



Electronic Health Record Case Study

# **University of Colorado's HIV Routine Screening EHR Program**





## Introduction

### **In recent years, the importance of routine HIV screening in health care settings has become increasingly evident.**

Early detection and diagnosis are crucial in managing HIV, improving patient outcomes and reducing transmission rates. As of 2022 there were an estimated 15,700 people in the state of Colorado living with HIV, and only about 55.5% had achieved successful viral suppression.<sup>1</sup>

Additionally, approximately 13.2% of people living in Colorado with HIV are unaware of an active infection and can transmit the virus to others without knowing.<sup>1</sup>

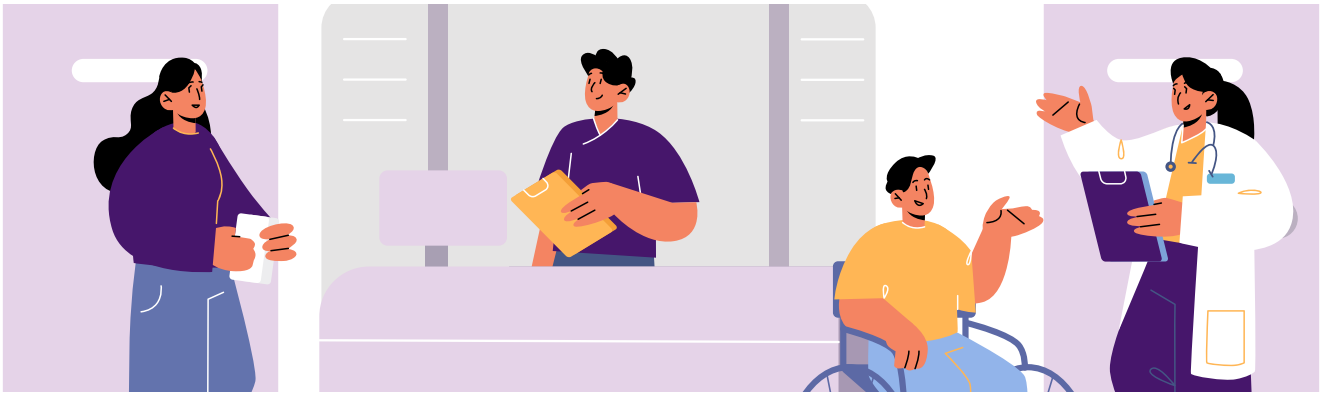
Over recent decades, people with HIV have been increasingly able to live long, healthy lives due to improvements in antiretroviral therapy. However, meaningful discrepancies exist in who benefits from the advancements in HIV care, with ethnic and racial minorities being disproportionately affected.<sup>2</sup>

### **HIV screening and linkage to care are critical services that we have the opportunity to provide to patients in Emergency Departments (ED).**

Frequently, ED visits serve as touch points for patients who may not otherwise interact with the medical system. The University of Colorado Emergency Department cares for over 110,000 individual patients per year presenting a significant opportunity to offer services that these individuals might otherwise be unable to access due to limited health care availability.

Historically, HIV screening tests were only ordered by the ED providers\*. However, we felt there was an opportunity to expand screening to a large population by leveraging various strategies outlined in the **AMA's HIV, STIs, Viral Hepatitis and LTBI Routine Screening Toolkit**, specifically implementation of various clinical decision support tools.

\*Providers, according to the University of Colorado for the purposes of this case study, refers to MDs, DO, NPs and PAs.



## Problem

**Historically, HIV testing was only offered if the patient requested a test or had a relevant chief complaint that prompted the provider to offer screening.**

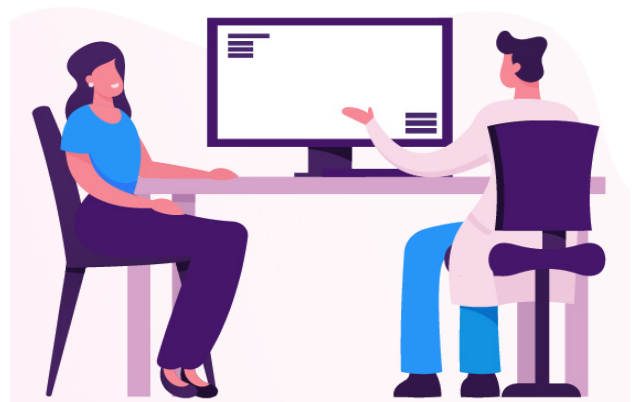
However, there was variability in the process and screening was ultimately at the provider’s discretion which led to missed opportunities for increased testing. During our participation as a member of the **AMA’s HIV, STIs, Viral Hepatitis and LTBI Routine Screening Toolkit** pilot from October 2023 – March 2024, we set out to increase our departmental HIV testing by automating the ordering process, revamping the HIV pathway, and providing comprehensive education to staff.

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## Approach

**We utilized various strategies of the AMA toolkit to facilitate our approach.**

The first strategy was designing a flowsheet in the Electronic Health Record (EHR) with question logic. Our idea was to incorporate the Denver HIV Risk Score Tool<sup>3</sup> as the basis for the flowsheet logic. This is an externally validated scoring system that considers various demographic, clinical and social factors to estimate the risk of HIV infection.<sup>2,4</sup> A higher score indicates a patient may be at a higher risk of HIV infection, and as a result, should be tested. We chose the BPA to fire at moderate or high to increase the number of patients screened.



During initial screening a nurse asks a variety of questions to the patient and captures their response in the EHR's flowsheet section (Figure 1). Each question is assigned a value which is summed to give a total score. The next step involves a Best Practice Advisory (BPA) alert that triggers if patient scores moderate or high on the flowsheet (Figure 2). This BPA directs the nurse to the HIV pathway where they are given a reference on the next steps of patient care related to HIV concerns (Figure 3). Pathways are standard tools we utilize in our organization in order to decrease provider variability and serve as an evidence-based guide for managing a variety of scenarios. The HIV pathway can be directly opened from the BPA or is accessible through the main screen of the EHR. This allows our HIV pathway to serve as a central resource for providers and nurses to access and streamline patient care.

The first part of the pathway from the BPA explains why consent is not explicitly needed but the patient must still agree to testing. The order for the test is linked directly in the pathway and once clicked populates in the order section of the EHR.

This allows for ease of ordering and limiting the number of clicks. After the nurse agrees to order the test, it describes the next steps which includes informing the provider. This gives the provider the chance to counsel the patient about the test and its potential results. If the test is negative the patient can be given resources for the PrEP clinic as well as access to the patient navigator whose role is to facilitate appointment scheduling and ensure follow up if the patient wishes.

If the patient has a positive test, confirmatory testing is ordered in addition to a consult with the HIV linkage to care coordinator. This consult order is directly embedded into the pathway and links to the EHR. In addition, there is a newly built direct link for a group chat function in the EHR. During normal business hours the primary RN will utilize this link to message the active linkage to care coordinator to facilitate follow up. Overall, the pathway is diverse and serves as a central hub for the team to provide the best HIV care by seamlessly interacting with the EHR, including order placement.

### Figure 1: Initial Screening Questions

The screenshot shows a section titled "HIV Risk Questions (Metro Denver Only)" with six questions, each with a dropdown menu for answers. The questions and their options are:

- Have you ever been tested for HIV? (Yes, No, Unable to assess)
- Have you ever tested positive for HIV? (Yes, No)
- Have you ever injected drugs? (9=Yes, 0=No, Unable to assess)
- What race or ethnicity do you identify with? (9=Black, 3=Hispanic, 0=Neither black or hispanic, Unable to assess)
- When you have sex, do you have sex with men, women, both, or neither? (22=Men or Both, 0=Women or abstains from sex, Unable to assess)
- Calculated HIV risk score (age and gender automatically included in calculation) (Empty input field)

**Figure 2: Best Practice Advisory (BPA) Alert**

BestPractice Advisory - Sepsis, Testamc

Attention (1)

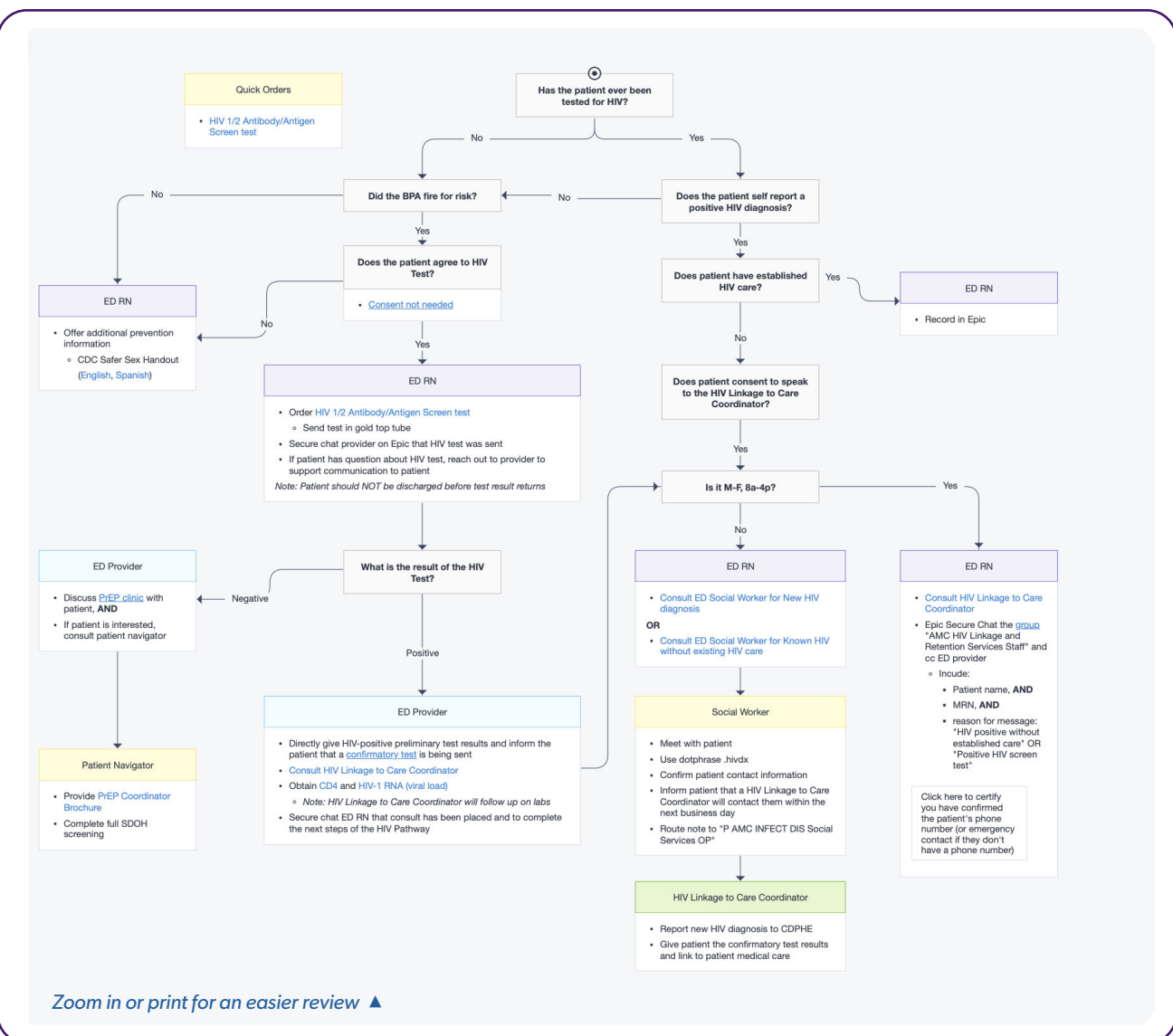
**HIV Screening Pathway (# 2524)**

This patient has a moderate to high Denver HIV risk score or qualifies for other resources. Open the HIV Screening Pathway below to order the HIV screening test and access other resources for patients. No additional consent is required.

Tell the patient: "We are an HIV testing site. Based on screening questions we ask all of our patients, I recommend we add the HIV screen test to your workup today."

[Open HIV Screening Pathway](#)

**Figure 3: Reference on the next steps of patient care**



# Challenges & Solutions

## We faced a number of challenges during implementation ranging from care team discomfort with screening to ongoing monitoring and editing of our EHR tools.

At the University of Colorado Emergency Department, patients go through an intake process and, as a result, not every patient receives all screening questions. This limits the number of patients who are receiving the Denver HIV Risk Score Tool questions. However, providers are still free to order HIV testing on anyone interested in the ED.

Another challenge we faced was continued nursing engagement. Our screening method relies on the nursing staff to ask sensitive questions regarding sexual practices and racial/ethnic background. A survey was given to nursing staff who ask the risk assessment questions and it was noted that 27% of respondents felt uncomfortable asking questions around sexual practices. Specifically, it was noted that they did not always see the relevance of sexual history to the patient's overall ED care. They also did not want patients to feel discriminated against or fear that their care may change based on their answers. It was also noted that 47% of nurses felt uncomfortable asking about race or ethnicity. They cited similar reasons including not seeing the relevance to patient care.

Our solution to these concerns was focused on improving nurse comfort in asking these questions. We were able to utilize a toolkit strategy of utilizing sex positive messaging. The language that accompanies the BPA was updated after receiving frontline staff input. Another concern noted was around requiring additional consent.

By directly calling out this concern in the pathway and explaining the "why" we were able to decrease apprehension from staff. By providing this to staff they have noted feeling more comfortable when asking sensitive questions around HIV. We had interdisciplinary champions attend nurse huddles to provide reminders on the importance of this process as well. In addition, we created educational flyers (**Figure 4**) that provided more context to the process.

The flowsheet, BPA, and pathway all require consistent monitoring and edits. Initially, the nursing flowsheet logic did not include an area for free text. We felt this was an important area that we wanted to track and determine specific reasons in real time as to why they may not be able to assess an answer. In addition, there are regular updates to the pathway to ensure the most up to date information is provided.

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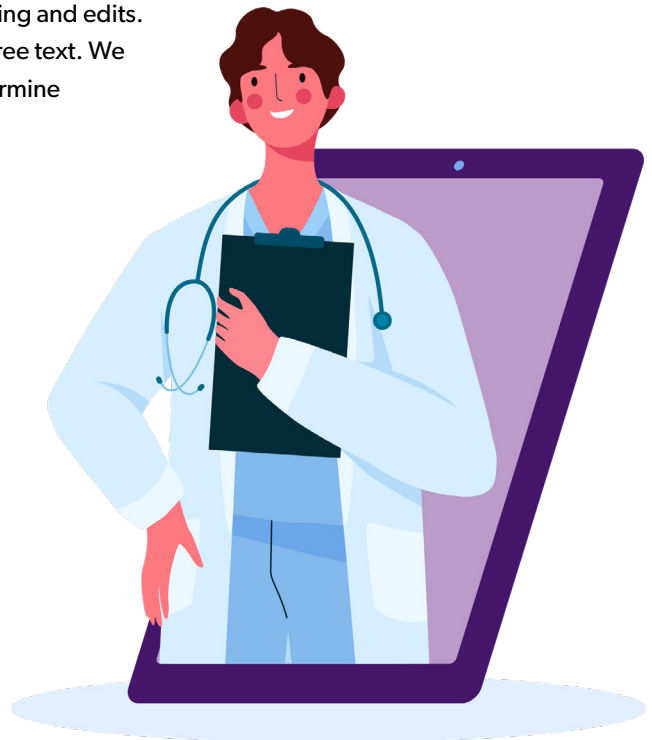
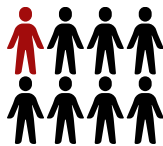


Figure 4: Educational Flyer

# HIV SCREENING IN THE ED

UC Health is one of six pilot sites identified by the American Medical Association to improve HIV screening in the emergency department, and we need your help!



**1 in 8** people living with HIV don't know that they have the virus

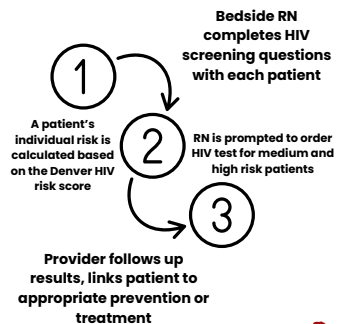
**15,000**

COLORADANS ARE CURRENTLY LIVING WITH HIV, AND FEWER THAN HALF ARE ON APPROPRIATE TREATMENT

**150,000**

PEOPLE ARE ESTIMATED TO BE LIVING WITH UNDIAGNOSED HIV IN THE UNITED STATES

## HIV screening at UC Health - an RN based screening initiative



## HIV DISPROPORTIONATELY IMPACTS CERTAIN COMMUNITIES

- Black/African American individuals aged 13+ make up around 12% of the US population but account for 40% of people with HIV
- Hispanic/Latino persons aged 13+ make up 18% of the population but account for 25% of people with HIV



## Men who have sex with men (MSM) are the most affected group in the US, accounting for 70% of the 32,100 estimated new infections in 2021

HIV screening, prevention, and treatment are not equitably reaching people who need it most, **but we are trying to change that**

### Sources

<https://www.hiv.gov/hiv-basics/overview/data-and-trends/impact-on-racial-and-ethnic-minorities/>  
<https://aidsvu.org/local-data/united-states/west/colorado/>



# Results

**After implementing strategies outlined in the AMA’s HIV, STIs, Viral Hepatitis and LTBI Routine Screening Toolkit at the University of Colorado, we noted a variety of improvements to our HIV screening process.**

First, there was an increase in the number of patients screened for HIV after presenting to the ED. Compared to the pre-pilot data there was a 20% increase in the number of patients screened. In addition, we had 100% success in linkage to care as defined in the AMA’s HIV, STIs, Viral Hepatitis and LTBI Routine Screening Toolkit. Finally, 90% of the nurses surveyed were in support of the additions to the BPA language and pathway.

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# Next Steps

**During the pilot, we noted a high number of patients with moderate or higher risk for HIV infection.**

Building upon this work, the next logical step is augmenting our prevention efforts by offering patients PrEP in the ED. Being able to offer PrEP in the ED for those patients who scored moderate or higher on the scoring tool and are at a higher risk for infection would not only enhance patient care but also continue to broaden our public health initiative by attempting to reduce the overall incidence and transmission of HIV in our community.





# References

1. About AtlasPlus. National Center for HIV, Viral Hepatitis, STD, and Tuberculosis Prevention Published May 21, 2024. Accessed July 12 2024. [https://www.cdc.gov/nchhstp/about/atlasplus.html?CDC\\_AAref\\_Val=https://www.cdc.gov/nchhstp/atlas/index.htm](https://www.cdc.gov/nchhstp/about/atlasplus.html?CDC_AAref_Val=https://www.cdc.gov/nchhstp/atlas/index.htm)
2. Jason S. Haukoos, Michael S. Lyons, Christopher J. Lindsell, Emily Hopkins, Brooke Bender, Richard E. Rothman, Yu-Hsiang Hsieh, Lynsay A. MacLaren, Mark W. Thrun, Comilla Sasson, Richard L. Byyny, Derivation and Validation of the Denver Human Immunodeficiency Virus (HIV) Risk Score for Targeted HIV Screening, *American Journal of Epidemiology*, Volume 175, Issue 8, 15 April 2012, Pages 838–846
3. Denver HIV Risk Score Tool. Denver Prevention Training Center. Accessed July 12 2024. [https://courses.denverptc.org/x/Denver\\_HIV\\_Risk\\_Score\\_Tool.pdf](https://courses.denverptc.org/x/Denver_HIV_Risk_Score_Tool.pdf).
4. Haukoos JS, Hopkins E, Bucossi MM, Lyons MS, Rothman RE, White DA, Al-Tayyib AA, Bradley-Springer L, Campbell JD, Sabel AL, Thrun MW; Denver Emergency Department HIV Research Consortium. Brief report: Validation of a quantitative HIV risk prediction tool using a national HIV testing cohort. *J Acquir Immune Defic Syndr*. 2015 Apr 15;68(5):599-603. doi: 10.1097/QAI.0000000000000518. PMID: 25585300; PMCID: PMC4357562.