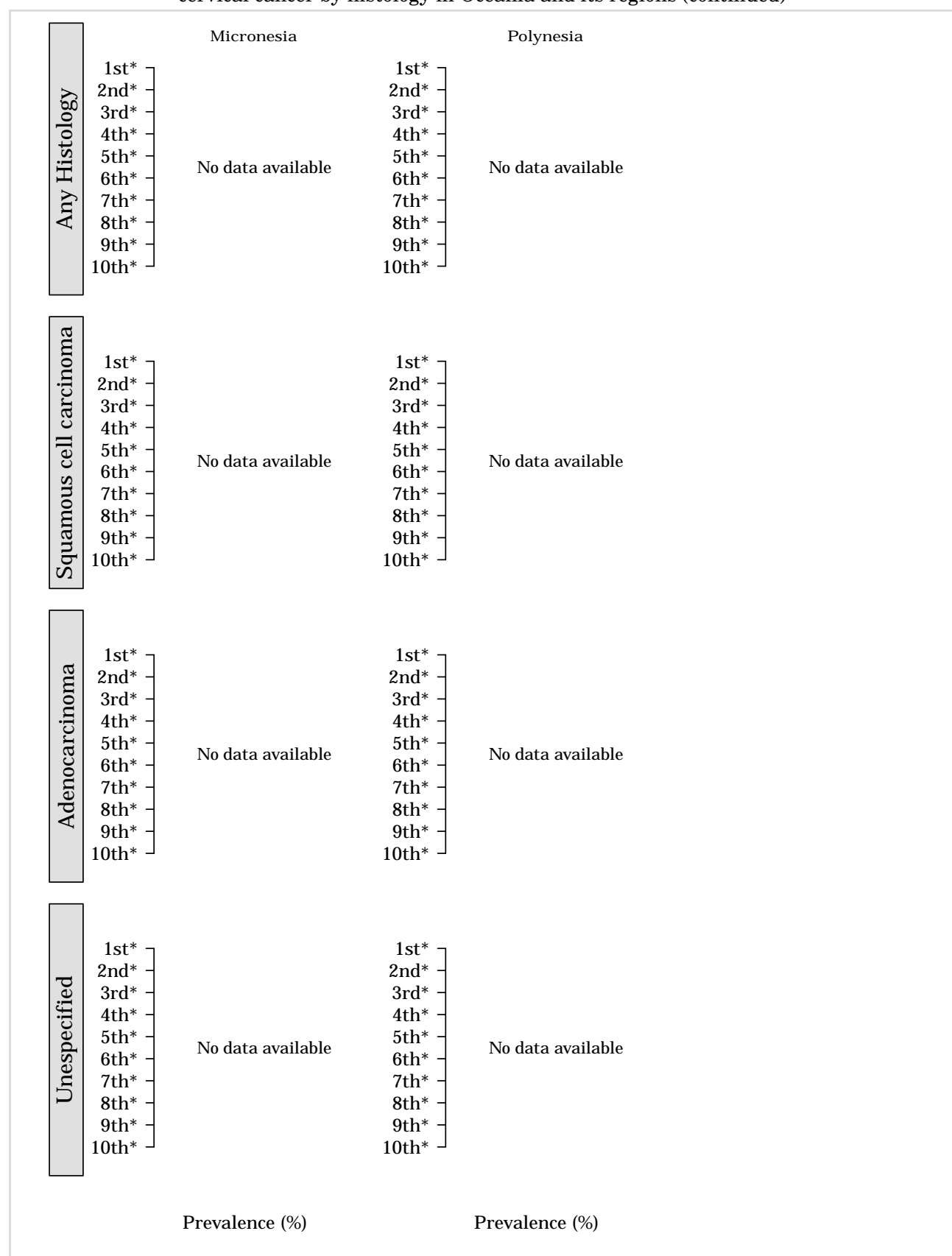
*No data available. No more types than shown were tested or were positive.

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).

Data sources: See references in Section 9.

Figure 45: Comparison of the ten most frequent HPV oncogenic types among women with invasive cervical cancer by histology in Oceania and its regions (continued)



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

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).

Data sources: See references in Section 9.

Table 14: Type-specific HPV prevalence in women with normal cervical cytology, precancerous cervical lesions and invasive cervical cancer in Oceania

HPV Type	Normal cytology		Low-grade lesions		High-grade lesions		Cervical cancer	
	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	2,997	5.9 (5.1-6.8)	473	20.1 (16.7-23.9)	1,629	50.3 (47.9-52.8)	855	56.8 (53.5-60.1)
18	2,997	2.4 (1.9-3.0)	473	7.0 (5.0-9.6)	1,629	8.8 (7.5-10.3)	855	19.8 (17.2-22.6)
31	2,997	2.2 (1.7-2.8)	473	10.8 (8.3-13.9)	1,629	12.8 (11.2-14.5)	635	1.6 (0.9-2.9)
33	2,997	1.1 (0.8-1.5)	473	4.7 (3.1-6.9)	1,629	8.2 (6.9-9.6)	635	2.5 (1.6-4.1)
35	2,997	0.9 (0.6-1.3)	473	2.5 (1.5-4.4)	1,629	3.3 (2.5-4.3)	532	1.7 (0.9-3.2)
39	2,997	2.1 (1.6-2.7)	473	9.5 (7.2-12.5)	1,629	6.0 (5.0-7.3)	532	2.1 (1.2-3.7)
45	2,997	1.2 (0.9-1.7)	473	5.3 (3.6-7.7)	1,629	3.7 (2.9-4.7)	582	4.8 (3.3-6.9)
51	2,997	3.6 (3.0-4.3)	473	12.9 (10.2-16.2)	1,629	7.8 (6.6-9.2)	532	0.4 (0.1-1.4)
52	2,997	2.5 (2.0-3.2)	473	9.3 (7.0-12.3)	1,629	12.0 (10.5-13.7)	635	0.9 (0.4-2.0)
56	2,997	1.7 (1.3-2.2)	473	7.0 (5.0-9.6)	1,629	3.0 (2.3-4.0)	532	0.0 (0.0-0.7)
58	2,997	1.5 (1.2-2.0)	473	7.4 (5.4-10.1)	1,629	6.6 (5.5-7.9)	635	0.8 (0.3-1.8)
59	2,997	1.8 (1.4-2.3)	473	5.7 (4.0-8.2)	1,629	3.6 (2.8-4.6)	532	0.8 (0.3-1.9)
Probable/possible carcinogen								
26	2,997	0.0 (0.0-0.2)	239	0.0 (0.0-1.6)	461	0.0 (0.0-0.8)	351	0.3 (0.1-1.6)
30	726	0.0 (0.0-0.5)	-	-	-	-	160	0.0 (0.0-2.3)
34	2,997	0.1 (0.0-0.2)	-	-	169	0.0 (0.0-2.2)	160	0.0 (0.0-2.3)
53	2,997	3.1 (2.5-3.7)	473	12.1 (9.4-15.3)	1,211	3.9 (2.9-5.1)	383	1.6 (0.7-3.4)
66	2,997	2.3 (1.9-2.9)	473	9.7 (7.4-12.7)	1,211	3.6 (2.6-4.7)	532	0.0 (0.0-0.7)
67	2,997	0.7 (0.5-1.1)	277	3.6 (2.0-6.5)	95	3.2 (1.1-8.9)	192	0.0 (0.0-2.0)
68	2,997	1.0 (0.7-1.4)	473	2.7 (1.6-4.6)	1,629	2.0 (1.4-2.8)	532	0.0 (0.0-0.7)
69	2,271	0.0 (0.0-0.2)	239	0.8 (0.2-3.0)	159	1.3 (0.3-4.5)	160	0.0 (0.0-2.3)
70	2,997	2.8 (2.3-3.5)	277	3.2 (1.7-6.1)	376	1.1 (0.4-2.7)	271	0.0 (0.0-1.4)
73	2,997	1.7 (1.3-2.2)	473	5.1 (3.4-7.4)	1,211	3.5 (2.6-4.7)	462	1.5 (0.7-3.1)
82	2,997	0.9 (0.6-1.3)	277	2.2 (1.0-4.6)	509	1.4 (0.7-2.8)	462	0.2 (0.0-1.2)
85	726	0.1 (0.0-0.8)	-	-	-	-	-	-
97	-	-	-	-	-	-	-	-
NON-ONCOGENIC HPV TYPES								
6	2,997	2.8 (2.3-3.5)	473	4.4 (2.9-6.7)	1,211	2.1 (1.5-3.1)	532	0.6 (0.2-1.6)
11	2,997	0.5 (0.3-0.8)	473	0.6 (0.2-1.8)	1,211	0.5 (0.2-1.1)	532	0.2 (0.0-1.1)
32	726	0.1 (0.0-0.8)	-	-	-	-	-	-
40	2,997	0.6 (0.4-1.0)	-	-	169	0.0 (0.0-2.2)	383	0.0 (0.0-1.0)
42	2,997	2.5 (2.0-3.1)	-	-	169	0.0 (0.0-2.2)	351	0.0 (0.0-1.1)
43	726	1.1 (0.6-2.2)	-	-	169	0.0 (0.0-2.2)	160	0.0 (0.0-2.3)
44	2,997	1.1 (0.8-1.6)	-	-	169	0.0 (0.0-2.2)	192	0.0 (0.0-2.0)
54	2,997	1.9 (1.4-2.4)	-	-	169	0.0 (0.0-2.2)	351	0.3 (0.1-1.6)
55	-	-	-	-	-	-	-	-
57	-	-	-	-	-	-	191	0.0 (0.0-2.0)
61	2,271	3.1 (2.4-3.9)	-	-	-	-	192	0.0 (0.0-2.0)
62	2,271	4.1 (3.3-4.9)	-	-	-	-	-	-
64	-	-	-	-	-	-	-	-
71	2,271	0.4 (0.2-0.8)	-	-	-	-	32	0.0 (0.0-10.7)
72	2,997	0.4 (0.2-0.7)	-	-	-	-	-	-
74	-	-	-	-	169	0.0 (0.0-2.2)	160	0.0 (0.0-2.3)
81	2,997	1.4 (1.1-1.9)	-	-	-	-	-	-
83	2,997	1.1 (0.8-1.5)	-	-	-	-	32	0.0 (0.0-10.7)
84	2,997	2.2 (1.7-2.8)	-	-	-	-	223	0.0 (0.0-1.7)
86	-	-	-	-	-	-	-	-
87	-	-	-	-	-	-	-	-
89	2,997	2.8 (2.3-3.5)	-	-	-	-	-	-
90	726	1.5 (0.8-2.7)	-	-	-	-	-	-
91	-	-	-	-	-	-	160	0.0 (0.0-2.3)

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

95% CI: 95% Confidence Interval; High-grade lesions: CIN-2, CIN-3, CIS or HSIL; Low-grade lesions: LSIL or CIN-1;

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

Data sources: See references in Section 9.

Table 15: Type-specific HPV prevalence among invasive cervical cancer cases in Oceania by histology

HPV Type	Any Histology		Squamous cell carcinoma		Adenocarcinoma		Unspecified	
	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	855	56.8 (53.5-60.1)	362	63.0 (57.9-67.8)	120	32.5 (24.8-41.3)	373	58.7 (53.7-63.6)
18	855	19.8 (17.2-22.6)	362	13.3 (10.1-17.1)	120	40.0 (31.7-48.9)	373	19.6 (15.9-23.9)
31	635	1.6 (0.9-2.9)	225	1.8 (0.7-4.5)	37	2.7 (0.5-13.8)	373	1.3 (0.6-3.1)
33	635	2.5 (1.6-4.1)	225	4.4 (2.4-8.0)	37	2.7 (0.5-13.8)	373	1.3 (0.6-3.1)
35	532	1.7 (0.9-3.2)	225	2.2 (1.0-5.1)	37	0.0 (0.0-9.4)	270	1.5 (0.6-3.7)
39	532	2.1 (1.2-3.7)	225	1.8 (0.7-4.5)	37	0.0 (0.0-9.4)	270	2.6 (1.3-5.3)
45	582	4.8 (3.3-6.9)	225	2.7 (1.2-5.7)	87	9.2 (4.7-17.1)	270	5.2 (3.1-8.5)
51	532	0.4 (0.1-1.4)	225	0.4 (0.1-2.5)	37	0.0 (0.0-9.4)	270	0.4 (0.1-2.1)
52	635	0.9 (0.4-2.0)	225	0.9 (0.2-3.2)	37	0.0 (0.0-9.4)	373	1.1 (0.4-2.7)
56	532	0.0 (0.0-0.7)	225	0.0 (0.0-1.7)	37	0.0 (0.0-9.4)	270	0.0 (0.0-1.4)
58	635	0.8 (0.3-1.8)	225	0.9 (0.2-3.2)	37	0.0 (0.0-9.4)	373	0.8 (0.3-2.3)
59	532	0.8 (0.3-1.9)	225	0.9 (0.2-3.2)	37	0.0 (0.0-9.4)	270	0.7 (0.2-2.7)
Probable/possible carcinogen								
26	351	0.3 (0.1-1.6)	-	-	-	-	-	-
30	160	0.0 (0.0-2.3)	138	0.0 (0.0-2.7)	22	0.0 (0.0-14.9)	-	-
34	160	0.0 (0.0-2.3)	138	0.0 (0.0-2.7)	22	0.0 (0.0-14.9)	-	-
53	383	1.6 (0.7-3.4)	-	-	-	-	-	-
66	532	0.0 (0.0-0.7)	225	0.0 (0.0-1.7)	37	0.0 (0.0-9.4)	270	0.0 (0.0-1.4)
67	192	0.0 (0.0-2.0)	170	0.0 (0.0-2.2)	22	0.0 (0.0-14.9)	-	-
68	532	0.0 (0.0-0.7)	225	0.0 (0.0-1.7)	37	0.0 (0.0-9.4)	270	0.0 (0.0-1.4)
69	160	0.0 (0.0-2.3)	-	-	-	-	-	-
70	271	0.0 (0.0-1.4)	-	-	-	-	-	-
73	462	1.5 (0.7-3.1)	-	-	-	-	-	-
82	462	0.2 (0.0-1.2)	170	0.0 (0.0-2.2)	22	0.0 (0.0-14.9)	270	0.4 (0.1-2.1)
97	-	-	-	-	-	-	-	-
NON-ONCOGENIC HPV TYPES								
6	532	0.6 (0.2-1.6)	-	-	-	-	-	-
11	532	0.2 (0.0-1.1)	-	-	-	-	-	-
32	-	-	-	-	-	-	-	-
40	383	0.0 (0.0-1.0)	-	-	-	-	-	-
42	351	0.0 (0.0-1.1)	138	0.0 (0.0-2.7)	22	0.0 (0.0-14.9)	191	0.0 (0.0-2.0)
43	160	0.0 (0.0-2.3)	-	-	-	-	-	-
44	192	0.0 (0.0-2.0)	170	0.0 (0.0-2.2)	22	0.0 (0.0-14.9)	-	-
54	351	0.3 (0.1-1.6)	-	-	-	-	-	-
55	-	-	-	-	-	-	-	-
57	191	0.0 (0.0-2.0)	-	-	-	-	-	-
61	192	0.0 (0.0-2.0)	-	-	-	-	-	-
62	-	-	-	-	-	-	-	-
64	-	-	-	-	-	-	-	-
71	32	0.0 (0.0-10.7)	-	-	-	-	-	-
72	-	-	-	-	-	-	-	-
74	160	0.0 (0.0-2.3)	-	-	-	-	-	-
81	-	-	-	-	-	-	-	-
83	32	0.0 (0.0-10.7)	-	-	-	-	-	-
84	223	0.0 (0.0-1.7)	-	-	-	-	-	-
89	-	-	-	-	-	-	-	-
90	-	-	-	-	-	-	-	-
91	160	0.0 (0.0-2.3)	-	-	-	-	-	-

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

95% CI: 95% Confidence Interval;

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

Data sources: See references in Section 9.

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

Table 16: Oceanic studies on HPV prevalence among HIV women with normal cytology

Country	Study	HPV detection method and targeted HPV types	No. Tested	HPV prevalence	
				%	(95% CI)
No Data Available	-	-	-	-	-

Data updated on 31 Jul 2013 (data as of 31 Dec 2011). Only for European countries.

95% CI: 95% Confidence Interval;

Data sources: See references in Section 9.

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 the 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 88% of cases associated with HPV infection worldwide (*de Martel C et al. Lancet Oncol 2012;13(6):607-15*). 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 HPV prevalence among anal cancer cases and precancerous anal lesions in Oceania are presented.

Table 17: Oceanic studies on HPV prevalence among anal cancer cases (male and female)

Study		HPV detection method and targeted HPV types	No. Tested	HPV prevalence		Prevalence of 5 most frequent HPV types (%)
				%	(95% CI)	
Hillman (Australia)	2014	PCR L1-Consensus primer, (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)	105	97.1	(91.9-99.0)	HPV 16 (77.1%) HPV 52 (13.3%) HPV 6 (10.5%) HPV 54 (9.5%) HPV 11 (5.7%)

Data updated on 28 Jun 2017 (data as of 30 Jun 2015).

95% CI: 95% Confidence Interval;
PCR: Polymerase Chain Reaction;
Data sources: See references in Section 9.

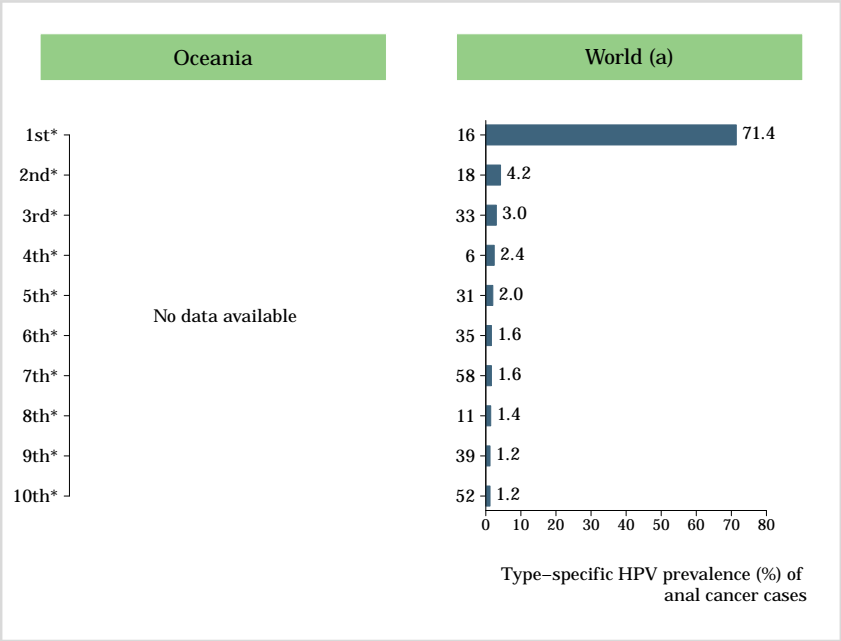
Table 18: Oceanic studies on HPV prevalence among AIN 2/3 cases (male and female)

Study		HPV detection method and targeted HPV types	No. Tested	HPV prevalence		Prevalence of 5 most frequent HPV types (%)
				%	(95% CI)	
Hillman (Australia)	2012	HC2, LBA (HPV 16, 18, 31, 33)	21	95.2	(77.3-99.2)	HPV 16 (33.3%) HPV 31 (19.0%) HPV 18 (4.8%)

Data updated on 28 Jun 2017 (data as of 30 Jun 2015).

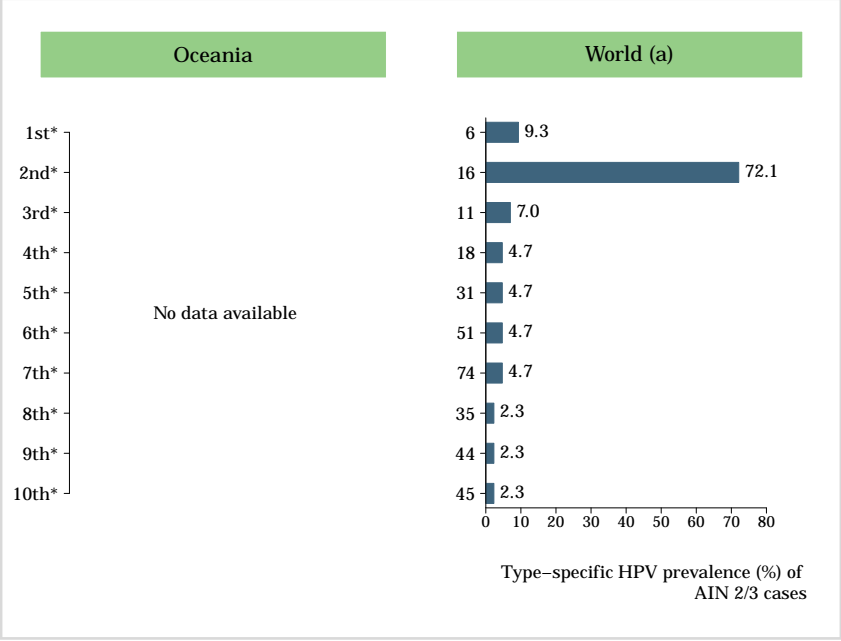
95% CI: 95% Confidence Interval; AIN 2/3: Anal intraepithelial neoplasia of grade 2/3;
HC2: Hybrid Capture 2; LBA: Line-Blot Assay;
Data sources: See references in Section 9.

Figure 46: Comparison of the ten most frequent HPV types in anal cancer cases in Oceania and the World



*No data available. No more types than shown were tested or were positive.
Data updated on 09 Feb 2017 (data as of 30 Jun 2014).
^aIncludes 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: See references in Section 9.

Figure 47: Comparison of the ten most frequent HPV types in AIN 2/3 cases in Oceania and the World



*No data available. No more types than shown were tested or were positive.
Data updated on 09 Feb 2017 (data as of 30 Jun 2014).
AIN 2/3: Anal intraepithelial neoplasia of grade 2/3;
^aIncludes 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: See references in Section 9.

4.2.2 Vulvar cancer and precancerous vulvar lesions

HPV attribution for vulvar cancer is 43% worldwide (*de Martel C et al. Lancet Oncol 2012;13(6):607-15*). 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 prevalence among vulvar cancer cases and precancerous vulvar lesions in Oceania are presented.

Table 19: Oceanic studies on HPV prevalence among vulvar cancer cases

Study	HPV detection method and targeted HPV types	No. Tested	HPV prevalence		Prevalence of 5 most frequent HPV types (%)
			%	(95% CI)	
Tan 2013 (Australia)	PCR L1-Consensus primer, (HPV 6, 11, 16, 18, 26, 31, 33, 35, 39, 40, 42, 44, 45, 51, 52, 53, 54, 56, 58, 59, 66, 68, 69, 70, 71, 73, 74, 82)	20	90.0	(69.9-97.2)	HPV 16 (80.0%) HPV 33 (5.0%) HPV 35 (5.0%) HPV 52 (5.0%) HPV 54 (5.0%)
de Sanjosé 2013 ^a (Oceania)	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)	220	40.0	(33.8-46.6)	HPV 16 (27.3%) HPV 33 (3.6%) HPV 18 (2.7%) HPV 6 (1.4%) HPV 39 (1.4%)

Data updated on 28 Jun 2017 (data as of 30 Jun 2015).

95% CI: 95% Confidence Interval;

EIA: Enzyme ImmunoAssay; PCR: Polymerase Chain Reaction; SPF: Short Primer Fragment;

^aIncludes cases from Australia and New Zealand

Data sources: See references in Section 9.

Table 20: Oceanic studies on HPV prevalence among VIN 2/3 cases

Study	HPV detection method and targeted HPV types	No. Tested	HPV prevalence		Prevalence of 5 most frequent HPV types (%)
			%	(95% CI)	
Tan 2013 (Australia)	PCR L1-Consensus primer, (HPV 6, 11, 16, 18, 26, 31, 33, 35, 39, 40, 42, 44, 45, 51, 52, 53, 54, 56, 58, 59, 66, 68, 69, 70, 71, 73, 74, 82)	44	90.9	(78.8-96.4)	HPV 16 (68.2%) HPV 26 (4.5%) HPV 33 (4.5%) HPV 52 (4.5%) HPV 82 (4.5%)
de Sanjosé 2013 ^a (Oceania)	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)	125	94.4	(88.9-97.3)	HPV 16 (71.2%) HPV 33 (10.4%) HPV 18 (4.0%) HPV 31 (3.2%) HPV 6 (1.6%)

Data updated on 28 Jun 2017 (data as of 30 Jun 2015).

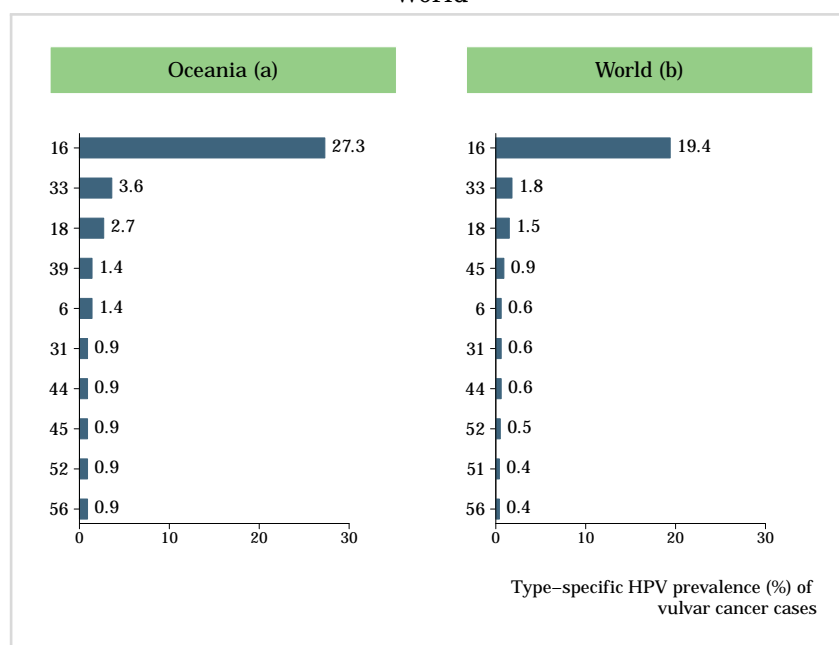
95% CI: 95% Confidence Interval; VIN 2/3: Vulvar intraepithelial neoplasia of grade 2/3;

EIA: Enzyme ImmunoAssay; PCR: Polymerase Chain Reaction; SPF: Short Primer Fragment;

^aIncludes cases from Australia and New Zealand

Data sources: See references in Section 9.

Figure 48: Comparison of the ten most frequent HPV types in cases of vulvar cancer in Oceania and the World



Data updated on 09 Feb 2017 (data as of 30 Jun 2014).

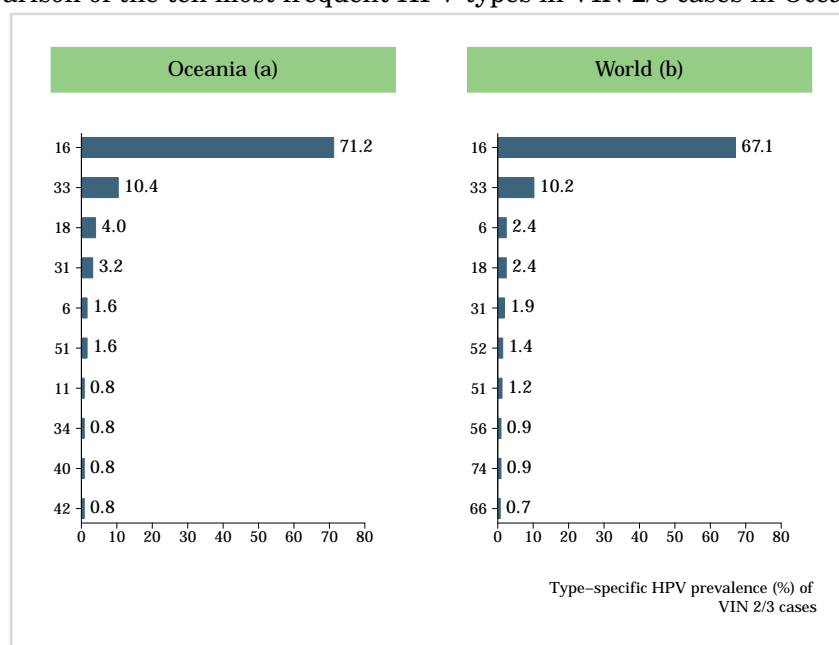
VIN 2/3: Vulvar intraepithelial neoplasia of grade 2/3;

^a Includes cases from Australia and New Zealand.

^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: See references in Section 9.

Figure 49: Comparison of the ten most frequent HPV types in VIN 2/3 cases in Oceania and the World



Data updated on 09 Feb 2017 (data as of 30 Jun 2014).

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

^a Includes cases from Australia and New Zealand.

^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: See references in Section 9.

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 anogenital cancers, particularly of the cervix, and these two carcinomas are frequently diagnosed simultaneously. HPV DNA is detected among 70% 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 70% of HPV-positive carcinomas (*de Martel C et al. Lancet Oncol 2012;13(6):607-15; De Vuyst H et al. Int J Cancer 2009; 124: 1626-36*). In this section, the HPV prevalence among vaginal cancer cases and precancerous vaginal lesions in Oceania are presented.

Table 21: Oceanic studies on HPV prevalence among vaginal cancer cases

Study	HPV detection method and targeted HPV types	No. Tested	HPV prevalence		Prevalence of 5 most frequent HPV types (%)
			%	(95% CI)	
Alemaný 2014 (Asia-Pacific)	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)	46	71.7	(57.5-82.7)	HPV 16 (41.3%) HPV 33 (4.3%) HPV 68 (4.3%) HPV 18 (2.2%) HPV 26 (2.2%)

Data updated on 28 Jun 2017 (data as of 30 Jun 2015).

95% CI: 95% Confidence Interval;

EIA: Enzyme ImmunoAssay; PCR: Polymerase Chain Reaction; SPF: Short Primer Fragment;

^aIncludes cases from Australia, Bangladesh, India, Israel, South Korea, Kuwait, Philippines, Taiwan and Turkey

Data sources: See references in Section 9.

Table 22: Oceanic studies on HPV prevalence among VaIN 2/3 cases

Study	HPV detection method and targeted HPV types	No. Tested	HPV prevalence		Prevalence of 5 most frequent HPV types (%)
			%	(95% CI)	
Alemaný 2014 (Asia-Pacific)	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)	13	100.0	(77.2-100.0)	HPV 16 (53.8%) HPV 52 (15.4%) HPV 59 (15.4%) HPV 45 (7.7%) HPV 73 (7.7%)

Data updated on 28 Jun 2017 (data as of 30 Jun 2015).

95% CI: 95% Confidence Interval; VAIN 2/3: Vaginal intraepithelial neoplasia of grade 2/3;

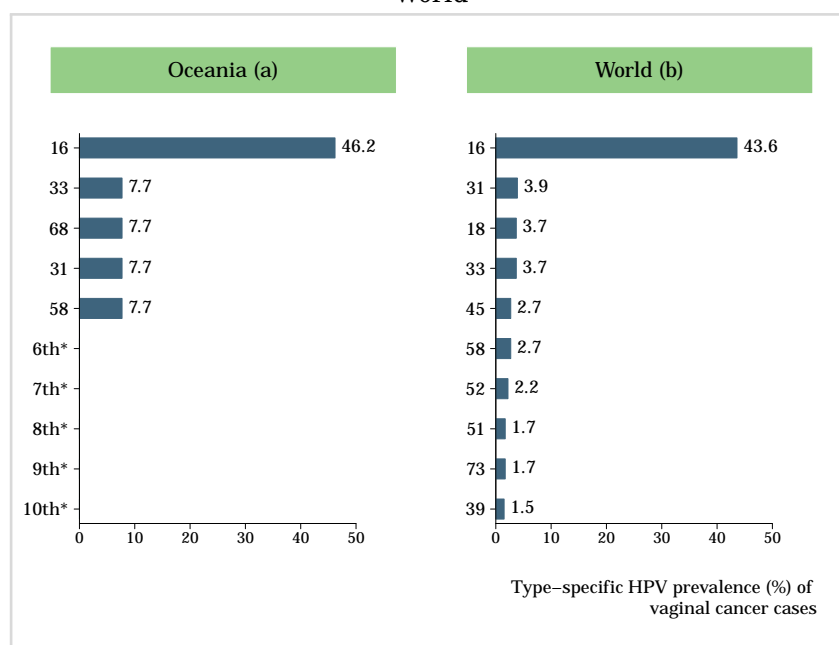
EIA: Enzyme ImmunoAssay; PCR: Polymerase Chain Reaction; SPF: Short Primer Fragment;

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

Alemaný L, Eur J Cancer 2014; 50: 2846

Data sources: See references in Section 9.

Figure 50: Comparison of the ten most frequent HPV types in vaginal cancer cases in Oceania and the World



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

Data updated on 09 Feb 2017 (data as of 30 Jun 2014).

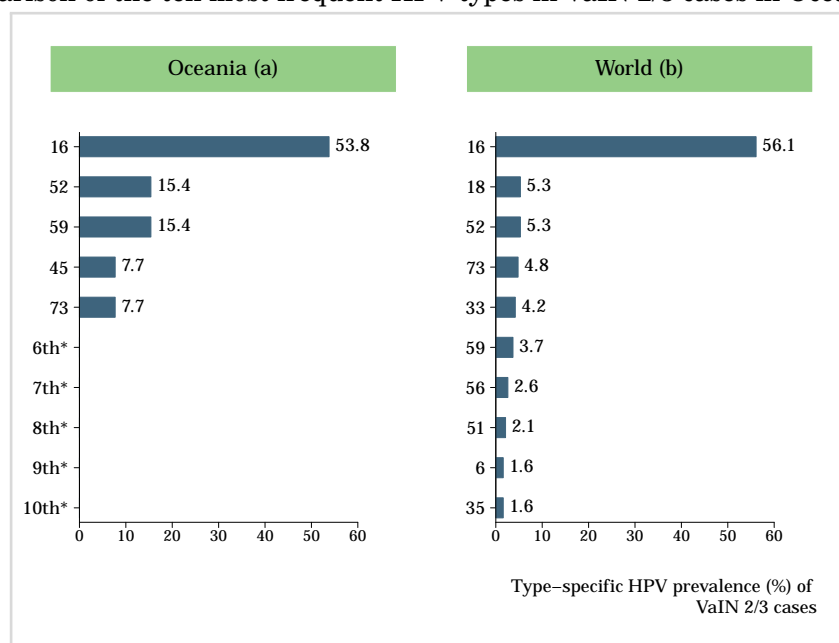
VAIN 2/3: Vaginal intraepithelial neoplasia of grade 2/3;

^a Includes cases from Australia

^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: See references in Section 9.

Figure 51: Comparison of the ten most frequent HPV types in VaIN 2/3 cases in Oceania and the World



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

Data updated on 09 Feb 2017 (data as of 30 Jun 2014).

VAIN 2/3: Vaginal intraepithelial neoplasia of grade 2/3;

^a Includes cases from Australia, Bangladesh, India, Israel, South Korea, Kuwait, Philippines, Taiwan and Turkey.

^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: See references in Section 9.

4.2.4 Penile cancer and precancerous penile lesions

HPV DNA is detectable in approximately 50% of all penile cancers (de Martel C et al. *Lancet Oncol* 2012;13(6):607-15). 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 prevalence among penile cancer cases and precancerous penile lesions in Oceania are presented.

Table 23: Oceanic studies on HPV prevalence among penile cancer cases

Study	HPV detection method and targeted HPV types	No. Tested	HPV prevalence		Prevalence of 5 most frequent HPVs HPV type (%)
			%	(95% CI)	
No Data Available	-	-	-	-	-

Data updated on 28 Jun 2017 (data as of 30 Jun 2015).

95% CI: 95% Confidence Interval;

Data sources: See references in Section 9.

Table 24: Oceanic studies on HPV prevalence among PeIN 2/3 cases

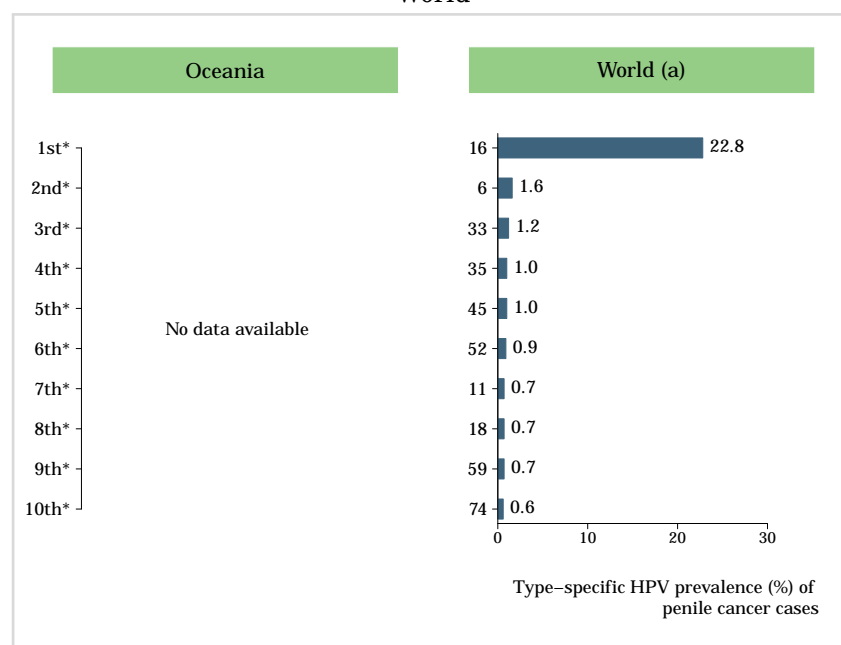
Study	HPV detection method and targeted Method	No. Tested	HPV prevalence		Prevalence of 5 most frequent HPVs HPV type (%)
			%	(95% CI)	
No Data Available	-	-	-	-	-

Data updated on 28 Jun 2017 (data as of 30 Jun 2015).

95% CI: 95% Confidence Interval; PeIN 2/3: Penile intraepithelial neoplasia of grade 2/3;

Data sources: See references in Section 9.

Figure 52: Comparison of the ten most frequent HPV types in penile cancer cases in Oceania and the World



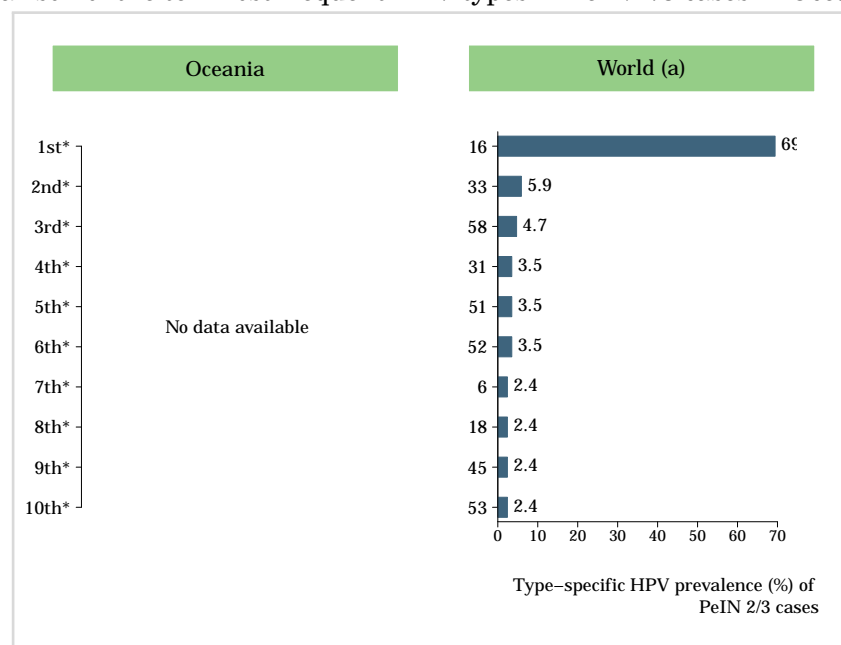
*No data available. No more types than shown were tested or were positive.

Data updated on 09 Feb 2017 (data as of 30 Jun 2015).

^a 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: See references in Section 9.

Figure 53: Comparison of the ten most frequent HPV types in PeIN 2/3 cases in Oceania and the World



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

Data updated on 09 Feb 2017 (data as of 30 Jun 2015).

^a 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: See references in Section 9.

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 Oceania 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 25: Oceanic studies on anogenital HPV prevalence among men

Country	Study ^a	Anatomic sites samples	HPV detection method	Population	Age (years)	HPV prevalence		
						No	%	(95% CI)
Australia	Vardas 2011	Penis	RT-PCR-Multiplex or Bplex	Heterosexual men enrolled in a HPV vaccine trial	Median 20 (15- 24)	3132	21.2	(19.8-22.7)

Data updated on 28 Jun 2017 (data as of 31 Oct 2015).

95% CI: 95% Confidence Interval;

PCR: Polymerase Chain Reaction; RT-PCR: Real Time Polymerase Chain Reaction;

^a Includes cases from Australia, Brazil, Canada, Croatia, Germany, Mexico, Spain, and USA.

Data sources: See references in Section 9.

Table 26: Oceanic studies on anogenital HPV prevalence among men from special subgroups

Country	Study	Anatomic sites samples	HPV detection method	Population	Age (years)	HPV prevalence		
						No	%	(95% CI)
Australia	Anderson 2008	Anal canal	HC2 HR	HIV+ MSM	Median 45 (28- 59)	123	86.2	(78.8-91.7)
	Goldstone 2011	Anus	RT-PCR-Multiplex or Bplex	HIV- MSM	Median 22 (16- 27)	602	42.4	(38.4-46.4)
		Penis	RT-PCR-Multiplex or Bplex	HIV- MSM	Median 22 (16- 27)	602	18.4	(15.4-21.8)

(Table 26 – continued from previous page)

(Table 26 – continued from previous page)

Country	Study	Anatomic sites samples	HPV detection method	Population	Age (years)	HPV prevalence		
						No	%	(95% CI)
	Ong 2016	Anus	PCR-Linear Array	HIV+ MSM	Mean 51 (35-82)	281	79.7	(74.5-84.3)
	Vajdic 2009	Anal canal	HC2	HIV- MSM	IQR=36- 48	193	69.9	(62.9-76.3)
				HIV+ MSM	IQR=37- 49	123	94.3	(88.6-97.7)

Data updated on 28 Jun 2017 (data as of 31 Oct 2015).

95% CI: 95% Confidence Interval;

HC2: Hybrid Capture 2; PCR: Polymerase Chain Reaction; RT-PCR: Real Time Polymerase Chain Reaction; MSM: Men who have sex with men;

Data sources: See references in Section 9.

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. The most recent figures estimate that 25.6% of all oropharyngeal cancers are attributable to HPV infection with HPV16 being the most frequent type (*de Martel C. Lancet Oncol. 2012;13(6):607*). In this section, the HPV burden in the head and neck in Oceania is presented.

4.4.1 Burden of oral HPV infection in healthy population

Table 27: Oceanic studies on oral HPV prevalence among healthy population

Table 27: Occurrence studies on oral HPV prevalence among healthy population								
Study	Method specimen collection and anatomic site	HPV detection method and targeted HPV types	Population	Age (years)	No. Tested	HPV prevalence % (95% CI)		Prev. of 5 most frequent HPV types HPV type (%)
MEN								
No Data Available	-	-	-	-	-	--		-
WOMEN								
No Data Available	-	-	-	-	-	--		-
BOTH OR UNSPECIFIED								
No Data Available	-	-	-	-	-	--		-

Data updated on 15 Dec 2014 (data as of 29 Feb 2012). Only for European countries.

95% CI: 95% Confidence Interval;

Data sources: See references in Section 9.

4.4.2 HPV burden in head and neck cancers

Table 28: Oceanic studies on HPV prevalence among cases of oral cavity cancer

Study	HPV detection method and targeted HPV types	No. Tested	HPV prevalence		Prevalence of 5 most frequent HPV types HPV type (%)
			%	(95% CI)	
MEN					
No Data Available	-	-	-	-	-
WOMEN					
No Data Available	-	-	-	-	-
BOTH OR UNSPECIFIED					
No Data Available	-	-	-	-	-

Data updated on 28 Jun 2017 (data as of 31 Dec 2015).

95% CI: 95% Confidence Interval;

Data sources: See references in Section 9.

Table 29: Oceanic studies on HPV prevalence in cases of oropharyngeal cancer

Study	HPV detection method and targeted HPV types	No. Tested	HPV prevalence		Prevalence of 5 most frequent HPV types HPV type (%)
			%	(95% CI)	
MEN					
No Data Available	-	-	-	-	-
WOMEN					
No Data Available	-	-	-	-	-
BOTH OR UNSPECIFIED					
Hong 2010 (Australia)	E6-based MT-PCR Amplification with MT-PCR kit (6. 11. 16. 18. 26. 31. 33. 35. 39. 45. 51. 52. 53. 56. 58. 59. 66. 68. 70. 73. 82)	302	47.7	(42.1-53.3)	HPV 16 (42.1%) HPV 18 (1.7%) HPV 35 (1.7%) HPV 39 (1.0%) HPV 33 (0.7%)
Hong 2013 (Australia)	PCR-E6, PCR- MULTIPLEX, Sequencing (HPV 16, 18, 35, 51, 53)	647	57.3	(53.5-61.1)	HPV 16 (54.7%) HPV 18 (1.4%) HPV 35 (0.3%) HPV 53 (0.3%) HPV 51 (0.2%)

Data updated on 29 Jun 2017 (data as of 31 Dec 2015 / 31 Dec 2015).

95% CI: 95% Confidence Interval;

PCR: Polymerase Chain Reaction;

Data sources: See references in Section 9.

Table 30: Oceanic studies on HPV prevalence in cases of hypopharyngeal or laryngeal cancer

Study	HPV detection method and targeted HPV types	No. Tested	HPV prevalence		Prevalence of 5 most frequent HPVs HPV type (%)
			%	(95% CI)	
MEN					
No Data Available	-	-	-	-	-
WOMEN					
No Data Available	-	-	-	-	-
BOTH OR UNSPECIFIED					
No Data Available	-	-	-	-	-

Data updated on 28 Jun 2017 (data as of 31 Dec 2015).

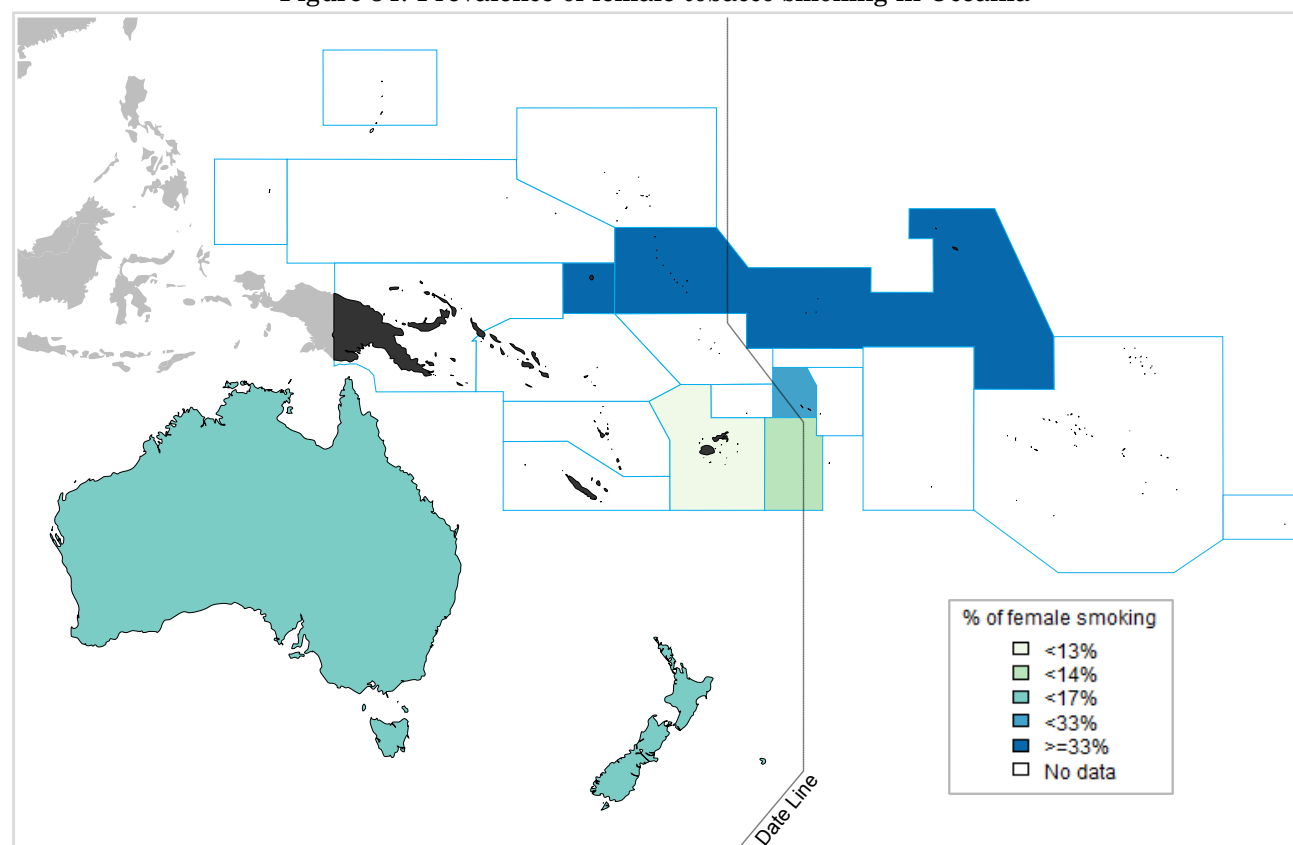
95% CI: 95% Confidence Interval;

Data sources: See references in Section 9.

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 Oceania are presented.

Figure 54: Prevalence of female tobacco smoking in Oceania

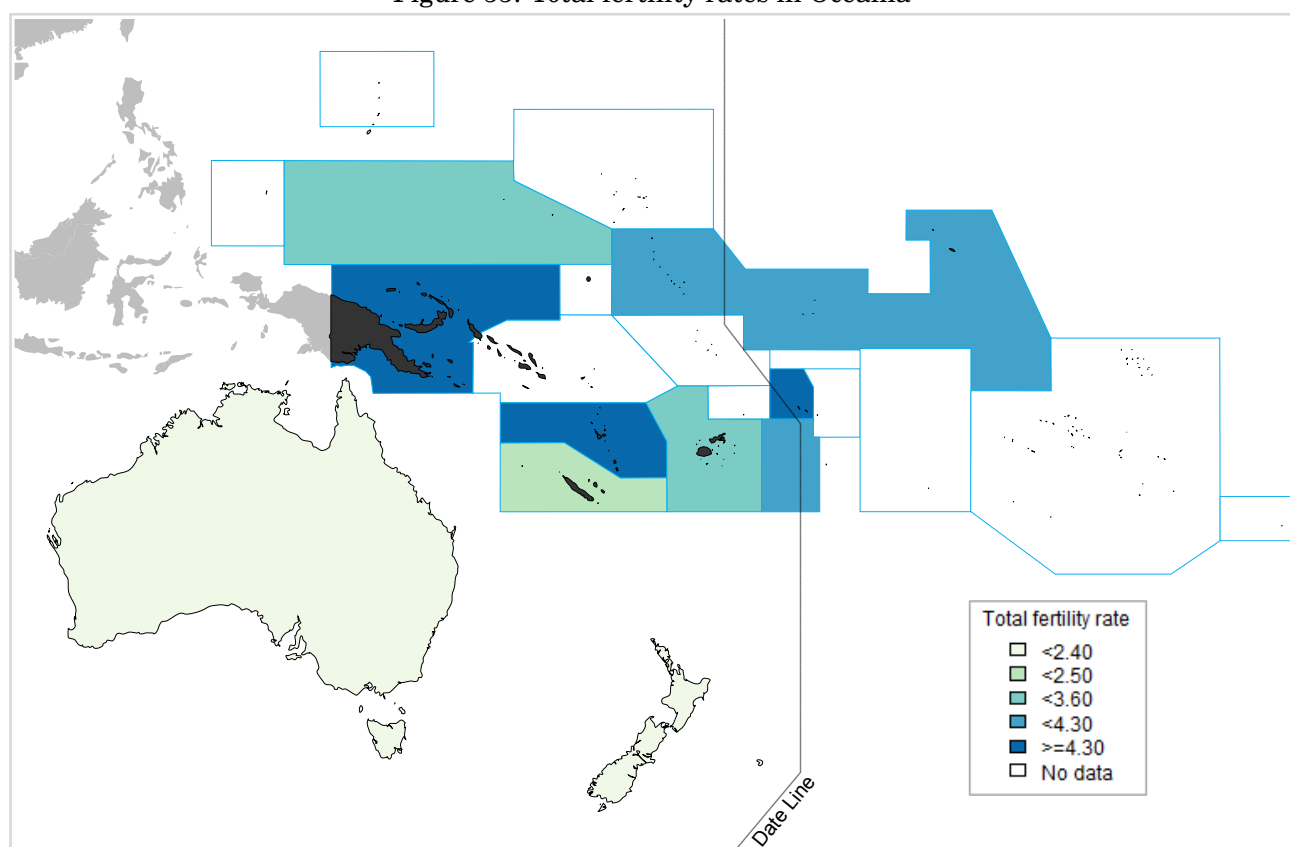


Data accessed on 22 Mar 2017.

Adjusted and age-standardized prevalence estimates of tobacco use by country, for the year 2013. These rates are constructed solely for the purpose of comparing tobacco use prevalence estimates across countries, and should not be used to estimate the number of smokers in the population.

Data sources: WHO report on the global tobacco epidemic, 2015: The MPOWER package. Geneva, World Health Organization, 2015. Available at http://www.who.int/tobacco/global_report/2015/en/index.html

Figure 55: Total fertility rates in Oceania



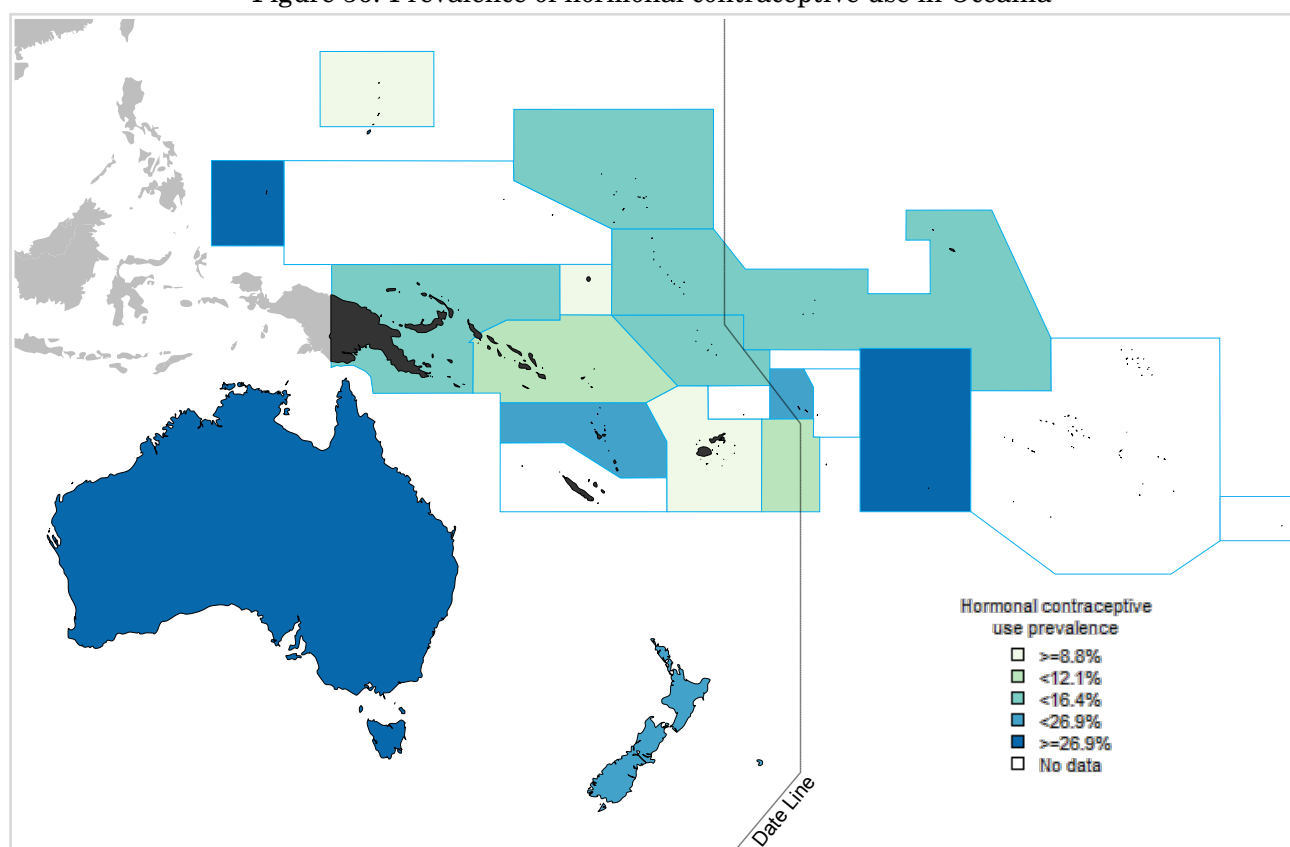
Data accessed on 22 Mar 2017.

For Australia, Fiji, New Caledonia, New Zealand: The number of women by age is estimated by the United Nations Population Division and published in World Population Prospects: the 2015 Revision.

Data sources:

For Australia, Fiji, FS Micronesia, Guam, Kiribati, New Caledonia, New Zealand, Papua New Guinea, French Polynesia, Solomon Islands, Tonga, Vanuatu, Samoa: United Nations, Department of Economic and Social Affairs, Population Division (2015). World Fertility Data 2015 (POP/DB/Fert/Rev2015). Available at: <http://www.un.org/en/development/desa/population/publications/dataset/fertility/wfd2015.shtml>. [Accessed on March 22, 2017].

Figure 56: Prevalence of hormonal contraceptive use in Oceania



Data accessed on 22 Mar 2017.

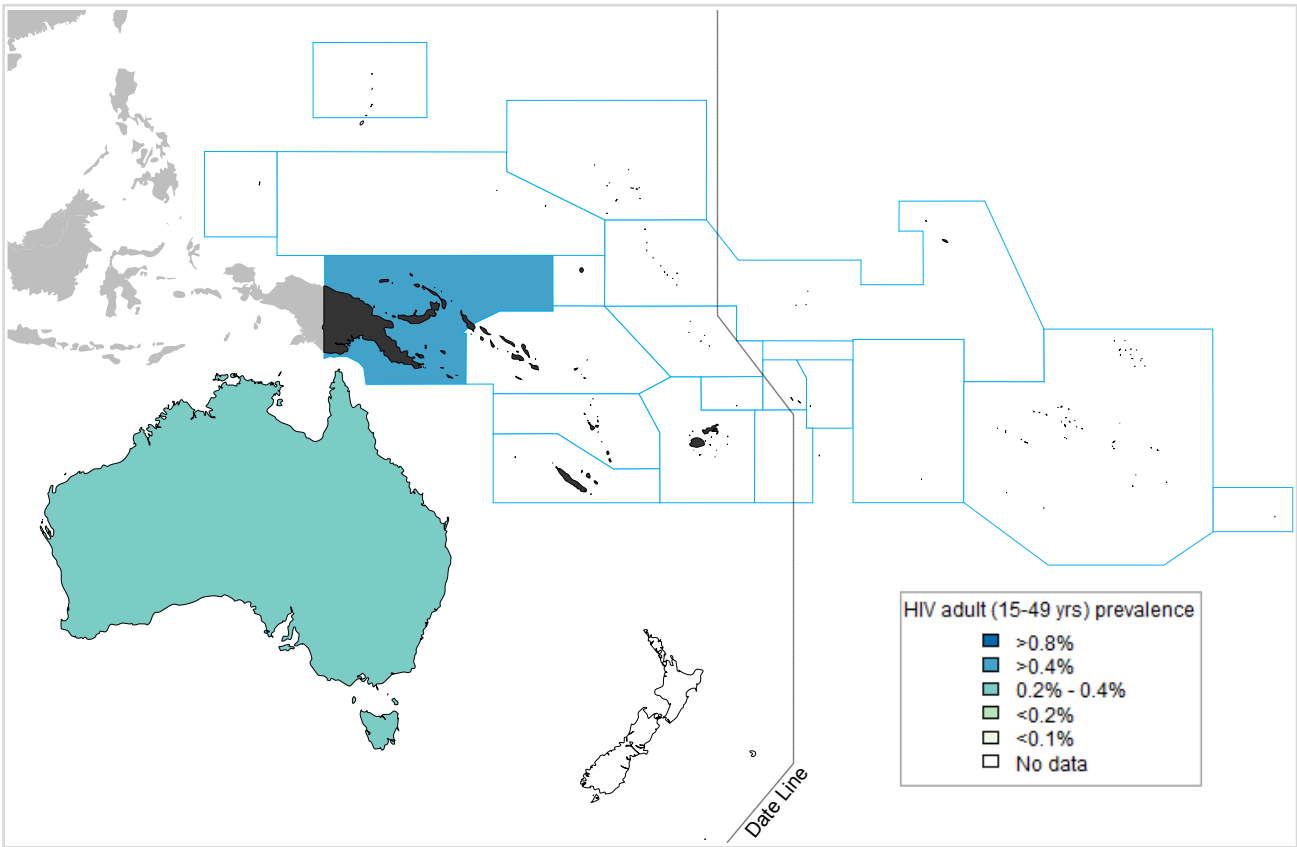
Proportion (%) of women using hormonal contraception (pill, injectable or implant), among those of reproductive age who are married or in union.

For Cook Islands, N Mariana Islands, Palau: Data pertain to all women of reproductive age, irrespective of marital status.

For Guam: Data pertain to sexually active, non-pregnant women.

Data sources: United Nations, Department of Economic and Social Affairs, Population Division (2016). World Contraceptive Use 2016 (POP/DB/CP/Rev2016). <http://www.un.org/en/development/desa/population/publications/dataset/contraception/wcu2016.shtml>. Available at: [Accessed on March 22, 2017].

Figure 57: Prevalence of HIV in Oceania



Data accessed on 22 Mar 2017.

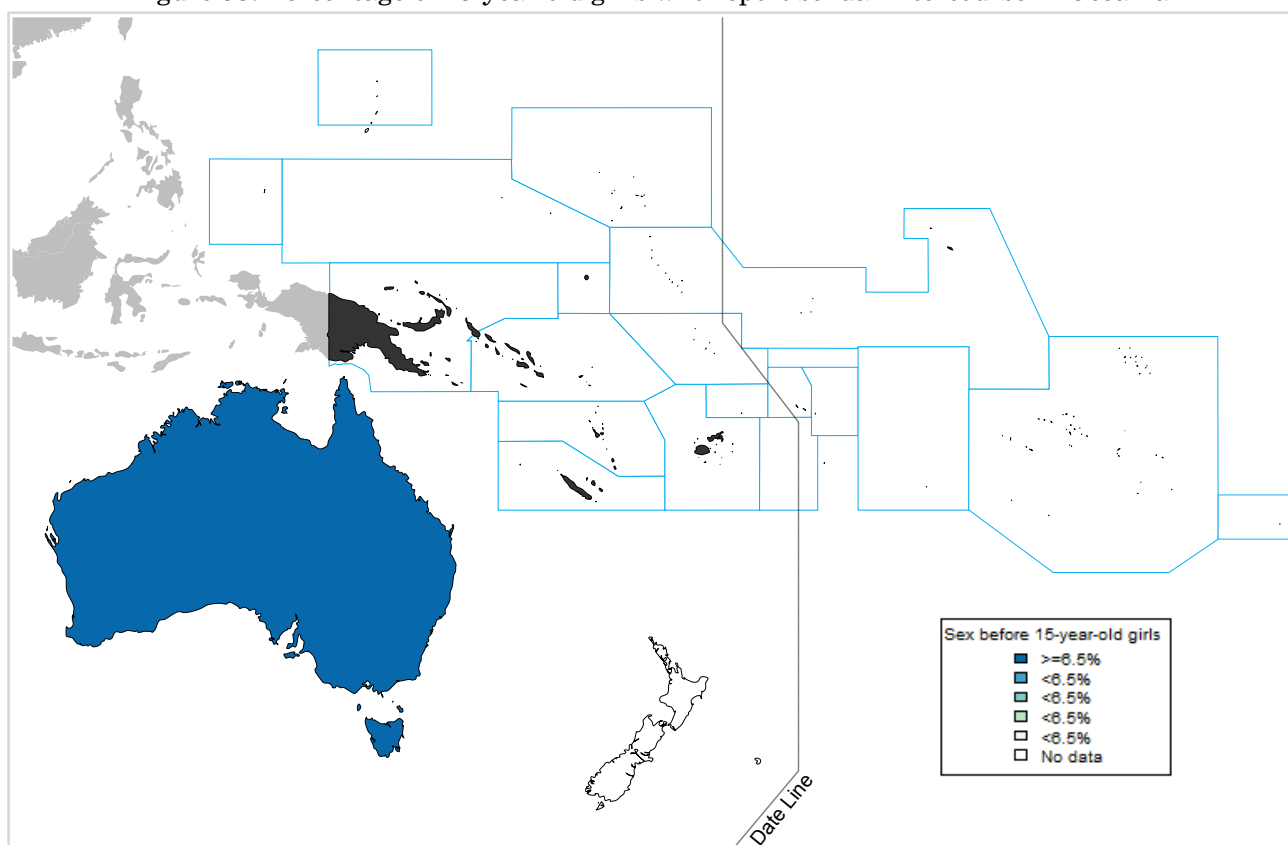
Estimates include all people with HIV infection, regardless of whether they have developed symptoms of AIDS.

Data sources: UNAIDS database [internet]. Available at: <http://aidsinfo.unaids.org/> [Accessed on March 22, 2017]

6 Sexual behaviour and reproductive health 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 Oceania is presented.

Figure 58: Percentage of 15-year-old girls who report sexual intercourse in Oceania



Data accessed on 16 Mar 2017.

For Australia: The main sources of data were surveys by the MEASURE DHS (Demographic and Health Surveys) project and published estimates from Reproductive National Health Surveys.

For Australia: Year of estimation: not reported

Data sources:

For Australia: 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.

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 Oceania.

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 31: Cervical cancer screening policies in Oceania

Country	Availability of cervical cancer screening programme ^a	Quality assurance structure and mandate to supervise and to monitor the screening process ^b	Active invitation to screening ^c	Main screening test used for primary screening	Demonstration projects	Screening ages (years)	Screening interval or frequency of screenings
Australia	Yes	Yes	Yes	Cytology	HPV test	18-69 (cytology), 25-74 (HPV test)	2 years (cytology), 5 years (HPV test)
Cook Is.	Yes	-	-	-	-	-	-
Fiji	Yes	No	No	Cytology	VIA	25-60 (cytology), 30-49 (VIA)	3 Years
Kiribati	Yes	-	-	Cytology/VIA	-	-	-
Marshall Is.	Yes	-	-	VIA/Cytology	-	21-50 (VIA), 50-60 (cytology)	2 years (VIA)
Micronesia FS	Yes	No	No	Cytology/VIA	-	25-49	5 years
Nauru	Yes	No	No	Cytology	-	-	-
New Zealand	Yes	Yes	Yes	Cytology/HPV test	-	20-70 (cytology), 25-69 (HPV test)	3 years (cytology), 5 years (HPV test)
Niue	No	-	-	-	-	-	-
Palau	Yes	No	No	Cytology/HPV test	-	21-65 (cytology), over 30 (HPV test)	3 years (cytology), 5 years (HPV test)
Papua N. Guinea	Yes	No	No	-	-	-	-
Samoa	No	-	-	-	-	-	-
Solomon Is.	No	-	-	-	-	-	-

(Continued on next page)

(Table 31 – continued from previous page)

Country	Availability of cervical cancer screening programme ^a	Quality assurance structure and mandate to supervise and to monitor the screening process ^β	Active invitation to screening ^γ	Main screening test used for primary screening	Demonstration projects	Screening ages (years)	Screening interval or frequency of screenings
Tonga	No	-	-	-		-	-
Tuvalu	No	-	-	-		-	-
Vanuatu	No	-	-	-	VIA	-	-

Data accessed on 31 Dec 2016.

^A VIA used as screening test since 2010, but Pap test is still recommended in women aged 50-60 years.

^B To replace Pap-test by hrHPV DNA test as the primary screening instrument (starting in 2018).

^C The National Breast and Cervical Cancer Early Detection Program (NBCCEDP) provides breast and cervical cancer screens to low-income, uninsured, and underinsured women.

^D Health sector plan 2008-2018 establishes as an objective to develop and implement a national pap smear screening program.

^a Public national cervical cancer screening program in place (Cytology/VIA/HPV testing). Countries may have clinical guidelines or protocols, and cervical cancer screening services in a private sector but without a public national program. Publicly mandated programmes have a law, official regulation, decision, directive or recommendation that provides the public mandate to implement the programme with an authorised screening test, examination interval, target group and funding and co-payment determined.

^β Self-reported quality assurance: Organised programmes provide for a national or regional team responsible for implementation and require providers to follow guidelines, rules, or standard operating procedures. They also define a quality assurance structure and mandate supervision and monitoring of the screening process. To evaluate impact, organised programmes also require ascertainment of the population disease burden. Quality assurance consists of the management and coordination of the programme throughout all levels of the screening process (invitation, testing, diagnosis and follow-up of screen-positives) to assure that the programme performs adequately and provides services that are effective and in-line with programme standards. The quality assurance structure is self-reported as part of the national cancer programs or plans.

^γ Self-reported active invitation or recruitment, as organised population-based programmes, identify and personally invite each eligible person in the target population to attend a given round of screening.

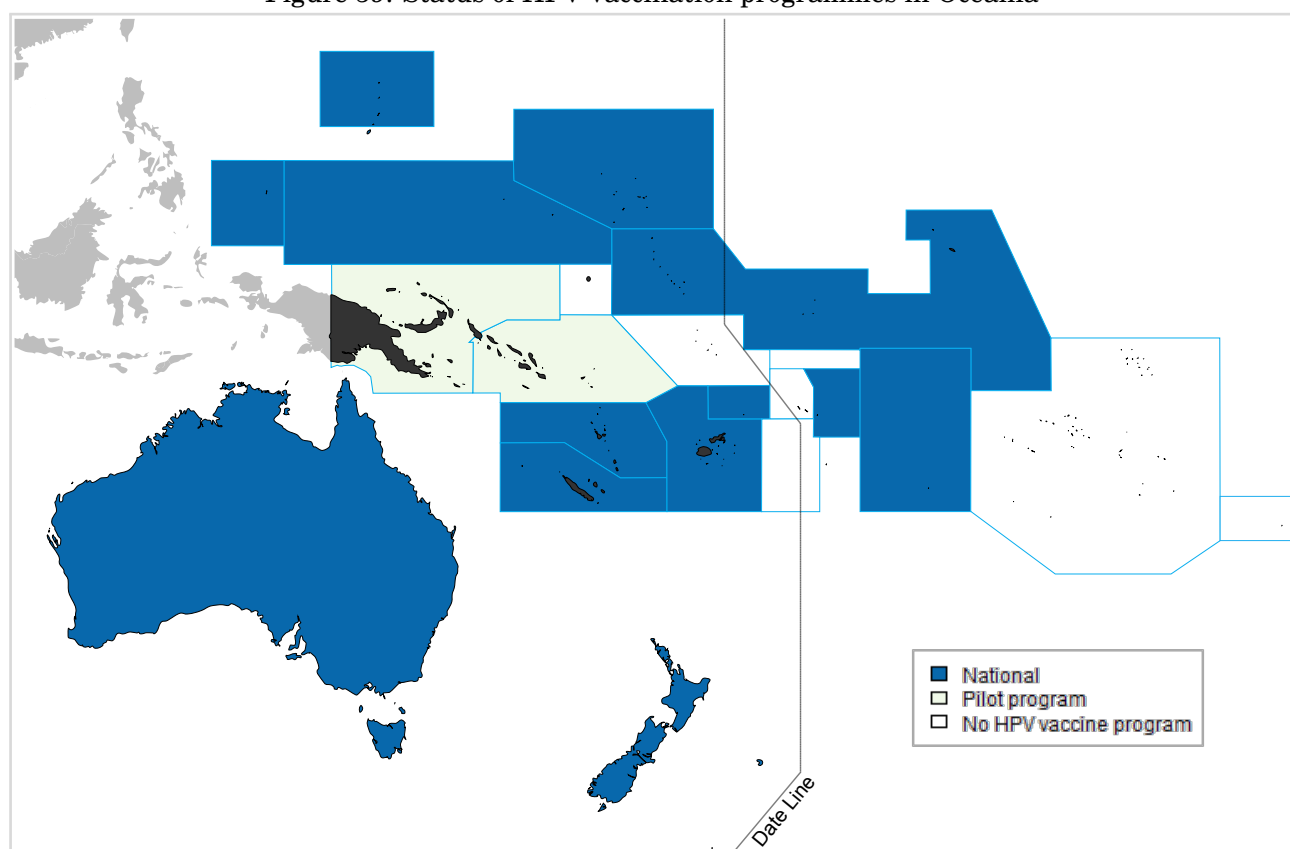
Data sources:

Data sources are detailed at the country-specific report

7.2 HPV vaccination

7.2.1 HPV vaccine licensure and introduction

Figure 59: Status of HPV vaccination programmes in Oceania



Data accessed on 31 Dec 2016.

Data sources: Adapted from Bruni L, Diaz M, Barrionuevo-Rosas L, Herrero R, Bray F, Bosch FX, de Sanjosé S, Castellsagué X. Global estimates of human papillomavirus vaccination coverage by region and income level: a pooled analysis. *Lancet Glob Health*. 2016 Jul;4(7):e453-63

Table 32: HPV vaccination policies for the female population in Oceania

Country	Routine Immunization	
	HPV vaccination programme	Date of start
Australia	National program	2007
Fiji	National program	2013
Kiribati	National program	2011
Marshall Islands	National program	2008
Micronesia (Federated States of)	National program	2009
Nauru	No program	-
New Zealand	National program	2008
Palau	National program	2009
Papua New Guinea	Pilot	-
Samoa	No program	-
Solomon Islands	Pilot	-
Tonga	No program	-
Tuvalu	No program	-
Vanuatu	National program	2015

Data accessed on 31 Dec 2016.

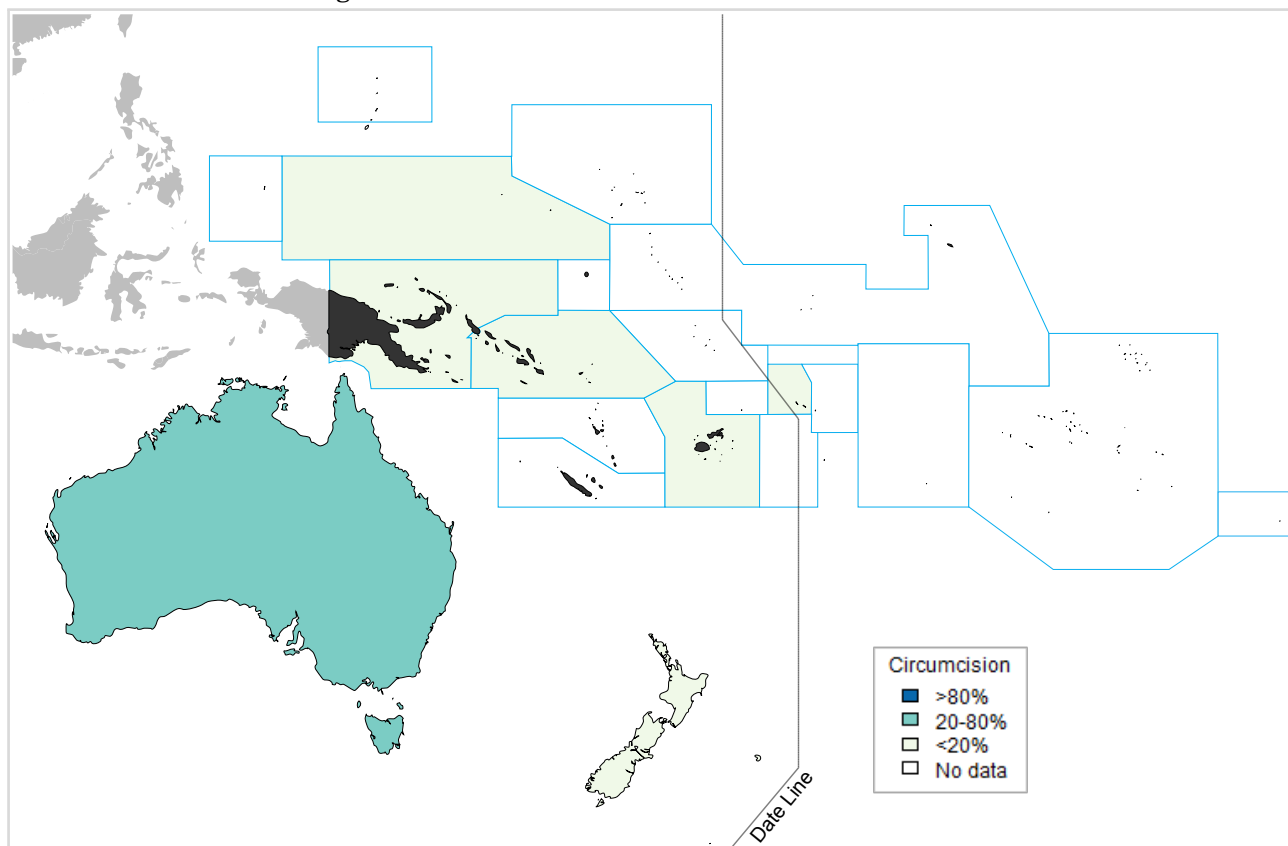
Data sources:

Adapted from Bruni L, Diaz M, Barrionuevo-Rosas L, Herrero R, Bray F, Bosch FX, de Sanjosé S, Castellsagué X. Global estimates of human papillomavirus vaccination coverage by region and income level: a pooled analysis. *Lancet Glob Health*. 2016 Jul;4(7):e453-63

8 Protective factors for cervical cancer

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

Figure 60: Prevalence of male circumcision in Oceania



Data accessed on 31 Aug 2015.

Data from Demographic and Health Surveys (DHS) and other publications to categorise the country-wide prevalence of male circumcision as <20%, 20-80%, or >80%.

Please refer to country-specific reference(s) for full methodologies.

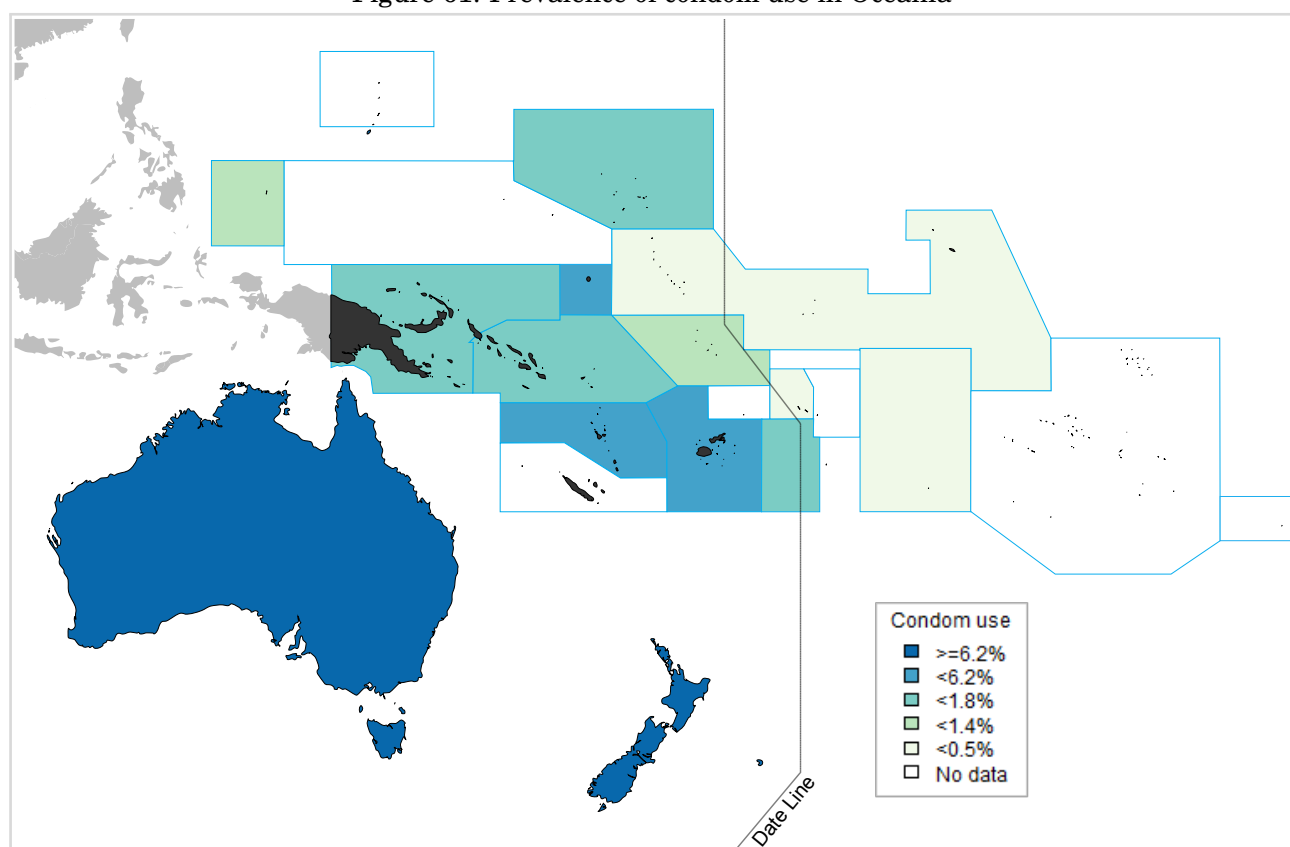
Data sources: Based on systematic reviews and meta-analysis performed by ICO. The ICO HPV Information Centre has updated data until August 2015. Reference publication: Albero G, Sex Transm Dis. 2012 Feb;39(2):104-13.

For Australia: Donovan B, Genitourin Med 1994; 70: 317 | Ferris JA, Aust N Z J Public Health 2010; 34: 160 | Parker SW, Med J Aust 1983; 2: 288 | WHO 2007: Male circumcision: Global trends and determinants of prevalence, safety and acceptability

Fiji, FS Micronesia, Papua New Guinea, Solomon Islands, Samoa: Drain PK, BMC Infect Dis 2006; 6: 172 | WHO 2007: Male circumcision: Global trends and determinants of prevalence, safety and acceptability

New Zealand: Dickson N, Sex Transm Dis 2005; 32: 517 | Fergusson DM, Pediatrics 2006; 118: 1971 | WHO 2007: Male circumcision: Global trends and determinants of prevalence, safety and acceptability

Figure 61: Prevalence of condom use in Oceania

**Data accessed on 21 Mar 2017.**

Please refer to original source for methods of estimation.

Condom use: Proportion of male partners who are using condoms with their female partners of reproductive age (15-49 years) to whom they are married or in union by country.

Data sources: United Nations, Department of Economic and Social Affairs, Population Division (2016). World Contraceptive Use 2016 (POP/DB/CP/Rev2016). <http://www.un.org/en/development/desa/population/publications/dataset/contraception/wcu2016.shtml>. Available at: [Accessed on March 22, 2017].

For Australia: Australia 2011-2012 HILDA

Cook Islands: Cook Islands 1999 Reproductive Health Knowledge and Services

Fiji: Fiji 1974 World Fertility Survey

Guam: Guam 2002 Behavioral Risk Factor Surveillance System

Kiribati: Kiribati 2009 Demographic and Health Survey

Marshall Islands: Marshall Islands 2007 Demographic Health Survey (national)

N Mariana Islands: Northern Mariana Islands 1970 KAP Survey Trust Territory

Nauru: Nauru 2007 Demographic Health Survey (national)

New Zealand: New Zealand 1995 Fertility and Family Survey

Palau: Palau 2003 Population, Environment and Labor Force Survey

Papua New Guinea: Papua New Guinea 2006 Demographic and Health Survey (national)

Solomon Islands: Solomon Islands 2006-2007 Demographic and Health Survey

Tonga: Tonga 2012 Demographic Health Survey (national)

Tuvalu: Tuvalu 2007 Demographic Health Survey (national)

Vanuatu: Vanuatu 2013 DHS-MICS

Samoa: Samoa 2014 Demographic and Health Survey (national)

9 References

HPV-related statistics were gathered from specific databases created at the Institut Català d'Oncologia and the International Agency for Research on Cancer.

Systematic collection of published literature from peer-reviewed journals is stored in these databases. Data correspond to results from the following reference papers as well as updated results from continuous monitoring of the literature by the HPV Information Centre:

Table 33: References of studies included

Country	Study
HPV prevalence and HPV type distribution for cytologically normal women	
General sources	Based on systematic reviews and meta-analysis performed by ICO. The ICO HPV Information Centre has updated data until June 2015. Reference publications: 1) Bruni L, J Infect Dis 2010; 202: 1789. 2) De Sanjosé S, Lancet Infect Dis 2007; 7: 453
Oceania	
Australia	Bowden FJ, Sex Health 2005; 2: 229 Tabrizi SN, J Clin Virol 2014; 60: 250 Tabrizi SN, Lancet Infect Dis 2014; 14: 958
Fiji	Foliaki S, Infect Agents Cancer 2014; 9: 14
Vanuatu	Aruhuri B, Cancer Prev Res (Phila) 2012; 5: 746 McAdam M, PLoS ONE 2010; 5: e13266
HPV type distribution for invasive cervical cancer (ICC)	
General sources	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.
Oceania	
Australia	Contributing studies: Brestovac B, J Med Virol 2005; 76: 106 Chen S, Int J Gynaecol Obstet 1999; 67: 163 de Sanjose S, Lancet Oncol 2010; 11: 1048 Liu J, Gynecol Oncol 2004; 94: 803 Plunkett M, Pathology 2003; 35: 397 Stevens MP, Int J Gynecol Cancer 2006; 16: 1017 Thompson CH, Gynecol Oncol 1994; 54: 40
Papua New Guinea	Contributing studies: Tabone T, Int J Gynaecol Obstet 2012; 117: 30
HPV type distribution for cervical high grade squamous intraepithelial lesions	
General sources	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.
Oceania	
Australia	Contributing studies: Brestovac B, J Med Virol 2005; 76: 106 Callegari ET, Vaccine 2014; 32: 4082 Garland SM, BMC Med 2011; 9: 104 Stevens MP, Int J Gynecol Cancer 2006; 16: 1017 Stevens MP, J Med Virol 2009; 81: 1283
Fiji	Contributing studies: Tabrizi SN, Sex Health 2011; 8: 338
New Zealand	Contributing studies: Kang YJ, BMC Infect Dis 2015; 15: 365
HPV type distribution for cervical low grade squamous intraepithelial lesions	
General sources	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
Oceania	
Australia	Contributing studies: Brestovac B, J Med Virol 2005; 76: 106 Garland SM, BMC Med 2011; 9: 104 Stevens MP, J Med Virol 2009; 81: 1283

(Continued)

Table 33 – Continued

Country	Study
HPV type distribution for invasive anal cancer	
General 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
Oceania	
Australia	Hillman RJ, Int J Cancer 2014; 135: 996
HPV type distribution for anal intraepithelial neoplasia (AIN)	
General 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
Oceania	
Australia	Hillman RJ, Sex Health 2012; 9: 574
HPV type distribution for invasive vulvar cancer	
General 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
Oceania	
Australia	de Sanjosé S, Eur J Cancer 2013; 49: 3450 Tan SE, Sex Health 2013; 10: 18
New Zealand	de Sanjosé S, Eur J Cancer 2013; 49: 3450
HPV type distribution for vulvar intraepithelial neoplasia (VIN)	
General 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
Oceania	
Australia	de Sanjosé S, Eur J Cancer 2013; 49: 3450 Tan SE, Sex Health 2013; 10: 18
New Zealand	de Sanjosé S, Eur J Cancer 2013; 49: 3450
HPV type distribution for invasive vaginal cancer	
General 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
Oceania	
Australia	Alemanly L, Eur J Cancer 2014; 50: 2846
HPV type distribution for vaginal intraepithelial neoplasia (VAIN)	
General 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
Oceania	
Australia	Alemanly L, Eur J Cancer 2014; 50: 2846
HPV type distribution for invasive penile cancer	
General sources	The ICO HPV Information Centre has updated data until June 2015. Reference publications (up to 2008): 1) Bouvard V, Lancet Oncol 2009;10:321 2) Miralles-Guri C, J Clin Pathol 2009;62:870

(Continued)

Table 33 – Continued

Country	Study
HPV type distribution for penile intraepithelial neoplasia (PEIN)	
General sources	The ICO HPV Information Centre has updated data until June 2014. Reference publication (up to 2008): Bouvard V, Lancet Oncol 2009;10:321
The anogenital prevalence of HPV-DNA in men: HPV in men	
General sources	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.
Oceania	
Australia	Vardas E, J Infect Dis 2011; 203: 58
The anogenital prevalence of HPV-DNA in men: HPV in special subgroups (HIV, MSM, etc)	
General sources	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.
Oceania	
Australia	Anderson J, Sex Transm Infect 2008; 84: 94 Goldstone S, J Infect Dis 2011; 203: 66 Ong JJ, Sex Transm Infect 2016; 92: 368 Vajdic CM, Sex Transm Infect 2009; 85: 330
HPV prevalence and type distribution in oral specimens collected from healthy population	
General sources	Systematic review and meta-analysis was performed by ICO HPV Information Centre until July 2012. Pubmed was searched using the keywords oral and papillomavirus. Inclusion criteria: studies reporting oral HPV prevalence in healthy population in Europe; n > 50. Exclusion criteria: focused only in children or immunosuppressed population; not written in English; case-control studies; commentaries and systematic reviews and studies that did not use HPV DNA detection methods.
HPV prevalence and type distribution in invasive oral cavity squamous cell carcinoma	
General sources	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
HPV prevalence and type distribution in invasive oropharyngeal squamous cell carcinoma	
General sources	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
Oceania	
Australia	Hong A, Ann Surg Oncol 2013; 20 Suppl 3: S450 Hong AM, Vaccine 2010; 28: 3269
HPV prevalence and type distribution in invasive hypopharyngeal squamous cell carcinoma	
General sources	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

10 Glossary

Table 34: 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 years 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.
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.

(Continued)

Table 34 – Continued

Term	Definition
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).
Invasive squamous cell carcinoma	Invasive carcinoma composed of cells resembling those of squamous epithelium
Adenocarcinoma	Invasive tumour with glandular and squamous elements intermingled.
Eastern Europe	References included in Belarus, Bulgaria, Czech Republic, Hungary, Poland, Republic of Moldova, Romania, Russian Federation, Slovakia, and Ukraine.
Northern Europe	References included in Denmark, Estonia, Finland, Iceland, Ireland, Latvia, Lithuania, Norway, Sweden, and United Kingdom of Great Britain and Northern Ireland.
Southern Europe	References included in Albania, Bosnia and Herzegovina, Croatia, Greece, Italy, Malta, Montenegro, Portugal, Serbia, Slovenia, Spain, The former Yugoslav Republic of Macedonia.
Western Europe	References included in Austria, Belgium, France, Germany, Liechtenstein, Luxembourg, Netherlands, and Switzerland.
Europe PREHDICT	References included in Albania, Austria, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Montenegro, Netherlands, Norway, Poland, Portugal, Republic of Moldova, Romania, Russian Federation, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, The former Yugoslav Republic of Macedonia, Turkey, Ukraine, and United Kingdom of Great Britain and Northern Ireland.

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Albero G, Barrionuevo-Rosas L, Bosch FX, Bruni L, de Sanjosé S, Gómez D, Mena M, Muñoz J, Serrano B.

7th Framework Programme grant PREHDICT project: health-economic modelling of PREvention strategies for Hpv-related Diseases in European Countries. Coordinated by Drs. Johannes Berkhof and Chris Meijer at VUMC, Vereniging Voor Christelijk Hoger Onderwijs Wetenschappelijk Onderzoek En Patientenzorg, the Netherlands.
(http://cordis.europa.eu/projects/rcn/94423_en.html)

7th Framework Programme grant HPV AHEAD project: Role of human papillomavirus infection and other co-factors in the aetiology of head and neck cancer in India and Europe. Coordinated by Dr. Massimo Tommasino at IARC, International Agency of Research on Cancer, Lyon, France.
(http://cordis.europa.eu/project/rcn/100268_en.html)

International Agency for Research on Cancer (IARC)

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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