

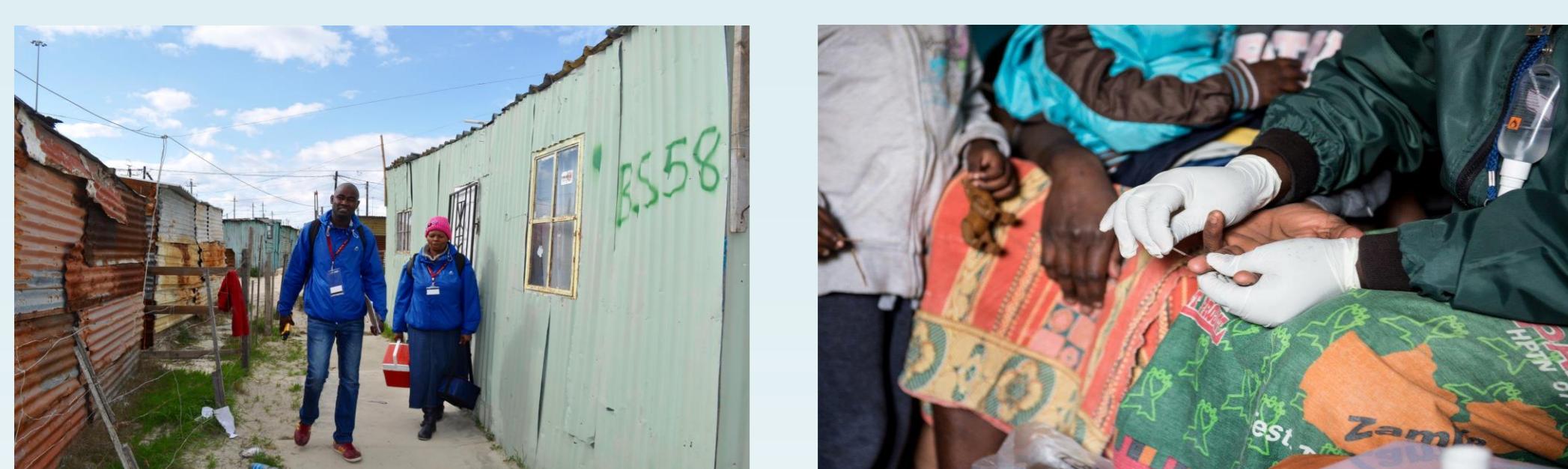
Achieving the first two UNAIDS 90-90-90 targets on completion of a three-year universal testing and treatment (UTT) intervention in the HPTN 071 (PopART) randomised trial in Zambia and South Africa

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BACKGROUND

- The UNAIDS 90-90-90 targets are aimed at substantially decreasing HIV transmission but it is not known whether they can be achieved at scale in urban communities with severe HIV epidemics.
- HPTN 071 (PopART) is a 3-arm community-randomised trial in 21 urban communities in Zambia and the Western Cape of South Africa with high HIV prevalence, and high mobility especially among young adults.
- The study is testing the impact on HIV incidence of a household-based combination HIV prevention intervention (Arms A&B) provided by Community HIV-care Providers (CHiPs), compared with standard-of-care (Arm C).
- In Arm A communities, CHiPs offered universal testing; universal treatment was delivered through routine government health services. The intervention was delivered from November 2013 to December 2017, to a general population with ~175,000 individuals aged ≥15 years.
- We report findings after three annual rounds of delivering the universal testing and treatment (UTT) intervention in the 4 Arm A communities in Zambia and 3 Arm A communities in South Africa, to determine whether the first two of the 90-90-90 targets were reached by the end of the intervention in 2017.



(a) A pair of CHiPs delivering house-to-house services in one of the South African communities; (b) providing household-based rapid HIV testing in Zambia

METHODS (1)

PopART INTERVENTION

- The PopART intervention comprised “annual rounds” of home-based HIV counselling and testing delivered by CHiPs, and provision of other HIV-related services. CHiPs made repeat visits to HIV+ individuals during each annual round, to support linkage to HIV care and retention on ART.
- The first annual round (R1) was from November 2013 to June 2015. R2 was from June 2015 to October 2016. R3 was from September 2016 to December 2017.

ESTIMATION OF NUMBER OF HIV+ INDIVIDUALS IN POPULATION

- All estimates were calculated for individuals aged ≥15 years, separately for men and women.
- Estimates were calculated with stratification on community of residence and age-group (15-17, 18-19, 20-24, 25-29, ..., 60-64, ≥65).
- For Zambia (but not for SA), estimates for R2 and R3 were also stratified on participation, residency in the same area of the community and HIV status in previous rounds.
- We estimated the number of HIV+ individuals in R3 as the sum of:
 - the number who were **known by CHiPs to be HIV+** in R3, because they either confirmed their HIV+ status as recorded in R1 and/or R2, self-reported they were HIV+ for the first time in R3, or were newly diagnosed HIV+ by the CHiPs in R3;
 - an estimated number among those whose **HIV status was not known to CHiPs** in R3, because they did not self-report HIV+, or accept the offer of HIV testing, or self-report an HIV-negative test in the previous 3m. We assumed HIV prevalence in this group was the same as among those who accepted HIV testing in R3.
- We extrapolated to the total population by assuming HIV prevalence among non-participants in R3 was the same as among participants.

METHODS (2)

ESTIMATION OF FIRST AND SECOND 90s

- Among participants, we calculated:
 - the proportion of HIV+ adults who knew their HIV+ status **immediately before R3** as the total who self-reported they were HIV+ divided by the estimated number of HIV+ adults;
 - the proportion who knew their HIV+ status **by the end of R3** as the total who were known by the CHiPs to be HIV+ following the R3 annual visit, divided by the estimated number of HIV+ adults;
 - the proportion who were on ART **immediately after the R3 annual visit**, among those who knew their HIV+ status, as the total who self-reported they were on ART divided by the number who were known by the CHiPs to be HIV+ immediately following the R3 annual visit;
 - the proportion who were on ART **by the end of R3**, among those who knew their HIV+ status, as the total who self-reported they were on ART at the last CHiP visit made during R3 divided by the number who were known by the CHiPs to be HIV+ and they were still resident according to the last information collected during R3.
- We extrapolated to the total population, by assuming that knowledge of HIV+ status and ART uptake **among non-participants** in R3 was the same as among participants **before** the R3 annual visit and that it did not change during R3 – with stratification on gender, community, age-group, and (for Zambia only) prior participation in the intervention and residency in R1 and R2.

RESULTS (1)

PARTICIPATION IN THE INTERVENTION IN ROUND 3

- By December 31 2017, 75,472 households had been visited by CHiPs in R3, ~100% of all households in the community; of these, 94% consented to the intervention being (re-) explained to them and to all household members being listed on the electronic “household member” register maintained by the CHiPs.
- 193,907 people aged ≥15 years were recorded as residents of these households by December 31 2017.
- Overall, in Zambia 67% (41,332 / 61,402) of men and 86% (56,345 / 65,896) of women participated in R3; in South Africa 56% (17,813 / 32,095) of men and 71% (24,461 / 34,514) of women participated in R3.
- The lower figures for participation among men were because it was harder for CHiPs to contact men at home compared with women.

ESTIMATED NUMBER OF HIV+ INDIVIDUALS IN THE POPULATION

- Estimated numbers of HIV+ individuals aged ≥15 years in the total population were 6,244 men and 11,418 women in Zambia, and 3,088 men and 6,443 women in South Africa (Table 1).

ESTIMATES OF FIRST AND SECOND 90s EXTRAPOLATED TO TOTAL POPULATION

- By the end of R3, estimates of the first 90 for men and women were 87% and 94% respectively in Zambia, and 86% and 95% in S Africa (Table 1, Fig 1).
- By the end of R3, estimates of the second 90 for men and women were 88% and 89% respectively in Zambia, and 85% and 92% in S Africa (Table 1, Fig 1).

FIRST AND SECOND 90s BY GENDER AND AGE EXTRAPOLATED TO TOTAL POPULATION

- Estimates of the first and second 90s extrapolated to the total population are shown by gender and age-group in Figs 3 and 4.
- In both countries and both men and women, the first and second 90s were achieved or exceeded in adults aged 30 years or over.
- However, some gaps in coverage remained, particularly among young men aged 18-34 years, and young women aged 15-29 years.

RESULTS (2)

FIGURE 1. First and Second 90 estimates for Zambia and South Africa, overall

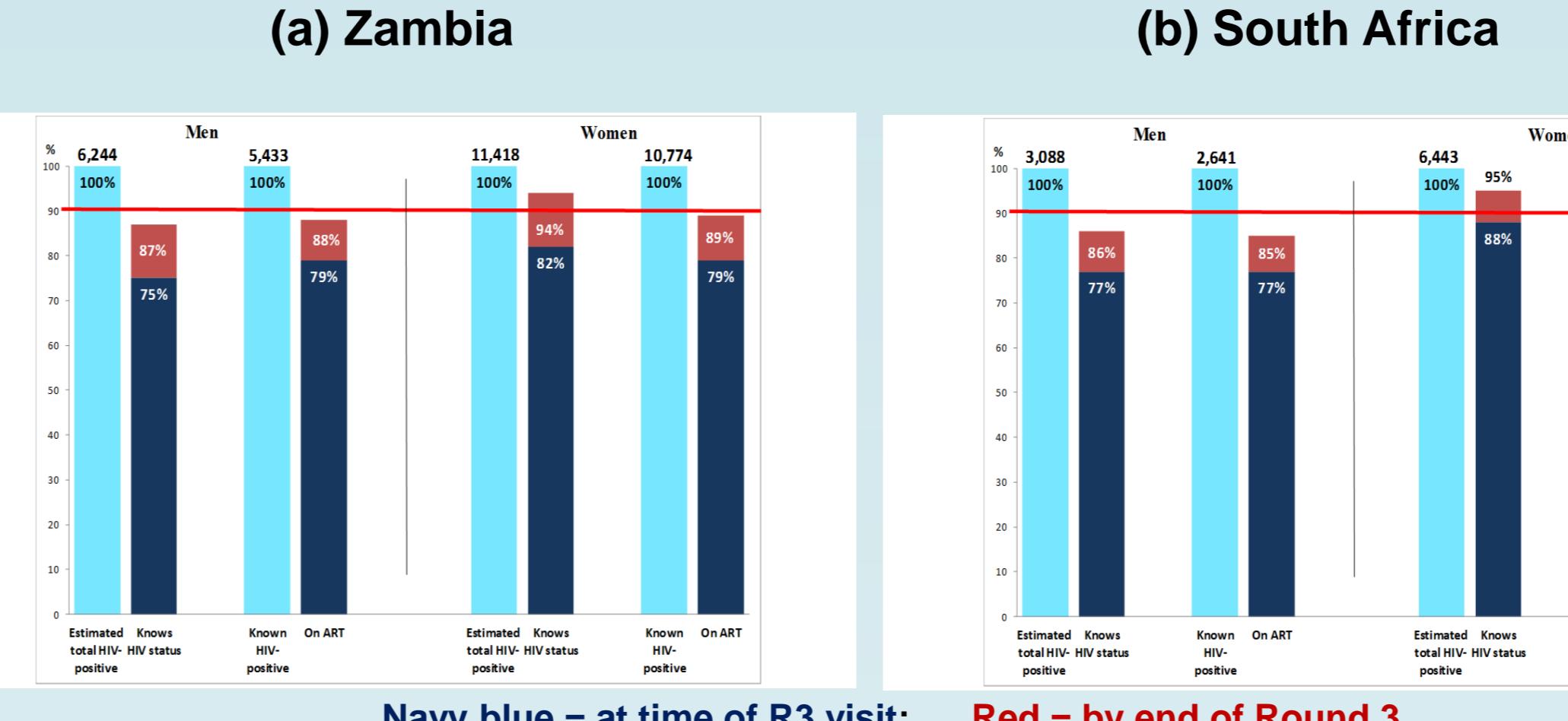


FIGURE 2. First and Second 90 estimates by gender and age group, Zambia

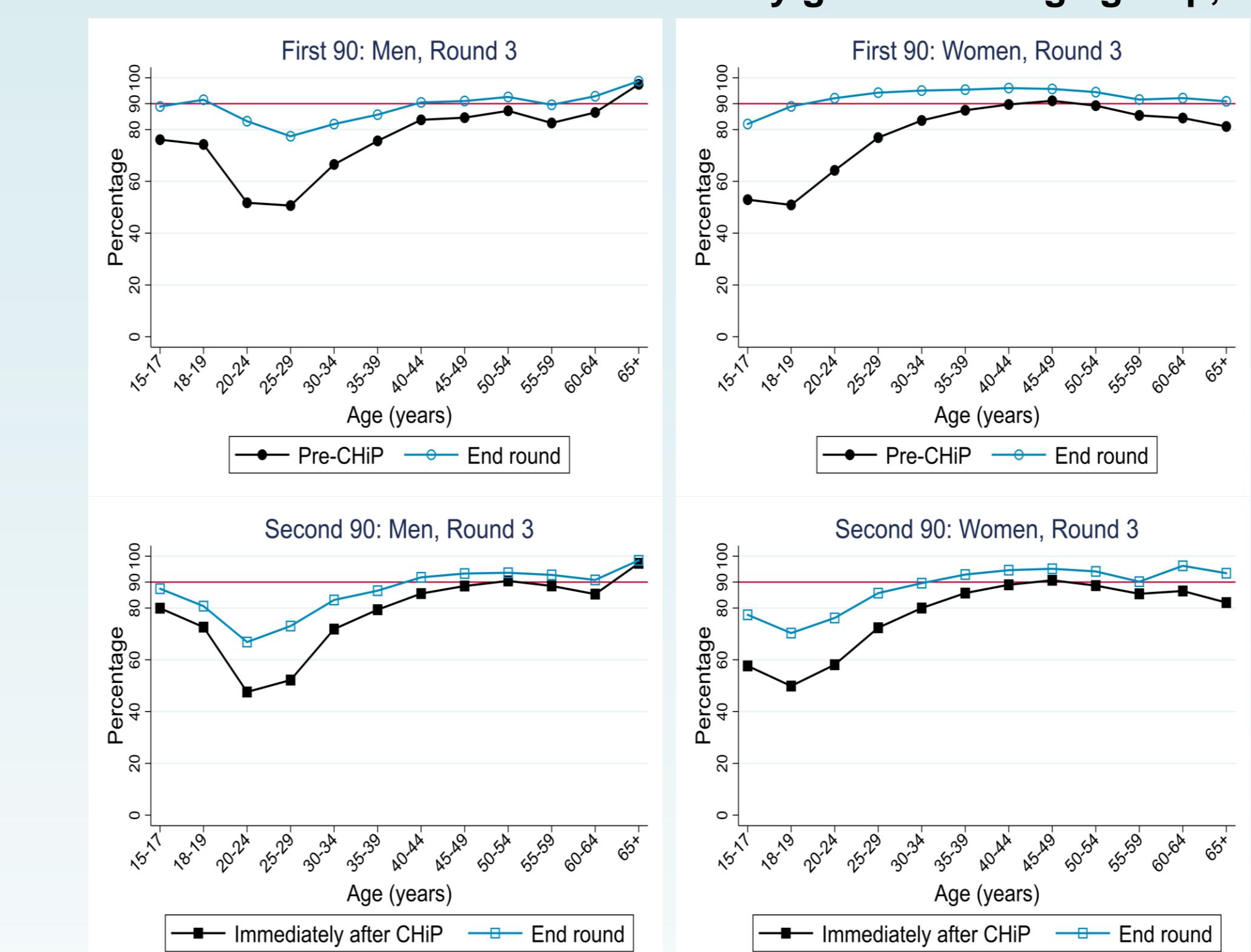


FIGURE 3. First and Second 90 estimates by gender and age group, South Africa

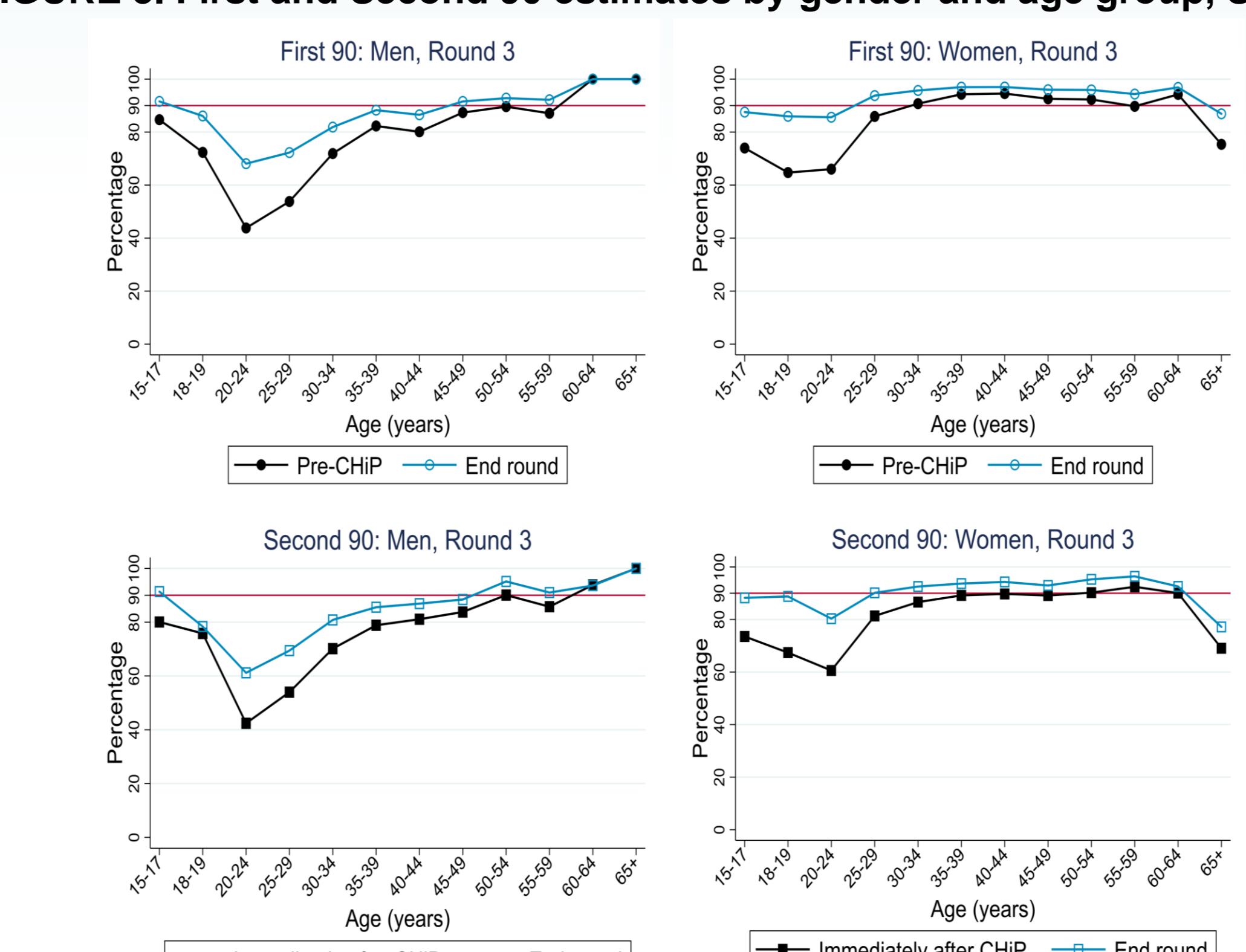


Table 1. 90-90 estimates before and after the third annual round of the PopART intervention, among individuals (age 15+) who participated in the intervention and with extrapolation to the total population

	Estimated HIV+ individuals / total population (%)	Immediately before R3 annual round visit	At end of R3 after R3 annual round visit	First 90 (%)	Second 90 (%)
ZAMBIA					
Individuals who participated					
Men	3,736 / 41,332 (9.0%)		78	97	73
Women	9,395 / 56,345 (16.7%)		82	97	89
Extrapolated to total pop'n					
Men	6,244 / 64,704 (9.7%)		75	87	79
Women	11,418 / 69,458 (16.4%)		82	94	89
TOTAL	17,662 / 134,162 (13.2%)		80	92	79
SOUTH AFRICA					
Individuals who participated					
Men	1,557 / 17,813 (8.7%)		77	93	70
Women	4,366 / 24,461 (17.8%)		88	97	82
Extrapolated to total pop'n					
Men	3,088 / 34,245 (9.0%)		77	86	77
Women	6,443 / 36,859 (17.5%)		88	95	84
TOTAL	9,531 / 71,104 (13.4%)		85	92	80

CONCLUSIONS

- After three annual rounds of intervention in these urban communities, with high mobility and migration, we estimated that the first and second 90 targets were achieved overall among adults aged 15+.
- In both countries, the targets were exceeded in women and almost reached among men.
- Continuing efforts are needed to reach the remaining HIV+ not yet diagnosed and on ART, and link them to care - particularly among younger adults (especially young men) where important gaps remain.

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