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Characteristics of Women Living with HIV in the RESPOND Cohort

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Background

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- Women remain under-represented in HIV research, despite now accounting for over 50% of people with HIV globally
- Cohort studies are often under-powered to assess sex differences.
- Specific clinical issues unique to women that may significantly impact clinical outcomes include, but are not limited to gynaecologic and breast disease, pregnancy outcomes, contraception, menopause and hormone replacement therapy.
- Need for more analyses stratified by age and sex

Objectives

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- To describe RESPOND women in demographic, treatment and clinical characteristics in addition to burden of comorbidity
- To compare the women living with HIV (WLHV) in RESPOND to its men living with HIV (MLWH) population.
- This work will serve as a foundation for future RESPOND analyses women with HIV and outline pertinent research questions to be answered

Methods (1)

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- RESPOND is a large multi-national collaboration of 17 pre-existing observational cohorts of people with HIV from Europe and Australia
- Analysis presented at two time points:
  - RESPOND baseline: the date of starting an Integrase Inhibitor (INSTI) after 01-Jan-2012, or for those not starting an INSTI, the latter of 01-Jan-2012 and enrolment into the local cohort
  - First ART initiation ≥ 01-Jan-2012 (treatment naïve subgroup)
- Summarise outcomes for WLWH, MLWH and a subset of MLWH without men-sex-with-men identified as source of HIV-acquisition.

Methods (2)

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- ART was categorised into five groups:
    - 1=INSTI+2NRTI, 2=PI/b+2NRTI, 3=NNRTI+2NRTI, 4=dual regimens, 5=Other.
- Burden of comorbidity: number of concurrent conditions
    - Hypertension, diabetes, dyslipidaemia, non-AIDS defining malignancy (NADM), end-stage liver (ESLD) and renal disease (chronic kidney disease (CKD) and/or end-stage renal disease), cardiovascular disease (CVD): stroke, invasive cardiac procedure and acute myocardial infarction
- Burden of comorbidity count – 0,1, 2, ≥3

Demographics (1)

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RESPOND baseline	WLHV n = 8348	MLWH n = 24,739	Non-MSM MLWH n = 9029
Age (years): median [IQR]	43.2 [36, 51]	45.8 [37, 53]	47.3 [39, 54]
Age group (years)	**n (%)**	**n (%)**	**n (%)**
18 – 29	938 (11.2)	2403 (9.7)	531 (5.9)
30 – 39	2349 (28.1)	5504 (22.3)	1918 (21.2)
40 – 44	1439 (17.2)	3803 (15.4)	1337 (14.8)
45 – 49	1429 (17.1)	4397 (17.8)	1704 (18.9)
50 – 54	1089 (13.1)	3719 (15.0)	1640 (18.2)
≥ 55	1104 (13.2)	4913 (19.9)	1899 (21.0)

WLHV=women living with HIV. MLWH=men living with HIV.
Non-MSM subset without men men-sex-with-men identified as their HIV-acquisition risk

Demographics (2)

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RESPOND baseline	WLHV n = 8348	MLWH n = 24,739	Non-MSM MLWH n = 9029
Ethnicity[1]	**n = 7723 (%)**	**n = 22,122(%)**	**n = 8375 (%)**
White	4593(59.5)	18, 486 (83.6)	6607 (78.9)
Black	1962 (25.4)	1333 (6.0)	1071 (12.8)
Asian	340 (4.4)	448 (2.0)	136 (1.6)
Other/Unknown	838 (10.9)	1855 (8.4)	561 (6.7)
Mode of HIV acquisition	n (%)	n (%)	n (%)
Homosexual/Bisexual	66 (0.8)	14, 671 (59.3)	0.0 (0.0)
IDU	1260 (15.1)	3100 (12.5)	3100 (34.3)
Heterosexual	6226 (74.6)	5146 (20.8)	5146 (57.0)
Other[2]	796 (9.5)	1822 (7.4)	783 (8.8)
RESPOND Region	**n (%)**	**n (%)**	**n (%)**
Western Europe	3696 (44.3)	10, 849 (43.9)	3800 (42.1)
Southern Europe + Argentina	1618 (19.4)	5641 (22.8)	2180 (24.1)
Northern Europe + Australia	1835 (22.0)	5961 (24.1)	1576 (17.5)
Eastern Europe	1199 (14.4)	2288 (9.3)	1473 (16.3)

[1]excluding cohorts with 100% unknown ethnicity. [2]Other risks of HIV acquisition includes Unknown, perinatal, blood transfusion

Demographics (3)

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RESPOND baseline	WLHV n = 8348	MLWH n = 24,739	Non-MSM MLWH n = 9029
	n(%)	n(%)	n(%)
Hepatitis B coinfection:	398 (4.8)	1535 (6.2)	619(6.9)
Hepatitis C coinfection:	2010 (24.1)	5053 (20.4)	3578 (39.6)
Smoking	n (%)	n (%)	n (%)
Current	1540 (18.5)	5874 (23.7)	2655 (29.4)
Prior	1499 (18.0)	5317 (21.5)	1978 (21.9)
Never	3639 (43.6)	8155 (33.0)	2669 (29.6)
BMI (kg/m^2): median [IQR]	23.4 [21, 27]	23.1 [21, 26]	23.5 [22, 26]
BMI (kg/m^2) category: n(%)	n (%)	n (%)	n (%)
Underweight: <18.5	350 (4.2)	530 (2.1)	232 (2.6)
Normal: 18.5-24	2467 (29.6)	8387 (33.9)	2669 (29.6)
Overweight: 25-29	1056 (12.7)	3992 (16.)	1558 (17.3)
Obese: 30+	626 (7.5)	1064 (4.3)	505 (5.6)

ART classification

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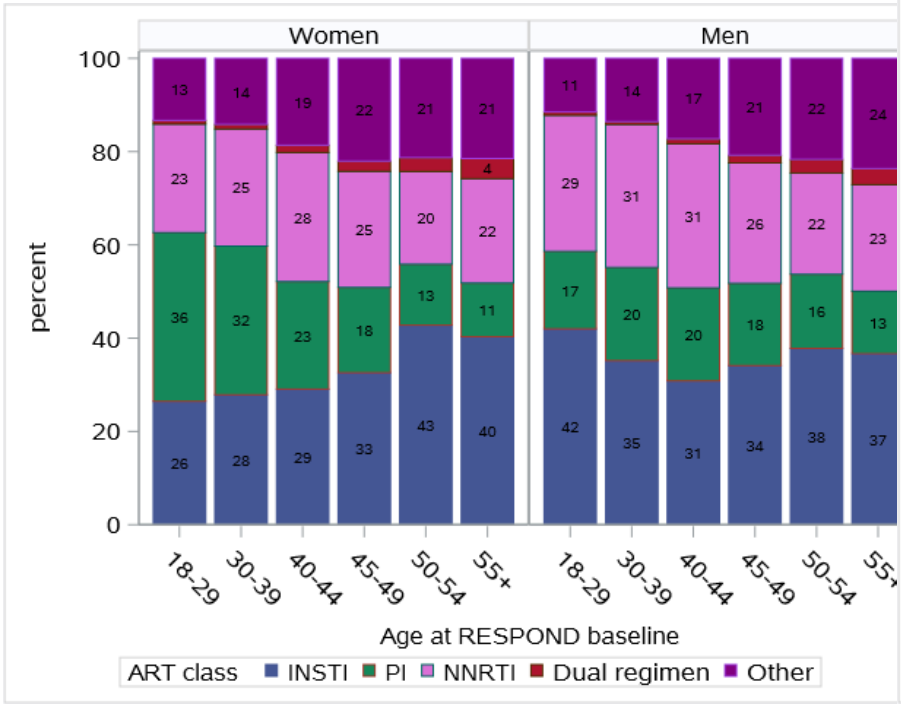
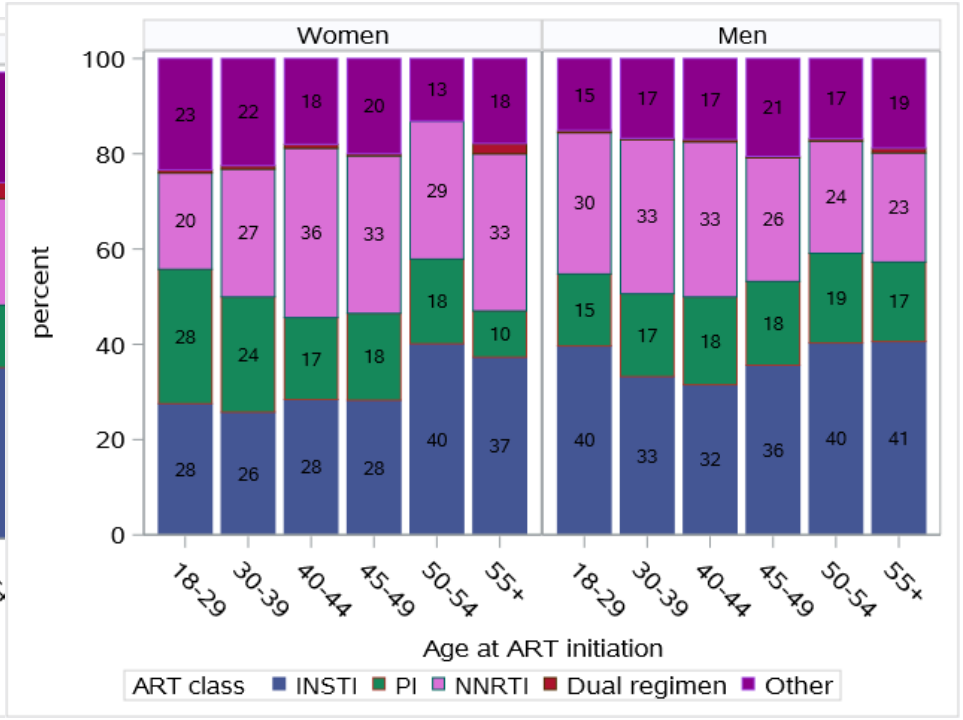
RESPOND baseline



First ART ≥01JAN2012



Dual regimens include: DTG+3TC, RTG+DRV/b, DTG+DRV/b, DTG+RPV,3TC+DRV/b, RTG+ETV, RTG+NVP, RPV+NVP, RPV+DRV/b 3TC+ATV/b).

'Other' includes ART regimens without a double-NRTI backbone, multi-class regimens and other dual regimens not listed.

CD4 & VL at ART initiation

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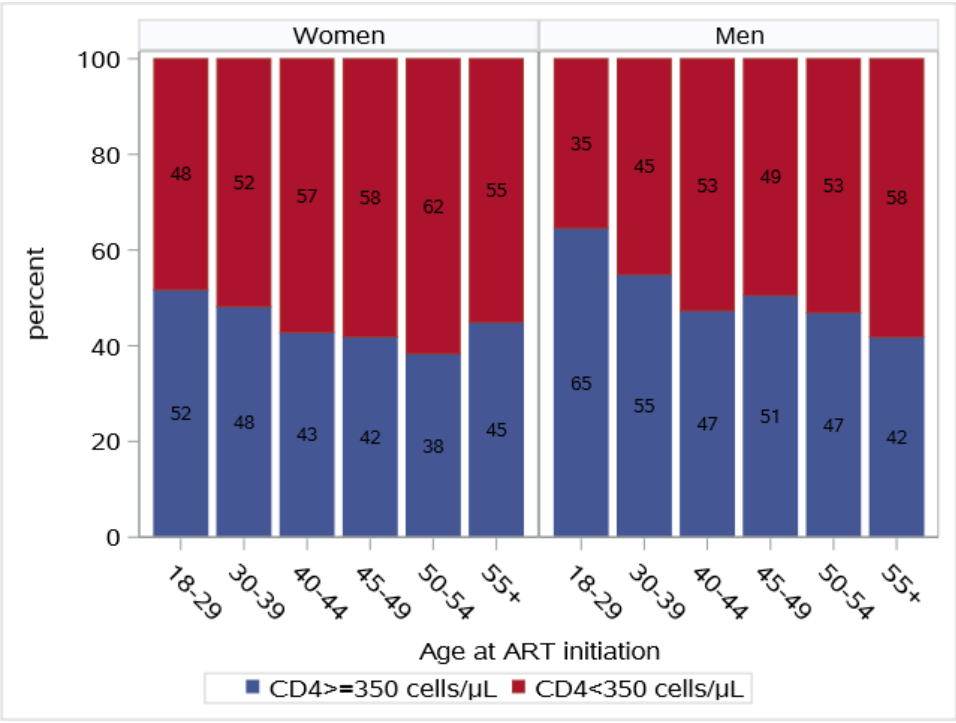
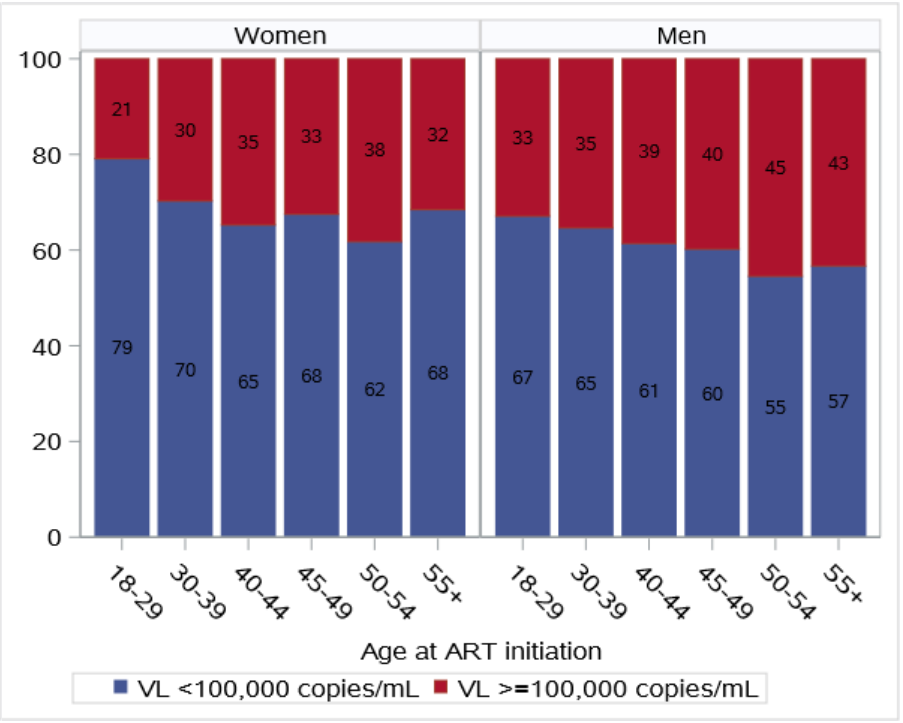
CD4 (Low: <350 cells/μL)



VL (High: ≥100, 000 copies/mL)



Closest CD4/VL was used within a window period 12-months prior + 7-days post “baseline”.

CD4 and VL by Race - ART initiation

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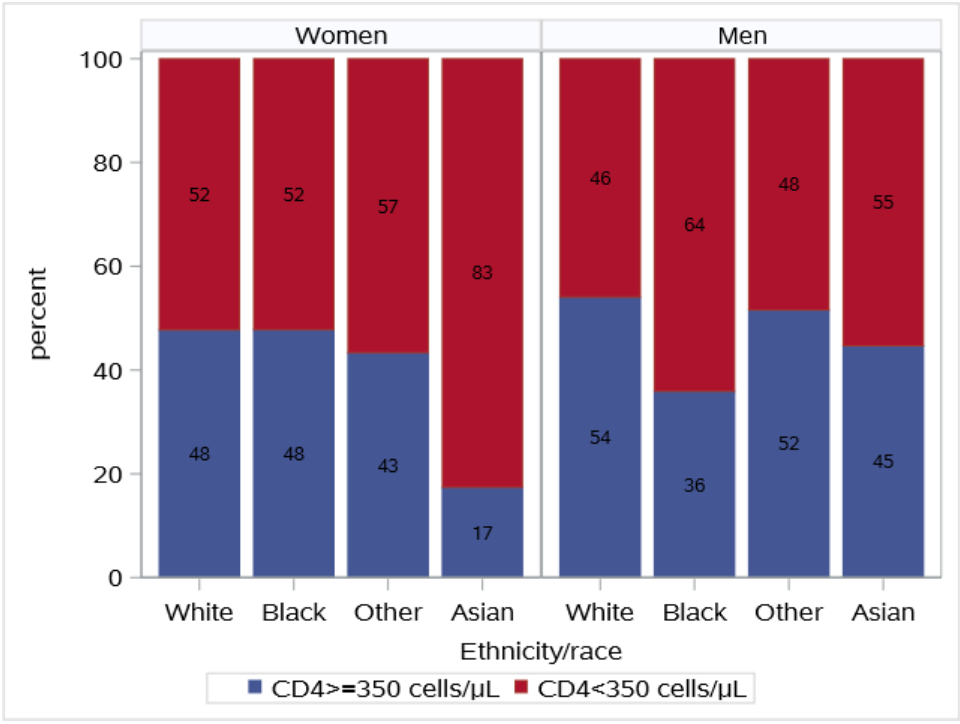
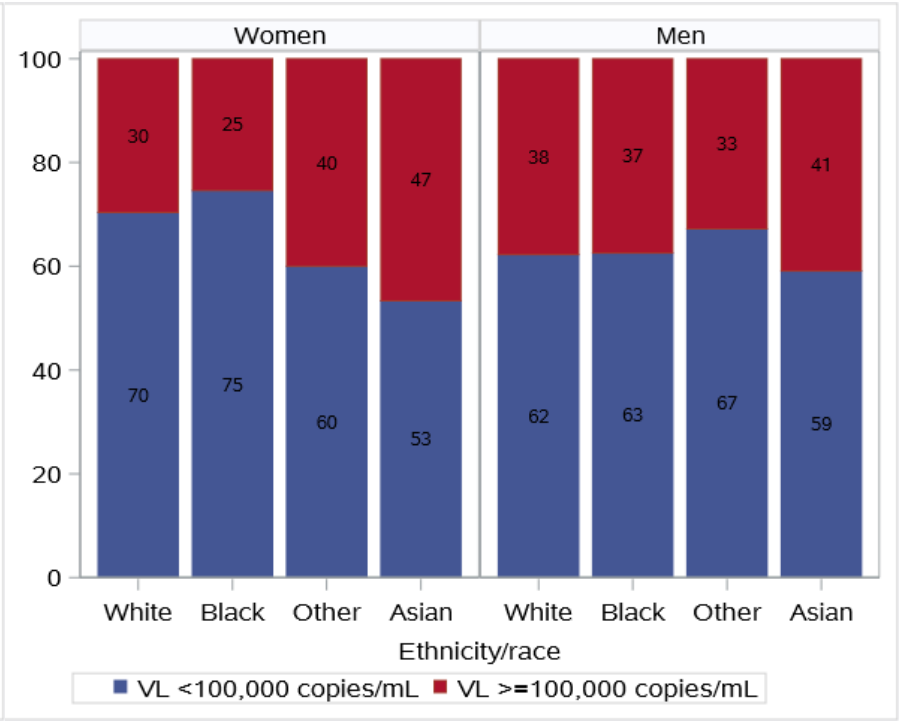
CD4 (low: <350 cells/μL)



VL (high: > 100,000 copies/mL)



Closest CD4/VL was used within a window period 12-months prior + 7-days post “baseline”.

Dyslipidaemia

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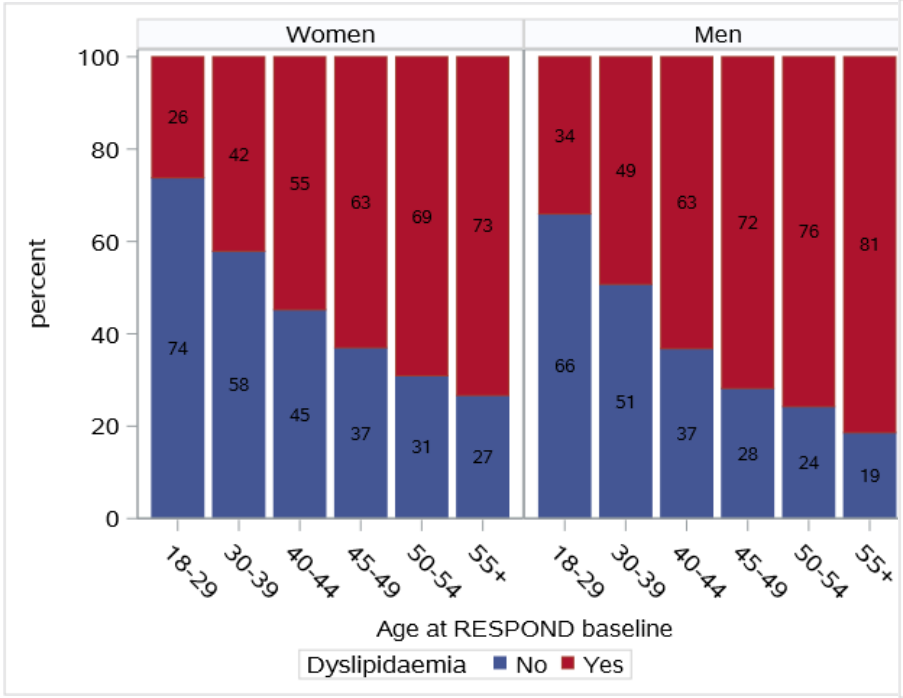
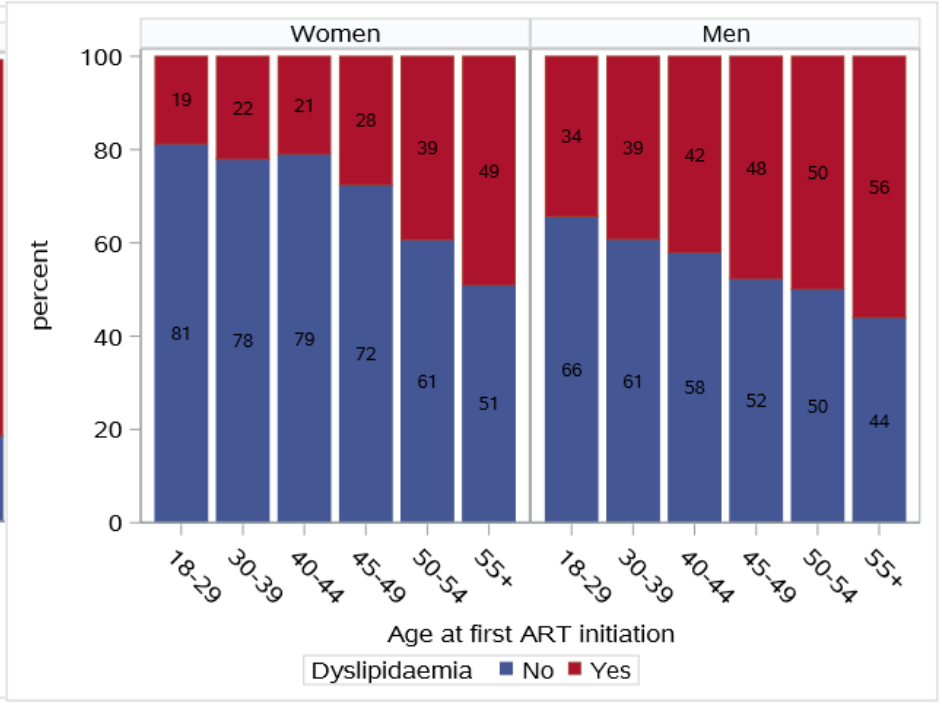
RESPOND baseline



First ART ≥01JAN2012



Figures exclude unknown Dyslipidaemia:
at baseline: women 647 (7.9%) men1805 (7.3%)
at first ART: women 349 (17.4%) men 1107 (14.0%)

Hypertension

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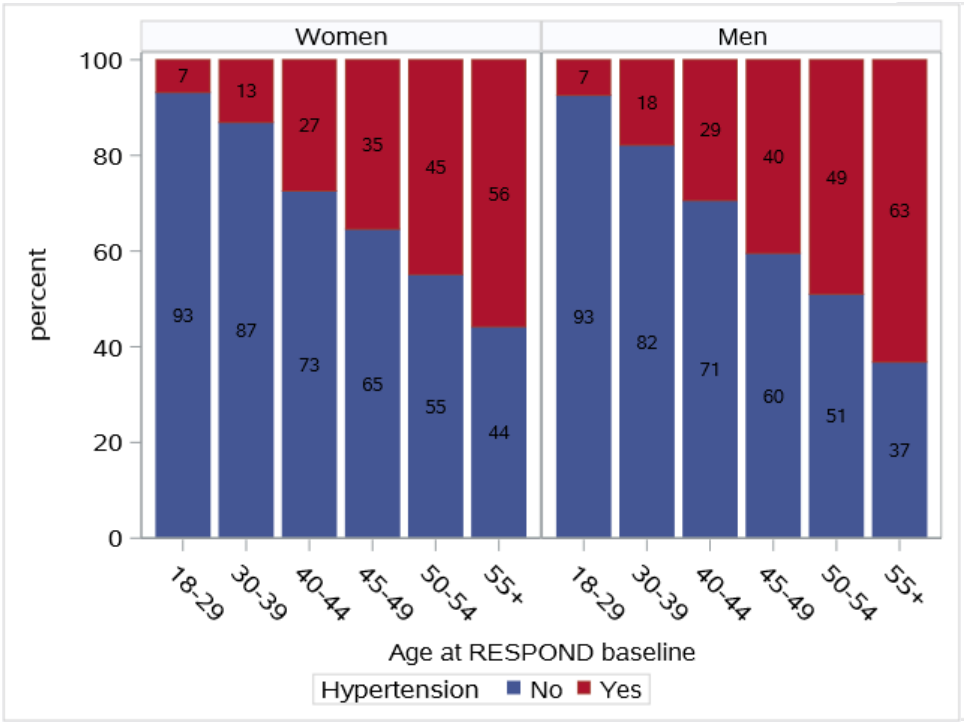
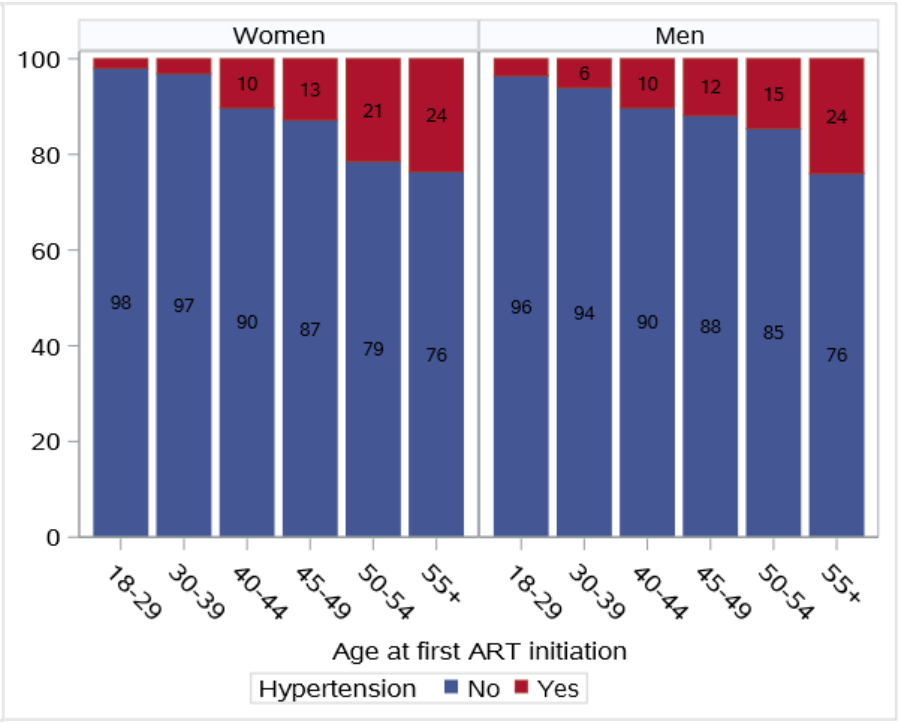
RESPOND baseline



First ART ≥01JAN2012



Figures exclude unknown Hypertension
at baseline: women 2060 (24.7%) men 6708 (27.1%)
at first ART: women 800 (39.9%) men 3518 (44.6%)

Other comorbidity - baseline

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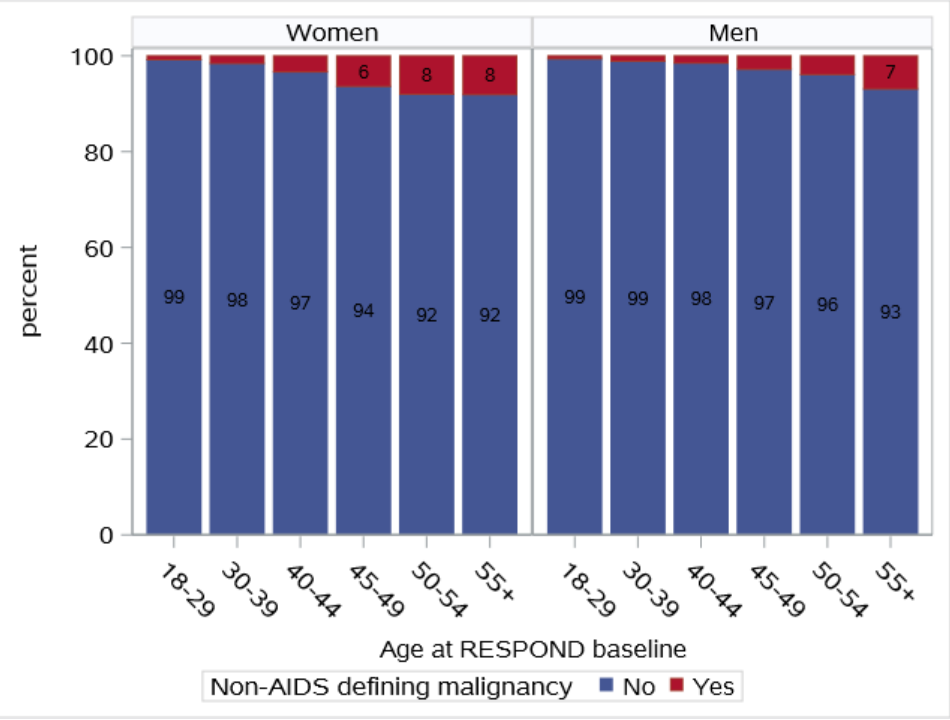
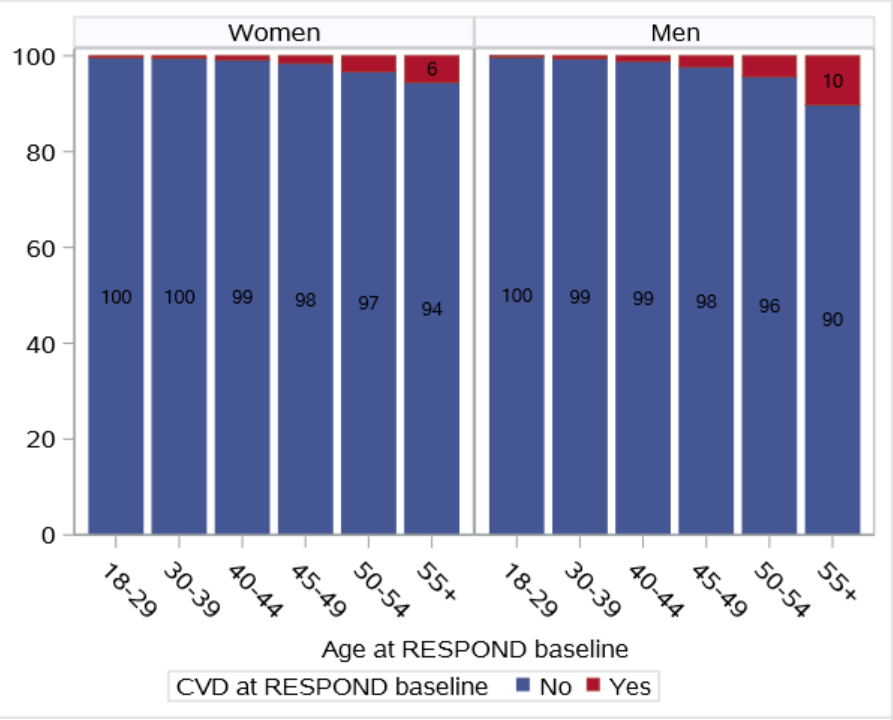
Non-AIDS defining malignancy



Cardiovascular disease (CVD)



Figures exclude unknown comorbidity:
NADM: women 1674 (20.1%) men 3166 (12.8%)
CVD: women 874 (10.5%) men 3173 (12.8%)

Other comorbidity - baseline

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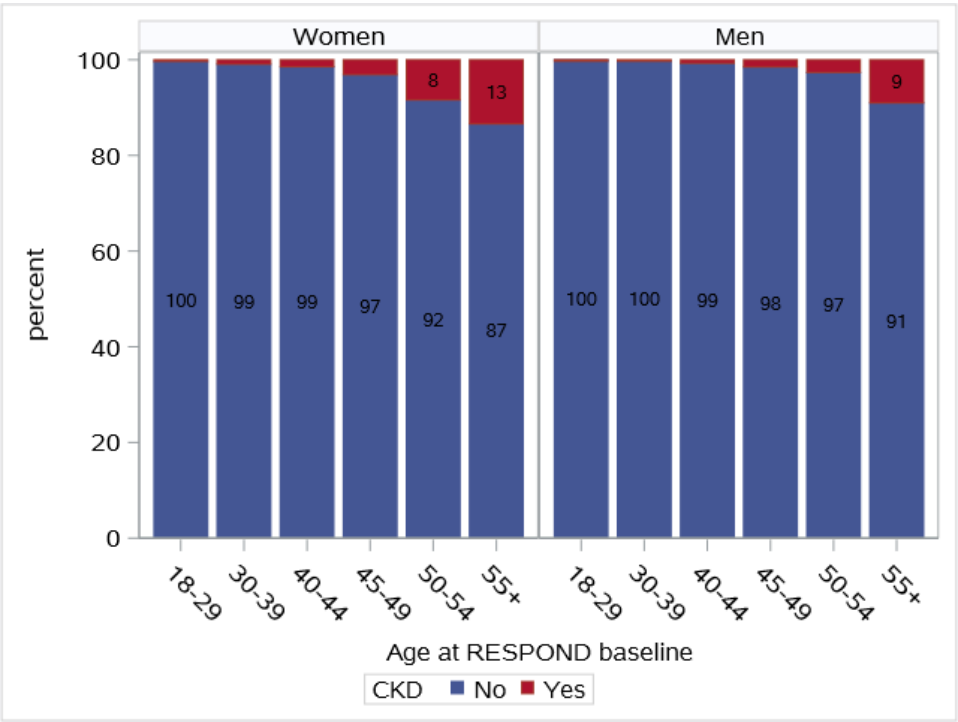
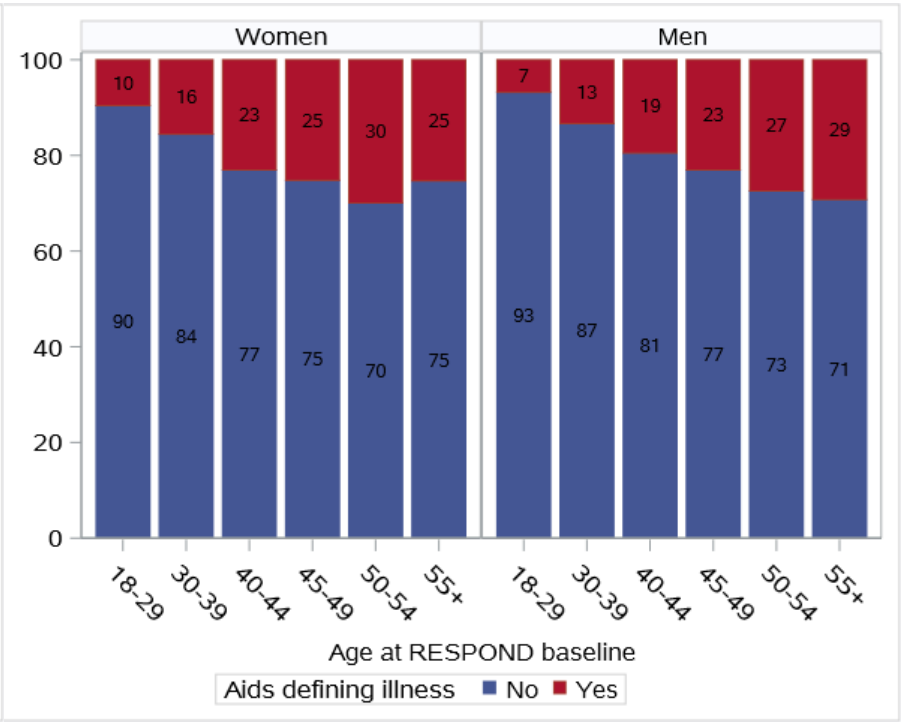
Chronic Kidney Disease (CKD)



AIDS defining illness (ADI)



Figures exclude unknown comorbidity. Unknown comorbidity n (%)
at baseline CKD: women 565 (6.8%) men 1248 (5.0%)
at baseline ADI: women 234 (2.8%) men 1710 (6.9%)

Burden of comorbidity

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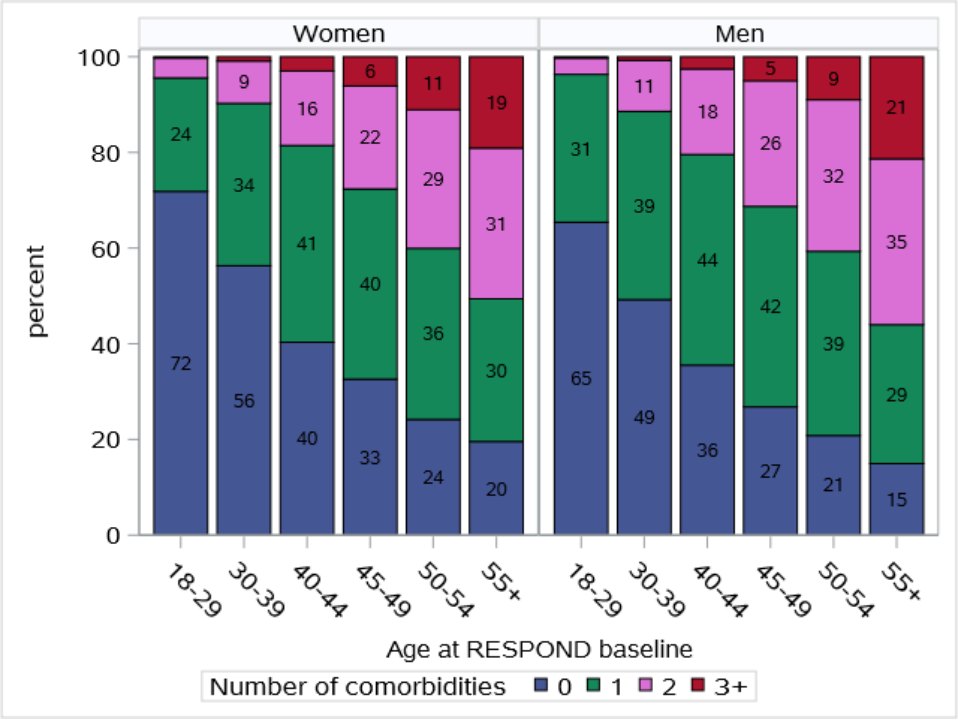
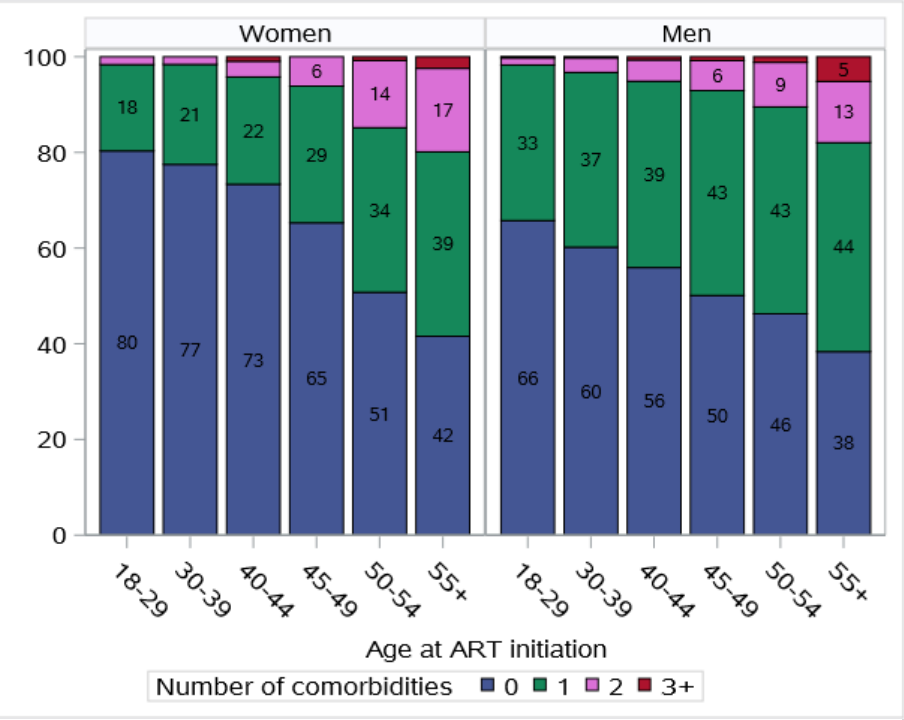
RESPOND baseline



First ART ≥01JAN2012



Number of comorbidities from the following: Hypertension, Diabetes, Dyslipidaemia, NADM, ESLD, Renal Disease (CKD or ESRD) and CVD (Stroke/ICP/AMI)

Figures exclude unknown comorbidity numbers:
at baseline: women 386 (3.4%) men 878 (3.6%)
at first ART: women 245 (12.2%) men 797 (9.7%)

Strengths + limitations

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Limitations:

- Unable to adjust for important confounders including immigrant status, socio-economic status
- Unable to assess time from diagnosis to treatment - access to care has a known sex bias

Strengths:

- A heterogeneous population, > 8000 women with HIV, with a significant amount of data on ARV exposures, comorbidities and mortality.
- Description of MLWH and WLVH at specific ages, particularly older WLWH (55+)

Summary

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WLWH in RESPOND were:

- Younger and more treatment experienced at baseline
- More likely to initiate with low CD4 (<40 years), but less likely to have high VL (<30 +, ≥55 years)
- Less likely to initiate INSTI, more likely to initiate PI/b
- Less comorbidity at ART initiation (<50 years), although greater rates of CKD and NADM at baseline

Perspectives

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- Future analyses include:
  - Extend in multivariable analyses among the treatment naïve subset.
  - Treatment outcomes: virologic and immunologic success at 12 months
  - Investigate the sex-differences in use of interventions to prevent clinical outcomes such as CVD
  - Further interrogation of impacts of age and ageing; and race/ethnicity

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