



Matthew Hickey (UCSF, United States)

Launch of the JIAS Supplement “Differentiated service delivery – beyond HIV treatment for integration and other health needs”

A prospective cohort study of the SEARCH integrated HIV/hypertension community health worker-led intervention in rural Kenya and Uganda



IAS 2025

Matthew D Hickey, Asiphas Owaraganise, Sabina Ogachi, Viola Nahurira, Colette Aoko, Norton Sang, George Agengo, Jane Kabami, Elijah Kakande, Erick Wafula Mugoma, Josh Schwab, Nicole Sutter, Gabriel Chamie, Maya L Petersen, Laura B Balzer, Elizabeth A Bukusi, Diane V Havlir, Moses R Kamya, James Ayieko



IAS 2025

The SEARCH team



13 – 17 July • Kigali, Rwanda

ias2025.org



IAS 2025

Background



- As people with HIV live longer, rising burden of cardiovascular disease (CVD)
 - Hypertension #1 risk factor; severe hypertension at greatest risk¹
 - In Africa, ~25% aware of diagnosis, <10% with hypertension control²
 - In US, awareness ~50% aware and ~20% with hypertension control³
- Population-level screening + improved clinic-based care can increase blood pressure control (~50%) & reduce mortality⁴
 - Benefits of clinic-based care limited by low retention

1. Forouzanfar *JAMA* 2017. 2. Geldsetzer *Lancet* 2019. 3. Fryar *NCHS Data Brief* 2024. 4. Hickey *PLOS Med* 2021.



IAS 2025

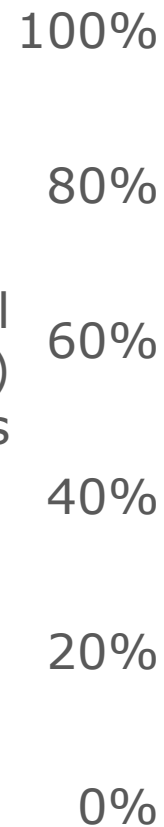
CHW telehealth can extend clinic reach



Pilot study among adults ≥ 40 years with BP $\geq 160/100$ in Kenya and Uganda (n=200)

CHW telehealth improves hypertension control compared to clinic-based care

Hypertension control (<140/90 mmHg) at 48 weeks



CHW telehealth

86%

Clinic

44%



IAS 2025

Hypothesis

- Population-level community-based hypertension intervention (choice of **community-based telehealth facilitated by a CHW** or **clinic-based care**) will improve population-level hypertension control





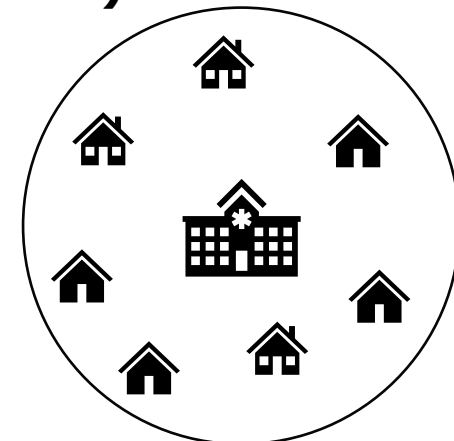
IAS 2025

Study setting and design

- Intervention arm analysis of community-level cluster RCT in rural Kenya and Uganda
 - 8 intervention communities
- Each community served by a Ministry of Health primary health center
- Each household assigned to a Ministry of Health community health worker (CHW)
 - ~100 households per CHW



**1 Community = 10,000 people
(5,000 adults)**





IAS 2025

Study population

- Census enumeration of entire community
- Household-based multi-disease screening by CHW
 - Hypertension screening for all adults aged ≥ 18 years
 - HIV screening for all adults aged ≥ 15 years
 - **Referral to nearest public primary care clinic for hypertension, PrEP, and HIV treatment if indicated**
- Eligibility for hypertension intervention
 - Adults aged ≥ 40 years
 - Moderate-severe hypertension (BP $\geq 160/100$)
 - Confirmation of hypertension diagnosis at MOH clinic



IAS 2025

Hypertension intervention

1. **Community-wide hypertension screening +**
2. **Linkage to clinic for initial evaluation +**
3. **Location choice for follow-up hypertension care**

Hypertension care (drugs and counseling) delivered using country guidelines and overseen by clinicians



Community-based



- Community health worker home visit for blood pressure measurement and medication delivery
- Clinician telehealth for evaluation and medication prescription

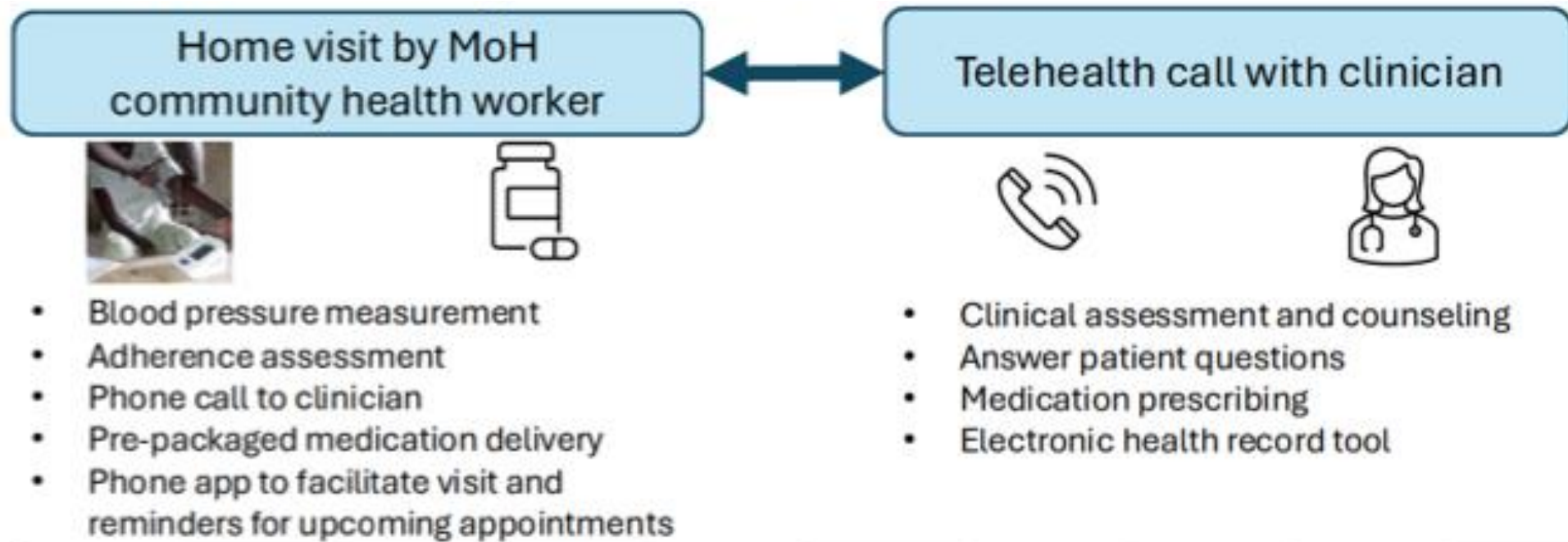


Clinic-based



- Patient-centered, friendly services
- One-stop shop – can pick up hypertension and HIV medications during same visit

Community-based CHW-facilitated hypertension telehealth

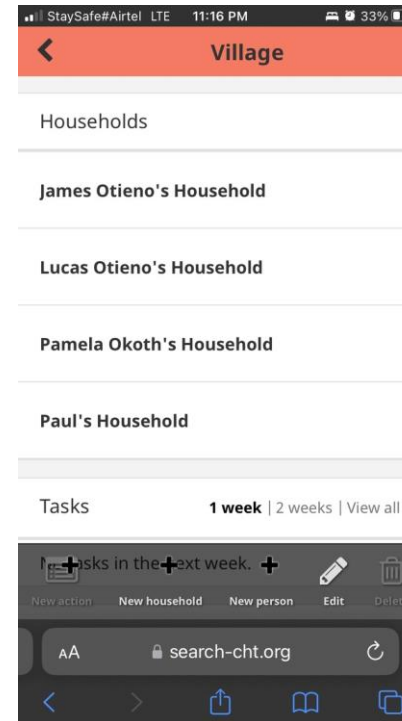




IAS 2025

CHW training

- Two-day training
 - Hypertension basics
 - Blood pressure measurement
 - Use of phone app to guide screening and telehealth visits
- On-job mentoring for 1-5 days until proficient





IAS 2025

Methods

- CHWs measured blood pressure (BP) in all community members aged ≥ 40 at baseline and after 1 year using standardized procedures
- **Primary outcome:**
 - Hypertension control (BP $< 140/90$ mmHg) at 1 year
- **Secondary outcomes:**
 - Moderate-severe uncontrolled hypertension (BP $\geq 160/100$ mmHg)
 - Intervention delivery
- **Analysis**
 - Pre-post comparison of baseline to 1 year



IAS 2025

Results (1)

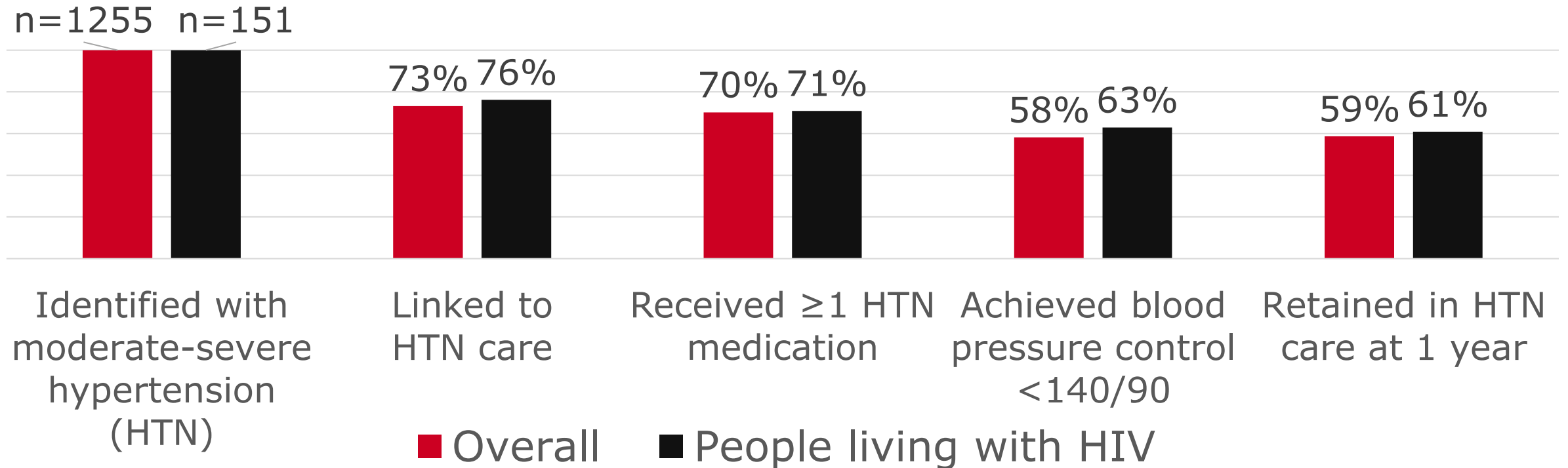
Patient characteristics



Adults age ≥ 40 years	People living with HIV (n=3,036)	People not known to have HIV (n=12,843)	Overall (n=15,879)
Screened at baseline by CHW	2,742 (90%)	11,636 (91%)	14,378 (91%)
Any hypertension	466 (17%)	2,839 (24%)	3,305 (23%)
Uncontrolled hypertension	283 (10%)	2,007 (18%)	2,290 (16%)
Mild: 140-159 / 90-99 mmHg	179 (7%)	1,177 (10%)	1,356 (9%)
Mod-severe: $\geq 160/100$ mmHg	104 (4%)	830 (7%)	934 (6%)

Results (2)

Hypertension intervention delivery



Telehealth choice: Among people linked to care, 82% received at least 1 subsequent visit by CHW-facilitated telehealth (83% of people with HIV)

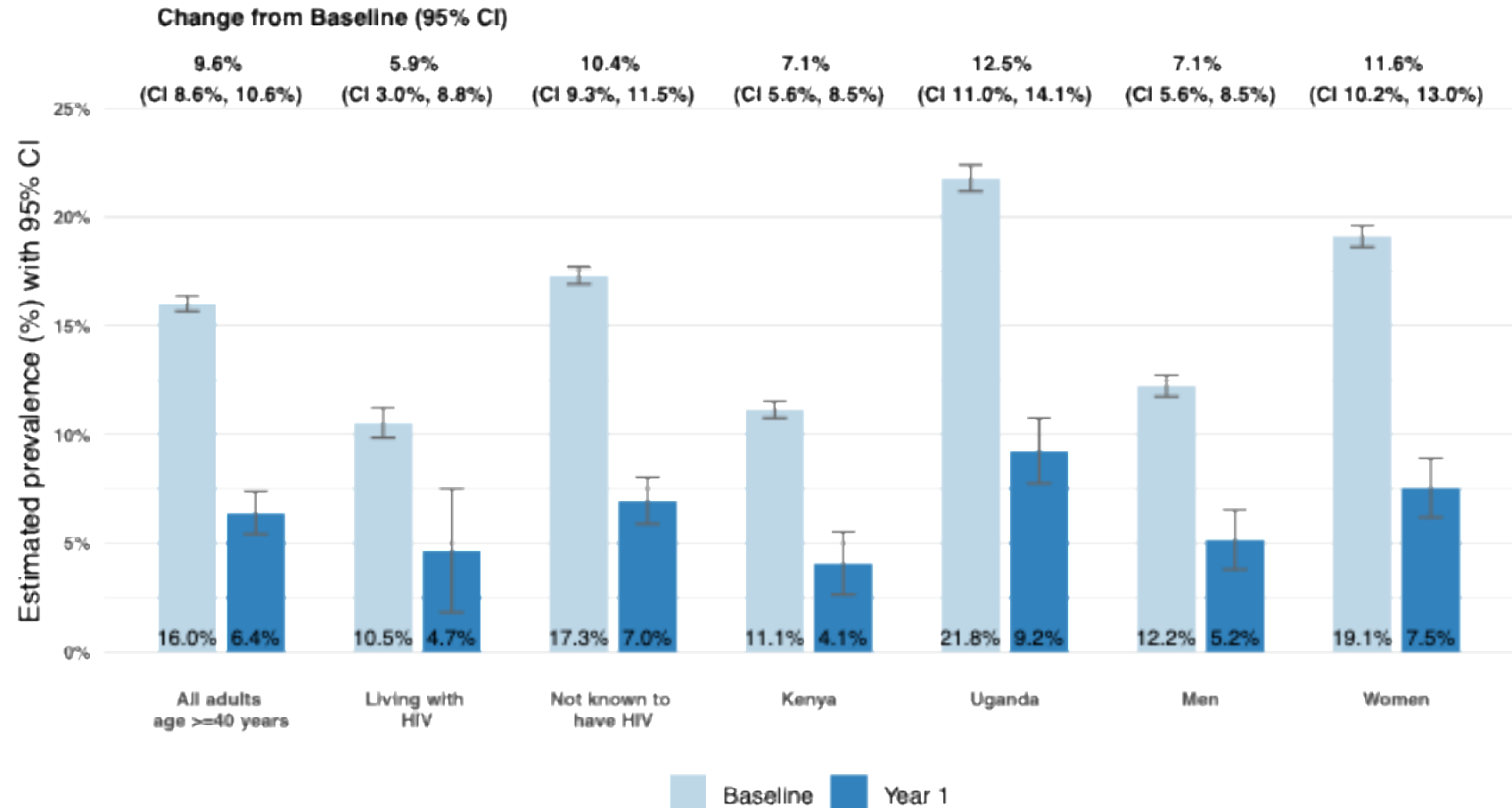


IAS 2025

Results (3)

Pre-post comparison: population-level uncontrolled hypertension after 1 year

- 91% screened at baseline, 84% at year 1
- **Significant improvements in hypertension control at Year 1 compared to baseline**





IAS 2025

Summary and conclusion

- **Population-level uncontrolled hypertension was reduced over the first year of community health worker (CHW) hypertension/HIV screening and telehealth intervention**
 - Improvements across all sub-groups including among people living with HIV
 - These data are from intervention arm of ongoing RCT, results in 2026
- **Most patients chose community health worker facilitated telehealth at least once** (82% overall, 83% of people living with HIV)
 - Effective extender of clinic-based care to the community, reducing clinic visit frequency
 - Helpful for HIV differentiated service delivery models with infrequent clinic visits
- **Community health worker facilitated hypertension telehealth is a promising strategy for reducing cardiovascular disease risk at a population level** and could be beneficial in diverse settings



IAS 2025



Acknowledgements

Study Participants and Communities

Republic of Kenya Ministry of Health
Republic of Uganda Ministry of Health

Diane Havlir, Moses Kanya, Maya Petersen – **Co-PIs**

SEARCH study team

University of California Berkeley, USA

Maya Petersen, Laura Balzer, Joshua Schwab

Infectious Diseases Research Collaboration, Uganda

Jane Kabami, Elijah Kakande, Florence Mwangwa,
Asiphos Owaraganise, Geoff Lavoy, Alan Asimwe,
Brian Kamugisha

Department of Medicine, Makerere University, Uganda

Moses R. Kanya

Kenya Medical Research Institute, Kenya

James Ayieko, Sabina Ogachi, Norton Sang,
Erick Wafula Mugoma, Colette Aoko, Marilyn Nyabuti

University of California San Francisco, USA

Diane Havlir, Gabriel Chamie, John Schrom, Ted Ruel, Catherine A. Koss, Jennifer Temple, Doug Black, Nicole Sutter, Tamara Clark, Carol Camlin, Starley Shade, Jason Johnson

National Institute of Allergies and Infectious Diseases

Joana Roe, Tia Morton, Carolyn Williams

National Heart, Lung, and Blood Institute

Maliha Ilias, Mary Masterson

Funding: U.S. NIH/NIAID/NHLBI/NIMH (U01AI150510);
NHLBI (K23HL162578)

REPUBLIC OF KENYA



MINISTRY OF HEALTH



THE REPUBLIC OF UGANDA
MINISTRY OF HEALTH



UCSF
University of California
San Francisco



National Institute of
Allergy and
Infectious Diseases



National Heart, Lung,
and Blood Institute



National Institute
of Mental Health



National Institute on Alcohol
Abuse and Alcoholism