



# An Academic-Public Health Partnership to Leverage HIV Surveillance Data and Improve Local Retention in Care

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# Indiana University Land Acknowledgment

Indiana University Indianapolis (IUI) acknowledges our location on the traditional and ancestral territory of the Miami, Potawatomi and Shawnee people. We honor the heritage of Native peoples, what they teach us about the stewardship of the earth and their continuing efforts today to protect the planet. Founded in 1969, IUI stands on the historic homelands of Native peoples and, more recently, that of a vibrant Black community, also displaced. As the present stewards of the land, we honor them all as we live, work and study at IUI.



# Funding, Conflicts of Interest, Study Review

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The authors declare no financial or other conflicts of interest.

Although Dr. Wiehe is a member of the U.S. Preventive Services Task Force (USPSTF), materials provided in this presentation reflect individual views only and do not represent the views or recommendations of the USPSTF. The overall presentation should not be attributed to the USPSTF

This study underwent full IRB review and approval (protocol 1410587167) at IU and was reviewed and approved by the Marion County Public Health Department's Research Review Committee.



# Background



# HIV Surveillance Database

- *Enhanced HIV/AIDS Reporting System (eHARS)*
  - Centers for Disease Control and Prevention's browser-based surveillance tool<sup>1</sup>
  - Demographics, HIV/AIDS diagnosis dates, HIV treatment and outcome measures (e.g., CD4 and viral load results), and more for people living with HIV (PLWH)
  - State and large local health departments use eHARS for reporting, data management, analysis, and transfer of data to CDC<sup>1</sup>

<sup>1</sup> Centers for Disease Control and Prevention. Jan. 5, 2024. Accessed Apr. 24, 2024. <https://www.cdc.gov/hiv/library/reports/hiv-surveillance.html#:~:text=The%20Enhanced%20HIV%20AIDS%20Reporting,transfer%20of%20data%20to%20CDC>.



# Surveillance Data Usage at the Local Level

- The Marion County Public Health Department (MCPHD) uses eHARS data for the 10-county Ryan White Part A Indianapolis Transitional Grant Area (TGA)<sup>2</sup>
  - Epidemiological reports
  - Ryan White grant prioritization, allocation, and progress reports
  - Ryan White HIV Services Program outreach to PLWH who have fallen out of care

<sup>2</sup> Boone, Brown, Hamilton, Hancock, Hendricks, Johnson, Marion, Morgan, Putnam, and Shelby Counties



# Surveillance Data Usage at the Local Level

- Currently, outreach work utilizes data *retrospectively*
  - Outreach occurs **after** individuals no longer meet the definition of retained in care (RIC) (received  $\geq 2$  quantitative CD4 or VL tests performed  $\geq 90$  days apart during a 12-month period).<sup>3</sup>
  - Results in substantial unmet potential

<sup>3</sup> Kay ES, Batey DS, Mugavero MJ. [The HIV treatment cascade and care continuum: Updates, goals, and recommendations for the future.](#) AIDS Res Ther. 2016;13:35. doi:10.1186/s12981-016-0120-0



# Vision and Objectives



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# Academic-Public Health Partnership Vision

- Vision: Area-level eHARS data will be more valuable for outreach if data are used for predictive modeling and alerts.



# Objective

- IU and MCPHD collaboration → Program that generates proactive alerts to identify PLWH **prior** to non-RIC.
- MCPHD outreaches to re-engage these individuals in care.
- Program will be made freely available for revision and use by state and local health departments and/or adaptation to Ryan White's CareWARE and/or providers' electronic medical record systems.

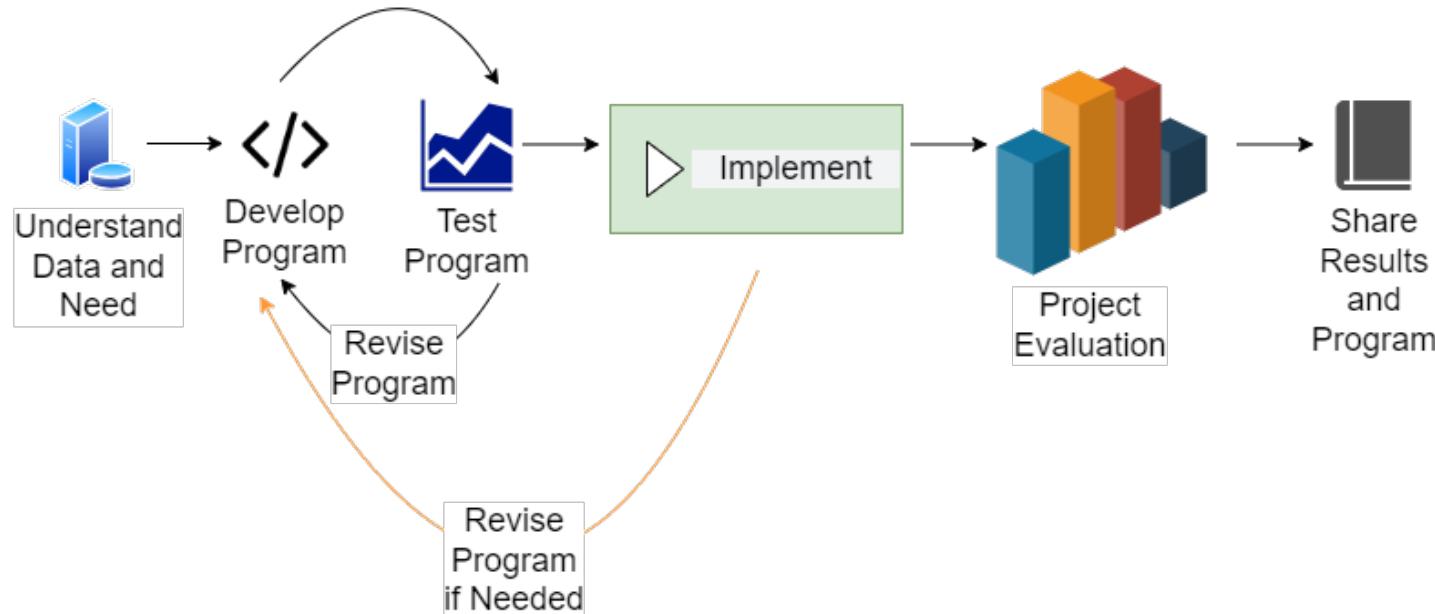


# Project Status



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# Project Roadmap



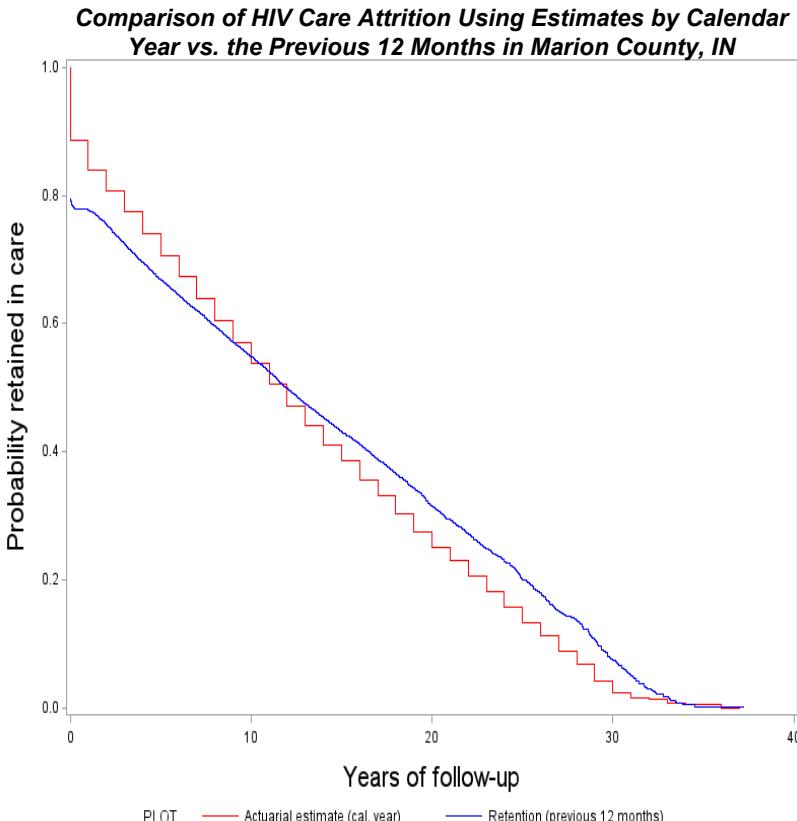
# Understanding the Data, Need, and Algorithm

- First algorithm used a *continuous* definition versus the actuarial definition currently in use (previous 12 months vs. calendar year).



# Understanding the Data, Need, and Algorithm

- ❑ Results were consistent with the method currently in use
- ❑ Variance was due to the actuarial estimate assuming the point of non-retention to be in the middle of the calendar year.



# Understanding the Data, Need, and Algorithm

- Problem: The algorithm was **computationally difficult and resource-intensive**.
  - Complicated within-person analyses looked backwards through the previous 12 months to identify the earliest lab and then looked forward to identify at least two tests  $\geq 3$  months apart.



# The Program and Revisions

- The current program accomplishes our goal with simplified and accelerated execution
  - Forward-looking algorithm generating alerts 30 days prior to an individual falling out of RIC status (11 months from most recent lab); and
  - Censors on time-period (previous 24 months).



# Program Testing

- Alerts generated resulted in the possibility of misused time because:
  - Deceased individuals and those no longer in the TGA were included.
  - Alerts were based on the standard RIC definition
  - This definition is not used by some providers for *healthy* PLWH with *undetectable* viral loads.



# Program Revision

- The final program was refined to censor ineligible individuals
  - Censors deceased individuals based on eHARS date of death variable
  - Censors individuals who have moved out of the TGA



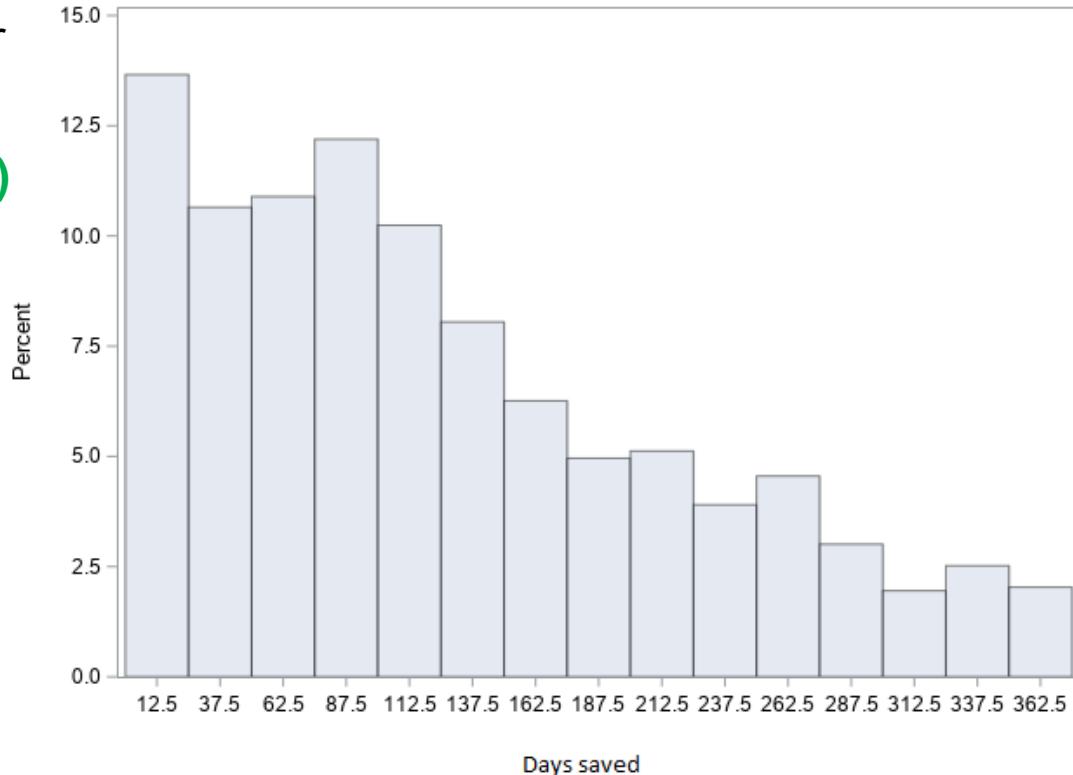
# Program Revision

- It was also refined to create different alert criteria
  - Alert 10 months after a most recent viral load of  $\geq 50$  copies/mL (detectable)
  - Alert 11 months after a most recent viral load of  $< 50$  copies/mL (undetectable)



# Program Testing

- Median number of days earlier for the forward looking alert →  
**About 3.5 months (106 days) earlier** than the retrospective method currently in use (IQR 52-190 days, or 2-6 months)



# Program Testing

- ❑ False-negative rate → Should be zero as we are very aggressive in flagging people (specificity should be close to 100%).
- ❑ False-positive rate → We have not yet estimated if flagged individuals *would have* obtained a test prior to the closure of the 12-month period without being contacted by outreach staff. We will do so using historic date.



# Implementation

- We are currently implementing the revised program on MCPHD's server.
  - Automated to monthly runs
  - Output securely sent to engagement specialists using ShareFile
  - Outreach to ensure those with alerts are re-linked to care prior to non-RIC



# Evaluation

- MCPHD engagement specialists will report their alert-generated activities via secure IU REDCap surveys.
  - eHARS identification number of individuals with alerts (for outcomes evaluation)
  - Number of alerts generated
  - Number of alerts that were unwarranted (e.g., incorrect, no longer in the TGA)
  - Number of alerts from which individuals are contacted
  - Number of individuals re-connected to care **prior** to being non-RIC
  - Number of individuals re-connected to care **within 30 days after falling out of care**
  - Number of individuals unable to be contacted and/or unable to be re-connected to care
  - Amount of time spent conducting outreach to those at risk of falling out of care



# Evaluation

- We will evaluate:
  - Rates of connection to care following alert-based outreach
  - RIC outcomes following alert-based outreach (e.g., viral load)
  - Time spent conducting outreach among those at risk of falling out of care.



# Weaknesses

- Censoring those who are deceased will work only if date of death is updated, and it is not always known/updated
- Censoring those who have moved from the TGA will work only if:
  - HIV/AIDS was diagnosed in the TGA
  - Received a lab in the new jurisdiction



# Conclusion

- Routine medical care is critical to the health of PLWH and to ending the HIV epidemic.
- Our academic-public health partnership shifts from retrospective to proactive identification of PLWH at risk of falling out of care.
- Code is freely available for use by other health departments or can be applied to Ryan White's CareWARE database or electronic medical records in order that outreach staff can proactively identify care attrition.





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