

# Barriers and Facilitators of Universal HIV Screening Among Internal Medicine Residents

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## ABSTRACT

**Background:** Adoption of universal HIV screening has been low despite national recommendations.

**Objective:** To describe the barriers and facilitators to adoption of universal HIV screening in a low-prevalence setting.

**Design:** Qualitative, thematic analysis of focus group discussions among internal medicine residents who introduced universal HIV screening into their primary care practice in Madison, Wisconsin.

**Approach:** Deductive and inductive codes constructed a hybridized thematic analysis model. Deductive codes stemmed from a knowledge-attitude-behavior framework for physician nonadherence to guidelines. Inductive codes emerged from the focus group discussions and were embedded into broader deductive codes to provide an HIV-specific model.

**Key Results:** Residents were knowledgeable and had positive attitudes toward recommendations for universal HIV screening. Residents felt the majority of their patients were receptive to HIV screening, especially when introduced with normalizing techniques and reference to an expert authority such as the Centers for Disease Control and Prevention (CDC). They still perceived patient discussions as challenging due to stigma surrounding HIV and patients' perceptions of being at low risk. Residents employed individualized electronic medical record cues as a memory aid to discuss the issue.

**Conclusion:** This qualitative study of internal medicine residents training in an area with low HIV prevalence suggests that stigma and patient perception of being at low risk are barriers that should be addressed to effectively integrate universal HIV screening into primary care.

## INTRODUCTION

In 2006, the The Centers for Disease Control and Prevention (CDC) endorsed universal HIV screening as opposed to risk-based testing.<sup>1</sup> Specifically, they recommend a 1-time HIV screen for low risk adults less than 65 years old in populations where the estimated

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prevalence of HIV is greater than 0.1%. The American College of Physicians published similar guidelines 3 years later.<sup>2</sup> This shift was motivated by an effort to identify the estimated 236,400 Americans who are unaware they are infected with HIV.<sup>3</sup> Although they may represent only 20% of all HIV-positive Americans, this undiagnosed subset accounts for approximately half of the estimated 56,000 new transmissions each year.<sup>4</sup> Diagnosing infection is the first step in a test-and-treat strategy currently employed to prevent HIV infection.<sup>5</sup> Therefore, identifying these infected individuals early has important personal as well as population health benefits.

Despite guidelines recommending universal HIV screening, adoption among primary care providers has been low. Only 45% of Americans aged 18-64 reported ever having been tested for HIV, and half of the general internists participating in a recent national survey reported increasing

their screening rates after publication of the guidelines.<sup>6,7</sup> Recent studies addressing the slow integration of universal HIV screening into primary care provide preliminary explanations for observed low-screening rates, but a detailed understanding of the factors that affect HIV screening in primary care is still lacking.<sup>7-9</sup> Screening initiatives have often focused on metropolitan, high-risk populations and emergency department settings rather than suburban, low-prevalence communities utilizing primary care clinics.<sup>10,11</sup> Little is known about HIV screening in low prevalence communities, where physicians may encounter unique barriers or facilitators. Much of the US Midwest typifies this less urban and understudied region with the nation's lowest HIV screening rates.<sup>12</sup> This study aims to explore the barriers and facilitators perceived by internal medicine residents as they adopt HIV screening into their primary care practice in a Midwestern community with an estimated 0.2% prevalence of HIV.<sup>13</sup>

**Table 1.** Questions Included in the Focus Group Interview Guide

Tell me about the last patient you screened for HIV in your primary care clinic.  
Can you remember a patient you didn't screen, but wish you had?  
Do you think most residents know the 2006 CDC guidelines?  
How do you approach screening? What works well and what doesn't?  
How do you bring it up?  
How do different types of patients respond? Is it fairly predictable?  
Why do you think patients decline screening?  
Has it ever been awkward? What types of things do you do to keep it from becoming awkward?  
What are some barriers to screening?  
What has made screening easier?  
Do you think the perception that we work with a low-prevalence community affects physician's likelihood to screen?  
What role could the electronic medical record play in HIV screening?  
According to the annual chart review, HIV screening has gone up quite a bit—almost doubled. How did you guys do it, and what motivated you?

**Table 2.** Barrier/Facilitator Matrix Coding<sup>a</sup>

**Time**

**Barrier (12 quotes)**

"The person today, for example, is a person I would like to screen. She's a sexually active 19 year old but she has horribly controlled type 1 diabetes. I only had a half an hour, so I spent most of the time trying to convince her to take her insulin. I said at the end, 'You know, there are all these things that I'd like to talk to you about, but we need to have another visit.' I had to pick the thing that was likely to kill her first."

**Facilitator (2 quotes)**

Facilitator: "So do you think time plays a factor at all in screening?"

Resident: "No, because most of my visits are about prevention. That's what it's all about—get them on statins, blood pressure meds, screening, and colonoscopies."

<sup>a</sup>Using Nvivo, the barrier and facilitator nodes were cross-referenced to each inductive and deductive node. In the example above, 12 quotes described time as a barrier, while 2 described it as a facilitator. An initial query displays only the number(s), 12 or 2. However, Nvivo will generate a list of all the quotes if an investigator clicks on the cell. For illustrative purposes, only 1 example quote was included in each cell.

## METHODS

### Participants

All University of Wisconsin (UW) internal medicine residents with primary care clinics in Madison, Wisconsin were eligible to participate. This group offers an important perspective for 3 reasons: (1) they serve a low-prevalence community; (2) they work in a region with the lowest HIV screening rates; and (3) in the prior year, they doubled their HIV screening rates after this topic was added to a self-audit. Incorporating universal screening into residents' practice patterns should increase the likelihood that they will continue to screen as they become the next generation of clinicians.<sup>14,15</sup> The UW residency program requires trainees to perform a self-audit of preventive health services offered during their continuity clinics. Topics include immunizations, cancer

and metabolic screenings, and alcohol and tobacco counseling. In 2010, universal HIV screening was added to the required self-audit without announcing the change to resident physicians. No additional teaching regarding HIV screening was added to the established curriculum. The following year, HIV screening rates increased from 18% to 40% (unpublished data). HIV screening at all clinics is done using standard blood draws with ELISA assays followed by confirmation Western blot. Patients must give explicit verbal consent.

### Recruitment

All internal medicine residents at UW were recruited to participate in focus groups regarding "HIV screening in outpatient primary care settings" via e-mail solicitations and announcements at educational lectures. Three separate focus groups, with 4 to 6 volunteer participants each, were conducted to foster open discussion and obtain thematic saturation.<sup>16</sup> Dinner was provided during the focus groups, but participants received no other compensation or incentive. The study was approved by the University of Wisconsin Health Sciences IRB.

### Data Collection

Hour-long focus groups were conducted between December, 2011 and January, 2012. Participants were grouped by their primary care clinic location—a university or VA clinic. Residents at university clinics composed 2 focus groups, while residents at Veterans Administration (VA) clinics composed a separate focus group. A recent graduate of the UW residency program (CK) led the focus groups using a standardized interview guide with probing questions for clarification (Table 1). Questions were formulated based on: (1) Cabana's guideline nonadherence framework, (2) previously published survey results examining physicians' perceptions of barriers towards HIV screening, and (3) informal discussions with residents and recent graduates of the program.<sup>7-9,17,18</sup> The guide was piloted using a mock focus group of local physicians who had graduated from the residency program in the previous year. All focus groups were audio recorded, transcribed verbatim, and de-identified to preserve confidentiality. Residents refrained from using patient identifiers. Transcriptions were reviewed for accuracy by an investigator (MB) who observed the focus groups and loaded into NVivo (QSR International Pty Ltd, Doncaster, Victoria, Australia) for analysis.

### Data Analysis

Two investigators (MB and CK) independently coded the 3 transcripts line-by-line using a hybrid of inductive and deductive thematic analysis.<sup>20,21</sup> This process generated an HIV screening-specific conceptual model in 2 steps. First, 14 deductive nodes were derived a priori from Cabana's guideline nonadherence framework.<sup>17</sup> Second, 2 investigators (MB and JB) derived inductive HIV-specific nodes by analyzing the first transcript, which were

embedded as sub-categories within broad deductive nodes derived in step 1 (Figure). Resident demographics and HIV screening barriers/facilitators were also coded, which allowed matrices to facilitate analysis (Table 2). Inter-rater reliability was 95% across all 3 focus group transcripts. Main themes that emerged from the coded text were discussed until consensus was reached. Investigators conducting primary analysis (MB, JB, and CK) were either currently enrolled in, or recent graduates of the residency program, providing local expertise needed to generate credible interpretations.

## RESULTS

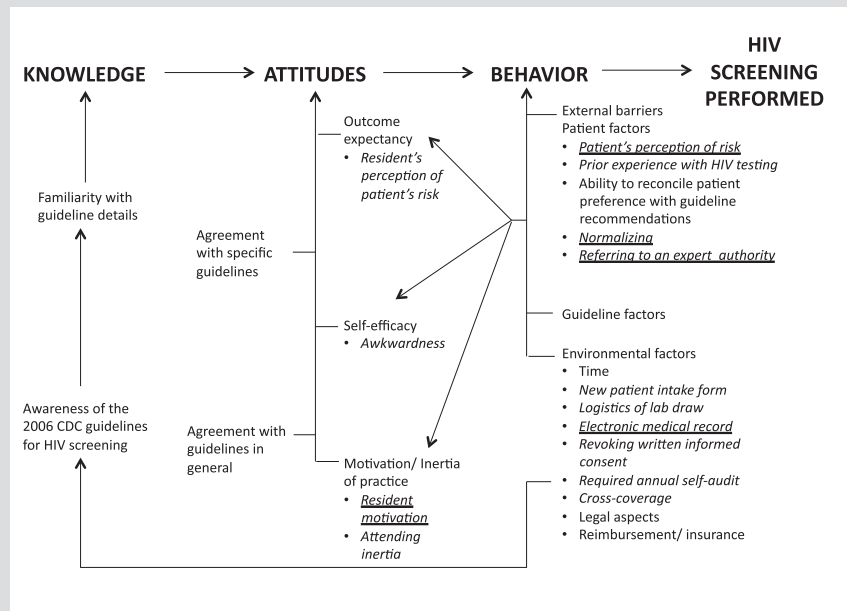
Fifteen of 74 eligible internal medicine residents participated, representing 20.3% of the UW residency program (Table 3). Thirteen participants were exposed to the self-audit that was associated with an increase in HIV screening within the residency program. Each focus group lasted approximately 1 hour, yielding a total of 187 minutes of dialogue and 115 pages of transcription. Four themes regarding routine HIV screening emerged during analyses: (1) integration into standard practice, (2) resident perceptions of patients' attitudes, (3) strategies for opening the discussion with patients, and (4) use of electronic medical record (EMR) cues (Figure). Each is described below with illustrative quotes.

### Integration of HIV Screening Into Standard Practice

Overall, residents' knowledge and attitudes towards universal screening were positive. Some residents endorsed universal screening because they felt their patients did not always divulge risk factors, and universal screening allowed these patients to be tested at least once. One resident remarked, "The social history in general—people don't tell you everything." Twelve of the 15 residents explicitly stated that they incorporated universal HIV screening into their standard practice. However, lack of time during the clinical encounter led residents to prioritize HIV screening among a list of preventive health actions based upon their assessment of which were mostly likely to pose the most risk to their patient. Using this approach, residents introduced HIV screening less often or encouraged patients to consent less frequently than they would have for other screening tests when they felt that patient was at low risk.

It's lower on my priority list for, say, a healthy 55-year-old man. I go through all their preventive issues, but if they come in with 6 chief complaints for a 1-hour physical, that's one of the things I may not get to along with a living will or

Figure. Conceptual Framework and Nodes for Qualitative Analysis



Cabana's framework for physician guideline nonadherence was modified for the 2006 Centers for Disease Control and Prevention guidelines recommending universal HIV screening.<sup>17</sup> Deductive codes are set in normal type. Inductive nodes are set in italicized type. The 4 main themes that emerged can be linked directly to underlined nodes.

health care power of attorney. Those are lower on my preventive screening list, as opposed to cholesterol or colonoscopies. I would say about 25% of the time I don't get to it.

Some also felt that because the guidelines recommended a 1-time screen within a broad age range for low-risk patients, there was less urgency to accomplish this screening as opposed to other annual preventive services. Institutional benchmarks also entered into this prioritization.

Since this is for a person who is not at high risk, for once-in-a-lifetime screening, there is a lot less urgency to get it done at this visit than there is for screening diabetes or screening cholesterol, where you have annual performance measures.

In sum, residents prioritized HIV screening within a panel of other preventive health actions based upon (1) their assessment of the patient's HIV risk, (2) potential benefits of other preventive services, (3) institutional benchmarking, and (4) a long time-frame over which to accomplish HIV screening.

Participants also commented on a "concerted effort" among residents to increase their collective HIV screening rates. They had clearly discussed the topic over the course of the last year, both with regard to their chart review results and patient responses to screening. For instance, the same difficult patient encounters were described in multiple focus groups without any overlap in participants. However, residents did not specifically credit peer opinion leaders or informal discussion when describing how HIV screening became a part of their community practice.

**Table 3.** Internal Medicine Resident Characteristics

Characteristic	Participating residents n=15 (%)	Total residency program, n= 74 (%)
<b>Year of training</b>		
First year	1 (6.7)	23 (31.1)
Second year	8 (53.3)	27 (36.5)
Third year	6 (40.0)	24 (32.4)
<b>Gender</b>		
Female	10 (66.7)	36 (48.6)
<b>Anticipated career practice</b>		
Primary care	5 (33.3)	22 (29.7)
Subspecialty	9 (60.0)	40 (54.0)
Undecided	1 (6.7)	12 (16.3)
<b>Primary care clinic site</b>		
University clinic	11 (73.3)	43 (58.1)
Veterans Administration clinic	4 (26.7)	31 (41.9)

### Resident Perceptions of Patients' Attitudes Toward Universal HIV Screening

Nine of 15 residents reported that patients generally were receptive to HIV screening. Resident descriptions of patients who were agreeable to screening fell into 4 categories: patients who (1) felt they were at such low risk there was no reason to decline because the test was going to be negative, (2) wanted comprehensive preventive services, (3) were already familiar with routine screening, and (4) deferred to physician discretion. Residents practicing at VA clinics noted a particular openness to screening; younger veterans were habituated to routine HIV screening during active service, older veterans often deferred to the physician's judgment, and none were concerned about cost or insurance ramifications. In both clinic settings, a subset of patients declined HIV screening.

When asked why some of their patients refused, all residents mentioned at least 1 of 2 interconnected themes: social stigma and low perceived risk. One resident thought her patients equated having HIV with "being a bad person." Residents reported their patients often justified their decision not to be screened with statements such as, "I haven't done anything wrong," or "[I've] been very well behaved." Most residents felt their patients were aware HIV could be transmitted through heterosexual intercourse. However, this knowledge did not seem to translate into heterosexual patients perceiving themselves to be at risk. One resident summarized, "I think most people think [sex] is dangerous for everybody else." Some patients took offense to screening, since HIV may be associated with ostracized behaviors. When this occurred, the patient-physician interaction became more awkward and time consuming as the resident had to expend a significant amount of effort re-establishing rapport. Residents could not predict which patients would refuse HIV testing. For example, residents recalled mixed responses from married patients.

There was this one woman (patient) who said "Oh—there's no way," kind of like "I can't believe you are asking me." But she wasn't angry. She just explained, "No, I've only had one partner—my husband."

I have been surprised by the number of people (patients) who are married and very willing to get HIV tested. I always feel like I am saying something about them or their spouses, but I haven't found that.

One resident reported some married patients were willing to be screened, but were concerned their spouse would find out the test was performed because it implied infidelity regardless of the result. Those patients preferred to be contacted directly with the result rather than include it in a letter with other lab values. Interactions with older patients were similarly varied and unpredictable.

I always find it more uncomfortable with my older patients. They think "What kind of a person do you think I am?" when I ask their sexual history and offer HIV screening.

I was actually surprised. I had a conversation with a guy, an older veteran and his wife, and they were both all about getting screened for HIV. I just brought it up and sort of coached it, saying, "This is something we recommend doing at least once." They were both, "Yeah, that's a great idea," really enthusiastically.

Residents found it particularly difficult to predict and plan for potential patient resistance to HIV screening. Three residents who anticipated awkward encounters reported that preconceived expectations often materialized because of provider, rather than patient, embarrassment. One resident remarked, "If I think they will be offended, I might ask it in a way that makes them feel awkward because my face turns red." Another stated that this phenomenon decreased with repetition. The more residents screened, the more comfortable they were asking patients about HIV.

### Strategies for Opening the Discussion: Normalizing Screening and Referring to Expert Authorities

All participating residents developed a standard opening line when introducing HIV screening to their patients. Residents either used (1) normalizing, (2) a reference to authority, or (3) both, to reduce the social stigma associated with HIV screening. Nine residents normalized screening by either stating they screen everyone in their practice or that HIV screening was similar to screening for other diseases, like diabetes or colon cancer.

Everybody in my clinic seems to have diabetes, so they know what an A1C is...I have one patient who just understands it that way—like any other chronic condition, you just have to screen for it.

Normalizing HIV screening helped unlink the screening from the stigma surrounding HIV and reframe it using paral-

lels to other chronic disease that patients could easily grasp and accept. Seven residents referred to an expert authority, such as the institution where they worked or, more commonly, the CDC: “I start out ‘Have you ever been screened? The CDC recommends it. Would you like me to screen you today?’” By referring to an expert authority or explicitly stating they screened everyone, residents removed the implication that they personally were judging their patients.

[Universal screening] is very helpful because you can make a blanket statement [to your patient]. I know it has helped my screening rates. I know it helps the provider approach the subject.

I think one of the benefits of trying to make [HIV testing] more routine and mainstream is normalizing it as a screen... The more we try to put it out there and make it a more normal thing...makes it easier for everybody, including the patients. They don't get as scared.

### **Electronic Medical Record Cues**

All residents worked at clinics that had fully integrated electronic medical records (EMR); however, no EMR had a standard HIV screening reminder. Fourteen of the 15 residents explicitly stated they created automated prompts within the EMR as a reminder to screen patients for HIV, and most included HIV screening as a prepopulated text in the preventive care section of their clinic note templates.

I have a section on health maintenance [in the EMR] for all my patients. I document when I asked last, what their response was, and if they'd ever been screened before. So I tend to bring it up [with my patients].

One resident embedded an HIV screening reminder into her EMR preventive screening template to help normalize her approach to this subject. She turned the computer screen toward the patient and went through her preventive section. She felt that having the patient see HIV screening was on a standardized list helped them accept that she truly asked everyone.

Five residents felt giving interns EMR note documentation templates that included HIV screening would be beneficial. Some residents expressed concerns including the “clunkiness” of other institution-wide EMR reminders, pop-up reminders occurring at inopportune times, and EMR reminder-fatigue. However, most residents endorsed the importance of a standardized approach to EMR prompts and the sense of institutional backing.

### **DISCUSSION**

This qualitative study describes barriers and facilitators faced by internal medicine resident physicians while attempting to increase HIV screening rates. In contrast to an earlier study of New York City internal medicine trainees, the majority of residents in this study were aware of and endorsed the 2006 CDC recommenda-

tions.<sup>8</sup> Most intended to offer HIV screening to their patients. However, despite high awareness and intent, residents completed screening with only 40% of their primary care patients (unpublished data). Provider knowledge and positive attitudes are necessary but often insufficient for guideline adoption.<sup>21</sup>

In our study, residents identified lack of time, perceived patient resistance, and lack of standardized screening as barriers to the integration of universal HIV screening into their primary care practice. Other physicians have consistently reported lack of time as a barrier to universal HIV screening.<sup>8,18</sup> In our study, residents attempted to address time constraints by prioritizing preventive services based on the likelihood that a specific patient would benefit. However, applying this approach within a low-prevalence community practice can lead to suboptimal HIV screening rates.

Residents perceived resistance to HIV screening from a significant minority of their patients. Most published reports largely ignore this subset and, instead, highlight the majority who accept universal HIV screening.<sup>22</sup> However, it is important to understand how encounters with patients who refuse HIV testing may influence future screening. First, physicians are more likely to remember difficult encounters. Negative recall bias has curbed physician adoption of other guidelines, even when presented with compelling risk-to-benefit ratios.<sup>21</sup> Second, negative encounters may lead physicians to inappropriately equate declining an HIV screen with patient reluctance to discuss the topic. This is an important distinction, especially in the era of shared patient-doctor decision-making. The difference is easily blurred when introducing a new screening practice. Although it may be understandable for residents to feel that they did not successfully offer HIV screening if a patient declined the screening test, this may lead to decreased provider self-efficacy and reluctance to recommend HIV screening in subsequent patient encounters. Providers need strategies to mitigate the first and objectively view the second when adopting screening.

Residents in our study attributed patients' resistance to screening to stigma and low perceived risk, barriers that have been reported previously.<sup>23</sup> Residents mentioned that some of their patients equated HIV-positive people with socially stigmatized groups of which they were not a part. Residents tempered these potential concerns by referring to an expert authority and normalizing HIV screening. A focus group of veteran patients directly stated that acceptance would be best if parallels were drawn to other preventive screening tests and if it was explicit that patients were not being screened because of risk factors.<sup>9</sup> The techniques developed by residents in our study addressed precisely those patient preferences expressed in the prior study and demonstrate their perceived importance among a different patient population. This approach also begins to address apprehensions expressed by a minority of patients regarding the stigma of HIV screening.

Although residents initiated HIV screening with no standard-

ized reminder, they addressed this shortcoming by developing individualized EMR cues. Most constructed provider-specific HIV screening sections within their EMR clinic note templates. This approach avoided pop-up boxes that can occur at inopportune times and lead to EMR-associated provider fatigue.<sup>24</sup> Although computerized reminders can facilitate new clinical practices, residents were concerned about the streamlining and navigability of such a system.

Our study has several limitations. We did not purposively sample the population of internal medicine residents on baseline attitudes toward HIV screening. It is possible that residents who participated in this study held more positive attitudes toward HIV screening and had developed more robust strategies for promoting screening among their patients than their nonparticipating peers. Study results may therefore represent an under-saturated description of the barriers to HIV screening in primary care. Moreover, because our study was performed in a single residency program, our findings may not be representative of the experiences in other settings.

Although several participants made reference to the influence of social networks during focus groups, this facet deserves further investigation. The influence of social networks has been shown to play an integral part in the diffusion of guidelines.<sup>21,25</sup> In our study, social networks may have played a significant role in forming community consensus regarding the importance of HIV screening, by motivating residents to prioritize it and include it on the list of preventive services.

In summary, this study provides a contemporary examination of resident physicians who have successfully implemented universal HIV screening. Most previous provider-level studies have been derived from survey responses, which are unable to capture in-depth detail. Prior studies focused on either patient attitudes before universal HIV screening was successfully introduced or on physicians' perceptions of barriers and facilitators using a sample with a low proportion of providers who had adopted universal screening. This study also provides insight regarding resident physicians' self-reported knowledge, facilitators, and barriers to routine, clinic-based HIV screening. These physicians are the next wave of practicing clinicians, and national guidelines adopted and reinforced during residency are more likely to be integrated into provider practices than those learned after training.<sup>14</sup> Although this study addressed clinicians serving a low-prevalence community, these residents perceived high patient acceptance of universal HIV screening recommendations. Finally, physicians in this study endorsed tailoring their EMRs to provide memory cues so that HIV screening is addressed uniformly. Although some patient barriers exist, universal HIV screening generally was acceptable to patients when the topic was normalized and reference was made to an expert or institutional author-

ity. Physicians serving populations with an estimated prevalence of HIV greater than 0.1% may wish to incorporate these strategies—normalizing, referring to an expert authority, and utilizing an electronic medical record reminder—when introducing universal HIV screening to their practice.

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