

---

HPV AND RELATED CANCERS AMONG PEOPLE LIVING WITH HIV AND KEY POPULATIONS:

# HPV-related cancers among PLHIV and key populations: why do we need to pay special attention to these groups?

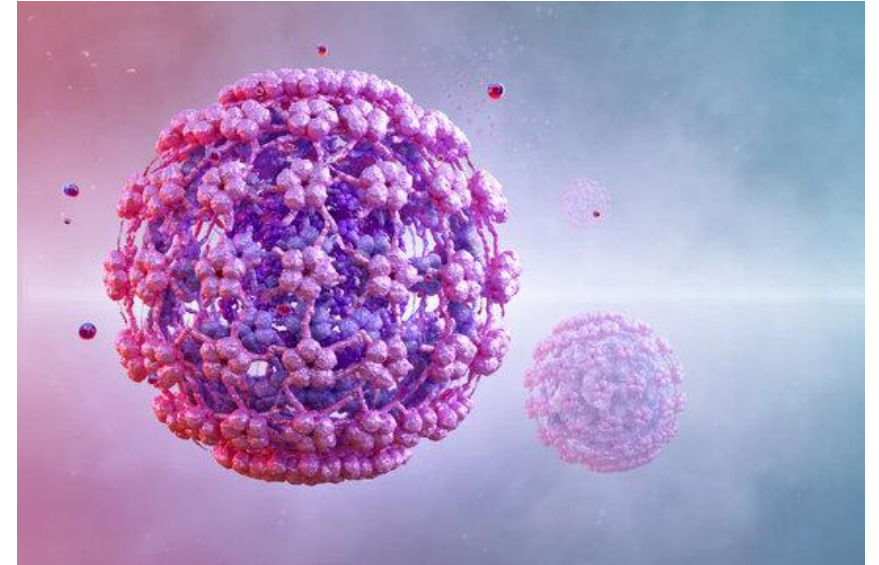
**Dr Viatcheslav Grankov,**  
Medical Officer on HIV and STIs,  
Joint Infectious Diseases Unit,  
WHO Regional office for Europe



European Region

# Few basic facts about HPV

- Human papillomavirus infection (HPV infection) is caused by a DNA **virus**.
- HPV is transmitted **sexually** or through other **skin-to-skin** contact.
- It's **very common**. Most people will get some type of HPV in their life.
- In most cases, HPV infection causes **no symptoms** and 90% resolve spontaneously within two years.
- In some cases, an HPV infection persists and results in either **warts** or **precancerous lesions**.
- Over 200 types have been described. About twelve HPV types are called "**high-risk**" types because persistent infection has been linked to cancer of different locations (**cervix, vulva, vagina, penis, anus, mouth, tonsils, throat and others**). The type HPV16 is the most oncogenic.
- In 2019, HPV caused an estimated 620 000 cancer cases in women and 70 000 cancer cases in men.



Picture: Adobe stock, FILE #: 481157961

# Potential risk factors for HPV infection



- Early sexual debut



- Multiple sex partners



- History of other STIs



- HIV Infection and other immunocompromised state



- Unprotected sex?

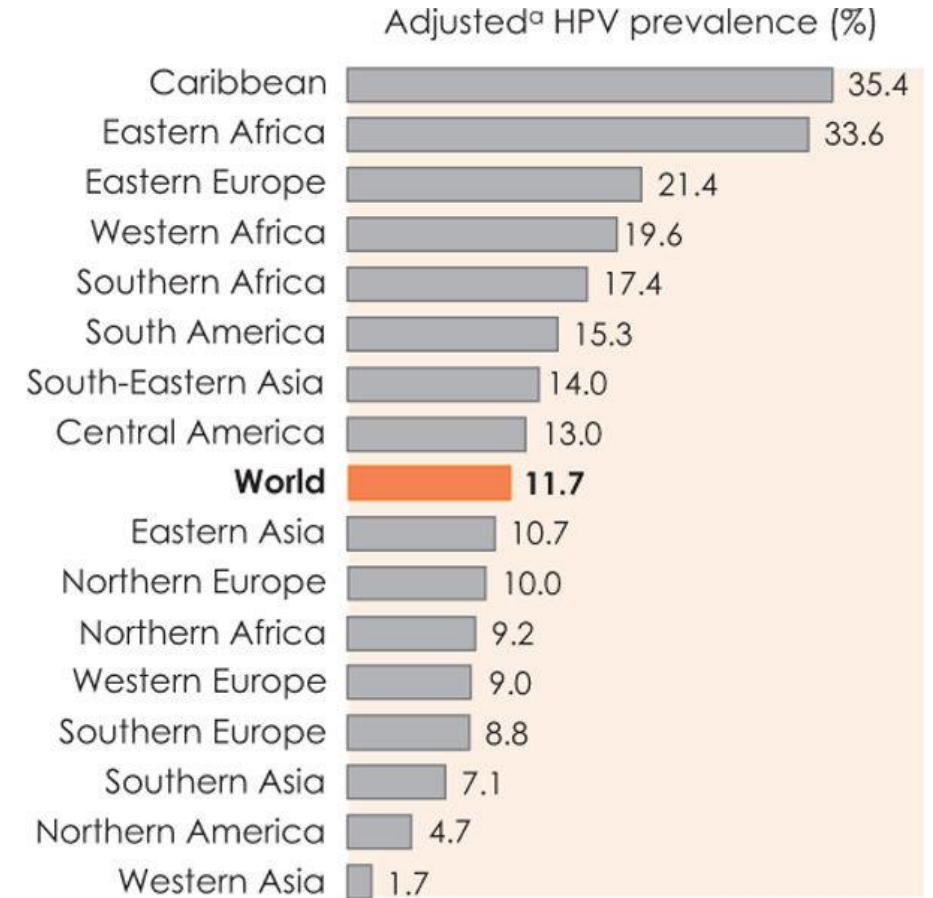
# HPV prevalence in women

- The **global** HPV prevalence (all types) among adult women with normal cytological findings is estimated to be **12%**, as detected in cervical specimens.
- The highest prevalence was in **sub-Saharan Africa** (24%), followed by **Latin America and the Caribbean** (16%), **Eastern Europe** (14%), and **South-East Asia** (14%).
- Country-specific adjusted HPV prevalence in cervical specimens ranged from 2% to 42%.
- Age-specific HPV prevalence was highest in young age groups (<25 years) at 22%.



## Cervical Human Papillomavirus Prevalence in 5 Continents: Meta-Analysis of 1 Million Women with Normal Cytological Findings

Laia Bruni,<sup>1</sup> Mireia Diaz,<sup>1</sup> Xavier Castellsagué,<sup>1,2</sup> Elena Ferrer,<sup>1</sup> F. Xavier Bosch,<sup>1</sup> and Silvia de Sanjosé<sup>1,2</sup>  
<sup>1</sup>Unit of Infections and Cancer, Cancer Epidemiology Research Program, IDIBELL-Institut Català d'Oncologia, and <sup>2</sup>CIBER en Epidemiología y Salud Pública, Barcelona, Spain



# HPV prevalence in men



## External Genital Human Papillomavirus Prevalence and Associated Factors Among Heterosexual Men on 5 Continents

Efthymia Vardas,<sup>1</sup> Anna R. Giuliano,<sup>2</sup> Stephen Goldstone,<sup>3</sup> Joel M. Palefsky,<sup>4</sup> Edson D. Moreira Jr.,<sup>5</sup> Mary E. Penny,<sup>6</sup> Carlos Aranda,<sup>7</sup> Heiko Jessen,<sup>8</sup> Harald Moi,<sup>9</sup> Daron G. Ferris,<sup>10</sup> Kai-Li Liaw,<sup>11</sup> J. Brooke Marshall,<sup>11</sup> Scott Vuocolo,<sup>11</sup> Eliav Barr,<sup>11</sup> Richard M. Haupt,<sup>11</sup> Elizabeth I.O. Garner,<sup>11</sup> and Dalya Guris<sup>11</sup>

- In heterosexual men, the prevalence of any tested HPV type was **18.7%** at the penis, **13.1%** at the scrotum, **7.9%** at the perineal/perianal region, and **21.0%** at any site.
- Having >3 lifetime female sexual partners had the greatest impact on HPV prevalence: odds ratio (OR) **3.2** (95% confidence interval (CI) 2.1–4.9) for HPV 6, 11, 16, and 18; and OR 4.5 (95% CI 3.3–6.1) for all HPV types tested.
- HPV was most prevalent in African men and least prevalent in men from the Asia-Pacific region.

# HPV prevalence among women living with HIV

## Prevalence of high-risk HPV genotypes in sub-Saharan Africa according to HIV status: a 20-year systematic review

Jude Ogechukwu Okoye<sup>1</sup>, Chukwudi Amaechi Ofodile<sup>1</sup>, Oluwaseun Kelechi Adeleke<sup>2</sup>, Okechi Obioma<sup>3</sup>

- Women living with HIV (WLWH) had a higher prevalence of HPV (**54%**) and of co-infections with multiple types (**23%**) than HIV-negative women (respectively, **27%** and **7%**).

## Molecular epidemiology of human papillomavirus among HIV infected women in developing countries: systematic review and meta-analysis

Agajie Likie Bogale<sup>1\*</sup>, Nega Berhe Belay<sup>2</sup>, Girmay Medhin<sup>2</sup> and Jemal Haidar Ali<sup>3</sup>

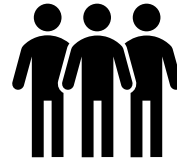
In low- and middle-income countries, an overall HPV prevalence of **63%** (95% CI: 48–78) and a prevalence of high-risk HPV types of **51%** (95% CI, 38–63).

## Association of antiretroviral therapy with high-risk human papillomavirus, cervical intraepithelial neoplasia, and invasive cervical cancer in women living with HIV: a systematic review and meta-analysis

Helen Kelly, Helen A Weiss, Yolanda Benavente, Silvia de Sanjose, Philippe Mayaud, for the ART and HPV Review Group\*

A **lower prevalence** of high-risk HPV in those on antiretroviral therapy (**ART**) than in those not on ART (adjusted odds ratio 0.8; 95% CI, 0.7–1.0; adjusted for CD4 cell count and ART duration).

# HPV prevalence among MSM



## Prevalence and genotype distribution of human papillomavirus infection in different anatomical sites among men who have sex with men: A systematic review and meta-analysis

Mohammad Farahmand, Seyed Hamidreza Monavari, Ahmad Tavakoli ✉

HPV infections among men who have sex with men (MSM) are very common in the anal (**78%**; 95% CI, 76–81), penile (**36%**; 95% CI, 29–44), oral (**17%**; 95% CI, 14–22) and urethral sites (**15%**, 95% CI, 8–28)

## Type-Specific Anal Human Papillomavirus Prevalence Among Men, According to Sexual Preference and HIV Status: A Systematic Literature Review and Meta-Analysis

Elske Marra,<sup>1</sup> Chunqing Lin,<sup>2</sup> and Gary M. Clifford<sup>2</sup>

- HPV16 prevalence was significantly higher in MSM than MSW, both among HIV-negative (**14%** vs **3%**; prevalence ratio (PR) **4.7**; 95% confidence interval [CI] 2.5–8.9) and HIV-positive men (**30%** vs **11%**; PR = **2.8**; 95% CI, 1.9–4.1)
- HIV-positive MSM have the highest prevalence of anal HPV (regardless of type) and of HPV16, specifically.



European Region

## HIV-positive MSM's knowledge of HPV and anal cancer self-sampling: A scoping review

M.K.L. Poon MSW PhD,\* J.P.H. Wong RN PhD,<sup>†</sup> A.T.W. Li MD,<sup>‡§</sup> M. Manuba BSc BSc(ICI),<sup>†</sup> A. Bisignano BA(ICI),<sup>§</sup> M. Owino MA(ICI),<sup>§</sup> and M. Vahabi RN PhD<sup>†</sup>

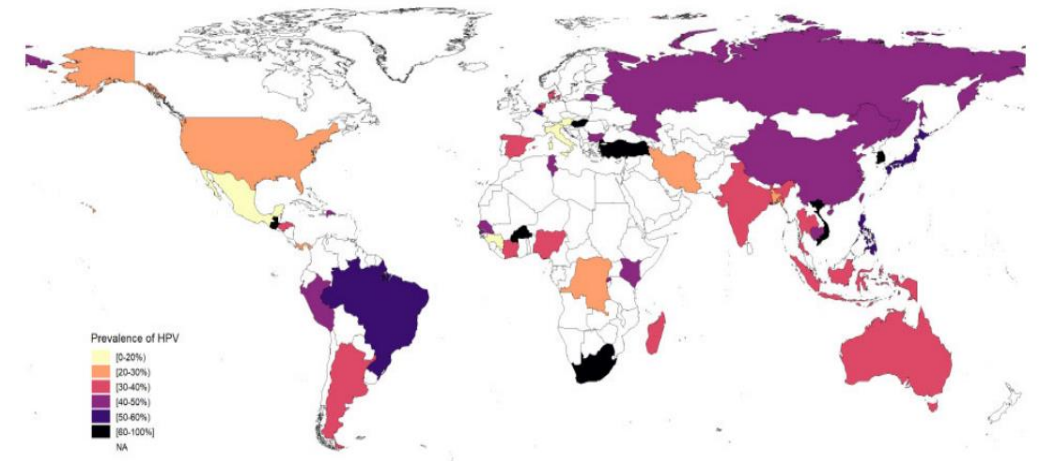
HIV-positive MSM have **limited knowledge** regarding the risks of anal cancer associated with HIV and HPV coinfection.

# HPV prevalence among female sex workers

## Worldwide burden of genital human papillomavirus infection in female sex workers: a systematic review and meta-analysis

Jie Wu,<sup>1</sup> Cheng Ding,<sup>1</sup> Xiaoxiao Liu,<sup>1</sup> Yuqing Zhou,<sup>1</sup> Guo Tian,<sup>1</sup> Lei Lan,<sup>1</sup> Can Chen,<sup>1</sup> Danying Yan,<sup>1</sup> Chenyang Huang,<sup>1</sup> Xiaofang Fu,<sup>1</sup> Lanjuan Li,<sup>1</sup> and Shigui Yang<sup>1,2\*</sup>

- The pooled human papillomavirus (HPV) prevalence among female sex workers (FSWs) globally was **39.5%** (95% CI 35.3, 43.9%) with notable variations by World Health Organization (WHO) region and country.
- The meta-analysis revealed an almost **4-fold higher HPV prevalence** in FSWs than in the general female population, representing a significant challenge to global public health.





# HPV in transgender people



- Limited data regarding HPV among transgender people.
- There is no published systematic review about the prevalence of HPV in TGW. One descriptive review of the literature was published, "Symptomatic HPV-related neovaginal lesions in transgender women: case series and review of literature" by Van der Sluis et al.
- The overall HPV Prevalence in TGW was **14.43** % (95CI%: 8.40-23.37)

## Cancer in Transgender and Gender-Diverse Persons A Review

Alberto Giovanni Leone, MD<sup>1</sup>; Dario Trapani, MD<sup>2,3</sup>; Matthew B. Schabath, PhD<sup>4</sup>; [et al](#)

This review revealed that transgender and gender-diverse people had high rates of HPV infection and a higher incidence of HPV-associated cancers.

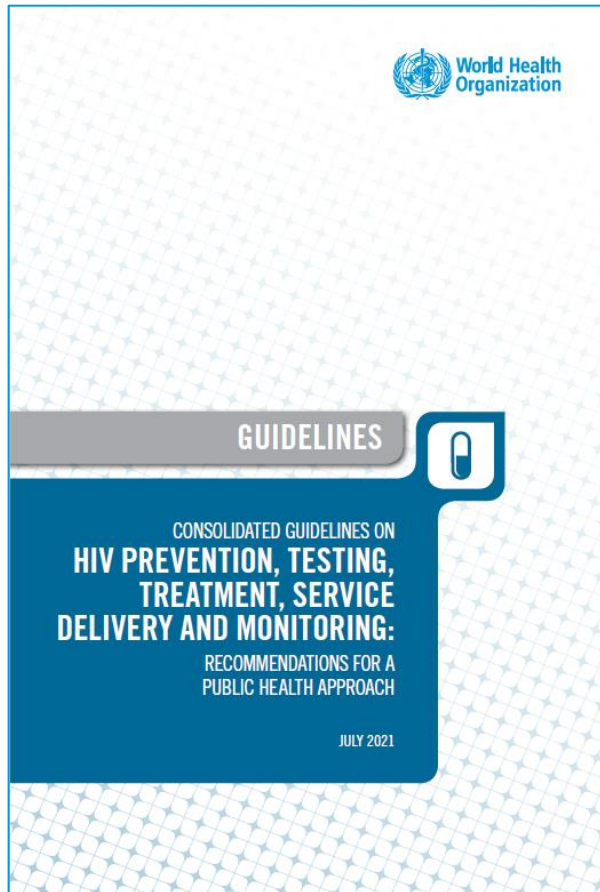
## Pap Test Use Is Lower Among Female-to-Male Patients Than Non-Transgender Women

Sarah M. Peitzmeier, MSPH, Karishma Khullar, BS, Sari L. Reisner, ScD, MA, Jennifer Potter, MD

Transgender men are not accessing the same level of preventive cervical screening care as non-transgender female patients.

---

**People living with HIV and representatives of key populations are disproportionately affected by HPV infection and related cancers.**



# From WHO Consolidated Guidelines:

- Women living with HIV have a six-fold higher risk of cervical cancer than women without HIV.
- Cervical cancer is classified as an AIDS-defining condition.

**Table 6.5 Summary of WHO screening and treatment recommendations to prevent cervical cancer for women living with HIV**

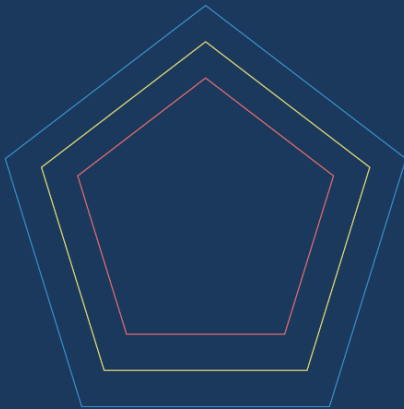
Recommendations for women living with HIV	Strength of recommendation and level of evidence
WHO recommends using HPV DNA detection as the primary screening test rather than visual inspection of the cervix with acetic acid (VIA) or cytology in screening and treatment approaches among women living with HIV. <i>Remarks:</i> Existing programmes with quality-assured cytology as the primary screening test should be continued until HPV DNA testing is operational; existing programmes using VIA as the primary screening test should transition rapidly because of the inherent challenges with quality assurance.	<i>Strong recommendation, moderate-certainty evidence</i>
WHO suggests using an HPV DNA primary screening test with triage rather than without triage to prevent cervical cancer among women living with HIV.	<i>Conditional recommendation, moderate-certainty evidence</i>
In a screen, triage and treat approach using HPV DNA detection as the primary screening test, WHO suggests using partial genotyping, colposcopy, VIA or cytology to triage women living with HIV after a positive HPV DNA test. <i>Remarks:</i> The benefits, harm and programmatic costs of the triage options are similar; therefore, the choice of triage method will depend on feasibility, training, programme quality assurance and resources in countries. HPV16/18 genotyping could be integrated into the HPV DNA test.	<i>Conditional recommendation, moderate-certainty evidence</i>
When HPV DNA testing is provided, WHO suggests using either samples taken by a health-care provider or self-collected samples.	<i>Conditional recommendation, low-certainty evidence</i>
WHO suggests starting regular cervical cancer screening at the age of 25 years among women living with HIV. <i>Remarks:</i> Moderate-certainty evidence found that few women living with HIV younger than 25 years are likely to have cervical cancer. This recommendation applies to women living with HIV regardless of when they first tested positive for HIV.	<i>Conditional recommendation, low-certainty evidence</i>
After the age of 50 years, WHO suggests that screening be stopped after two consecutive negative screening results, consistent with the recommended regular screening intervals among women living with HIV. <i>Remarks:</i> VIA and ablation treatment are not suitable for screening women for whom the transformation zone is not visible. Inadequate visualization is typical after menopause.	<i>Conditional recommendation, very-low-certainty evidence</i>

**Table 6.5 Summary of WHO screening and treatment recommendations to prevent cervical cancer for women living with HIV (continued)**

Recommendations for women living with HIV	Strength of recommendation and level of evidence
Priority should be given to screening women living with HIV 25–49 years old. When tools are available to manage postmenopausal women, women living with HIV 50–65 years old who have never been screened should also be given priority.	Good-practice statement
WHO suggests a regular screening interval of every 3–5 years when using HPV DNA detection as the primary screening test among women living with HIV.	<i>Conditional recommendation, low-certainty evidence</i>
Where HPV DNA testing is not yet operational, WHO suggests a regular screening interval of every three years when using VIA or cytology as the primary screening test among women living with HIV.	<i>Conditional recommendation, low-certainty evidence</i>
While transitioning to a programme with a recommended regular screening interval, screening even just twice in a lifetime is beneficial.	Good-practice statement
WHO suggests that women living with HIV who have screened positive on an HPV DNA primary screening test and then negative on a triage test be retested with HPV DNA testing in 12 months and, if negative, move to the recommended screening interval.	<i>Conditional recommendation, low-certainty evidence</i>
WHO suggests that women living with HIV who have screened positive on a cytology primary screening test and then have normal results on colposcopy be retested with HPV DNA testing in 12 months and, if negative, move to the recommended regular screening interval.	<i>Conditional recommendation, low-certainty evidence</i>
WHO suggests that women living with HIV who have been treated for histologically confirmed CIN2/3 or adenocarcinoma in situ or treated as a result of a positive screening test be retested in 12 months with HPV DNA testing when available rather than with cytology or VIA or co-testing, and, if negative, be retested again at 12 months and, if negative again, move to the recommended screening interval.	<i>Conditional recommendation, low-certainty evidence</i>
As programmes introduce HPV DNA testing, use this test when rescreening women living with HIV regardless of the test that was used at the previous screening. In existing programmes with cytology or VIA as the primary screening test, rescreening with the same test should be continued until HPV DNA testing is operational.	Good-practice statement

Source: *Guidelines for screening and treatment of precancerous lesions for cervical cancer prevention: WHO guidelines (126).*

Consolidated guidelines on HIV,  
viral hepatitis and STI prevention,  
diagnosis, treatment and care for  
key populations



## Other health issues are of particular concern to sex workers, including:

- those related to **sexual and reproductive health** (safe abortion, contraception, conception and antenatal care);
- those related to **cervical and anal cancer** prevention;
- those related to screening and treatment for **mental health issues**, and for hazardous or harmful **alcohol and substance use**.

### Essential for broader health: health interventions

Anal health

Conception and pregnancy care

Contraception

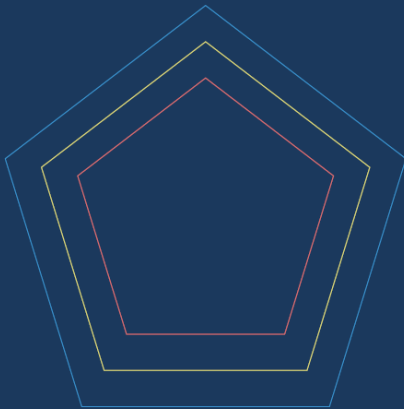
Mental health

Prevention, assessment and treatment of cervical cancer

Safe abortion

Screening and treatment for hazardous and harmful alcohol and other substance use

Consolidated guidelines on HIV,  
viral hepatitis and STI prevention,  
diagnosis, treatment and care for  
key populations



## Essential for broader health: health interventions

### Anal health




#### New guidance statement

WHO does not have specific recommendations about anal health or anal cancer, but people infected with HIV are at least 20 times more likely to be diagnosed with anal cancer than uninfected people (195). Like cancer of the cervix, anal cancer is associated with human papillomavirus (HPV) and HPV is vaccine-preventable for all people.<sup>19</sup>


Cytological screening can be performed for anal cancer and its precursors, known as anal high-grade squamous intraepithelial lesions, particularly for men who have sex with men, trans and gender diverse people and other people who are more likely to engage in anal sex.

## Country priority actions

- Ensure that the HPV vaccine is included in the national immunization plan for all genders, where possible, and ensure that HIV and STI prevention programmes are linked to these national immunization plans.



**Regional Action Plans for Ending AIDS and the Epidemics of Viral Hepatitis and Sexually Transmitted Infections 2022–2030**

 World Health Organization  
European Region

	Indicator <sup>a</sup>	Baseline 2020 <sup>b</sup>	Interim 2025 targets	2030 targets
	Percentage of girls fully vaccinated for HPV by the age of 15 years <sup>f</sup>	25% (2019 and 2020)	35%	90%
Coverage	Percentage of women screened for cervical cancer using a high-performance test, by the age of 35 years and again by 45 years <sup>f</sup>	No data	> 40% / > 40%	> 70% / > 90%
	Percentage of women screened and identified as having pre-cancer treated or invasive cancer managed <sup>f</sup>	No data	> 40%	> 90%

---

**Thank you for your attention!**



World Health  
Organization

European Region