

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 generalised epidemics.
- HPTN071 (PopART) is a 3-arm community randomised study 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 approach (Arms A & B) provided by community HIV care providers (CHiPs), compared with standard-of-care (Arm C).
- In Arm A communities, CHiPs offer universal testing; universal treatment is delivered through routine government health services. The ongoing programme to deliver universal testing and treatment (UTT) at population level is the largest in Africa, covering a population of ~175,000 adults.
- We report findings after two annual rounds of delivering the UTT intervention in 4 communities in Zambia, to determine how close we have come to the 90-90 targets.



Photographs of CHiP teams in Zambia who deliver the PopART intervention: (a) outside a government health clinic where ART is provided; (b) providing household-based rapid HIV testing

METHODS AND RESULTS

ESTIMATION OF FIRST AND SECOND 90S

- Among participants, we calculated:
 - the proportion of HIV+ adults who knew their HIV+ status **immediately before R2** 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 R2** as the total who were known by the CHiPs to be HIV+ following the R2 annual visit, divided by the estimated number of HIV+ adults;
 - the proportion who were on ART **immediately after the R2 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 R2 annual visit;
 - the proportion who were on ART **by the end of R2**, among those who knew their HIV+ status, as the total who self-reported they were on ART at the last CHiP visit made during R2, 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 R2.
- We extrapolated to the total population, by assuming that knowledge of HIV+ status and ART uptake **among non-participants** in R2 was the same as among participants **before** the R2 annual visit and that it did not change during R2.

METHODS

PopART INTERVENTION

- The PopART intervention comprises annual rounds of home-based HIV counselling and testing delivered by CHiPs, and provision of other HIV-related services. CHiPs make 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.
- The second annual round (R2) was from June 2015 to October 2016.

ESTIMATION OF NUMBER OF HIV+ ADULTS IN POPULATION

- All estimates were calculated separately for men and women.
- All estimates were calculated with stratification on community of residence and 11 age groups (18-19 years, 20-24 years, ..., ≥65 years).
- For R2, estimates were also stratified on participation (yes or no) and HIV status (HIV-positive, HIV-negative, or unknown) in R1.
- Among adults (age ≥18 years) who participated in R2, we estimated the number of HIV+ adults as the sum of:
 - the number who were **known by the CHiPs to be HIV+** in R2, because they either confirmed their HIV+ status as recorded in R1, self-reported they were HIV+ for the first time in R2, or they were newly diagnosed HIV+ by the CHiPs in R2;
 - an estimated number among those whose **HIV status was not known to CHiPs** in R2, because they did not self-report HIV+ nor accept the offer of HIV testing nor self-report an HIV-negative test in the previous 3 months. We assumed HIV prevalence in this group was the same as among those who accepted HIV testing in R2.
- We extrapolated to the total population, by assuming HIV prevalence among non-participants in R2 was the same as among participants.

PARTICIPATION IN THE INTERVENTION IN ROUND 2

- By the end of August 2016, 45,616 households had been visited by CHiPs in R2, ~95% of all households in the community.
- Among visited households, 95% 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.
- 110,755 adult residents (aged ≥18 years) of these households were listed by August 31 2016.
- Overall, 65% (34,538 / 53,486) of men and 87% (49,648 / 57,269) of women participated in R2; the lower figures among men were because it was harder for CHiPs to contact men at home compared with women.

ESTIMATED NUMBER OF HIV+ ADULTS IN THE POPULATION

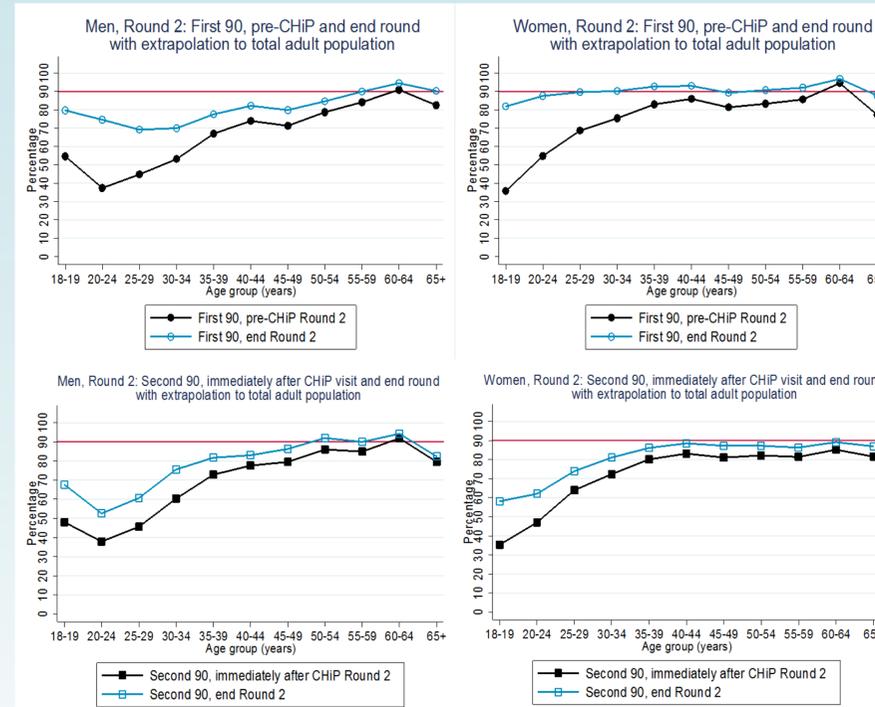
- Estimated numbers of HIV+ individuals in the total adult population were 6,216 men and 10,341 women (Table 1).

ESTIMATES OF THE FIRST AND SECOND 90S

- By the end of R2, estimates of the first 90 for men and women were 78% and 90% respectively, and our estimate of the second 90 was 80% for both men and women (Table 1).**

RESULTS AND CONCLUSION

FIGURE 1. First and Second 90 estimates by gender and age group, Round 2



FIRST 90 ESTIMATES, BY GENDER AND AGE

- Immediately before the R2 annual visit, the percentage of HIV+ men who knew their HIV+ status was considerably below 90%, except for men ≥50 years. By the end of R2, ~70-80% of men aged 18-49 years knew their HIV+ status, with figures close to 90% among men aged ≥50 years.
- Immediately before the R2 annual visit, the percentage of HIV+ women who knew their HIV+ status was close to 90% for women ≥35 years, but much lower for younger women. By the end of R2, close to 90% of HIV+ women knew their HIV+ status across the whole age range.

SECOND 90 ESTIMATES, BY GENDER AND AGE

- Immediately after the R2 annual visit, the percentage of men who were on ART among those who knew their HIV+ status was approaching 90% for men ≥50 years but much lower for younger men. By the end of R2, there was an increase across the whole age range, with figures >80% for men ≥35 years.
- By the end of R2, the percentage of women who were on ART among those who knew their HIV+ status approached 90% for those aged ≥ 35 years, and in the range 60-80% for younger women.

CONCLUSION

- After two rounds of delivering the PopART intervention, 90% of HIV+ women and ~80% of HIV+ men were estimated to know their HIV+ status, approaching the first-90 target.
- Of those known HIV+, an estimated 80% were on ART, approaching the second-90 target.
- Continuing efforts are needed to speed up linkage to HIV care and ART initiation so as to reach the second-90 target, especially among younger adults. Reaching the goal of eliminating new HIV infections will be challenging unless 90-90 targets are met for young as well as older adults.
- Lower coverage in the large number of clients who participated for the first time in Round 2 emphasizes the need for annual re-visits in urban communities with high rates of mobility and in-migration.

ESTIMATES OF THE FIRST AND SECOND 90S (CONTINUED)

- At both the start and end of R2, for both men and women, estimates of the first and second 90's were considerably higher among those who participated in R1 compared to those who participated for the first time in R2

Table 1. 90-90 estimates at the start and end of R1 and R2, with extrapolation to total adult population

	Estimated number of HIV+ adults	First 90 (%)		Second 90 (%)	
		Immediately before annual round visit	End Round	Immediately after annual round visit	End Round
Men					
Round 1 (R1)	6649	52	78	54	74
Round 2 (R2)	6249	65	78	71	80
R2, participated R1	2700	87	92	79	85
R2, not participated R1	3549	48	67	62	75
Women					
Round 1 (R1)	11037	56	87	53	73
Round 2 (R2)	10341	75	90	71	80
R2, participated R1	5666	89	96	79	85
R2, not participated R1	4675	57	84	61	74

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