

# Patient and Provider Perspectives on 30-Day Readmissions, Preventability, and Strategies for Improving Transitions of Care for Patients with HIV at a Safety Net Hospital

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## Abstract

Thirty-day hospital readmissions, a key quality metric, are common among people living with HIV. We assessed perceived causes of 30-day readmissions, factors associated with preventability, and strategies to reduce preventable readmissions and improve continuity of care for HIV-positive individuals. Patient, provider, and staff perspectives toward 30-day readmissions were evaluated in semistructured interviews ( $n = 86$ ) conducted in triads (HIV-positive patient, medical provider, and case manager) recruited from an inpatient safety net hospital. Iterative analysis included both deductive and inductive themes. Key findings include the following: (1) The 30-day metric should be adjusted for safety net institutions and patients with AIDS; (2) Participants disagreed about preventability, especially regarding patient-level factors; (3) Various stakeholders proposed readmission reduction strategies that spanned the inpatient to outpatient care continuum. Based on these diverse perspectives, we outline multiple interventions, from teach-back patient education to postdischarge home visits, which could substantially decrease hospital readmissions in this underserved population.

## Keywords

HIV/AIDS, 30-day hospital readmission, safety net, qualitative methods

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## Introduction

Thirty-day hospital readmissions (repeat hospital admission within 30 days of discharge) constitute an important health care quality metric because they may signal adverse patient outcomes and negatively impact quality of life of patients. Moreover, they increase costs for patients, hospitals, and insurers.<sup>1</sup> Under the Hospital Readmissions Reduction Program of 2012, administered under the Affordable Care Act, the Center for Medicare and Medicaid Services reduces payments to hospitals with excess 30-day readmissions.<sup>2</sup> As a result, hospitals are now financially incentivized to identify and reduce 30-day readmissions. However, safety net hospitals encounter unique challenges in caring for disproportionately uninsured patients who often have poorer health status and fewer economic and social resources.<sup>3-6</sup> Additionally, safety net hospitals themselves have fewer resources with which to serve high-need

patients, contributing to higher 30-day readmission rates among safety net hospitals compared with institutions serving commercially insured populations.<sup>7-9</sup> As a result, stakeholders continue to debate how to apply quality metrics equitably to diverse populations.<sup>10,11</sup>

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### What Do We Already Know about This Topic?

Patients with HIV and patients receiving care in safety-net hospitals have high rates of 30-day readmissions, many of which are potentially preventable.

### How Does Your Research Contribute to the Field?

This study examines the perspectives of patients, their medical providers and hospital staff on the key factors that cause readmissions in HIV patients, the preventability of readmissions and how best to avoid unnecessary readmissions in this population.

### What Are Your Research's Implications toward Theory, Practice, or Policy?

This research identifies the need to adjust the 30-day readmission quality metric for social determinants of health and provides a practical toolkit of strategies to reduce avoidable readmissions.

Studies investigating readmissions have identified several factors associated with overall 30-day hospital readmissions at the system level (eg, lack of care coordination, premature discharge), provider level (eg, inadequate discharge instructions, missed diagnoses), and patient level (eg, nonadherence to medication and follow-up).<sup>12-15</sup> While 30-day readmissions have been studied in various high-risk patient populations, including chronically ill patients,<sup>16</sup> elderly patients,<sup>17</sup> postsurgical patients,<sup>18,19</sup> and patients with congestive heart failure<sup>20</sup> and chronic obstructive pulmonary disease,<sup>21</sup> relatively few have focused on patients with HIV. Studies report hospital readmission rates among HIV-positive populations between 19% and 25%, which is 1.5 times greater than among HIV-negative populations, even after adjusting for age, gender, race, insurance status, or diagnostic category.<sup>1,22,23</sup> This suggests that additional factors, including socioeconomic factors, mental illness, substance use,<sup>1</sup> social support, and stigma,<sup>24,25</sup> are likely contributing to readmissions in this population and merit further study.

Regardless of patient characteristics, hospitals should not be penalized for readmissions that are not preventable. However, preventability has proved challenging to define and measure and may need to be adjusted given diverse hospital settings and populations. In the general population, a wide range (5%-79%) of 30-day readmissions is estimated to be potentially preventable.<sup>26</sup> Among studies that have incorporated survey data from patients and providers, one US health system study determined that 48% of 537 medical readmissions were potentially preventable,<sup>13</sup> whereas a multicenter European study found that only 14% of 1398 readmissions were potentially preventable.<sup>27</sup> In a previous analysis of 130 HIV-positive individuals, we found that

nearly 50% of readmissions could have been prevented.<sup>23</sup> Examining factors that contribute to readmissions among patients with HIV admitted to safety net hospitals may help refine readmission metrics for both HIV-positive patients and other vulnerable populations and may indicate avenues for intervention.

Improving the equitable application of the 30-day readmission quality metric requires a better understanding of how readmissions occur and how stakeholders define preventability. Although large administrative data sets have been used to identify potentially preventable readmissions,<sup>26,28</sup> analyses have not uniformly incorporated data on patient demographics, community resources, or hospital infrastructure, limiting their relevance to safety net populations and institutions. While analyses based on billing codes may provide a global view of readmission trends, they cannot assess circumstances that may be driving readmissions, nor can they reveal strategies for reducing them. Therefore, we designed a qualitative study conducting semistructured interviews with patients, their medical providers, and hospital staff to solicit perspectives toward causes of readmissions, the nature of preventability, and specific strategies for reducing preventable readmissions to improve outcomes for HIV-positive individuals.

## Methods

We conducted semistructured interviews in triads composed of an HIV-positive patient readmitted within 30 days of a previous hospital admission, plus 2 individuals: medical providers or staff. Provider and staff participants were eligible if they had met with the patient and were responsible for the patient's care on either the index admission and/or readmission. In addition, we purposively sampled 3 long-time clinicians in HIV care who were not linked to a specific patient to obtain data from both inpatient and outpatient experiences and their perspective on the posthospital discharge care transition.

### Data Collection

Patients were recruited from the electronic health record (EHR) HIV inpatient census for a large urban safety net health system. Investigators approached patients in their rooms to participate in a brief survey and interview, lasting an estimated 45 to 60 minutes, in either English or Spanish. Participants could elect to have caregivers or other persons present. Subsequently, we invited providers and/or staff members involved in the patient's care. Providers included hospitalists ("primary team providers") and infectious disease consults ("HIV providers"); staff were case managers and transitional care nurses. While we attempted recruitment of triads for all patients, in 4 of 29 cases, we were successful in completing only 1 provider or staff interview (ie, a dyad).

Patient interview domains included reflections on recent hospital admissions, outpatient self-care and care-seeking behaviors, medication access and adherence, perspectives on readmission preventability, experiences with HIV, other medical problems (eg, substance use, mental health), and nonmedical problems (eg, housing, social support, stigma). Provider

and staff interview domains included perceptions of admission preventability, communication among patients, providers and staff, role of HIV diagnosis in readmissions, and perspectives regarding the 30-day readmission quality metric.

Three members of the research team (A.E.N., R.T.H., E.G.M.) with academic and field training in qualitative methods conducted data collection and analysis. We collected data in an iterative design to continually assess thematic content for saturation and patterns of emergent findings. Following the initial 17 interview triads, we determined that we had achieved thematic saturation among hospital staff. For triads 18 to 29, we recruited 2 physicians, ideally 1 primary team provider and 1 HIV provider. We also refined the provider interview guide to prioritize domains of inquiry that aligned with study objectives: factors related to readmission in safety net hospitals, unique medical and social factors for patients with HIV, and strategies for reducing preventable 30-day readmissions.

### Data Analysis

Each interview was audio-recorded, transcribed, and assigned a participant ID indicating role (eg, HIV provider) and time of care (index or readmission). Data were analyzed using NVivo 9.0 (QSR Australia). The initial codebook used a deductive schema that corresponded to semistructured interview guide domains. Three research team members trained in qualitative methods independently coded 14 (16%) transcripts. They met after every 2 coded interviews to discuss, refine codebook definitions, add emergent codes, and resolve discrepancies by consensus. The team used a matrix to assign 2 coders to the remaining 38 (64%) transcripts. Interviews were selected for coding based on interviewer notes regarding substantive responses. The team reviewed all coded transcripts to assess themes and interpret findings. Coding concluded once thematic saturation was reached. Two team members then reviewed and selected representative quotes.

### Ethical Approval and Informed Consent

Patient participants provided informed written consent prior to enrollment in our study, and nonpatient participants provided verbal consent that was audio-recorded prior to participation in accordance with our protocol approved by the medical center's institutional review board (STU 042015-032) and safety net health system.

### Results

We conducted 86 total interviews: 29 patient interviews, 38 provider interviews, and 19 staff interviews; demographic characteristics are presented in Tables 1 and 2. All 29 patient interviews were unique individuals. Of the 36 unique providers, 8 were infectious diseases specialists (attending physicians or fellows) and 28 were inpatient primary team providers (attending physicians, residents, or hospitalists). For

**Table 1.** Patient Participant Characteristics.<sup>a,b</sup>

Race/ethnicity	
Hispanic	5
NH black	16
NH white	7
Other	1
Gender	
Male	23
Female	5
Transgender	1
Age, years	
18-29	10
30-49	10
≥50	9
Language	
English	27
Spanish	2
HIV risk factor	
MSM	12
IDU <sup>c</sup>	9
Heterosexual	7
Unknown	1

Abbreviations: IDU, injection drug user; MSM, men who have sex with men; NH, New Hampshire.

<sup>a</sup> N = 29.

<sup>b</sup> Source for all data is patient electronic health record (her), except for language, which is listed by patient preference.

<sup>c</sup> IDU trumps other categories if more than one risk factor.

**Table 2.** Provider (n = 38) and Staff (n = 19) Participant Characteristics.

	Providers	Staff
Index admission	15	7
Readmission	17	7
Both index and readmission	3	5
Not linked to a study patient	3	0
Total interviews	38	19

25 of 29 patients, we completed triad interviews (patient, provider, and staff or patient and 2 providers); for 4 patients, only 1 provider was available to participate in an interview. Table 2 shows provider and staff participants by timing of reference event. Table 3 includes participant quotes that informed our results, with suggested strategies for reducing readmissions organized in Table 4.

### Application of the 30-Day Readmission Quality Metric to Public Safety Net Settings

**Pros and Cons of Metric.** Providers and staff participants highlighted both positive and negative implications of the 30-day readmission metric. Some felt that implementing the metric revealed gaps in services and highlighted the need for additional resources, such as increasing substance use and mental health services for patients with HIV. Others noted that measuring readmissions has encouraged existing

**Table 3.** Results.

## (1) Application of the 30-day readmission quality metric to public safety net settings

## Pros and cons of metric

HIV provider	“Did we discharge too early? Did we not put enough things in place? . . . do the patients have what they need in order to follow up with a plan at home . . . . I think 30 days is a good measure.”
Primary team provider	“I think it is a significant problem—these folks are young and sick and have a disease that, for the most part, is very treatable, so, in fact there’s a lot of room for improvement.”
Patient	“With me, this [frequent readmissions] has been going on forever . . . and they just don’t know what it is. They just bombard me with drugs—which hopefully I don’t get immune to—and that’s it and I go home . . . . And I’m sure if there’s one of me there’s probably a ton of others.”
HIV provider	“If my patient has AIDS, he’s most likely to get readmitted . . . he came in here for PCP pneumonia and it got treated, but then seven days later he has esophageal candidiasis and then 2 weeks after that he develops cryptococcal meningitis. They have so many things going on at the same time that the general timeline . . . is not enough for them.”
HIV provider	“If someone presents with late-stage advanced AIDS they almost feel like that they’re on this like carousel of just kind of getting readmitted until we can kind of stabilize their immune system.”
HIV provider	“He’s a 46-year-old male, you know . . . but you have to take into account that he has profound AIDS, and there’s nowhere to check that box. He was the equivalent of a 96-year-old lady that you’re sending home.”
HIV provider	“It’s always an ongoing negotiation of I really think he’s too ill to go home, but I understand that you’re getting hounded by administration cause they need to free up a bed.”

## Safety net factors

Primary team provider	“I think it’s more preventable in places like that [private hospital] than here [safety net hospital]. Like day and night. Day and night. That’s why I’m worried about those hospital comparisons—they spit out those results which would be a tremendous disservice to safety net hospitals and it’s not thoughtful at all if you actually care about the patients.”
Primary team provider	“So if it was a private hospital maybe it makes sense, but if it’s a county hospital, I don’t think it makes sense just because our patient population is so different and they have so many other difficulties in their lives. It’s hard. I mean first of all a lot of them don’t have insurance . . . then a lot of them don’t have like family support . . . and a lot of them are drug abusers. So they go out, they feel well, they try, but then you know after a while they just give up.”

## Insufficient community resources

HIV provider	“They do really well in the hospital in a supervised setting and then when they leave, they just don’t have a stable home environment and there’s only so much you can do, only so many resources.”
Patient	“I had an apartment, but it was in like the crappiest neighborhood and . . . . I ended up getting robbed and . . . . I mean I don’t want to go through all that no more.”
Primary team provider	“[Safety net hospitals serve] a lot of people especially from poor communities and poor neighborhoods of violence, abuse, neglect, a lot of times homes where maybe they didn’t have the most loving and caring environment, maybe a lot of times they didn’t get much of an education in school . . . . In my opinion, it’s an unfair comparison.”
Primary team provider	“I really don’t think there’s a medical solution. I think [we need] a social solution.”

## Insufficient system capacity

Primary team provider	“Our system is pretty overwhelmed as it is just because we’re a safety net and we carry a lot and we only have a certain amount of providers for a very large population. So some people can’t get that echo [echocardiogram] for 6 months or can’t get that X-ray for another month or get that appointment for another 2 months.”
Primary team provider	“Their only resource is their primary care doctor and unfortunately because our clinics here are so bombarded with patients and the volume is so high they’ve always told me that like it’s very, very hard to even call the clinic . . . going to the ER here is the path of least resistance.”

## (2) Preventability of readmissions

## System factors

Primary team provider	“I think it was preventable because at least during the second admission they noticed that all his infectious studies all came back negative . . . . I feel like maybe they should’ve consulted GI at that time and did the scope early on.”
Patient	“I didn’t even get the prescriptions that I needed, which is why I ended up back in the hospital . . . because I didn’t have any insulin.”

## Provider–provider communication

Patient	“I just think from start to finish—from ER to the room, I think mainly in the ER—there needs to be more communication, both between nurses, doctors and of course nurses, doctors and patient.”
Primary team provider	“Yeah I think this could have been prevented. If the ER doctors would have called us that very first day, we could have either dressed [the wound], we could have put a special VAC on there that we do for draining wounds . . . and put him on antibiotics.”
Patient	“I get bounced around from pod to pod and then it’s like the doctor and nurses down there don’t communicate with each other.”
Patient	“I had the Infectious Disease team and then I got this regular doctor and they’re constantly fighting each other. The regular doctor wants to discharge me and the other team wants to run all these tests and do everything and keep me in here, but the general practitioner always wins . . . . I don’t think it’s right that I should be discharged while I’m still sick.”

(continued)

**Table 3.** (continued)

Primary team provider	"I think sometimes we as physicians, even in several subspecialty services amongst ourselves, could do a better job of being a cohesive cohort and co-managing a little better with each other. Some services are better at it than others."
Provider-patient communication	
Primary team provider	"Generally speaking, he has a pretty poor understanding of how self-care can affect him staying out of the hospital."
Patient	"I always try to talk to them and a lot of times, they make me feel like I don't know what I'm talking about. Or, they just ignore me . . . and they kind of talk between themselves and when you ask them they go, 'oh it's just shop talk.' That's the most famous line I hear, 'it's just shop talk.'"
Patient	"Communication with the doctors has been really good . . . I've had no problems with them at all. They're very open. They're very honest about what's going on. They're obviously doing everything they can to figure out and pinpoint the cause of the problems I'm having and how we can fix it."
Patient-level factors	
Primary team provider	"To me [the readmission] is expected, but that's because of several factors. The fact that he has a history of medication noncompliance, the fact that he has a history of substance abuse, and then also just because of the severity of his disease."
Primary team provider	"I think that it could be prevented, but then that requires changing his social situation and then that requires him being compliant with his medications, which I think he is not."
Case manager	"If you don't get some of those factors solved, you could have all the medical expertise you want, but if the patient doesn't show up because he didn't have a voucher to get on the bus or because they're homeless, then you will just keep seeing them in the ED."
Patient	"The places they send you to, the little boarding houses down in south Dallas and all that, there's nothing safe about them."
Case manager	"Some of our patient population are homeless . . . they receive SSI, but they prefer to stay on the street. They prefer to do drugs than to do their medication. So we cannot prevent that."
Primary team provider	"They don't have insurance, they don't take care of themselves and it is a population that just doesn't seem to care about their own health."
Primary team provider	"It's a lot easier to come in once a month, once every three months for a tune-up versus being really strict with your diet, taking your medications around the clock, doing it vigilantly, going to follow-up appointments—a lot of these guys live kinda far away from wherever the clinic is and then they have lack of access for transportation. So there's a lot of barriers to getting all these things sorted out to avoid coming to the hospital and there's not a lot of negative to come in."
Patient stratification	
Primary team provider	"I think there's a portion of HIV patients that we're just gonna see as frequent flyers and when they come back, we're gonna discharge them, come back and discharge them, and we can't do anything about that."
Primary team provider	"What has always worked better is the ones who are actually interested in trying to stay healthy and trying to keep their meds like they—those people targeted, they do very well cause they want to get better."
Primary team provider	"There are three groups of people. One—they take their medication, they're okay; one group that are noncompliant and could be compliant—I think those we should target and go to his house and be very, very pushy about it; and there's a group that we're not going to be able to do anything about it."
Hospital admission as catalyst for behavior change	
Case manager	"If there was a positive aspect [of his hospitalization], it was like a reality check for him. He hadn't been in the hospital for years—a reality check for the seriousness of his illness."
Patient	"I'm going to take my medicine. I'm looking at the predicament I'm in now . . . being in the hospital. I don't want to come back."
Patient	"Sometimes I mean it [being hospitalized] makes me more aware of what the heck I'm doing to myself . . . I mean nobody likes being laying up in the hospital . . . it's basically time for me to do what I need to do so I can stop coming in here. I mean last year alone I was in the hospital probably about 13 times."
Primary team provider	"I guess it's almost- it's thrown in their face. They're like oh my God I'm getting admitted again for this. Sometimes they get really scared and say I want to change, I want to change."
HIV provider	"I mean, you cannot externally fix self-motivation. You can talk to them and we counsel them, but you know that's really not very effective. They're in the hospital, they're scared because they're sick and they say what they think you want to hear. They start feeling better, they go out and they just don't do anything they had even verbally committed to doing because they're out of the danger zone and back on the street and either the emotional system that got them depressed in the first place or all the substances that make them feel like they don't have a problem."
Primary team provider	"He's a difficult patient because I mean he wants to get better I think, but his drug abuse is kind of pulling him down . . . he himself said that I would like to have a sitter in the room so that I don't go downstairs to smoke or do something . . . He volunteered that because I think he wants to get out of this hole, but it's just the craving is too much for him."
Patient	"I don't really make a lot of money working . . . Hell, after I pay the bills I have like thirty or forty bucks. I mean you can't eat good off that . . . I'm trying to scrounge around and go to pantries and they don't give you a lot of nutrients."

(continued)

Table 3. (continued)

Role of stigma	
Patient	"I've never needed meds. And once you get on meds, you really can't stop because your body – the disease becomes immune to it. And then that drug won't work so you gotta switch [meds]. I have the disease but my body can control it . . . because I have a rare strand. It's not really strong, you know. I only have that one little strand and it's not strong, my body controls it."
Patient	"I just got to a point where I let the stigma get the best of me . . . I felt like I didn't want to take the medication anymore. I don't even know why. I couldn't even tell myself why. I just one day woke up and said I'm not going to take this anymore and threw all my pills in the trash . . . I felt like I could do it on my own. But now look at me."
Patient	"You have to go down to [the HIV Clinic] and pretty much everyone knows that that whole facility is right there . . . that's just saying 'hey, well these people got HIV'."
HIV provider	"Every time they go to a health care system they worry about their confidentiality being compromised, and so I think it plays a very big role in that they don't want to access health services."
Case manager	"[HIV] is not a small aspect – it's part of what their life is. It feels like it's a lens through which they look at everything . . . So it doesn't diminish the other things I have to do . . . It's just not one of the little things. It becomes the thing through which I'm looking at everything else."
(3) Strategies to reduce preventable 30-day readmissions	
During admission	
Case manager	"Helping patients understand that they have a lot more ability than they think – that motivational kind of discussion about self-care actually seems to help at least move the ball in the right direction."
Case manager	"Play little games with your patients: 'What's your T count? What's your viral load? What does that mean?' If you throw too many things at a person they may remember the beginning and the end but all that stuff in between they forget."
Patient	"A nurse who spoke Spanish told me, 'Don't worry, everything is going to be fine, think about your kids' . . . The HIV doctor also speaks Spanish. She would say that I can have a normal life, I can have kids and they don't have to suffer and all that. And she would speak with me and that would cheer me up."
Primary team provider	"[Substance abuse and mental health issues are] part of medical care because it's always going to affect [patients'] ability to carry out my plan . . . When you don't address the psychological part of why they're not taking their meds . . . that's going to impede your ability to treat them effectively in the long run . . . It would be nice if we had an addiction medicine specialist or more inpatient resources."
Primary team provider	"The nice thing about the HIV [consult] service, unlike other services, is that most – I'd say more than 90% of the patients we see are already followed at [HIV primary care clinic] so [the HIV providers] already seem to know them."
Primary team provider	"I don't know much about the newer HIV medications and how to dose them, and sometimes [patients] have [other pharmaceutical interactions] so you might have to adjust the doses and if it's sepsis or another non-HIV related condition, they give their recommendation on how long to treat it considering the patient has HIV and regarding their CD4 counts."
Patient	"It was just all formal. I didn't really feel like there was communication. They came in and said well we're going to do this and this and this and this and that's all and they left . . . [Doctors should] talk to people like they're actually people."
At discharge	
Patient	"A couple of times I've called, and that hasn't really panned out. Nobody's ever called me back. Or the nurse line, they kinda just try to slide over and you know tell you to come in [to the ED]. They don't want to say anything that'll get them sued or in trouble."
Patient	"When I call [the primary care clinic], I get a nurse that I know. So, [the nurse says] 'oh how are you,' and they're much more informative. But if I get somebody that I don't know . . . they'd rather have you come to the hospital."
Postdischarge	
Case manager	"I still dream of a follow-up team—a team of staff that just follows up on all discharges in contacting them and ensuring that everything is still okay after the hospital stay, make sure they got their medications, they understand how to take their medications, reviewing when their next appointment is and then identifying any obstacles that may prevent them from making the next appointment. I feel like that needs to be a separate team because there just doesn't seem to be time for that."
HIV provider	"There are some community-based organizations I think we could be utilizing that are out there and seeing patients to try to link them in and use their resources, to be able to have a community, like 'we want to support you and help you take your medications.'"
General system changes	
HIV provider	"We have a better than average [safety net primary care system and HIV clinic] we can get people in. But that's not necessarily known in the ER . . . then they get readmitted because they don't feel better and it's like well you didn't need to admit the first time. You don't need to admit again."

quality improvement efforts, such as improved patient education at discharge, review of medications, and the assessment of home resources. However, most provider and staff

participants felt that the 30-day readmission metric inadequately adjusted for patients with HIV or for safety net institutions, given the greater proportion of patients with

**Table 4.** Strategies to Reduce Preventable 30-Day Readmissions.<sup>a</sup>

During Admission	At Discharge	Postdischarge	General System Changes
<b>REALLOCATION OF EXISTING RESOURCES</b>			
<ul style="list-style-type: none"> <li>• <b>Intensive patient education during admission</b>, not just at discharge:               <ul style="list-style-type: none"> <li>○ Motivational interviewing/counseling to promote self-care</li> <li>○ In-depth assessment of barriers to medication and appointment adherence</li> <li>○ Set up medication app on smartphone</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>Intensive patient education by staff trained in care of patients with HIV</b>, including:               <ul style="list-style-type: none"> <li>○ Teach-back discharge instructions for medications and appointments</li> <li>○ Emphasize prognosis currently and if HIV is well controlled</li> <li>○ Give all medications in hand, pill box</li> <li>○ Confirm readiness of medication app</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Document plans for support services for patients with newly diagnosed HIV and patients with AIDS</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Exempt patients with AIDS from 30-day metric</b></li> <li>• <b>Shorten time to primary care provider (PCP) appointments for patients at highest risk of readmission</b> <ul style="list-style-type: none"> <li>○ Offer virtual outpatient visits to well-controlled patients with HIV</li> </ul> </li> <li>• Allow well-controlled HIV-positive patients to be seen by non-HIV specialist PCP</li> </ul>
<b>ENHANCED COORDINATION OF SERVICES</b>			
<ul style="list-style-type: none"> <li>• <b>Identify patients at high risk of readmission using medical and social risk algorithm</b></li> <li>• <b>Multidisciplinary teams with specialized training for HIV-positive patients</b></li> <li>• <b>EHR/technological improvements</b> <ul style="list-style-type: none"> <li>○ Improve quality of report of all admitted patients with HIV</li> <li>○ Providers use tablets at bedside to streamline documentation and orders</li> </ul> </li> <li>• Establish “buddy” from community HIV organization for support at discharge</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce number of services provided only at discharge—too overwhelming</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Require proactive, ongoing transitional care management</b> for patients newly diagnosed with HIV and patients with AIDS (eg, follow-up calls, assessments of symptoms, assessment of barriers and needs)</li> <li>• <b>Provide phone access to HIV case manager or staff familiar with recent hospitalization</b></li> <li>• Confirm medication continuity through pharmacy</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Embed mental health services in primary care clinics</b> <ul style="list-style-type: none"> <li>○ <b>EHR/technological improvements</b></li> <li>○ Flag 30-day readmission patients</li> <li>○ Flag high-readmission risk points</li> <li>○ Merge EHR and HIV case management database</li> <li>○ Revise billing system to reflect clinical severity and complexity</li> <li>○ Improve health information exchange with other institutions</li> </ul> </li> <li>• <b>Educate hospitalists and ED providers</b> <ul style="list-style-type: none"> <li>○ Available outpatient services for patients with HIV</li> <li>○ What constitutes an appropriate admission versus ED management versus outpatient management</li> </ul> </li> </ul>
<b>NEW SERVICES, SERVICE EXPANSION</b>			
<ul style="list-style-type: none"> <li>• Create inpatient HIV service primary team</li> <li>• Establish inpatient mental health assessment and counseling as part of HIV consult</li> <li>• Establish inpatient addiction unit</li> <li>• Establish inpatient pharmacy consult with expertise in HIV</li> </ul>	<ul style="list-style-type: none"> <li>• Direct transfer to inpatient drug rehab</li> <li>• Incentivize medication and appointment adherence</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Mobile health/home visits for patients at highest risk of readmission</b></li> <li>• <b>Increase availability of outpatient nursing home-level care</b> <ul style="list-style-type: none"> <li>○ Establish outpatient subacute care with medication adherence requirement</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>Increase access to mental health and addiction services</b> <ul style="list-style-type: none"> <li>○ Increase number of PCPs</li> <li>○ HIV specialist staffed urgent care clinic</li> <li>○ Increase affordable housing</li> <li>○ Create prepackaged pills (eg, blister packs)</li> </ul> </li> </ul>

Abbreviations: ED, emergency department; HER, electronic health record.

<sup>a</sup> Bolded text indicates suggestions mentioned by multiple participant groups.

severe medical (eg, AIDS-related illnesses) and psychosocial (eg, homelessness, lack of social support, addiction) needs.

*Medical Factors.* From a medical standpoint, providers noted that HIV-positive patients, particularly those with advanced disease, often had an erratic clinical course resulting in recurring

readmissions, as if on a “carousel.” A 30-day window was not sufficient for immune recovery in patients with advanced HIV, despite appropriate therapy. Similarly, other hospital policies, such as a clinical stability checklist prior to discharge, may not apply to this population. Immunosuppression may belie illness severity, resulting in premature hospital discharge and predisposing to readmission. Patients with AIDS, due to their younger age and lack of immune response, may look well enough for discharge even when they are clinically very fragile. “He’s a 46-year-old male . . . but you have to take into account that he has profound AIDS . . . . He was the equivalent of a 96-year-old lady that you’re sending home” (HIV provider).

**Safety Net Factors.** In addition to these medical considerations for patients with HIV, many providers and staff felt it was unfair to compare socially vulnerable safety net hospital patients to commercially insured populations served by other hospitals. “It’s like day and night . . . [the comparison] does a tremendous disservice to safety net hospitals.” Specific sociobehavioral and socioeconomic factors, such as substance use, lack of social support, lack of health insurance, poverty, and homelessness, were cited by both providers and patients as contributing to readmissions. One primary team member described the social isolation of one patient: “no family member, no close relatives, nobody care[s] about them . . . lonely and homeless, no money.” Lack of social and financial support among safety net patients may impact their ability to care for themselves, engage in outpatient care, and avoid unnecessary readmissions.

**Insufficient Community Resources.** Providers also felt that there were insufficient resources to care for socially vulnerable individuals after discharge. The environment and local communities in which people live were cited as contributors to readmissions in safety net populations. Patients noted that a lack of safe, affordable housing (“I had an apartment but it was in . . . the crappiest neighborhood”) posed a significant barrier to care. Existing community services, such as a local counseling center that also provides linkage to housing, were praised, but these services do not meet the level of need. Given the substantial barriers faced by safety net patients, providers suggest that reducing 30-day readmissions and improving outcomes in safety net populations require more than a medical intervention and needed to incorporate “a social solution.”

**Insufficient System Capacity.** In addition to limited community resources, the safety net hospital system has insufficient capacity to provide outpatient medical care required for this population. Providers cited the overburdened outpatient system (“our clinics are bombarded with patients”), which leads to more emergency department (ED) visits (“the path of least resistance”), and due to concerns about adequate follow-up or the need to expedite a time-sensitive evaluation, results in unnecessary admissions and readmissions.

### Preventability of Readmissions

Overall, providers and staff generally shared the perspective that factors over which they had some control (eg, care transition procedures, communication) were more preventable than other factors, such as patient-level behavior change (eg, medication adherence, dietary restriction) and stigma, which providers and staff had less ability or resources to influence.

**System Factors.** Several participants identified system-level issues, such as delays in inpatient diagnostic workups, interruptions in medications at discharge, and limited ability to directly transfer patients to other facilities, as contributors to preventable readmissions. Other examples include inadequate resources to meet the high demand for specialists and timely follow-up with primary care providers, restrictive voucher systems for providing free medications at the time of discharge, and limited availability of services such as substance use disorder treatment for uninsured patients.

**Provider–Provider Communication.** Patients and providers also largely agreed on provider-level issues contributing to preventable readmissions, such as inadequate communication among providers at various transitions during the patient’s admission. In a busy ED, it may be more time efficient for the doctor to admit a patient to the hospital than to contact a specialist who may be able to intervene in the ED and prevent a readmission. The ED is often the first phase of a hospital admission and can be a chaotic first step in the inpatient care continuum. One patient reported feeling “bounced around” from location to location within the ED, with insufficient communication between staff and providers.

Once admitted to the hospital, handoffs and transitions among care teams and staff were associated with incomplete transfer of information. Specifically, shift providers sometimes lacked detailed knowledge of the patient’s clinical and social circumstances including HIV disclosure status, resulting in interruptions in the treatment plan and inadequate discharge planning. Communication between primary team providers and HIV consult providers was also a point of conflict and inefficiency,

“my regular doctor wants to discharge me and the other team wants to run all these tests” [patient].

**Provider–Patient Communication.** Several participants described ineffective education about prognosis, medications, and post-discharge self-care tasks. A patient with newly diagnosed cirrhosis who had been readmitted with fluid retention felt that doctors didn’t explain he was not supposed to drink too much water. The provider taking care of this patient acknowledged that the patient “has a pretty poor understanding of how self-care can affect him staying out of the hospital.” Similarly, a patient described how doctors ignored him during interactions with each other and feeling dismissed when a doctor told him, “oh it’s just shop talk.”

**Patient-Level Factors.** Unlike system- and provider-level factors in preventable readmissions, participants generally did not agree on the preventability of readmissions due to patient-



level factors, such as medication adherence, substance use, or social circumstances such as lack of housing or transportation. Participants also differed on the modifiability of these factors. For example, one primary team provider felt the readmission was “expected . . . because of several factors . . . medication noncompliance . . . history of substance abuse, and . . . the severity of his disease.” Another primary team provider, speaking about a different patient, identified similar barriers but felt the readmission “could be prevented, but then that requires changing his social situation.”

While some placed the responsibility squarely on the patients, others suggested that additional resources to promote medication adherence, self-efficacy, and social support services after discharge would improve outcomes. Per one case manager, “They receive supplemental security income/disability (SSI), but they prefer to stay on the street. They prefer to do drugs than to do their medication. So we cannot prevent that.” In contrast, another case manager stated, “if you don’t get some of those factors solved, you could have all the medical expertise you want, but . . . you will just keep seeing them in the ED.”

**Patient Stratification.** Patient characterizations by providers often took the form of strict categories (eg, adherent or not, socially stable or not, HIV-related admission or not). Certain primary team providers who stratified patients by perceived risk for readmission felt that resources should only be directed at patients who were motivated to get well and not spent on those who they labeled “beyond the fix of any physician.” Most providers who labeled patients spoke in binary terms; however, one provider identified a third category of patients “who are non-compliant and could be compliant . . . those we should target and go to [their] house and be very, very pushy about it.”

**Hospital Admission as Catalyst for Behavior Change.** Many patients and providers identified hospitalization as an inflection point in the patient’s health trajectory. Patients who may have been in denial of their illness or the progression of their disease may be forced to consider the consequences of not regularly attending medical visits or taking medications, a “reality check,” as one case manager described it. Hospitalization itself served as a potential catalyst for behavioral change for patients who did not like being hospitalized and became motivated to not be readmitted.

Nonetheless, numerous providers recognized that stating a desire to change behaviors did not necessarily lead to behavior change; many other factors—relationships, mental illness, and substance use—constitute ongoing obstacles, particularly among safety net patients. One primary team provider identified that even patients who may be motivated to change behaviors were overwhelmed by the tasks required to maintain their health, stating “they don’t have . . . the executive function to be able to comply with all these rules to take care of themselves.” Patients found that despite a desire to change unhealthy habits, they may not be able to implement these changes due to inadequate access to needed services, such as eating a healthy diet. “After I pay the bills I have like 30 or 40 bucks. I mean you can’t eat good off that.”

**Role of Stigma.** The stigma surrounding HIV and denial of disease was frequently cited by patients and providers as contributing to readmissions. One patient with advanced AIDS voiced inaccurate beliefs about the nature of HIV and treatment, convinced that she had a “rare strand” of the disease that was keeping her from becoming ill. Some patients recognized the role of stigma and denial in their worsening clinical status resulting in hospitalization. One patient said, “let stigma get the best of me” when he threw all his medication in the trash. Beyond medication adherence, stigma may also impact patients’ willingness to engage in care; some are reluctant to attend clinic visits or go to the hospital for fear of being recognized as an HIV-positive person. “Pretty much everyone knows that that whole facility is right there . . . that’s just saying ‘hey, well these people got HIV.’”

### **Strategies to Reduce Preventable 30-Day Readmissions**

Here, we present principal thematic findings at various stages of care: during admission, at discharge, postdischarge, and suggestions regarding overall system-level changes (ie, not related to a discrete phase of care). In addition, Table 4 summarizes all suggestions made by participants, highlighting in bold strategies mentioned by multiple participant groups and categorized by level of resources required to implement them.

**During Admission.** Providers, staff, and patients all recommended enhanced patient education during the hospital admission: education about the relationship of HIV to other medical problems using “teach-back” strategies, motivational interviewing to enhance medication adherence, and in-depth assessments about individual barriers. Moreover, participants felt that repeated, engaging education sessions, rather than a single episode at discharge, were key to advancing patients’ knowledge and motivation to adhere to vital self-care tasks (such as healthy eating and infection prevention measures).

As part of more patient-centered education, some providers and staff described a desire to help patients put their HIV disease in context, that is, although HIV is a chronic condition, it doesn’t have to be a terminal illness. One of the case managers stated, instead of HIV being “a lens through which they look at everything,” more individualized patient education might be able to help patients “get to a place where it becomes one of the smaller things that I’m working on in my life and it’s not everything.” It’s also important that patient-centered education be delivered in the patient’s language. One Spanish-speaking patient, newly diagnosed with HIV, shared that her Spanish-speaking doctor explained to her “that I can have a normal life, I can have kids . . . and that would cheer me up.”

Several hospitalist providers talked about the value of the multidisciplinary HIV service with medical specialists, nurses, and case managers trained and experienced in caring for patients with HIV. Some HIV providers felt that the HIV team should be the primary inpatient team, rather than serving as consultants, given their clinical expertise and familiarity with

patients, and that this would mirror the existing outpatient care model where HIV providers serve as both specialist and primary care provider. Several patients expressed greater comfort interacting with the inpatient HIV team, whom they felt were more sympathetic and personal in tone and behavior than non-HIV providers. “[Doctor’s should] talk to people like they’re actually people.” HIV providers also suggested physically “cohorting” infectious disease patients on one floor of the hospital to promote multidisciplinary communication and coordination of patient care.

**At Discharge.** Many participants suggested enhanced patient education throughout the patient’s admission. Providers (primary team and HIV), case managers, and patients stressed the importance of medication education by staff trained in HIV-related care, rather than the floor’s general “discharge nurse.” Providers and case managers further recommended that patients receive all medications in-hand before they leave the hospital. Other strategies included providing patients with pill boxes and teaching patients how to download and use mobile phone medication management apps. Patients suggested that, instead of including a general phone line on discharge paperwork, patients receive the number of a case manager or hospital staff familiar with their recent hospitalization to ensure more individualized advice. One patient described how, when calling the nurse line after discharge, they will just “tell you to come in [to the ED].”

**Postdischarge.** Patients, hospital staff, and providers felt strongly that a posthospitalization follow-up team dedicated to HIV-positive patients would reduce preventable readmissions. Such a team would contact patients postdischarge to review their symptoms, ensure that they received their medications, understand how to take medications, provide appointment reminders, and proactively identify potential obstacles to outpatient care. Some further recommended a mobile team that could conduct home visits for patients at highest risk of readmission. Other noteworthy suggestions included embedding mental health and addiction medicine services in all HIV primary care clinics, shortening time to follow-up with outpatient providers, and increasing partnerships with community-based organizations to enhance patients’ support system.

**General System Changes.** Overall, patient and provider suggestions for general system changes to reduce preventable readmissions focused on increasing patient-centered services at various points in the continuum of care. Many of the proposed system-level changes address challenges that are inherent in the resource-limited safety net system. Multiple strategies were offered at the primary care level: (1) increase the number of providers to address lack of timely access to outpatient appointments, (2) increase the number of virtual visits (ie, telephone appointments) for well-controlled HIV-positive patients to free up outpatient appointment times for postdischarge and poorly controlled patients, and (3) establish a noninfectious disease primary care option for well-controlled HIV-positive patients.

Some providers and staff offered EHR-based strategies to identify and streamline care for complex patients: (1) merge case management data with EHR data, making important social factors more accessible to providers; (2) flag patients who are at high risk for readmission in the EHR; and (3) improve communication of EHR data across other hospital systems.

Many providers felt that inappropriate admissions from the ED contributed to higher readmission rates among people with HIV. They suggested that ED providers be educated about resources available to HIV-positive patients, what constitutes an appropriate admission, and when HIV status is a relevant factor in decisions about admission.

## Discussion

Our interviews with patients, medical providers, and staff yielded novel findings pertaining to (1) stakeholders’ perceptions of 30-day readmissions as a quality metric in patients with HIV and in safety net hospitals, (2) preventability of readmissions in patients with HIV, and (3) strategies to reduce readmissions. Overall, participants felt that 30-day readmissions could be a reasonable quality metric because it promotes care optimization for a vulnerable population but was inappropriate for patients with AIDS-defining illnesses due to the severity and unpredictability of their disease. Interviewees felt that applying a universal metric to a socioeconomically disadvantaged, medically needy population from an underresourced community who access care in an overburdened system is unfair and inequitable.

Regarding preventability, although many agreed on modifiable system- and provider-level factors (ensuring medication availability and interprovider communication), participants disagreed about whether patient-level behavioral factors (medication adherence, diet, abstinence from drugs and alcohol) were modifiable and the extent of the health care system’s role in reinforcing positive health behaviors. Many providers stratified patients by risk for readmission based on their perceptions and patients’ expressed desire for behavior change; some felt that admissions themselves were an essential moment to catalyze change. Overall, the majority of participants recognized multiple challenges and the need for additional community resources (social support, home health care, substance use treatment) to effect meaningful change in reducing preventable readmissions.

Both patients and providers identified multiple strategies for reducing readmissions among patients with HIV, ranging from reallocating existing resources (eg, intensive patient education by HIV staff), enhancing coordination of existing services (eg, providing a contact familiar with a patient’s hospitalization for postdischarge communication), and service expansion (eg, inpatient addiction team). Few suggestions focused on the discharge phase, which is an important finding given that most studies implement interventions at this time point. This further emphasizes the need for multimodal, multitemporal strategies along the inpatient-to-outpatient care continuum. Our study results provide a practical toolkit for hospitals aiming to improve outcomes along this care continuum, which can be implemented with varying levels of available resources.

Findings also indicate that patients with HIV warrant particular attention due to stigma and the need for a specialized approach to provide comprehensive care. Stigma plays a significant role in medication adherence and utilization of inpatient and outpatient services.<sup>29,30</sup> Patients who experience stigma often present with more advanced stages of HIV disease and related complications, contributing to both admissions and readmissions.<sup>31</sup> Adjusting to an HIV diagnosis and accepting that it is a chronic, manageable disease is critical to improving patient outcomes. These findings underscore the need for adopting a more patient-centered approach that employs a multidisciplinary care team composed of medical providers and case managers specifically trained in the health and emotional challenges patients with HIV face.

Taken together, our findings confirm and extend the literature on 30-day readmissions among HIV-positive patients. Like other studies, we identified multiple factors related to 30-day readmissions in people with HIV, including medical severity and socioeconomic and behavioral variables.<sup>1,32</sup> Our data support prior quantitative findings that safety net hospitals have higher readmission rates,<sup>33</sup> that current methods do not adequately account for this variability,<sup>33</sup> and that unadjusted readmission measures would disproportionately penalize safety net hospitals.<sup>34</sup> The main area of disagreement among participants involved determinations of preventability among patients who lacked the motivation and/or resources to avoid hospital readmission. Provider categorizations of patient engagement and openness toward intervention support a readmission reduction strategy of patient risk stratification to match resources to level of need<sup>35,36</sup> and consider individual context.<sup>37</sup> Many participants offered intervention strategies supported by the literature: improved identification of high-risk patients,<sup>38,39</sup> nurse- or social worker-driven patient navigation and care coordination,<sup>40,41</sup> use of multidisciplinary care teams,<sup>36,42,43</sup> differentiated care,<sup>44</sup> enhanced medication counseling by pharmacists or other inpatient staff,<sup>45,46</sup> and post-discharge calls or home visits.<sup>47,48</sup> Participants also highlight the inpatient stay as an opportune “teachable moment” for enhancing patient activation and engagement.<sup>49,50</sup> Participants also advocated routine and comprehensive attention to substance use and mental illness in both inpatient and outpatient settings.<sup>51-53</sup>

Our study is not without limitations. We conducted interviews in a single, large integrated county system, which may limit generalizability. However, given disproportionate rates of HIV incidence in the South and in large urban centers, and higher rates of uncontrolled HIV in Southern states,<sup>54</sup> our findings may inform other organizations caring for similarly affected populations. We were unable to interview patients who were cognitively impaired or too ill to participate; this may have limited our study’s assessment of patients who rely on caregivers.

## Conclusion

We present results of a large qualitative study of diverse participants about 30-day hospital readmissions among HIV-positive patients. Our study confirms quantitative findings from the general and HIV readmissions literature and provides

nuanced information about the contribution of social determinants of health. Participants supported the idea of measuring readmissions as a quality indicator but highlighted concerns about comparing readmissions among HIV-positive patients in safety net hospitals to other settings and patient groups. Our findings also underscore the challenge of identifying preventable causes of readmissions, particularly patient-level factors and HIV-related stigma. Participants supported the need to identify high-risk patients with modifiable barriers to care and develop patient-centered interventions that match patients’ risk for readmission. Our findings contribute a toolbox of practical strategies for reducing avoidable readmissions at different stages of care and varying levels of available resources.

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## References

1. Feller DJ, Akiyama MJ, Gordon P, Agins BD. Readmissions in HIV-infected inpatients: a large cohort analysis. *J Acquir Immune Defic Syndr*. 2016;71(4):407–412.
2. Centers for Medicare and Medicaid Services. Readmissions Reduction Program (HRRP). 2016. <https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/Readmissions-Reduction-Program.html>. Accessed November 8, 2017.
3. Bell J, Turbow S, George M, Ali MK. Factors associated with high-utilization in a safety net setting. *BMC Health Serv Res*. 2017;17(1):273.

4. Cunningham WE, Hays RD, Williams KW, Beck KC, Dixon WJ, Shapiro MF. Access to medical care and health-related quality of life for low-income persons with symptomatic human immunodeficiency virus. *Med Care*. 1995;33(7):739–754.
5. Nijhawan A, Kim S, Rich JD. Management of HIV infection in patients with substance use problems. *Curr Infect Dis Rep*. 2008;10(5):432–438.
6. McNeil R, Small W, Wood E, Kerr T. Hospitals as a ‘risk environment’: an ethno-epidemiological study of voluntary and involuntary discharge from hospital against medical advice among people who inject drugs. *Soc Sci Med*. 2014;105:59–66.
7. Joynt KE, Jha AK. Characteristics of hospitals receiving penalties under the Hospital Readmissions Reduction Program. *JAMA*. 2013;309(4):342–343.
8. Figueroa JF, Wang DE, Jha AK. Characteristics of hospitals receiving the largest penalties by US Pay-for-Performance Programmes. *BMJ Qual Saf*. 2016;25(11):898–900.
9. Barnett ML, Hsu J, McWilliams JM. Patient characteristics and differences in hospital readmission rates. *JAMA Intern Med*. 2015;175(11):1803–1812.
10. RTI International. *Technical Expert Panel Summary Report: Development of Potentially Preventable Readmission Measures for Post-Acute Care*. Waltham, MA: RTI International; 2016.
11. Carey K, Lin MY. Hospital readmissions reduction program: safety-net hospitals show improvement, modifications to penalty formula still needed. *Health Aff (Project Hope)*. 2016;35(10):1918–1923.
12. Auerbach AD, Kripalani S, Vasilevskis EE, et al. Preventability and causes of readmissions in a national cohort of general medicine patients. *JAMA Intern Med*. 2016;176(4):484–493.
13. Feigenbaum P, Neuwirth E, Trowbridge L, et al. Factors contributing to all-cause 30-day readmissions: a structured case series across 18 hospitals. *Med Care*. 2012;50(7):599–605.
14. Uscatescu V, Turner A, Ezer H. Return visits to the emergency department: what can we learn from older adults’ experiences? *J Gerontol Nurs*. 2014;40(7):32–40; quiz 42–33.
15. Vat M, Common C, Laizner AM, Borduas C, Maheu C. Reasons for returning to the emergency department following discharge from an internal medicine unit: perspectives of patients and the liaison nurse clinician. *J Clin Nurs*. 2015;24(23–24):3605–3614.
16. Jayakody A, Bryant J, Carey M, Hobden B, Dodd N, Sanson-Fisher R. Effectiveness of interventions utilising telephone follow up in reducing hospital readmission within 30 days for individuals with chronic disease: a systematic review. *BMC Health Serv Res*. 2016;16(1):403.
17. Jencks SF, Williams MV, Coleman EA. Rehospitalizations among patients in the Medicare Fee-for-Service Program. *N Engl J Med*. 2009;360(14):1418–1428.
18. Rattan R, Parreco J, Lindenmaier LB, et al. Underestimation of unplanned readmission after colorectal surgery: a national analysis. *J Am Coll Surg*. 2018;226(4):382–390.
19. Puram SV, Bhattacharyya N. Identifying metrics before and after readmission following head and neck surgery and factors affecting readmission rate. *Otolaryngol Head Neck Surg*. 2018;158(5):860–866. doi:10.1177/0194599817750373.
20. Amarasingham R, Velasco F, Xie B, et al. Electronic medical record-based multicondition models to predict the risk of 30-day readmission or death among adult medicine patients: validation and comparison to existing models. *BMC Med Inform Decis Mak*. 2015;15:39.
21. Hakim MA, Garden FL, Jennings MD, Dobler CC. Performance of the LACE index to predict 30-day hospital readmissions in patients with chronic obstructive pulmonary disease. *Clin Epidemiol*. 2018;10:51–59.
22. Berry SA, Fleishman JA, Yehia BR, et al. Thirty-day hospital readmission rate among adults living with HIV. *AIDS*. 2013;27(13):2059–2068.
23. Nijhawan AE, Kitchell E, Etherton SS, Duarte P, Halm EA, Jain MK. Half of 30-day hospital readmissions among HIV-infected patients are potentially preventable. *AIDS Patient Care STDs*. 2015;29(9):465–473.
24. Orchard T, Salters K, Palmer A, Michelow W, Lepik KJ, Hogg R. Vets, denialists and rememberers: social typologies of patient adherence and non-adherence to HAART from the perspective of HIV care providers. *AIDS Care*. 2015;27(6):758–761.
25. Rao KC, Enriquez M, Gantt TC, et al. Nonengagement in HIV care: a descriptive and qualitative study in hospitalized patients and community-based analysis. *J Int Assoc Provid AIDS Care*. 2013;12(3):178–184.
26. van Walraven C, Bennett C, Jennings A, Austin PC, Forster AJ. Proportion of hospital readmissions deemed avoidable: a systematic review. *CMAJ*. 2011;183(7):E391–E402.
27. van Galen LS, Brabrand M, Cooksley T, et al. Patients’ and providers’ perceptions of the preventability of hospital readmission: a prospective, observational study in four European countries. *BMJ Qual Saf*. 2017;26(12):958–969.
28. Goldfield NI, McCullough EC, Hughes JS, et al. Identifying potentially preventable readmissions. *Health Care Financ Rev*. 2008;30(1):75–91.
29. Ogunbajo A, Kershaw T, Kushwaha S, Boakye F, Wallace-Atiapah ND, Nelson LE. Barriers, motivators, and facilitators to engagement in HIV care among HIV-infected Ghanaian men who have sex with men (MSM). *AIDS Behav*. 2018;22(3):829–839.
30. Li H, Wei C, Tucker J, et al. Barriers and facilitators of linkage to HIV care among HIV-infected young Chinese men who have sex with men: a qualitative study. *BMC Health Serv Res*. 2017;17(1):214.
31. Kim GS, Kim S, Choi JY, Lee JI, Park CG, McCreary LL. Mediators and moderators of health-related quality of life in people living with HIV. *J Assoc Nurses AIDS Care*. 2018;29(4):580–591.
32. Nijhawan AE, Clark C, Kaplan R, Moore B, Halm EA, Amarasingham R. An electronic medical record-based model to predict 30-day risk of readmission and death among HIV-infected inpatients. *J Acquir Immune Defic Syndr*. 2012;61(3):349–358.
33. Hoyer EH, Padula WV, Brotman DJ, et al. Patterns of hospital performance on the hospital-wide 30-day readmission metric: is the playing field level? *J Gen Intern Med*. 2018;33(1):57–64.
34. Zuckerman RB, Joynt Maddox KE, Sheingold SH, Chen LM, Epstein AM. Effect of a hospital-wide measure on the readmissions reduction program. *N Engl J Med*. 2017;377(16):1551–1558.

35. Amarasingham R, Moore BJ, Tabak YP, et al. An automated model to identify heart failure patients at risk for 30-day readmission or death using electronic medical record data. *Med Care*. 2010;48(11):981–988.
36. Amarasingham R, Patel PC, Toto K, et al. Allocating scarce resources in real-time to reduce heart failure readmissions: a prospective, controlled study. *BMJ Qual Saf*. 2013;22(12):998–1005.
37. Higashi RT, Tillack A, Steinman MA, Johnston CB, Harper GM. The ‘worthy’ patient: rethinking the ‘hidden curriculum’ in medical education. *Anthropol Med*. 2013;20(1):13–23.
38. Gruneir A, Dhalla IA, van Walraven C, et al. Unplanned readmissions after hospital discharge among patients identified as being at high risk for readmission using a validated predictive algorithm. *Open Med*. 2011;5(2):e104–e111.
39. Holtzman CW, Shea JA, Glanz K, et al. Mapping patient-identified barriers and facilitators to retention in HIV care and antiretroviral therapy adherence to Andersen’s behavioral model. *AIDS Care*. 2015;27(7):817–828.
40. Balaban RB, Galbraith AA, Burns ME, Vialle-Valentin CE, Laroche MR, Ross-Degnan D. A patient navigator intervention to reduce hospital readmissions among high-risk safety-net patients: a randomized controlled trial. *J Gen Intern Med*. 2015;30(7):907–915.
41. Bronstein LR, Gould P, Berkowitz SA, James GD, Marks K. Impact of a social work care coordination intervention on hospital readmission: a randomized controlled trial. *Soc Work*. 2015;60(3):248–255.
42. Jones SG. Evaluation of a human immunodeficiency virus rule out tuberculosis critical pathway as an intervention to decrease nosocomial transmission of tuberculosis in the inpatient setting. *AIDS Patient Care STDs*. 2002;16(8):389–394.
43. Cummins NW, Badley AD, Kasten MJ, et al. Twenty years of human immunodeficiency virus care at the Mayo Clinic: past, present and future. *World J Virol*. 2016;5(2):63–67.
44. Grimsrud A, Bygrave H, Doherty M, et al. Reimagining HIV service delivery: the role of differentiated care from prevention to suppression. *J Int AIDS Soc*. 2016;19(1):21484.
45. Beach MC, Roter DL, Saha S, et al. Impact of a brief patient and provider intervention to improve the quality of communication about medication adherence among HIV patients. *Patient Educ Couns*. 2015;98(9):1078–1083.
46. Sanchez GM, Douglass MA, Mancuso MA. Revisiting Project Re-Engineered Discharge (RED): the impact of a pharmacist telephone intervention on hospital readmission rates. *Pharmacotherapy*. 2015;35(9):805–812.
47. Carnahan JL, Slaven JE, Callahan CM, Tu W, Torke AM. Transitions from skilled nursing facility to home: the relationship of early outpatient care to hospital readmission. *J Am Med Dir Assoc*. 2017;18(10):853–859.
48. Branowicki PM, Vessey JA, Graham DA, et al. Meta-analysis of clinical trials that evaluate the effectiveness of hospital-initiated postdischarge interventions on hospital readmission. *J Healthc Qual*. 2017;39(6):354–366.
49. Howard-Anderson J, Lonowski S, Vangala S, Tseng C, Busuttill A, Afsar-Manesh N. Readmissions in the era of patient engagement. *JAMA Intern Med*. 2014;174(11):1870–1872.
50. Bhavan KP, Agrawal D, Cerise F. Achieving the triple aim through disruptive innovations in self-care. *JAMA*. 2016;316(20):2081–2082.
51. Gallagher NA, Fox D, Dawson C, Williams BC. Improving care transitions: complex high-utilizing patient experiences guide reform. *Am J Manag Care*. 2017;23(10):e347–e352.
52. Szekendi MK, Williams MV, Carrier D, Hensley L, Thomas S, Ceresse J. The characteristics of patients frequently admitted to academic medical centers in the United States. *J Hosp Med*. 2015;10(9):563–568.
53. Zulman DM, Ezeji-Okoye SC, Shaw JG, et al. Partnered research in healthcare delivery redesign for high-need, high-cost patients: development and feasibility of an Intensive Management Patient-Aligned Care Team (ImPACT). *J Gen Intern Med*. 2014;29(suppl 4):861–869.
54. Del Rio C. HIV infection in hard-to-reach populations. *Top Antivir Med*. 2016;24(2):86–89.