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Human Papillomavirus and Related Diseases Report

AFRICA

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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 Africa 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.

Africa has an estimated population of 372.2 million women aged 15 years and older who are at risk of developing cervical cancer. Current estimates indicate that every year 99,038 women are diagnosed with cervical cancer and 60,098 die from the disease. Cervical cancer ranks* as the second most frequent cancer among women in Africa.

* 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 Africa and its regions Africa

	Africa	Eastern Africa	Middle Africa	Northern Africa	Southern Africa	Western Africa
Population						
Women at risk for cervical cancer (Female population aged >=15 yrs) in millions	372.160	120.820	44.690	79.000	23.000	104.650
Burden of cervical cancer						
Annual number of new cervical cancer cases	99,038	45,707	11,540	5,813	8,652	8,652
Standardized incidence rates per 100,000 population in cervical cancer	27.6	42.7	30.6	6.6	31.5	31.5
Annual number of cervical cancer deaths	60,098	28,197	7,917	2,717	4,721	4,721
Standardized mortality rates per 100,000 population in cervical cancer	17.5	27.6	22.2	3.2	17.9	17.9
Burden of cervical HPV infection						
HPV prevalence (%) in the general population (women with normal cytology)	18.6	20.5	9.8	18.4	17.9	17.9
Prevalence (%) of HPV 16 and/or HPV 18 among women with:						
Normal cytology	3.7	4.8	-	2.7	3.2	3.2
Low-grade cervical lesions (LSIL/CIN-1)	24.9	30.0	12.5	20.8	21.1	21.1
High-grade cervical lesions (HSIL/ CIN-2 / CIN-3 / CIS)	38.6	45.7	-	-	33.7	33.7
Cervical cancer	67.2	67.9	-	78.9	62.5	62.5

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.

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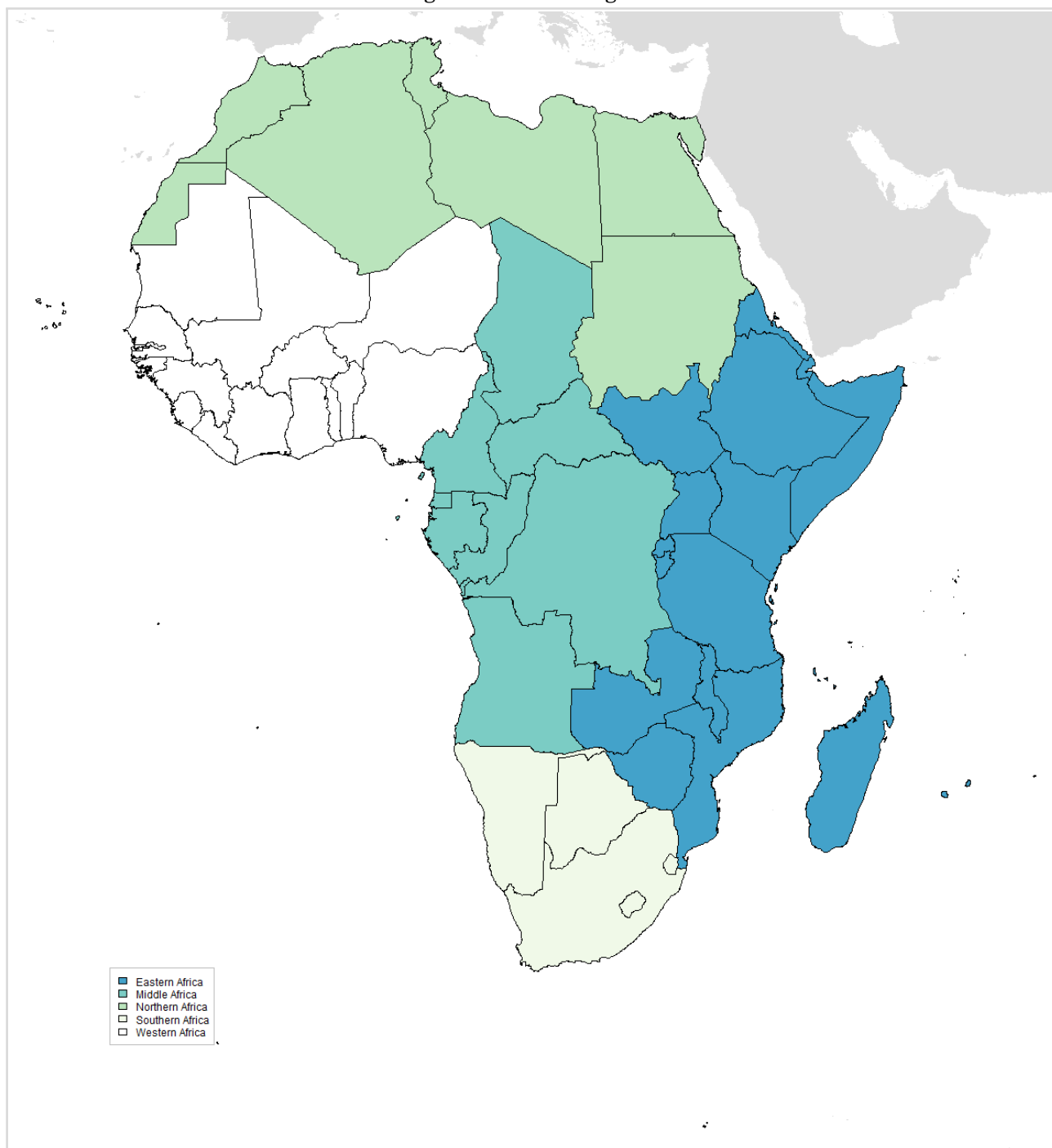
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1 Introduction

Figure 1: African 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 Africa 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 Africa. For analytical purposes, Africa is divided into five regions: Eastern Africa, Middle Africa, Northern Africa, Southern Africa, Western Africa (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 Africa 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 Africa for 2017

Region / Country	Male			Female		
	10-14 years	15+ years	Total	10-14 years	15+ years	Total
Africa[±]	74.46	366.41	623.91	72.68	372.16	622.59
Eastern Africa[±]	26.43	117.18	207.24	26.18	120.82	209.44
Burundi [±]	0.70	3.20	5.90	0.71	3.34	6.04
Comoros [±]	0.05	0.25	0.42	0.05	0.25	0.41
Djibouti [±]	0.05	0.31	0.46	0.05	0.31	0.45
Eritrea [±]	0.36	1.57	2.75	0.34	1.60	2.73
Ethiopia [±]	6.66	30.81	52.08	6.54	31.48	52.26
Kenya [±]	3.00	14.12	24.22	2.97	14.29	24.25
Madagascar [±]	1.57	7.45	12.77	1.55	7.61	12.84
Malawi [±]	1.18	5.02	9.14	1.17	5.10	9.16
Mauritius ^{a,±}	0.05	0.51	0.63	0.04	0.53	0.65
Mozambique [±]	1.93	7.79	14.46	1.93	8.48	15.08
Rwanda [±]	0.76	3.39	5.83	0.76	3.89	6.33
Seychelles [±]	0.00	0.04	0.05	0.00	0.04	0.05
Somalia [±]	0.74	3.01	5.67	0.73	3.09	5.72
South Sudan [±]	0.81	3.80	6.56	0.79	3.84	6.53
Tanzania ^{b,±}	3.60	15.39	28.28	3.62	15.88	28.59
Uganda [±]	2.82	10.83	20.82	2.79	11.01	20.84
Zambia [±]	1.13	4.65	8.60	1.12	4.74	8.63
Zimbabwe [±]	0.97	4.66	8.05	0.96	4.91	8.29
Middle Africa[±]	10.36	43.80	80.44	10.25	44.69	80.80
Angola	1.75	6.89	13.23	1.75	7.14	13.42
Cameroon [±]	1.53	7.06	12.26	1.51	7.13	12.25
CAR [±]	0.29	1.53	2.51	0.30	1.60	2.59
Chad [±]	1.00	3.92	7.49	0.98	3.96	7.47
Congo [±]	0.30	1.39	2.43	0.29	1.41	2.43
DR Congo [±]	5.32	22.08	41.03	5.26	22.57	41.21
Eq. Guinea [±]	0.05	0.28	0.46	0.05	0.26	0.44
Gabon [±]	0.10	0.58	0.91	0.10	0.56	0.89
S.Tome & Prin. [±]	0.01	0.06	0.10	0.01	0.06	0.10
Northern Africa[±]	11.02	78.21	116.59	10.53	79.00	115.60
Algeria [±]	1.62	14.58	20.65	1.57	14.52	20.41
Egypt [±]	4.59	31.67	48.12	4.32	31.61	47.09
Libya [±]	0.31	2.25	3.21	0.29	2.28	3.19
Morocco [±]	1.48	12.54	17.44	1.41	13.15	17.80
Sudan [±]	2.59	12.64	21.17	2.52	12.74	21.00
Tunisia [±]	0.41	4.29	5.68	0.39	4.49	5.82
Western Sahara [±]	0.02	0.24	0.31	0.02	0.21	0.28
Southern Africa[±]	3.04	21.94	31.46	3.03	23.00	32.39
Botswana [±]	0.11	0.80	1.17	0.11	0.80	1.17
Lesotho [±]	0.12	0.69	1.08	0.12	0.71	1.10
Namibia [±]	0.14	0.78	1.25	0.14	0.85	1.32
South Africa [±]	2.59	19.27	27.30	2.59	20.21	28.14
Swaziland [±]	0.08	0.41	0.65	0.07	0.42	0.67
Western Africa^{c,d,±}	23.60	105.28	188.18	22.68	104.65	184.37
Benin [±]	0.72	3.31	5.72	0.70	3.38	5.74
Burkina Faso [±]	1.26	5.16	9.52	1.24	5.36	9.65
Cape Verde [±]	0.03	0.18	0.26	0.02	0.19	0.27
Côte d'Ivoire [±]	1.47	7.04	12.10	1.44	6.74	11.72
Gambia [±]	0.14	0.56	1.05	0.13	0.59	1.07
Ghana [±]	1.65	8.62	14.28	1.58	8.96	14.38
Guinea [±]	0.82	3.84	6.67	0.80	3.84	6.62
Guinea-Bissau [±]	0.11	0.57	0.96	0.11	0.58	0.97
Liberia [±]	0.30	1.38	2.39	0.29	1.38	2.34
Mali [±]	1.27	4.93	9.44	1.21	4.91	9.25
Mauritania [±]	0.26	1.29	2.15	0.25	1.29	2.12
Niger [±]	1.45	5.31	10.87	1.39	5.35	10.69
Nigeria [±]	12.25	54.63	97.75	11.64	53.10	94.09
Senegal [±]	0.99	4.34	7.89	0.97	4.70	8.16
Sierra Leone [±]	0.42	1.93	3.33	0.43	1.99	3.40
Togo [±]	0.47	2.19	3.80	0.47	2.28	3.89
Sub-Saharan Africa^{e,±}	63.43	288.20	507.32	62.15	293.16	507.00

Data accessed on 27 Mar 2017.

Please refer to original source for methods of estimation.

^aIncluding Agalega, Rodrigues and Saint Brandon.^bIncluding Zanzibar.^cIncluding Saint Helena, Ascension and Tristan da Cunha.

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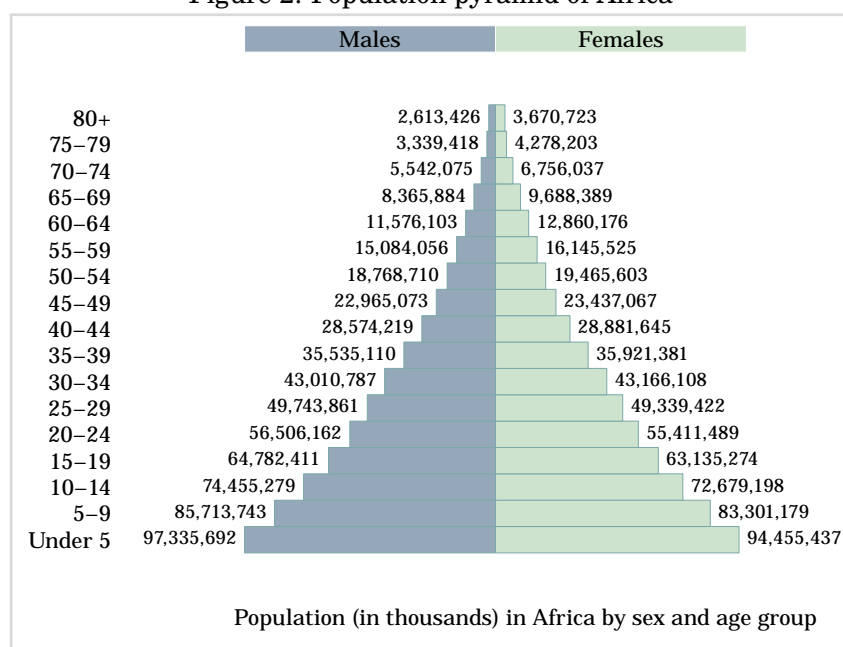
(Table 3 – continued from previous page)

^d Including Saint Helena, Ascension, and Tristan da Cunha.^e Sub-Saharan Africa refers to all of Africa except Northern Africa.Year of estimate: \pm 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 2: Population pyramid of Africa

**Data accessed on 27 Mar 2017.**

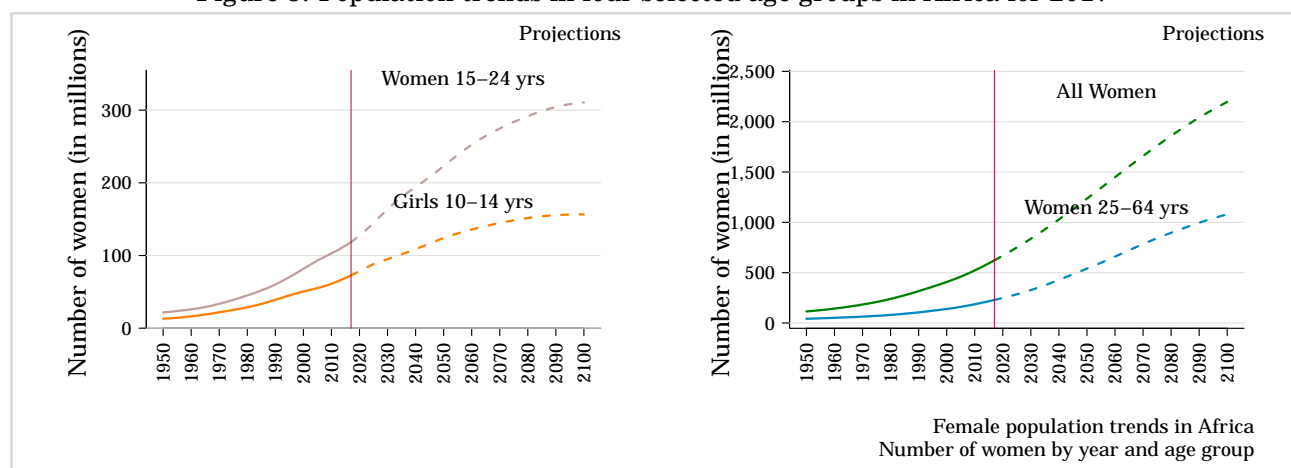
Please refer to original source for methods of estimation.

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 Africa 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 Africa

Indicator	Male	Female	Total
Population in thousands ^{1,±}	623,911.9	622,592.8	1,246,504.7
Population growth rate (%) ^{1,∓}	-	-	2.6
Median age of the population (in years) ^{1,*}	-	-	19.4
Population living in urban areas (%) ^{2,*}	-	-	40.4
Crude birth rate (births per 1,000) ^{1,∓}	-	-	35.8
Crude death rate (deaths per 1,000) ^{1,∓}	-	-	9.8
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,*}	71.8	55.6	63.5
Youth literacy rate (%) (aged 15-24 years) ^{7,*}	79.5	69.8	74.5
Net primary school enrollment ratio ^{7,f,*}	82	78.2	80.1
Net secondary school enrollment ratio ^{7,f,*}	41.2	36.9	39.1

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; * 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/hvstats/>). [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 Africa and its regions with estimates of the annual number of new cases, deaths, incidence and mortality.

3.1.1 Incidence

KEY STATS

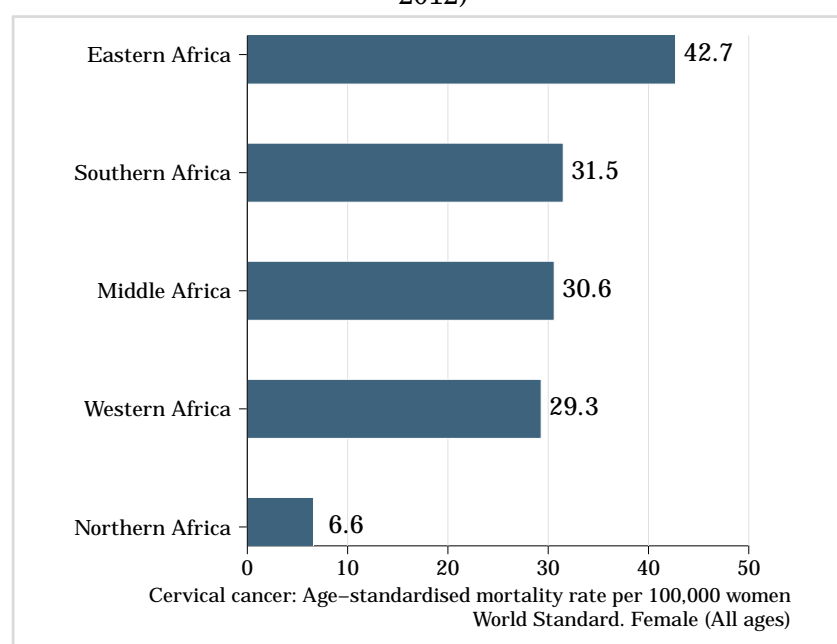
About 99,038 new cervical cancer cases are diagnosed annually in Africa (estimates for 2012).

Cervical cancer ranks* as the 2nd leading cause of female cancer in Africa.

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

* 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 Africa (estimates for 2012)



Data accessed on 15 Nov 2015.

(Continued on next page)

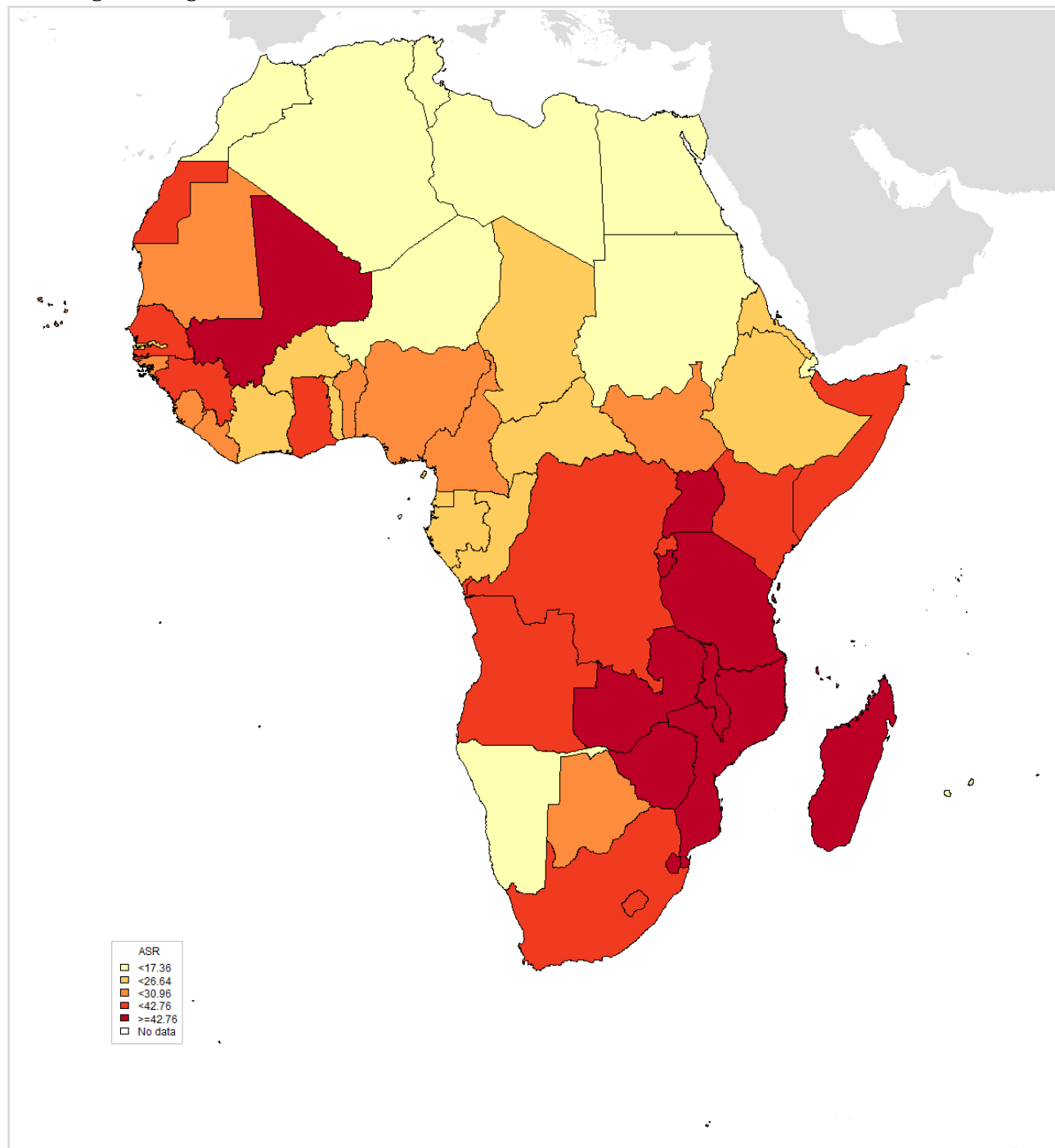
(Figure 4 – continued from previous page)

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 Africa (estimates for 2012)

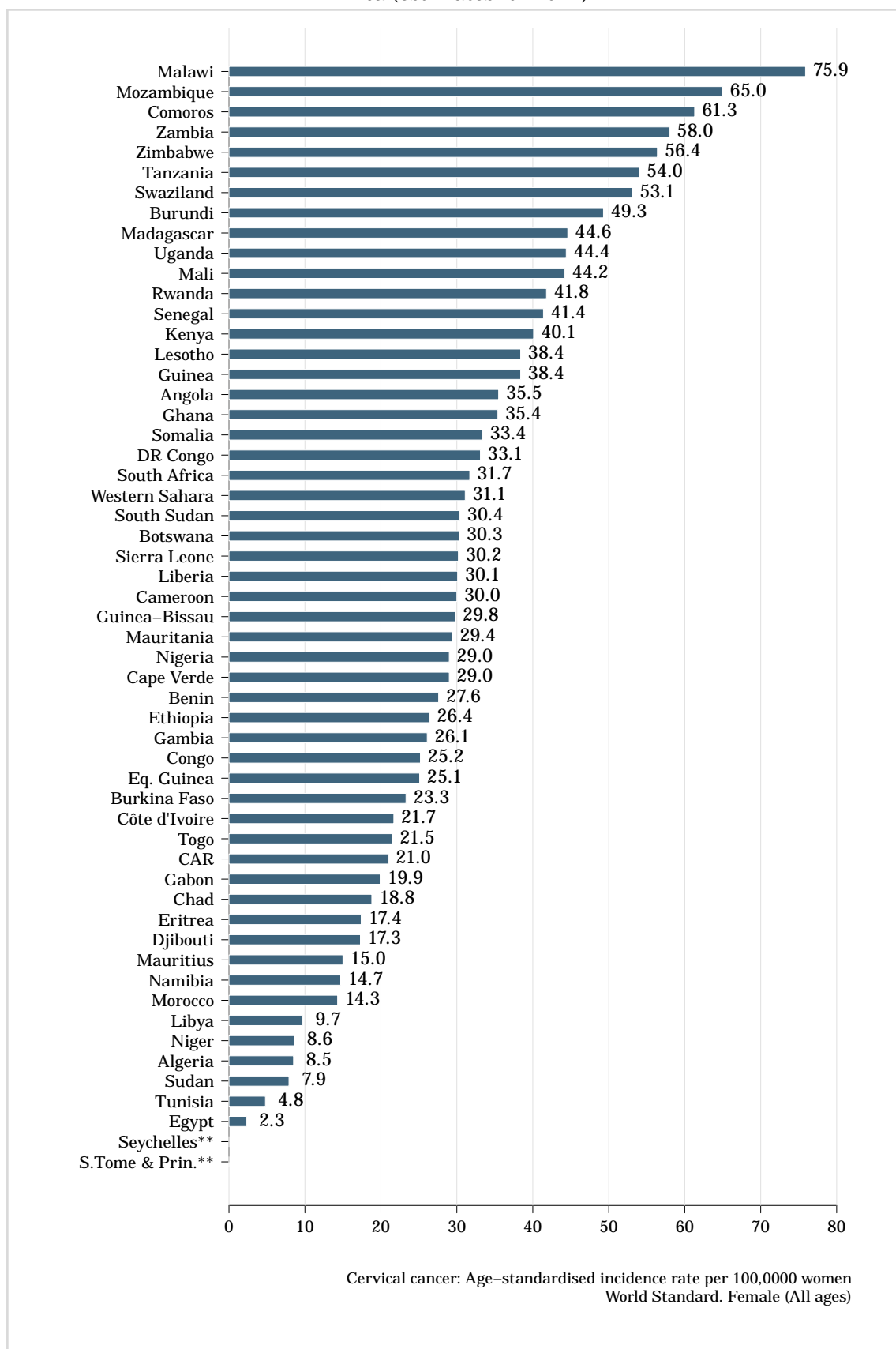
**Data accessed on 15 Nov 2015.**

Rates per 100,000 women per year.

For Sudan, South Sudan: Estimate for Sudan and South Sudan

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 Africa (estimates for 2012)



** No rates are available.

Data accessed on 15 Nov 2015.

Rates per 100,000 women per year.

For Sudan, South Sudan: Estimate for Sudan and South Sudan

(Continued on next page)

(Figure 6 – 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>.

Table 5: Incidence of cervical cancer in Africa (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
Africa	99,038	18.5	27.6	3.0	2	2
Eastern Africa	45,707	25.8	42.7	4.6	1	1
Burundi	1,429	32.1	49.3	5.2	1	1
Comoros	151	39.4	61.3	6.4	1	1
Djibouti	55	11.9	17.3	1.9	2	2
Eritrea	265	9.4	17.4	1.9	2	2
Ethiopia	7,095	16.3	26.4	3.0	2	2
Kenya	4,802	22.4	40.1	4.4	1	1
Madagascar	3,194	29.0	44.6	4.7	1	1
Malawi	3,684	46.5	75.9	7.4	1	1
Mauritius	123	18.5	15.0	1.8	3	2
Mozambique	5,622	44.8	65.0	6.6	1	1
Rwanda	1,366	23.8	41.8	4.5	1	1
Seychelles	-	-	-	-	-	-
Somalia	967	19.6	33.4	3.7	2	2
South Sudan	1,011	18.7	30.4	3.4	2	2
Tanzania	7,304	30.6	54.0	5.8	1	1
Uganda	3,915	22.0	44.4	4.7	1	1
Zambia	2,330	33.7	58.0	5.7	1	1
Zimbabwe	2,270	34.5	56.4	6.3	1	2
Middle Africa	11,540	17.2	30.6	3.4	1	2
Angola	2,072	20.4	35.5	3.7	1	1
Cameroon	1,993	19.4	30.0	3.2	2	2
Central African Re- public	311	13.4	21.0	2.4	2	2
Chad	630	10.6	18.8	2.1	2	2
Congo	310	14.7	25.2	3.1	2	2
DR Congo	6,024	17.2	33.1	3.8	1	2
Equatorial Guinea	66	18.3	25.1	2.7	2	2
Gabon	118	15.1	19.9	2.1	1	1
Sao Tome & Principe	-	-	-	-	-	-
Northern Africa	5,813	5.6	6.6	0.7	4	4
Algeria	1,288	7.1	8.5	1.0	3	9
Egypt	866	2.1	2.3	0.2	13	10
Libya	241	7.4	9.7	1.1	3	7
Morocco	2,258	13.6	14.3	1.6	2	2
Sudan	833	4.5	7.9	0.9	2	5
Tunisia	265	4.9	4.8	0.6	3	8
Southern Africa	8,652	29.3	31.5	3.1	2	1
Botswana	250	24.6	30.3	3.1	1	1
Lesotho	312	27.8	38.4	3.8	1	2
Namibia	132	11.1	14.7	1.5	2	3
South Africa	7,735	30.2	31.7	3.1	2	1
Swaziland	223	36.0	53.1	5.0	1	1
Western Africa	27,326	17.2	29.3	3.2	2	2
Benin	781	16.5	27.6	3.0	2	2
Burkina Faso	1,155	13.1	23.3	2.5	1	2
Cape Verde	68	26.7	29.0	3.0	1	2
Côte d'Ivoire	1,346	13.3	21.7	2.3	2	2
Gambia	98	10.6	26.1	1.5	1	1
Ghana	3,052	24.3	35.4	3.8	1	1
Guinea	1,210	23.3	38.4	4.3	1	1
Guinea-Bissau	149	18.7	29.8	3.0	1	2
Liberia	366	17.3	30.1	3.3	1	2

(Continued on next page)

(Table 5 – continued from previous page)

Area	N cases	Crude rate ^a	ASR ^a	Cumulative risk (%) ages 0-74 years ^b	Ranking of CC	
					All women	Women 15-44 years
Mali	1,862	22.8	44.2	4.8	1	1
Mauritania	328	18.2	29.4	3.0	1	2
Niger	395	4.8	8.6	1.0	2	2
Nigeria	14,089	17.1	29.0	3.3	2	2
Senegal	1,482	22.4	41.4	4.5	1	1
Sierra Leone	512	16.4	30.2	3.3	1	2
Togo	433	13.7	21.5	2.3	2	2
Sub-Saharan Africa	93,225	21.6	34.8	3.8	2	2

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.

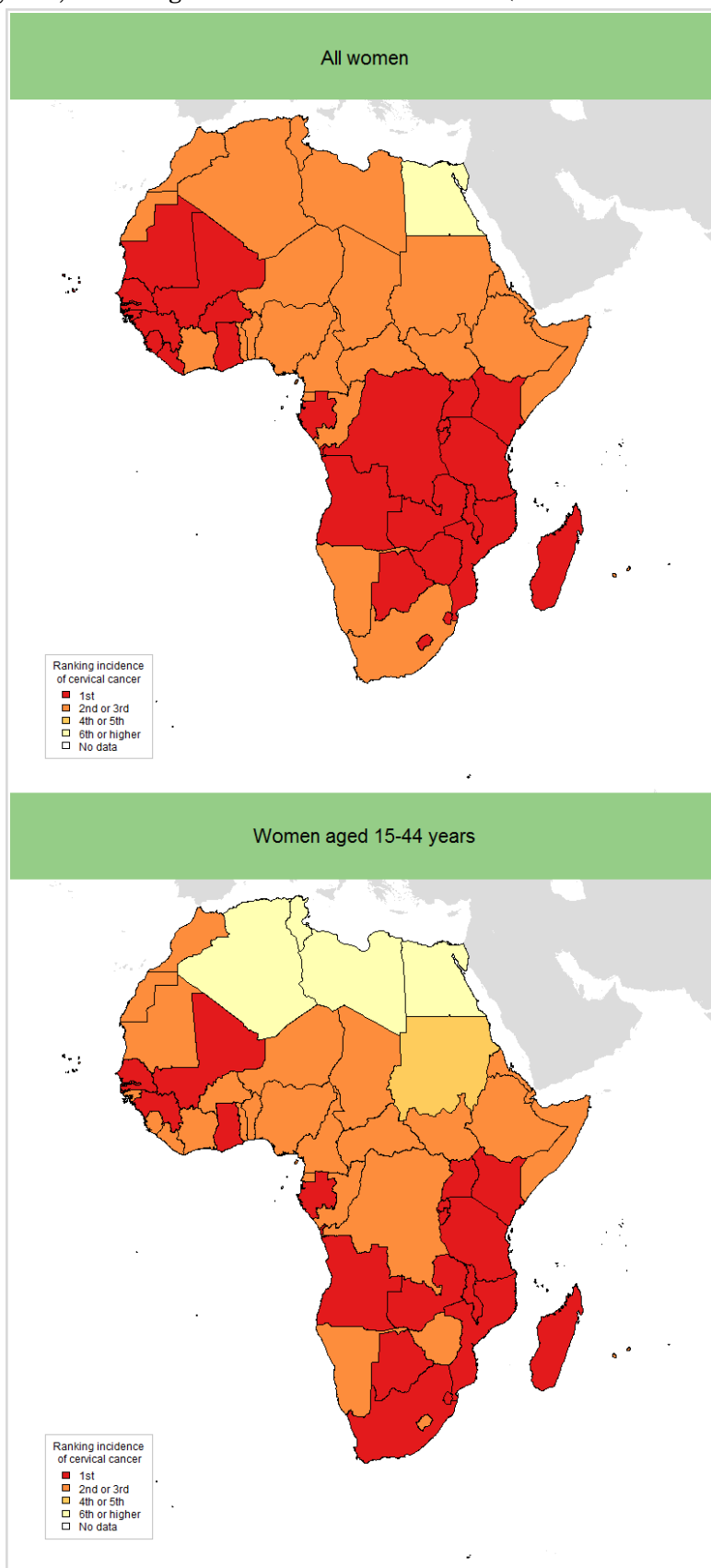
^a Rates per 100,000 women per year.

^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>.

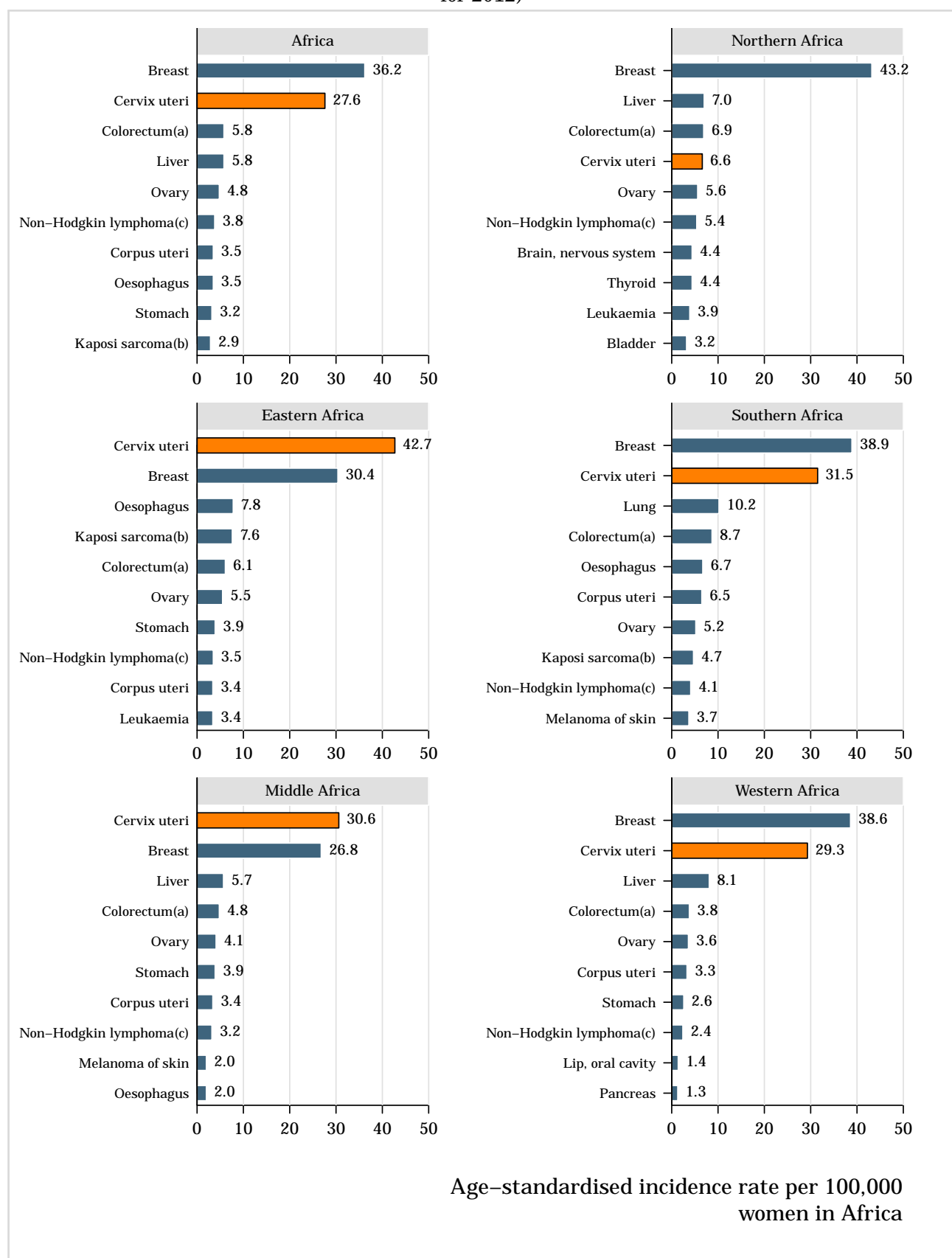
Figure 7: Ranking of cervical cancer versus other cancers among all women and women aged 15-44 years, according to incidence rates in Africa (estimates for 2012)



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 Africa and its regions (estimates for 2012)



Data accessed on 15 Nov 2015.

^a Includes anal cancer (C21).

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

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

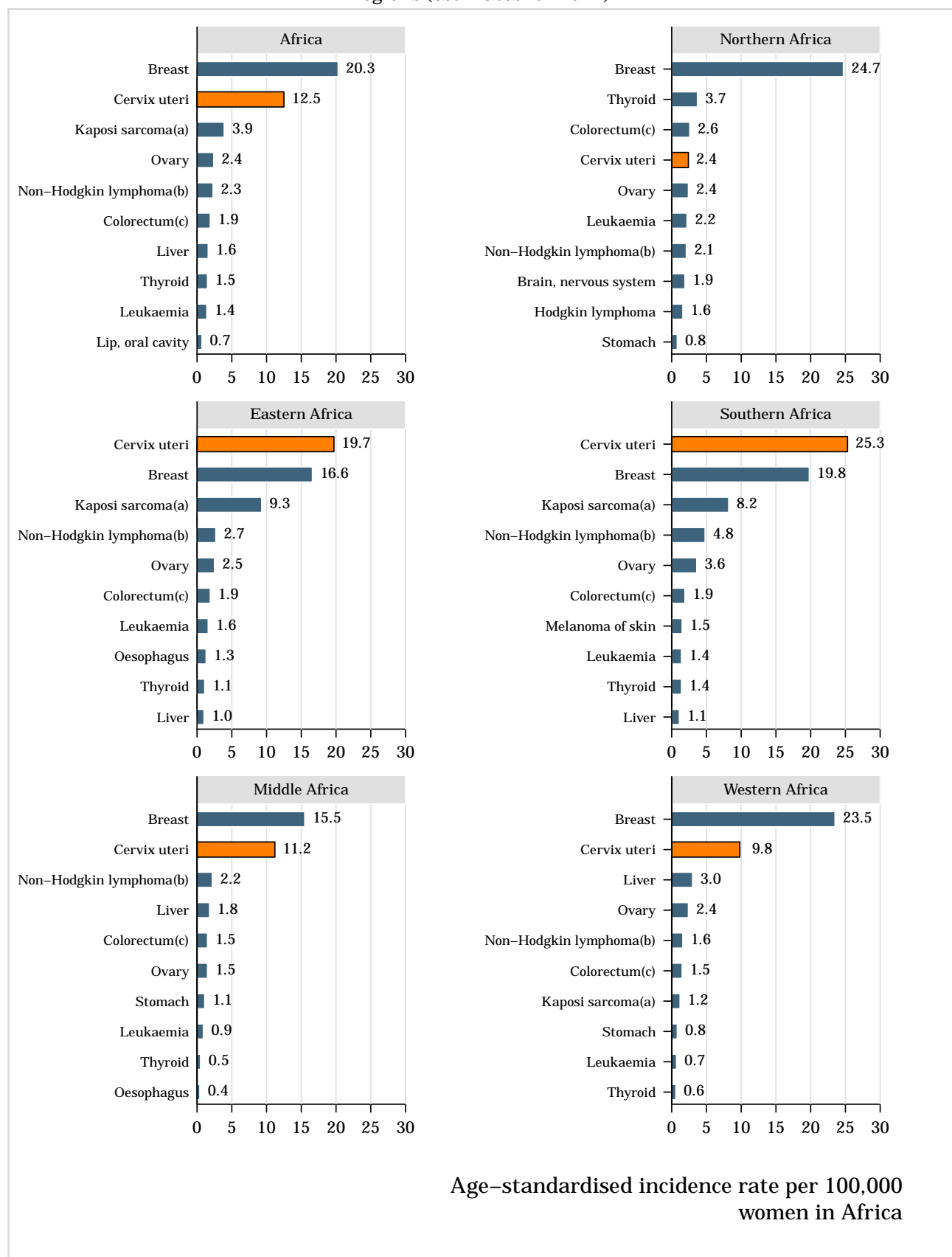
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(Figure 8 – continued from previous page)

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



Data accessed on 15 Nov 2015.

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

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

^c Includes anal cancer (C21).

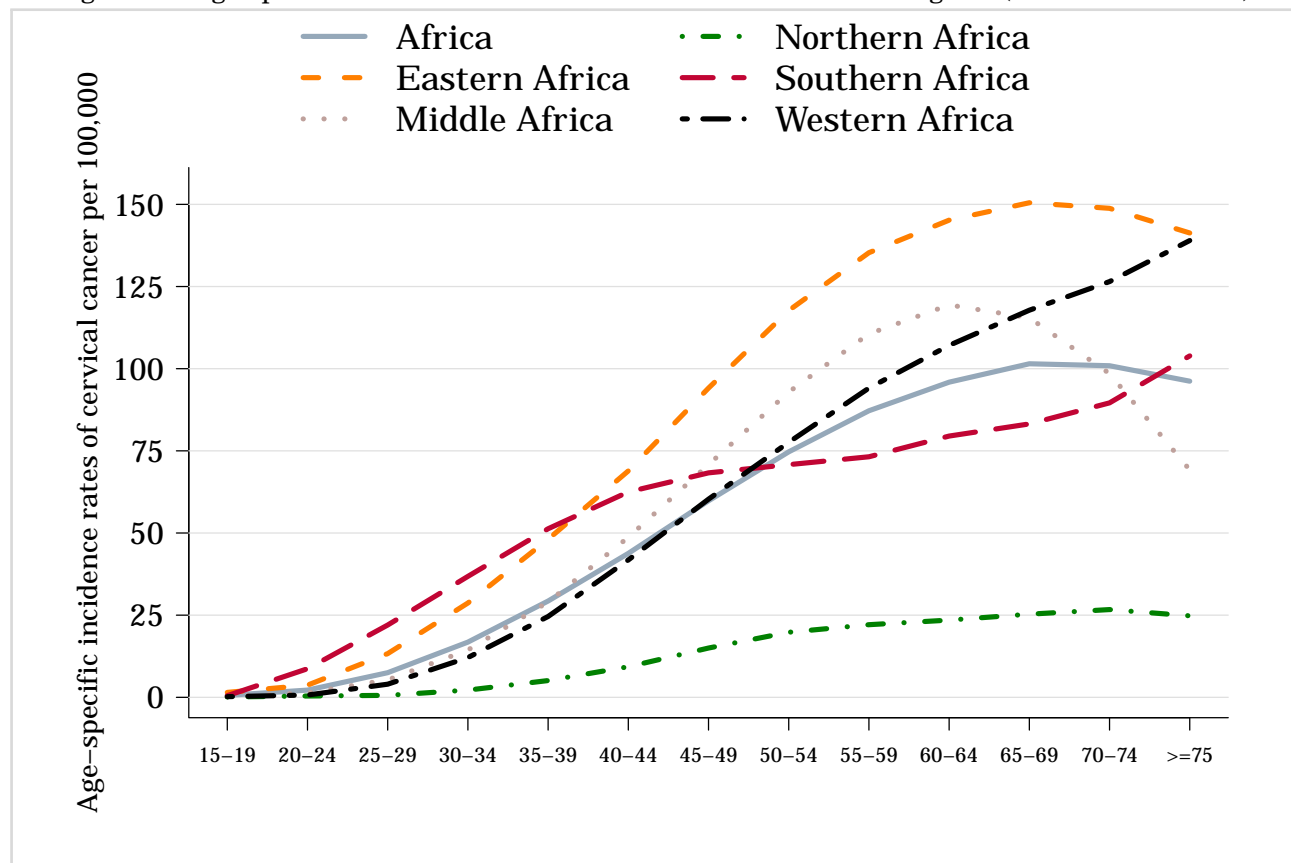
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(Figure 9 – continued from previous page)

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

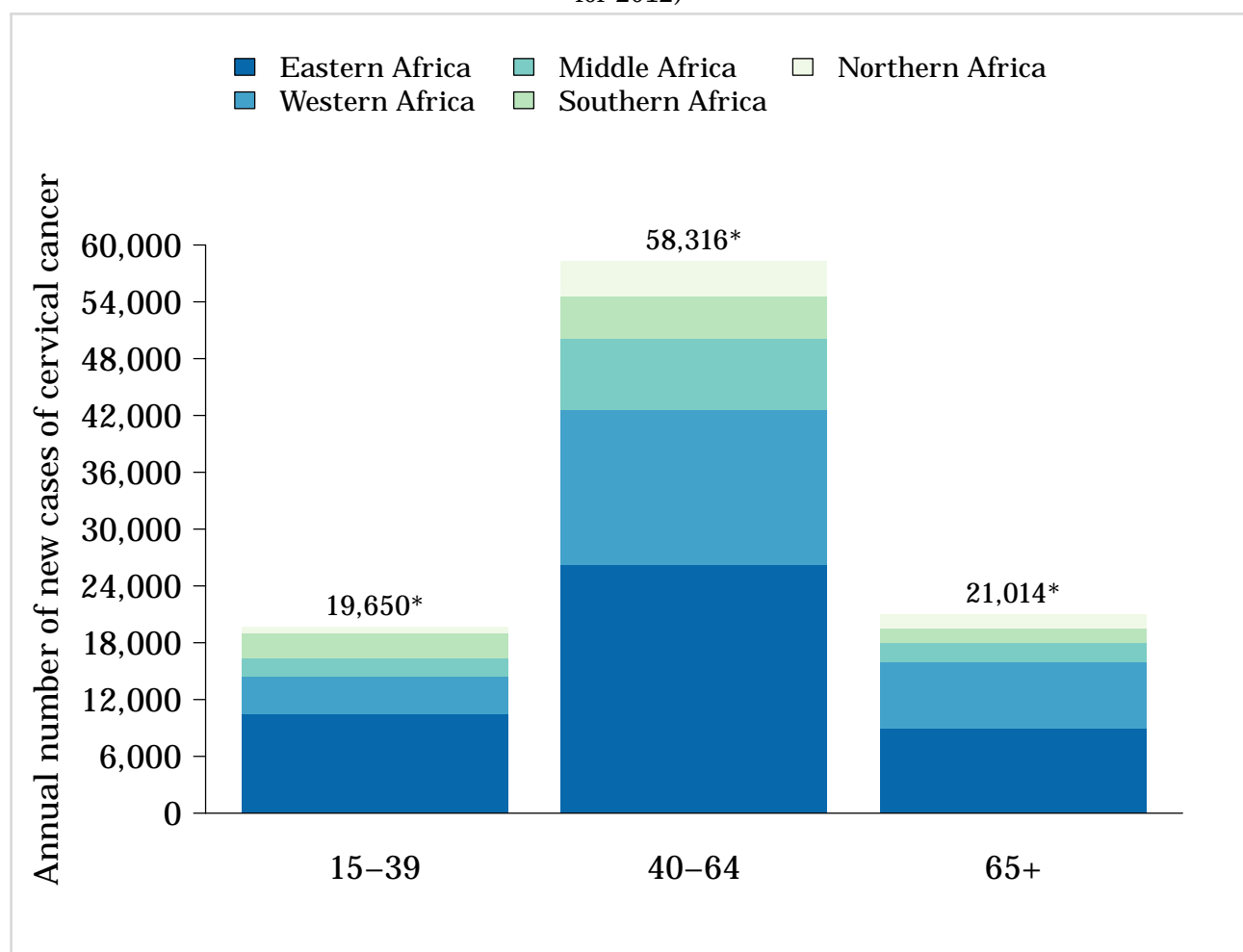


Data accessed on 15 Nov 2015.

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 African regions (estimates for 2012)



* Eastern Africa 15-39 years: 10,479 cases. 40-64 years: 26,213 cases. 65+ years: 8,988 cases.

* Western Africa 15-39 years: 3,989 cases. 40-64 years: 16,380 cases. 65+ years: 6,939 cases.

* Middle Africa 15-39 years: 1,932 cases. 40-64 years: 7,525 cases. 65+ years: 2,072 cases.

* Southern Africa 15-39 years: 2,603 cases. 40-64 years: 4,470 cases. 65+ years: 1,577 cases.

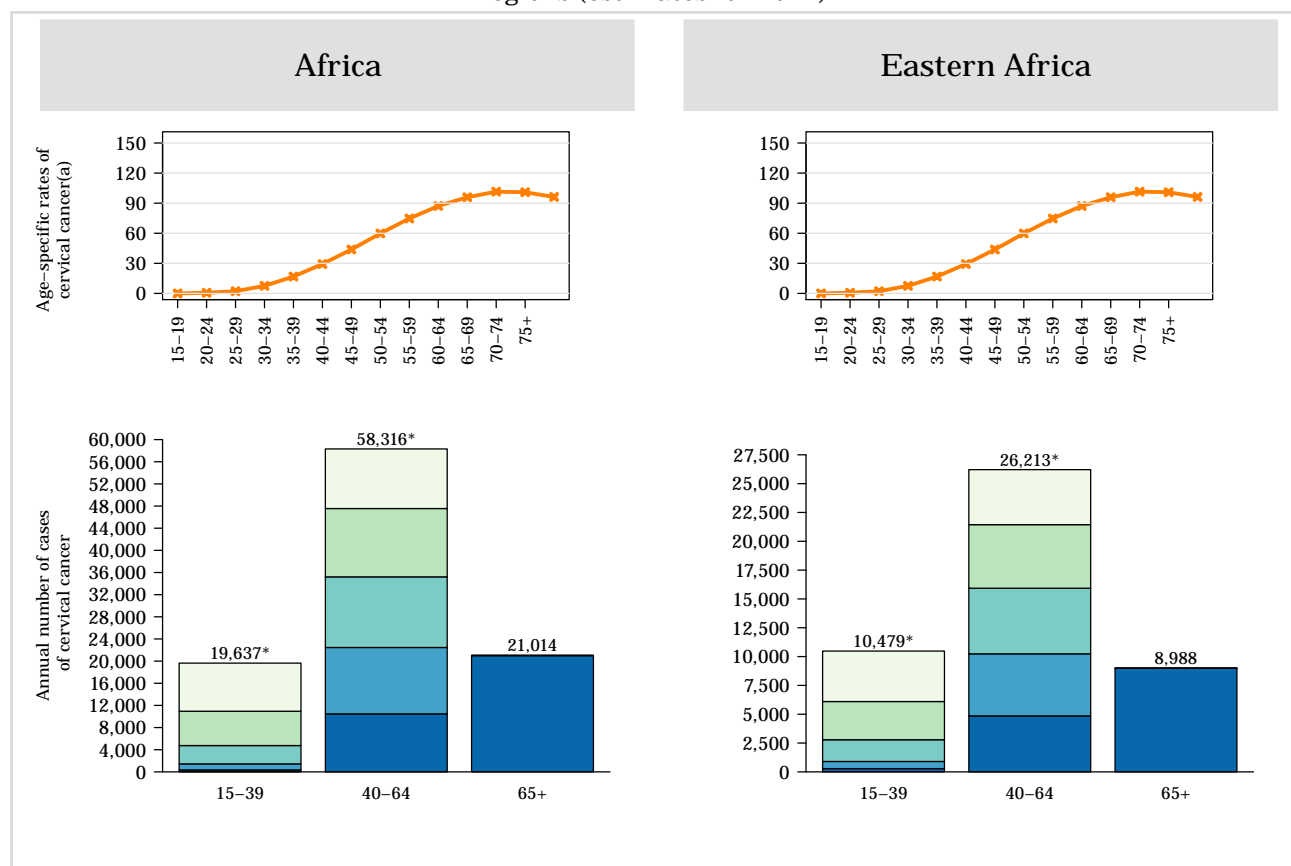
* Northern Africa 15-39 years: 647 cases. 40-64 years: 3,728 cases. 65+ years: 1,438 cases.

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 Africa and its regions (estimates for 2012)



* Africa 15-19 yrs: 352 cases. 20-24 yrs: 1,091 cases. 25-29 yrs: 3,310 cases. 30-34 yrs: 6,198 cases. 35-39 yrs: 8,686 cases. 40-44 yrs: 10,474 cases. 45-49 yrs: 11,987 cases. 50-54 yrs: 12,753 cases. 55-59 yrs: 12,342 cases. 60-64 yrs: 10,760 cases.

* Eastern Africa 15-19 yrs: 283 cases. 20-24 yrs: 618 cases. 25-29 yrs: 1,885 cases. 30-34 yrs: 3,316 cases. 35-39 yrs: 4,377 cases. 40-44 yrs: 4,854 cases. 45-49 yrs: 5,383 cases. 50-54 yrs: 5,692 cases. 55-59 yrs: 5,514 cases. 60-64 yrs: 4,770 cases.

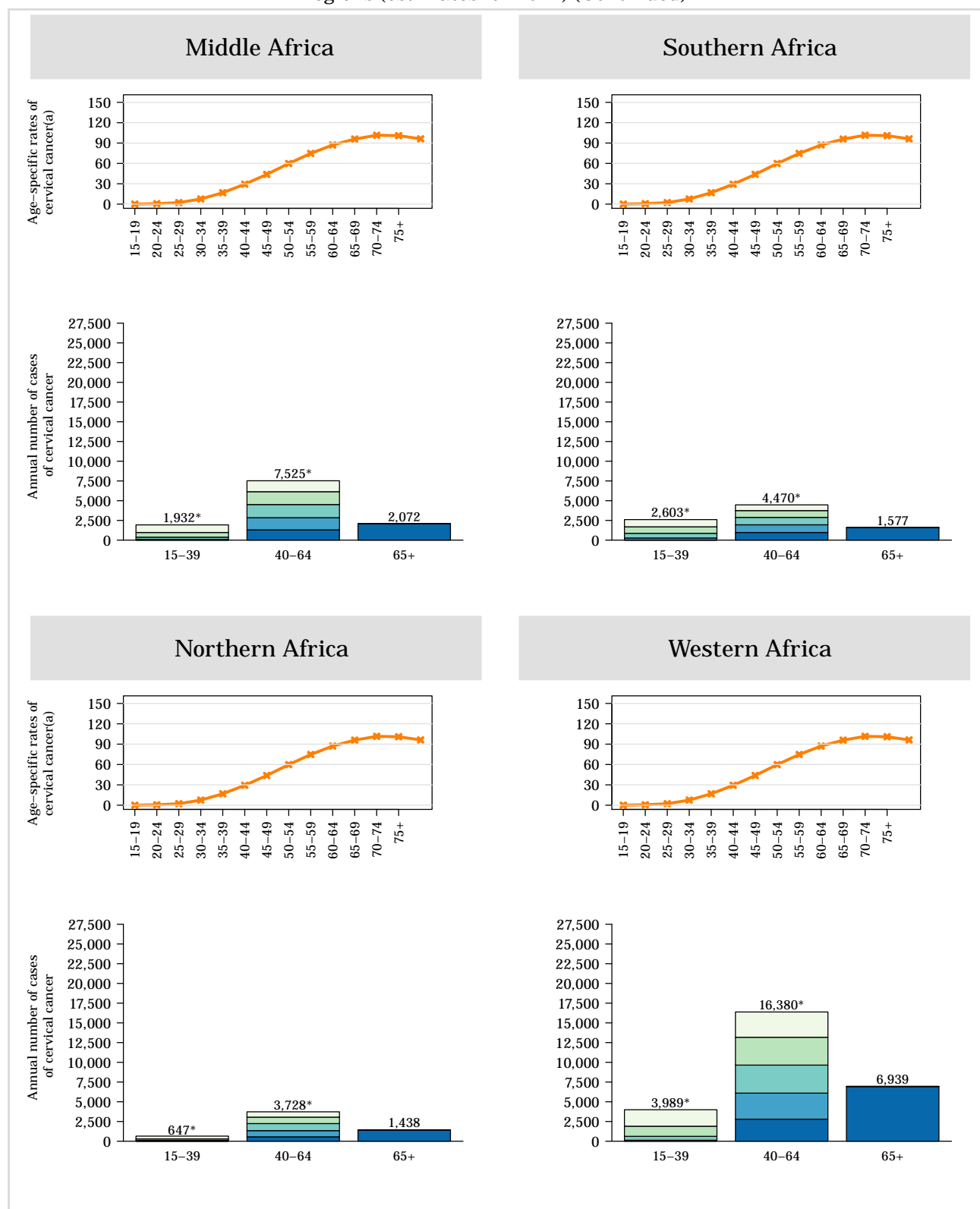
Data accessed on 15 Nov 2015.

^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 Africa and its regions (estimates for 2012) (Continued)



* Middle Africa 15-19 yrs: 16 cases. 20-24 yrs: 85 cases. 25-29 yrs: 272 cases. 30-34 yrs: 598 cases. 35-39 yrs: 961 cases. 40-44 yrs: 1,298 cases. 45-49 yrs: 1,546 cases. 50-54 yrs: 1,669 cases. 55-59 yrs: 1,626 cases. 60-64 yrs: 1,386 cases.

* Northern Africa 15-19 yrs: 11 cases. 20-24 yrs: 38 cases. 25-29 yrs: 59 cases. 30-34 yrs: 187 cases. 35-39 yrs: 352 cases. 40-44 yrs: 555 cases. 45-49 yrs: 786 cases. 50-54 yrs: 897 cases. 55-59 yrs: 813 cases. 60-64 yrs: 677 cases.

* Southern Africa 15-19 yrs: 15 cases. 20-24 yrs: 254 cases. 25-29 yrs: 600 cases. 30-34 yrs: 820 cases. 35-39 yrs: 914 cases. 40-44 yrs: 971 cases. 45-49 yrs: 973 cases. 50-54 yrs: 942 cases. 55-59 yrs: 859 cases. 60-64 yrs: 725 cases.

* Western Africa 15-19 yrs: 27 cases. 20-24 yrs: 96 cases. 25-29 yrs: 496 cases. 30-34 yrs: 1,282 cases. 35-39 yrs: 2,088 cases. 40-44 yrs: 2,796 cases. 45-49 yrs: 3,299 cases. 50-54 yrs: 3,553 cases. 55-59 yrs: 3,530 cases. 60-64 yrs: 3,202 cases.

Data accessed on 15 Nov 2015.

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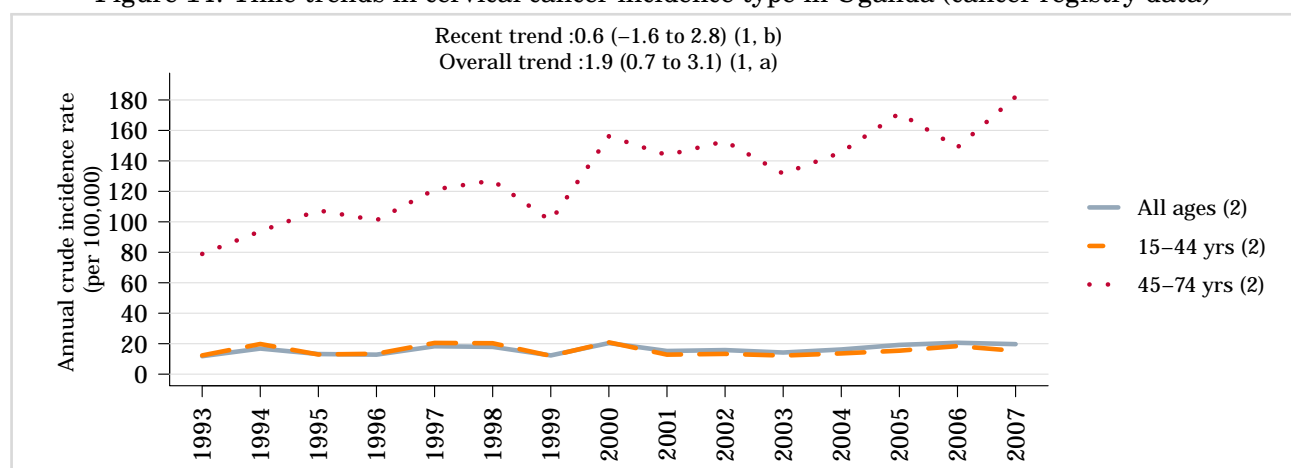
(Figure 13 – continued from previous page)

^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 Uganda (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 15 years, from 1993-2007.

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

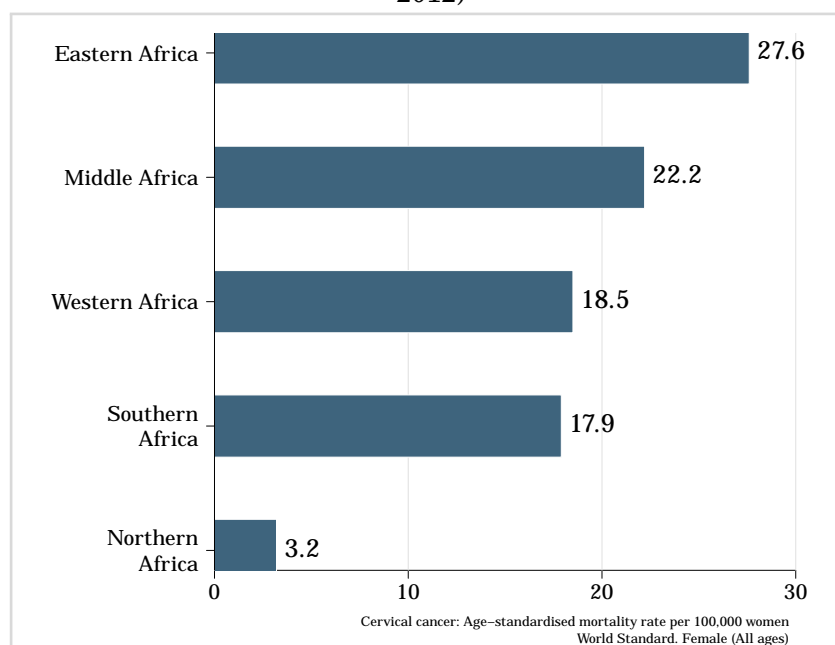
About **60,098 new cervical cancer deaths** occur **annually** in **Africa** (estimates for 2012).

Cervical cancer **ranks* as the 2nd leading cause** of female cancer deaths in **Africa**.

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

* 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 African regions (estimates for 2012)



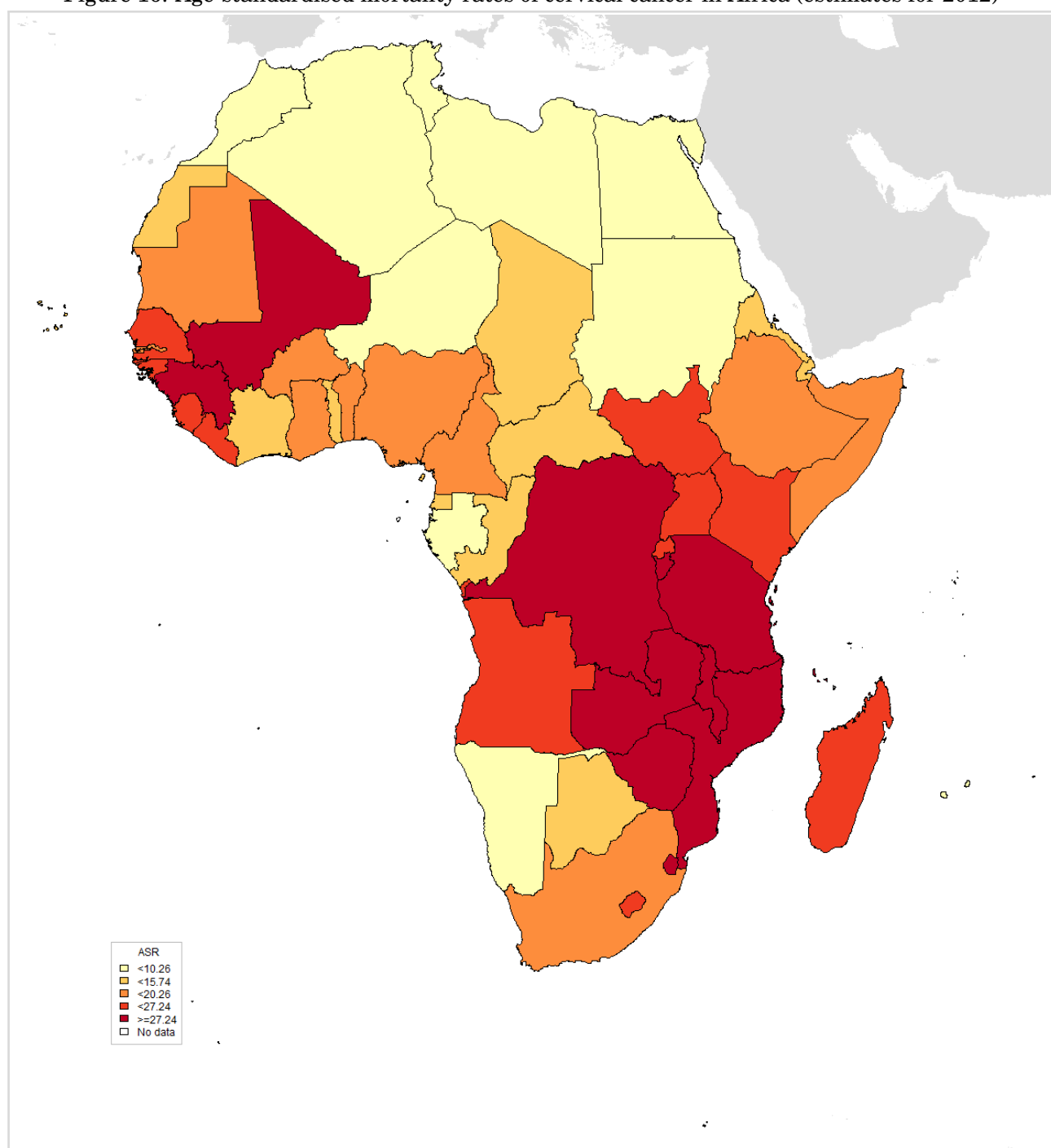
Data accessed on 15 Nov 2015.

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 Africa (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.

For Sudan, South Sudan: Estimate for Sudan and South Sudan

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 Africa (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
Africa	60,098	11.2	17.5	2.0	2	2
Eastern Africa	28,197	15.9	27.6	3.1	1	1
Burundi	1,080	24.3	39.3	4.4	1	1

(Continued on next page)

(Table 6 – continued from previous page)

Area	N cases	Crude rate ^a	ASR ^a	Cumulative risk (%) ages 0-74 years ^b	Ranking of CC	
					All women	Women 15-44 years
Comoros	92	24.0	40.3	4.5	1	1
Djibouti	35	7.6	11.5	1.3	2	3
Eritrea	189	6.7	13.1	1.5	2	2
Ethiopia	4,732	10.9	18.4	2.1	2	2
Kenya	2,451	11.5	21.8	2.5	1	1
Madagascar	1,804	16.4	26.8	3.0	1	1
Malawi	2,314	29.2	49.8	5.2	1	1
Mauritius	69	10.4	8.2	1.0	2	3
Mozambique	4,061	32.4	49.2	5.2	1	1
Rwanda	804	14.0	26.2	3.0	1	1
Seychelles	-	-	-	-	-	-
Somalia	546	11.1	20.1	2.3	2	2
South Sudan	645	11.9	20.3	2.4	1	2
Tanzania	4,216	17.7	32.4	3.6	1	1
Uganda	2,275	12.8	27.2	3.0	1	1
Zambia	1,380	19.9	36.2	3.8	1	1
Zimbabwe	1,451	22.0	35.3	4.1	1	2
Middle Africa	7,917	11.8	22.2	2.6	1	2
Angola	1,141	11.2	21.2	2.3	1	1
Cameroon	1,120	10.9	17.5	2.0	2	2
Central African Re- public	223	9.6	15.3	1.8	2	2
Chad	464	7.8	14.6	1.7	2	2
Congo	157	7.4	13.0	1.7	2	4
DR Congo	4,719	13.5	27.3	3.3	1	2
Equatorial Guinea	34	9.4	14.1	1.6	2	2
Gabon	48	6.2	8.4	0.9	1	1
Sao Tome & Principe	-	-	-	-	-	-
Northern Africa	2,717	2.6	3.2	0.4	8	8
Algeria	510	2.8	3.5	0.4	6	12
Egypt	373	0.9	1.0	0.1	17	12
Libya	95	2.9	4.0	0.5	4	9
Morocco	1,076	6.5	7.0	0.8	2	2
Sudan	534	2.9	5.3	0.6	3	8
Tunisia	103	1.9	1.9	0.2	8	11
Southern Africa	4,721	16.0	17.9	1.9	1	1
Botswana	111	10.9	14.6	1.6	1	2
Lesotho	185	16.5	23.2	2.3	1	2
Namibia	59	5.0	6.9	0.7	2	3
South Africa	4,248	16.6	18.0	1.9	1	1
Swaziland	118	19.1	31.0	3.0	1	2
Western Africa	16,546	10.4	18.5	2.1	2	2
Benin	482	10.2	17.8	1.9	1	2
Burkina Faso	845	9.6	18.6	2.0	1	2
Cape Verde	33	13.0	13.2	1.3	1	2
Côte d'Ivoire	866	8.6	14.7	1.7	2	2
Gambia	57	6.2	18.0	0.8	2	2
Ghana	1,556	12.4	18.9	2.1	1	2
Guinea	842	16.2	27.9	3.2	1	1
Guinea-Bissau	104	13.1	21.6	2.2	1	2
Liberia	269	12.7	23.6	2.7	1	2
Mali	1,261	15.5	32.1	3.7	1	1
Mauritania	194	10.8	18.8	1.9	1	2
Niger	302	3.7	7.1	0.8	2	2
Nigeria	8,240	10.0	17.5	2.0	2	3
Senegal	858	13.0	26.3	3.0	1	1
Sierra Leone	372	11.9	25.0	2.8	1	2
Togo	265	8.4	13.8	1.6	2	3

(Continued on next page)

(Table 6 – continued from previous page)

Area	N cases	Crude rate ^a	ASR ^a	Cumulative risk (%) ages 0-74 years ^b	Ranking of CC	
					All women	Women 15-44 years
Sub-Saharan Africa	57,381	13.3	22.5	2.5	1	2

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 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.

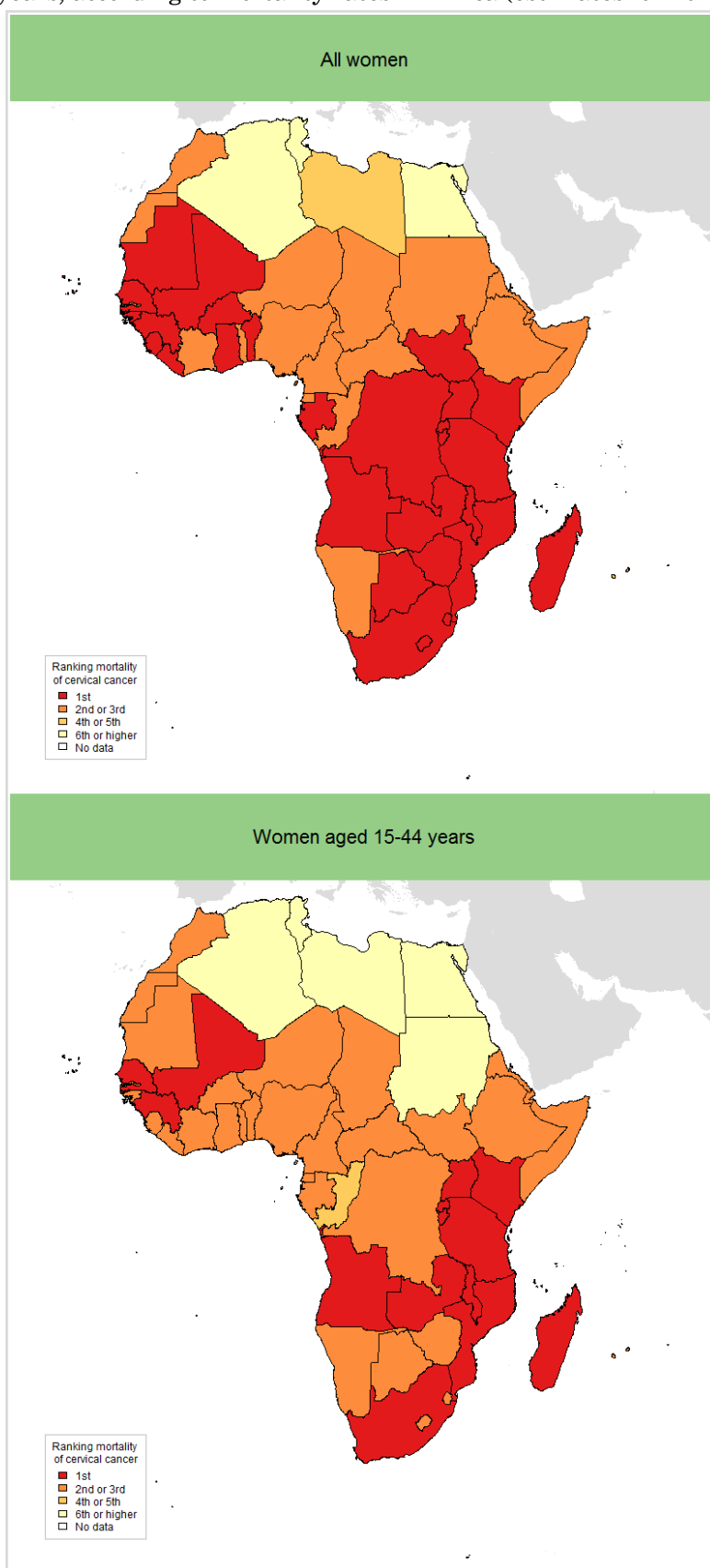
^a Rates per 100,000 women per year.

^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>.

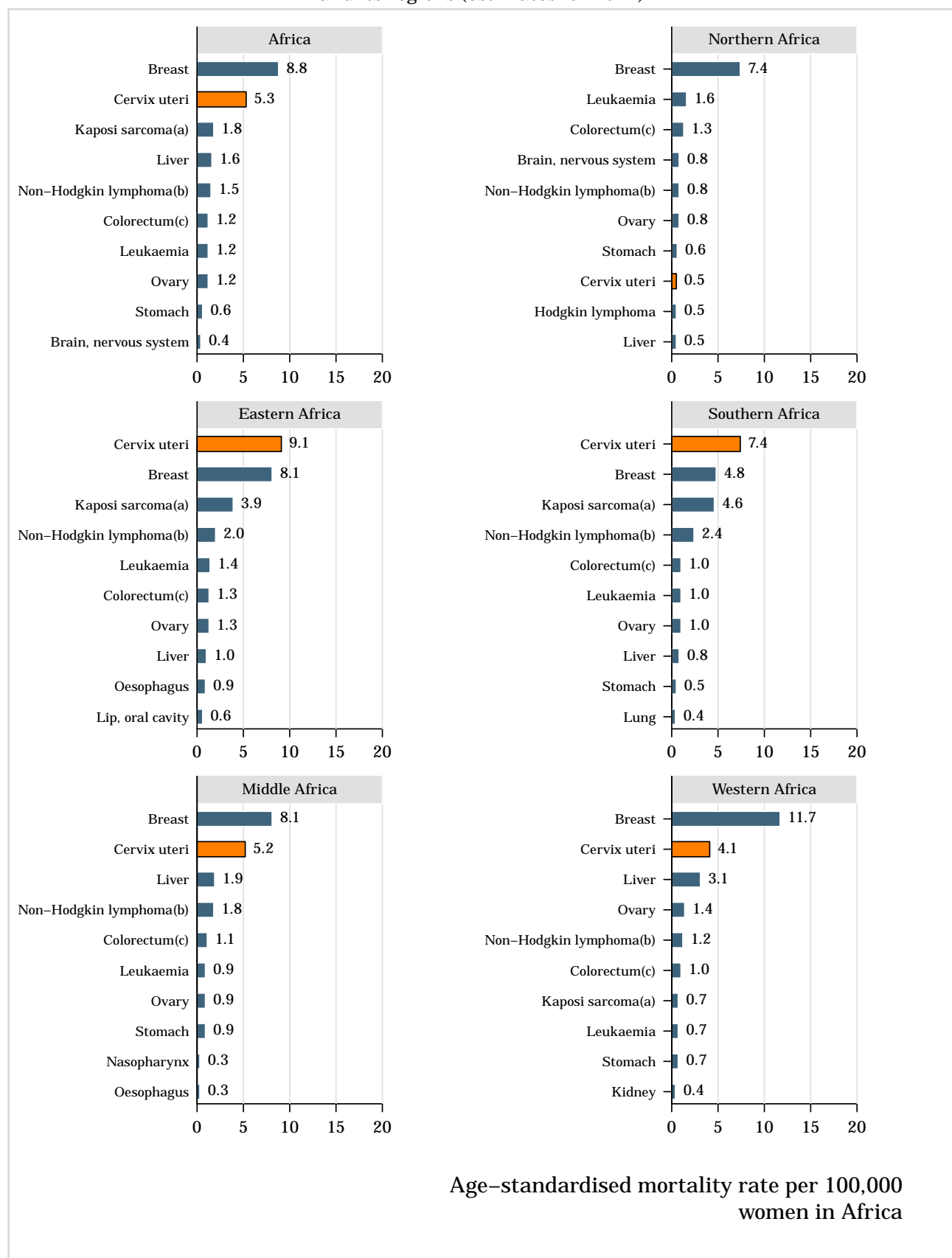
Figure 17: Ranking of cervical cancer versus other cancers among all women and women aged 15-44 years, according to mortality rates in Africa (estimates for 2012)



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 Africa and its regions (estimates for 2012)



Data accessed on 15 Nov 2015.

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

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

^c Includes anal cancer (C21).

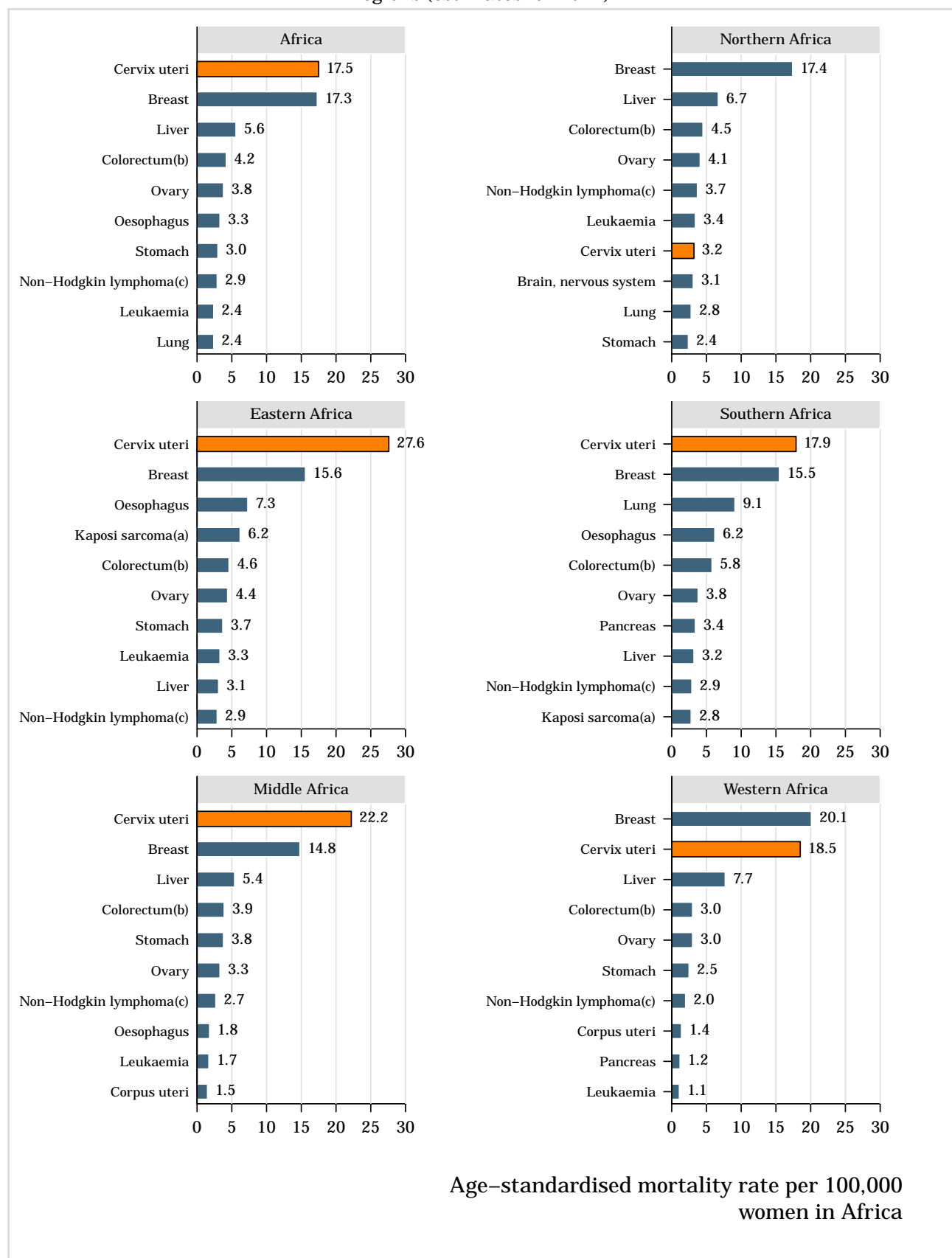
(Continued on next page)

(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 Africa and its regions (estimates for 2012)



Data accessed on 15 Nov 2015.

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

^b Includes anal cancer (C21).

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

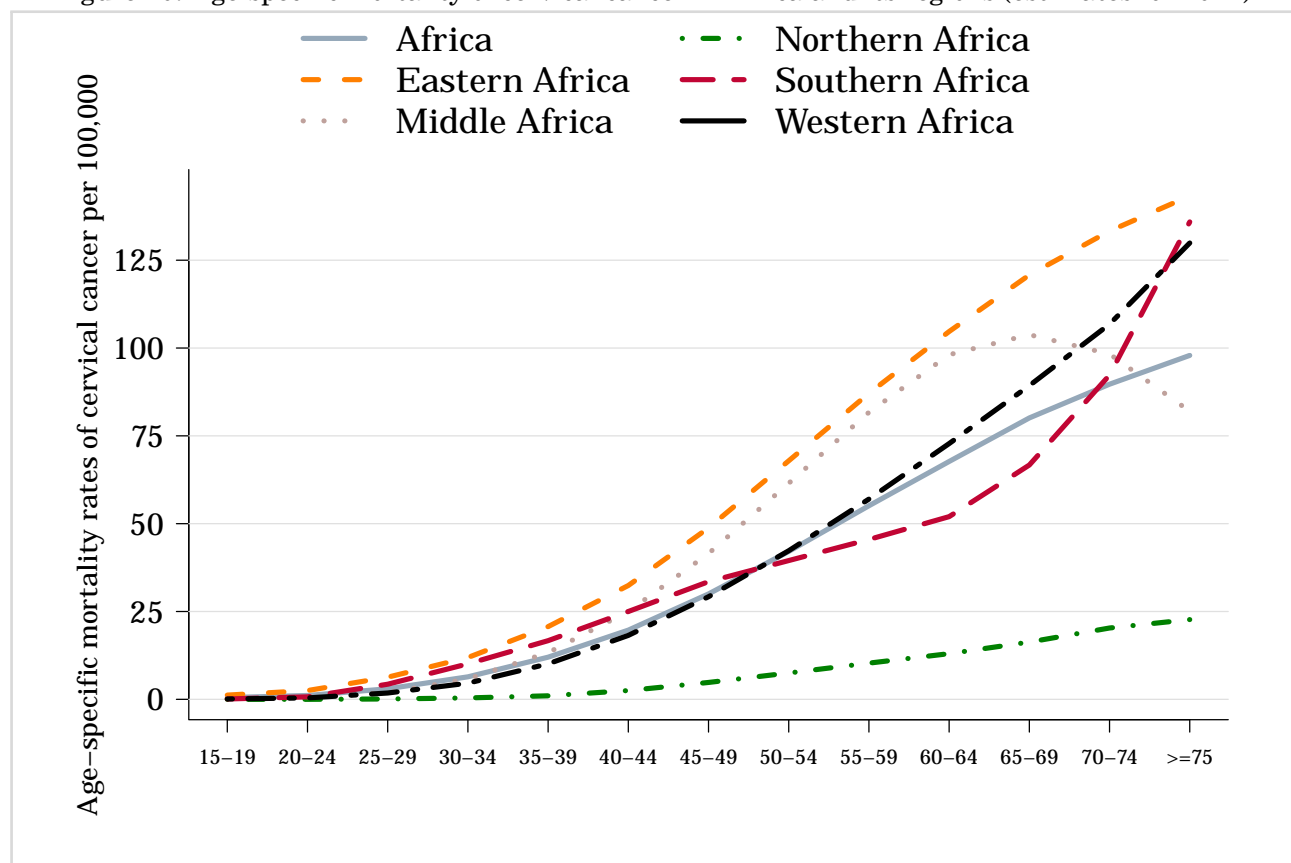
(Continued on next page)

(Figure 19 – 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 20: Age-specific mortality of cervical cancer in Africa and its regions (estimates for 2012)

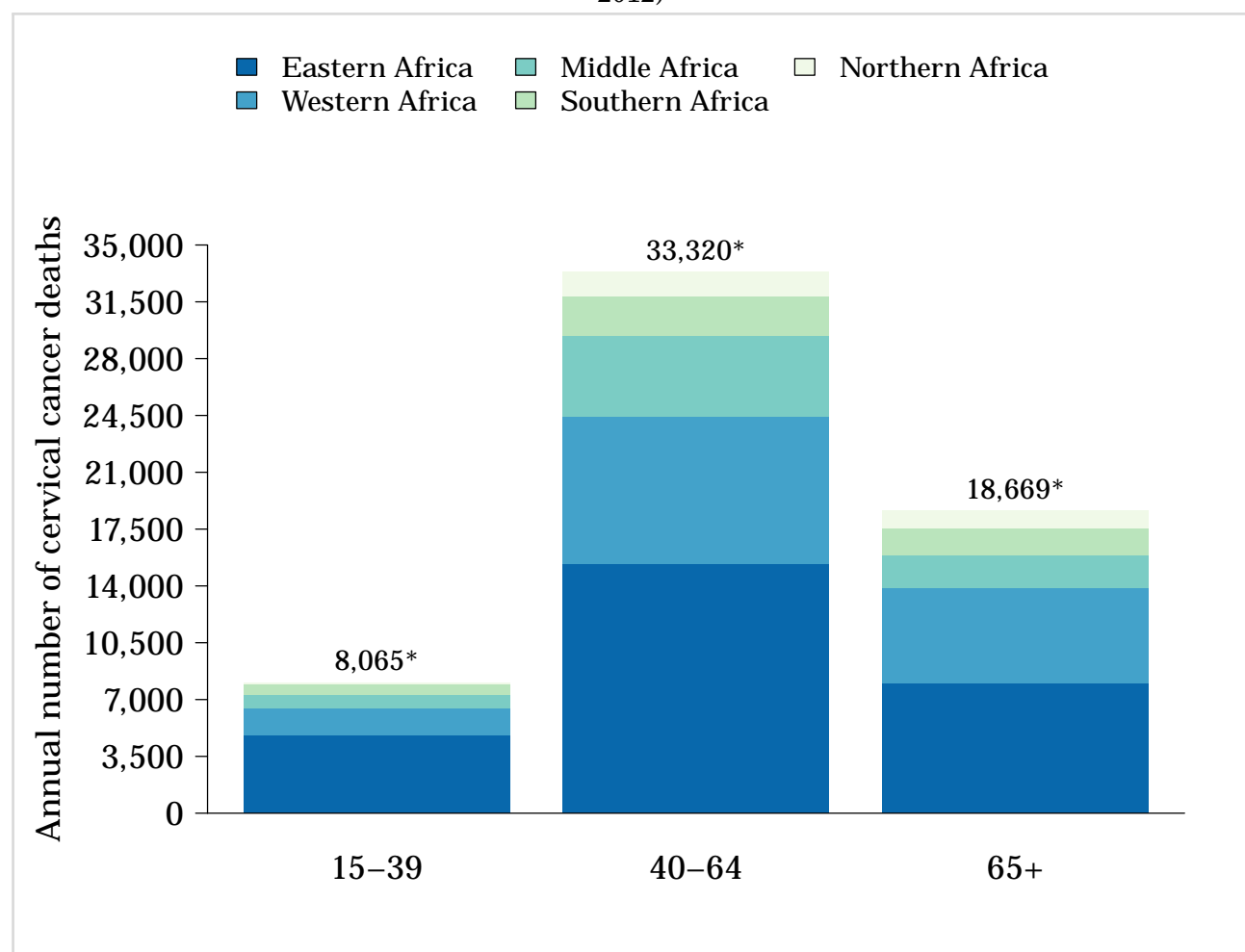


Data accessed on 15 Nov 2015.

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 African regions (estimates for 2012)



* Eastern Africa 15-39 years: 4,806 cases. 40-64 years: 15,343 cases. 65+ years: 8,028 cases.

* Western Africa 15-39 years: 1,649 cases. 40-64 years: 9,062 cases. 65+ years: 5,823 cases.

* Middle Africa 15-39 years: 836 cases. 40-64 years: 5,020 cases. 65+ years: 2,051 cases.

* Southern Africa 15-39 years: 661 cases. 40-64 years: 2,400 cases. 65+ years: 1,658 cases.

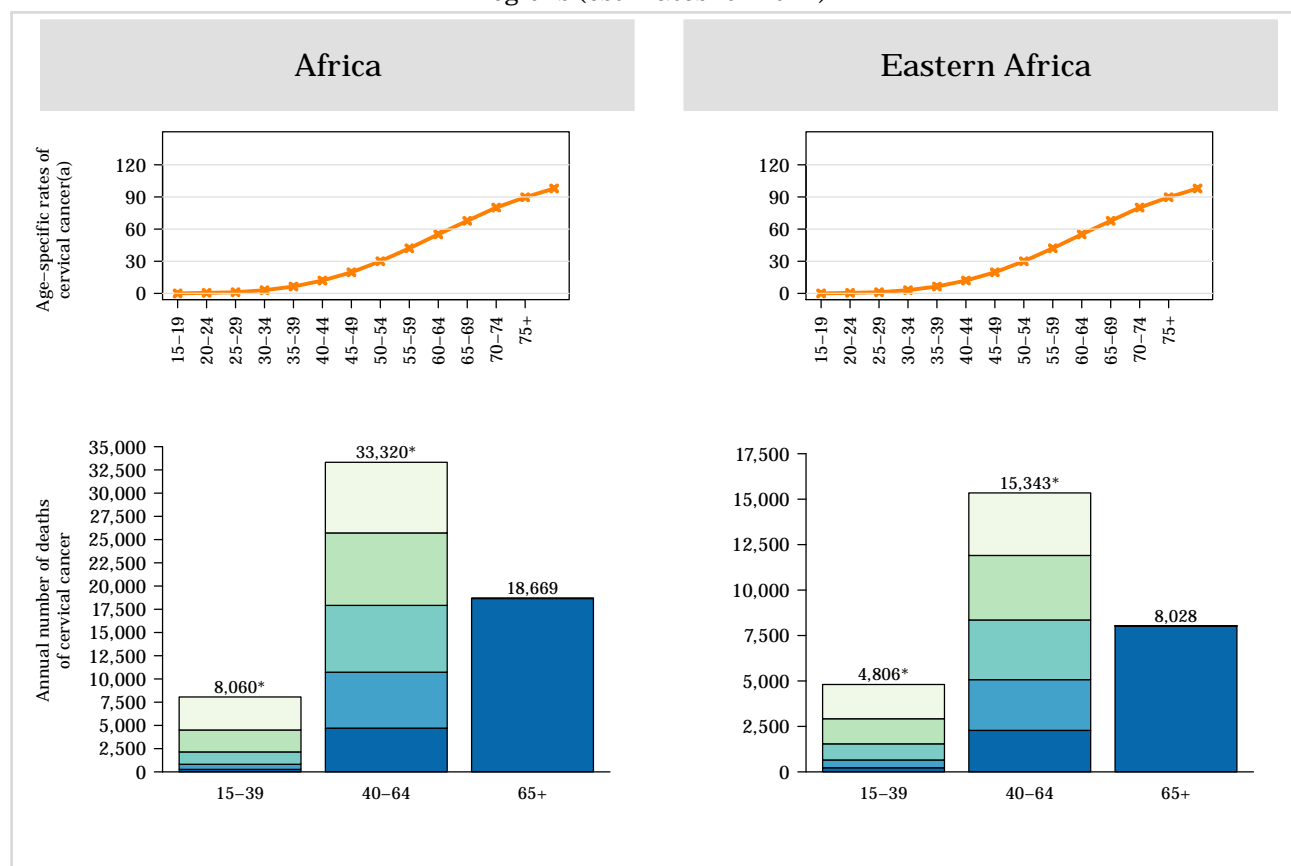
* Northern Africa 15-39 years: 113 cases. 40-64 years: 1,495 cases. 65+ years: 1,109 cases.

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 Africa and its regions (estimates for 2012)



* Africa 15-19 yrs: 265 cases. 20-24 yrs: 553 cases. 25-29 yrs: 1,331 cases. 30-34 yrs: 2,360 cases. 35-39 yrs: 3,551 cases. 40-44 yrs: 4,707 cases. 45-49 yrs: 6,021 cases. 50-54 yrs: 7,190 cases. 55-59 yrs: 7,801 cases. 60-64 yrs: 7,601 cases.

* Eastern Africa 15-19 yrs: 227 cases. 20-24 yrs: 428 cases. 25-29 yrs: 887 cases. 30-34 yrs: 1,380 cases. 35-39 yrs: 1,884 cases. 40-44 yrs: 2,281 cases. 45-49 yrs: 2,791 cases. 50-54 yrs: 3,283 cases. 55-59 yrs: 3,549 cases. 60-64 yrs: 3,439 cases.

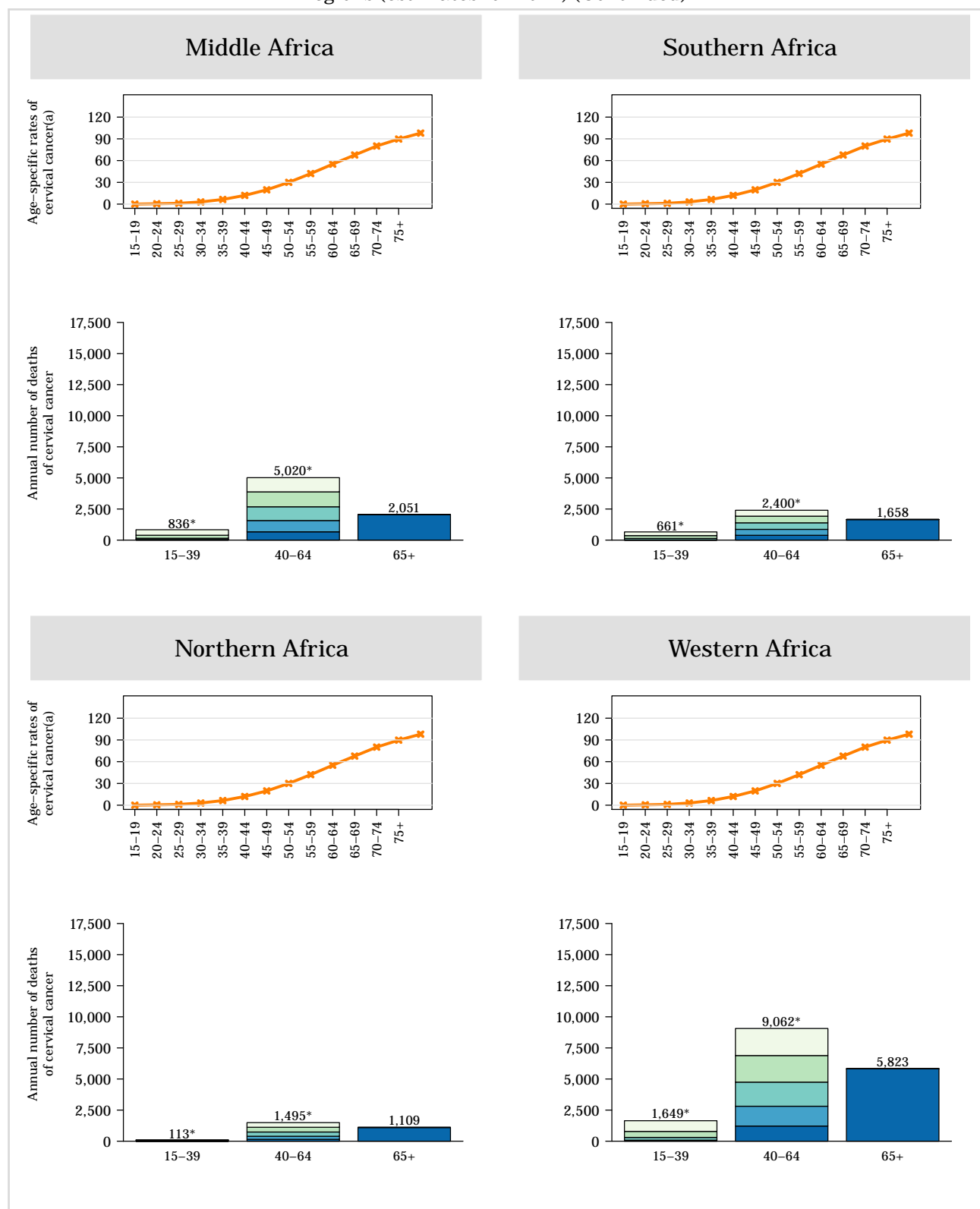
Data accessed on 15 Nov 2015.

^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 Africa and its regions (estimates for 2012) (Continued)



* Middle Africa 15-19 yrs: 14 cases. 20-24 yrs: 40 cases. 25-29 yrs: 98 cases. 30-34 yrs: 241 cases. 35-39 yrs: 443 cases. 40-44 yrs: 668 cases. 45-49 yrs: 907 cases. 50-54 yrs: 1,105 cases. 55-59 yrs: 1,201 cases. 60-64 yrs: 1,139 cases.

* Northern Africa 15-19 yrs: 1 cases. 20-24 yrs: 3 cases. 25-29 yrs: 8 cases. 30-34 yrs: 30 cases. 35-39 yrs: 71 cases. 40-44 yrs: 150 cases. 45-49 yrs: 251 cases. 50-54 yrs: 341 cases. 55-59 yrs: 379 cases. 60-64 yrs: 374 cases.

* Southern Africa 15-19 yrs: 2 cases. 20-24 yrs: 20 cases. 25-29 yrs: 117 cases. 30-34 yrs: 224 cases. 35-39 yrs: 298 cases. 40-44 yrs: 389 cases. 45-49 yrs: 477 cases. 50-54 yrs: 526 cases. 55-59 yrs: 534 cases. 60-64 yrs: 474 cases.

* Western Africa 15-19 yrs: 21 cases. 20-24 yrs: 62 cases. 25-29 yrs: 222 cases. 30-34 yrs: 486 cases. 35-39 yrs: 858 cases. 40-44 yrs: 1,219 cases. 45-49 yrs: 1,595 cases. 50-54 yrs: 1,935 cases. 55-59 yrs: 2,138 cases. 60-64 yrs: 2,175 cases.

Data accessed on 15 Nov 2015.

(Continued on next page)

(Figure 23 – continued from previous page)

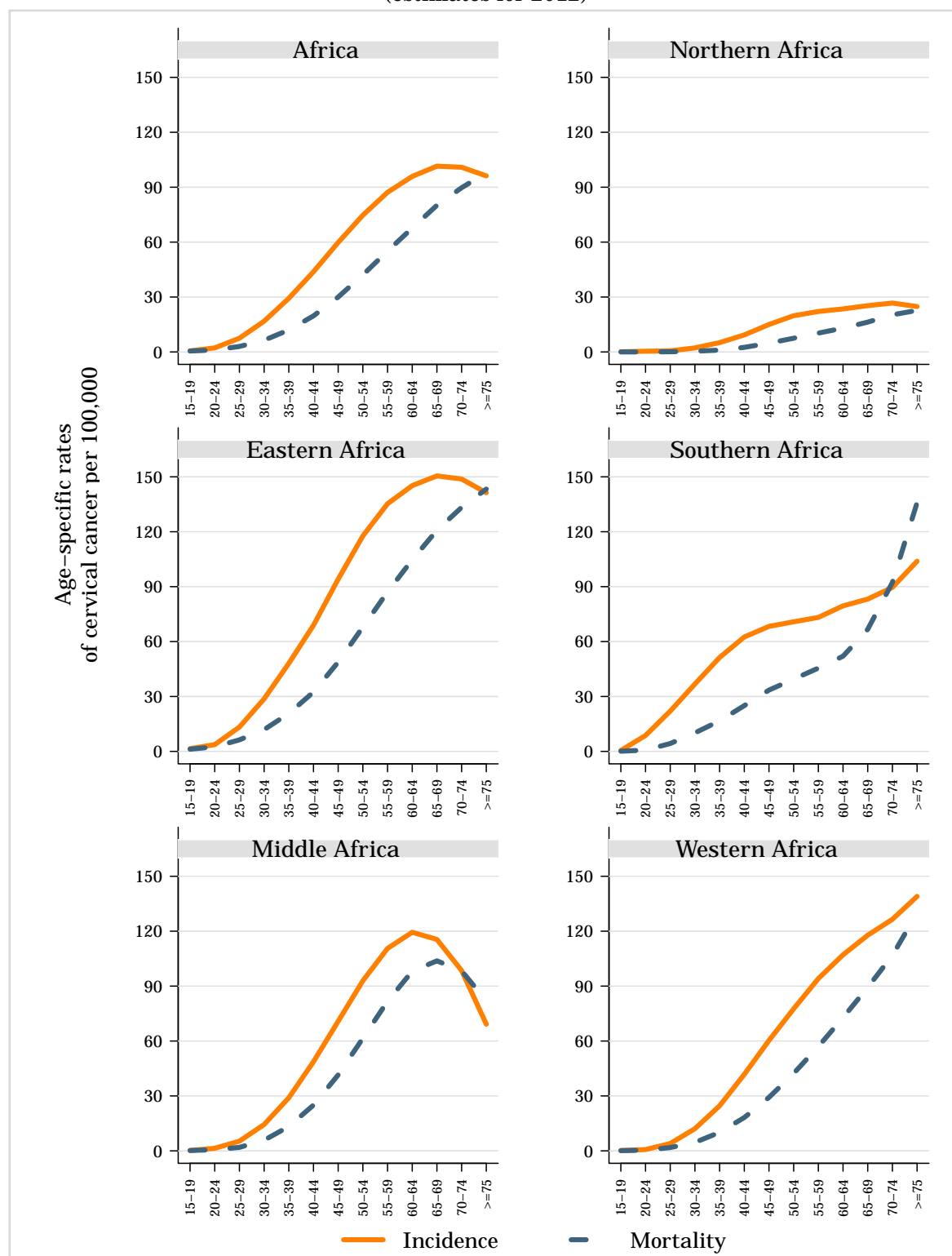
^a Rates per 100,000 women per year.

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>.

3.1.3 Comparison of incidence and mortality

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



Data accessed on 15 Nov 2015.

Rates per 100,000 women per year.

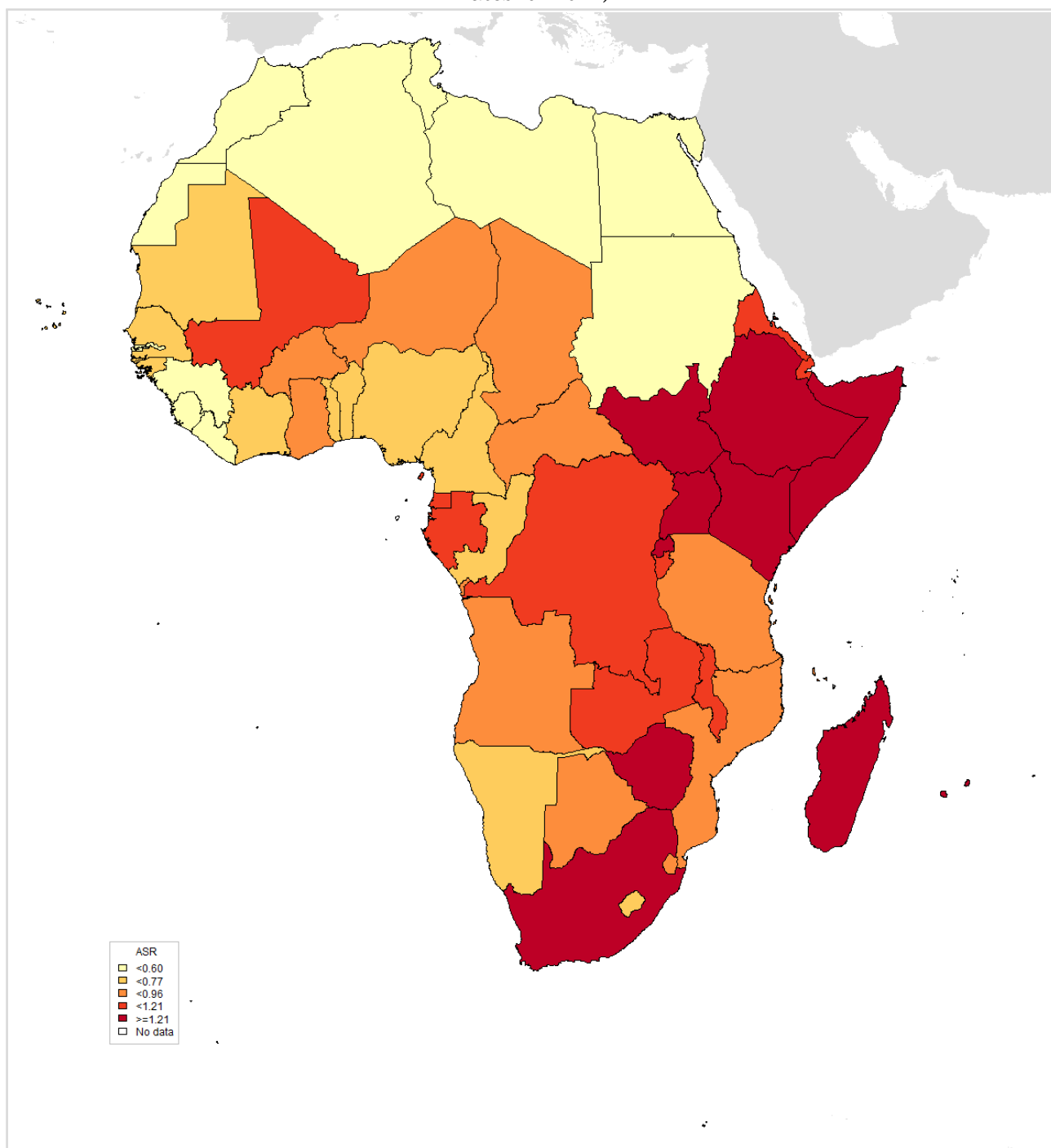
Data sources:

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 Africa (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).

(Continued on next page)

(Figure 25 – continued from previous page)

GLOBOCAN quality index for availability of incidence data:

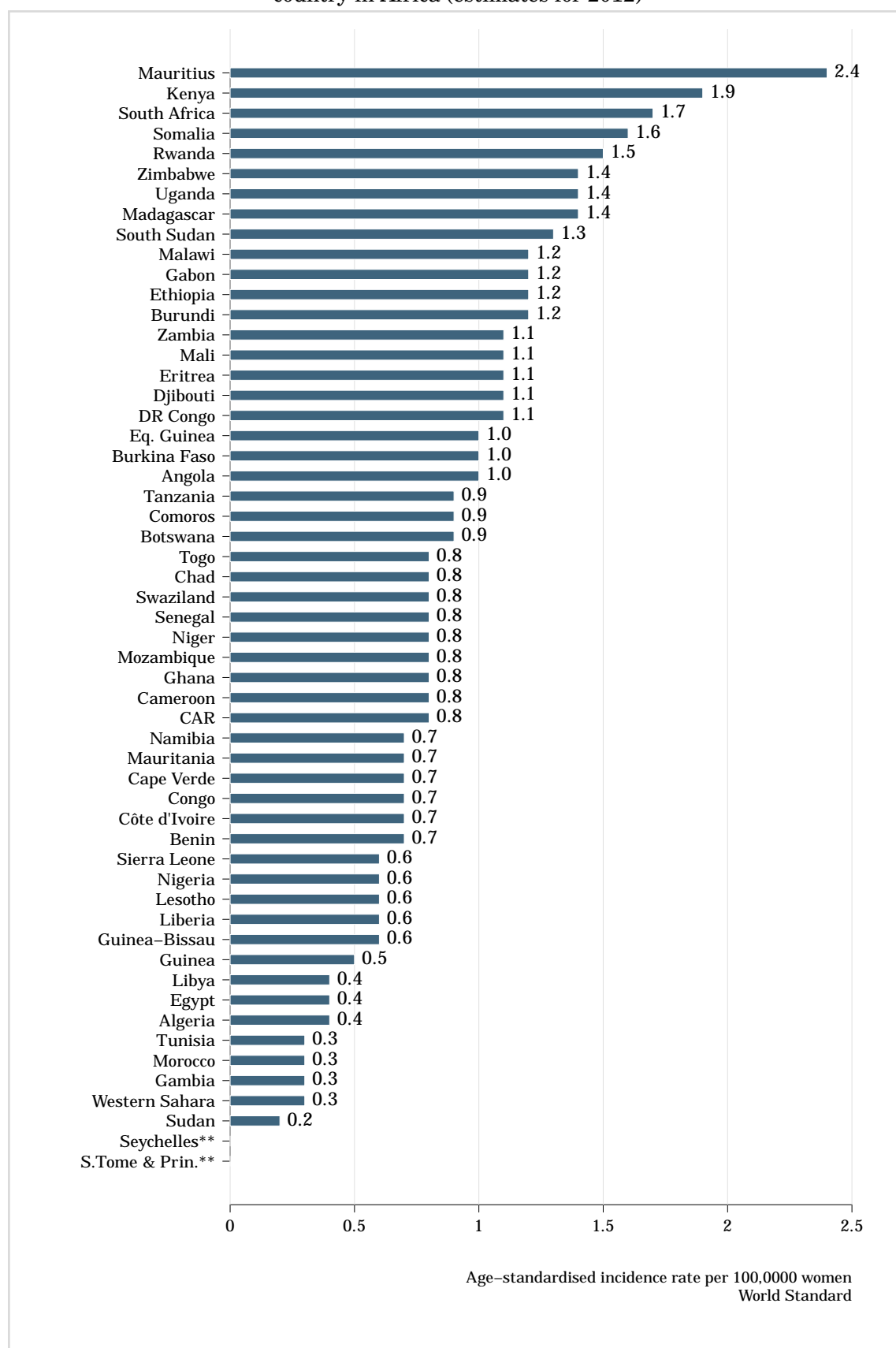
- For Angola, Burundi, Central African Republic, DR Congo, Comoros, Cape Verde, Djibouti, Eritrea, Western Sahara, Guinea-Bissau, Equatorial Guinea, Liberia, Lesotho, Madagascar, Mauritania, Senegal, Sierra Leone, Somalia, South Sudan, Chad: No data.
- For Benin, Burkina Faso, Côte d'Ivoire, Gabon, Ghana, Rwanda, Sudan, Togo: Frequency data.
- For Botswana, Gambia, Mauritius, Namibia, Reunion, Swaziland, South Africa: National data (rates).
- For Cameroon, Congo, Ethiopia, Guinea, Kenya, Morocco, Mali, Mozambique, Niger, Nigeria, Tanzania, Zambia: Regional data (rates).
- For Algeria, Egypt, Libya, Malawi, Tunisia, Uganda, Zimbabwe: High quality regional (coverage lower than 10%).

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 Angola, Burundi, Benin, Central African Republic, DR Congo, Comoros, Cape Verde, Djibouti, Eritrea, Western Sahara, Guinea-Bissau, Equatorial Guinea, Liberia, Lesotho, Madagascar, Mauritania, Rwanda, Senegal, Sierra Leone, Somalia, South Sudan, Chad: The rates are those of neighbouring countries or registries in the same area
- For Burkina Faso, Côte d'Ivoire, Gabon, Ghana, Mozambique, Sudan, Togo: Age/sex specific rates for "all cancers" were partitioned using data on relative frequency of different cancers (by age and sex)
- For Botswana, Gambia, Mauritius, Namibia, Swaziland: Most recent rates applied to 2012 population
- For Cameroon, Congo, Ethiopia, Guinea, Libya, Mali, Malawi, Niger, Uganda, Zambia: One cancer registry covering part of a country is used as representative of the country profile
- For Algeria, Egypt, Kenya, Morocco, Nigeria, Tunisia, Tanzania, Zimbabwe: Estimated as the weighted average of the local rates
- For Reunion, South Africa: Rates projected to 2012

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 Africa (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 26 – continued from previous page)

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

GLOBOCAN quality index for availability of incidence data:

- For Sudan, Benin, Côte d'Ivoire, Ghana, Togo, Burkina Faso, Gabon, Rwanda: Frequency data.

- For Western Sahara, Guinea-Bissau, Liberia, Lesotho, Sierra Leone, Cape Verde, Mauritania, Central African Republic, Senegal, Chad, Comoros, Angola, Equatorial Guinea, DR Congo, Djibouti, Eritrea, Burundi, South Sudan, Madagascar, Somalia: No data.

- For Gambia, Namibia, Swaziland, Botswana, South Africa, Mauritius: National data (rates).

- For Morocco, Guinea, Nigeria, Congo, Cameroon, Mozambique, Niger, Tanzania, Mali, Zambia, Ethiopia, Kenya: Regional data (rates).

- For Tunisia, Algeria, Egypt, Libya, Malawi, Uganda, Zimbabwe: High quality regional (coverage lower than 10%).

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 Sudan, Côte d'Ivoire, Ghana, Mozambique, Togo, Burkina Faso, Gabon: Age/sex specific rates for "all cancers" were partitioned using data on relative frequency of different cancers (by age and sex)

- For Western Sahara, Guinea-Bissau, Liberia, Lesotho, Sierra Leone, Benin, Cape Verde, Mauritania, Central African Republic, Senegal, Chad, Comoros, Angola, Equatorial Guinea, DR Congo, Djibouti, Eritrea, Burundi, South Sudan, Madagascar, Rwanda, Somalia: The rates are those of neighbouring countries or registries in the same area

- For Gambia, Namibia, Swaziland, Botswana, Mauritius: Most recent rates applied to 2012 population

- For Morocco, Tunisia, Algeria, Egypt, Nigeria, Tanzania, Zimbabwe, Kenya: Estimated as the weighted average of the local rates

- For Libya, Guinea, Congo, Cameroon, Niger, Mali, Zambia, Ethiopia, Malawi, Uganda: One cancer registry covering part of a country is used as representative of the country profile

- For South Africa: 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 Africa 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
Eastern Africa							
Burundi	-	-	-	-	-	-	-
Comoros	-	-	-	-	-	-	-
Djibouti	-	-	-	-	-	-	-
Eritrea	-	-	-	-	-	-	-
Ethiopia	-	-	-	-	-	-	-
Kenya	-	-	-	-	-	-	-
Madagascar	-	-	-	-	-	-	-
Malawi ¹							
Blantyre	2003-2007	3	0.1	0.2	4	0.2	0.5
Mauritius	-	-	-	-	-	-	-
Mozambique	-	-	-	-	-	-	-
Rwanda	-	-	-	-	-	-	-
Seychelles	-	-	-	-	-	-	-
Somalia	-	-	-	-	-	-	-
South Sudan	-	-	-	-	-	-	-
Tanzania	-	-	-	-	-	-	-

(Continued on next page)

(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
-	-	-	-	-	-	-	-
Uganda ¹							
Kyadondo county	2003-2007	5	0.1	0.3	7	0.1	0.5
Zambia							
-	-	-	-	-	-	-	-
Zimbabwe ¹							
Harare (African)	2003-2006	3	0.1	0.4	2	0.1	0.2
Middle Africa							
Angola							
-	-	-	-	-	-	-	-
Cameroon							
-	-	-	-	-	-	-	-
CAR							
-	-	-	-	-	-	-	-
Chad							
-	-	-	-	-	-	-	-
Congo							
-	-	-	-	-	-	-	-
DR Congo							
-	-	-	-	-	-	-	-
Eq. Guinea							
-	-	-	-	-	-	-	-
Gabon							
-	-	-	-	-	-	-	-
S.Tome & Prin.							
-	-	-	-	-	-	-	-
Northern Africa							
Algeria ¹							
Setif	2003-2007	8	0.2	0.3	1	0.0	0.1
Egypt ¹							
Gharbiah	2003-2007	36	0.4	0.5	40	0.4	0.5
Libya ¹							
Benghazi	2003-2005	5	0.2	0.3	3	0.1	0.2
Morocco							
-	-	-	-	-	-	-	-
Sudan							
-	-	-	-	-	-	-	-
Tunisia ¹							
North	2003-2005	23	0.3	0.3	11	0.2	0.2
Southern Africa							
Botswana							
-	-	-	-	-	-	-	-
Lesotho							
-	-	-	-	-	-	-	-
Namibia							
-	-	-	-	-	-	-	-
South Africa ¹							
PROMEC	2003-2007	9	0.4	0.7	3	0.1	0.1
Swaziland							
-	-	-	-	-	-	-	-
Western Africa							
Benin							
-	-	-	-	-	-	-	-
Burkina Faso							
-	-	-	-	-	-	-	-

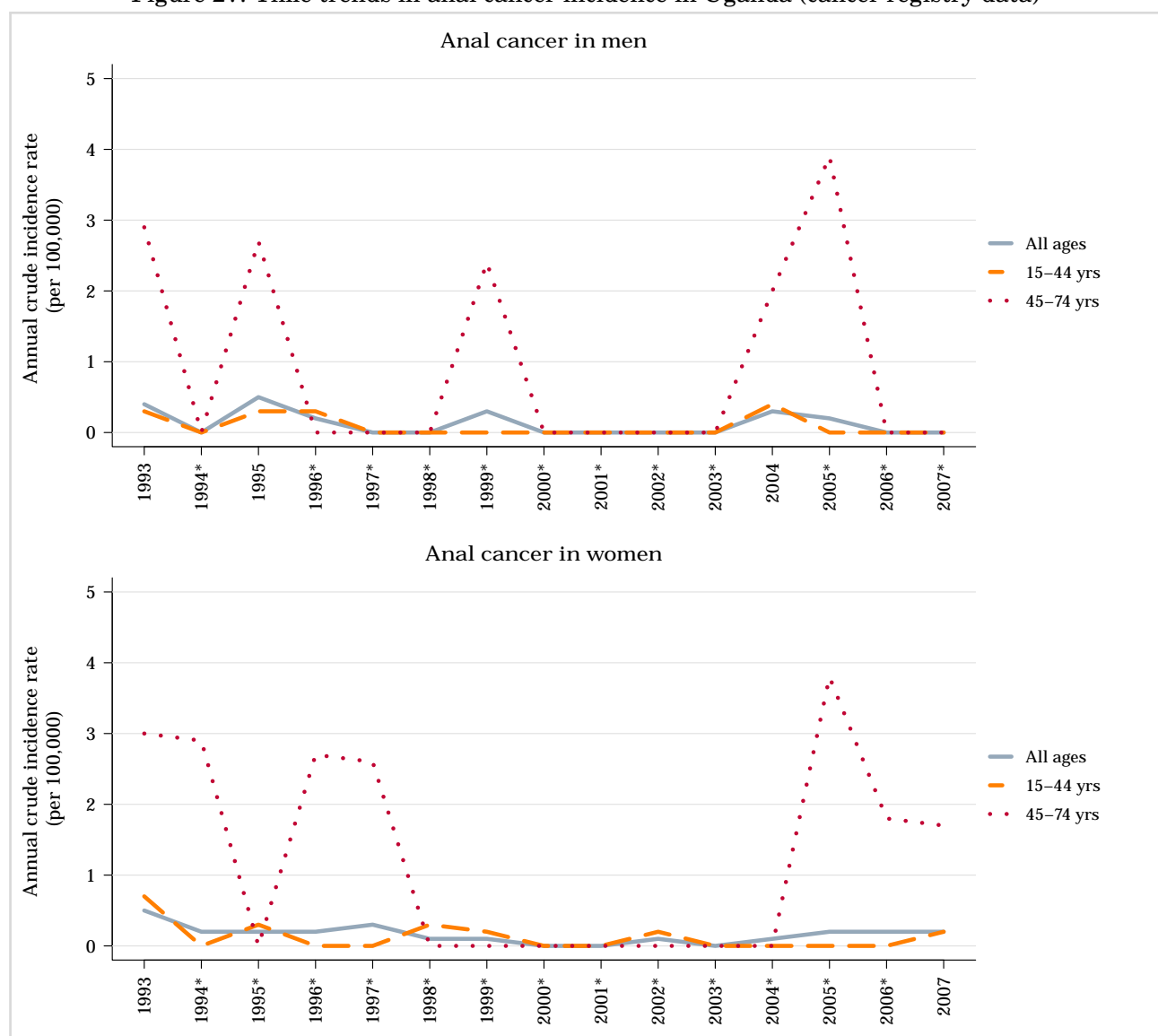
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(Table 7 – continued from previous page)

Country / Registry	Period	Male			Female		
		N cases ^a	Crude rate ^b	ASR ^b	N cases ^a	Crude rate ^c	ASR ^c
Cape Verde	-	-	-	-	-	-	-
Côte d'Ivoire	-	-	-	-	-	-	-
Gambia ²	-	-	-	-	-	-	-
National	1997-1998	1	0.1	0.2	2	0.2	0.3
Ghana	-	-	-	-	-	-	-
Guinea	-	-	-	-	-	-	-
Guinea-Bissau	-	-	-	-	-	-	-
Liberia	-	-	-	-	-	-	-
Mali ²	-	-	-	-	-	-	-
Bamako	1994-1996	4	0.3	0.6	6	0.5	1.1
Mauritania	-	-	-	-	-	-	-
Niger	-	-	-	-	-	-	-
Nigeria	-	-	-	-	-	-	-
Senegal	-	-	-	-	-	-	-
Sierra Leone	-	-	-	-	-	-	-
Togo	-	-	-	-	-	-	-
Sub-Saharan Africa	-	-	-	-	-	-	-

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>²Parkin, D.M., Whelan, S.L., Ferlay, J., Teppo, L., and Thomas, D.B., eds (2002). Cancer Incidence in Five Continents, Vol. VIII. IARC Scientific Publications No. 155, Lyon, IARC.

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



*No cases were registered for this age group.

Data accessed on 27 Apr 2015.

Data was provided by the Kyadondo County registry.

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 Africa by cancer registry

Country	Cancer registry	Period	Female		
			N cases ^a	Crude rate ^b	ASR ^b
Eastern Africa					
Burundi	-	-	-	-	-
Comoros	-	-	-	-	-
Djibouti	-	-	-	-	-
Eritrea	-	-	-	-	-
Ethiopia	-	-	-	-	-
Kenya	-	-	-	-	-
Madagascar	-	-	-	-	-
Malawi ¹	Blantyre	2003-2007	16	0.7	1.0
Mauritius	-	-	-	-	-
Mozambique	-	-	-	-	-
Rwanda	-	-	-	-	-
Seychelles	-	-	-	-	-
Somalia	-	-	-	-	-
South Sudan	-	-	-	-	-
Tanzania	-	-	-	-	-
Uganda ¹	Kyadondo county	2003-2007	12	0.2	0.6
Zambia	-	-	-	-	-
Zimbabwe ¹	Harare (African)	2003-2006	14	0.5	1.1
Middle Africa					
Angola	-	-	-	-	-
Cameroon	-	-	-	-	-
Central African Republic	-	-	-	-	-
Chad	-	-	-	-	-
Congo	-	-	-	-	-
DR Congo	-	-	-	-	-
Equatorial Guinea	-	-	-	-	-
Gabon	-	-	-	-	-
Sao Tome & Principe	-	-	-	-	-
Northern Africa					
Algeria ¹	Setif	2003-2007	5	0.1	0.2
Egypt ¹	Gharbiah	2003-2007	49	0.5	0.8
Libya ¹	Benghazi	2003-2005	5	0.2	0.4
Morocco	-	-	-	-	-
Sudan	-	-	-	-	-
Tunisia ¹	North	2003-2005	41	0.6	0.6
Southern Africa					
Botswana	-	-	-	-	-
Lesotho	-	-	-	-	-
Namibia	-	-	-	-	-
South Africa ¹	PROMEC	2003-2007	8	0.3	0.3
Swaziland	-	-	-	-	-
Western Africa					

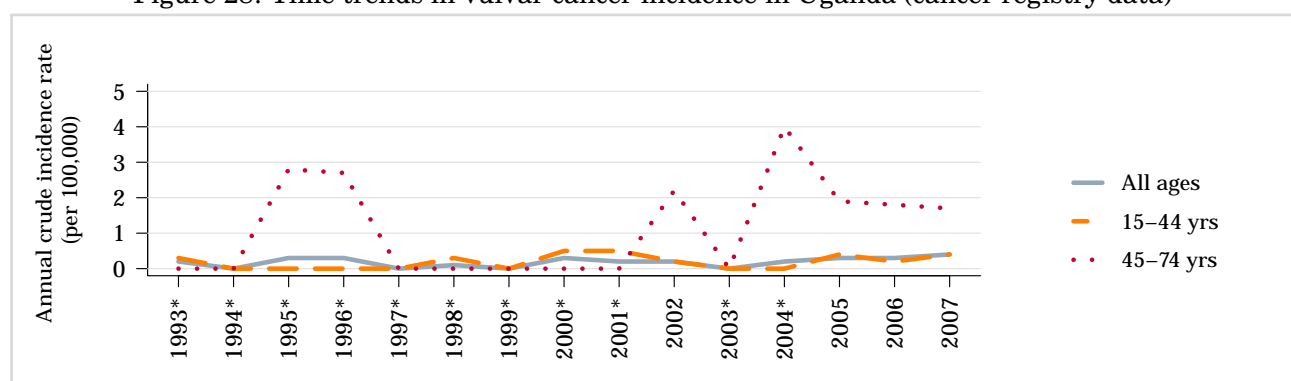
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(Table 8 – continued from previous page)

Country	Cancer registry	Period	Female		
			N cases ^a	Crude rate ^b	ASR ^b
Benin	-	-	-	-	-
Burkina Faso	-	-	-	-	-
Cape Verde	-	-	-	-	-
Côte d'Ivoire	-	-	-	-	-
Gambia ²	National	1997-1998	1	0.1	0.2
Ghana	-	-	-	-	-
Guinea	-	-	-	-	-
Guinea-Bissau	-	-	-	-	-
Liberia	-	-	-	-	-
Mali ²	Bamako	1994-1996	1	0.1	0.2
Mauritania	-	-	-	-	-
Niger	-	-	-	-	-
Nigeria	-	-	-	-	-
Senegal	-	-	-	-	-
Sierra Leone	-	-	-	-	-
Togo	-	-	-	-	-

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>²Parkin, D.M., Whelan, S.L., Ferlay, J., Teppo, L., and Thomas, D.B., eds (2002). Cancer Incidence in Five Continents, Vol. VIII. IARC Scientific Publications No. 155, Lyon, IARC.**Figure 28: Time trends in vulvar cancer incidence in Uganda (cancer registry data)**

*No cases were registered for this age group.

Data accessed on 27 Apr 2015.

Data was provided by the Kyadondo County registry.

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 Africa by cancer registry

Country name	Cancer registry	Period	Female		
			N cases ^a	Crude rate ^b	ASR ^b
Eastern Africa					
Burundi	-	-	-	-	-
Comoros	-	-	-	-	-
Djibouti	-	-	-	-	-
Eritrea	-	-	-	-	-
Ethiopia	-	-	-	-	-
Kenya	-	-	-	-	-
Madagascar	-	-	-	-	-
Malawi ¹	Blantyre	2003-2007	16	0.7	1.4
Mauritius	-	-	-	-	-
Mozambique	-	-	-	-	-
Rwanda	-	-	-	-	-
Seychelles	-	-	-	-	-
Somalia	-	-	-	-	-
South Sudan	-	-	-	-	-
Tanzania	-	-	-	-	-
Uganda ¹	Kyadondo county	2003-2007	9	0.2	0.6
Zambia	-	-	-	-	-
Zimbabwe ¹	Harare (African)	2003-2006	4	0.1	0.2
Middle Africa					
Angola	-	-	-	-	-
Cameroon	-	-	-	-	-
Central African Republic	-	-	-	-	-
Chad	-	-	-	-	-
Congo	-	-	-	-	-
DR Congo	-	-	-	-	-
Equatorial Guinea	-	-	-	-	-
Gabon	-	-	-	-	-
Sao Tome & Principe	-	-	-	-	-
Northern Africa					
Algeria ¹	Setif	2003-2007	3	0.1	0.1
Egypt ¹	Gharbiah	2003-2007	15	0.2	0.2
Libya ¹	Benghazi	2003-2005	3	0.1	0.2
Morocco	-	-	-	-	-
Sudan	-	-	-	-	-
Tunisia ¹	North	2003-2005	20	0.3	0.3
Southern Africa					
Botswana	-	-	-	-	-
Lesotho	-	-	-	-	-
Namibia	-	-	-	-	-
South Africa ¹	PROMEC	2003-2007	8	0.3	0.3
Swaziland	-	-	-	-	-
Western Africa					

(Continued on next page)

(Table 9 – continued from previous page)

Country name	Cancer registry	Period	Female		
			N cases ^a	Crude rate ^b	ASR ^b
Benin	-	-	-	-	-
Burkina Faso	-	-	-	-	-
Cape Verde	-	-	-	-	-
Côte d'Ivoire	-	-	-	-	-
Gambia ²	National	1997-1998	2	0.2	0.2
Ghana	-	-	-	-	-
Guinea	-	-	-	-	-
Guinea-Bissau	-	-	-	-	-
Liberia	-	-	-	-	-
Mali ²	Bamako	1994-1996	1	0.1	0.1
Mauritania	-	-	-	-	-
Niger	-	-	-	-	-
Nigeria	-	-	-	-	-
Senegal	-	-	-	-	-
Sierra Leone	-	-	-	-	-
Togo	-	-	-	-	-
Sub-Saharan Africa					

Data accessed on 05 May 2015.

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

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

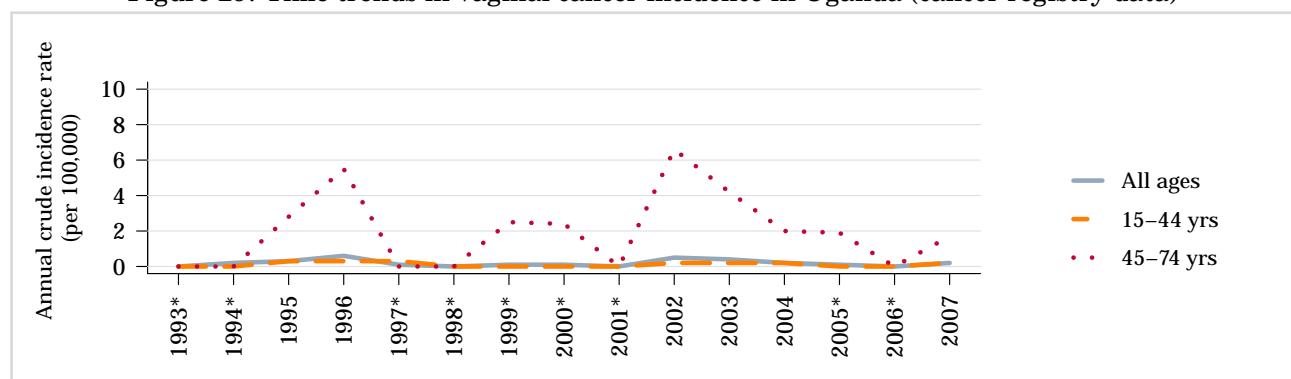
^bRates per 100,000 women per year.

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>

²Parkin, D.M., Whelan, S.L., Ferlay, J., Teppo, L., and Thomas, D.B., eds (2002). Cancer Incidence in Five Continents, Vol. VIII. IARC Scientific Publications No. 155, Lyon, IARC.

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



*No cases were registered for this age group.

Data accessed on 27 Apr 2015.

Data was provided by the Kyadondo County registry.

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 Africa by cancer registry

Country name	Cancer registry	Period	Male		
			N cases ^a	Crude rate ^b	ASR ^b
Eastern Africa					
Burundi	-	-	-	-	-
Comoros	-	-	-	-	-
Djibouti	-	-	-	-	-
Eritrea	-	-	-	-	-
Ethiopia	-	-	-	-	-
Kenya	-	-	-	-	-
Madagascar	-	-	-	-	-
Malawi ¹	Blantyre	2003-2007	33	1.4	2.6
Mauritius	-	-	-	-	-
Mozambique ²	Lourenco Marques	1956-1960	5	1.9	2.7
Rwanda	-	-	-	-	-
Seychelles	-	-	-	-	-
Somalia	-	-	-	-	-
South Sudan	-	-	-	-	-
Tanzania	-	-	-	-	-
Uganda ¹	Kyadondo county	2003-2007	30	0.7	2.2
Zambia	-	-	-	-	-
Zimbabwe ¹	Harare (African)	2003-2006	14	0.5	1.1
Middle Africa					
Angola	-	-	-	-	-
Cameroon	-	-	-	-	-
Central African Republic	-	-	-	-	-
Chad	-	-	-	-	-
Congo	-	-	-	-	-
DR Congo	-	-	-	-	-
Equatorial Guinea	-	-	-	-	-
Gabon	-	-	-	-	-
Sao Tome & Principe	-	-	-	-	-
Northern Africa					
Algeria ¹	Setif	2003-2007	0	0.0	0.0
Egypt ¹	Gharbiah	2003-2007	3	0.0	0.1
Libya ¹	Benghazi	2003-2005	0	0.0	0.0
Morocco	-	-	-	-	-
Sudan	-	-	-	-	-
Tunisia ¹	North	2003-2005	8	0.1	0.1
Southern Africa					
Botswana	-	-	-	-	-
Lesotho	-	-	-	-	-

(Continued on next page)

(Table 10 – continued from previous page)

Country name	Cancer registry	Period	Male		
			N cases ^a	Crude rate ^b	ASR ^b
Namibia	-	-	-	-	-
South Africa ¹	PROMEC	2003-2007	11	0.5	0.8
Swaziland	-	-	-	-	-
Western Africa					
Benin	-	-	-	-	-
Burkina Faso	-	-	-	-	-
Cape Verde	-	-	-	-	-
Côte d'Ivoire	-	-	-	-	-
Gambia ³	National	1997-1998	5	0.5	0.9
Ghana	-	-	-	-	-
Guinea	-	-	-	-	-
Guinea-Bissau	-	-	-	-	-
Liberia	-	-	-	-	-
Mali ³	Bamako	1994-1996	0	0.0	0.0
Mauritania	-	-	-	-	-
Niger	-	-	-	-	-
Nigeria ⁴	Ibadan	1960-1969	2	0.1	0.2
Senegal ⁵	Dakar	1969-1974	5	0.2	0.4
Sierra Leone	-	-	-	-	-
Togo	-	-	-	-	-
Sub-Saharan Africa					

Data accessed on 05 May 2015.

Please refer to original source (available at <http://ci5.iarc.fr/Ci5i-ix/ci5i-ix.htm>)

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

^bRates per 100,000 men 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>

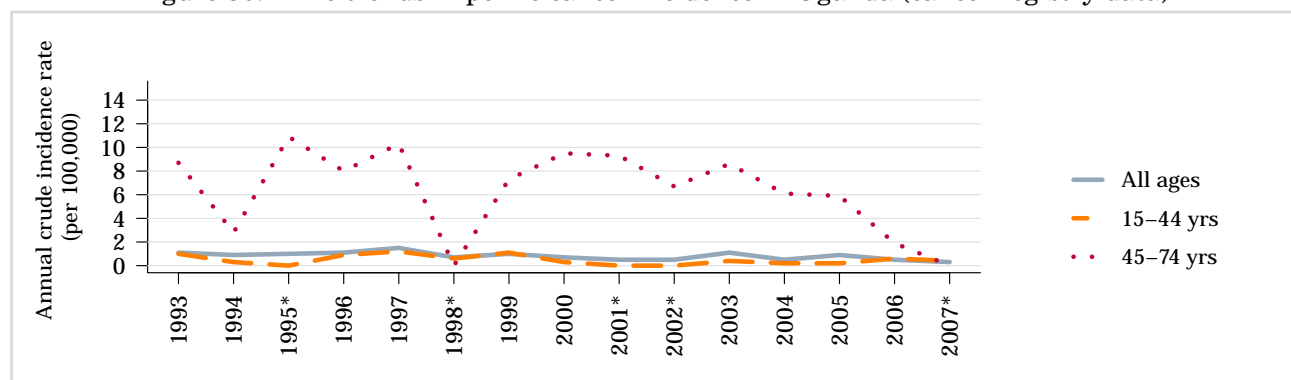
²Doll, R., Payne, P., Waterhouse, J.A.H., eds (1966). Cancer Incidence in Five Continents, Vol. I. Union Internationale Contre le Cancer, Geneva.

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

⁴Waterhouse, J., Muir, C.S., Correa, P., Powell, J., eds (1976). Cancer Incidence in Five Continents, Vol. III. IARC Scientific Publications No. 15, Lyon, IARC.

⁵Waterhouse, J., Muir, C.S., Shanmugaratnam, K., Powell, J., eds (1982). Cancer Incidence in Five Continents, Vol. IV. IARC Scientific Publications No. 42, Lyon, IARC.

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



*No cases were registered for this age group.

Data accessed on 27 Apr 2015.

Data was provided by the Kyadondo County registry.

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>

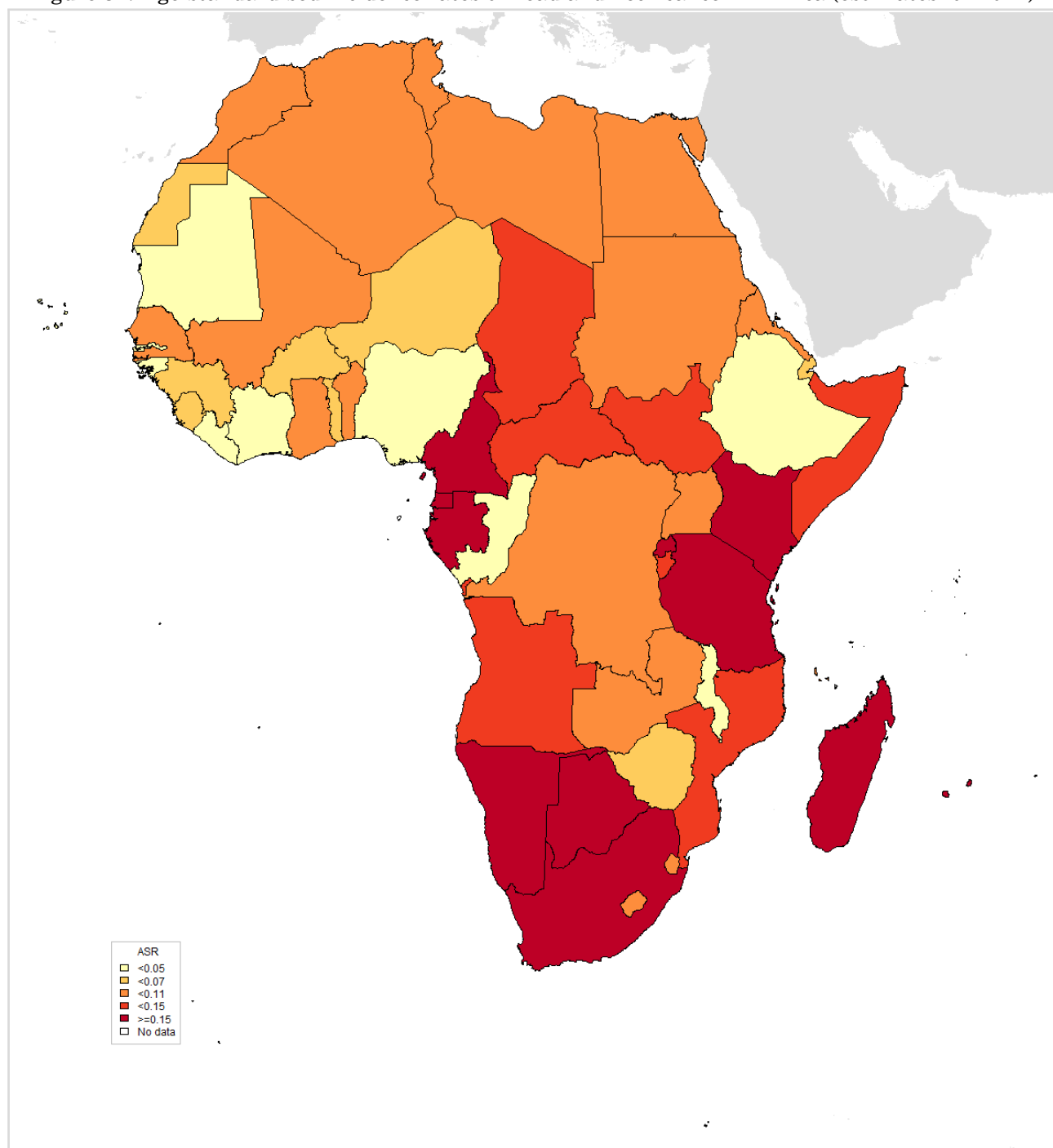
NOTE

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 Africa (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.

(Continued on next page)

(Figure 31 – continued from previous page)

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

GLOBOCAN quality index for availability of incidence data:

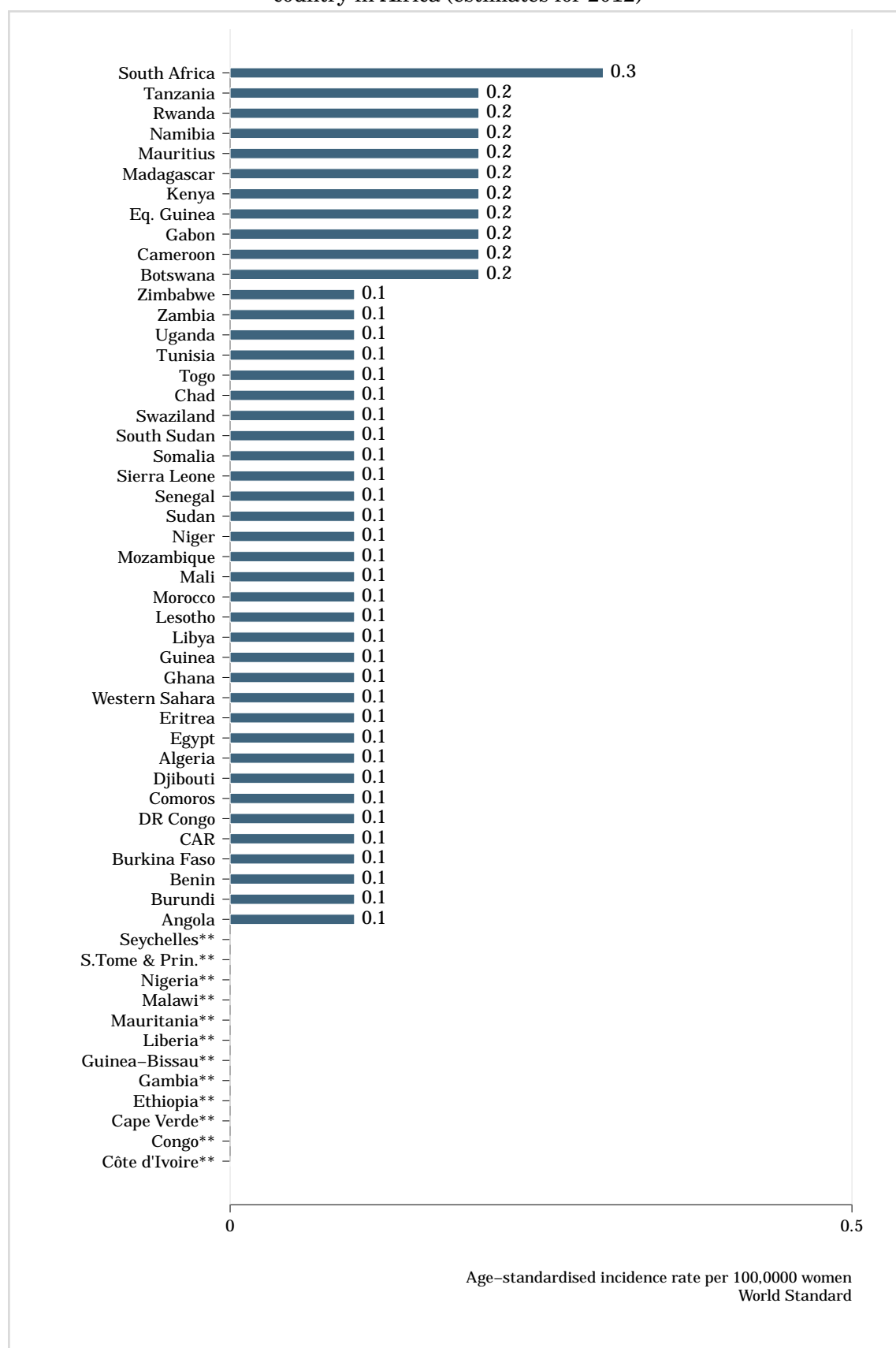
- For Angola, Burundi, Central African Republic, DR Congo, Comoros, Cape Verde, Djibouti, Eritrea, Western Sahara, Guinea-Bissau, Equatorial Guinea, Liberia, Lesotho, Madagascar, Mauritania, Senegal, Sierra Leone, Somalia, South Sudan, Chad: No data.
- For Benin, Burkina Faso, Côte d'Ivoire, Gabon, Ghana, Rwanda, Sudan, Togo: Frequency data.
- For Botswana, Gambia, Mauritius, Namibia, Reunion, Swaziland, South Africa: National data (rates).
- For Cameroon, Congo, Ethiopia, Guinea, Kenya, Morocco, Mali, Mozambique, Niger, Nigeria, Tanzania, Zambia: Regional data (rates).
- For Algeria, Egypt, Libya, Malawi, Tunisia, Uganda, Zimbabwe: High quality regional (coverage lower than 10%).

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 Angola, Burundi, Benin, Central African Republic, DR Congo, Comoros, Cape Verde, Djibouti, Eritrea, Western Sahara, Guinea-Bissau, Equatorial Guinea, Liberia, Lesotho, Madagascar, Mauritania, Rwanda, Senegal, Sierra Leone, Somalia, South Sudan, Chad: The rates are those of neighbouring countries or registries in the same area
- For Burkina Faso, Côte d'Ivoire, Gabon, Ghana, Mozambique, Sudan, Togo: Age/sex specific rates for "all cancers" were partitioned using data on relative frequency of different cancers (by age and sex)
- For Botswana, Gambia, Mauritius, Namibia, Swaziland: Most recent rates applied to 2012 population
- For Cameroon, Congo, Ethiopia, Guinea, Libya, Mali, Malawi, Niger, Uganda, Zambia: One cancer registry covering part of a country is used as representative of the country profile
- For Algeria, Egypt, Kenya, Morocco, Nigeria, Tunisia, Tanzania, Zimbabwe: Estimated as the weighted average of the local rates
- For Reunion, South Africa: Rates projected to 2012

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 Africa (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 Côte d'Ivoire, Benin, Burkina Faso, Ghana, Sudan, Togo, Gabon, Rwanda: Frequency data.
- For Congo, Ethiopia, Nigeria, Guinea, Morocco, Mali, Mozambique, Niger, Zambia, Cameroon, Kenya, Tanzania: Regional data (rates).
- For Cape Verde, Guinea-Bissau, Liberia, Mauritania, Angola, Burundi, Central African Republic, DR Congo, Comoros, Djibouti, Eritrea, Western Sahara, Lesotho, Senegal, Sierra Leone, Somalia, South Sudan, Chad, Equatorial Guinea, Madagascar: No data.
- For Gambia, Swaziland, Botswana, Mauritius, Namibia, South Africa: National data (rates).
- For Malawi, Algeria, Egypt, Libya, Tunisia, Uganda, Zimbabwe: High quality regional (coverage lower than 10%).

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 Côte d'Ivoire, Burkina Faso, Ghana, Mozambique, Sudan, Togo, Gabon: Age/sex specific rates for "all cancers" were partitioned using data on relative frequency of different cancers (by age and sex)
- For Congo, Ethiopia, Malawi, Guinea, Libya, Mali, Niger, Uganda, Zambia, Cameroon: One cancer registry covering part of a country is used as representative of the country profile
- For Cape Verde, Guinea-Bissau, Liberia, Mauritania, Angola, Burundi, Benin, Central African Republic, DR Congo, Comoros, Djibouti, Eritrea, Western Sahara, Lesotho, Senegal, Sierra Leone, Somalia, South Sudan, Chad, Equatorial Guinea, Madagascar, Rwanda: The rates are those of neighbouring countries or registries in the same area
- For Gambia, Swaziland, Botswana, Mauritius, Namibia: Most recent rates applied to 2012 population
- For Nigeria, Algeria, Egypt, Morocco, Tunisia, Kenya, Tanzania: Estimated as the weighted average of the local rates
- For South Africa: 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

3.3.1 Pharyngeal cancer (excluding nasopharynx)

Table 11: Cancer incidence of pharynx (excluding nasopharynx) in Africa 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
Africa	3369	0.6	1.1	0.1	1928	0.4	0.6	0.1
Eastern Africa	906	0.5	1.0	0.1	567	0.3	0.6	0.1
Burundi	25	0.6	1.1	0.1	21	0.5	0.8	0.1
Comoros	0	0.0	0.0	0.0	1	0.3	0.7	0.1
Djibouti	0	0.0	0.0	0.0	1	0.2	0.3	0.0
Eritrea	6	0.2	0.4	0.0	14	0.5	0.8	0.1
Ethiopia	21	0.0	0.0	0.0	32	0.1	0.1	0.0
Kenya	197	0.9	2.3	0.3	128	0.6	1.3	0.2
Madagascar	212	1.9	3.4	0.4	41	0.4	0.7	0.1
Malawi	4	0.1	0.1	0.0	0	0.0	0.0	0.0
Mauritius	19	2.9	2.7	0.3	6	0.9	0.8	0.1
Mozambique	64	0.5	0.9	0.1	37	0.3	0.5	0.1
Rwanda	39	0.7	1.2	0.1	34	0.6	1.2	0.1
Seychelles	-	-	-	-	-	-	-	-
Somalia	26	0.5	1.2	0.2	17	0.3	0.6	0.1
South Sudan ^c	29	0.5	1.1	0.1	27	0.5	0.9	0.1
Tanzania	128	0.5	1.1	0.1	155	0.7	1.2	0.2
Uganda	75	0.4	1.1	0.1	39	0.2	0.5	0.1
Zambia	16	0.2	0.6	0.1	12	0.2	0.4	0.0
Zimbabwe	6	0.1	0.2	0.0	0	0.0	0.0	0.0
Middle Africa	585	0.9	1.7	0.2	208	0.3	0.6	0.1
Angola	50	0.5	1.2	0.1	26	0.3	0.6	0.1
Cameroon	292	2.9	4.9	0.6	28	0.3	0.5	0.1
CAR	27	1.2	2.0	0.2	12	0.5	0.8	0.1
Chad	52	0.9	1.7	0.2	22	0.4	0.6	0.1
Congo	4	0.2	0.3	0.0	3	0.1	0.2	0.0
DR Congo	133	0.4	0.8	0.1	109	0.3	0.6	0.1
Eq. Guinea	11	2.9	4.2	0.6	1	0.3	0.3	0.0
Gabon	16	2.0	3.2	0.4	7	0.9	1.3	0.2
S.Tome & Prin.	-	-	-	-	-	-	-	-
Northern Africa	621	0.6	0.8	0.1	611	0.6	0.7	0.1
Algeria	91	0.5	0.6	0.1	77	0.4	0.5	0.1
Egypt	301	0.7	0.9	0.1	252	0.6	0.7	0.1
Libya	8	0.2	0.4	0.1	10	0.3	0.4	0.0
Morocco	79	0.5	0.5	0.1	51	0.3	0.3	0.0
Sudan ^c	94	0.5	0.9	0.1	195	1.1	1.7	0.2
Tunisia	47	0.9	0.9	0.1	26	0.5	0.5	0.0
Western Sahara	1	0.3	0.4	0.0	0	0.0	0.0	0.0
Southern Africa	784	2.7	3.9	0.5	392	1.3	1.5	0.2
Botswana	26	2.5	4.1	0.5	1	0.1	0.1	0.0
Lesotho	8	0.7	1.4	0.1	1	0.1	0.1	0.0
Namibia	14	1.2	2.2	0.3	5	0.4	0.6	0.1
South Africa	730	2.9	4.1	0.5	385	1.5	1.6	0.2
Swaziland	6	1.0	1.9	0.2	0	0.0	0.0	0.0

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(Table 11 – 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
Western Africa	473	0.3	0.6	0.1	150	0.1	0.1	0.0
Benin	34	0.7	1.5	0.2	17	0.4	0.6	0.1
Burkina Faso	27	0.3	1.0	0.2	13	0.1	0.2	0.0
Cape Verde	0	0.0	0.0	0.0	0	0.0	0.0	0.0
Côte d'Ivoire	41	0.4	0.6	0.1	0	0.0	0.0	0.0
Gambia	0	0.0	0.0	0.0	0	0.0	0.0	0.0
Ghana	36	0.3	0.4	0.0	19	0.2	0.2	0.0
Guinea	11	0.2	0.3	0.0	3	0.1	0.1	0.0
Guinea-Bissau	1	0.1	0.2	0.0	1	0.1	0.2	0.0
Liberia	5	0.2	0.5	0.1	0	0.0	0.0	0.0
Mali	25	0.3	0.7	0.1	31	0.4	0.7	0.1
Mauritania	3	0.2	0.3	0.0	1	0.1	0.1	0.0
Niger	30	0.4	0.6	0.1	16	0.2	0.3	0.0
Nigeria	224	0.3	0.5	0.1	31	0.0	0.1	0.0
Senegal	17	0.3	0.5	0.1	16	0.2	0.4	0.1
Sierra Leone	9	0.3	0.5	0.1	1	0.0	0.1	0.0
Togo	10	0.3	0.6	0.1	1	0.0	0.1	0.0
Sub-Saharan Africa	2748	0.6	1.2	0.1	1317	0.3	0.5	0.1

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.^c Estimate for Sudan and South Sudan

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 Africa 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
Africa	2631	0.5	0.9	0.1	1459	0.3	0.4	0.1
Eastern Africa	786	0.4	0.9	0.1	496	0.3	0.5	0.1
Burundi	24	0.6	1.1	0.1	19	0.4	0.8	0.1
Comoros	0	0.0	0.0	0.0	1	0.3	0.7	0.1
Djibouti	0	0.0	0.0	0.0	1	0.2	0.3	0.0
Eritrea	6	0.2	0.4	0.0	12	0.4	0.7	0.1
Ethiopia	19	0.0	0.0	0.0	29	0.1	0.1	0.0
Kenya	166	0.8	2.0	0.3	105	0.5	1.1	0.2
Madagascar	182	1.7	3.0	0.3	35	0.3	0.6	0.1
Malawi	4	0.1	0.1	0.0	0	0.0	0.0	0.0
Mauritius	25	3.9	3.6	0.4	8	1.2	0.9	0.1
Mozambique	55	0.5	0.9	0.1	36	0.3	0.5	0.1
Rwanda	35	0.6	1.2	0.1	30	0.5	1.1	0.1
Seychelles	-	-	-	-	-	-	-	-
Somalia	22	0.5	1.1	0.2	16	0.3	0.6	0.1
South Sudan ^c	28	0.5	1.0	0.1	25	0.5	0.8	0.1
Tanzania	110	0.5	1.0	0.1	133	0.6	1.1	0.2
Uganda	71	0.4	1.1	0.1	34	0.2	0.5	0.1
Zambia	15	0.2	0.6	0.1	11	0.2	0.3	0.0
Zimbabwe	5	0.1	0.1	0.0	0	0.0	0.0	0.0
Middle Africa	518	0.8	1.6	0.2	191	0.3	0.6	0.1
Angola	43	0.4	1.1	0.1	23	0.2	0.5	0.1
Cameroon	251	2.5	4.4	0.5	24	0.2	0.4	0.1
CAR	25	1.1	1.9	0.2	12	0.5	0.8	0.1
Chad	48	0.8	1.6	0.2	20	0.3	0.6	0.1
Congo	4	0.2	0.3	0.0	3	0.1	0.2	0.0
DR Congo	124	0.4	0.8	0.1	102	0.3	0.6	0.1
Eq. Guinea	10	2.6	3.9	0.6	1	0.3	0.3	0.0
Gabon	13	1.7	2.6	0.3	6	0.8	1.1	0.1
S.Tome & Prin.	-	-	-	-	-	-	-	-
Northern Africa	483	0.5	0.6	0.1	494	0.5	0.6	0.1
Algeria	66	0.4	0.5	0.1	56	0.3	0.4	0.0

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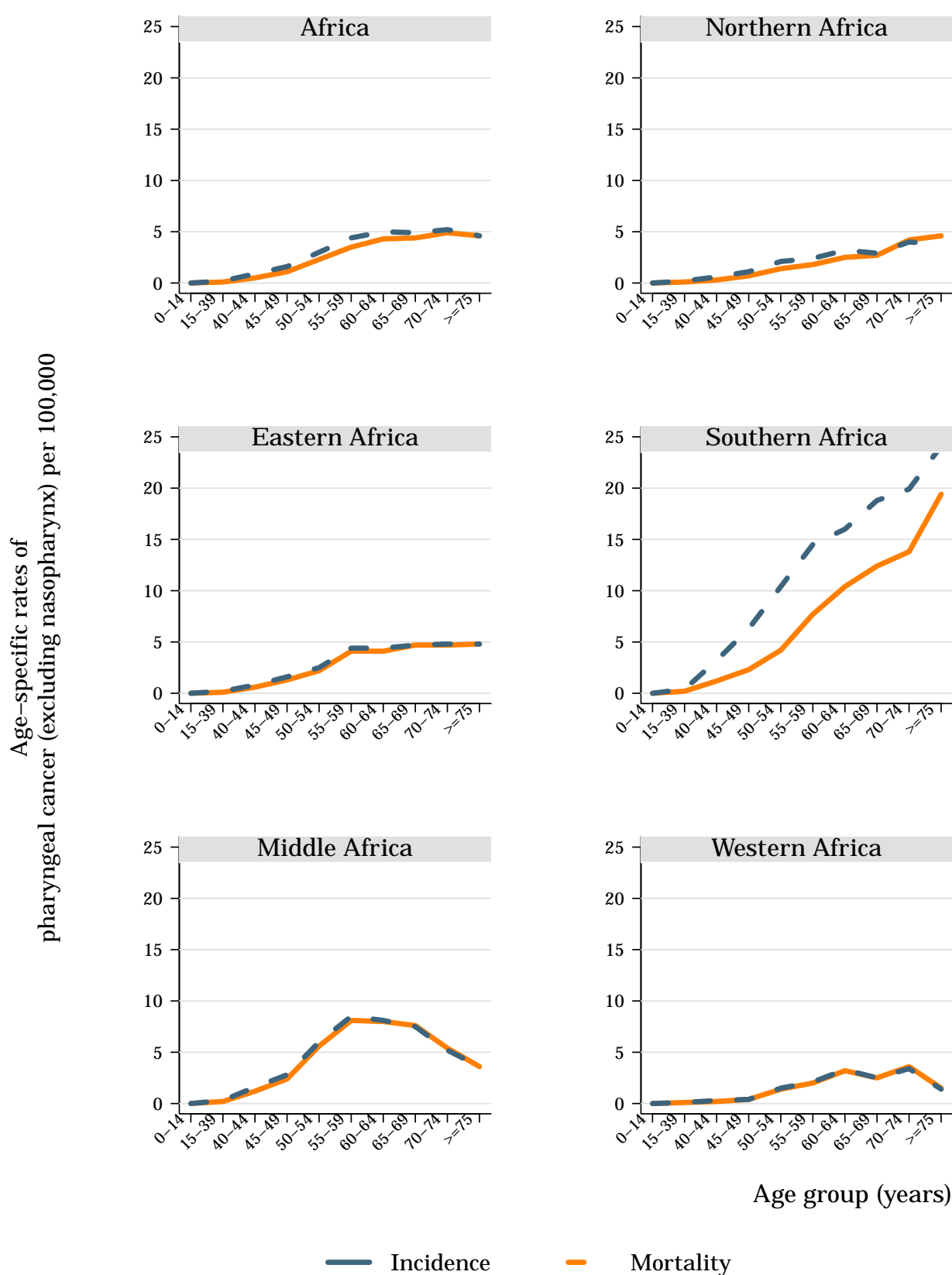
Area	MALE				FEMALE			
	N cases	Crude ^a rate	ASR ^a	Cum risk ^b (%) ages 0-74	N cases	Crude ^a rate	ASR ^a	Cum risk ^b (%) ages 0-74
Egypt	232	0.6	0.7	0.1	191	0.5	0.5	0.1
Libya	5	0.2	0.3	0.0	7	0.2	0.3	0.0
Morocco	65	0.4	0.4	0.1	42	0.3	0.2	0.0
Sudan ^c	81	0.4	0.8	0.1	179	1.0	1.6	0.2
Tunisia	33	0.6	0.6	0.1	19	0.4	0.3	0.0
Western Sahara	1	0.3	0.4	0.0	0	0.0	0.0	0.0
Southern Africa	426	1.5	2.2	0.3	145	0.5	0.6	0.1
Botswana	21	2.0	3.4	0.4	1	0.1	0.1	0.0
Lesotho	7	0.6	1.3	0.1	1	0.1	0.1	0.0
Namibia	12	1.0	1.9	0.2	5	0.4	0.6	0.1
South Africa	380	1.5	2.2	0.3	138	0.5	0.6	0.1
Swaziland	6	1.0	1.9	0.2	0	0.0	0.0	0.0
Western Africa	418	0.3	0.5	0.1	133	0.1	0.1	0.0
Benin	29	0.6	1.4	0.2	15	0.3	0.6	0.1
Burkina Faso	26	0.3	1.0	0.2	12	0.1	0.2	0.0
Cape Verde	0	0.0	0.0	0.0	0	0.0	0.0	0.0
Côte d'Ivoire	36	0.3	0.5	0.1	0	0.0	0.0	0.0
Gambia	0	0.0	0.0	0.0	0	0.0	0.0	0.0
Ghana	30	0.2	0.4	0.0	16	0.1	0.2	0.0
Guinea	11	0.2	0.3	0.0	3	0.1	0.1	0.0
Guinea-Bissau	1	0.1	0.2	0.0	1	0.1	0.2	0.0
Liberia	4	0.2	0.4	0.1	0	0.0	0.0	0.0
Mali	22	0.3	0.7	0.1	28	0.3	0.7	0.1
Mauritania	3	0.2	0.3	0.0	1	0.1	0.1	0.0
Niger	28	0.3	0.6	0.1	14	0.2	0.3	0.0
Nigeria	196	0.2	0.5	0.1	27	0.0	0.1	0.0
Senegal	15	0.2	0.5	0.1	14	0.2	0.4	0.1
Sierra Leone	8	0.3	0.5	0.1	1	0.0	0.1	0.0
Togo	9	0.3	0.5	0.1	1	0.0	0.1	0.0
Sub-Saharan Africa	2148	0.5	1.0	0.1	965	0.2	0.4	0.1

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.^c Estimate for Sudan and South Sudan

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 Africa 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.

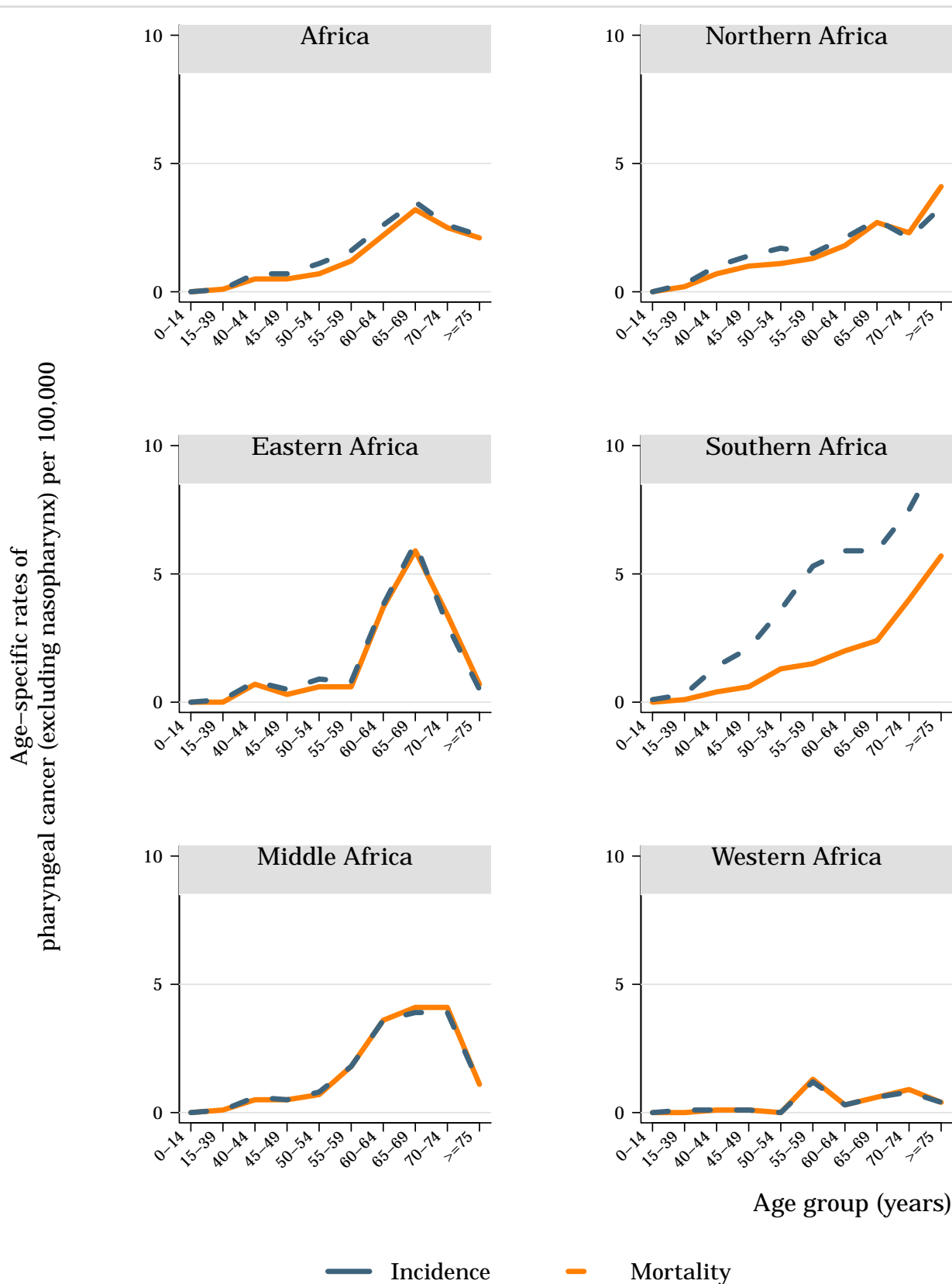
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(Figure 34 – continued from previous page)

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 Africa 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

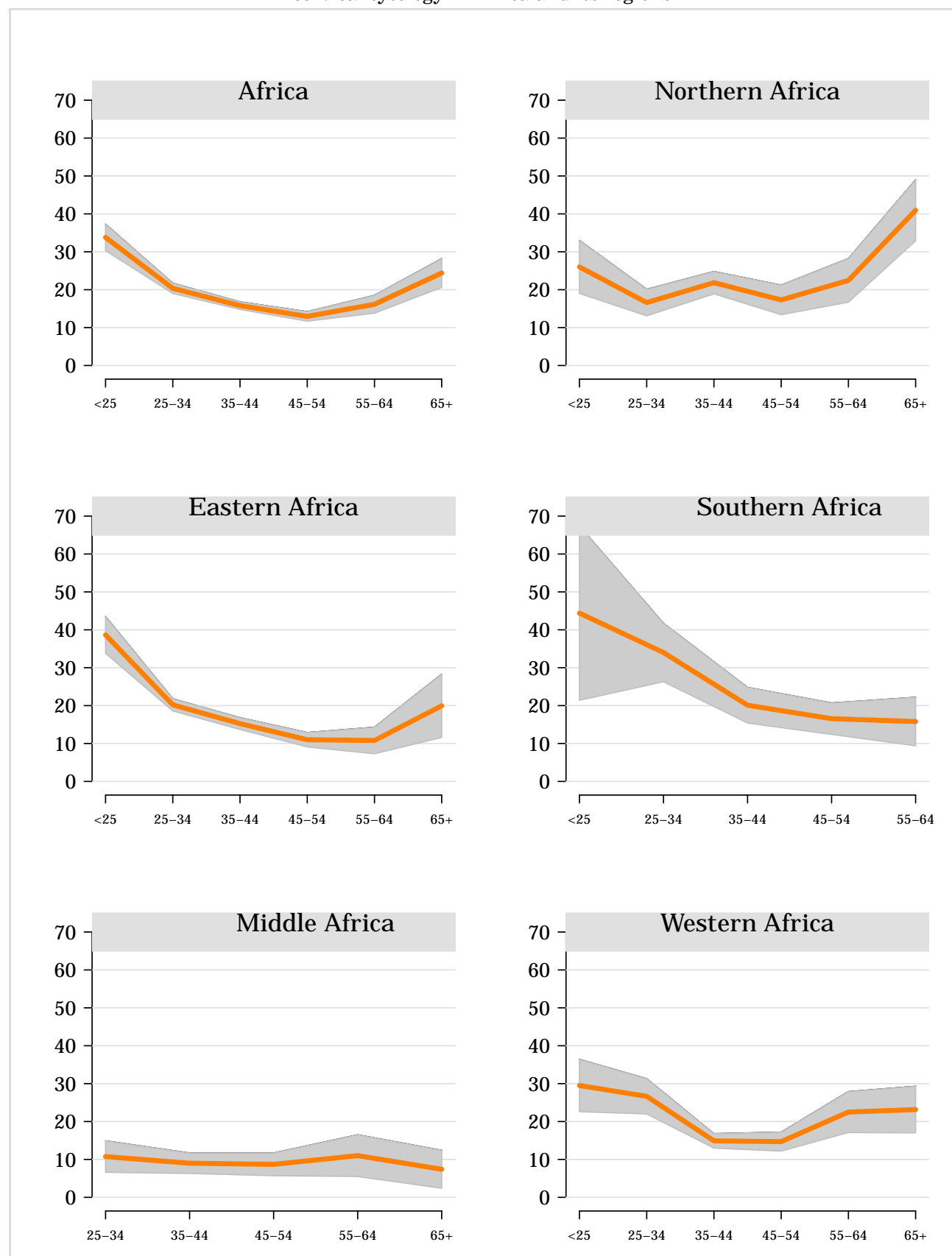
The statistics shown in this section focus on HPV infection in the cervix uteri. HPV cervical infection results in cervical morphological lesions ranging from normalcy (cytologically normal women) to different stages of precancerous lesions (CIN-1, CIN-2, CIN-3/CIS) and invasive cervical cancer. HPV 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.

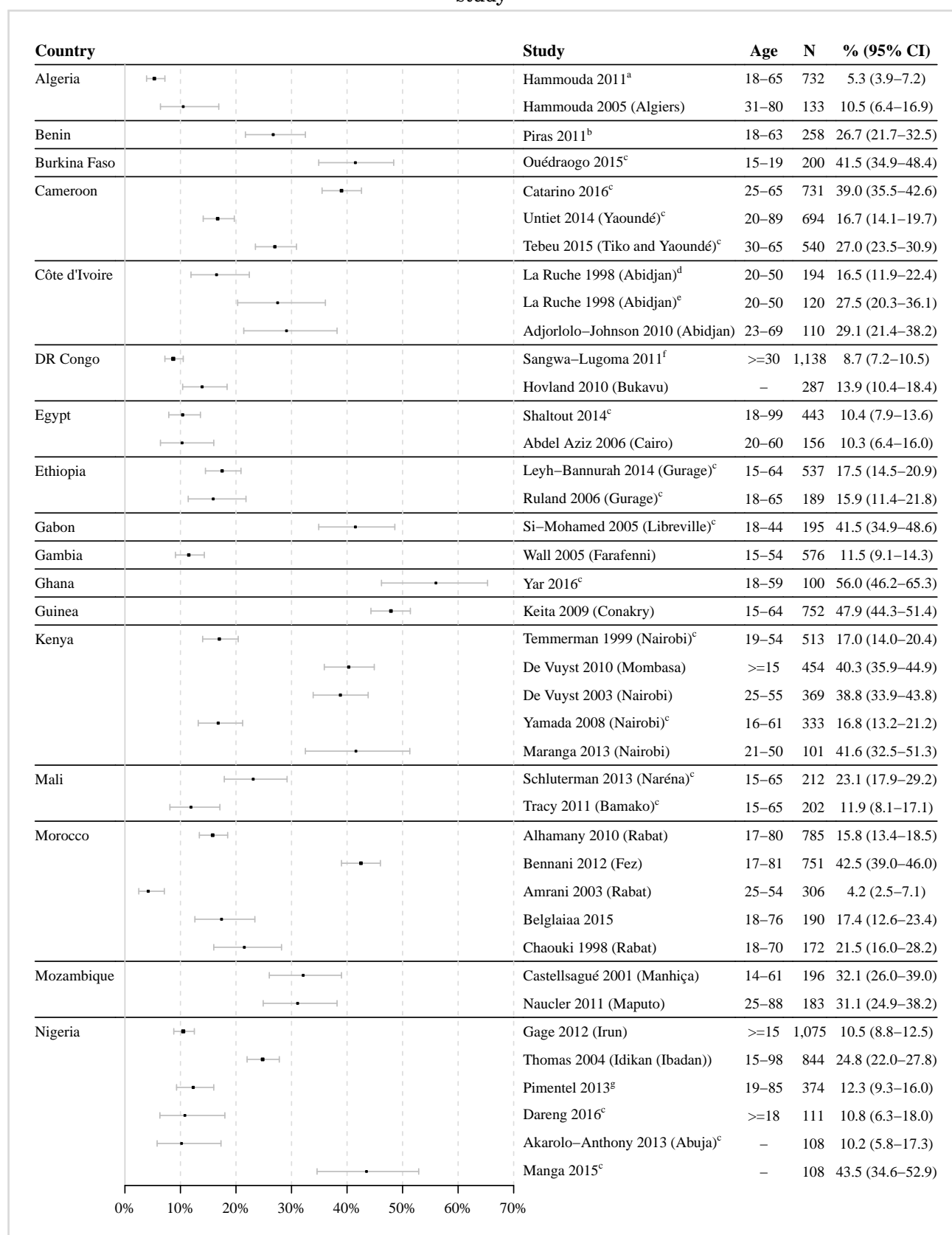
Figure 36: Crude age-specific HPV prevalence (%) and 95% confidence interval in women with normal cervical cytology in Africa and its regions



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 Africa by country and study



(Continued on next page)

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.

^aZeralda (Algiers)

(Continued on next page)

(Figure 37 – continued from previous page)

^b Abomey, Atakora, Cotonou, Djougou, Lagune, Lokossa, Parakou, Porto-Novo and Tangueta

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

^d HIV negative women (controls of women with HSIL)

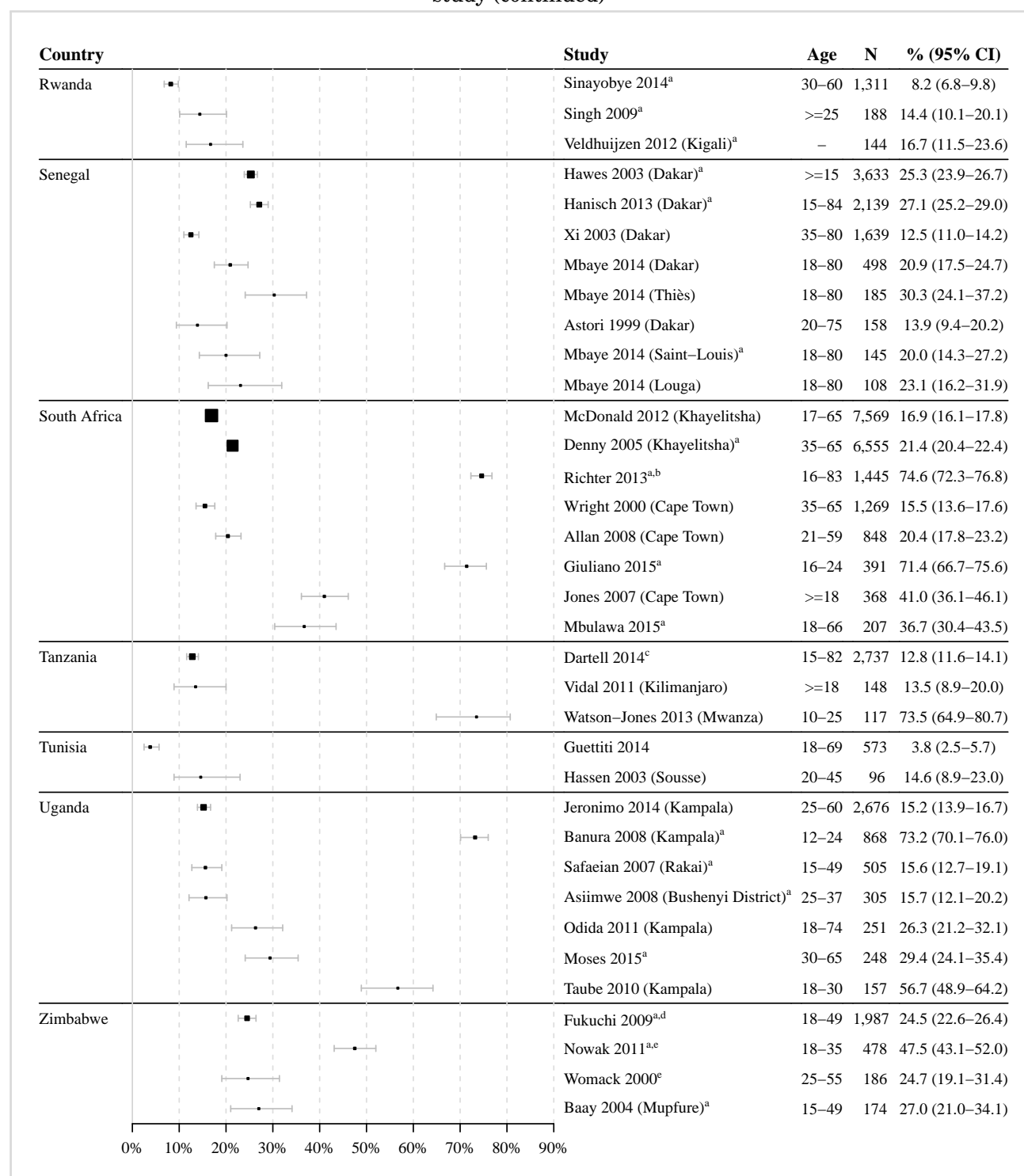
^e HIV negative women (controls of women with LSIL)

^f Mbuku, Kinshasa

^g Okene, Abuja and Katari

Data sources: See references in Section 9.

Figure 38: Prevalence of HPV among women with normal cervical cytology in Africa by country and study (continued)



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

^b Tshwane District, Gauteng province

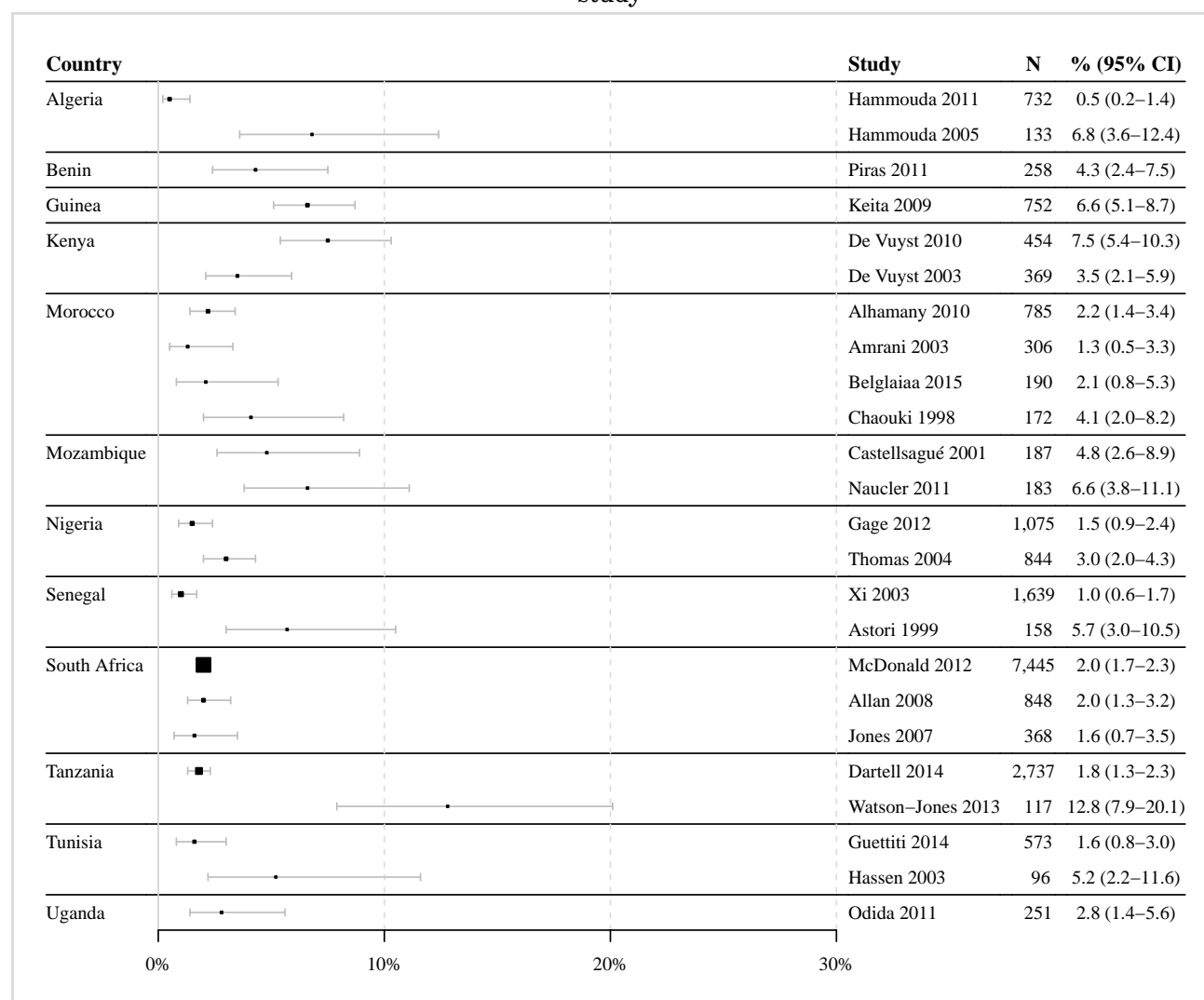
^c Dar es Salaam, Pwani, Mwanza

^d Chitungwiza, Epworth (Harare)

^e Chitungwiza and Harare

Data sources: See references in Section 9.

Figure 39: Prevalence of HPV 16 among women with normal cervical cytology in Africa by country and study



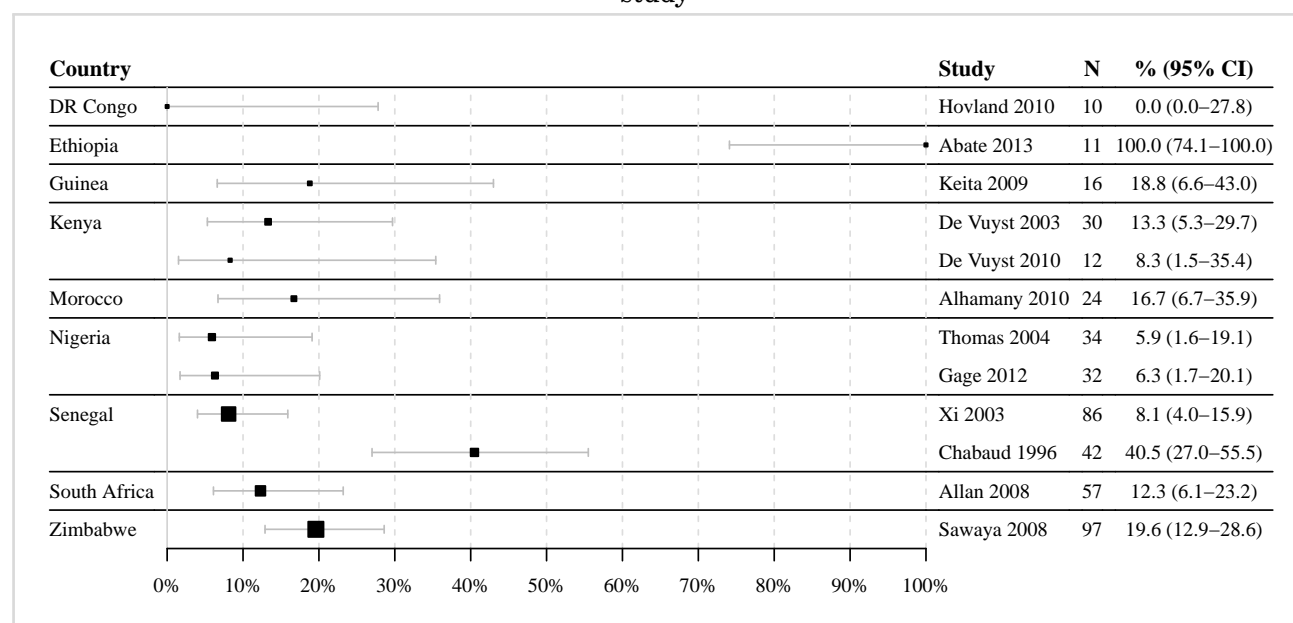
Data updated on 15 Dec 2016 (data as of 30 Jun 2015).

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 40: Prevalence of HPV 16 among women with low-grade cervical lesions in Africa by country and study



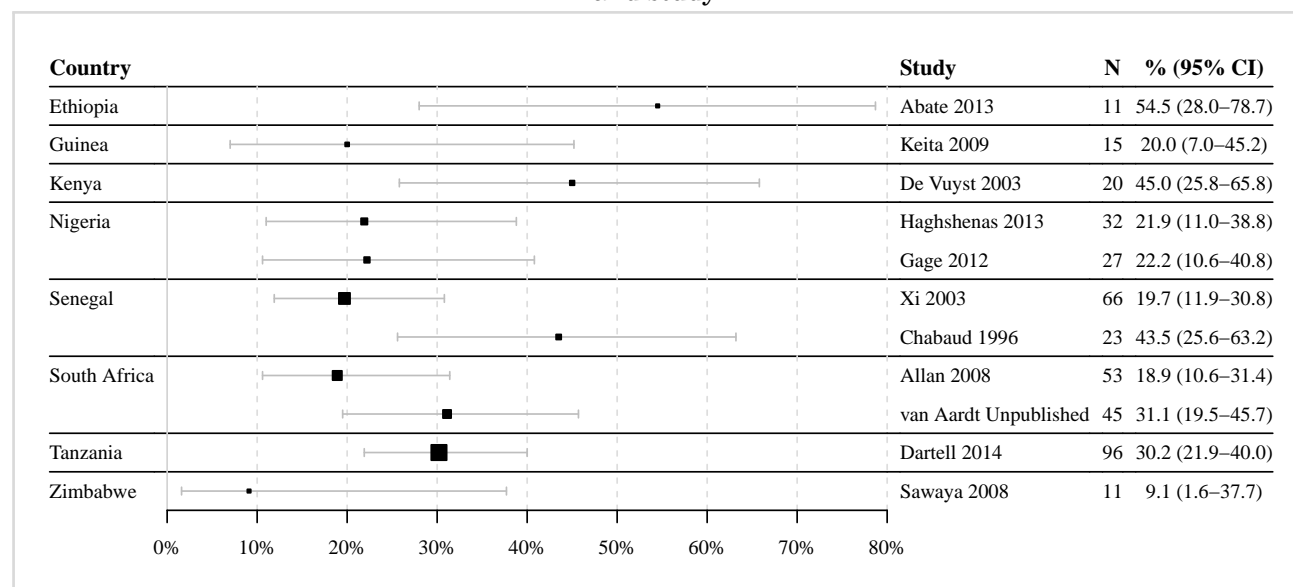
Data updated on 28 Jun 2017 (data as of 30 Jun 2015).

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 41: Prevalence of HPV 16 among women with high-grade cervical lesions in Africa by country and study



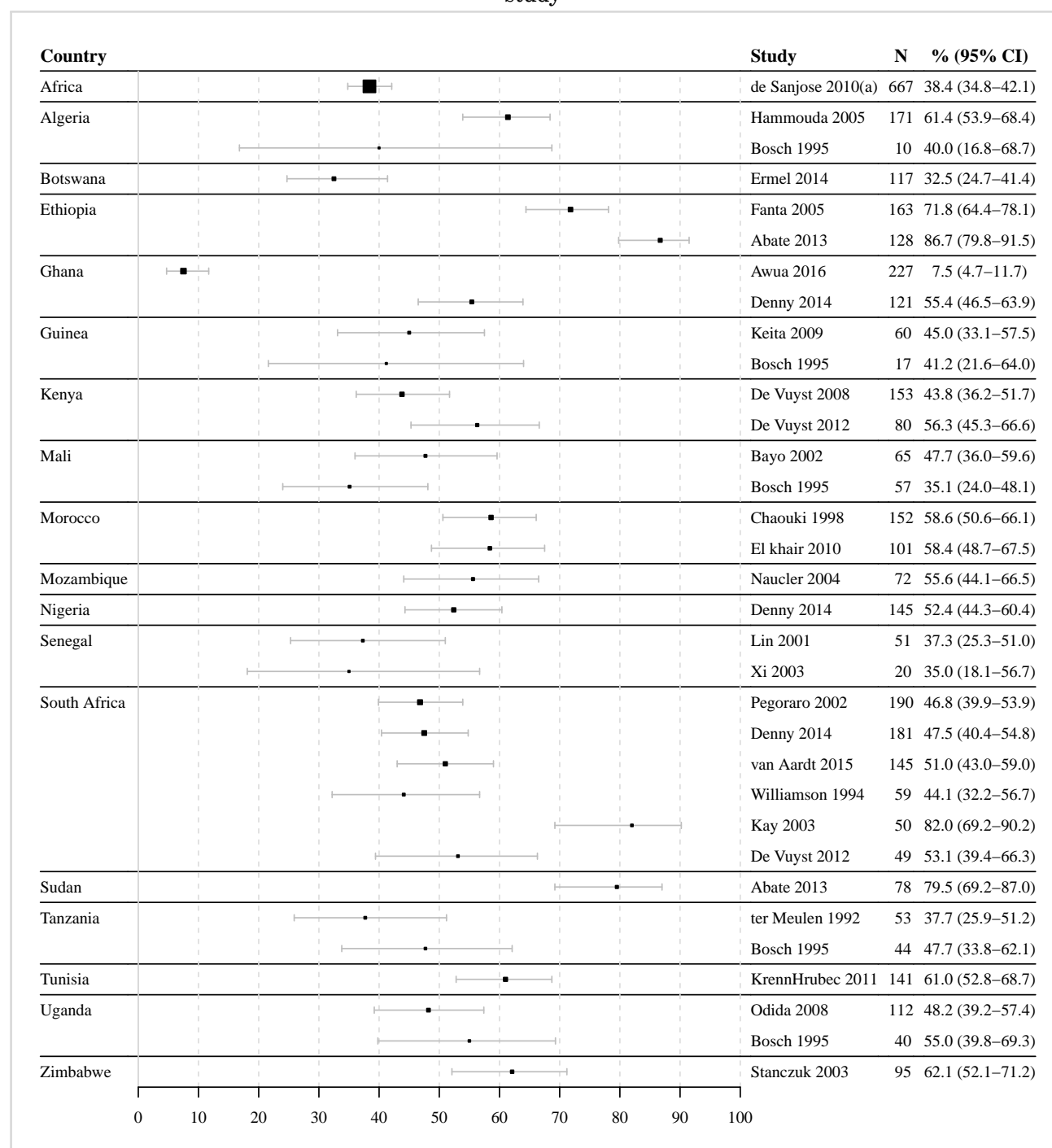
Data updated on 28 Jun 2017 (data as of 30 Jun 2015).

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 42: Prevalence of HPV 16 among women with invasive cervical cancer in Africa by country and study



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

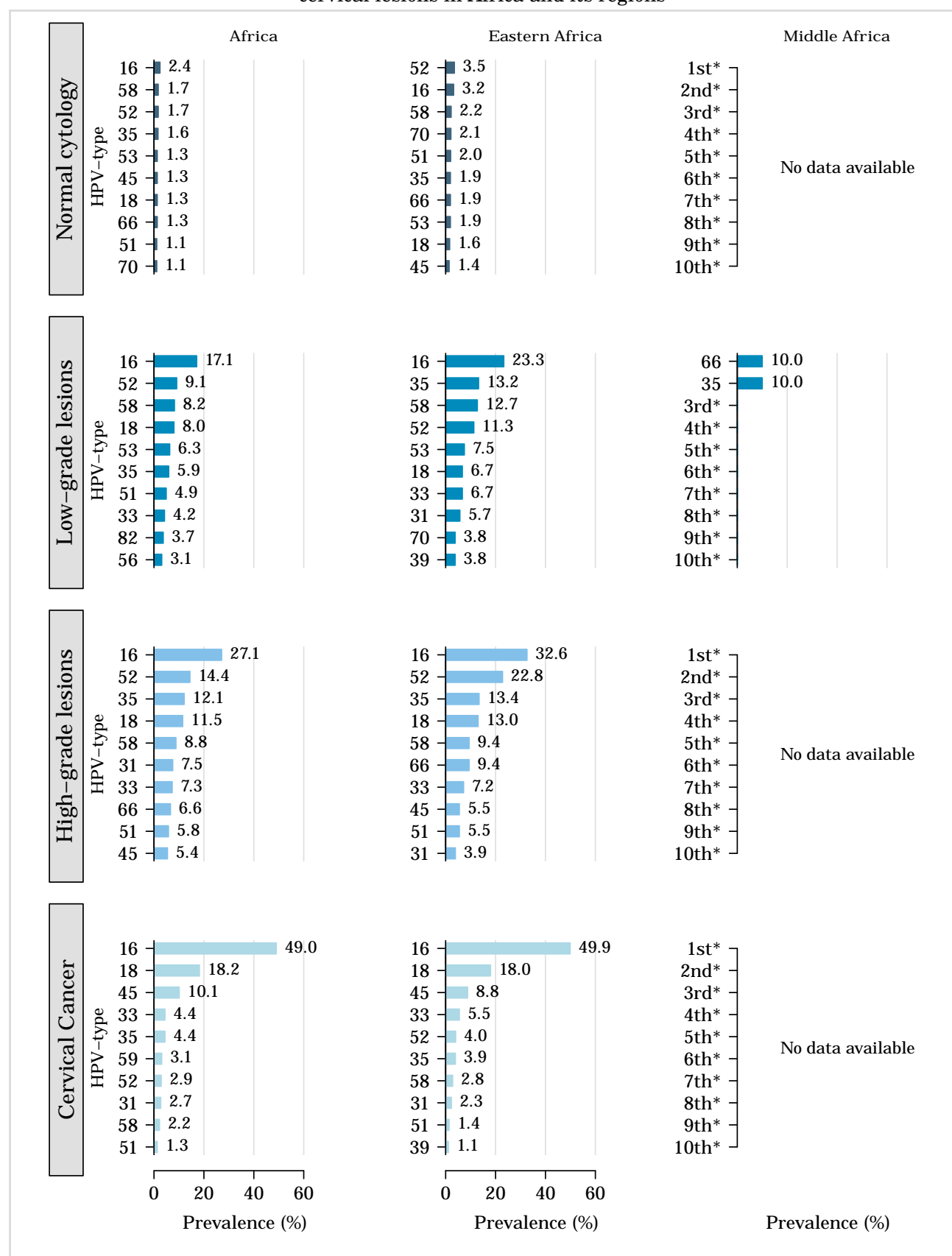
95% CI: 95% Confidence Interval; N: number of women tested;

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.

^a Includes cases from Algeria, Mozambique, Nigeria, and Uganda

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 Africa and its regions



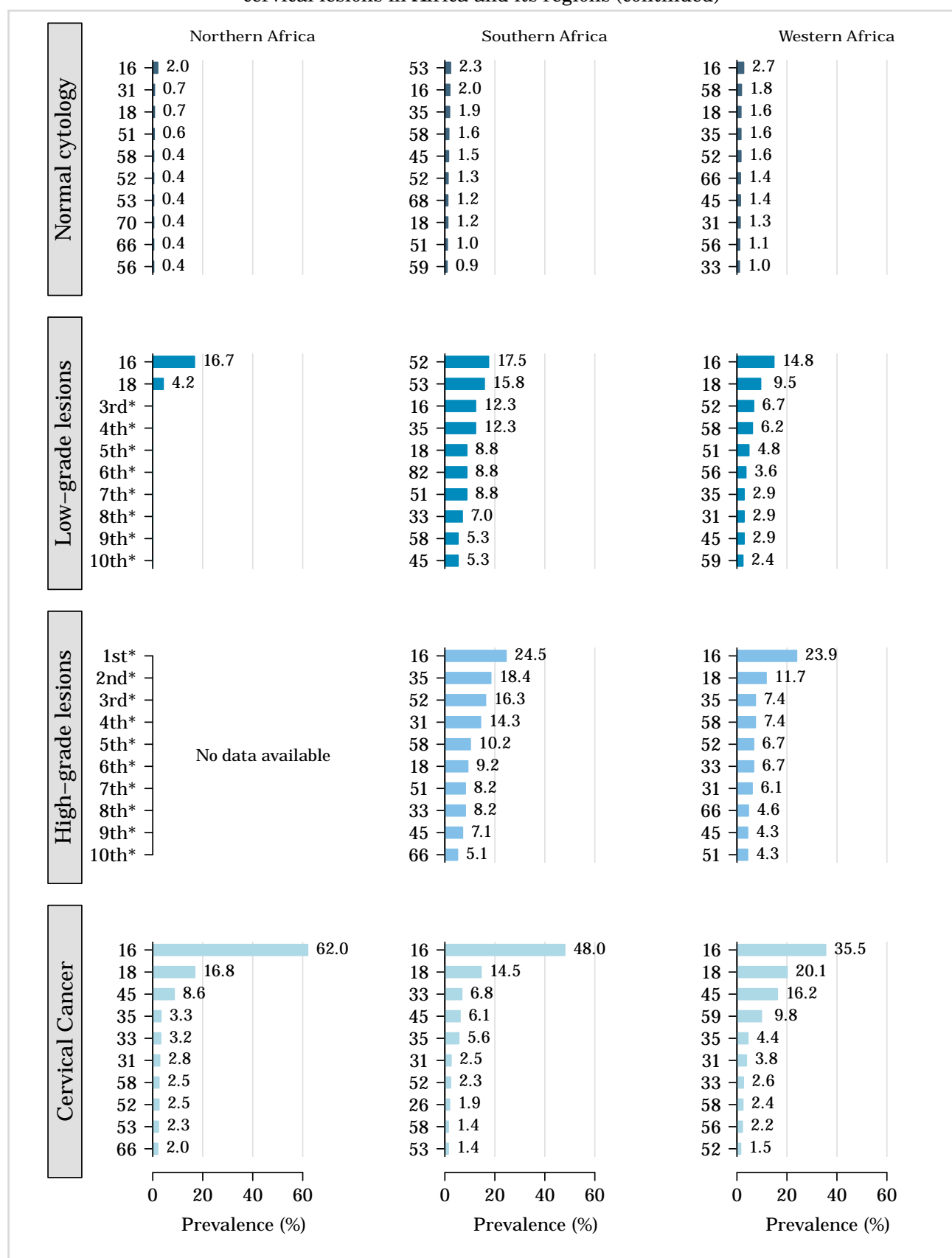
Data updated on 19 May 2017 (data as of 30 Jun 2015).

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

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 and without cervical lesions in Africa and its regions (continued)



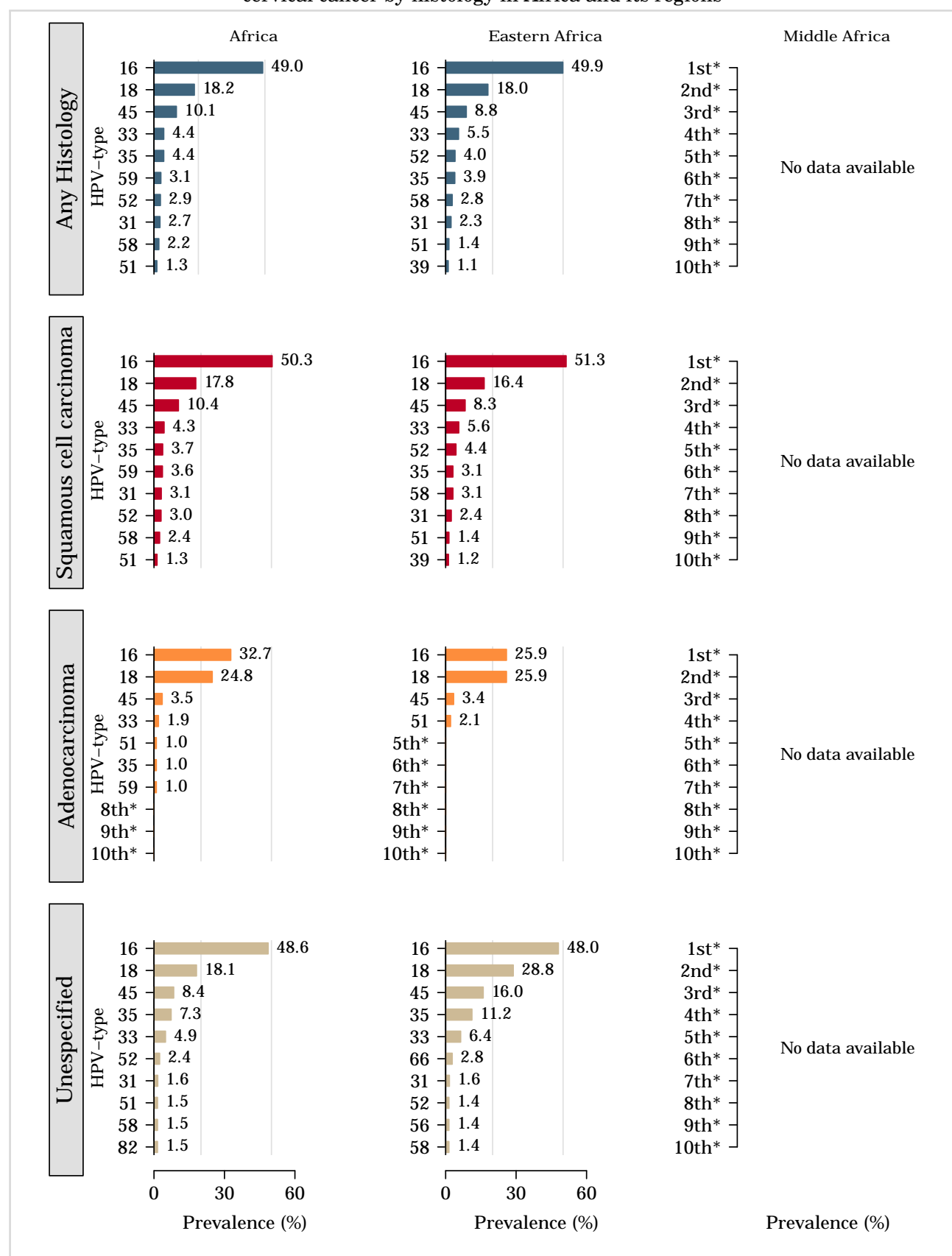
Data updated on 19 May 2017 (data as of 30 Jun 2015).

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

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 Africa and its regions



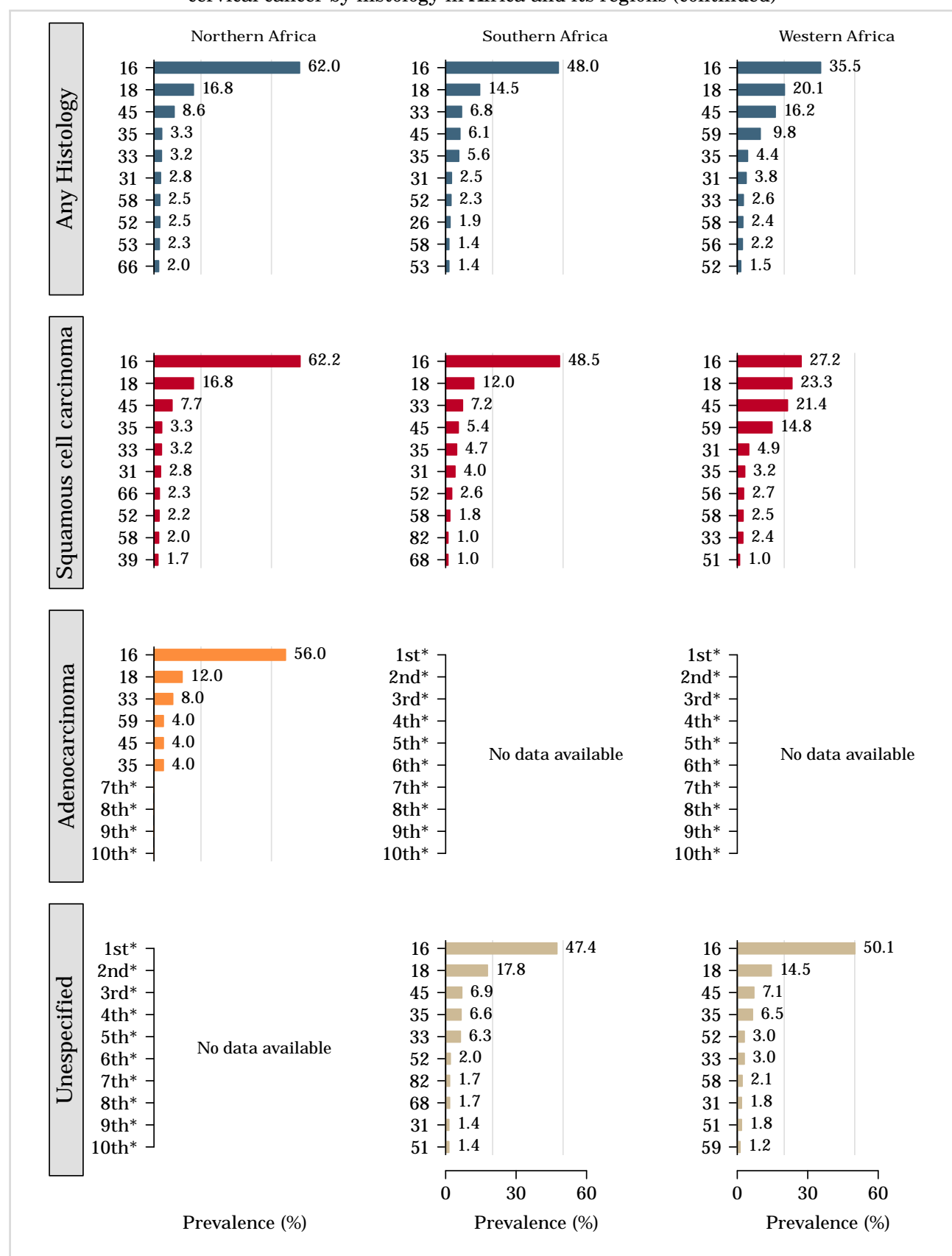
*No data available. No more types than shown were tested or were positive.

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 46: Comparison of the ten most frequent HPV oncogenic types among women with invasive cervical cancer by histology in Africa 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 15: Type-specific HPV prevalence among invasive cervical cancer cases in Africa 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	3,814	49.0 (47.4-50.6)	3,051	50.3 (48.6-52.1)	113	32.7 (24.8-41.8)	810	48.6 (45.2-52.1)
18	3,814	18.2 (17.0-19.5)	3,051	17.8 (16.5-19.2)	113	24.8 (17.7-33.5)	810	18.1 (15.6-21.0)
31	3,624	2.7 (2.2-3.3)	2,861	3.1 (2.6-3.9)	113	0.0 (0.0-3.3)	810	1.6 (0.9-2.7)
33	3,651	4.4 (3.8-5.2)	2,898	4.3 (3.7-5.2)	103	1.9 (0.5-6.8)	810	4.9 (3.6-6.7)
35	3,491	4.4 (3.8-5.2)	2,738	3.7 (3.0-4.5)	103	1.0 (0.2-5.3)	810	7.3 (5.7-9.3)
39	3,103	1.0 (0.7-1.4)	2,453	1.1 (0.8-1.6)	103	0.0 (0.0-3.6)	707	1.0 (0.5-2.0)
45	3,814	10.1 (9.2-11.1)	3,051	10.4 (9.4-11.6)	113	3.5 (1.4-8.7)	810	8.4 (6.7-10.5)
51	3,491	1.3 (1.0-1.7)	2,738	1.3 (0.9-1.8)	103	1.0 (0.2-5.3)	810	1.5 (0.8-2.6)
52	3,601	2.9 (2.4-3.5)	2,891	3.0 (2.4-3.7)	113	0.0 (0.0-3.3)	757	2.4 (1.5-3.7)
56	3,456	1.1 (0.8-1.5)	2,796	1.2 (0.9-1.7)	113	0.0 (0.0-3.3)	707	1.0 (0.5-2.0)
58	3,601	2.2 (1.8-2.8)	2,891	2.4 (1.9-3.0)	113	0.0 (0.0-3.3)	757	1.5 (0.8-2.6)
59	3,349	3.1 (2.6-3.7)	2,649	3.6 (2.9-4.4)	103	1.0 (0.2-5.3)	757	1.2 (0.6-2.2)
Probable/possible carcinogen								
26	1,680	0.4 (0.2-0.8)	-	-	-	-	-	-
30	997	0.5 (0.2-1.2)	939	0.4 (0.2-1.1)	58	1.7 (0.3-9.1)	-	-
34	1,642	0.0 (0.0-0.2)	1,539	0.0 (0.0-0.2)	103	0.0 (0.0-3.6)	-	-
53	2,426	0.7 (0.4-1.1)	-	-	-	-	-	-
66	3,266	0.9 (0.7-1.3)	2,606	1.2 (0.8-1.7)	113	0.0 (0.0-3.3)	707	0.7 (0.3-1.6)
67	1,259	0.2 (0.0-0.6)	1,084	0.1 (0.0-0.5)	58	0.0 (0.0-6.2)	117	0.9 (0.2-4.7)
68	2,801	0.9 (0.6-1.3)	2,453	0.8 (0.5-1.3)	103	0.0 (0.0-3.6)	405	1.0 (0.4-2.5)
69	1,259	0.5 (0.2-1.0)	-	-	-	-	-	-
70	2,668	0.2 (0.1-0.4)	-	-	-	-	-	-
73	2,143	0.5 (0.3-0.9)	-	-	-	-	-	-
82	1,770	0.3 (0.1-0.7)	1,550	0.2 (0.1-0.6)	83	0.0 (0.0-4.4)	137	1.5 (0.4-5.2)
97	141	0.0 (0.0-2.7)	141	0.0 (0.0-2.7)	-	-	-	-
NON-ONCOGENIC HPV TYPES								
6	2,681	1.0 (0.7-1.4)	-	-	-	-	-	-
11	2,775	0.1 (0.0-0.3)	-	-	-	-	-	-
32	189	0.0 (0.0-2.0)	-	-	-	-	-	-
40	1,932	0.1 (0.0-0.4)	-	-	-	-	-	-
42	2,006	0.3 (0.2-0.7)	1,926	0.4 (0.2-0.7)	103	0.0 (0.0-3.6)	137	0.0 (0.0-2.7)
43	1,877	0.1 (0.0-0.3)	-	-	-	-	-	-
44	2,139	0.9 (0.6-1.4)	2,079	0.9 (0.6-1.4)	103	0.0 (0.0-3.6)	117	0.9 (0.2-4.7)
54	1,912	0.2 (0.1-0.5)	-	-	-	-	-	-
55	-	-	-	-	-	-	-	-
57	532	0.0 (0.0-0.7)	-	-	-	-	-	-
61	1,441	0.4 (0.2-0.9)	-	-	-	-	-	-
62	414	0.5 (0.1-1.7)	-	-	-	-	-	-
64	-	-	-	-	-	-	-	-
71	622	0.3 (0.1-1.2)	-	-	-	-	-	-
72	774	0.1 (0.0-0.7)	-	-	-	-	-	-
74	1,138	0.3 (0.1-0.8)	-	-	-	-	-	-
81	774	0.3 (0.1-0.9)	-	-	-	-	-	-
83	774	0.4 (0.1-1.1)	-	-	-	-	-	-
84	642	0.9 (0.4-2.0)	-	-	-	-	-	-
89	383	0.0 (0.0-1.0)	-	-	-	-	-	-
90	60	0.0 (0.0-6.0)	-	-	-	-	-	-
91	667	0.0 (0.0-0.6)	-	-	-	-	-	-

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: African 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 Africa are presented.

Table 17: African 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)	
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 18: African studies on HPV prevalence among AIN 2/3 cases (male and female)

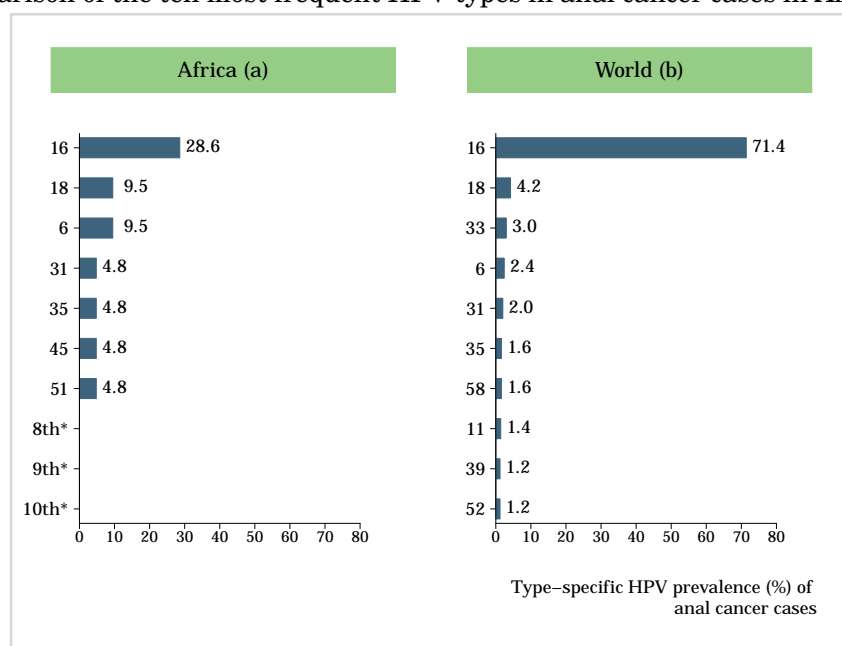
Study	HPV detection method and targeted HPV types	No. Tested	HPV prevalence		Prevalence of 5 most frequent HPV types (%)
			%	(95% CI)	
No Data Available	-	-	-	-	-

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;

Data sources: See references in Section 9.

Figure 47: Comparison of the ten most frequent HPV types in anal cancer cases in Africa and the World



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

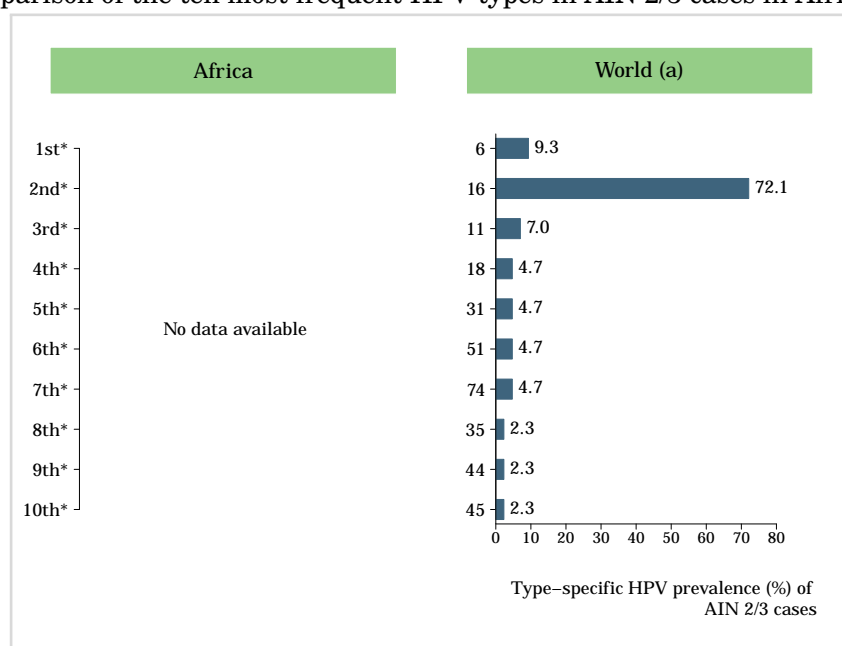
Data updated on 09 Feb 2017 (data as of 30 Jun 2014).

^aIncludes cases from Mali, Nigeria and Senegal.

^bIncludes 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 48: Comparison of the ten most frequent HPV types in AIN 2/3 cases in Africa 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 Africa are presented.

Table 19: African 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 HPVs HPV type (%)
			%	(95% CI)	
de Sanjosé 2013 (Africa)	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)	24	70.8	(50.8-85.1)	HPV 16 (58.3%) HPV 18 (4.2%) HPV 45 (4.2%) HPV 52 (4.2%)

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 Mali, Mozambique, Nigeria, and Senegal

Data sources: See references in Section 9.

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

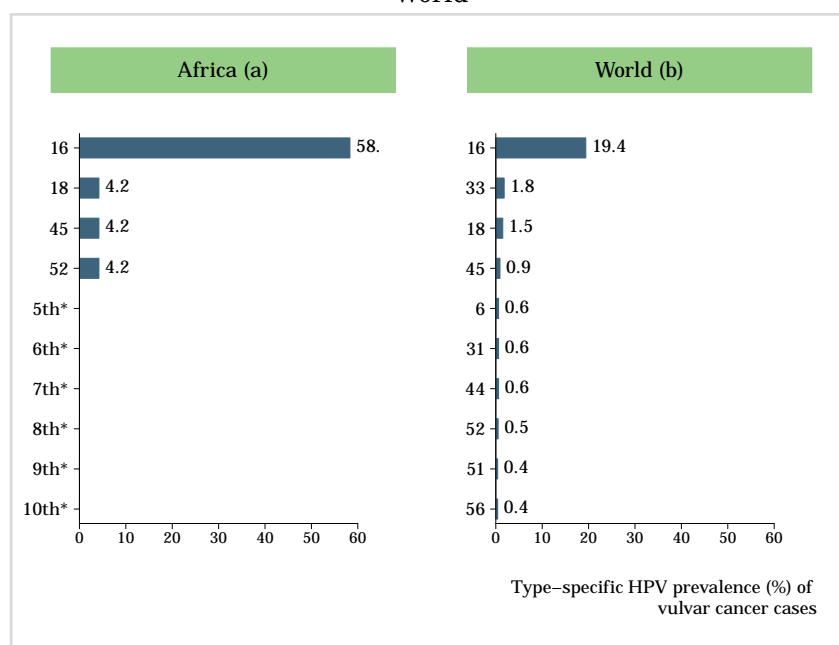
Study	HPV detection method and targeted HPV types	No. Tested	HPV prevalence		Prevalence of 5 most frequent HPVs HPV type (%)
			%	(95% CI)	
No Data Available	-	-	-	-	-

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

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

Data sources: See references in Section 9.

Figure 49: Comparison of the ten most frequent HPV types in cases of vulvar cancer in Africa 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).

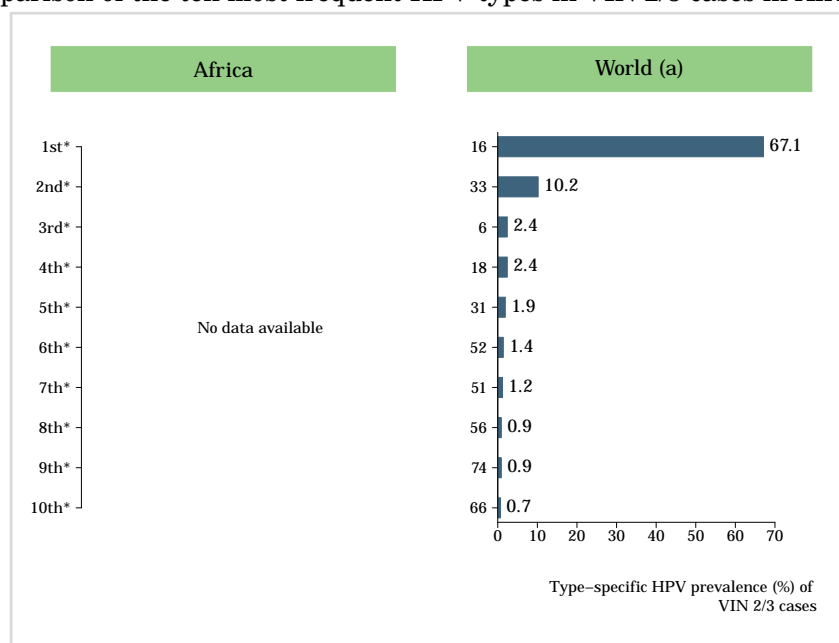
VIN 2/3: Vulvar intraepithelial neoplasia of grade 2/3;

^a Includes cases from Mali, Mozambique, Nigeria, and Senegal.

^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 50: Comparison of the ten most frequent HPV types in VIN 2/3 cases in Africa 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).

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

^a 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 Africa are presented.

Table 21: African 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 HPVs HPV type (%)
				%	(95% CI)	
Alemany (Africa)	2014	PCR-SPF10, EIA, (HPV 6, 11, 16, 18, 26, 30, 31, 33, 35, 39, 42, 45, 51, 52, 53, 56, 58, 59, 66, 67, 68, 69, 73, 82)	19	68.4	(46.0-84.6)	HPV 16 (31.6%) HPV 45 (10.5%) HPV 18 (5.3%) HPV 31 (5.3%) HPV 33 (5.3%)

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 Mozambique, Nigeria

Data sources: See references in Section 9.

Table 22: African 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 HPVs HPV type (%)
				%	(95% CI)	

No Data Available

-

-

-

-

-

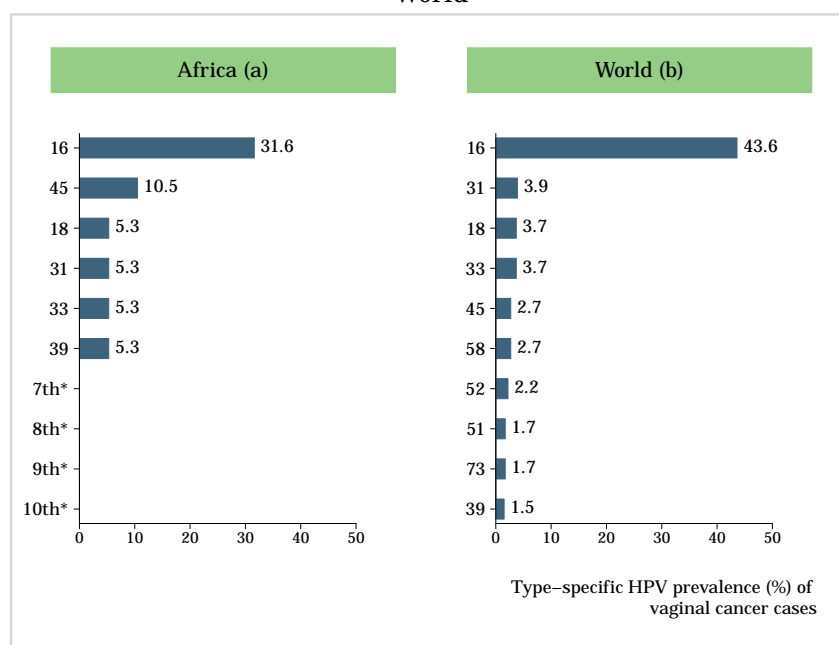
Data updated on 28 Jun 2017 (data as of 30 Jun 2015).

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

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

Data sources: See references in Section 9.

Figure 51: Comparison of the ten most frequent HPV types in vaginal cancer cases in Africa 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).

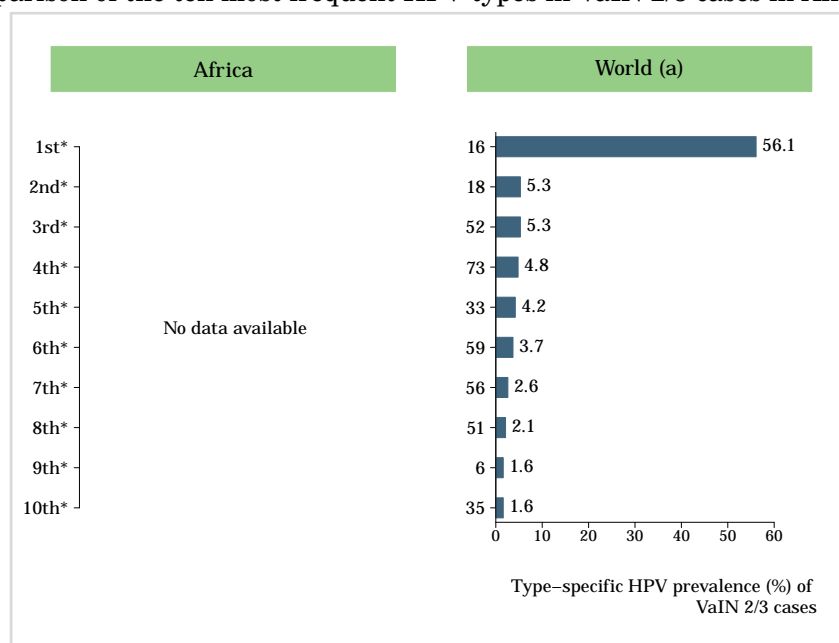
VAIN 2/3: Vaginal intraepithelial neoplasia of grade 2/3;

^a Includes cases from Mozambique, Nigeria.

^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 52: Comparison of the ten most frequent HPV types in VaIN 2/3 cases in Africa 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 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 Africa are presented.

Table 23: African 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)	
Alemaný 2016 (Africa)	PCR-SPF10, EIA, (HPV 6, 11, 16, 18, 26, 30, 31, 32, 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, 90, 91)	19	36.8	(19.1-59.0)	HPV 16 (26.3%) HPV 30 (5.3%) HPV 33 (5.3%) HPV 52 (5.3%)
Lebelo 2014 (South Africa)	PCR L1-Consensus primer, PCR-E6, PCR-E7, qPCR (HPV 6, 11, 16, 18, 31, 33, 35, 39, 45, 51, 52, 53, 56, 58, 59, 66, 67, 68)	40	87.5	(73.9-94.5)	HPV 16 (55.0%) HPV 11 (30.0%) HPV 18 (10.0%) HPV 45 (5.0%) HPV 6 (2.5%)
Tornesello 2008 (Uganda)	PCR-MY09/11, PCR-L1C1/C2, PCR-E6, PCR-E7, Sequencing (HPV 6, 16, 18, 33, 35)	17	64.7	(41.3-82.7)	HPV 16 (58.8%) HPV 6 (11.8%) HPV 18 (11.8%) HPV 33 (5.9%)

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;

Data sources: See references in Section 9.

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

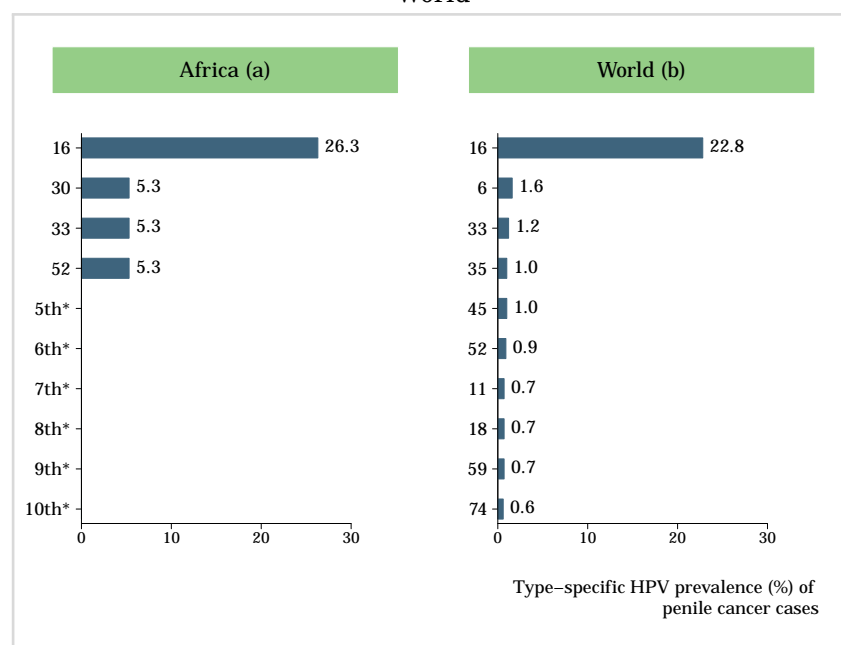
Study	HPV detection method and targeted Method	No. Tested	HPV prevalence		Prevalence of 5 most frequent HPVs HPV type (%)
			%	(95% CI)	
No Data Available	-	-	-	-	-

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 53: Comparison of the ten most frequent HPV types in penile cancer cases in Africa and the World



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

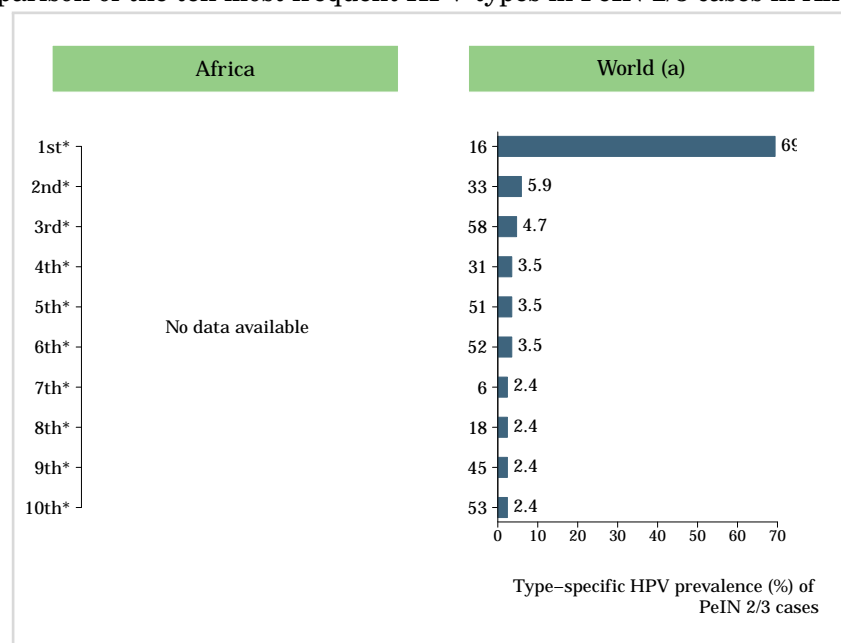
Data updated on 09 Feb 2017 (data as of 30 Jun 2015).

^a Includes cases from Mozambique, Nigeria, Senegal

^b Includes cases from Australia, Bangladesh, India, South Korea, Lebanon, Philippines, Chile, Colombia, Ecuador, Guatemala, Honduras, Mexico, Paraguay, Venezuela and United States, Mozambique, Nigeria, Senegal, Czech Republic, France, Greece, Poland, Portugal, Spain and United Kingdom.

Data sources: See references in Section 9.

Figure 54: Comparison of the ten most frequent HPV types in PeIN 2/3 cases in Africa 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 sub-groups 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 Africa 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: African studies on anogenital HPV prevalence among men

Country	Study	Anatomic sites samples	HPV detection method	Population	Age (years)	HPV prevalence		
						No	%	(95% CI)
Kenya	Ng'ayo 2008	Glans, corona sulcus, shaft of the penis, scrotum and the perianal region	PCR- PGMY09/MY11 and HMB01	Men working in the fishing industry	18-63	250	57.6	(51.2-63.8)
	Smith 2010	Shaft, glans, coronal sulcus, and inner and external foreskin tissue	PCR-GP5+/6+	Men screened to participate in an RCT of male circumcision	17-28	2705	51.1	(49.2-53.0)
Rwanda	Veldhuijzen 2012	Shaft, scrotum, glans/sulcus corona, and foreskin in uncircumcised men	PCR-Roche Linear Array HPV Genotyping test (HR-HPV types)	Men participating in a case-control study assessing risk factors for infertility	Median 31 (IQR=27- 38)	166	26.5	(20.0-33.9)
			PCR-Roche Linear Array HPV Genotyping test (LR-HPV types)	Men participating in a case-control study assessing risk factors for infertility	Median 31 (IQR=27- 38)	166	31.3	(24.4-39.0)
South Africa	Auvert 2010	Urethra	PCR-Roche Amplicor HPV test	Men recruited from the general population for an RCT of male circumcision	IQR=19- 22	1683	19.1	(17.2-21.0)

(Table 25 – continued from previous page)

(Table 25 – continued from previous page)

Country	Study	Anatomic sites samples	HPV detection method	Population	Age (years)	HPV prevalence		
						No	%	(95% CI)
	Mbulawa 2010	Shaft and glans, and the foreskin in uncircumcised men	PCR-Roche Linear Array HPV Genotyping test	HIV- heterosexual men recruited for investigations of genital HPV transmission	18-66	313	50.8	(45.1-56.5)
Tanzania	Olesen 2013	Glans, preputial cavity (uncircumcised men), coronal sulcus (circumcised men), shaft, corpus	PCR-LIPA and HC2	Men from the general population	Mean 34.2	1813	20.5	(18.7-22.5)
Uganda	Tobian 2013	Coronal sulcus and glans	PCR-PGMY09/11	HIV- heterosexual men	15-49	978	60.9	(57.8-64.0)

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;

Data sources: See references in Section 9.

Table 26: African 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)
South Africa	Firnhaber 2011	Prepuce, penile shaft and genital wart areas of the penis	PCR-Roche Linear Array HPV Genotyping test	Men with penile warts attending a public sector antiretroviral treatment clinic	Mean 36.0	73	100	(95.1-100.0)
	Mbulawa 2010	Shaft and glans, and the foreskin in uncircumcised men	PCR-Roche Linear Array HPV Genotyping test	HIV+ heterosexual men recruited for investigations of genital HPV transmission	19-67	158	77.2	(69.9-83.5)
	Müller 2010	Glans penis, coronal sulcus and penile shaft	PCR-Roche Linear Array HPV Genotyping test	Asymptomatic men attending for HIV voluntary counselling and testing a sexual health clinic	Mean 29.8	50	62	(47.2-75.3)
				Men with urethritis syndrome attending a sexual health clinic	Mean 29.8	56	48.2	(34.7-62.0)
		Glans penis, coronal sulcus, penile shaft and anogenital warts	PCR-Roche Linear Array HPV Genotyping test	Men with anogenital wart attending a sexual health clinic	Mean 29.8	108	100	(96.6-100.0)

(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)
	Vogt 2013	Coronal sulcus, glans and shaft	PCR-PGMY09/11	Heterosexual men attending an HIV testing centre	IQR=29- 37	34	58.8	(40.7-75.4)
Uganda	Tobian 2013	Coronal sulcus and glans	PCR-PGMY09/11	HIV+ heterosexual men	15-49	421	90.7	(87.6-93.3)

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

95% CI: 95% Confidence Interval;

PCR: Polymerase Chain Reaction;

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 Africa is presented.

4.4.1 Burden of oral HPV infection in healthy population

Table 27: African 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		Prev. of 5 most frequent HPV types (%)
						%	(95% CI)	
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: African 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's HPV type (%)
			%	(95% CI)	
MEN					
Boy 2006 (South Africa)	TS-PCR E1 for 16 and E7 for 18 Hybridization with TS probes (16, 18)	22	9.1	(2.5-27.8)	HPV 18 (9.1%)
Herrero 2003 (Sudan)	GP5+/GP6+ (L1) Hybridization with EIA oligonucleotide probes (2, 6, 11, 16, 18, 31, 33, 35, 39, 40, 42, 43, 44, 45, 51, 52, 56, 58, 59, 66, 68)	28	3.6	(0.6-17.7)	HPV 16 (3.6%)
WOMEN					
Boy 2006 (South Africa)	TS-PCR E1 for 16 and E7 for 18 Hybridization with TS probes (16, 18)	37	13.5	(5.9-28.0)	HPV 18 (13.5%)
Herrero 2003 (Sudan)	GP5+/GP6+ (L1) Hybridization with EIA oligonucleotide probes (2, 6, 11, 16, 18, 31, 33, 35, 39, 40, 42, 43, 44, 45, 51, 52, 56, 58, 59, 66, 68)	15	0.0	-	-
BOTH OR UNSPECIFIED					
Boy 2006 (South Africa)	TS-PCR E1 for 16 and E7 for 18 Hybridization with TS probes (16, 18)	59	11.9	(5.9-22.5)	HPV 18 (11.9%)
Van Rensburg 1996 (South Africa)	TS-PCR E6 for 6/11/16/18 Hybridization with TS probes (4, 16, 18)	146	1.4	(0.4-4.9)	HPV 11 (0.7%) HPV 16 (0.7%)
Herrero 2003 (Sudan)	GP5+/GP6+ (L1) Hybridization with EIA oligonucleotide probes (2, 6, 11, 16, 18, 31, 33, 35, 39, 40, 42, 43, 44, 45, 51, 52, 56, 58, 59, 66, 68)	43	2.3	(0.4-12.1)	HPV 16 (2.3%)

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

95% CI: 95% Confidence Interval;

EIA: Enzyme ImmunoAssay; PCR: Polymerase Chain Reaction; TS: Type Specific;

Data sources: See references in Section 9.

Table 29: African 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 (%)
			%	(95% CI)	
MEN					
Paquette (South Africa) 2013	PCR-GP5+/6+, PCR L1-Consensus primer, PCR-E6, PCR-E7, TS (HPV 16, 18, 31, 33, 52, 58)	-	-	-	-
WOMEN					
Paquette (South Africa) 2013	PCR-GP5+/6+, PCR L1-Consensus primer, PCR-E6, PCR-E7, TS (HPV 16, 18, 31, 33, 52, 58)	-	-	-	-
BOTH OR UNSPECIFIED					
Paquette (South Africa) 2013	PCR-GP5+/6+, PCR L1-Consensus primer, PCR-E6, PCR-E7, TS (HPV 16, 18, 31, 33, 52, 58)	55	74.5	(61.7-84.2)	HPV 16 (61.8%) HPV 31 (21.8%) HPV 18 (7.3%)

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

95% CI: 95% Confidence Interval;

(Continued on next page)

(Table ?? – continued from previous page)

PCR: Polymerase Chain Reaction; TS: Type Specific;
 Data sources: See references in Section 9.

Table 30: African 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).

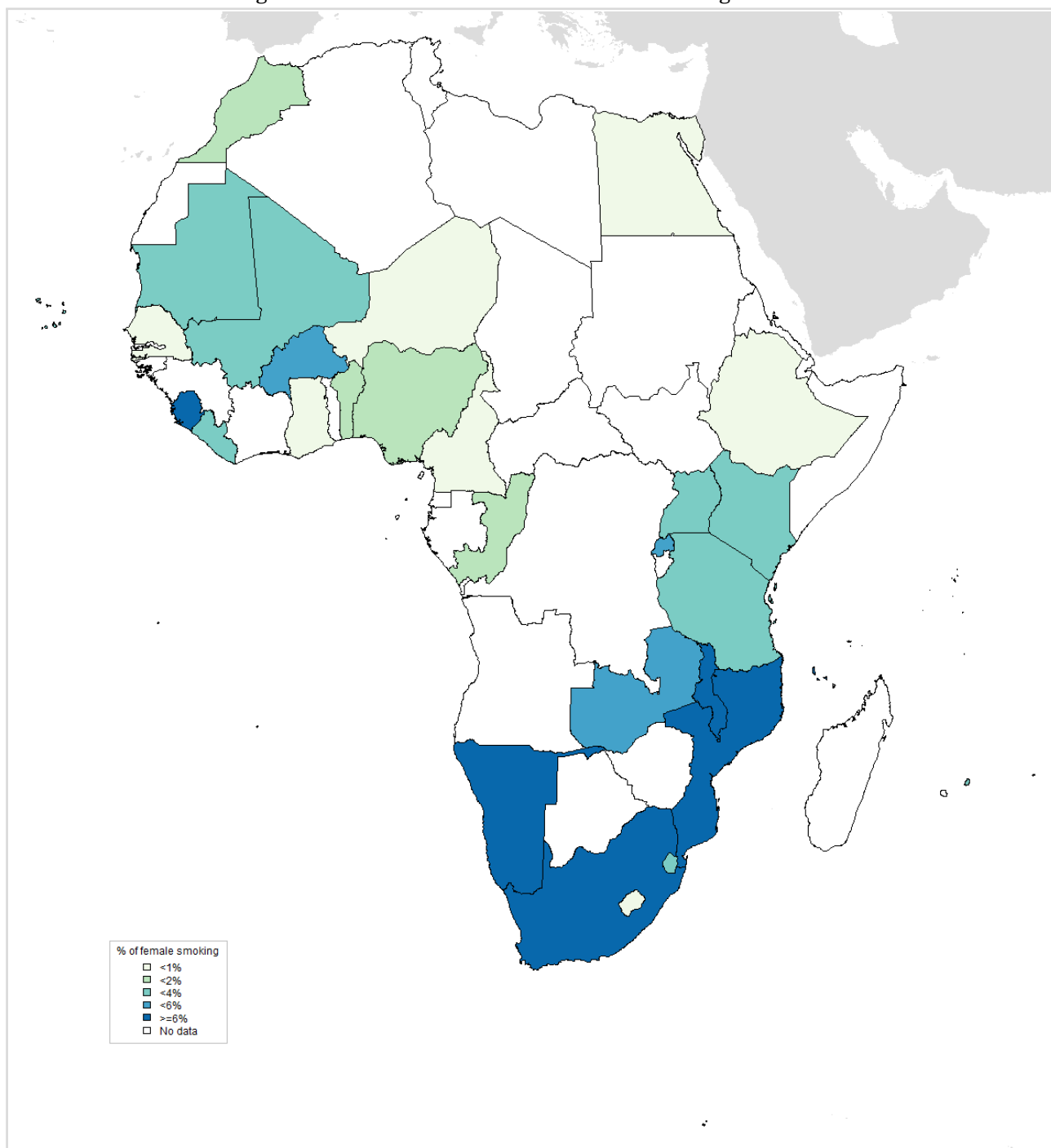
95% CI: 95% Confidence Interval;

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 Africa are presented.

Figure 55: Prevalence of female tobacco smoking in Africa



Data accessed on 22 Mar 2017.

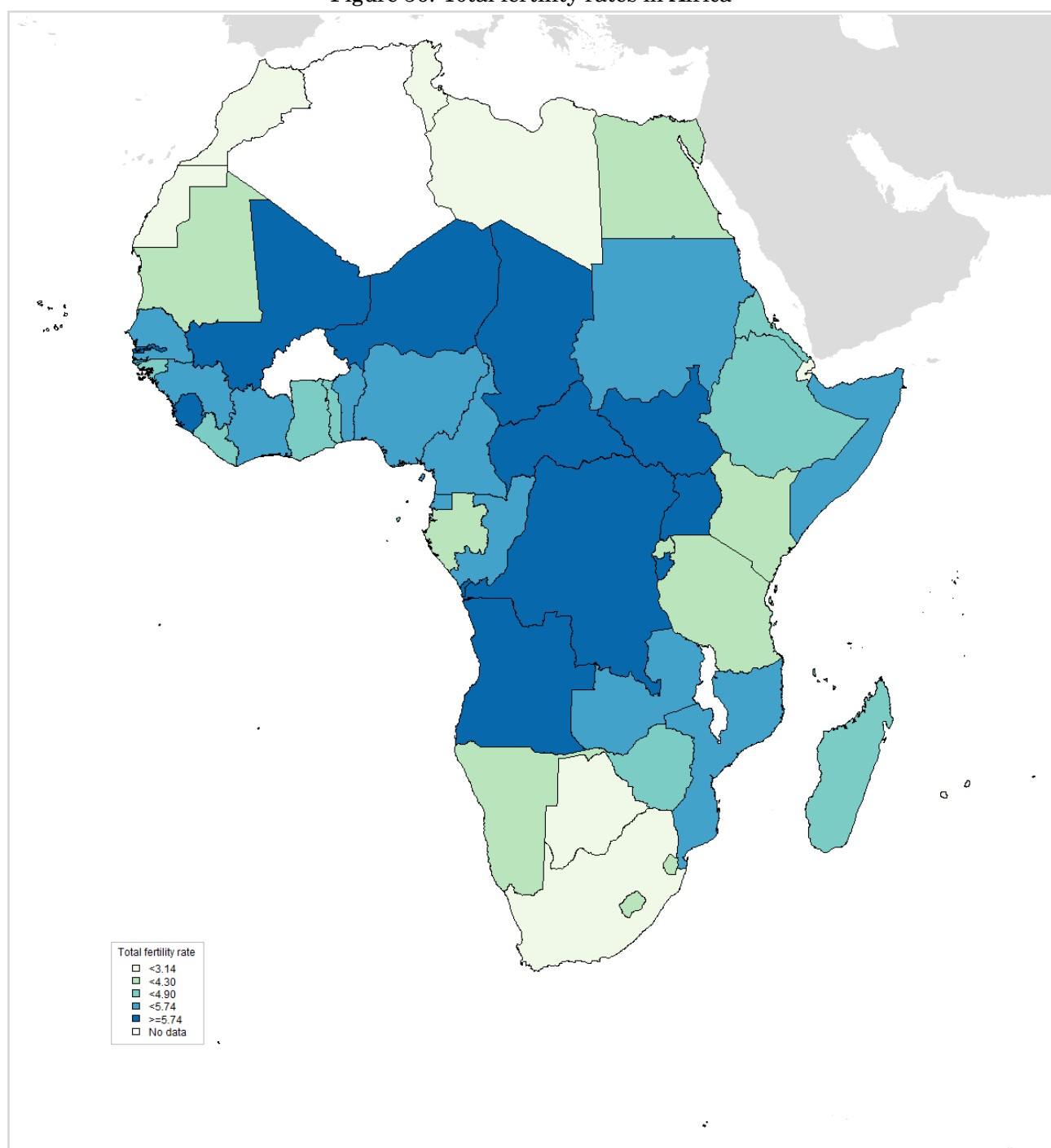
Adjusted and age-standardized prevalence estimates of tobacco use by country, for the year 2013. These rates are constructed solely for the purpose of comparing tobacco use prevalence estimates across countries, and should not be used to estimate the number of smokers in the population.

(Continued on next page)

(Figure 55 – continued from previous page)

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 56: Total fertility rates in Africa



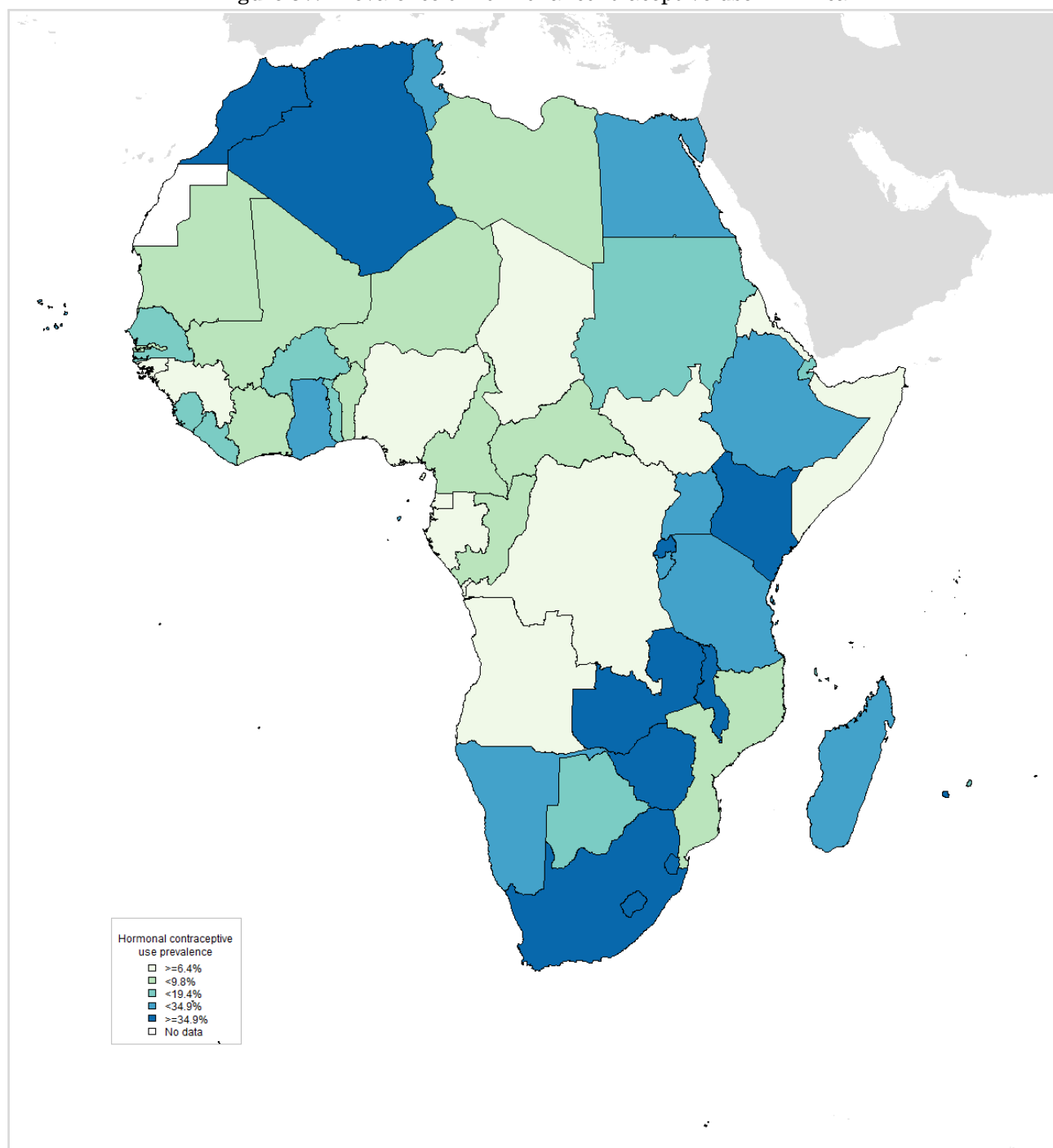
Data accessed on 22 Mar 2017.

For Libya: 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 Angola, Burundi, Benin, Burkina Faso, Botswana, Central African Republic, Côte d'Ivoire, Cameroon, DR Congo, Congo, Comoros, Cape Verde, Djibouti, Algeria, Egypt, Eritrea, Western Sahara, Ethiopia, Gabon, Ghana, Guinea, Gambia, Guinea-Bissau, Equatorial Guinea, Kenya, Liberia, Libya, Lesotho, Morocco, Madagascar, Mali, Mozambique, Mauritania, Mauritius, Malawi, Mayotte, Namibia, Niger, Nigeria, Reunion, Rwanda, Sudan, Senegal, Sierra Leone, Somalia, South Sudan, Sao Tome & Principe, Swaziland, Chad, Togo, Tunisia, Tanzania, Uganda, South Africa, Zambia, Zimbabwe: 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 57: Prevalence of hormonal contraceptive use in Africa



Data accessed on 22 Mar 2017.

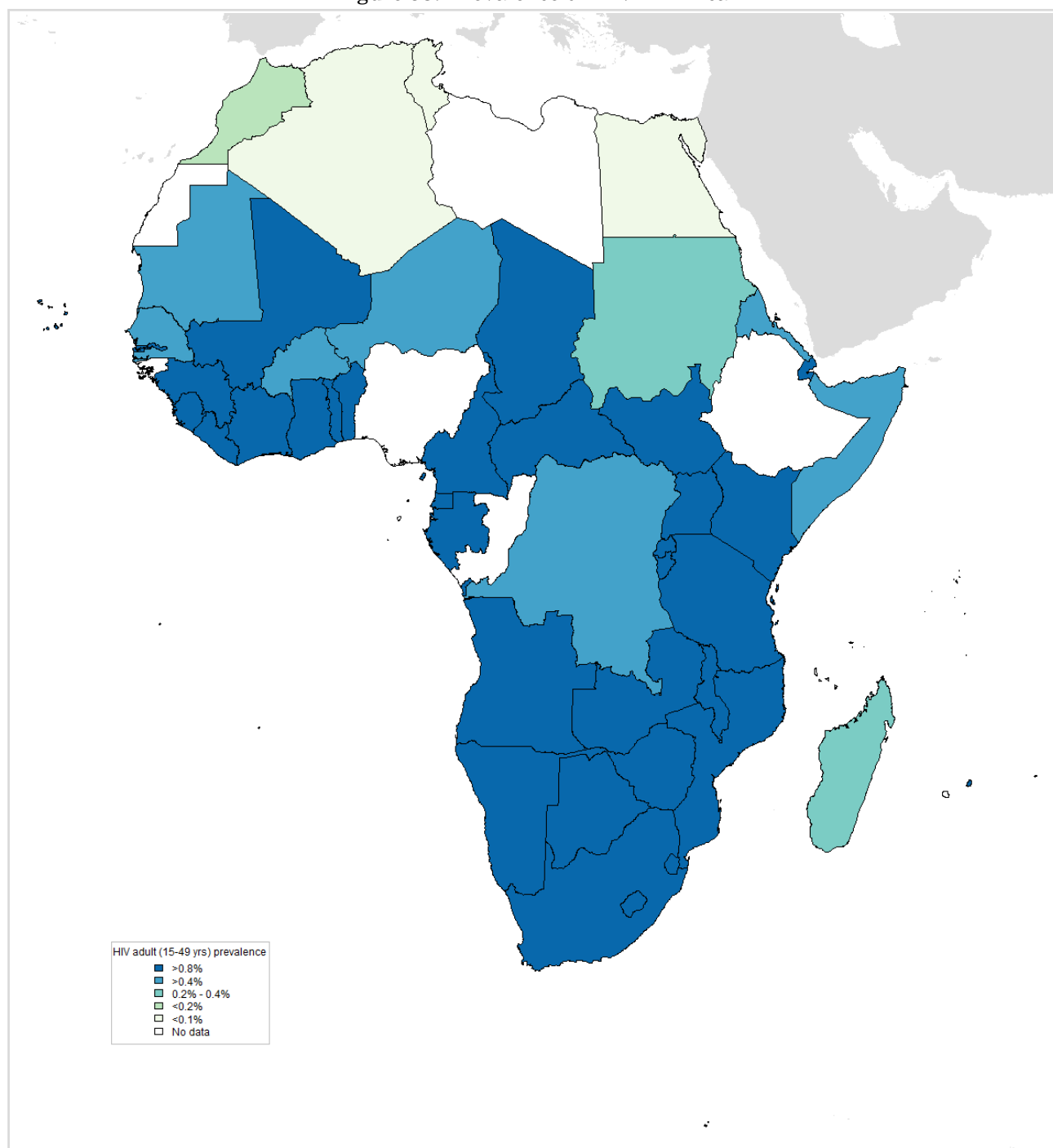
Proportion (%) of women using hormonal contraception (pill, injectable or implant), among those of reproductive age who are married or in union.

For Botswana, Reunion: Data pertain to all women of reproductive age, irrespective of marital status.

For Chad: Includes sexually active unmarried 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 58: Prevalence of HIV in Africa

**Data accessed on 22 Mar 2017.**

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

For Benin: PMTCT numerator for 2015 was unavailable at the time of development of projection

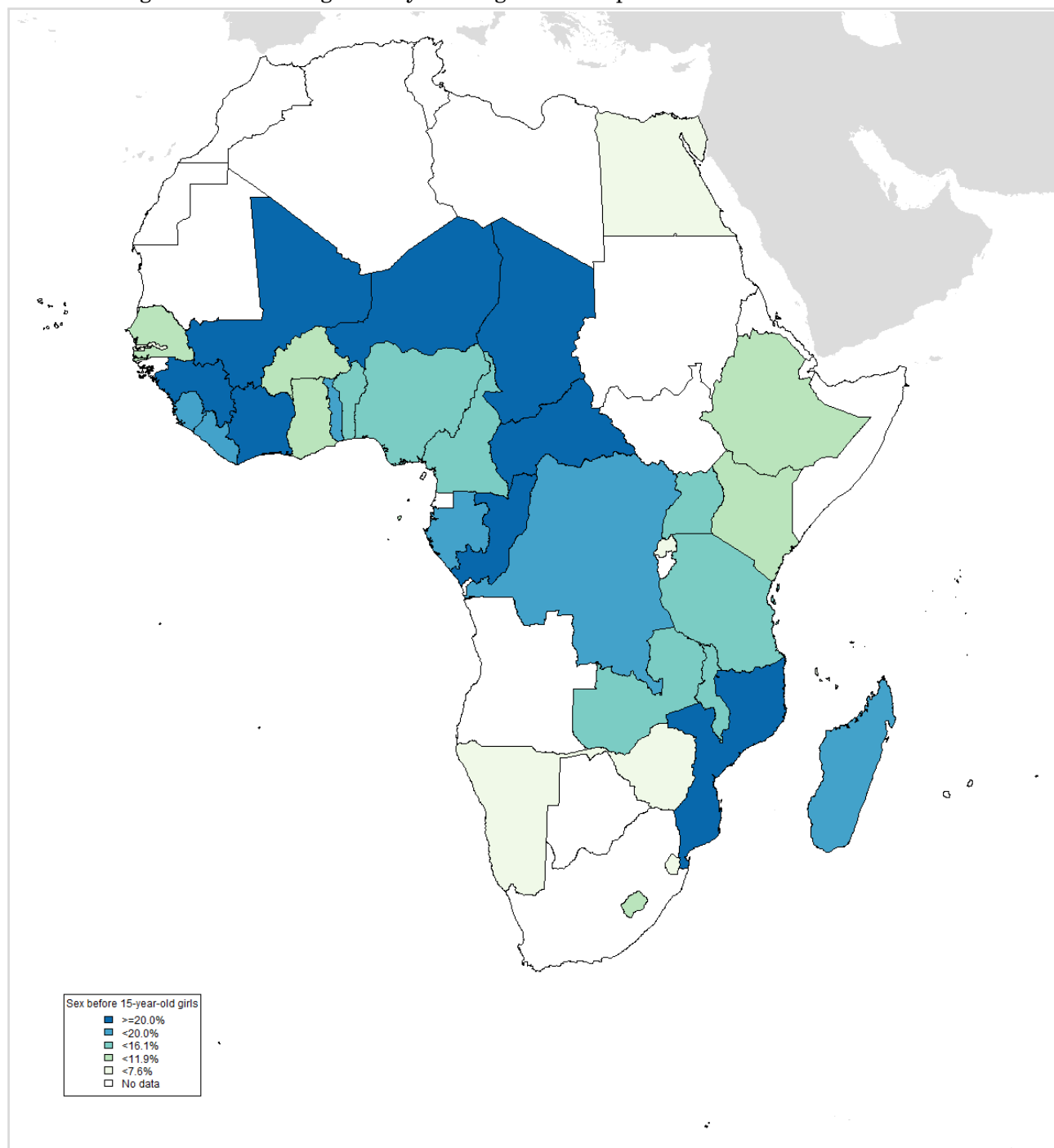
For Mauritius, Tunisia: Child estimates not published due to small numbers

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 Africa is presented.

Figure 59: Percentage of 15-year-old girls who report sexual intercourse in Africa



Data accessed on 16 Mar 2017.

For Benin, Congo, Ethiopia, Guinea, Liberia, Lesotho, Madagascar, Niger, Senegal, Swaziland, Uganda, Zambia, Zimbabwe: Percentage of all 15- to 19-year-olds who report having had sex before the age of 15 years in MEASURE DHS (Demographic and Health Surveys), STATcompiler (<http://www.statcompiler.com/>) or HIV/AIDS Survey Indicator database (<http://www.measuredhs.com/hivdata/>).

For Benin, Congo, Ethiopia, Guinea, Liberia, Lesotho, Madagascar, Niger, Senegal, Swaziland, Uganda, Zambia, Zimbabwe: Year of estimation: 2005-2010

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For Burkina Faso, Côte d'Ivoire, Cameroon, DR Congo, Comoros, Egypt, Gabon, Ghana, Gambia, Kenya, Mali, Mozambique, Malawi, Namibia, Nigeria, Rwanda, Sierra Leone, Sao Tome & Principe, Tanzania: Percentage of all 15- to 19-year-olds who report having had sex before the age of 15 years.

For Burkina Faso: Year of estimation: 2010

For Central African Republic, Chad, Togo: 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 Central African Republic, Chad, Togo: Year of estimation: not reported

For Côte d'Ivoire: Year of estimation: 2011-2012

For Cameroon, Mozambique: Year of estimation: 2011

For DR Congo: Year of estimation: 2013-2014

For Comoros, Gabon: Year of estimation: 2012

For Egypt, Ghana, Kenya: Year of estimation: 2014

For Gambia, Namibia, Nigeria, Sierra Leone: Year of estimation: 2013

For Mali: Year of estimation: 2012-2013

For Malawi, Tanzania: Year of estimation: 2015-2016

For Rwanda: Year of estimation: 2014-2015

For Sao Tome & Principe: Year of estimation: 2008-2009

Data sources:

For Benin, Congo, Ethiopia, Guinea, Liberia, Lesotho, Madagascar, Niger, Senegal, Swaziland, Uganda, Zambia, Zimbabwe: The sexual behaviour of adolescents in sub-Saharan Africa: patterns and trends from national surveys. Doyle AM, Mavedzenge SN, Plummer ML, Ross DA. *Trop Med Int Health*. 2012 Jul;17(7):796-807. doi: 10.1111/j.1365-3156.2012.03005.x. Review. PMID:22594660.

Burkina Faso, Côte d'Ivoire, Cameroon, DR Congo, Comoros, Egypt, Gabon, Ghana, Gambia, Kenya, Mali, Mozambique, Malawi, Namibia, Nigeria, Rwanda, Sierra Leone, Sao Tome & Principe, Tanzania: ICF International, 2015. The DHS (Demographic and Health Surveys) Program STATcompiler. Funded by USAID. <http://www.statcompiler.com>. Accessed on March 16 2017.

Central African Republic, Chad, Togo: 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 Africa.

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 Africa

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
Algeria	Yes	Yes ^A	No	Cytology		25/30-60/65	3 Years
Angola	No	-	-	-	VIA	-	-
Benin	Yes	No	No	Cytology	VIA	-	-
Botswana	Yes	No ^A	No	VIA		30-49	5 years
Burkina Faso	Yes	No	No	Cytology	VIA	-	-
Burundi	No	-	-	-		-	-
Cameroon	Yes	No	No	Cytology/VIA		-	-
Cape Verde	Yes	No	No	Cytology/VIA		20-49	-
CAR	No	-	-	-		-	-
Chad	No	-	-	-		-	-
Comoros	No	-	-	-		-	-
Congo	No	-	-	-	VIA	-	-
Congo DR	No	-	-	-		-	-
Côte d'Ivoire	Yes	No	No	Cytology/VIA		30-50 (VIA), unknown (cytology)	-
Djibouti	No	-	-	-		-	-
Egypt	Yes	No	No	Cytology		20-50	-
Eq. Guinea	No	-	-	-		-	-
Eritrea	No	-	-	-		-	-
Ethiopia	No	-	-	-	VIA	-	-
Gabon	Yes	Yes	No	VIA		Above 25	3 years
Gambia	Yes	No	No	-	VIA	-	-

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(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 ^b	Active invitation to screening ^c	Main screening test used for primary screening	Demonstration projects	Screening ages (years)	Screening interval or frequency of screenings
Ghana	Yes	No	No	VIA/Cytology		25 to 45 (VIA)/Above 45 (cytology)	3-5 years
Guinea	No	-	-	-	VIA pilot program in Khorira and Conakry (2003) and Faranah Kankan and Siguiri (2005)	-	-
Guinea-Bissau	No	-	-	-		-	-
Kenya	Yes	No	No	VIA/Cytology		25-49	5 years
Lesotho	Yes	-	-	VIA		-	-
Liberia	No	-	-	-		-	-
Libya	No	-	-	-		-	-
Madagascar	Yes	No	No	VIA		30-50	3-5 years
Malawi	Yes	No	No	VIA		30-50	3-5 years
Mali	No	-	-	-	VIA pilot program for women ages 30-59 (interval 3-5 years)	-	-
Mauritania	No	-	-	-	VIA	-	-
Mauritius	Yes	No	No	VIA		35-55/60	5 years
Morocco	Yes	Yes ^A	No	VIA		30-50	3 years
Mozambique	Yes	-	-	VIA		30-55	-
Namibia	Yes	No	No	Cytology	VIA	21-64 (cytology)	1 year
Niger	Yes	-	-	VIA		-	-
Nigeria	No	-	-	-	VIA pilot program for women between 30-50 years (interval 3-5 years)	-	-
Rwanda	Yes	-	-	HPV test/VIA (if positive HPV test)	-	35-45	7 years
S.Tome & Prin.	No	-	-	-		-	-
Senegal	Yes	No	No	Cytology	VIA	25-65 (cytology)	2 year
Seychelles	Yes	-	-	Cytology		Sexually active (not specified age)	2 years
Sierra Leone	No	-	-	-	VIA	-	-
Somalia	No	-	-	-		-	-
South Africa	Yes	No	No	Cytology	VIA	Above 30	10 years

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(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
South Sudan	No	-	-	-		-	-
Sudan	No	-	-	-	VIA pilot program in Khartoum (2009-2010)	-	-
Swaziland	Yes	-	No	VIA/Cytology		25-45	2 years
Tanzania	Yes	No	No	VIA		30-50	3 years
Togo	Yes	No	No	Cytology	VIA	35-65 (cytology)	-
Tunisia	Yes	Yes ^A	No	Cytology		35-65	5 Years
Uganda	Yes	No ^A	No	VIA/Cytology	HPV test	25-65 (cytology), 25-49 (VIA)	3 years
Zambia	Yes	No	No	VIA		25-49	3-5 years
Zimbabwe	Yes	No	No	VIA		25-59	3 years

Data accessed on 31 Dec 2016.^A Implementation is in progress.^B It launched a 5-year cancer control strategy (October 2015), not access to the document.^C Partnership between Gabon Health Ministry and Sylvia Bongo Ondimba Foundation. The implementation of the program started in 2014 in two health regions (Libreville-Owendo Estuary and West), and the widespread is taking place gradually at a rate of 2 to 3 new regions/year.^D According to the national plan for health development 2015-2024, a cervical cancer screening program for women aged 20-64 is under development.^E The national screening program started in January 2013.^F The screening program started in 2009 in 4 of its 11 provinces (Maputo, Nampula, Sofala, Zambézia).^G The national screening program started in 2009.^H For HIV positive women, target age is 30-50 years and interval is 3 years.^I Women with sexually transmitted diseases screened for cervical cancer at diagnosis and every 5 years and other women over 30 years old screened every 10 years.^J VIA recommended for pre-menopausal women, and Pap smear for post-menopausal women.^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 60: Status of HPV vaccination programmes in Africa

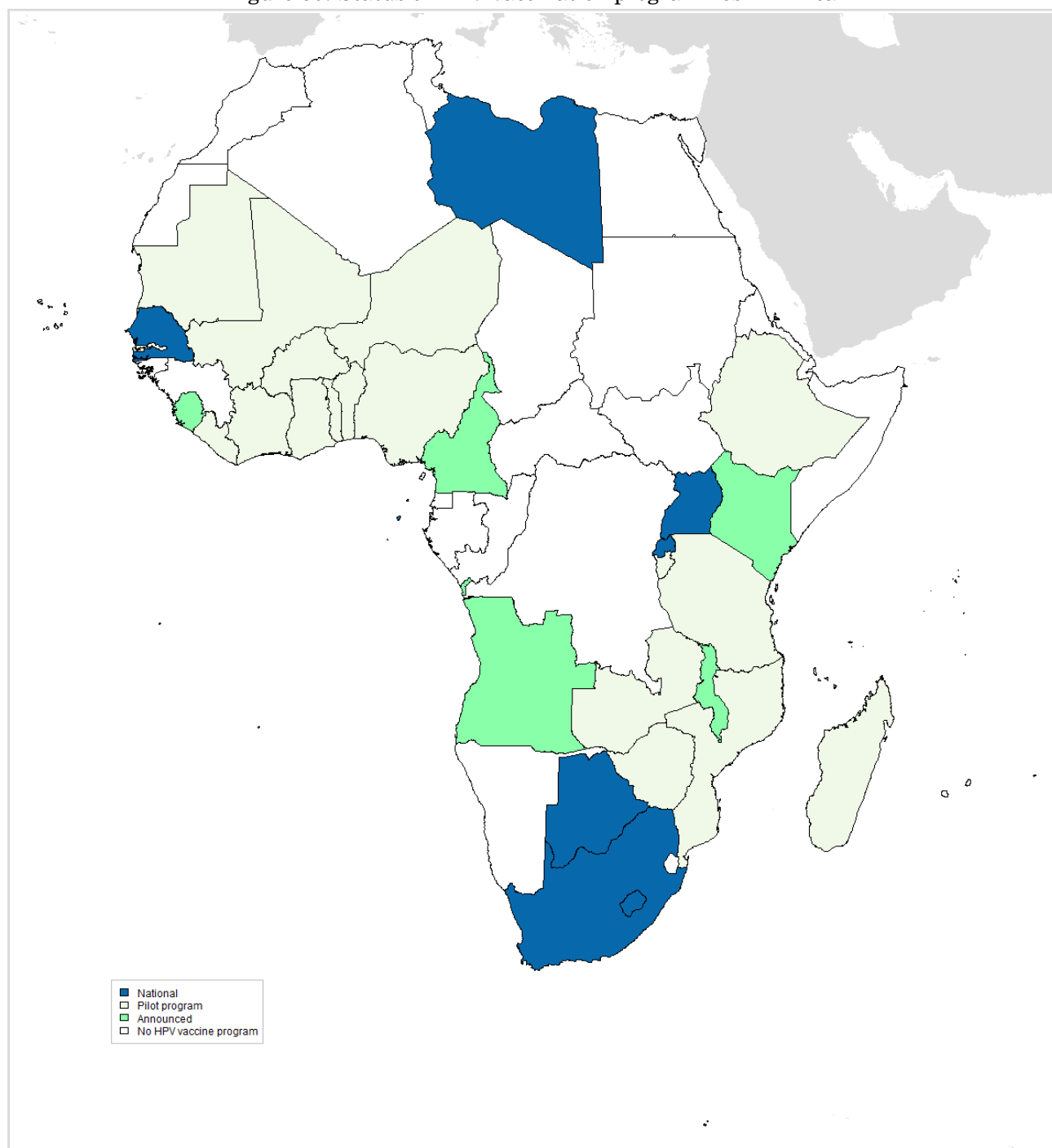


Table 32: HPV vaccination policies for the female population in Africa

Country	Routine Immunization	
	HPV vaccination programme	Date of start
Algeria	No program	-
Angola	Announced	-
Benin	Pilot	-
Botswana	National program	2015
Burkina Faso	Pilot	-
Burundi	Pilot	-
Cameroon	Announced	-
Cape Verde	No program	-
Central African Republic	No program	-
Chad	No program	-
Comoros	No program	-
Congo	No program	-
Côte d'Ivoire	Pilot	-
Democratic Republic of the Congo	No program	-
Djibouti	No program	-
Egypt	No program	-
Equatorial Guinea	No program	-
Eritrea	No program	-
Ethiopia	Pilot	-
Gabon	No program	-
Gambia	Pilot	-
Ghana	Pilot	-
Guinea	No program	-
Guinea-Bissau	No program	-
Kenya	Announced	-
Lesotho	National program	2012
Liberia	Pilot	-
Libya	National program	2013
Madagascar	Pilot	-
Malawi	Announced	-
Mali	Pilot	-
Mauritania	Pilot	-
Mauritius	No program	-
Morocco	No program	-
Mozambique	Pilot	-
Namibia	No program	-
Niger	Pilot	-
Nigeria	Pilot	-
Rwanda	National program	2011
Sao Tome and Principe	National program	2016
Senegal	National program	2016
Seychelles	National program	2014
Sierra Leone	Announced	-
Somalia	No program	-
South Africa	National program	2014
South Sudan	No program	-
Sudan	No program	-
Swaziland	No program	-
Togo	Pilot	-
Tunisia	No program	-
Uganda	National program	2012
United Republic of Tanzania	Pilot	-
Western Sahara	No program	-

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(Table 32 – continued from previous page)

Country	Routine Immunization	
	HPV vaccination programme	Date of start
Zambia	Pilot	-
Zimbabwe	Pilot	-

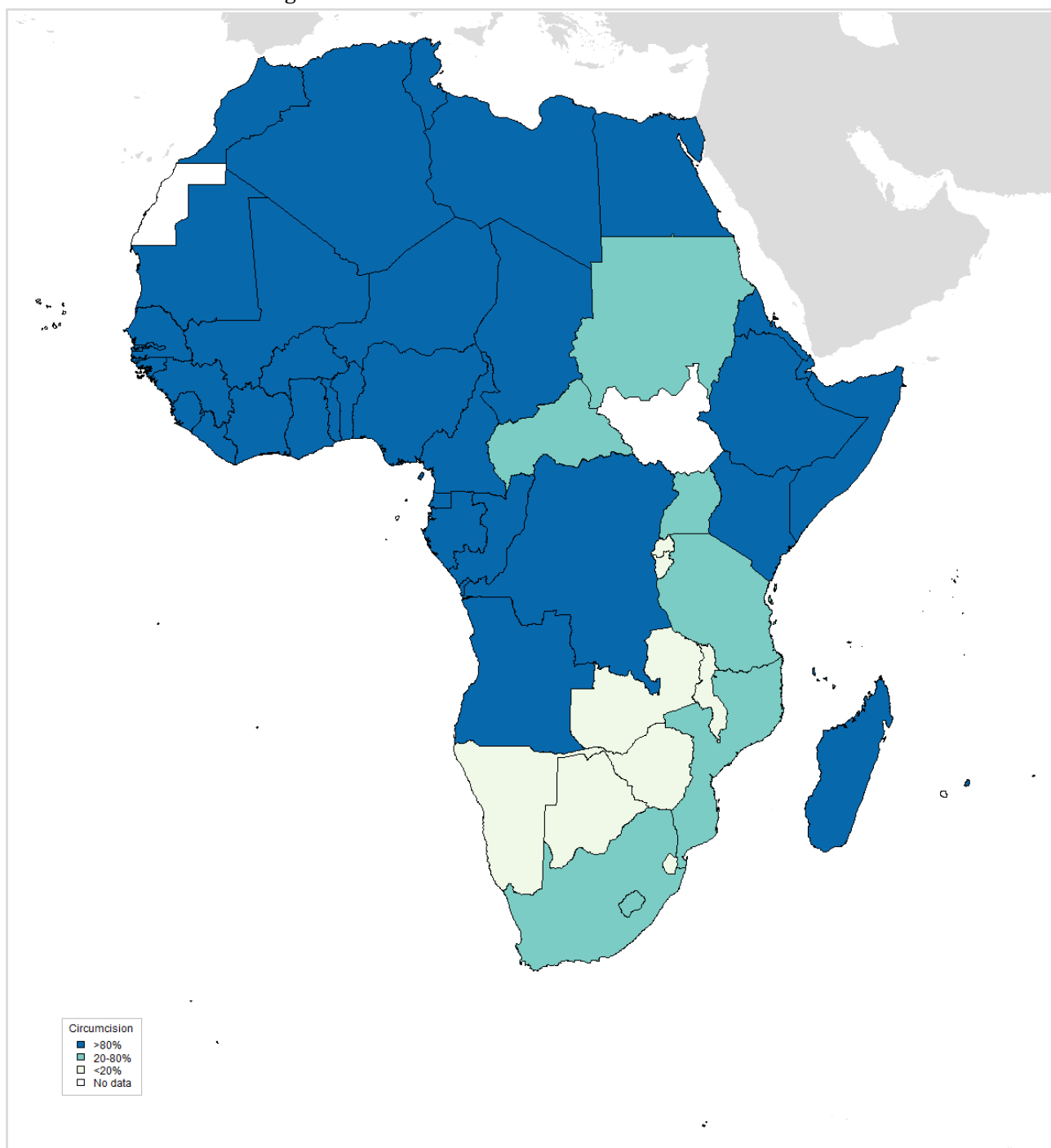
Data accessed on 31 Dec 2016.Data sources:

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 61: Prevalence of male circumcision in Africa



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 Angola, Botswana, Central African Republic, Djibouti, Eritrea, Gambia, Guinea-Bissau, Equatorial Guinea, Mauritania, Sudan, Somalia: Drain PK, BMC Infect Dis 2006; 6: 172 |

WHO 2007: Male circumcision: Global trends and determinants of prevalence, safety and acceptability | Williams BG, PLoS Med 2006; 3: e262

Burundi, Burkina Faso, Malawi, Rwanda, Tanzania, Zimbabwe: 2010 Demographic and Health Surveys (DHS) | Drain PK, BMC Infect Dis 2006; 6: 172 | WHO 2007: Male circumcision: Global trends and determinants of prevalence, safety and acceptability | Williams BG, PLoS Med 2006; 3: e262

Benin: 2012 Demographic and Health Surveys (DHS) | Auvert B, AIDS 2001; 15 Suppl 4: S31 | Drain PK, BMC Infect Dis 2006; 6: 172 | WHO 2007: Male circumcision: Global trends and determinants of prevalence, safety and acceptability | Williams BG, PLoS Med 2006; 3: e262

Côte d'Ivoire, Gabon, Mali: 2012 Demographic and Health Surveys (DHS) | Drain PK, BMC Infect Dis 2006; 6: 172 | WHO 2007: Male circumcision: Global trends and determinants of prevalence, safety and acceptability | Williams BG, PLoS Med 2006; 3: e262

Cameroon: 2011 Demographic and Health Surveys (DHS) | Auvert B, AIDS 2001; 15 Suppl 4: S31 | Drain PK, BMC Infect Dis 2006; 6: 172 | WHO 2007: Male circumcision: Global trends and determinants of prevalence, safety and acceptability | Williams BG, PLoS Med 2006; 3: e262

DR Congo: 2007 Demographic and Health Surveys (DHS) | Drain PK, BMC Infect Dis 2006; 6: 172 | WHO 2007: Male circumcision: Global trends and determinants of prevalence, safety and acceptability | Williams BG, PLoS Med 2006; 3: e262

Congo, Ethiopia, Mozambique: 2011 Demographic and Health Surveys (DHS) | Drain PK, BMC Infect Dis 2006; 6: 172 | WHO 2007: Male circumcision: Global trends and determinants of prevalence, safety and acceptability | Williams BG, PLoS Med 2006; 3: e262

(Continued on next page)

(Figure 61 – continued from previous page)

Comoros: 2012 Demographic and Health Surveys (DHS) | Drain PK, BMC Infect Dis 2006; 6: 172 | WHO 2007: Male circumcision: Global trends and determinants of prevalence, safety and acceptability

Cape Verde, Algeria, Egypt, Libya, Morocco, Mauritius, Tunisia: Drain PK, BMC Infect Dis 2006; 6: 172 | WHO 2007: Male circumcision: Global trends and determinants of prevalence, safety and acceptability

Ghana: 2008 Demographic and Health Surveys (DHS) | Drain PK, BMC Infect Dis 2006; 6: 172 | WHO 2007: Male circumcision: Global trends and determinants of prevalence, safety and acceptability | Williams BG, PLoS Med 2006; 3: e262

Guinea, Senegal: 2005 Demographic and Health Surveys (DHS) | Drain PK, BMC Infect Dis 2006; 6: 172 | WHO 2007: Male circumcision: Global trends and determinants of prevalence, safety and acceptability | Williams BG, PLoS Med 2006; 3: e262

Kenya: 2008 Demographic and Health Surveys (DHS) | Auvert B, AIDS 2001; 15 Suppl 4: S31 | Drain PK, BMC Infect Dis 2006; 6: 172 | Lavreys L, J Infect Dis 1999; 180: 330 | Ng'ayo MO, Sex Transm Infect 2008; 84: 62 | WHO 2007: Male circumcision: Global trends and determinants of prevalence, safety and acceptability | Williams BG, PLoS Med 2006; 3: e262

Liberia, Namibia, Nigeria, Sierra Leone, Togo: 2013 Demographic and Health Surveys (DHS) | Drain PK, BMC Infect Dis 2006; 6: 172 | WHO 2007: Male circumcision: Global trends and determinants of prevalence, safety and acceptability | Williams BG, PLoS Med 2006; 3: e262

Lesotho: 2009 Demographic and Health Surveys (DHS) | Drain PK, BMC Infect Dis 2006; 6: 172 | WHO 2007: Male circumcision: Global trends and determinants of prevalence, safety and acceptability | Williams BG, PLoS Med 2006; 3: e262

Madagascar: 2008 Demographic and Health Surveys (DHS) | Drain PK, BMC Infect Dis 2006; 6: 172 | WHO 2007: Male circumcision: Global trends and determinants of prevalence, safety and acceptability

Niger, Swaziland: 2006 Demographic and Health Surveys (DHS) | Drain PK, BMC Infect Dis 2006; 6: 172 | WHO 2007: Male circumcision: Global trends and determinants of prevalence, safety and acceptability | Williams BG, PLoS Med 2006; 3: e262

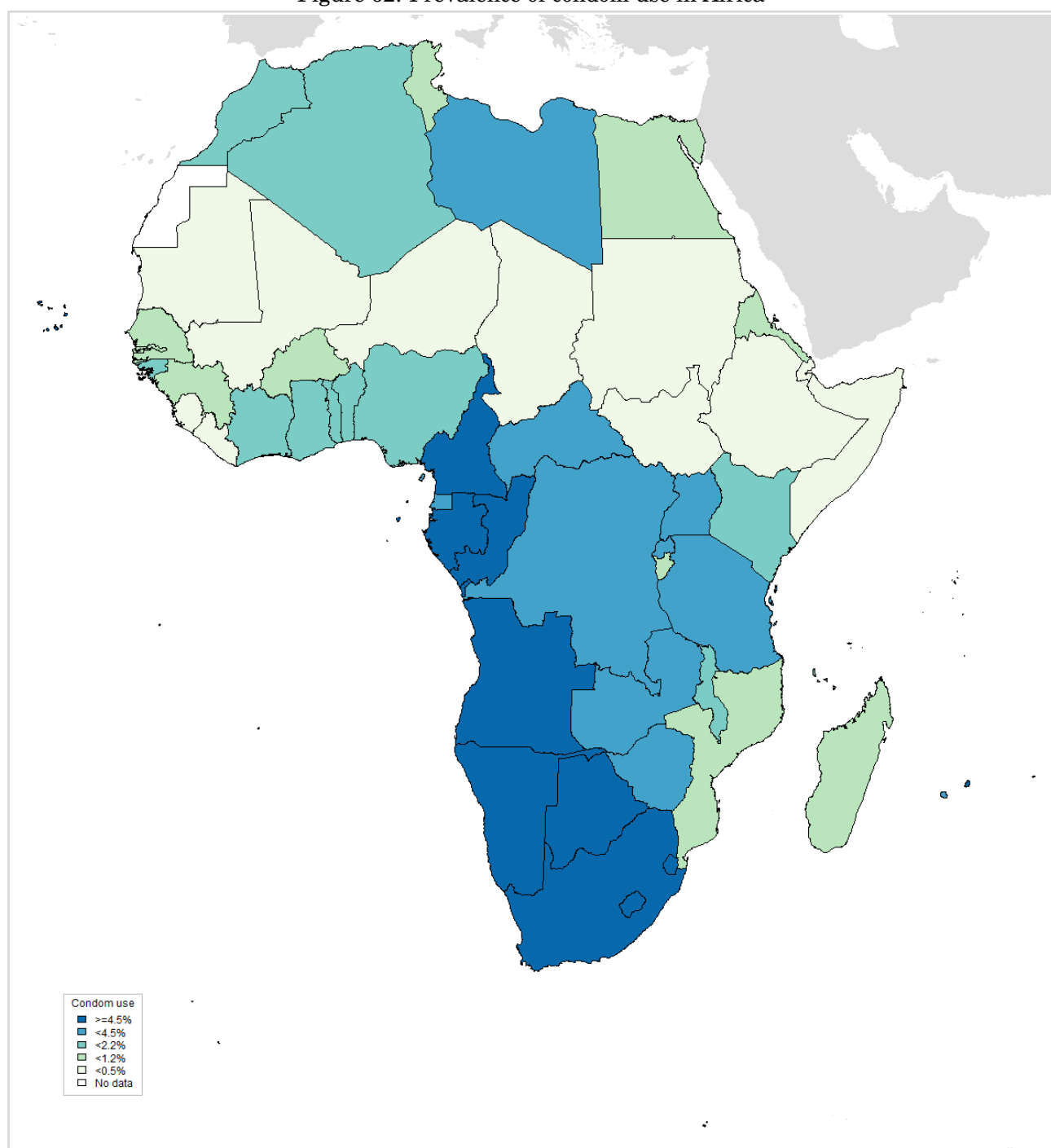
Chad: 2004 Demographic and Health Surveys (DHS) | Drain PK, BMC Infect Dis 2006; 6: 172 | WHO 2007: Male circumcision: Global trends and determinants of prevalence, safety and acceptability | Williams BG, PLoS Med 2006; 3: e262

Uganda: 2011 Demographic and Health Surveys (DHS) | Drain PK, BMC Infect Dis 2006; 6: 172 | Tobian AA, N Engl J Med 2009; 360: 1298 | WHO 2007: Male circumcision: Global trends and determinants of prevalence, safety and acceptability | Williams BG, PLoS Med 2006; 3: e262

South Africa: Auvert B, J Infect Dis 2009; 199: 14 | Drain PK, BMC Infect Dis 2006; 6: 172 | WHO 2007: Male circumcision: Global trends and determinants of prevalence, safety and acceptability | Williams BG, PLoS Med 2006; 3: e262

Zambia: 2013 Demographic and Health Surveys (DHS) | Auvert B, AIDS 2001; 15 Suppl 4: S31 | Drain PK, BMC Infect Dis 2006; 6: 172 | WHO 2007: Male circumcision: Global trends and determinants of prevalence, safety and acceptability | Williams BG, PLoS Med 2006; 3: e262

Figure 62: Prevalence of condom use in Africa

**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 Angola: Angola 2008-2009 Inquerito Integrado Sobre o Bem-estar da Populacão (IBEP)

Burundi: Burundi 2012 Enquête ménages pour le suivi et l'évaluation de l'impact de l'appui au système de remboursement du Paquet Minimum des Services de santé

Benin: Benin 2014 Multiple Indicator Cluster Survey

Burkina Faso: Burkina Faso 2015 PMA2020

Botswana: Botswana 2007 Family Health Survey - Multiple Indicator Cluster Survey

Central African Republic: Central African Republic 2010 Multiple Indicator Cluster Survey

Côte d'Ivoire: Côte d'Ivoire 2011-2012 Demographic and Health Survey

Cameroon: Cameroon 2014 Multiple Indicator Cluster Survey

DR Congo: Democratic Republic of the Congo 2013-2014 Demographic and Health Survey

Congo: Congo 2014-2015 Multiple Indicator Cluster Survey

Comoros: Comoros 2012 Demographic and Health Survey and Multiple Indicator Cluster Survey

Cape Verde: Cape Verde 2005 Demographic and Reproductive Health Survey

Djibouti: Djibouti 2012 Family Health Survey

Algeria: Algeria 2012-2013 Multiple Indicator Cluster Survey

Egypt: Egypt 2014 Demographic and Health Survey

Eritrea: Eritrea 2010 Population and Health Survey

Ethiopia: Ethiopia 2015 PMA2020 Round 3

(Continued on next page)

(Figure 62 – continued from previous page)

Gabon: Gabon 2012 Demographic and Health Survey
Ghana: Ghana 2015 PMA2020 Round 4
Guinea: Guinea 2012 Demographic and Health Survey
Gambia: Gambia 2013 DHS
Guinea-Bissau: Guinea-Bissau 2014 Multiple Indicator Cluster Survey
Equatorial Guinea: Equatorial Guinea 2011 Demographic and Health Survey
Kenya: Kenya 2015 PMA Round 4
Liberia: Liberia 2013 Demographic and Health Survey
Libya: Libya 2007 Family Health Survey
Lesotho: Lesotho 2014 Demographic and Health Survey
Morocco: Morocco 2011 Enquête Nationale sur la Population et la Santé Familiale
Madagascar: Madagascar 2008-2009 Demographic and Health Survey
Mali: Mali 2012-2013 Demographic and Health Survey
Mozambique: Mozambique 2011 Demographic and Health Survey
Mauritania: Mauritania 2011 Multiple Indicator Cluster Survey
Mauritius: Mauritius 2014 Contraceptive Prevalence Survey
Malawi: Malawi 2013-2014 Multiple Indicator Cluster Survey
Namibia: Namibia 2013 Demographic and Health Survey
Niger: Niger 2012 Demographic and Health Survey
Nigeria: Nigeria 2013 Demographic and Health Survey
Reunion: Reunion 1997 Enquête DEMO97, volet Famille
Rwanda: Rwanda 2014-2015 Demographic and Health Survey (DHS)
Sudan: Sudan 2014 Multiple Indicator Cluster Survey
Senegal: Senegal 2015 Demographic and Health Survey
Sierra Leone: Sierra Leone 2013 Demographic and Health Survey
Somalia: Somalia 2006 Multiple Indicator Cluster Survey
South Sudan: South Sudan 2010 Household Health Survey Second Round
Sao Tome & Principe: Sao Tome and Principe 2014 Multiple Indicator Cluster Survey
Swaziland: Swaziland 2014 Multiple Indicator Cluster Survey
Chad: Chad 2014-2015 Demographic and Health Survey and MICS
Togo: Togo 2013-2014 Demographic and Health Survey and MICS
Tunisia: Tunisia 2011-2012 Multiple Indicator Cluster Survey
Tanzania: United Republic of Tanzania 2010 Demographic and Health Survey
Uganda: Uganda 2015 PMA Round 3
South Africa: South Africa 2003 Demographic and Health Survey
Zambia: Zambia 2013-2014 Demographic and Health Survey
Zimbabwe: Zimbabwe 2014 Multiple Indicator Cluster Survey

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
Africa	
Benin	Piras F, Virol J 2011; 8: 514
Burkina Faso	Ouédraogo CM, J Gynecol Obstet Biol Reprod (Paris) 2015; 44: 715
Côte d'Ivoire	Adjorlolo-Johnson G, BMC Infect Dis 2010; 10: 242 La Ruche G, Int J Cancer 1998; 76: 480
Cameroon	Catarino R, Cancer Epidemiol 2016; 40: 60 Tebeu PM, Int J Cancer 2015; 136: E743 Untiet S, Int J Cancer 2014; 135: 1911
DR Congo	Hovland S, Br J Cancer 2010; 102: 957 Sangwa-Lugoma G, Sex Transm Dis 2011; 38: 308
Congo	Boumba LM, J Med Virol 2015; 87: 1769
Algeria	Hammouda D, Int J Cancer 2005; 113: 483 Hammouda D, Int J Cancer 2011; 128: 2224
Egypt	Abdel Aziz MT, Med Sci Monit 2006; 12: MT43 Shaltout MF, Int J Infect Dis 2014; 29: 226
Ethiopia	Leyh-Bannurah SR, Infect Agents Cancer 2014; 9: 33 Ruland R, Eur J Epidemiol 2006; 21: 727
Gabon	Si-Mohamed A, J Med Virol 2005; 77: 430
Ghana	Yar DD, Trop Med Int Health 2016; 21: 275
Guinea	Keita N, Br J Cancer 2009; 101: 202
Gambia	Wall SR, Br J Cancer 2005; 93: 1068
Kenya	De Vuyst H, Cancer Causes Control 2010; 21: 2309 De Vuyst H, Sex Transm Dis 2003; 30: 137 Maranga IO, Open Virol J 2013; 7: 19 Temmerman M, Int J Gynaecol Obstet 1999; 65: 171 Yamada R, J Med Virol 2008; 80: 847
Morocco	Alhamany Z, J Infect Dev Ctries 2010; 4: 732 Amrani M, J Clin Virol 2003; 27: 286 Belglaiiaa E, Infect Agents Cancer 2015; 10: 44 Bennani B, J Infect Dev Ctries 2012; 6: 543 Chaouki N, Int J Cancer 1998; 75: 546
Mali	Schluterman NH, BMC Womens Health 2013; 13: 4 Tracy JK, Trop Med Int Health 2011; 16: 1432
Mozambique	Castellsagué X, Lancet 2001; 358: 1429 Naucler P, J Gen Virol 2011; 92: 2784
Nigeria	Akarolo-Anthony SN, BMC Infect Dis 2013; 13: 521 Dareng EO, Epidemiol Infect 2016; 144: 123 Gage JC, Int J Cancer 2012; 130: 2111 Manga MM, Infect Agents Cancer 2015; 10: 39 Pimentel VM, J Low Genit Tract Dis 2013; 17: 203 Thomas JO, Br J Cancer 2004; 90: 638
Rwanda	Sinayobye Jd, Infect Agents Cancer 2014; 9: 40 Singh DK, J Infect Dis 2009; 199: 1851 Veldhuijzen NJ, Sex Transm Dis 2012; 39: 128
Senegal	Astori G, Intervirology 1999; 42: 221 Hanisch RA, J Clin Virol 2013; 58: 696 Hawes SE, J Infect Dis 2003; 188: 555 Mbaye el HS, J Med Virol 2014; 86: 248 Xi LF, Int J Cancer 2003; 103: 803
Tunisia	Guettiti H, Asian Pac J Cancer Prev 2014; 15: 9361 Hassen E, Infection 2003; 31: 143
Tanzania	Dartell MA, Int J Cancer 2014; 135: 896 Vidal AC, Infect Agents Cancer 2011; 6: 20 Watson-Jones D, Sex Transm Infect 2013; 89: 358

(Continued)

Table 33 – Continued

Country	Study
Uganda	Asiimwe S, Int J STD AIDS 2008; 19: 605 Banura C, J Infect Dis 2008; 197: 555 Jeronimo J, Int J Gynecol Cancer 2014; 24: 576 Moses E, Trop Med Int Health 2015; 20: 1355 Odida M, Infect Agents Cancer 2011; 6: 8 Safaeian M, Sex Transm Dis 2007; 34: 429 Taube JM, Diagn Cytopathol 2010; 38: 555
South Africa	Allan B, J Clin Microbiol 2008; 46: 740 Denny L, JAMA 2005; 294: 2173 Giuliano AR, J Acquir Immune Defic Syndr 2015; 68: 227 Jones HE, J Clin Microbiol 2007; 45: 1679 Mbulawa ZZ, BMC Infect Dis 2015; 15: 459 McDonald AC, PLoS ONE 2012; 7: e44332 Richter K, S Afr Med J 2013; 103: 313 Wright TC, JAMA 2000; 283: 81
Zimbabwe	Baay MF, J Med Virol 2004; 73: 481 Fukuchi E, Sex Transm Dis 2009; 36: 305 Nowak RG, J Infect Dis 2011; 203: 1182 Womack SD, Int J Cancer 2000; 85: 206
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.
Africa	
Botswana	Contributing studies: Ermel A, Infect Agents Cancer 2014; 9: 22
Algeria	Contributing studies: Bosch FX, J Natl Cancer Inst 1995; 87: 796 Hammouda D, Int J Cancer 2005; 113: 483
Ethiopia	Contributing studies: Abate E, J Med Virol 2013; 85: 282 Fanta BE, Ethiop Med J 2005; 43: 151
Ghana	Contributing studies: Awua AK, Infect Agents Cancer 2016; 11: 4 Denny L, Int J Cancer 2014; 134: 1389
Guinea	Contributing studies: Bosch FX, J Natl Cancer Inst 1995; 87: 796 Keita N, Br J Cancer 2009; 101: 202
Kenya	Contributing studies: De Vuyst H, Int J Cancer 2008; 122: 244 De Vuyst H, Int J Cancer 2012; 131: 949
Morocco	Contributing studies: Chaouki N, Int J Cancer 1998; 75: 546 El khair MM, Med Oncol 2010; 27: 861
Mali	Contributing studies: Bayo S, Int J Epidemiol 2002; 31: 202 Bosch FX, J Natl Cancer Inst 1995; 87: 796 Ndiaye C, Trop Med Int Health 2012; 17: 1432
Mozambique	Contributing studies: Castellsagué X, Int J Cancer 2008; 122: 1901 Naucle P, J Gen Virol 2004; 85: 2189
Nigeria	Contributing studies: Denny L, Int J Cancer 2014; 134: 1389
Sudan	Contributing studies: Abate E, J Med Virol 2013; 85: 282
Senegal	Contributing studies: Lin P, Cancer Epidemiol Biomarkers Prev 2001; 10: 1037 Ndiaye C, Trop Med Int Health 2012; 17: 1432 Xi LF, Int J Cancer 2003; 103: 803
Tunisia	Contributing studies: KrennHrubec K, J Med Virol 2011; 83: 651
Tanzania	Contributing studies: Bosch FX, J Natl Cancer Inst 1995; 87: 796 ter Meulen J, Int J Cancer 1992; 51: 515
Uganda	Contributing studies: Bosch FX, J Natl Cancer Inst 1995; 87: 796 Odida M, BMC Infect Dis 2008; 8: 85 Odida M, Infect Agent Cancer 2010; 5: 15
South Africa	Contributing studies: De Vuyst H, Int J Cancer 2012; 131: 949 Denny L, Int J Cancer 2014; 134: 1389 Kay P, J Med Virol 2003; 71: 265 Pegoraro RJ, Int J Gynecol Cancer 2002; 12: 383 van Aardt MC, Int J Gynecol Cancer 2015; 25: 919 Williamson AL, J Med Virol 1994; 43: 231
Zimbabwe	Contributing studies: Stanczuk GA, Acta Obstet Gynecol Scand 2003; 82: 762

(Continued)

Table 33 – Continued

Country	Study
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.
Africa	
Côte d'Ivoire	Contributing studies: La Ruche G, Int J Cancer 1998; 76: 480
Cameroon	Contributing studies: Untiet S, Int J Cancer 2014; 135: 1911
DR Congo	Contributing studies: Hovland S, Br J Cancer 2010; 102: 957
Algeria	Contributing studies: Hammouda D, Int J Cancer 2011; 128: 2224
Ethiopia	Contributing studies: Abate E, J Med Virol 2013; 85: 282
Guinea	Contributing studies: Keita N, Br J Cancer 2009; 101: 202
Equatorial Guinea	Contributing studies: García-Espinosa B, Diagn Pathol 2009; 4: 31
Kenya	Contributing studies: De Vuyst H, Cancer Causes Control 2010; 21: 2309 De Vuyst H, Int J Cancer 2012; 131: 949 De Vuyst H, Sex Transm Dis 2003; 30: 137
Morocco	Contributing studies: Alhamany Z, J Infect Dev Ctries 2010; 4: 732
Nigeria	Contributing studies: Gage JC, Int J Cancer 2012; 131: 2903 Haghshenas M, Infect Agents Cancer 2013; 8: 20
Rwanda	Contributing studies: Singh DK, J Infect Dis 2009; 199: 1851
Sudan	Contributing studies: Abate E, J Med Virol 2013; 85: 282
Senegal	Contributing studies: Chabaud M, J Med Virol 1996; 49: 259 Xi LF, Int J Cancer 2003; 103: 803
Tanzania	Contributing studies: Dartell MA, Int J Cancer 2014; 135: 896
South Africa	Contributing studies: Allan B, J Clin Microbiol 2008; 46: 740 De Vuyst H, Int J Cancer 2012; 131: 949 Said HM, J Clin Virol 2009; 44: 318 van Aardt MC, Personal communication Unpublished
Zimbabwe	Contributing studies: Sawaya GF, Obstet Gynecol 2008; 112: 990
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
Africa	
Côte d'Ivoire	Contributing studies: La Ruche G, Int J Cancer 1998; 76: 480
Cameroon	Contributing studies: Untiet S, Int J Cancer 2014; 135: 1911
DR Congo	Contributing studies: Hovland S, Br J Cancer 2010; 102: 957
Algeria	Contributing studies: Hammouda D, Int J Cancer 2011; 128: 2224
Ethiopia	Contributing studies: Abate E, J Med Virol 2013; 85: 282
Guinea	Contributing studies: Keita N, Br J Cancer 2009; 101: 202
Kenya	Contributing studies: De Vuyst H, Cancer Causes Control 2010; 21: 2309 De Vuyst H, Int J Cancer 2012; 131: 949 De Vuyst H, Sex Transm Dis 2003; 30: 137
Morocco	Contributing studies: Alhamany Z, J Infect Dev Ctries 2010; 4: 732
Nigeria	Contributing studies: Gage JC, Int J Cancer 2012; 131: 2903 Thomas JO, Br J Cancer 2004; 90: 638
Senegal	Contributing studies: Chabaud M, J Med Virol 1996; 49: 259 Xi LF, Int J Cancer 2003; 103: 803
South Africa	Contributing studies: Allan B, J Clin Microbiol 2008; 46: 740 van Aardt MC, Personal communication Unpublished
Zimbabwe	Contributing studies: Sawaya GF, Obstet Gynecol 2008; 112: 990

(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
Africa	
Mali	Alemaný L, Int J Cancer 2015; 136: 98
Nigeria	Alemaný L, Int J Cancer 2015; 136: 98
Senegal	Alemaný L, Int J Cancer 2015; 136: 98
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
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
Africa	
Mali	de Sanjosé S, Eur J Cancer 2013; 49: 3450
Mozambique	de Sanjosé S, Eur J Cancer 2013; 49: 3450
Nigeria	de Sanjosé S, Eur J Cancer 2013; 49: 3450
Senegal	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
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
Africa	
Mozambique	Alemaný L, Eur J Cancer 2014; 50: 2846
Nigeria	Alemaný 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
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
Africa	
Uganda	Tornesello ML, Cancer Lett 2008; 269: 159
South Africa	Lebelo RL, J Med Virol 2014; 86: 257

(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.
Africa	
Kenya	Ng'ayo MO, Sex Transm Infect 2008; 84: 62 Smith JS, Int J Cancer 2010; 126: 572
Rwanda	Veldhuijzen NJ, Sex Transm Dis 2012; 39: 128
Tanzania	Olesen TB, Sex Transm Dis 2013; 40: 592
Uganda	Tobian AA, Sex Transm Infect 2013; 89: 122
South Africa	Auvert B, J Acquir Immune Defic Syndr 2010; 53: 111 Mbulawa ZZ, J Gen Virol 2010; 91: 3023
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.
Africa	
Uganda	Tobian AA, Sex Transm Infect 2013; 89: 122
South Africa	Firnhaber C, Int J STD AIDS 2011; 22: 107 Mbulawa ZZ, J Gen Virol 2010; 91: 3023 Müller EE, Sex Transm Infect 2010; 86: 175 Vogt SL, Front Oncol 2013; 3: 68
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
Africa	
Sudan	Herrero R, J Natl Cancer Inst 2003; 95: 1772
South Africa	Boy S, J Oral Pathol Med 2006; 35: 86 Van Rensburg EJ, Anticancer Res 1996; 16: 969
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
Africa	
South Africa	Paquette C, Head Neck Pathol 2013; 7: 361
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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Institut Català d'Oncologia (ICO), in alphabetic order

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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Contact information:

ICO/IARC HPV Information Centre
Institut Català d'Oncologia
Avda. Gran Via de l'Hospitalet, 199-203
08908 L'Hospitalet de Llobregat (Barcelona, Spain)
e-mail: info@hpvcentre.net
internet address: www.hpvcentre.net

