


# CHECC-uP: Community-based HEalth literacy-focused intervention for Cancer Control for Women living with HIV

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# Cervical cancer

- ✓ Preventable
- ✓ Treatable when detected early

are required

Chest X-ray

Pap Smear

CT Scan

Ultra

# Higher burden of cervical cancer among women living with HIV

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- Higher burden of cervical cancer resulting from persistent high-risk human papillomavirus infection in women living with HIV
  - Cervical cancer incidence rate 4+ times higher among infected women in comparison to uninfected women<sup>1</sup>
  - Leading cause of cancer-related death in women with HIV<sup>2</sup>
- Regular Pap testing for early detection and timely treatment; yet women living with HIV report lower Pap test rates compared to other groups<sup>3</sup>

<sup>1</sup>Castle PE, Einstein MH, Sahasrabudde VV. Cervical cancer prevention and control in women living with human immunodeficiency virus. *CA Cancer J Clin.* 2021 Nov;71(6):505-526. doi: 10.3322/caac.21696. Epub 2021 Sep 9. PMID: 34499351.

<sup>2</sup>National Cancer Institute. Cancer stat facts: Cervical cancer. Accessed October 31, 2022. <https://seer.cancer.gov/statfacts/html/cerv>

<sup>3</sup>Short WR, Sutton MY, Luo Q, Frazier EL. Use of Recommended Preventive Health Care Services and Variations in HIV Care Among Women With HIV in the United States, 2013-2014: Opportunities for Expanded Partnerships in Support of Ending the HIV Epidemic. *J Acquir Immune Defic Syndr.* 2019 Nov 1;82(3):234-244. doi: 10.1097/QAI.0000000000002141. PMID: 31335584.

# What's known

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- Social, cultural, and economic barriers among women living with HIV – Modesty, fear of pain or discomfort, lack of insurance or access to services, and lack of knowledge about risk<sup>4-6</sup>

<sup>4</sup>Tello M, Jenckes M, Gaver J, Anderson JR, Moore RD, Chander G. Barriers to recommended gynecologic care in an urban United States HIV clinic. *J Women's Health*. 2010;19(8):1511-1518.

<sup>5</sup>Bazargan M, Bazargan SH, Farooq M, Baker RS. Correlates of cervical cancer screening among underserved Hispanic and African-American women. *Prev Med*. 2004;39:465-473.

<sup>6</sup>Ciceron AC, Jeon MJ, Monroe AK, Clausen ME, Magnus M, Le D. HPV knowledge, screening barriers and facilitators, and sources of health information among women living with HIV: perspectives from the DC community during the COVID-19 pandemic. *BMC Womens Health*. 2022 Apr 9;22(1):110. doi: 10.1186/s12905-022-01689-y. PMID: 35397535; PMCID: PMC8994173.

# Quotes from stakeholder focus groups: Key areas to address<sup>7</sup>

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- Linkage to care

“Every women should receive a call that she needs to be tested for cervical cancer and STD’s but we don’t get that. Doctors will tell you once you’re in care. But if you are not in care no one is going to tell you.”

- Promotion of health literacy

“So the educational part is so over, way over their head. It’s just up there, you follow me? It just needs to be real basic, plain information”

- Intergenerational education

“You have a lot of women who weren’t taught it when they were younger so now that they’re adults, it’s still something they need to know cause they weren’t taught it in the first place. “

<sup>7</sup>Jin S, Cudjoe J, Peay A, Baker D, Kunkel J, Sharps P, Han HR. Barriers and facilitators of Pap testing for women living with HIV: A focus group study. J Assoc Nurses AIDS Care. 2020 Mar-Apr;31(2):190-196. doi: 10.1097/JNC.000000000000126

# A descriptive analysis of cancer screening health literacy among Black women living with HIV<sup>8</sup>

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- A convenience sample of 123 Black women living with HIV in Baltimore, Maryland
- Used Assessment of Health Literacy in Cancer Screening
- A reading level at or below 6<sup>th</sup> grade for about half of participants
- Older age and higher educational levels associated with higher cancer screening health literacy among our sample of Black women living with HIV

<sup>8</sup>Sun CA, Chepkorir J, Mendez KJW, Cudjoe J, Han HR. A Descriptive Analysis of Cancer Screening Health Literacy Among Black Women Living with HIV in Baltimore, Maryland. Health Lit Res Pract. 2022 Jul;6(3):e175-e181. doi: 10.3928/24748307-20220616-01. Epub 2022 Jul 8. PMID: 35858186; PMCID: PMC9272572.



Health literacy  
education

HPV app<sup>†</sup>



CHECC-uP\*



CHW\*\* phone follow-up

CHW navigation  
assistance<sup>††</sup>

\*ClinicalTrials.gov: NCT03033888

\*\*Community health worker

†Exploratory

††Added focus on mental health service resources



# Objectives

- Share main study findings from the CHECC-uP trial, a randomized controlled pilot trial; and
- Discuss implications of the CHECC-uP for future endeavors to promote Pap testing among women living with HIV



# Who can participate in the study?

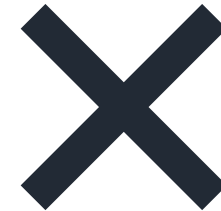
## Inclusion Criteria

- Females 18+ years
- HIV+
- Able to read and write English
- Overdue for Pap testing



## Exclusion Criteria

- History of hysterectomy

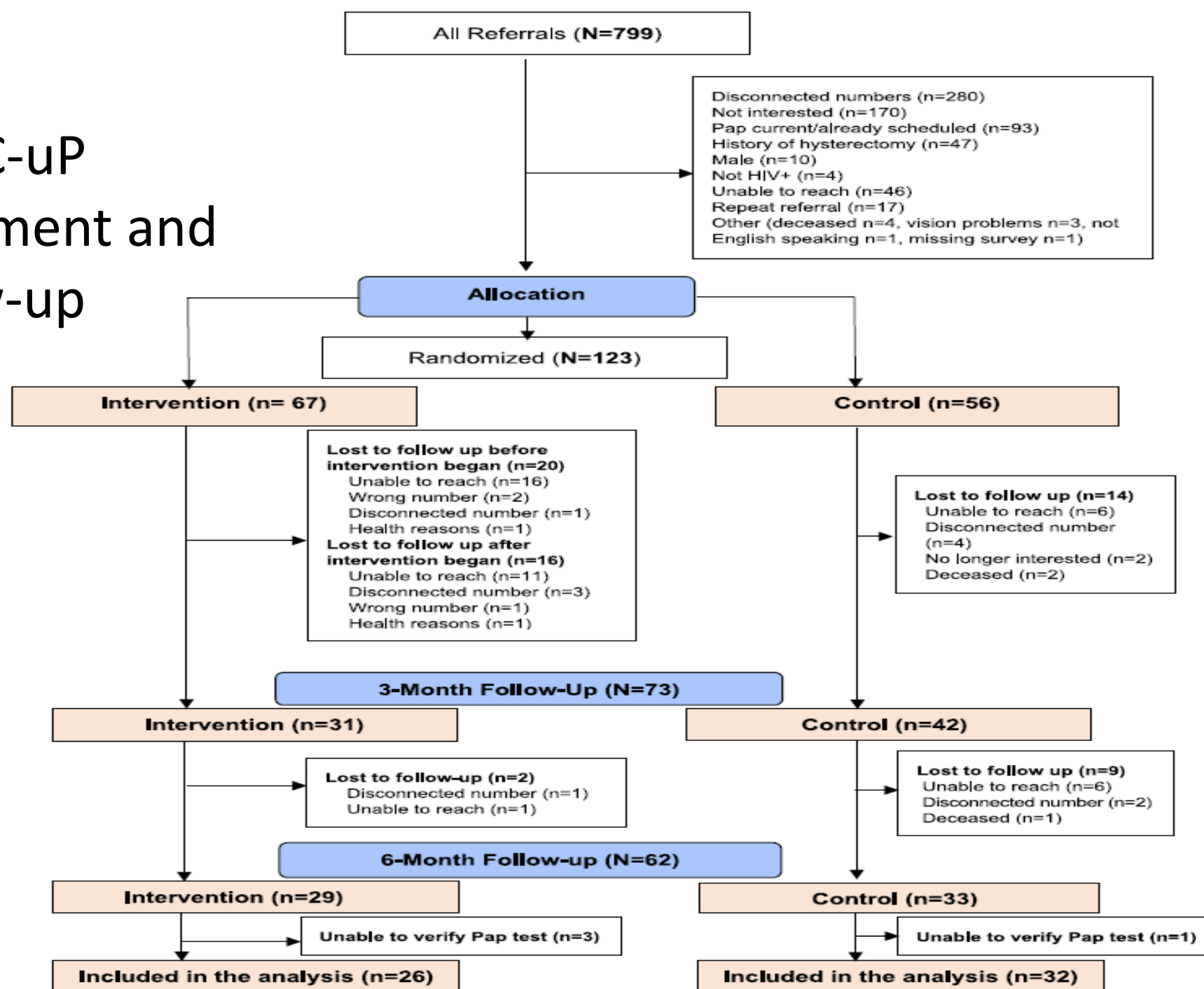


# Yield rates per recruitment strategy<sup>9</sup>

| <b>Recruitment strategy</b>   | <b>Yield %</b> |
|-------------------------------|----------------|
| Community clinics             | 34.1           |
| Community based organizations | 25.6           |
| Study flyers/word of mouth    | 24.4           |
| HIV/AIDS hotline              | 14.6           |
| Social media                  | 0.0            |

<sup>9</sup>Mendez KJW, Cudjoe J, Strohmayer S, Han HR. Recruitment and Retention of Women Living With HIV for Clinical Research: A Review. AIDS Behav. 2021 Oct;25(10):3267-3278. doi: 10.1007/s10461-021-03273-1. Epub 2021 May 14. PMID: 33990902; PMCID: PMC8419017.

# CHECC-uP Enrollment and Follow-up



# Sample characteristics at baseline<sup>a,10</sup> (N=58)

| Characteristics                                  | Mean (SD) or % |
|--|----------------|
| Age (range=28-67), years                         | 53.5 (7.8)*    |
| Black/African American (%)                       | 100            |
| < high school (%)                                | 42             |
| Disabled/unemployed (%)                          | 90             |
| Income—Difficult/very difficult to live with (%) | 29             |
| Married/partnered (%)                            | 21             |
| Type of residence—Renting (%)                    | 69             |
| Have health insurance (%)                        | 100            |
| Have PCP (%)                                     | 98             |

<sup>a</sup>Portion of the data presented at 15<sup>th</sup> International Conference on Communication in Healthcare & American Public Health Association Conference

<sup>10</sup>Han HR, Mendez KJW, Perrin N, Cudjoe J, Taylor G, Baker D, Murphy-Stone J, Sharps P. Community-based health literacy focused intervention for cervical cancer control among Black women living with human immunodeficiency virus: A randomized pilot trial. Health Expect. 2022 Nov 28. doi: 10.1111/hex.13644. Epub ahead of print. PMID: 36444391.

\*P=0.003 for significant age difference between intervention and control groups (i.e., 50yrs vs. 56 yrs)

**TABLE 1** Main educational topics with examples of medical terminologies and role-play contents

| Topic   | Example medical terminology practised                      | Example content covered in role-play   |
|---|--|--|
| HIV and cancer                                | Human papillomavirus, cancer, sexually transmitted disease |  |
| What is Pap smear                             | Cervix, Pap smear  | In the doctor's office: History taking |
| Why is it important to receive a Pap test     | Cervical cancer, reproductive organs                       |  |
| Cervical cancer symptoms                      | Hormones, genital warts                                    |  |
| How is Pap smear done                         | Laboratory (lab), pelvic exam, polyp, speculum             | In the doctor's office: Pap smear      |
| Things to remember before and after Pap smear | Abnormalities, history taking                              |  |

Abbreviations: HIV, human immunodeficiency virus; Pap, Papanicolaou.

<sup>10</sup>Han HR, Mendez KJW, Perrin N, Cudjoe J, Taylor G, Baker D, Murphy-Stone J, Sharps P. Community-based health literacy focused intervention for cervical cancer control among Black women living with human immunodeficiency virus: A randomized pilot trial. *Health Expect.* 2022 Nov 28. doi: 10.1111/hex.13644. Epub ahead of print. PMID: 36444391.

# Pap test screening\* at 6 months

| Intervention | Control |
|--------------|---------|
| 50%          | 21.9%   |

$\chi^2=5.02$ ,  $p=0.025$

\*Confirmed by medical record review

**TABLE 3** Outcome changes over 6 months<sup>a</sup>

| Variable  | Mean     |       | 3 months |              | 6 months |              | SD at baseline | Effect size at 3 months <sup>b</sup> | Effect size at 6 months <sup>c</sup> |
|---|----------|-------|----------|--------------|----------|--------------|----------------|--------------------------------------|--------------------------------------|
|   | Baseline |       | Control  | Intervention | Control  | Intervention |                |                                      |                                      |
| <i>Familiarity</i> (possible range = 12–60)     | 39.11    | 39.81 | 38.16    | 43.44        | 43.28    | 46.96        | 13.37          | 0.34 ( <i>p</i> = .068)              | 0.34 ( <i>p</i> = .185)              |
| <i>Navigation</i> (possible range = 0–12)       | 10.88    | 10.74 | 10.98    | 10.44        | 11.00    | 10.96        | 1.78           | -0.23 ( <i>p</i> = .439)             | 0.09 ( <i>p</i> = .731)              |
| <i>Numeracy</i> (possible range = 0–7)          | 3.32     | 3.15  | 4.00     | 4.19         | 3.56     | 3.65         | 1.58           | 0.23 ( <i>p</i> = .332)              | 0.23 ( <i>p</i> = .403)              |
| <i>Knowledge</i> (possible range = 0–22)        | 9.98     | 10.33 | 11.33    | 12.81        | 11.56    | 12.38        | 3.99           | 0.28 ( <i>p</i> = .203)              | -0.05 ( <i>p</i> = .826)             |
| <i>Self-efficacy</i> (possible range = 4–16)    | 14.59    | 14.73 | 14.31    | 15.04        | 14.68    | 15.5         | 2.32           | 0.25 ( <i>p</i> = .423)              | 0.19 ( <i>p</i> = .494)              |
| <i>Cultural beliefs</i> (possible range = 9–45) | 15.92    | 17.21 | 15.55    | 13.50        | 16.44    | 14.08        | 5.75           | -0.58 ( <i>p</i> = .024)             | -0.54 ( <i>p</i> = .065)             |
| <i>Depression</i> (possible range = 0–27)       | 14.94    | 15.75 | 14.39    | 13.65        | 12.91    | 14.65        | 5.53           | -0.28 ( <i>p</i> = .349)             | <-0.01 ( <i>p</i> = .998)            |

Note: Health literacy variables are italicized.

Abbreviation: Pap, Papanicolaou.

<sup>a</sup>*n* = 58 with full data on both psychosocial outcomes and Pap test status based on medical record review.

<sup>b</sup>Group difference in mean change scores from baseline to 3 months divided by the standard deviation at baseline.

<sup>c</sup>Group difference in mean change scores from baseline to 6 months divided by the standard deviation at baseline.

<sup>10</sup>Han HR, Mendez KJW, Perrin N, Cudjoe J, Taylor G, Baker D, Murphy-Stone J, Sharps P. Community-based health literacy focused intervention for cervical cancer control among Black women living with human immunodeficiency virus: A randomized pilot trial. *Health Expect*. 2022 Nov 28. doi: 10.1111/hex.13644. Epub ahead of print. PMID: 36444391.

# Main lessons learned

- Significant impact on Pap test screening (28.1% difference between groups vs. 5%-24% rates for HIV negative women<sup>11,12</sup>)
- 100% of intervention women in the study sample would recommend CHECC-uP to other women living with HIV
- A ceiling effect of navigational health literacy Importance of mental health screening and referral to resources as part of navigation assistance
- Retention not optimal (>1/3 being early dropouts) with higher drop outs among younger women and women who scored higher on cultural beliefs

<sup>11</sup>Han HR, Kim J, Lee JE, Hedlin HK, Song H, Song Y, Kim MT. Interventions that increase use of Pap tests among ethnic minority women: a meta-analysis. *Psychooncology*. 2011 Apr;20(4):341-51. doi: 10.1002/pon.1754. Epub 2010 Apr 29. PMID: 20878847; PMCID: PMC3741532.

<sup>12</sup>Chan DN, So WK. A systematic review of randomised controlled trials examining the effectiveness of breast and cervical cancer screening interventions for ethnic minority women. *Eur J Oncol Nurs*. 2015 Oct;19(5):536-53. doi: 10.1016/j.ejon.2015.02.015. Epub 2015 Apr 1. PMID: 25840817.



# Thoughts for future endeavors

- Need for more tailored and multiple retention strategies
- Addressing phone connectivity
- Nested trial to understand if the multi-generational approach to promoting HPV vaccination works
- Implementation outcomes to maximize sustainability of a community-based intervention program like CHECC-uP

# Support

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- Johns Hopkins Center for AIDS Research (P30AI094189)
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# Study Team

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