Universal Test & Treat trials: What they tell us about HIV Epidemic Control in 2019

Yo tsie
TOGETHER WE CAN STOP HIV

SEARCH
SUSTAINABLE EAST AFRICA RESEARCH IN COMMUNITY HEALTH

PopART
HPTN 071

TasP
ANRS 12249

What do the Universal HIV test and treat (UTT) trials tell us about HIV Epidemic Control in 2019?

“First Generation” Universal Test and Treat Trials

- Randomized, **population**-based **combination intervention studies** integrating **HIV testing**, **prevention** and **treatment**
- Conducted in Southern and Eastern Africa across a range of HIV prevalence
- Conducted during global transitions to “treat all”, “differentiated care,” and rapid ART start
- Pre-dated PrEP roll-out
- Short follow-up ~3 years
- Used measurement approaches that impacted outcomes (HIV diagnosis, viral suppression, and possibly behavior) in intervention and control arms

UTT Trial Designs

Trial	BCPP/Ya Tsie		PopART			SEARCH		TasP	
Country	Botswana		South Africa / Zambia			Kenya / Uganda		South Africa	
Prevalence	29%		22%			4-19%		30%	
Arm	C	I	C	I Arm A	I Arm B	C	I	C	I
Universal testing	-	✓ Home, mobile	-	✓ Home + field (men, youth)	✓ Home + field (men, youth)	✓ Multi-dz Fairs/ Home	✓ Multi-dz Fairs/ Home	✓ Home	✓ Home
Testing frequency		Baseline; ongoing targeted		Ongoing Annual	Ongoing ~Annual	Baseline	Annual	6 monthly	6 monthly
Enhanced linkage		✓		✓	✓		✓		✓
Rapid ART Start		✓ (from 2016)					✓		
Universal Treatment	✓ (from 2016)	✓ (from 2016)	✓ (from 2016)	✓	✓ (from 2016)	✓ (from 2016)	✓		✓
Differentiated ART Delivery				✓ (Zambia)	✓ (Zambia)		✓		

Study Interventions: Universal HIV testing

Goal: Ensure all PLHIV are HIV tested (or retested) and offered rapid ART start

1. Persons not previously HIV diagnosed (and newly-infected, as soon as possible)
2. Persons already diagnosed with HIV but who have not started ART or who have fallen out of care

Approach: "Out of facility" (increase access, reduce stigma)

Community partnerships and mobilization followed by

1. Home testing & mobile testing (BCPP, PopART, TasP)
2. Multi-disease health fairs followed by home testing for non-participants (SEARCH)
3. Demand generation strategies for men and youth
4. Repeated regularly (6 monthly or yearly)

Study Interventions: Linkage & ART start

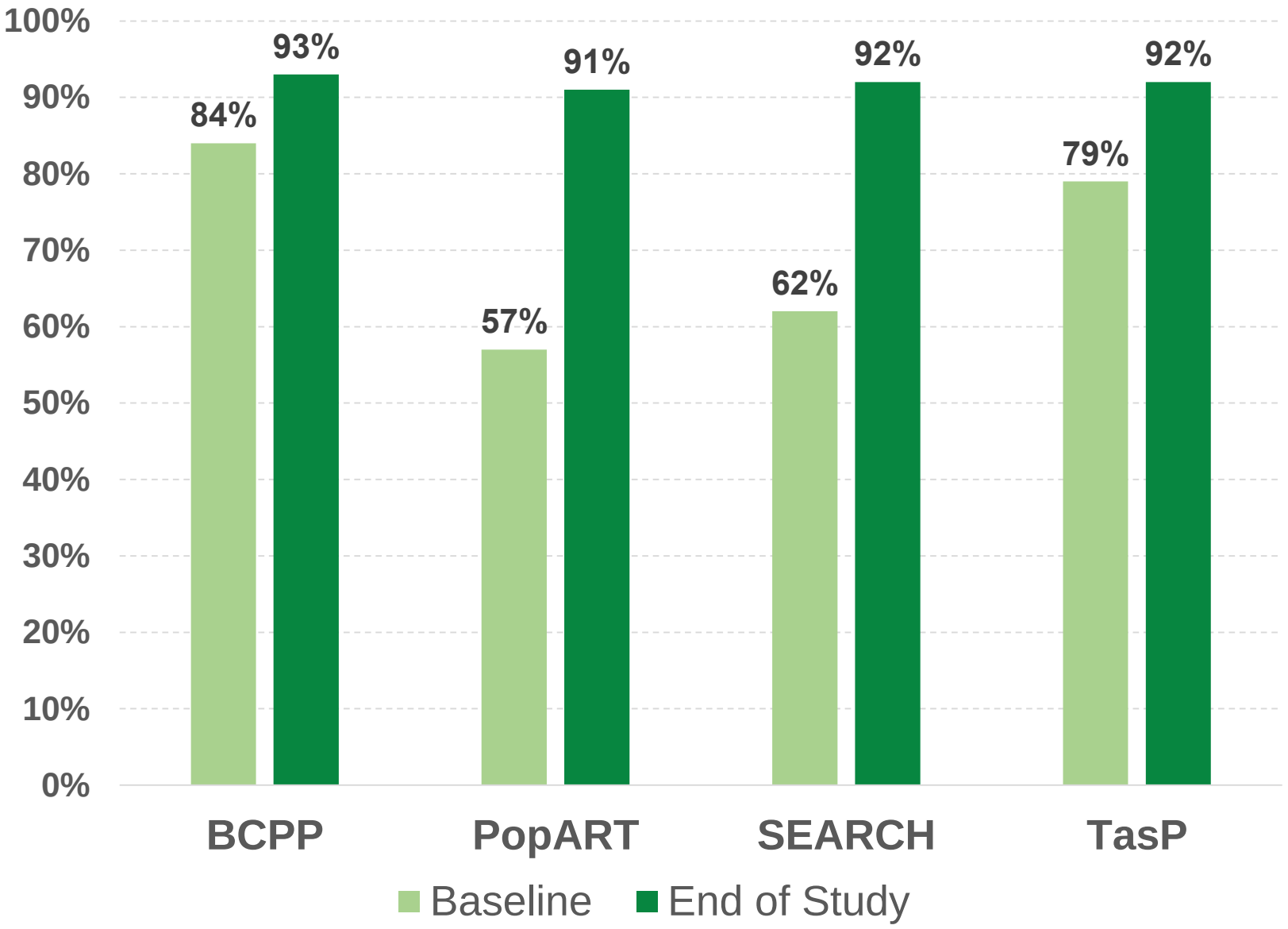
- **Goal: Ensure all PLHIV out of care are offered rapid linkage and ART start upon HIV testing**
- **Approach: Patient-centered interventions to bridge out-of-facility testing to clinic with ongoing retention support**
  1. Health workers facilitated linkage from home or health fair testing
  2. Rapid ART start (same-day with starter packs or 1st clinic visit)
  3. Supportive (not punitive) clinic environment, text appointment reminders with tracking, men & youth ”friendly, multi-disease (SEARCH)

With UTT, >90% of all PLHIV were tested (1st 90)

- Achieved within 1-2 of years in some studies
- In a variety settings- urban and remote rural

*Intervention arms only.
PopART Intervention arms combined

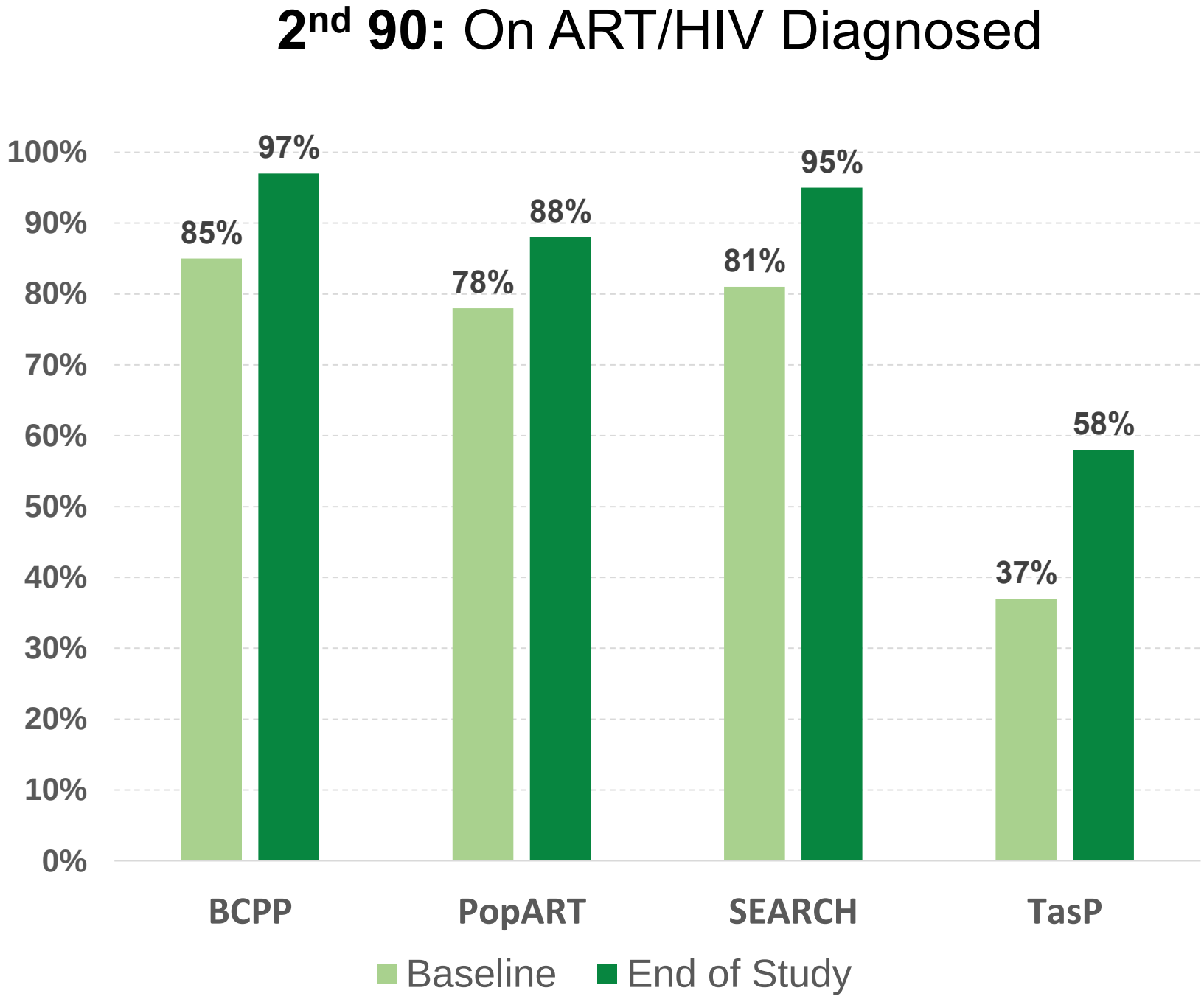
1st 90: Known HIV Status / All HIV+



With UTT, 3 studies started ART in ~90-97% (2nd 90)

- Rapid linkage and much faster ART start in intervention arms
- Low linkage in TasP, but ART initiation high once linked to clinics

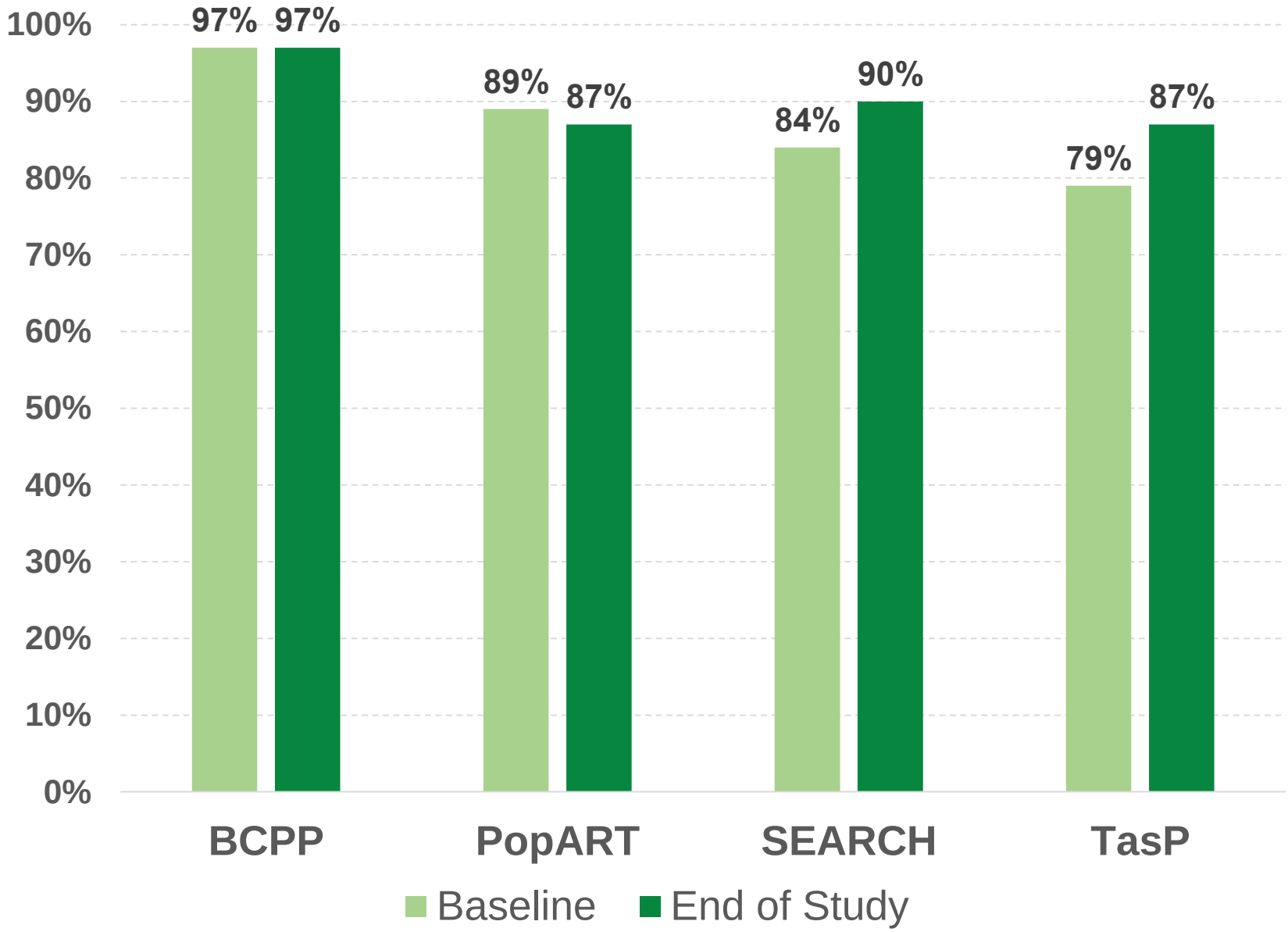
*Intervention arms only.
PopART Intervention arms combined



With UTT, all studies reached viral suppression ~90% if on ART (3rd 90)

*Intervention arms only.
PopART Intervention arms combined

3rd 90: Virally suppressed/on ART



With UTT, 3 studies reached Population-level viral suppression >73%

- Dramatic increases in population viral suppression over short period of time
- From low (23%) or high (70%) starting point

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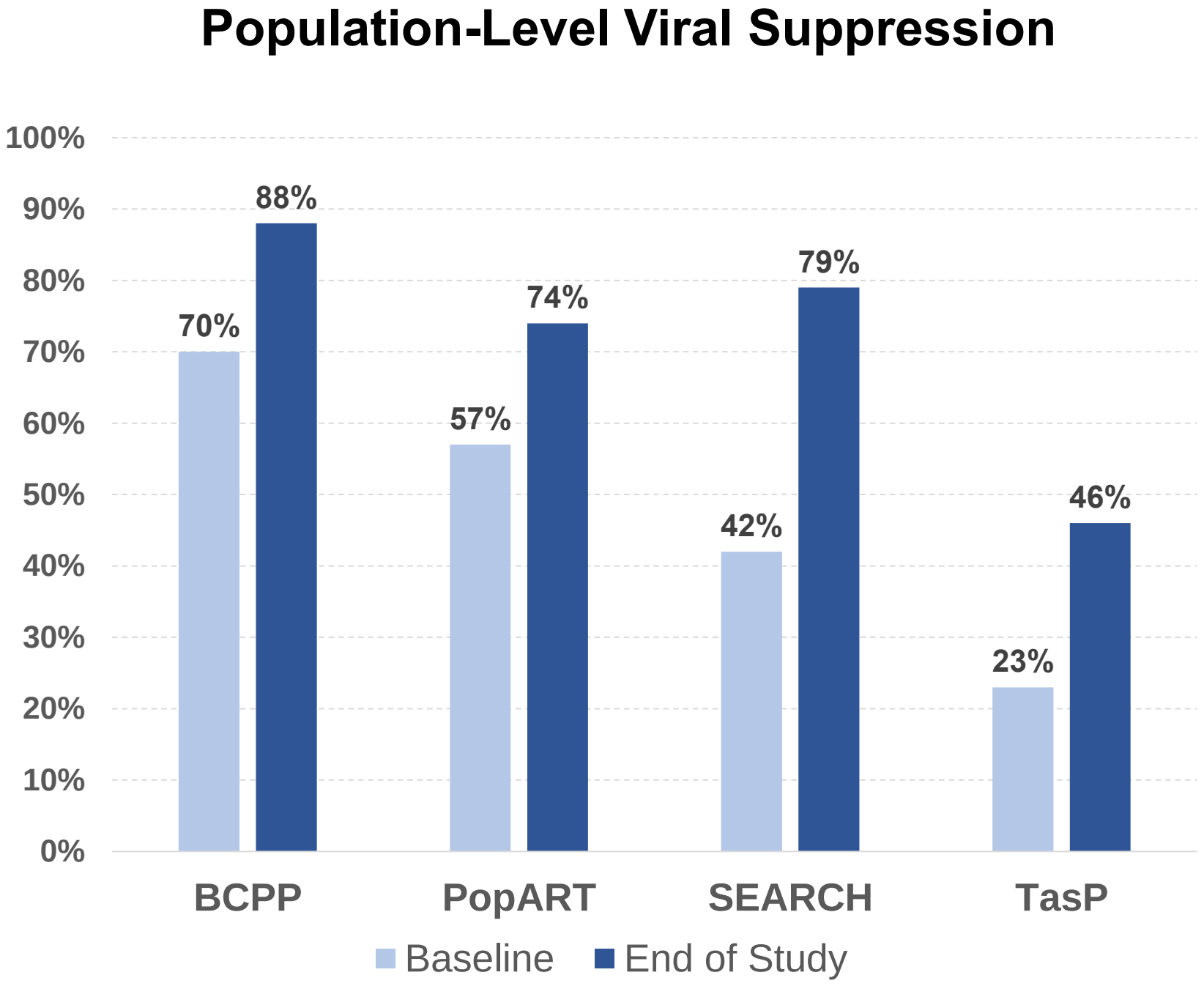
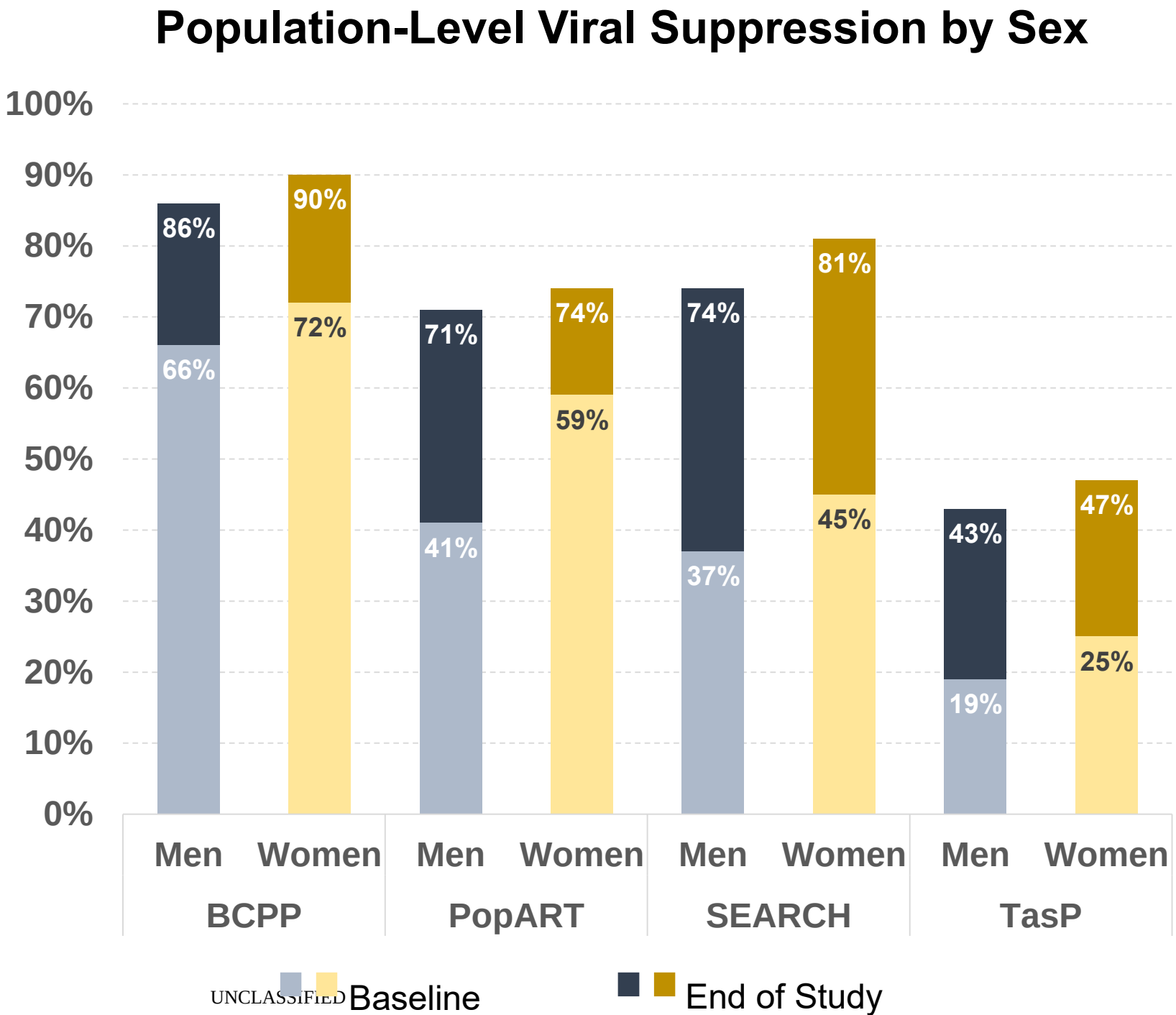
PopART Intervention arms combined



Interventions effectively increased population level suppression in both men and women

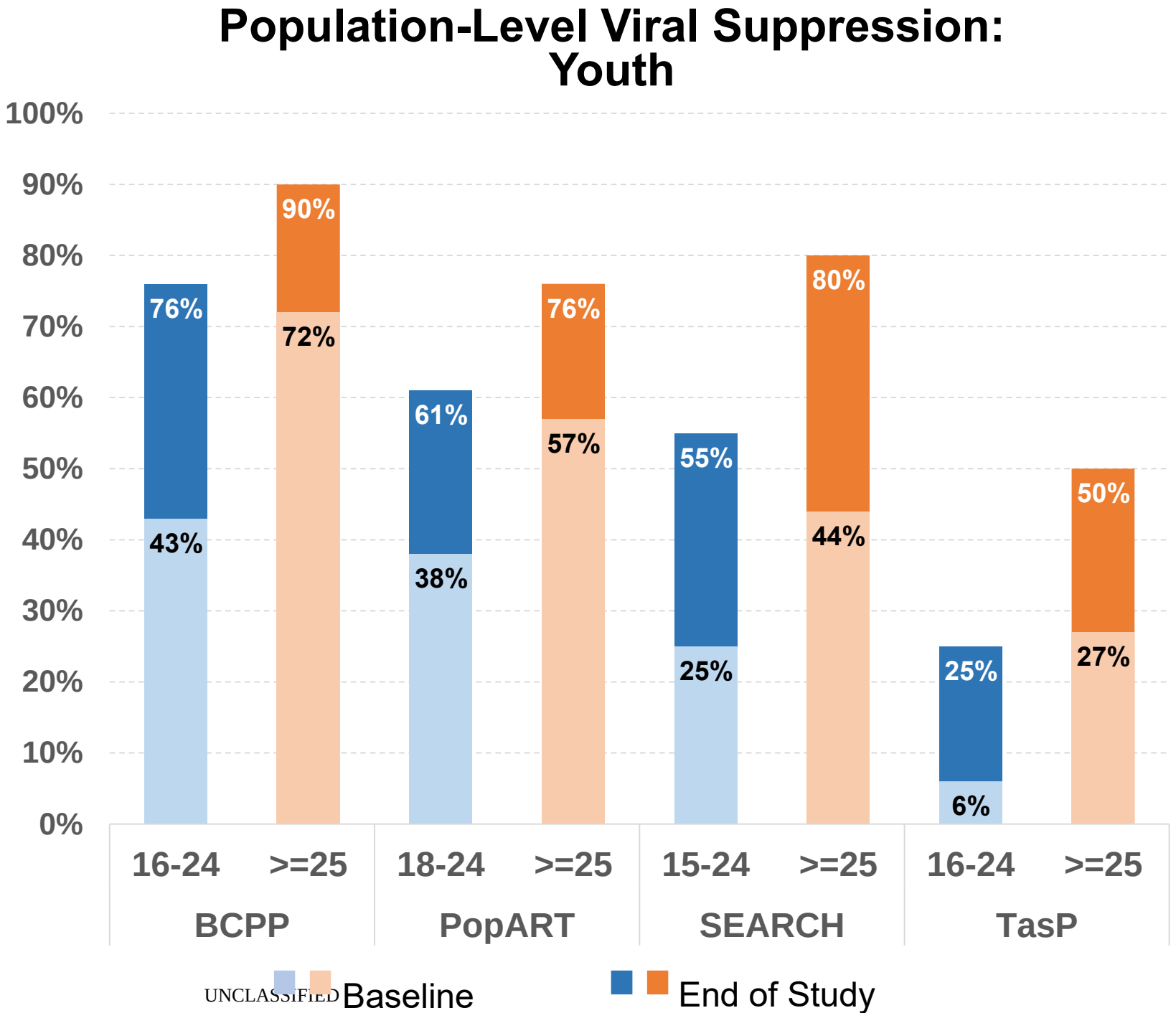
*Intervention arms only.
PopART Intervention arms combined



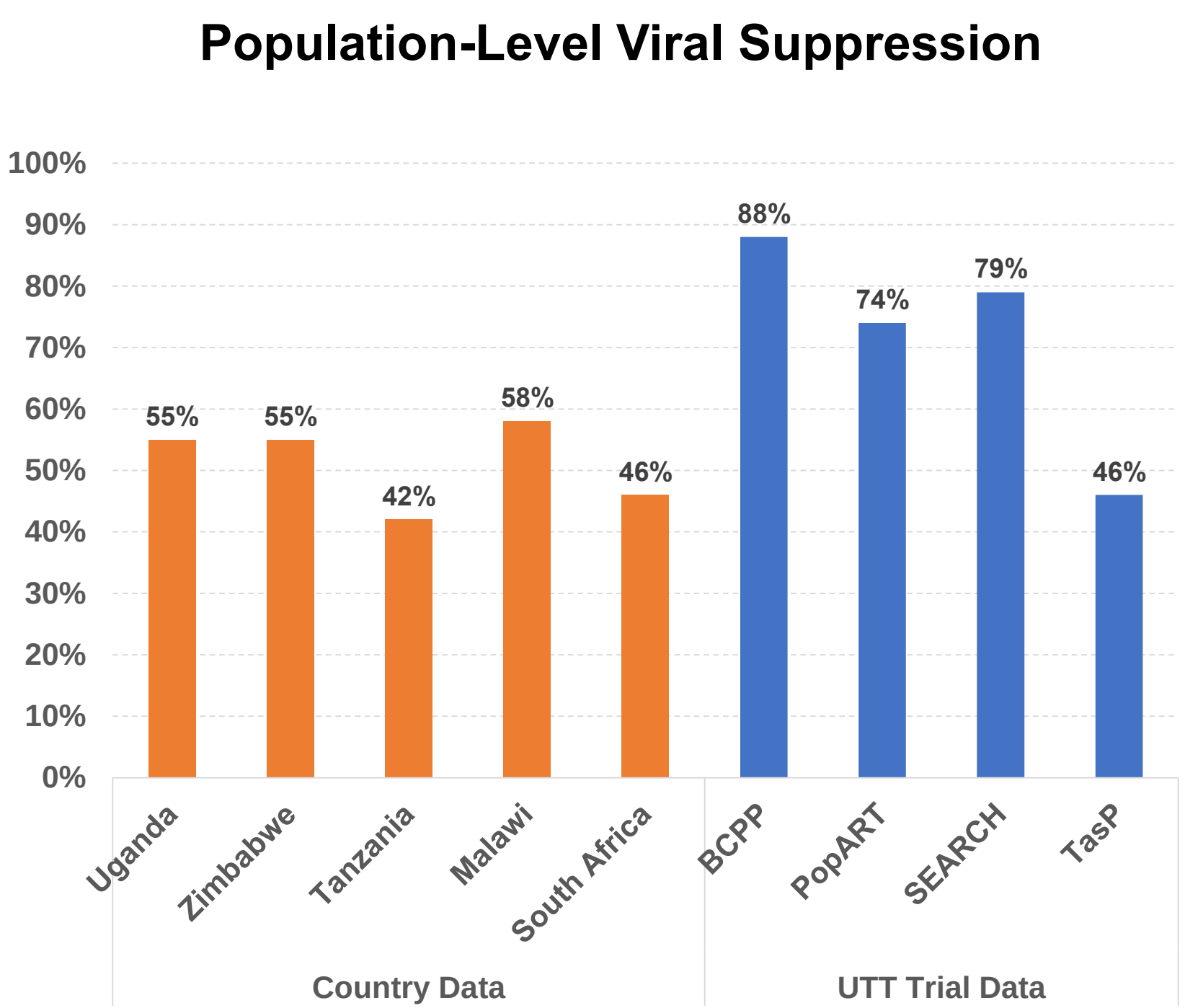
Interventions showed variable gains in youth

- Suppression among youth still remains low in all studies
- Contributions from new infections and worse ART uptake and outcomes

*Intervention arms only.
PopART Intervention arms combined



UTT Population-Level Viral Suppression Exceeds Current "Standard of Care" in most African Countries



Country VS Ref: El-Sadr, NEJM, 2019, and UNAIDS Report

Summary: Universal testing and treatment is feasible

1. **UTT rapidly increased population-level viral suppression levels exceeding most SSA country level estimates**
   - › Across a spectrum of HIV prevalence, baseline viral suppression
   - › Using different approaches, but with key commonalities
2. **Universal testing both re-engaged prior HIV+s to care and identified new HIV infections**
   - › Robust linkage and rapid ART start interventions increased viral suppression
3. **Achieved substantial increases in suppression among men and youth**
   - › Disparities in some cases reduced, but not eliminated

Did implementation of UTT reduce HIV incidence?

HIV Incidence findings

- Population-level outcome
- Reflect very short time frame of these trials (~3 years)

1. **HIV incidence effect (~20-30% reduction) observed when UTT compared to a control *without* universal testing (BCPP & PopART)**

2. **HIV incidence reduced (~30%) in *both arms* when control arm had universal testing (SEARCH)**
   - 32% reduction observed between years 1 and 3 (SEARCH intervention arm)

Note: Impact of UTT intervention in trials setting (vs national-scale up) was almost certainly underestimated, due to mixing outside of intervention communities

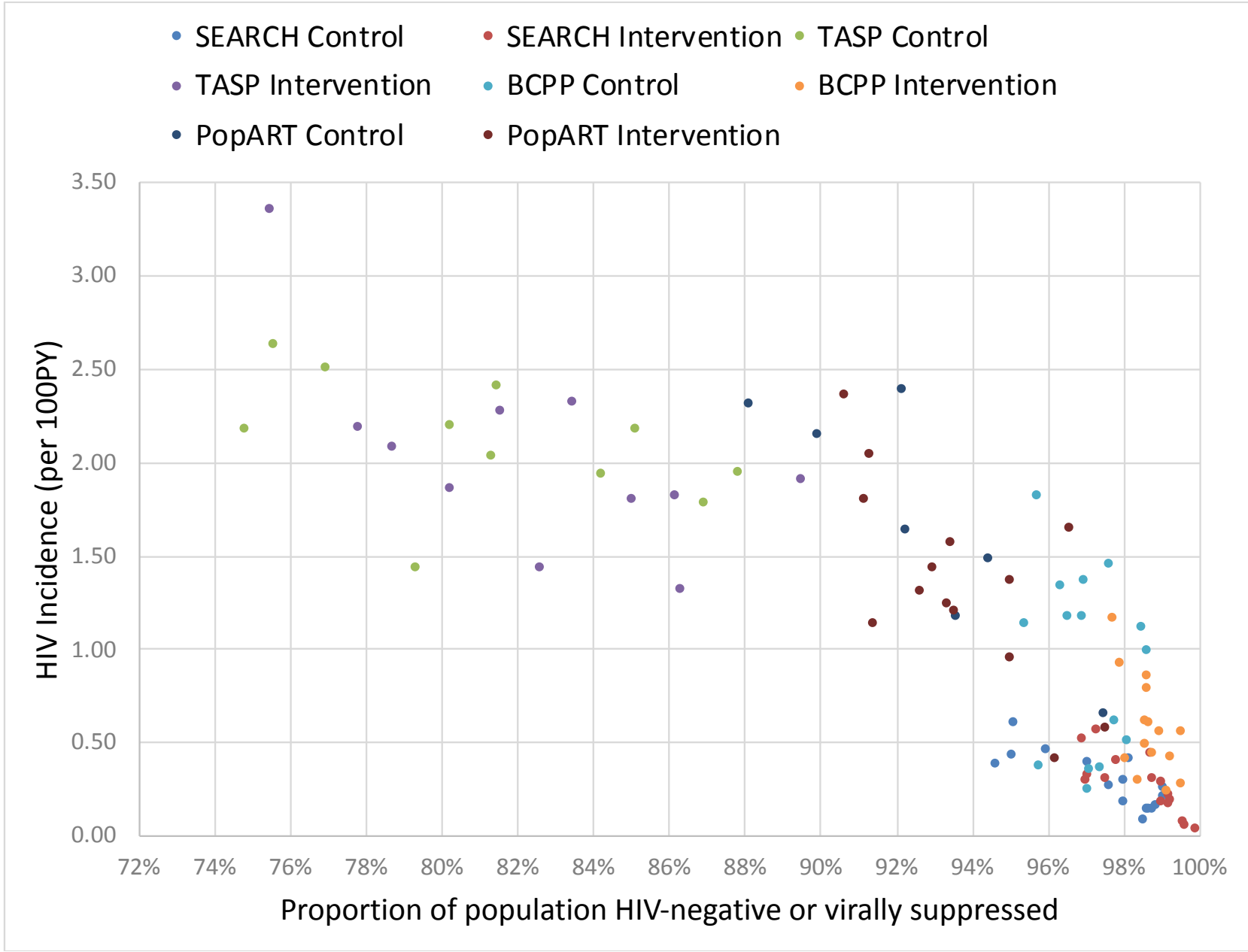
HIV incidence outcomes

Trial	BCPP		PopART		SEARCH		TasP	
Country	Botswana		South Africa / Zambia		Kenya / Uganda		South Africa	
Arm	C	I	C	I	C	I	C	I
Universal testing	-	✓	-	✓	✓	✓	✓	✓
Universal treatment	-	✓	-/✓	-/✓	-/✓	✓	-	✓
Population viral suppression								
- at start	75%	70%	52%	57%	42%	42%	26%	24%
- at end	83%	88%	68%	74%	68%	79%	45%	46%
- difference	+8	+18	+16	+17	+26	+37	+19	+23
HIV incidence								
Annual incidence for 100 person-years	0.92	0.59	1.55	1.24	0.27	0.25	2.27	2.11
Reduction (I vs C)	31% reduction		20% reduction		not significant, but 32% reduction in intervention arm between years 1 & 3		not significant	

Note:
both intervention arms were pooled for PopART.

Population viremia correlated with incidence

- Fewer people with viremia associated with fewer transmissions
- Seen across all studies
- Heterogeneity as expected
  - mobility, external infections, network structure



Should we do UTT? the investment case

YES

Solid evidence that UTT can rapidly achieve high levels of viral suppression and reduce HIV incidence faster than standard of care

- UTT may also be the most effective way to rapidly reduce mortality
- Universal Testing is a gateway for prevention (e.g. PrEP)
- UTT costs could be shared using multi-disease approach and improve outcomes of other diseases

NO

UTT cannot and will never lead to HIV elimination

- Universal Testing is too costly
- Need for universal testing in current landscape (PrEP) has not been directly quantified
- Targeted testing of high-risk persons is sufficient (including partner notification)