

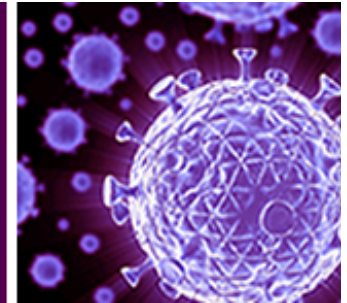


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REVIEW®

eHIV Review
Podcast Issue

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VOLUME 1 – ISSUE 4: TRANSCRIPT

Featured Cases: Linkage and Retention in HIV Medical Care

Our guest author is Michael Mugavero, MD, Associate Professor of Medicine and Director of the Center for AIDS Research Clinical Core at the University of Alabama at Birmingham.

After participating in this activity, the participant will demonstrate the ability to:

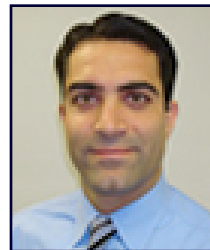
- Identify the individual and system-level risk factors and the health implications of poor linkage and retention in HIV medical care,
- Describe best evidence interventions to promote linkage into, and subsequent retention in, HIV medical care, and
- Identify key national initiatives and benchmarks for measuring and monitoring HIV care in the US.

This discussion, offered as a downloadable audio file and companion transcript, covers the important issues related to *Linkage and Retention in HIV Medical Care* in the format of case-study scenarios for the clinical practice. This program is a follow up to the [Volume 1, Issue 3 eHIV Review newsletter— Linkage and Retention in HIV Care](#).

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MEET THE AUTHOR



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Faculty Disclosure

Michael Mugavero, MD has disclosed that he has no relevant financial relationships with any commercial entities specific to his presentation.

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Next Issue: Bone Health, Vitamin D and HIV

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STATEMENT OF NEED

Three central ideas emerged from our needs assessment. In order to provide optimal treatment to patients with HIV.

- Clinicians caring for patients with HIV need current information about: appropriate treatment and maintenance of care...guidance for treating comorbidities...and information about emerging findings for treating HIV-associated neurocognitive disorders (HAND)
- The need for more information on HIV topics including updated guidelines for HIV, treating older patients with HIV, managing patients with comorbidities and coinfections, treatment and sequencing strategies for maximizing future therapeutic options, and new and emerging agents for HIV
- Treating comorbidities in patients with HIV, especially among people older than age 50

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MR. BOB BUSKER: Welcome to this eHIV Review Podcast.

eHIV Review is presented by The Johns Hopkins University School of Medicine. This program is supported by educational grants from Abbott Laboratories, Boehringer Ingelheim Pharmaceuticals, Inc., and Bristol-Myers Squibb.

Today's program is a companion piece to our Volume 1, Issue 3 eHIV Review newsletter: *Linkage and Retention in HIV Medical Care*.

Our guest today is one of that issue's authors: Dr. Michael Mugavero from the University of Alabama at Birmingham.

This activity has been developed for infectious disease specialists, primary care physicians, nurse practitioners, and other health care practitioners whose practice involves treating HIV patients.

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Learning objectives for this program are, that after participating this activity, the participant will demonstrate the ability to:

- Identify the individual and system-level risk factors and the health implications of poor linkage and retention in HIV medical care;
- Describe best evidence interventions to promote linkage into, and subsequent retention in, HIV medical care; and
- Identify key national initiatives and benchmarks for measuring and monitoring HIV care in the US.

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I'm Bob Busker, managing editor of eHIV review. Our guest today is Dr. Michael Mugavero, associate professor of medicine and director of the Center for AIDS Research (CFAR) Clinical Core at the University of Alabama at Birmingham.

Dr. Mugavero has disclosed that he has no financial relationships with any commercial entities relevant to this activity and that his presentation today will not include discussion of the off-label or unapproved uses any drugs or products.

Dr. Mugavero, welcome to this eHIV Review Podcast.

DR. MICHAEL MUGAVERO: Thank you for the invitation; it's my pleasure to be here with you today.

MR. BUSKER: In your newsletter issue, you provided a snapshot of the current research into improving HIV linkage and retention in care. I'd like to translate some of that information into clinical practice, so please start us off with a patient presentation.

DR. MUGAVERO: Our first case today is a 57-year-old homeless white male who has ongoing crack cocaine use and is admitted to an inpatient hospital service with subjective fevers, night sweats, and weight loss. As part of his evaluation, he has an HIV ELISA and positive Western blots. His initial CD4 count is 15.

After a brief inpatient stay, he is discharged to a local shelter and follow-up is scheduled at a local HIV medical clinical. The patient fails to attend the scheduled visit and attempts by the clinic personnel to locate him at the shelter are unsuccessful.

MR. BUSKER: How common is the problem of late diagnosis of HIV infection?

DR. MUGAVERO: To put some framing on the big picture in terms of HIV diagnosis and where it fits in, in recent years a lot of attention has focused on a continuum of care or the HIV treatment cascade, and that first step is HIV serostatus awareness, HIV testing.

Current estimates are that as many as one in five persons, or 20% of those living with HIV in the US are unaware, and those are data from the CDC that were recently updated. Late diagnosis is of considerable challenge. Looking at different studies, as many as 50% of persons with HIV are diagnosed late with a CD4 count below 200 or with an opportunistic infection; however, some recent studies, in particular, a large study by the NA ACCORD, show there's been some temporal improvement of late diagnosis and presentation for care in more recent years.

MR. BUSKER: The health implications of late diagnosis — both for the individual and on the public health — tell us a bit about that.

DR. MUGAVERO: So we have known for several years from a number of studies that there are dramatic health implications for the person with late diagnosis and late presentation for care. They include both increased morbidity and increased mortality in the short-term and also in the longer term there is residual impact and effects for folks whose HIV is diagnosed late and who present to care late, in terms of AIDS events and mortality.

In recent years, a lot of attention has been focused beyond the individual implications, public health implications of late diagnosis, and late presentation for care. That late diagnosis represents missed opportunities for earlier intervention to work on HIV risk reduction, to prevent transmission. Those who are unaware and diagnosed late have several years where they are at risk of transmitting virus yet are unaware and unable to receive medical and preventive services.

So this idea of missed opportunities and late diagnosis and late presentation for care was a major part of the rationale for the CDC in revising their HIV testing recommendations in 2006 that now supports opt-out testing in all clinical settings for HIV infection.

MR. BUSKER: As you described this patient, he failed to attend his follow-up visits and the local clinic couldn't find him. This case would seem to illustrate that HIV testing alone is not enough, and that linkage to medical care is also a considerable problem. What do the data tell us about delayed linkage to care?

DR. MUGAVERO: We have two recent reports from the CDC, one was a meta-analysis and one was based on their expanded testing initiative that show anywhere between 65% and 75% of persons with newly diagnosed HIV are linked to care within three to six months, suggesting that anywhere from a quarter to a third of them are delaying linkage to care beyond three to six months.

What we know about delayed linkage to care is that it's more common in certain groups such as persons with mental illness, substance users, and those with unmet needs for these conditions. Those needs include supportive services, housing, transportation,

and food, all of which can all be associated with delayed linkage to medical care.

We also know the consequences of delayed linkage to care from recent studies that have shown us that among people who delay, it takes longer to start antiretroviral medications, they do not receive preventive and supportive services, and there has been an associated increased risk for mortality, as well as a population risk, public health risk of increasing risk transmission by delaying access and linkage to medical care and starting therapy.

Because of these factors in terms of how common it is and the impact it has on both individual and public health, there has been increasing emphasis on how important linkage to care is, both systematically monitoring linkage to care, and also intervening to improve linkage to care. Suggestions in recent reports from the Institute of Medicine, the National HIV/AIDS strategy, and recent guidelines promote entry and retention of care, as well as adherence. Approaches that integrate surveillance data systems with medical clinic data may enhance our ability to monitor who is and who is not effectively linked to medical care after diagnosis.

MR. BUSKER: So what kind of guidance, benchmarks, and goals have been proposed to improve HIV testing and linkage to care?

DR. MUGAVERO: In recent years there's been considerable emphasis and attention at a national level to testing and linkage to care. The National HIV/AIDS Strategy was a landmark document released in July 2010 and included several goals along the treatment cascade, including testing, serostatus awareness, and linkage to care. The goals set forth by 2015 include increasing HIV serostatus awareness from the current estimate of roughly 80% to 90%, and also improving linkage to care, currently estimated at 65%, to 85% within three months of a new diagnosis.

The National AIDS Strategy also came, and the White House asked the Institute of Medicine to generate a report on the data systems and measures to monitor HIV care in the United States. The IOM recently released its report in March 2012, and among nine core indicators for clinical care, they included measures for late diagnosis, which was defined as the percentage of persons who are diagnosed with a CD4 count greater than 200, and also a measure for

linkage to care with delayed linkage to care being described as the percentage of individuals linked to care within three months of a new diagnosis.

MR. BUSKER: Let's go back to the patient you described. Are there approaches that have shown success in locating patients like this and bringing them into long-term care?

DR. MUGAVERO: To date there has been relatively limited research evaluating how to effectively link persons with newly diagnosed HIV into care. There has been much more study of the implications of late testing or late diagnosis.

What we do know is that intensive outreach, which was supported by HRSA's SPINS initiative, intensive outreach, particularly to underserved and vulnerable populations, those with substance use disorders, mental illness, youth, women, was an effective strategy to help identify and link persons to care after a new diagnosis.

What we know from another HRSA SPINS initiative, is the importance of providing supportive services for unmet needs. So in terms of both initial linkage to care, but also subsequent early retention in care, identifying those unmet needs for things like housing, transportation, mental illness, and substance use treatment, as well as case management, can be critical in terms of getting folks both linked to care and also keeping them to care in the following months and years.

MR. BUSKER: I want to note to our listeners that a fairly complete set of references to the information Dr. Mugavero is discussing today can be found in the transcript version of this podcast.

Dr. Mugavero, thank you for that case, and please bring us another patient.

DR. MUGAVERO: Our second case is a 24-year-old African American female who has no history of HIV testing and has a preliminary positive HIV rapid test result at a community outreach testing event. She received posttest counseling and has blood drawn for a confirmatory HIV testing. She next meets with a case manager from a community-based organization that is sponsoring the event and arranges a follow-up visit within one week with that same case manager.

At that visit she's informed that her HIV diagnosis has been confirmed by the additional testing. The case manager calls a local HIV clinic to schedule an initial HIV medical care visit and offers to accompany the patient to that initial visit.

MR. BUSKER: What are some of the individual-level factors that can influence successful linkage to care?

DR. MUGAVERO: A recent report from the CDC from their Never in Care study showed that a person's satisfaction with the HIV counseling, testing, and referral experience influences their decision not to enter medical care. Specifically, the rapport with the tester and the quality of information that was provided to them were things that influenced their decision not to enter care.

Other studies have shown us that individuals who are first-time testers who have never tested before are more likely to have delayed linkage to medical care. Another important factor that influenced the delayed linkage to care is concerns about privacy and disclosure and distrust of the health care system, as well as an individual's lack of motivation.

Several other reports have suggested that certain groups are higher-risks to not be linked to care after a positive HIV test. These include younger people, females, racial and ethnic minorities, persons who are uninsured and unemployed.

Another important finding we've discussed previously is the importance of mental illness, substance abuse, and unmet need for supportive services. This is a pervasive theme around testing and linkage to care that the common comorbid mental illness substance use, unmet needs for basic services, can be major factors in what individuals go across this cascade.

MR. BUSKER: And the other side of the coin now: what system-level factors on HIV counseling, testing, and referral are related to long-term care?

DR. MUGAVERO: Beyond the individual level, some recent studies have highlighted important factors at a system level that influence linkage to care after HIV testing. A few studies have shown us that the testing location matters. Among individuals who test in a community setting, there are greater challenges with linkage to care.

There has been a big push to do more testing in community settings to access people who don't usually come into contact with the health care setting. But it's important to recognize that when testing in a community setting, there is greater risk that someone will not get linked to medical care.

Other factors that have been shown to improve linkage to care include the immediate connection to a case manager, and also the continuity of that follow-up, as we saw in our case, when you meet the case manager and come back again, you meet that same case manager and develop a relationship.

Two recent studies have identified the importance of active versus passive referral for medical care. Active referral as in our case, someone offering to assist the person in both making the appointment and sometimes even attending that appointment, versus passive referral, giving an individual information about local clinics and resources and having them take that next step on their own.

A lot of attention in recent years has focused on the concept of health care system navigation, which includes both medical and supportive services. This is the idea of helping someone navigate not just the medical care system, but also the supportive services that exist in a community for HIV services.

Finally, something that a few studies have shown us is, the more we can shorten that window, the time from when someone has that first positive test until their initial medical care visit, will increase the likelihood that they are linked to medical care. I think that makes a lot of sense when we think about how much goes on in someone's life, and the more time that elapses from that life-changing diagnosis into getting into care, the more likely someone is to not take that next step and get into treatment.

MR. BUSKER: Intervention approaches to promote long-term care — which ones have the best evidence that support their use?

DR. MUGAVERO: As we discussed previously, there really are very few evidence-based interventions now that have been tested through rigorous studies, and we don't have cost-effectiveness studies. But we do know that the best evidence for linkage to medical care is what's called strength-based case management, what is the CDC calls the ARTIST model.

And important to note, this is distinct from medical case management. It's the best evidence that's out there that's been tested through both a rigorous randomized control trial and also a follow-up effectiveness study that was done with community-based organizations and health departments.

The intervention focuses on working with a client on an individual level based upon empowerment and self-efficacy with an interventionist, a case manager typically having up to five contacts with the individual within 90 days.

What we know from the ARTIST study is that they were able to get 80% of persons with newly diagnosed HIV linked to care within six months of the new diagnosis.

MR. BUSKER: What about guidance and recommendations — what's available to assist organizations in implementing long-term care programs?

DR. MUGAVERO: I think the first important theme is that we have to integrate linkage to care programs within our HIV counseling, testing, and referral paradigm, rather than have them as distinct silos. We think about this treatment cascade being sequential steps of first HIV testing and diagnosis and linkage to care, but the more we can integrate those activities and not think of them as separate, isolated steps is really the first critical guidance and recommendation.

A number of studies, including the ARTIST study, have shown us what worked for them in implementing their linkage to care program. And some of the key findings were that providing ongoing training, support and supervision to dedicated linkage staff, so there are certain individuals whose job it is to help link those newly diagnosed into medical care. And that the training includes things like counseling skills, HIV knowledge, and knowledge of local resources to help someone navigate the health system.

Another important feature of linkage case management is that it's very different from medical case management. The idea is, they are not establishing a longitudinal relationship that's going to go on for years, but instead is a very brief and intense relationship, helping someone go from a life-changing diagnosis to linked to medical care.

After someone is linked to care, some programs have described graduating or transferring from this linkage case manager to a medical case manager.

Another critical feature is establishing and strengthening partnerships in collaboration within and between HIV service providers. So as part of this integration, it's critical that those providing testing and preventive services and those providing medical services are working together and communicating, have memoranda of agreements and understanding, since often distinct entities will provide the testing services and medical services. To make this as seamless and integrated as possible takes effort across agencies within a given community.

The final thing for those are implementing these programs is to develop and adhere to a protocol. Programs should have a well-defined, well-described protocol or linkage to care that is tailored to the local community but can be shared and everyone can come back to and make sure we're all on the same page in terms of how we do this within our given local community.

MR. BUSKER: Thank you, Doctor. And we'll return, with Dr. Michael Mugavero from the University of Alabama at Birmingham in just a moment.

DR. MICHAEL MELIA: Hello. I'm Michael Melia, Associate Professor of Medicine in the Division of Infectious Diseases and Associate Fellowship Program Director at The Johns Hopkins University School of Medicine. I'm one of the Program Directors of eHIV Review.

eHIV Review is a combination newsletter and podcast program delivered by email to subscribers. Newsletters are published every other month. Each issue reviews the current literature in areas of importance to infectious disease specialists, primary care physicians, nurse practitioners, and other health care practitioners whose work or practice includes treating HIV patients

Bimonthly podcasts are also available as downloadable transcripts, providing case-based scenarios to help bring that new clinical information into practice in the exam room and at the bedside.

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MR. BUSKER: Welcome back to this eHIV Review podcast. I'm Bob Busker, managing editor of the program. Our guest is Dr. Michael Mugavero, associate professor of medicine, and director of the CFAR Clinical Core at the University of Alabama at Birmingham. Our topic is Linkage and Retention in HIV Medical Care.

We've been looking at patient presentations that illustrate how the information Dr. Mugavero presented in his newsletter can be applied in the exam room. So to continue, Doctor — please present us with another case.

DR. MUGAVERO: So our third case today is a 22-year-old African American male who attends an initial outpatient HIV medical provider visit after recently testing positive for HIV infection. He's in a stable relationship with a male partner. He reports sex with two casual male partners over the past six months, often in the setting of binge alcohol use and with intermittent condom use.

His baseline laboratories are obtained after that visit, with a one-month follow-up visit scheduled to provide additional education and counseling, to review his test results and to continue building rapport.

At the follow-up visit, the patient is informed that his initial CD4 count is 535 and his viral load is 32,400 copies. The patient and his provider discuss the timing of initiation of antiretroviral therapy, and a two-month follow-up visit is scheduled to continue this dialog.

The patient is a no-show for his follow-up visit, and clinic staff cannot reach him on his home or mobile phones.

MR. BUSKER: What are the salient features of this case?

DR. MUGAVERO: This patient has a new diagnosis of HIV and is initiating outpatient HIV medical care. What we knew from several recent studies is, this is

an incredibly vulnerable time. While adjusting to a life-changing diagnosis, persons are asked to enter care, come to frequent visits, and often start medications. Many of these patients haven't had much contact with the health care system, so this early period of retention and care is a very challenging time in their lives.

This patient is a young African American man who has sex with men, and this is the group that is disproportionately affected by the domestic epidemic of HIV. Recent HRSA SPINS initiatives have focused on this group of young, MSM of color, because this group is so hard hit by the HIV epidemic.

Also salient to this case is that this patient is engaging in risk- transmission behaviors with casual partners, often in the setting of alcohol use with intermittent condom use. He has a relatively high CD4 count at care entry, which might play into his behaviors and what happens next with him staying in care, and he also had an early no-show visit within the first six months.

And after that visit, it was very difficult for the clinic to contact him, which is a common theme when you read across the literature and talk with different clinics around the country, this notion of locator information, contact information. A lot of times, once we lose someone or they miss a visit, trying to get hold of them can be incredibly challenging.

MR. BUSKER: I'd like to continue on that last point. How common are early missed visits and how do they affect risk factors?

DR. MUGAVERO: We know after initially establishing care that early no- show visits are exceedingly common, seen in upwards of 60% of persons initiating HIV treatment. In other studies, one year attrition or loss to follow-up has been as high as 20% or 30%, again highlighting how important this period is in terms of missing visits and patients being lost to care.

We know from recent studies that certain groups are at risk for poor early retention and care and more likely to have early missed visits. These include younger individuals, racial ethnic minorities, those who use alcohol and other drugs, and the uninsured. Also, people who have higher CD4 counts and are not prescribed antiretroviral therapy are also at increased

risk for poor early retention and care. The thought there is that these individuals don't believe they need to stay in care as they have not been prescribed treatment, have high CD4 counts, and are relatively healthy.

Coming back to the system level and the HRSA SPINS initiatives highlighted the importance of supportive services. Providing services for mental illness and substance use when necessary, as well as transportation, case management, and housing are critical for early retention and care. The Institute of Medicine Report we've talked about has indicators for supportive services acknowledging how important these supportive services are to keeping someone in care. Their indicators include those for mental health and substance abuse referral, for monitoring unstable housing, food, security, and unmet transportation needs. This again highlights how important these nonmedical aspects are to early retention in HIV medical care.

MR. BUSKER: What are some of the health implications of early missed visits and poor early retention in care?

DR. MUGAVERO: Coming back to our original case and talking about the impact on both individual and public health, again we see this for early retention in care. At the individual level, there are challenges across this treatment cascade related to poor early retention and care. They include the next steps along that continuum, including failure to receive antiretroviral therapy, delayed viral load suppression, and greater cumulative viral load burden over the first few years in care. Also, risk behaviors are different in those with poor early retention. There is greater likelihood of engaging in HIV risk-transmission behaviors and finally an increased risk of long-term clinical events and mortality.

What's important to note about the early missed visit or the early no- show visit, is in and of itself it likely doesn't lead to these increased risk of clinical events, but it's a warning sign to us as providers, telling us this is someone who is at higher risk to either fall out of care, not take medicines as prescribed, who may have other competing life events that will influence their long-term self care of HIV infection.

At the population level, the recently released HPTN052 study has bolstered the evidence and

enthusiasm for HIV treatment as prevention — treating people with HIV infection to lower viral load, thereby reducing transmission and spread to others in preventing new infection.

We know that lack of early retention leads to delayed viral load suppression and greater risk behaviors, and we know that treatment as prevention can work, then early retention influences two of the major factors for new infection: how much virus someone has and also their likelihood of engaging in behaviors that might transmit virus to others.

MR. BUSKER: What intervention approaches for retention in care have shown promise?

DR. MUGAVERO: Similarly to linkage to care, there have been very few interventions focusing on retention in care among the new to care population. Most of the studies have been done not through randomized, controlled trials, but through cohort designs where there are control groups but not the rigor of randomization.

At the individual level, some studies have focused on patient navigation and intensive outreach. Two different SPINS initiatives have been conducted, one focusing on navigation as an approach that has shown improved retention in care, and also the intensive outreach, especially among vulnerable groups has shown improved linkage, but also retention in care.

More recently, the CDC conducted a study through six different medical clinics, including our site at University of Alabama at Birmingham, that focus on a system level intervention. This study aimed to create a clinic culture around the importance of retention in care, including putting up posters and each clinic staff member throughout the encounter giving brief messages to patients about the importance of coming to visits and staying in care. That study showed a modest improvement of retention and care, but importantly among those whose HIV was newly diagnosed and entering care, and among younger individuals, this system wide clinic level intervention seemed to have a greater impact in terms of keeping individuals retained in care.

MR. BUSKER: Thank you for that case and those responses, Doctor. We've got time for one more case, so please bring us another patient.

DR. MUGAVERO: Our fourth and final case is that of a 45-year-old white male infected with HIV who is released from prison with a CD4 count of 345 and an undetectable viral load. At the time of his prison release he's provided with a 10-day supply of antiretroviral medications, an ADAP application, a physician certification, and a copy of his most recent labs, as well as information about local HIV treatment centers.

Ninety days after his release date, state records indicate his ADAP application has not been submitted and he has not yet entered into medical care.

MR. BUSKER: This sounds like it could be fairly common situation. What do you consider the most salient facts in this case?

DR. MUGAVERO: This case introduces a third concept within the idea of engagement in care. We focused earlier on linkage to care and retention in care, and the third piece is reengagement in care, trying to reach out to those who are not in care and bring them back in. It's at the extreme of being poorly retained in care. Most studies focusing on reengagement have focused on patients who have entered outpatient HIV medical care but were then lost to follow-up, who spent 12 months or longer out of care.

It's really important that in recent years other priority populations have emerged. Those include the recently incarcerated, the recently hospitalized, and also retesters. So as testing outreach initiatives have expanded, many folks who are testing positive who were previously known to have HIV are testing again. These are all opportunities to help someone who is not in outpatient treatment come back and link into outpatient medical treatment.

We know that among these groups some of the incredibly common challenges with reengagement include mental illness, substance use, and homelessness are, and interventions to work with this group typically require intensive time, resources, and supportive services. These groups often have many, many unmet needs. They are very vulnerable and require intensive intervention to work toward either getting them from prison or the hospital or the community out of care, reconnected and reengaged with outpatient medical services.

MR. BUSKER: Population estimates regarding retention in care in the United States — what do the data say?

DR. MUGAVERO: Historically it's been challenging to generate national estimates, and part of the reason is that numerous data systems are used to capture service utilization among persons with HIV. These include public health surveillance systems that are reported to health departments and the CDC, clinic-based cohorts that capture utilization among persons who access care, and also administrative claims databases among insurance providers. Those databases are accessed to see when people use services and medications. The recent Institute of Medicine Report highlights some of the challenges and limitations of these different data systems, highlighting the different roles and how integrating these systems might improve some of our measurement.

Recent estimates from the CDC, a study that was done using their surveillance-based data, publicly reported CD4 counts and viral loads, indicate that roughly half of patients were retained in medical care. This result is similar to estimates from roughly a decade ago, that half of persons with HIV being in medical care and retained over time.

A recent meta-analysis, also from the CDC, published by Gary Marks, suggested that retention was a bit higher, about 59%, although it was important that different measures of retention were used and that retention was worse the longer the observation period was. So if a study looked at retention over one or two years versus four or five years, it looks worse if you looked at a longer period of time.

MR. BUSKER: It seems like we have 40% to 50% of persons who are not being retained in care. What can you tell us about recent developments in monitoring retention in HIV care?

DR. MUGAVERO: The first critical step is to improve our measurement in monitoring and surveillance in an actionable way. In recent years there has been a strong push to use our public health surveillance data to monitor and also to give us actionable data to intervene, to try to improve linkage and retention in care. This is a major shift in that historically public health surveillance data was reported and captured and kept internally, but not fed back to the field to

lead to interventions. A number of high-profile reports in the *New England Journal of Medicine* and others have discussed the public health needs of using surveillance data to improve retention in HIV care.

Several examples around the country report integrating public health surveillance data with medical data to both monitor and intervene to improve linkage in retention and care. A number of projects, notably a project in Louisiana and in King County, Washington, where public health officials are working closely with the medical providers to use public health surveillance and medical clinic data to help identify people who have HIV and are not currently in care to try to better link and retain them in medical services.

MR. BUSKER: How does all of this fit into the overarching goals of the National HIV/AIDS Strategy?

DR. MUGAVERO: The National HIV/AIDS Strategy has three primary goals that include reducing the number of new infections, improving access and health care outcomes, and overcoming disparities in health and equity. It's important to point out that linkage and retention in care play a prominent role in all three of those goals and will continue to play a critical role if we are going to achieve these goals by 2015.

The National AIDS Strategy set distinct benchmarks for HIV serostatus awareness, for linkage to care and for retention in care, as well as for viral load suppression, so goals exist across each step of that treatment cascade. Other recent initiatives have been focusing on retention in care, including the In Care campaign, which is part of the Ryan White Clinics, supported by HRSA and the HIV Quality Center, trying to identify and give systems and clinics best practices to monitor and act upon improving retention in care. Additional guidance comes from the recent Institute of Medicine report on data systems and measures for medical and supportive core indicators on assessing whether we are achieving the goals of the National Strategy.

Finally, there is increased emphasis on integration. I think there has been a big shift where things historically, both at the federal level and at the local level, have been somewhat distinct in terms of service provision and surveillance and monitoring, where some centers and some local agencies focused on

testing, others on prevention, and others on medical and other supportive services, and now there is greater focus on integrating these activities. They are focusing on initiatives like test and treat, or testing to linkage and care, that span diagnosis to viral load suppression.

So across an individual patient's treatment cascade, they will interface with multiple agencies and multiple individuals. And the better we can integrate our service delivery at the federal and local levels, the more likely we are to achieve the success set forth in the strategy.

MR. BUSKER: Doctor, thank you for presenting those cases. And again, I want to remind our listeners that a fairly complete set of references to the information Dr. Mugavero has discussed today can be found in the transcript version of this podcast. Let's shift gears now and look to the future. What do you see happening in improving linkage and retention in care?

DR. MUGAVERO: Historically, linkage and retention in care have been viewed more through the lens of service provision than research, per se, and in more recent years, it's shifted where there is not a lot of scientific focus on studying linkage and retention in care.

I think the way forward, what's critical is that we have both paths occurring simultaneously and informing each other, so that we learn from quality improvement and best practices in clinical care while also conducting the studies with rigorous randomized designs to test interventions. Ultimately if we are going to improve linkage and retention in care, it's going to take a combination of clinical practice-based evidence, as well as clinical trial-based evidence, to ultimately get us to achieve those goals in the National AIDS Strategy.

MR. BUSKER: Thank you, Doctor. To wrap things up, I'd like to review the key points of what we've been discussing today. So let's begin with identifying the individual and system-level risk factors and health implications of poor linkage and retention in HIV medical care.

DR. MUGAVERO: The cases today illustrate certain individual factors that predispose individuals to have worse linkage and retention in care. These include

younger age, lack of insurance, racial and ethnic minorities, and unmet needs for mental health and substance use and other supportive services.

At a system level, key features included things like active referral for care, shortening the time window from when someone tests positive to their first medical care visit, and then also we saw the health implication. Poor linkage and retention in medical care influenced not just individual health in terms of disease progression and mortality, but also the critical role it plays for population health and public health. In this era of treatment as prevention, linkage and retention in care are critical pieces if we are going to improve and reduce the number of new infections occurring in the US.

MR. BUSKER: The best evidence-based interventions to promote linkage into and subsequent retention in HIV medical care.

DR. MUGAVERO: As we discussed in our cases today, very few interventions have currently been tested for linkage and retention in care, although much research is ongoing and this will certainly change in the coming years. But as of right now, the best evidence that we have for linkage to care is the CDC's ARTIST, the strength-based linkage case management study; and for retention in care, the intensive outreach interventions and patient navigation intervention.

Again, I think right now, while there is a paucity of evidence, much research is under way, and in the future we're sure to see more interventions, including some that span the entire treatment cascade.

MR. BUSKER: And finally: the key national initiatives and benchmarks for measuring and monitoring HIV care in the US.

DR. MUGAVERO: The large initiatives that have gone forward include the National HIV/AIDS strategy and the IOM report, and also campaigns like the In Care Campaign, focusing more on the service side and the clinic side in terms of quality improvement.

In terms of benchmark, the National AIDS Strategy gives us national targets across the treatment cascade, focusing from serostatus awareness, increasing that to 90%, improving linkage to care to 85% within three months, and improving retention in care to 80% among those who are Ryan White clients.

I think now for the first time we have clear goals, clear benchmarks, and clear targets as well as a strategy for how we are going to measure these things and what we might do to try to improve them.

MR. BUSKER: Dr. Michael Mugavero from the University of Alabama at Birmingham, thank you for participating in this eHIV Review Podcast.

DR. MUGAVERO: Thank you for the opportunity. It's been my pleasure.

MR. BUSKER: This podcast is presented in conjunction with the eHIV Review Newsletter, a peer-reviewed, CME certified literature review e-mailed monthly to clinicians treating patients with HIV.

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Thank you for listening.

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