CANCER INCIDENCE IN WOMEN WITH HIV: A COMBINED D:A:D AND RESPOND ANALYSIS

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on behalf of the D:A:D and RESPOND collaborations

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BACKGROUND

- In the general population, the incidence of cancer is increasing among women while declining trends have been observed among men.[1]
- There is little information on the incidence of cancers, or associated risk factors, among women with HIV.
- We therefore investigated cancer incidence in women with HIV in two large international HIV cohort collaborations (D:A:D and RESPOND) between 2006 and 2022.

METHODS

- We included all women (sex assigned at birth) ≥18 years and investigated the incidence of, and risk factors for:
  - the **most common cancers combined** *lung, breast, non-Hodgkin's lymphoma, cervical, anal, head & neck and other non-cervical gynecological cancers*
  - **cancers specifically for women** *breast (although men can have breast cancers), cervical and other gynecological cancers*
  - **HPV-related cancers** *cervical, head & neck, other noncervical HPV-related gynecological and anal cancers*
- Cancers in RESPOND and D:A:D are/were reported using study-specific cancer event forms and undergo/underwent central validation
- Baseline was defined as the latest of the date into a local cohort enrolment, or 1st January 2006 for the D:A:D cohort, and 1st January 2012 for the RESPOND cohort.
- Crude incidence rates (95% confidence intervals, CI) of each cancer group were determined and multivariable Poisson regression with robust standard errors was used to assess factors associated with cancers. We also investigated the interactions between key variables such as age and CD4 counts.

Reference
1. Siegel RL, Kratzer TB, Giaquinto AN, Sung H, Jemal A. Cancer statistics, 2025. CA: A Cancer Journal for Clinicians **2025**; 75(1): 10-45.

Women with HIV older than 45 years, particularly those with past and/or current immunosuppression or current smokers, are at an increased risk of cancers.
This population should be considered for more intensified cancer screening and prevention strategies.

RESULTS

- Among **17,512 women** included, most were recruited from Western Europe cohorts (45%), and 27% were ART-naïve. At baseline, median (interquartile range, IQR) age was 40 years (IQR 33-46), baseline and pre-ART nadir CD4 count were 458 (306-654) and 223 (110-363) cells/μL, respectively, and 21% had a prior AIDS diagnosis (of which 14% were AIDS-defining cancers).
- Over 141,404 person-years (PY, median 9.2 [5.5-10.1] years) of follow-up:
  - **539 women had one of the common cancers - incidence rate 3.8 [95%CI, 3.5-4.2]/1000 PY**
  - **291 women had a women-specific cancer (2.1 [1.8-2.3]/1000 PY)** and **163 had an HPV-related cancer (1.1 [1.0-1.3]/1000 PY)** (**Figure**)

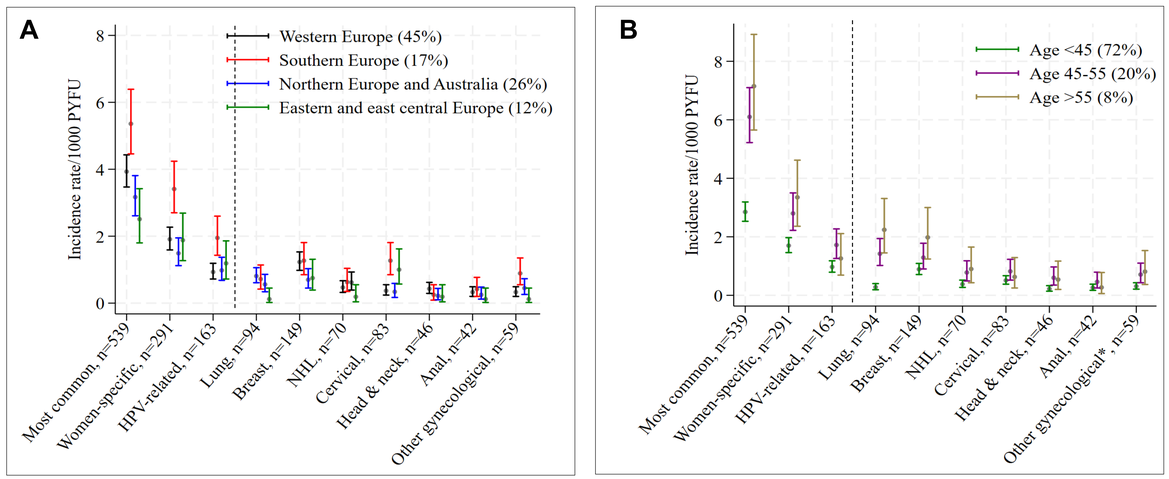

Figure. Cancer incidence rates in women with HIV, stratified by regions (A) and age groups (B)

Most common cancer group included 149 breast, 83 cervical, 91 lung cancers, 70 non-Hodgkin's lymphoma, 58 non-cervical gynecological cancers, 46 head & neck cancers and 42 anal cancers. **Women-specific cancer group** included 149 breast cancers, 83 cervical and 59 non-cervical other gynecological cancers, while **HPV-related cancer group** included 43 anal, 83 cervical, 28 non-cervical HPV-related gynecological cancers (*3 vaginal and 25 vulval cancers*) and 9 head & neck cancers (*all were oropharyngeal cancers*). *Note: 2 women experienced multiple cancers and therefore, the number of cancers included in each group are not the same.*

RESULTS (cont.)

- In adjusted analyses, **older age** (45-55 years, incidence rate ratio, IRR: 2.10, [95% CI 1.71-2.59] and >55 years, IRR: 2.52 [1.96-3.24], vs. <45 years), **history of injecting drug use** (IRR: 1.34 [1.00-1.83]), those located in **Southern Europe** (IRR: 1.41 [1.13-1.76], vs. Western Europe) and **current smoking** (IRR: 1.93 [1.48-2.50]) were associated with **an increased risk of the most common cancers**.
- **Higher pre-ART nadir CD4 counts**, (IRR: 0.73 [0.56-0.74] >350 vs <200 cells/μL)**, higher current CD4 counts** (350-499, IRR: 0.75 [0.57-0.97], 500-749, IRR: 0.70 [0.55-0.89] and ≥750, IRR: 0.69 [0.54-0.89], vs. <350 cells/μL) were **associated with a reduced risk**, **while prior AIDS events** (IRR: 1.48 [1.23-1.77]) were associated with **an increased risk of most common cancers, as well as the heightened risk for HPV-related and lung cancers**. No significant interactions were found between current CD4 counts and age groups when evaluating risk factors of the most common cancers ($P_{interaction}$=0.37).

CONCLUSIONS

- The most common incident cancers in women with HIV in the combined D:A:D and RESPOND collaborations were breast, lung and cervical cancers.
- Our study suggests that women, **particularly those with past and/or current immunosuppression**, may benefit from intensified cancer prevention and screening measures where available, in addition to the currently recommended screening groups, such as older individuals and smokers.

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D:A:D

RESPOND International Cohort Consortium of Infectious Diseases

The D:A:D Study Group:
https://www.chip.dk/Studies/DAD/Study-Group

The RESPOND Study Group:
https://www.chip.dk/Studies/RESPOND/Study-Group