# Early Bactericidal Activity of the Alpibectir-Ethionamide (AlpE) Combination Against Tuberculosis

## Abstract Submission Number:

157

## Abstract Type:

General Abstract Submission


## Authors:

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## Background:

Dose-dependent tolerability reduces the utility of ethionamide for tuberculosis (TB) treatment at standard doses (750 to 1000 mg). Alpibectir (formerly BVL-GSK098) stimulates an alternative pathway of bacterial ethionamide bioactivation leading to retained activity at lower exposures *in vivo*. We report results on the first cohort evaluating the early bactericidal activity (EBA), safety and tolerability of the alpibectir-ethionamide (AlpE) combination (NCT05473195).

## Methods:

Adults with newly diagnosed, rifampicin- and isoniazid-susceptible pulmonary TB were randomised 5:1 to receive 7 days of AlpE 9 mg/250 mg or isoniazid 300 mg as microbiological control. EBA was assessed by the change in time to culture positivity (TTP-$EBA_{0-7}$) using a mixed-effects model. Serum concentrations of ethionamide and its

active sulfoxide metabolite were explored as covaries in a pharmacokinetic/pharmacodynamic (PK/PD) model. Treatment-emergent adverse events (TEAEs) were assessed daily.

## Results:

15 participants were randomised to AlpE and 3 to isoniazid. Most participants were male (78%) with a mean age and weight of 33.6 years and 52.9 kg, respectively. One participant withdrew for reasons unrelated to treatment. Median TTP-$EBA_{0-7}$ ($2.5^{th}$–$97.5^{th}$ percentiles) was 45.28 (28.78 – 78.12) and 48.41 (42.02 – 54.89) hours for AlpE and isoniazid, respectively. Isoniazid activity was in range of previous results. The median maximum serum concentrations (Cmax) of ethionamide (1230 ng/mL) and ethionamide-sulfoxide (2050 ng/mL), were reached approximately 1 hour after AlpE administration. The mean half-life for ethionamide and ethionamide-sulfoxide was 1.47 hours. Median area under concentration-time curve (AUC) of ethionamide and ethionamide-sulfoxide was 3662 and 5119 h*ng/mL, respectively. Higher ethionamide-sulfoxide exposure significantly increased EBA where each 100 h*ng/mL unit of increase resulted in a 3.68% increase in time to positivity (TTP) slope. 19 (73%) of the 26 mild (76.9%) and moderate (23.1%) TEAEs occurred in AlpE arm, among them self-limiting nausea, flatulence, and diarrhoea in 5 participants.

## Conclusions:

AlpE was well tolerated, safe and showed bactericidal activity similar to isoniazid in participants with tuberculosis. AlpE can be added to the growing list of novel antituberculosis agents for drug-susceptible and drug-resistant TB. The study is ongoing with escalating doses of alpibectir and ethionamide to optimize the combination.

## Clinical:

(N) Tuberculosis and Other Opportunistic Infections, Including the Impact of HIV or SARS-CoV-2 in Adults

## Search Terms:

Early bactericidal activity
Mycobacterium tuberculosis
Pulmonary tuberculosis
Treatment
Tuberculosis

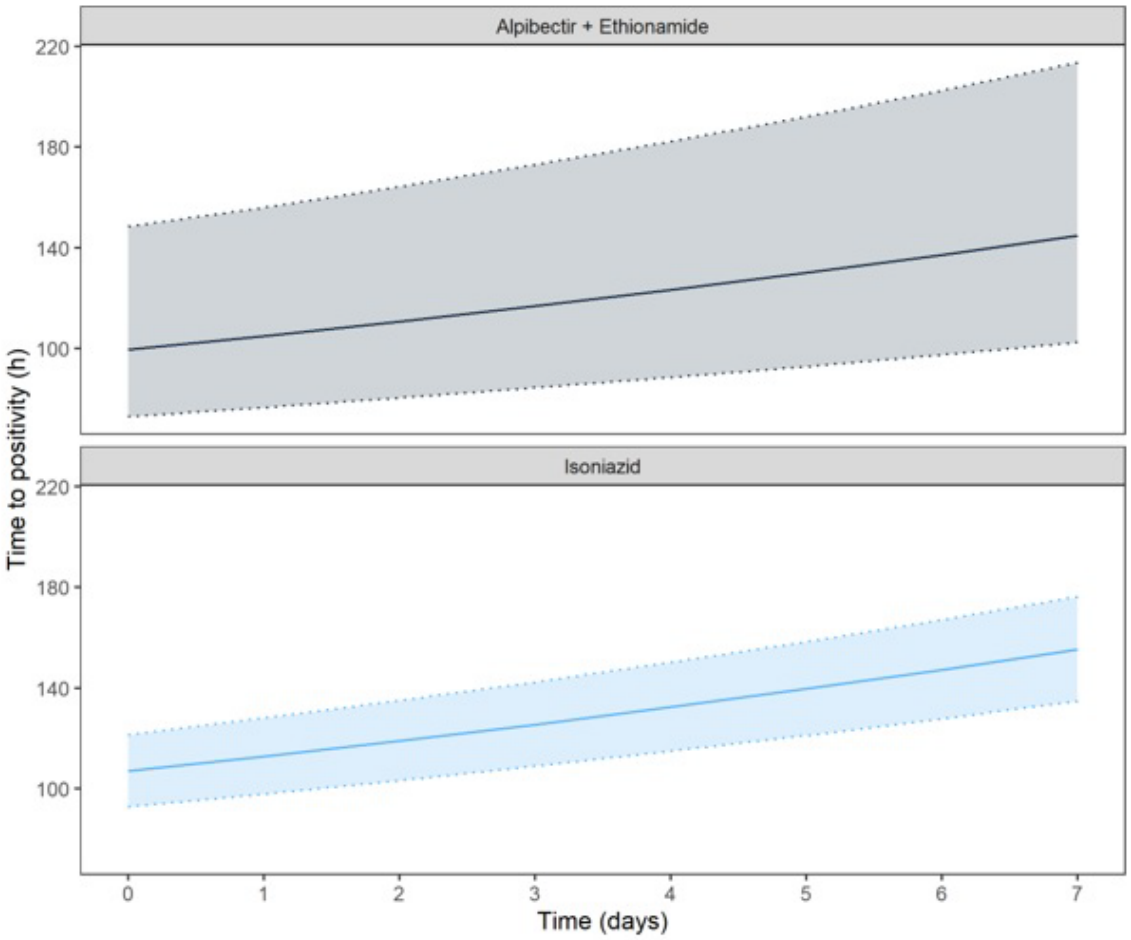


Figure 1. Prediction of individual time to positivity (TTP) over time based on Bayes estimates of the final model. Lines show predicted median with shaded area corresponding to the 95% prediction interval for that median.

# Semaglutide Reduces Metabolic-Associated Steatotic Liver Disease in People With HIV: The SLIM LIVER

## Abstract Submission Number:

159

## Abstract Type:

General Abstract Submission

## Authors:

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## Presenting Author:

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## Background:

Metabolic-Associated Steatotic Liver Disease (MASLD) is common among people with HIV (PWH) and likely synergistic with HIV-1 to accelerate hepatic injury and organ dysfunction. The glucagon-like peptide-1 receptor agonist semaglutide is associated with cardiometabolic improvements in the general population through its effects on weight reduction and systemic inflammation. We designed a phase IIb, single-arm, pilot study of the effects of semaglutide on magnetic resonance imaging-proton density fat fraction (MRI-PDFF)-quantified intrahepatic triglyceride (IHTG) content in PWH and MASLD.

## Methods:

ACTG A5371 enrolled PWH ≥18 years of age on suppressive antiretroviral therapy (ART) with central adiposity, insulin resistance or pre-diabetes and SLD (defined as ≥5% IHTG on MRI-PDFF). All participants received semaglutide for 24 weeks (titrated to 1mg sc weekly by week 4). IHTG content was measured by a central, blinded reader. Mean changes and 95% confidence intervals (CI) were estimated using linear regression. Spearman correlations assessed associations between outcome measures.

## Results:

Participants (n=49) had median age 52 years, BMI 35 kg/m2, 39% Hispanic ethnicity and 33% Black/African American race; 43% were cis or trans women and 82% were on integrase strand transfer inhibitor-based ART. Semaglutide was well-tolerated, with only 2 possibly-related Grade 3 (1 nausea, 1 serotonin syndrome) and no Grade 4 adverse events. Mean baseline (standard deviation) IHTG was 12.7% (6.1%). Mean (95% CI) absolute and relative declines in IHTG were -4.2% (-5.4, -3.1) and -31.3% (-39.0, -23.6), respectively (both $p<0.001$); 29% of participants had complete resolution of MASLD (absolute IHTG <5%); and 58% had a ≥30% relative reduction in IHTG. Trends toward greater improvements in IHTG were seen in women, Hispanics, non-Hispanic whites and with increasing age. Significant improvements in weight, waist circumference, fasting glucose and triglyceride concentrations were also observed (Table). Improvements in IHTG correlated with weight loss on semaglutide ($r=0.54$, $p<0.0001$).

## Conclusions:

Low-dose (1mg weekly) semaglutide is a safe and effective pharmacologic therapy for MASLD in PWH and shows evidence of broader cardiometabolic benefit. Further analyses will assess specific immunologic and inflammatory pathway changes with semaglutide therapy in PWH, including those that may be unique to this population.

## Clinical:

(I) Hepatitis Viruses and Liver Complications in Adults

## Search Terms:

semaglutide
Fatty liver
Fatty liver disease
Hepatic steatosis
Steatosis

| | **24-week Change** (effect size [95% confidence interval]) | **P value** |
|---|---|---|
| Absolute IHTG (%) | -4.2 (-5.4, -3.1) | <0.001 |
| Relative IHTG (%) | -31.3 (-39.0, -23.6) | <0.001 |
| Absolute weight (kg) | -7.8 (-9.5, -6.1) | <0.001 |
| Relative weight (%) | -8.1 (-9.8, -6.4) | <0.001 |
| Waist circumference (cm) | -6.7 (-8.5, -4.8) | <0.001 |
| Fasting glucose (mg/dL) | -9.9 (-14.7, -5.1) | <0.001 |
| Fasting triglycerides (mg/dL) | -26.8 (-46.0, -7.5) | 0.007 |

# Treatment of Prehypertension in People Living With HIV: A Randomized Controlled Trial

## Abstract Submission Number:

148

## Abstract Type:

General Abstract Submission

## Authors:

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## Institutions:

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## Presenting Author:

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## Background:

Elevated systolic blood pressure (SBP) >120 mmHg is associated with increased cardiovascular disease (CVD) risk and mortality among people living with HIV (PLWH). The dual burden of HIV and CVD is highest in low-middle income countries (LMIC), yet the World Health Organization recommends PLWH initiate medication at SBP/DBP ≥140/90 mmHg, despite lower thresholds for diabetes and renal disease. We conducted a randomized controlled trial to evaluate acceptability and mean change in SBP among PLWH with prehypertension who initiate first-line antihypertensive treatment in a LMIC.

## Methods:

A total of 250 PLWH were enrolled from GHESKIO's HIV Clinic, between March 2021 to April 2023 in Port-au-Prince, Haiti. Participants were 18-65 years old, on stable antiretroviral therapy ≥6 months, had prehypertension (SBP 120-139 mmHg or DBP 80-89 mmHg), not on antihypertensive treatment, and randomized to intervention (initiation of amlodipine 5mg) or control (no medication unless reached SBP/DBP ≥140/90) in a 1:1 ratio. Participants were followed for 12 months with standardized

clinic and community visits measuring CVD health behaviors, BPs, physical exam, imaging, and laboratory data. The primary outcome was difference in mean change in SBP between study arms, from enrollment to 12 months. Secondary outcomes were difference in mean change in DBP, acceptability, incident hypertension, and adverse events. We analyzed the primary outcome using a linear mixed-effects model accounting for repeated measures and correlations within subjects.

## Results:

The baseline characteristics of the two groups were similar. Mean SBP/DBP change over 12 months was -10.6/-8.9 mmHg in intervention and -4.6/-3.2 mmHg in control. The difference in mean change in BP between intervention vs control was SBP -5.8 mmHg (95%CI -8.77, -3.01), DBP -5.5 mmHg (95%CI -7.92, -3.16). For incident hypertension, the hazard ratio of intervention vs control was 0.43 (95%CI 0.26, 0.70). The most common adverse events (26 total) were dizziness (13) and edema (5), and no serious adverse events were drug related. Participants and study staff reported high acceptability of amlodipine initiation.

## Conclusions:

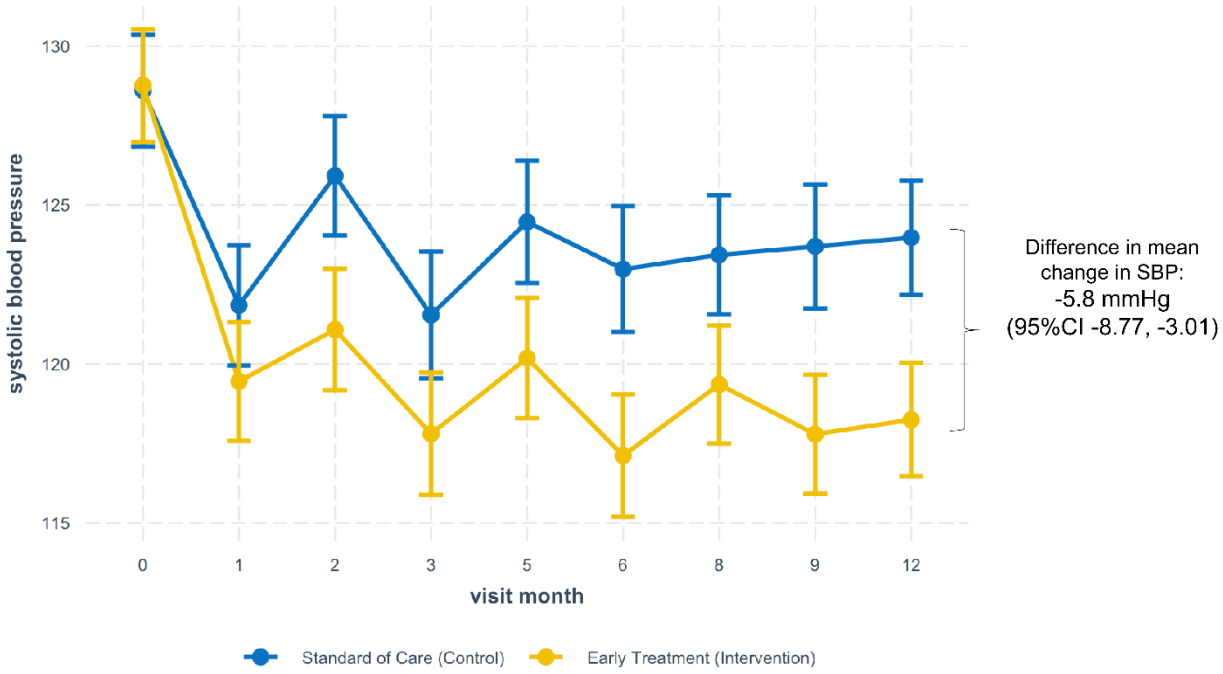
Treatment of prehypertension in PLWH compared to standard of care reduced BP and incident hypertension, with few adverse events. There is an urgent need for CVD prevention among PLWH with elevated BP, who have alarmingly high risk of CVD events and mortality. (ClinicalTrials.gov number, NCT04692467).

## Clinical:

(K) Cardiovascular Complications of HIV Infection and Antiretroviral Therapy

## Search Terms:

Hypertension
Prevention


130
125
120
115
systolic blood pressure
0
1
2
3
5
6
8
9
12
visit month
Standard of Care (Control)
Early Treatment (Intervention)
Difference in mean change in SBP:
-5.8 mmHg
(95%CI -8.77, -3.01)

# A Nurse-Led Strategy Improves Blood Pressure and Cholesterol in People With HIV: The EXTRA-CVD Trial

## Abstract Submission Number:

149

## Abstract Type:

General Abstract Submission

## Authors:

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## Institutions:

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## Presenting Author:

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## Background:

Despite higher atherosclerotic cardiovascular disease (ASCVD) risk, people with HIV (PWH) experience unique barriers to ASCVD prevention care. Using a human-centered design approach, we developed EXTRA-CVD-a nurse-led multicomponent strategy of care coordination, home blood pressure monitoring, evidence-based treatment algorithms, and electronic health records tools to improve blood pressure and cholesterol management in 3 HIV clinics in the United States.

## Methods:

We conducted a randomized controlled trial among 298 PWH with suppressed HIV-1 viral load on antiretroviral therapy with comorbid hypertension and high cholesterol. Participants were stratified by site and randomized 1:1 to the EXTRA-CVD strategy or

general health education control. Change in systolic blood pressure (SBP) was the primary outcome assessed at baseline, 4, 8, and 12 months. Change in non-HDL cholesterol was secondary. Primary intention-to-treat analyses were conducted using linear mixed models, with pre-specified moderation analyses by natal sex, baseline ASCVD risk, and site.

## Results:

Mean (SD) age was 58(9.6) years; 21% were female and 66% were non-white race. Baseline mean (SD) SBP was 135(19) mmHg and non-HDL cholesterol was 140(45) mg/dL. Half were currently prescribed 2 or more antihypertensive drugs and two-thirds were on a statin at baseline. At 12 months, participants assigned to EXTRA-CVD had 4.2mmHg (95% CI 0.3-8.2; p=0.04) lower SBP and 16.9mg/dL (95% CI 8.6-25.2; p<0.001) lower non-HDL compared to controls (Figure). Non-HDL change was driven more by a 29.5mg/dL reduction in triglycerides (95% CI 5.3-53.7; p=0.02), rather than LDL [9.6 mg/dL (95% CI -6.3-25.5; p=0.24)]. EXTRA-CVD participants had higher odds of reaching treatment goal for SBP [<130/80 mmHg; OR 2.9(95% CI 1.0-8.3; p=0.05)] and for non-HDL [<100mg/dL for high-risk and <130mg/dL for others; OR 7.3(2.3-23.3; p<0.001)]. There was some evidence that the SBP effect was greater in females compared to males (11.8 mmHg greater at 4-months, 9.6 mmHg at 8-months, and 5.9 mmHg at 12-months; overall joint test p=0.06), but other intervention effects were similar by sex (all p>0.3). Intervention effects were not moderated by baseline ASCVD risk or site (all p>0.2).

## Conclusions:

A nurse-led multi-component strategy lowered blood pressure and cholesterol over 12 months in diverse PWH with these comorbid ASCVD risk factors. These results should inform future implementation of multifaceted ASCVD prevention programs for PWH in the United States.

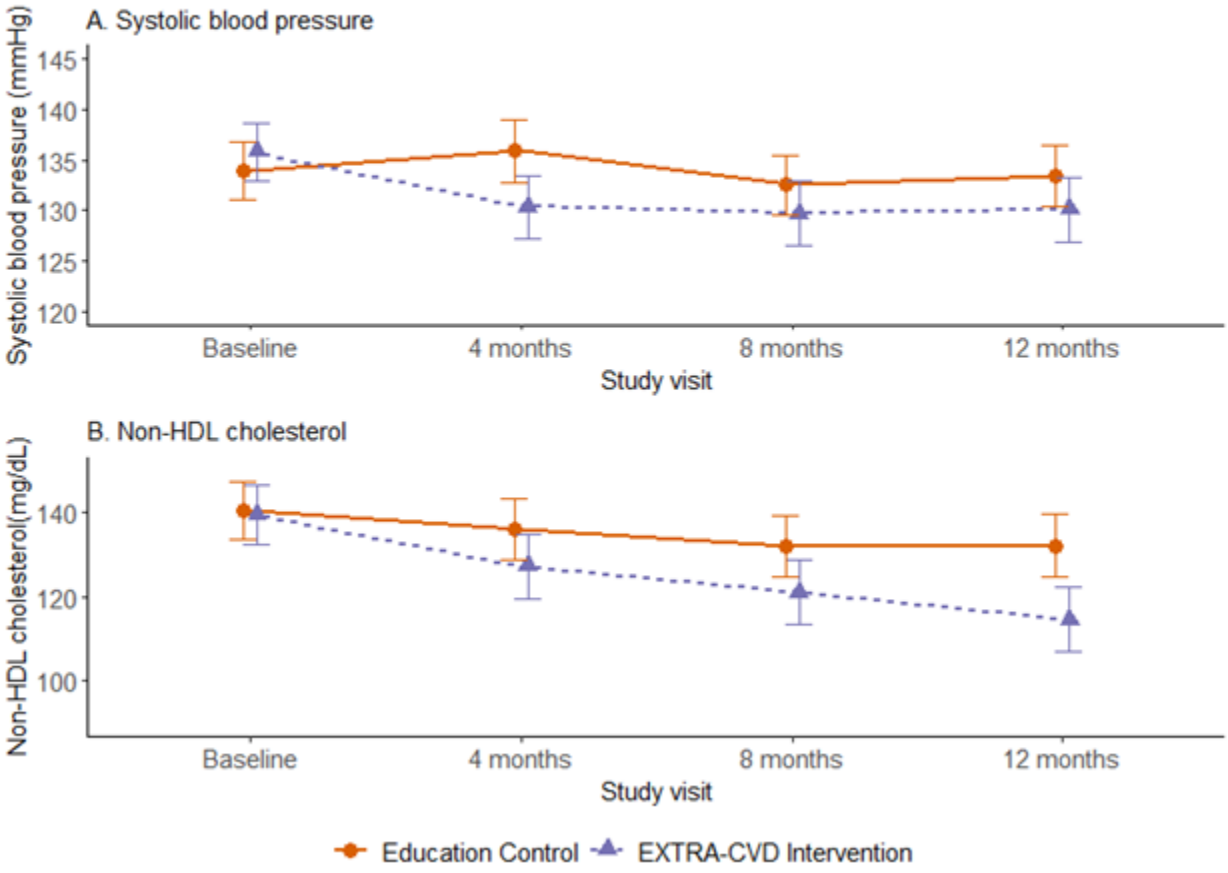
## Clinical:

(K) Cardiovascular Complications of HIV Infection and Antiretroviral Therapy

## Search Terms:

Hypercholesterolemia
Hypertension

**Figure**: Model-estimated systolic blood pressure and non-HDL cholesterol and associated 95% confidence intervals showing the effects of a nurse-led multi-component strategy (EXTRA-CVD) over 12 months compared to general health education control.



# Community Health Worker-Facilitated Telehealth for Severe Hypertension Care in Kenya and Uganda

## Abstract Submission Number:

150

## Abstract Type:

General Abstract Submission

## Authors:

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## Institutions:

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## Presenting Author:

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## Background:

Expanding the HIV care model to include HIV status-neutral hypertension treatment can improve cardiovascular disease outcomes; however, individuals with severe hypertension face additional barriers to care, including need for frequent clinic visits to titrate medications. We conducted a pilot study to test whether a clinician-driven, community health worker (CHW) facilitated telehealth intervention would improve hypertension control among adults with severe hypertension in rural Uganda and Kenya.

## Methods:

We conducted a randomized controlled trial of hypertension treatment delivered via telehealth by a clinician (adherence assessment, counseling, decision-making) and facilitated by a CHW in the participant's home, compared to clinic-based hypertension care (NCT04810650). We recruited adults ≥40 years with BP ≥160/100 mmHg at household screening by CHWs, with no restrictions by HIV status. After initial evaluation at the clinic, participants were randomized to telehealth or clinic-based hypertension follow-up. All participants were treated using standard country guideline-based antihypertensive drugs. The primary outcome was hypertension control at 24 weeks (BP <140/90); secondary outcomes included severe hypertension (BP ≥160/100) and retention in care (not late by ≥30 days at 24 weeks). We used TMLE to compare outcomes by arm, overall and among key subgroups.

## Results:

We screened 2,965 adults ≥40 years, identifying 266 (9%) with severe hypertension and enrolling 200 (102 control, 98 intervention). Participants were 70% women, median age 62 (IQR 51-72); 14% were HIV-positive. Mean number of hypertension drugs prescribed at last visit was 1.6 in intervention and 1.7 in control. Week 24 hypertension control was 77% in intervention and 52% in control (RR 1.48, 95%CI 1.20-1.83); effect on hypertension control was greater among women (81% vs 53%; RR 1.53, 95%CI 1.21-1.94). Prevalence of severe hypertension at 24 weeks was 7% in intervention and 25% in control (RR 0.30, 95%CI 0.14-0.64), with similar effects among people with HIV (8% vs 21%, RR 0.39, 95%CI 0.04-3.82). Retention in care at 24 weeks was 91% in intervention and 61% in control (RR 1.49, 95%CI 1.26-1.76).

## Conclusions:

Clinician-driven, CHW-facilitated telehealth for hypertension management improved hypertension control and reduced severe hypertension compared to clinic-based care. Telehealth focused on individuals with severe hypertension is a high-yield approach to improve outcomes among those with highest risk for CVD.

## Clinical:

(K) Cardiovascular Complications of HIV Infection and Antiretroviral Therapy

## Search Terms:

Community
Hypertension

# Association of State-Level PrEP Coverage and State-Level HIV Diagnoses, US, 2012-2021

## Abstract Submission Number:

165

## Abstract Type:

General Abstract Submission

## Authors:

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## Institutions:

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## Presenting Author:

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## Background:

Pre-exposure prophylaxis (PrEP) is highly effective to reduce risk of HIV infection; the population-level impact of PrEP is predicted to depend on PrEP coverage (e.g., PrEP prescriptions among those with indications), adherence to prescribed PrEP, the extent to which PrEP is used by those at greatest risk for HIV infection, and the extent of viral suppression among community risk contacts.

## Methods:

We used publicly available data on PrEP prescriptions and calculated PrEP coverage per 100 persons with indications in each state during each year. We calculated quintiles of mean PrEP coverage (e.g., proportion of PrEP users among people with an indication for PrEP) during 2012-2021 for 50 US states and the District of Columbia. For each quintile, we calculated the estimated annual percent change (EAPC) in HIV diagnosis rates from 2012-2021 with 95% confidence intervals using temporal trends models and calculated a p value for trend across state-specific quintiles of coverage. Because higher PrEP coverage in a state might be confounded by higher levels of viral suppression, we adjusted EAPC estimates for prior year state-level viral suppression.

## Results:

The estimated state-specific EAPC in HIV diagnosis rates between 2012-2021 ranged from -11.9% (95% CI: -13.0%, -10.8% in Washington, DC) to +10.5% (95% CI: +5.1%, +16.2% in West Virginia). Mean PrEP coverage among states and the District of Columbia between 2012-2021 ranged from 3.8% (West Virginia) to 22.2% (New York). From 2012-2021, the quintile-specific change in HIV diagnosis rates ranged from a 1.7% increase (95% CI: -0.7% to +4.1%) in the lowest quintile of PrEP coverage to an 8.0% decrease (95% CI: -9.3% to -6.8%) in the highest quintile of PrEP coverage, after controlling for yearly changes in viral suppression rates (Figure; p value for trend across quintiles: 0.0077).

## Conclusions:

In an ecologic analysis, increasing PrEP coverage was associated with decreasing new HIV diagnoses from 2012-2021 among US states, even controlling for differences in state-viral suppression. Our data suggest that PrEP coverage is a meaningful measure to assess the progress of PrEP programs. However, our analysis also documented stark differences in the trajectories of PrEP program among US states: there was an 8-fold difference between the extent to which PrEP needs were met between the lowest and highest performing states. PrEP coverage data is useful to monitor progress in state PrEP programs.

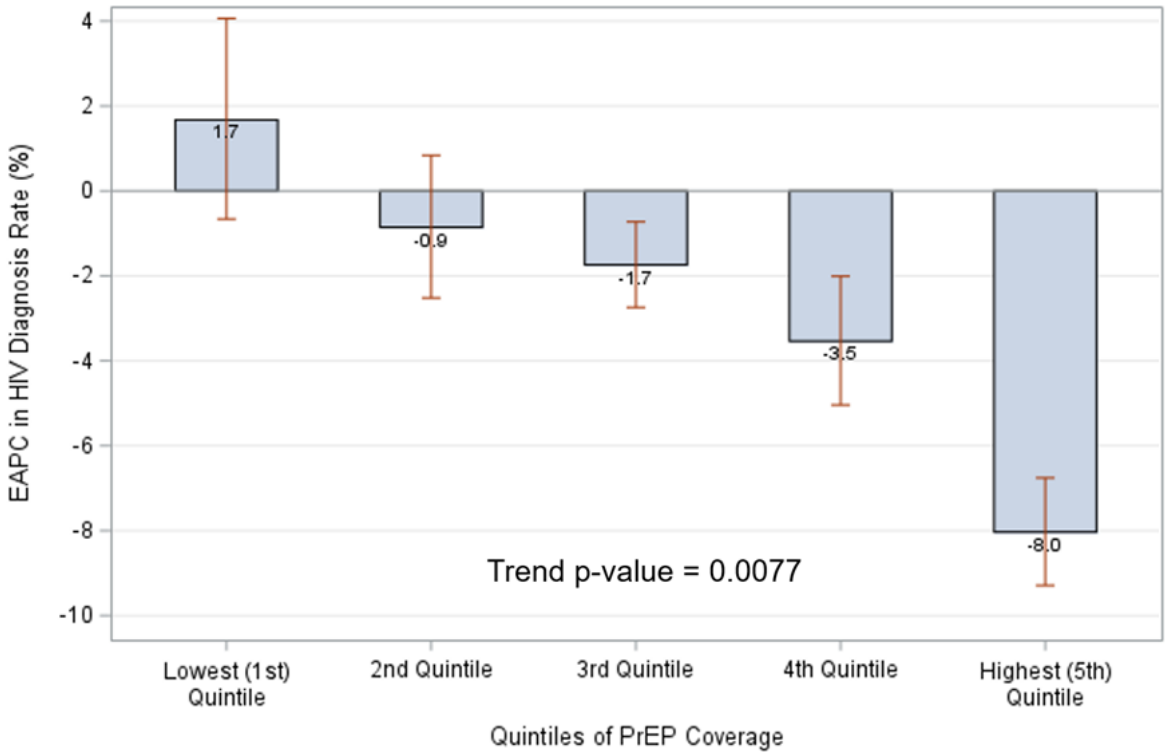
## Epidemiology/Public Health:

(U) Implementation and Scale-Up of Prevention and Treatment for HIV, and Impact of COVID-19 and Mpox on HIV-Related Programs

## Search Terms:

Pre-exposure prophylaxis
Population level

**Quintile-specific Estimated Annual Percent Change in HIV diagnoses rates, adjusted for viral suppression rates, by quintile of PrEP Coverage, 50 US states and the District of Columbia, 2012-2021**



# HIV Incidence in Users of HIV Preexposure Prophylaxis in Australia: A Whole-of-Population Analysis

## Abstract Submission Number:

166

## Abstract Type:

General Abstract Submission

## Authors:

Nicholas A. Medland[1], Hamish McManus[1], Benjamin Bavinton[1], Michael Traeger[2], Doug Fraser[1], Andrew Grulich[1], Mark Stoove[2], Skye McGregor[1], Jonathan King[1], Dash Heath-Paynter[1], Rebecca Guy[1]

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## Presenting Author:

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## Background:

Use of HIV pre-exposure prophylaxis (PrEP) at scale has been associated with reduced community HIV transmission: diagnoses of recently acquired HIV (under one year) among gay and bisexual men in Australia fell from 223 in 2018 to 107 in 2022. We examined HIV incidence and risk factors in all people receiving PrEP in Australia's national health system.

## Methods:

Linked de-identified records for all government subsidised PrEP and antiretroviral therapy (ART) from April 2018 to June 2023 allowed us to identify HIV acquisition in PrEP users who initiated ART. ART initiation was used as a proxy for HIV acquisition given high rates of HIV testing among PrEP users (at least 6-monthly) and high treatment uptake (over 95% after six weeks) in Australia. The date of HIV acquisition

was the midpoint between 30 days before ART initiation and either six months prior or the most recent PrEP prescription. We calculated days covered by PrEP and HIV incidence in people using PrEP and its predictors using Poisson regression over the study period of April 2018 to December 2022.

## Results:

Of 62,563 people receiving PrEP (97.8% men, median age 33), 190 acquired HIV during the study period with an overall incidence rate of 1.09/1000 person years (95%CI 0.94-1.25). HIV incidence was 2.65/1000PY among those dispensed PrEP once only (20.0% of PrEP users, 31.6% of HIV cases), compared with 1.02/1000PY among those with <60% of days covered (52.4% of PrEP users, 54.2% of HIV cases) and 0.53/1000PY among those with ≥60% of days covered (28% of PrEP users, 14% of HIV cases). Using the group dispensed PrEP only once as a comparator, those with ≥60% days covered had an 80.2% reduction in incidence (p<.001) and those with <60% days covered a 61.5% reduction (p=.009). Incidence was also higher in specific subgroups: those with a record of hepatitis C treatment (10.05/1000PY, 0.6% of PrEP users, 6.3% of HIV cases) and 18-29 year-olds (1.32/1000PY, 35.1% of PrEP users, 40.0% of HIV cases). PrEP usage, younger age and hepatitis C treatment were independent predictors of HIV incidence.

## Conclusions:

HIV acquisition in people previously engaged in PrEP accounted for 57.9% of diagnosed newly acquired HIV among gay and bisexual men in Australia in 2022, highlighting the need for interventions focused on this population to achieve elimination. In particular, support is needed for those who don't return for repeat dispensing and less frequent PrEP users. Programs should also be tailored for specific socio-demographic characteristics.

## Epidemiology/Public Health:

(S) Prevention of HIV, COVID-19, and Mpox in Adults

## Search Terms:

Gay and bisexual men
Pre-exposure prophylaxis
Effectiveness
Scale-up

People dispensed Australian government HIV pre-exposure prophylaxis (PrEP) between April 2018 and December 2022, those with HIV acquisition during this period and incidence analysis using Poisson regression.

| | PrEP users n (%) | HIV acquisition n (%) | Incidence Rate per 1000 PY (95% CI) | Adjusted incident rate ratio (95% CI) | *p* |
|---|---|---|---|---|---|
| Age: 18-29 | 21,957 (35.1%) | 76 (40.0%) | 1.32 (1.05-1.65) | 1.48 (1.03-2.12) | .035 |
| 30-39 | 20,647 (33.0%) | 64 (33.7%) | 1.10 (0.86-1.40) | 1.38 (0.95-2.00) | .09 |
| 40+ | 19,959 (31.9%) | 50 (26.3%) | 0.84 (0.64-1.11) | ref | |
| Hepatitis C Treatment | 256 (0.57%) | 12 (6.3%) | 10.05 (5.71-17.7) | 9.08 (4.95-16.64) | <.001 |
| PDC >=60% | 17,222 (27.6%) | 27 (14.2%) | 0.53 (0.36-0.77) | ref | |
| PDC < 60% | 32,704 (52.4%) | 103 (54.2%) | 1.02 (0.84-1.24) | 1.76 (1.15-2.70) | .009 |
| One PrEP supply | 12,447 (20.0%) | 60 (31.6%) | 2.65 (2.06-3.41) | 4.35 (2.71-6.97) | <.001 |

Note: PDC = proportion of days covered by PrEP in those with more than one PrEP supply

# High PrEP Uptake and Adherence Measured Objectively Among Young African Women in the INSIGHT Cohort

## Abstract Submission Number:

167

## Abstract Type:

General Abstract Submission

## Authors:

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## Background:

Adolescent girls and young women (AGYW) account for 1 in 5 new HIV infections in sub–Saharan Africa and can greatly benefit from PrEP. While studies among AGYW

show high oral PrEP uptake, early discontinuation is common. Objective adherence measures may enhance counselling and promote adherence, but are often costly, require specialized tests and require long turnaround times for spectrometry-based metrics. We evaluated a novel point-of-care urine tenofovir (TFV) assay, using antibody-based technology, to measure adherence and its alignment with self-reported adherence and HIV seroconversion among AGYW.

## Methods:

From August 2022-July 2023, we enrolled an open label PrEP cohort of sexually active AGYW aged 16-30 years and interested in PrEP from 20 sites (15 in South Africa and 1 site each in Eswatini, Kenya, Malawi, Uganda, and Zambia). Participants attended study visits 1, 3 and 6 months after enrollment and were offered PrEP and adherence counselling at each visit. PrEP use was assessed via self-report and a qualitative lateral flow urine TFV assay, for which a predetermined threshold of >1500 ng/ml indicates TFV use in the past 4 days. Acceptability of urine TFV testing was assessed at Month 6 via questionnaire.

## Results:

The INSIGHT cohort enrolled 3087 AGYW. At enrolment, 95.6% of participants-initiated PrEP. At months 1, 3, and 6, 95.7%, 94.4%, and 88.8% received PrEP refills and 77.5%, 79.6%, and 64.1% of those with urine tests had TFV detected in the urine assay respectively. The 3 main reasons for PrEP discontinuation were side effects, low risk perception, and peer influence. Self-reported good, very good, or excellent adherence was well aligned with positive results from the urine TFV test (OR=8.5, 95% CI 7.4-9.8). HIV incidence was 1.38/100 person-years (95% CI 0.97-2.08). At Month 6, 58.3% of women reported that a positive urine TFV result motivated them to take PrEP, 23.6% reported that the counsellor helped them identify ways to remember PrEP, and 21% reported that a negative urine test result was not surprising.

## Conclusions:

Oral PrEP uptake was >95% among a multisite cohort African AGYW with almost 90% refilling PrEP at Month 6 and the majority (64-80%) had evidence of recent use, based on a novel urine TFV assay, which is higher PrEP adherence than in prior studies. Oral PrEP can be an effective PrEP option for African AGYW. Real time drug feedback using the urine TFV assay is acceptable and warrants further study to support PrEP adherence.

## Epidemiology/Public Health:

(S) Prevention of HIV, COVID-19, and Mpox in Adults

## Search Terms:

African women
Adherence
PrEP
Urine tenofovir

# HIV Incidence in the INSIGHT Cohort of African Women: Recency Testing and Prospective Follow-Up

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171

## Abstract Type:

General Abstract Submission

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## Background:

For efficacy trials of novel agents with an active control, cross-sectional recency testing could estimate HIV incidence in the population screened. There is limited experience with use of recency testing to estimate HIV incidence for this purpose.

## Methods:

From Aug-Dec 2022, women ages 16-30 were enrolled into the prospective INSIGHT cohort from South Africa (15 sites), eSwatini, Kenya, Malawi, Uganda, and Zambia. Women who screened HIV+ had samples collected for LAg avidity and HIV RNA testing, those with LAg avidity ≤1.5 and viral load (VL)≥1000 copies/ml were classified as recent infections. Women who were HIV-negative were offered enrollment into an open-label PrEP cohort for 6 months. At screening, all were asked about their HIV testing history and prior results. Reporting includes only South Africa and Eswatini, where recency testing is complete. Incidence estimates used ABIE v3.

## Results:

In South Africa and Eswatini, 2682 women were screened (87% of the INSIGHT cohort) and 119 (4.4%) tested HIV-positive, among whom 6 were classified as recent infections (27 had LAg avidity ODn≤1.5 and 21 had VL<1000 copies/ml, Figure A), for an estimated HIV incidence rate (IR) of 0.71 (95% CI 0.14-1.28). Among the 2487 in the HIV-negative cohort followed for 6 months, 97% accepted TDF/FTC PrEP, and there were 17 incident infections, IR=1.23/100 p-y (95% CI 0.77-1.97). 1909 (71%) of this cohort self-reported an HIV test within the past 6 months, including 51 HIV-positive at screening who self-reported a prior HIV negative test (Figure B). Among these 51 possible new infections, 39 had VL obtained; 23/39 (59%) had VL<1000 copies/ml, suggesting ART had been initiated. If the remaining 16/1909 were infections occurring in the prior 6 months, this would be consistent with an IR of at least 1.7/100 p-y, although self-reported test timing and results were unverified.

## Conclusions:

In this first reported use of recency testing during screening of women in Africa, estimated incidence using recency was lower than our observed incidence in prospective follow-up with high PrEP uptake and recent placebo incidence rates of 3-4% in HIV prevention trials. Cross-sectionally assessed HIV incidence may have been underestimated due to 1) selection bias if HIV testing is frequent and women with HIV are reluctant to screen, and 2) viral suppression from undisclosed early ART. Understanding sources of bias is critical for refining the recency approach and obtaining accurate contemporary HIV incidence estimates.

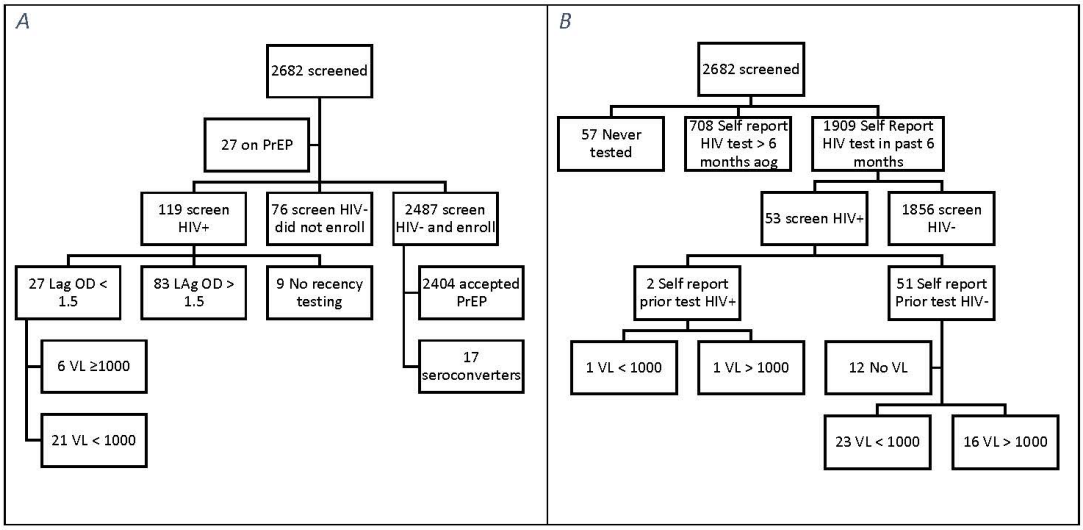
## Epidemiology/Public Health:

(R) Testing of HIV, COVID-19, and Mpox in Adults: New Tests, Population Studies, and Scale-Up

## Search Terms:

African women
Recency assay
HIV incidence
PrEP

Figure 1:A. Recency testing at Screening and HIV seroconversion during follow-up B. Self-reported recent testing and VL



# Randomized Trial of SEARCH Dynamic Choice HIV Prevention Including Injectable Cabotegravir (CAB-LA)

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Late Breaking Abstract

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## Background:

We hypothesized that an oral PrEP, PEP and CAB-LA biomedical prevention package with structured choice between products and opportunities to switch would increase biomedical prevention coverage compared to standard-of-care (SoC) among men and women at risk for HIV in rural Uganda and Kenya.

## Methods:

Participants were recruited from three randomized studies of the SEARCH dynamic choice HIV prevention (DCP) intervention vs SoC in antenatal clinics, outpatient

departments and the community. Eligible participants were > 15 years and reported risk of acquiring HIV. Participants in the SoC arm had access to oral PrEP (TDF/XTC) and PEP (TLD) at local Ministry of Health (MoH) clinics. The SEARCH DCP model included person-centered, structured choice between oral PrEP, PEP (MoH-supplied) or CAB-LA (study-supplied at MoH clinics) and the ability to switch between or stop products over time based on patient product preference and risk. Primary outcome was biomedical covered time over 48 weeks (proportion of follow-up covered by PrEP/PEP/CAB-LA), assessed via study logs and self-report; secondary outcomes included coverage during periods of retrospectively self-assessed HIV risk and incident HIV infections.

## Results:

We enrolled 984 participants (487 DCP; 497 SoC). 73% were women, 30% aged 15-24. Mean biomedical covered time was higher in DCP (69.7%) vs. SoC (13.3%), a difference of 56.4% (95% CI 50.8-62.1%; p<0.001). Biomedical covered time with DCP vs SoC was 65.6% and 52.8% higher for men and women, respectively. Intervention effect on coverage during periods at risk of HIV was larger; mean at-risk covered time was 76.5% in the DCP arm vs. 16.2% in SoC (difference 60.2%; 95%CI: 53.8-66.6%; p<0.001). In the DCP arm, 56%, 53%, 2% ever used CAB-LA, PrEP or PEP, respectively. 43% of persons who used CAB-LA were not using prior oral PrEP or PEP, showing benefit of adding the CAB- LA option. 28% and 0.4% of participants used at least 2 different products in the DCP and SoC arms, respectively. There were 7 participants who acquired HIV infection and one perinatal transmission in the SoC arm (incidence rate: 1.8%) and 0 in the DCP arm (p=0.01).

## Conclusions:

In the first randomized study of a person-centered model offering structured choice between CAB-LA, oral PREP and PEP with option to change over time, enrolling both women and men at risk of HIV, the SEARCH DCP intervention increased biomedical covered time by >5 fold to 69.7% and reduced HIV incidence to 0% compared to 1.8% in standard-of-care.

## Epidemiology/Public Health:

(U) Implementation and Scale-Up of Prevention and Treatment for HIV, and Impact of COVID-19 and Mpox on HIV-Related Programs

## Search Terms:

CAB-LA PrEP implementation project
Pre-exposure prophylaxis