



**NCHTEC**  
North Carolina HIV Training & Education Center  
at the UNC School of Medicine

# CORRECTIONS TOOLKIT

Transitional Care Coordination Model  
Supplemental Learning Materials



**“GIVE MORE THAN YOU  
TAKE, BE RESPECTFUL, AND  
ALWAYS KEEP IN MIND THAT  
YOU’RE A GUEST IN THE  
JAIL.”**

**KATHY NORCOTT**

EXECUTIVE DIRECTOR  
PIEDMONT HEALTH SERVICES & SICKLE CELL AGENCY

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# WELCOME



## **Christopher Hurt MD, FIDSA**

**Director**  
North Carolina HIV Training &  
Education Center  
(NCHTEC)

In 2019, the Southeast AIDS Education and Training Center (SE AETC) commissioned each of its state partner sites to develop specialized toolkits addressing aspects of HIV service delivery for communities of color. This work, in fulfillment of the objectives of the Health Resources and Services Administration (HRSA)'s Minority AIDS Initiative (MAI), allowed each partner site to leverage its local expertise to produce resources that could be used across the Southeast region.

SE AETC asked our site, the North Carolina HIV Training & Education Center (NCHTEC) at the University of North Carolina at Chapel Hill (UNC), to address HIV in correctional settings. As you'll discover in reading the next few sections, UNC was particularly well-suited to this mandate. North Carolina (NC) has a long-standing commitment to serving persons with HIV incarcerated in the state's prison system. Through years of collaborative effort with the NC Department of Correction and county-level jail facilities, UNC faculty have carefully studied the HIV care continuum for former inmates re-entering their communities. With support from HRSA's Special Projects of National Significance (SPNS) program and the Centers for Disease Control and Prevention, UNC faculty have led innovative projects to help smooth the process of linkage to community-based care for persons with HIV leaving the state's jails and prisons.

The key message from these studies is that care coordination – involving community-based professionals before release from jail or prison – is critically important. The toolkit you're reading through right now builds upon a highly successful SPNS project conducted in Wake County, NC, Camden, NJ, and Las Vegas, NV to apply lessons learned from prison HIV care coordination to local jails. The team at NCHTEC carefully evaluated the resources from the SPNS project, engaged local experts to provide feedback and context, and created a “wrap-around” set of resources that we hope complements and enhances the work that our colleagues put in creating the Transitional Care Coordination (TCC) model. We are proud of this effort and hope that you find it useful, in your own work.



# SECTION 1:

## Working with Clients Experiencing Incarceration

*Helping persons with HIV in jails and prisons can be a challenging but deeply rewarding experience. Clients carry with them the same concerns that they have in community outpatient settings – such as stigma, intersectional traumas, and concerns about privacy and confidentiality – but they also have to deal with a variety of issues unique to correctional settings. In December 2019, the team from the North Carolina HIV Training & Education Center (NCHTEC) asked Dee Simmons, a CDC Public Health Advisor assigned to work on community transitions for people with HIV in North Carolina’s prison system, to offer her insights.*

Prison releasees are at especially high risk for experiencing disruptions in HIV care as they try to reorient themselves into the community following incarceration. To address the needs of special populations at risk for falling out of HIV care, the North Carolina Department of Health and Human Services (NC DHHS), along with community and academic partners, launched an ambitious effort in 2011 funded by a Special Projects of National Significance (SPNS) award from the Health Resources and Services Administration (HRSA). The project, entitled “NC-LINK: Systems Linkages and Access to HIV Care in North Carolina,” was designed to increase engagement in HIV care by helping clients with HIV get and remain connected to services – with a special focus on persons at greater risk for falling out of care. NC DHHS developed an approach that relied on specially trained

“bridge counselors” to help clients navigate healthcare entry or re-entry for persons with HIV. Informed by key work on HIV in correctional settings from researchers at UNC Chapel Hill, the NC-LINK project paid particular attention to persons in North Carolina’s prison system who were about to be released. Ms. Simmons has been a part of the State Bridge Counselor (SBC) program and helps supervise its activities. What follows are her comments and suggestions for how to work effectively with this key population.

### **Nonjudgemental communication is key**

Key communication skills are important when establishing a client-centered session: open ended questions, active listening, speaking on the client’s level of understanding, and guiding the client through developing a realistic care plan. Often, incarcerated clients view health care providers (clinicians, social workers, Disease Intervention Specialists [DIS], State Bridge Counselors [SBCs]) as one big organization working together, so unfortunately any bad or less desirable encounter may be seen as “systematic.” First impressions are very critical even in jail settings, since rapport is established within seconds-to-minutes. It’s important to the client how they are viewed and valued. This plays a critical role in developing and maintaining client rapport.

Client-centered sessions held prior to release from prison may possibly be the first time that an individual is not feeling judged regarding their HIV status. For some clients this may be the only attention or validation that they ever receive. So, it’s important to address any challenges that the client may have experienced within health care settings in the past.

Confidentiality and privacy are still important matters for incarcerated clients. Health care providers may view incarcerated individuals as clients however often jail staff and personnel view them as inmates who may not be deserving of certain privacy rights. As a result, clients are often hesitant to share information or to provide the best information because of judgement and stigma concerns. It’s important to be clear and direct that shared information will only be used by members of their health care team to ensure that they receive the best possible services while in custody and upon release.

### **Helping clients think ahead**

The immediate days of the post-release process are vital to the overall success of care retention. Many incarcerated clients face their most challenging obstacles shortly after release – and that’s often worse for inmates who had a longer amount of time away from their community support systems. Unstable housing is probably the most important issue for these clients, post-release.

They may use a mailing address or a home address that differs from where they are returning to, so you have to have an open dialogue regarding the best place to find or reach a client – and clearly explain why that locating information is important. If a DIS or SBC is unable to locate the client after they leave prison, we can’t connect them to the resources they need. Keep in mind that upon release (and for a variety of reasons), clients don’t necessarily immediately reengage with their family. So if we don’t have accurate locating information, we wind up spending a lot of time conversing with family members who have not seen the client since they were released and may not be aware that they are back in the community.

Anticipating a client’s needs when they return to the community is an essential part of the work that SBCs do, especially during the client-centered session prior to release. We try to address those

barriers that the client will face within 24-48 hours of discharge from incarceration, including basic needs like food, shower, shelter, clothes, stable housing, and staying alcohol or drug free.

As we're developing a plan of action for release, we ask each client who will assist in meeting those basic immediate needs.

Who is their main contact and support system within 24-48 hours upon release? We also try to find out if the client feels that their support system will change upon release and if so why. Who was the client's support system prior to incarceration?

Transportation will likely be a barrier to retention in HIV care for many clients, especially if they're heading to a more rural area. Often clients only have transportation issues as they relate to medical appointments but can navigate other transportation challenges. Some of this is related directly to stigma they experience about their diagnosis, disclosure concerns, and lack of a support system.

Every client encounter will be different with a unique set of challenges and barriers. Some can

**“The immediate days of the post-release process are vital to the overall success of care retention. Many incarcerated clients face their most challenging obstacles shortly after release – and that’s often worse for inmates who had a longer amount of time away from their community support systems.”**

**DEE SIMMONS**

CDC PUBLIC HEALTH ADVISOR  
DIVISION OF PUBLIC HEALTH, COMMUNICABLE DISEASE BRANCH  
NORTH CAROLINA DEPARTMENT OF HEALTH AND HUMAN SERVICES





## SECTION 2:

### Developing HIV Testing & Linkage-to-Care Programs

*Developing HIV testing and linkage-to-care programs with your local jail is a big challenge, especially if you're starting from scratch. But building such a program is entirely possible provided you have the right groundwork in place. In January 2020, the team from the North Carolina HIV Training & Education Center (NCHTEC) interviewed Kathy Norcott, Executive Director of **Piedmont Health Services and Sickle Cell Agency (PHS&SCA)**, to learn about how her organization built one of the state's most successful and enduring jail-focused HIV programs.*

PHS&SCA was established in 1970 in Greensboro to help with managing the health needs of people in the community living with sickle cell disease. As the home of two of the state's historically Black colleges and universities (HBCUs), [NC Agricultural & Technical State University](#) and [Bennett College](#), Greensboro sees an influx of thousands of young Black adults each year, many of whom are living with sickle cell themselves. HIV testing, counseling, and case management were natural extensions of the services PHS&SCA was offering, since some clients had acquired HIV through receipt of blood products before antibody testing of the blood supply was instituted. By 1992, the agency had begun peer education with young clients and their siblings on HIV prevention, and this program as subsequently extended to local Boy Scout and Girl Scout troops. In 1996, PHS&SCA's activities caught the attention of the newly formed Guilford County Minority AIDS Task Force, which asked the agency to take over prevention and outreach activities for the community.



To address the task force’s goals, PHS&SCA created the Street Community Outreach Prevention Education (SCOPE) program. SCOPE was focused on engaging persons in substance use treatment, and PHS&SCA adopted a peer educator model for the program, recruiting persons who were either in recovery themselves or who otherwise had practical knowledge of the challenges faced by people using drugs. SCOPE wasn’t just limited to HIV testing and prevention, however; PHS&SCA adapted its programming to address vocational rehabilitation and rebuilding bonds with family members, too.



Through these various programs, PHS&SCA became a known, trusted entity in the community and was able to leverage the goodwill offered to the agency to push the envelope a little further. Unlike most other counties in North Carolina, Guilford County has two significant metro areas within it: Greensboro and High Point. Because of that, the county has two jails – a distinction that further sets Guilford apart. Despite being fairly politically conservative, Guilford County’s sheriff in the mid-to-late 1990s was very progressive in terms of helping inmates develop (or enhance) key life skills that could help them once their sentence was over. He instituted a GED program and allowed for ongoing meetings of Alcoholics Anonymous (AA) and Narcotics Anonymous (NA) in the jails, with the ultimate goal of reducing recidivism.

### **Building new relationships can open new doors**

Because of its established relationships with AA and NA in the community, PHS&SCA was able to successfully approach the sheriff’s office to see about piggy-backing HIV testing and counseling onto substance use recovery programs in the jails. Initially, the sheriff wanted PHS&SCA to interact with clients at the time of arrest, but logistically this wasn’t feasible to do, since persons were arrested at all hours of the day. Instead, the agency worked carefully and transparently with the sheriff’s office to come up with a plan for service delivery that was predictable and reliable.

Personnel with PHS&SCA underwent the necessary background checks to become “volunteers of the jail,” and worked with the sheriff’s department to complete necessary safety and procedural training to venture inside the jails (on a supervised basis). At sessions of the substance use recovery groups, educators signed inmates up for testing and counseling sessions to take place at designated times. This reduced the frequency with which inmates had to be let out and escorted within the jail – which in turn alleviated burdens on the corrections officers and improved their perception of this new program.

### **Consider ways your presence can add value**

Education and training wasn’t just for the inmates, however. PHS&SCA offered education for corrections officers working in the jail to help them understand how they could (or could not) get HIV and also for nursing staff working on medical units in the jails, to assist with ongoing professional education needs. As Ms. Norcott emphasized, “They have to understand what you’re doing and why you’re doing it.” Supporting ongoing education is a way of giving more than is taken – and it’s an ongoing effort, given the high turnover rate of officers and nurses in the jail system.

Under jail protocols, anyone held for 10 days without making bond is required to undergo a physical examination. PHS&SCA personnel were able to find a way to assist with this aspect of care, too – since they had phlebotomists experienced with “difficult sticks” among folks in the community whose veins were damaged from injection drug use. This contribution – another example of giving more than was taken – helped support the overall mission of the medical unit in the jail and helped contribute to a sense of mutual respect and teamwork.

Two agency personnel are funded through grant mechanisms channeled from CDC through the state DHHS to Guilford County, and are working each day of the week from 7AM until 11AM. Blood drawn from inmates for HIV, hepatitis B, hepatitis C, and syphilis testing goes directly to the State Laboratory of Public Health, meaning that there are no additional costs borne by the sheriff’s department. If an inmate is diagnosed with HIV through this testing program, the nursing staff and PHS&SCA personnel assist with developing a linkage-to-care plan. If the next destination is a transfer into the state prison system, arrangements are made for a warm hand-off to the medical team with the NC Department of Correction. If the inmate will be released back to the community, the PHS&SCA team places a referral to a social worker with the Guilford County Health Department, who then coordinates with case management teams at the Regional Center for Infectious Diseases at Cone Health and/or the Triad Health Project, the area’s largest AIDS service organization. In the 2019 fiscal year, testing through PHS&SCA helped 12 people identify that they were living with HIV, the majority of whom were tested in one of Guilford County’s jails.

In many ways, the most important aspect of PHS&SCA’s work in the jails was getting the buy-in of the sheriff himself. Such a top-down approach meant that the entire “chain of command” understood that the presence of the SCOPE team members was prioritized by the sheriff himself, and there was not as much pushback from corrections officers in the jails. Secondly, personnel from the agency became recognizable by county law enforcement officers and were able to offer more robust street outreach services without getting pulled over or questioned as often by

**“Three themes emerged pretty quickly: give more than you take, be respectful, and always keep in mind that you’re a guest in the jail.”**

**KATHY NORCOTT**  
EXECUTIVE DIRECTOR

PIEDMONT HEALTH SERVICES & SICKLE CELL AGENCY



## ADVICE

What advice would Ms. Norcott give to an organization just starting this process? “Respect. Respect the jail. Respect where they are. Have a conversation at the outset to lay out what you’re doing and can offer.” She also encourages agencies to try to match up personnel who can do well working in a jail setting, in order to minimize the chance that feathers will get ruffled. “Pick personnel who will feel comfortable enough fielding questions from inmates and from corrections officers, and who can engage clients and colleagues in a factual but matter-of-fact way.”



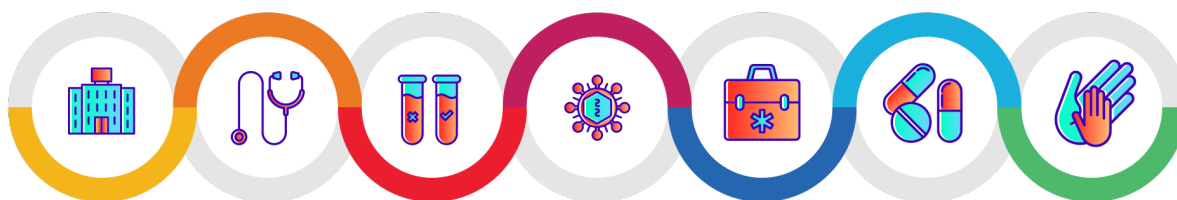
## SECTION 3:

### Taking Over an Existing Program

*Thinking about taking over an existing HIV program in a correctional facility? It may not be as daunting as starting from scratch, but it still requires some careful planning and attention to detail. In February 2020, the team from the North Carolina HIV Training & Education Center (NCHTEC) interviewed Becky White, MD, MPH, Associate Professor of Medicine with UNC Chapel Hill's Division of Infectious Diseases and Co-Director of HIV Services for the NC Department of Correction, to learn about the process of "inheriting" a program.*

In contrast to many other states, North Carolina decided to centralize its medical service delivery for correctional facilities rather than outsource to community providers, a move that was projected to save on healthcare costs in the long run. To that end, the NC General Assembly authorized the construction of two dedicated facilities in Raleigh, on the campuses of Central Prison and the NC Correctional Institution for Women (NCCIW), respectively. The medical complex at Central, opened in 2011, is a 5-story facility with 120 medical/surgical inpatient beds and an additional 216 beds for mental health service delivery. NCCIW's facility, opened in 2012, is a 3-story building with a 300-bed capacity for both medical and psychiatric care. Not all of the prisoners seen at these complexes are housed at Central Prison or NCCIW, however. Inmates under the supervision of the NCDOC who require primary or specialty care are transported from other correctional institutions around the state to Central or Women's for ambulatory visits or inpatient care, depending on the level of need.

But bringing a prisoner to an outpatient HIV clinic visit in Raleigh isn't an easy thing to do in a state as wide as North Carolina is, and moving inmates requires careful orchestration of personnel across facilities. In the absence of a telehealth system (which is in the works as of 2020), prisoners at facilities in the farthest parts of the state may need to be transported over a two-day period, stopping halfway at another NCDOC facility and finishing the trip the following day. Because of security concerns, inmates seen in the outpatient clinics at Central and Women's don't have a set appointment time – and often aren't necessarily aware they'll be making the trek to Raleigh at all, until the day they are moved. All ambulatory clinic visits are first-come, first-served, and so depending on the day, the wait may be a long one for patients. Some prisoners may see different specialists during one trip, which requires additional planning (and longer waits). That waiting has a variety of implications for the inmates themselves, since if they're away from their bunk too long at their "home" prison, they may lose their bunk as well as their personal effects, like eyeglasses and shoes – sometimes permanently. As Dr. White noted during her conversation with NCHTEC, most prisons are strategically located in less densely populated areas – spots that are much less likely to have HIV specialists available locally to care for inmates.



That's where UNC Chapel Hill's Division of Infectious Diseases came in. UNC has provided HIV services at NCDOC facilities in Raleigh since the late 1980s, though its role has changed over time. Early on, fellowship trainees "moonlighted" (worked extra hours) to expand the number of patients that could be seen by the physicians contracted by NCDOC to see its inmates. Initially, two separate teams of providers cared for inmates with HIV, with one in the western half of the state and the other in Raleigh. With NCDOC's consolidation of services at its new medical facilities in the early 2010s, medical provider turnover, and increasing needs for continuity of specialty service delivery with an aging population of prisoners with HIV, UNC took on a greater role. Around 2016, the Division of Infectious Diseases assumed primary responsibilities for HIV care under a contract with NCDOC.

The partnership has been a productive one, over the decades – a symbiosis between an academic institution and a correctional system that has led to innovative research into HIV service delivery for incarcerated populations as well as improvements in the quality of care rendered. The result of this decades-long collaborative work is an evidence-based system of care that ensures the health needs of prisoners with HIV are consistently and comprehensively addressed.

### **Providers must understand the system and its processes**

What exactly does that care look like? Within the first two weeks of entry, NCDOC makes determinations about a prisoner's custody level, their destination within the system, and what the prisoner's physical and mental health needs are. This includes an interview and a physical examination by a health provider – a mandatory step referred to as "processing." All prisoners get tested for HIV, syphilis, and tuberculosis; prisoners assigned female at birth also receive screening for gonorrhea and chlamydia.

For inmates who test positive for a communicable disease, infection prevention nurses in the NCDOC facility deliver post-test counseling and make a referral to a Disease Intervention Specialist with the NC Department of Health and Human Services, who will come in to talk with the client. The majority of inmates who have an existing HIV diagnosis at intake or who are diagnosed at the time of entry into the NCDOC system have contact with an HIV provider during their incarceration. As much as possible, the frequency of follow-up visits matches to general recommendations and community standards of care: check-ups every 3 to 6 months. For prisoners who test HIV negative at entry, retesting occurs every 4 years while incarcerated and again prior to release.

The nurses who conduct post-test counseling are also responsible for a modified form of case management within the prison system, helping to make sure patients are seen on a quarterly or twice-a-year schedule. Inmates with HIV generally get a greater level of health education than many other types of patients. Because prisoners with HIV don't have housing, transportation, or food insecurity issues that many people in the community do, each visit with a nurse or a provider is more streamlined, focusing more on health and less on social work or care coordination needs. Dr. White noted that the social weight attached to an HIV diagnosis doesn't necessarily end at the door to the prison, however. "There's a minority of folks that I see – I think it's a stigma and they haven't accepted it and they don't want to deal with it," she said. Generally, patient visits are one-on-one with the provider. With certain inmates or certain situations, sometimes corrections officers sit in, which impacts patient confidentiality. Still, it is possible to develop longitudinal patient-provider relationships with inmates – and it's something that Dr. White and her colleagues enjoy.

### **Team-based approaches help providers and inmates alike**

HIV medications are not delivered by directly-observed therapy; that's a special designation reserved for narcotics, anti-tuberculosis drugs, and psychiatric medications. Instead, prisoners may keep their medications in a locker or go to a window to have their medications dispensed, though movement between cells and the pharmacy window requires supervision. On the weekend, corrections officers may be responsible for helping to dispense medications, too.

In the run-up to the release of a prisoner with HIV, a variety of care coordination steps occur. The nursing team works with case managers to plan for the release date and ensure that a 30-day supply of HIV medications is available to give to the prisoner. Re-entry to the community from prison has been a longstanding focus of research and quality improvement efforts, and UNC has a team of investigators interested in correctional health.

**“On the days when I’m down,  
I would say that providing care in  
underserved areas – including the prison  
– every last person that has been there,  
they’d say that it really is literally saving**



**BECKY WHITE, MD, MPH**

ASSOCIATE PROFESSOR OF MEDICINE, DIVISION OF INFECTIOUS DISEASES  
CO-DIRECTOR OF HIV SERVICES, NORTH CAROLINA DEPARTMENT OF CORRECTIONS

## **Building relationships takes time and mutual trust**

With all that in mind, what advice would Dr. White give to someone contemplating taking over HIV service programs at a prison? “You need to make sure you have buy-in at all levels,” she told the NCHTEC team. “If you don’t have buy-in at the top, it’s a non-starter.” That requires taking time to meet the different players and learn their respective roles. “Who are your partners? Who are your champions? And in each of these places, there are people who are the go-to people.” It’s also important to embrace team-based approaches to care. “You shouldn’t do it alone,” Dr. White said. “If you’re going to provide care, you should do it as a team. Because the team helps you in more ways than one.” Unlike in the community, if an inmate has an abnormal laboratory test, you can’t just call them up to discuss the follow-up plan. With every intervention, you have to think about what the possible outcomes might be and how you’ll address them, in advance.

The Achilles heel of the team approach is turnover; healthcare workers at the prison move on to new positions fairly frequently, due to a variety of pressures that they experience. For some, the environment is just not a good fit. Newly graduated advanced practice providers (APPs) may take a position at the prison as a first job, and then parlay the experience they acquire into another job after six or nine months. Nurses may work part-time at the prison and part-time at another clinical site, then swap out the prison position for another part-time job somewhere else.

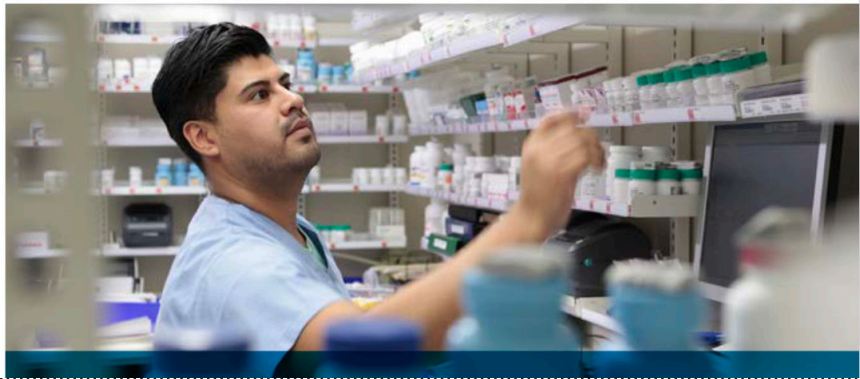
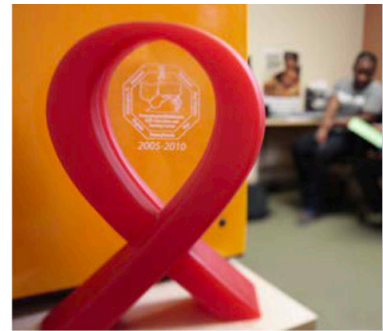
**“If I could do things over, I would be very practical. I would say, ‘Where can I have the most impact, and where do all the stars align?’ I would focus on the places that you feel like you can make an impact.”**

**BECKY WHITE, MD, MPH**

ASSOCIATE PROFESSOR OF MEDICINE, DIVISION OF INFECTIOUS DISEASES  
CO-DIRECTOR OF HIV SERVICES, NORTH CAROLINA DEPARTMENT OF CORRECTIONS

Patience and consistency is important – as well as respecting the boundaries and the rules of the institution. As Dr. White told the NCHTEC team, “Prison is old school. They value people who are going to come to work every day. I get respect because I’m there. I get respect because they see me every day.” Dr. White encourages people to familiarize themselves as much as they can with the “culture” of the correctional facility, as well. Certain things providers or case managers might take for granted in a community setting are totally forbidden inside the prison. For example, “You just don’t sit on the prisoner’s bed. At the hospital, it doesn’t seem like a big deal, but it’s a huge deal in prison.”

In terms of developing programs to help releasees transition back to their communities, Dr. White stressed the importance of identifying workers who can be flexible and can relate to their clients. Repeatedly, she has noted that the best experiences for inmates have happened when “you have people from the outside who actually come in, so there’s continuity of care. One study showed that when anybody from the [community] clinic came, it improved the outcomes.”



## SECTION 4:

### What Is (and Isn't) Covered by Ryan White

*The [Ryan White HIV/AIDS Program \(RWHAP\)](#) is a true safety net, enabling provision of a variety of services for persons with HIV who have no other means of accessing care. If your clinic or agency is receiving RWHAP funding, it's important to know what is (and isn't) allowable. [Policy Clarification Notice \(PCN\) 18-02](#), issued in November 2018, spells this out in detail. The most recent prior version was issued in 2007, so it's unlikely there will be changes anytime soon – but it's a good idea to check [HRSA's Policy Notices and Program Letters](#) periodically, just to be sure.*

We **strongly** encourage you to read the entire PCN, but the most important messages are:

#### **For all work with incarcerated individuals...**

- make sure you can clearly and confidently document that the service you're providing is appropriate for the client's HIV-related care needs and conforms to standards of practice and care set out by RWHAP.
- RWHAP funding may only be used to support incarcerated persons with HIV who are expected to be eligible for RWHAP services upon release.

#### **For persons with HIV in state or federal prison...**

- if 180 days or fewer remain on a client's time in prison, RWHAP-funded core medical and support services can begin working with the client to facilitate the transition from prison back to community HIV care. This 180-day window sounds more flexible in the wording of the PCN than it actually is; try your best to stick to this window.

- any services provided by a RWHAP-funded entity must coordinate with – and strictly avoid duplicating – any services being provided by the state or federal prison. This requires a solid understanding of the services already available and open, clear communication with officials in order to document your role(s) clearly.

### **For persons with HIV in local jails, on parole, or under home detention...**

- there is no clear time restriction on RWHAP-funded core medical and support services, since local correctional systems (jails, parole, home detention) are not required to provide medical services in the same way state and federal prisons are. This is a key distinction between “short-term basis” and “transitional basis” in the PCN’s definitions.
- any services provided by a RWHAP-funded entity must coordinate with the services being provided (if any) by the local correctional system.

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## **The full text of the PCN appears below**

### **HIV/AIDS Bureau Policy Clarification Notice #18-02**

#### ***The Use of Ryan White HIV/AIDS Program Funds for Core Medical Services and Support Services for People Living with HIV Who Are Incarcerated and Justice Involved***

Policy Clarification Notice #18-02

Replaces Policy Notice #07-04

### **Scope of Coverage**

Health Resources and Services Administration (HRSA) HIV/AIDS Bureau (HAB) Ryan White HIV/AIDS Program (RWHAP) Parts A, B, C, and D and Part F, where funding supports direct care and treatment services.

### **Purpose of PCN**

This Policy Clarification Notice (PCN) replaces HRSA HAB policy notice #07-04. The purpose of this PCN is to provide guidance to HRSA RWHAP recipients and subrecipients on the use of program funds to provide HRSA RWHAP core medical services and support services: 1) on a transitional basis to people living with HIV (PLWH) who are incarcerated in Federal and State prison systems; and 2) on a short-term and/or transitional basis to PLWH who are incarcerated in other correctional systems (e.g., local prisons and jails) or under community supervision (e.g., parole or home detention).

### **Background**

State and federal prison systems are generally responsible for providing health care services to all individuals incarcerated in their facilities. Other correctional systems, such as local prisons and jails, may be responsible for providing health care services to all individuals incarcerated in their facilities, and those under community supervision may receive health care services by the program providing community supervision. The RWHAP statute, codified at title XXVI of the Public Health Service Act, stipulates that HRSA RWHAP funds may not be used “for any item or service to the extent that payment has been made, or can reasonably be expected to be made under ... an insurance policy, or under any Federal or State health benefits program...” and other specified payment sources. Thus, local payers, such as local jails, are not subject to the payor of last resort



provision, and HRSA RWHAP may be the primary payor. All short-term and transitional basis services must be coordinated with the HIV care and treatment services the correctional systems are required to provide – which can vary across correctional systems in a jurisdiction.

## **Definitions**

“Incarceration” refers to the involuntary confinement of an individual in connection with an alleged crime. It includes involuntary confinement, either where a sentence has been determined or where the individual is detained pending adjudication of the case, as well as community supervision, such as parole or home detention.

“Transitional basis” refers to the time-limited provision of appropriate core medical and support services for the purpose of ensuring linkage to and continuity of care for incarcerated PLWH that will be eligible for HRSA RWHAP services upon release, when such release is imminent. HRSA HAB defers to recipients/subrecipients for a determination of the time limitation, generally 180 days or fewer.

“Short-term basis” refers to the time-limited provision of core medical and support services that are not prohibited by the statutory payor of last resort requirements. HRSA HAB defers to recipients/subrecipients for a determination of the time limitation. HRSA HAB recognizes that, in some instances, the time limitation will be commensurate with the duration of incarceration.

## **Guidance on Allowable Uses of Ryan White HIV/AIDS Program Funds**

HRSA RWHAP recipients and subrecipients may provide HRSA RWHAP core medical services and support services to PLWH incarcerated in Federal and State prison systems on a transitional basis only. The nature of these services must be defined by HRSA RWHAP recipients and subrecipients in collaboration with the Federal or State prison system. Additionally, HRSA RWHAP recipients’ and subrecipients’ definitions of transitional services must be based on the HIV-related needs and anticipated release date of the incarcerated person.

HRSA RWHAP recipients and subrecipients may also provide HRSA RWHAP core medical services and support services to PLWH incarcerated in other correctional systems including those under community supervision on a short-term and/or transitional basis. The nature of these services must be defined by HRSA RWHAP recipients and subrecipients in collaboration with the correctional institution to ensure there is no duplication of services. If RWHAP core medical services and support services are provided on a short-term basis, HRSA HAB recommends that recipients and subrecipients also provide services on a transitional basis.

HRSA RWHAP funds are intended to support only the HIV-related needs of eligible individuals. To be an HRSA RWHAP allowable cost, HRSA RWHAP recipients and subrecipients must be able to make an explicit connection between any service supported with HRSA RWHAP funds and the HIV care and treatment of the incarcerated person and must adhere to established HIV clinical practice standards consistent with U.S. Department of Health and Human Services’ Clinical Guidelines for the Treatment of HIV. See [HRSA HAB PCN #16-02, Ryan White HIV/AIDS Services: Eligible Individuals and Allowable Use of Funds](#).

HRSA RWHAP funding may only be used to support PLWH who are incarcerated and expected to be eligible for HRSA RWHAP services upon their release.

## **Unallowable Uses**

The HRSA RWHAP generally cannot pay for services for which payment has been made or can reasonably be expected to be made by Federal or State sources. HRSA RWHAP recipients and subrecipients cannot use HRSA RWHAP funds to pay for HRSA RWHAP core medical services and support services provided to PLWH in Federal or State prison systems on a short-term basis, because such services are generally provided by the Federal and State prison systems. Similarly, if Federal and State prison systems provide services that are equivalent to HRSA RWHAP core medical services and support services to PLWH on a transitional basis, the HRSA RWHAP cannot pay for these services.

HRSA RWHAP recipients and subrecipients cannot use HRSA RWHAP funds to pay duplicatively for HRSA RWHAP core medical services and support services provided to PLWH in other correctional systems or subject to community supervision programs, if these services are provided by the other correctional system or community supervision program. HRSA RWHAP funds cannot pay for services for incarcerated persons who retain private, State or Federal health benefits during the period of their incarceration.

## **Additional Expectations**

**Familiarity with Federal and State Prison Systems, Other Correctional Systems, and Community Supervision Programs:** HRSA RWHAP recipients and subrecipients should become familiar with Federal and State prison systems, other correctional systems, and community supervision programs and the established pre-release procedures applicable to these systems to the extent they wish to provide HRSA RWHAP core medical services and support services to PLWH, as described in this policy. HRSA RWHAP recipients and subrecipients should work with the appropriate corrections administrators and staff to determine:

1. What health services are legally expected to be provided within the correctional system;
2. How, and whether, the correctional system addresses the transitional needs of PLWH who are incarcerated, including: discharge planning, continuity of treatment, and community linkages, and;
3. What services will be provided with the HRSA RWHAP funds.

**Communication:** HRSA RWHAP recipients and subrecipients must ensure communication between the correctional system, the recipient or subrecipient, and/or qualified provider is in compliance with all applicable laws and regulations regarding privacy.

HRSA RWHAP recipients and subrecipients that provide RWHAP core medical services and support services to eligible incarcerated PLWH should establish clear expectations with the correctional system administrators and staff regarding communication of release dates to ensure continuity of care for newly released eligible PLWH. Specifically, recipients should know what services are provided in the correctional system and who is delivering them to ensure compliance with the RWHAP statutory payor of last resort requirements and to ensure there is no duplication of effort.

## **Effective Date**

This PCN is effective for RWHAP Parts A, B, C, D awards issued on or after November 30, 2018. This includes competing continuations, new awards, and non-competing continuations.



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# SECTION 5:

## HIV & Corrections

The Southeast AIDS Education & Training Center (SE AETC) commissioned the North Carolina HIV Training & Education Center (NCHTEC) to create a toolkit for HIV in correctional settings, in 2019. After consulting with local content experts and carefully evaluating available resources, the NCHTEC team created a set of training modules on specific aspects of HIV care, designed to augment and complement the resources created in support of the [Transitional Care Coordination \(TCC\) model](#), under a Special Projects of National Significance (SPNS) initiative.

On the following pages, you'll find PowerPoint slide thumbnails and accompanying "scripts," intended to help guide you through each module. All content was peer-reviewed for accuracy and completeness, and references and citations are included as appropriate.

As always, if you would like assistance in providing training or developing programs related to the care of people with HIV or at risk of infection, please reach out to your state's AETC site. Each of these programs is a federally-funded entity with the mission of supporting the training and technical assistance needs of professionals like you who are engaged in HIV prevention and/or treatment. You can learn more about the history, scope, and mission of AETC programs by visiting the AETC National Coordinating Resource Center at <https://aidsetc.org/>.

# MODULE A:

## UNDERSTANDING THE BASICS OF HIV

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### OBJECTIVES

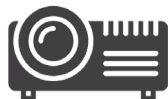
- 1) Define key terms related to the care of people with human immunodeficiency virus (HIV).
- 2) Explain how HIV is transmitted from person to person.
- 3) Describe why certain types of sexual activity place someone at greater risk for acquiring HIV.
- 4) List ways in which HIV transmission can be prevented.

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### MATERIALS NEEDED



POWERPOINT



PROJECTOR



HANDOUTS

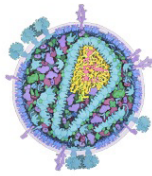
# SLIDE #5



## Defining key terms

### Human immunodeficiency virus (HIV)

Retrovirus that attacks the immune system



### CD4 T lymphocyte (AKA “T helper” cell)

- Orchestrates the immune system’s function
- HIV hijacks CD4 cells and then kills them off
- A normal CD4 count is around 1000 (range, 500-1500)

### Acquired immune deficiency syndrome (AIDS)

- Clinical term describing when CD4 counts fall to 200 or less
- If CD4 counts rise over 200, a patient no longer has AIDS
- Not all people living with HIV have AIDS



Image by David S. Goodsell, 2016  
<http://hive.scripps.edu/resources.html>

**HIV:** HIV stands for human immunodeficiency virus. Retroviruses like HIV are a special kind of virus that becomes a part of the host’s genome as part of its life cycle. We’ll learn about that life cycle later on.

**CD4 T lymphocyte:** Inside the body, HIV attaches only to cells that have a specific protein molecule on their surface, called a CD4 receptor. That CD4 molecule is found on cells we call “T helper” cells, which are important in regulating the function of our immune system. HIV infects those cells, hijacks their machinery to make copies of itself, spreads to other “CD4-positive” cells, and eventually kills them off.

**AIDS:** AIDS stands for acquired immune deficiency syndrome, and it describes when someone’s CD4 T cell count has fallen to 200 or less. Without CD4 cells to help regulate or orchestrate the immune system, people with HIV are at risk for unusual infections and some kinds of cancer. But it’s important to know that having AIDS is not permanent – it’s reversible. For someone with AIDS who starts taking HIV medications, their CD4 count almost always improves over time. Once their CD4 count rises over 200, they no longer have AIDS – they just have HIV. Not everyone with HIV has AIDS; AIDS just refers to very advanced disease related to HIV infection.

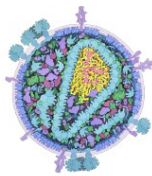
# SLIDE #6



## Defining key terms (2)

### Viral load

The number of copies of HIV genetic material (HIV RNA) in a volume of blood



### Antiretroviral (ARV)

- A medication used to treat HIV
- Combinations of ARVs are called antiretroviral therapy (ART)

### Adherence

- How consistently someone takes their meds
- Replaces the term “compliance”



Image by David S. Goodsell, 2016  
<http://hive.scripps.edu/resources.html>

**Viral load:** Each copy of the virus has a single strand of RNA (the virus’s genetic material) inside it. So we can measure the amount of virus present in someone’s blood by counting the number of strands of HIV RNA. This is called a “viral load.”

**Antiretroviral:** An antiretroviral, or ARV for short, is any medication used to treat HIV. Providers use combinations of medications together, and those combinations are called “antiretroviral therapy” or ART.

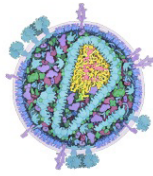
**Adherence:** In the past, providers used to describe someone who didn’t take their HIV

medications consistently as a “non-compliant” patient – someone who wasn’t “complying” with the treatment plan. Over time, most HIV providers have replaced “compliance” with “adherence” or “non-adherence,” describing someone who is (or isn’t) “adhering” to a treatment plan.

# SLIDE #7



## Defining key terms (3)



### Undetectable

- When the viral load (HIV RNA) is so low that blood tests can't detect it
- Occurs when a patient has good adherence to their ARVs
- Being undetectable is **not** the same as being cured

### Person with HIV

- Replaces "HIV+" or "HIV-infected"
- Sometimes written as "person living with HIV" (PLWHIV)



Image by David S. Goodsell, 2016  
<http://hive.scripps.edu/resources.html>

Undetectable: When we say a person with HIV is "undetectable," it means that they're taking their HIV medications consistently enough that the virus isn't really replicating in the body. It's important to know that being undetectable depends entirely on adhering to their antiretroviral therapy; if someone stops taking their medications, their viral load will become detectable again – usually within a week or so of stopping their medications. So being undetectable is *\*not\** the same thing as being cured of HIV.

Person with HIV: We're all used to hearing "HIV positive" as a way of describing someone who acquired HIV in their lifetime. But gradually that term has been replaced with "people-first" language – describing a person as a person, not as a disease – and the preferred term is "person with HIV".

# SLIDE #8



## How is HIV transmitted?

The virus can pass from person to person **only if**



**containing HIV** comes into **direct** contact with



<https://www.cdc.gov/hiv/basics/transmission.html>  
Skin image: [https://commons.wikimedia.org/wiki/File:Abrasion\\_on\\_hand\\_20050906.jpg](https://commons.wikimedia.org/wiki/File:Abrasion_on_hand_20050906.jpg)

Now let's talk about how HIV is (and is not) passed from person to person.

HIV can pass from person to person only if blood, semen, vaginal fluid, or breast milk containing the virus comes into direct contact with a mucosal surface, non-intact skin, or the bloodstream of someone else.

Mucosal surfaces can be found in the eye, the mouth, the vagina, and the rectum. "Regular" skin, like on the back of your hand, is a good barrier against infectious agents – provided that the skin is healthy and intact. Skin that is chapped or has cuts, scratches, or abrasions is not as reliable a barrier. Direct contact with the bloodstream really

only happens with healthcare workers who sustain a needlestick injury or with people who inject drugs who are sharing needles, syringes or other paraphernalia used for preparing, "cooking," or injecting. Tattoos that are not done professionally can also potentially be a risk for HIV transmission, but it's considered a low risk compared to other types of exposures.

*Side note: in the Georgia Department of Corrections study that described risk factors for transmission among continuously incarcerated inmates, subsequent analyses showed that most of the cases who identified tattooing as their risk also endorsed having sex with other male inmates – so the risk attributable to tattooing can't be easily separated from the risk of acquiring HIV sexually. For more information on that additional analysis, see: Jafa K, et al. HIV transmission in a state prison system, 1988-2005. PLoS One. 2009;4(5):e5416. Available for free at: <https://dx.plos.org/10.1371/journal.pone.0005416>*

## SLIDE #9



### How is HIV not transmitted?

The virus is **NOT** transmitted through



Air or water



Sweat, saliva, tears



Urine



animals



insect or tick bites



shared utensils



shared toilets



<https://www.cdc.gov/hiv/basics/transmission.html>

We know with certainty that none of the exposures listed here are capable of transmitting HIV from person to person. HIV can't be spread through air or water. Sweat, tears, and saliva –fluids that someone might encounter in day-to-day exposures with other people –are not considered infectious. The same is true for urine. There are no animal hosts that can carry HIV from person to person (even chimpanzees), and the same is true for insects and ticks. It's not possible to acquire HIV from sharing cups, plates, or eating utensils with someone with HIV –and you cannot get HIV from sharing toilets, doorknobs, or other inanimate surfaces.

*Side note: Some people ask about the potential infectiousness of pre-seminal or pre-ejaculatory fluid (“pre-come”), in the context of foreplay or before a condom is applied. HIV DNA (that is, in its “proviral” form, integrated into a lymphocyte) can be detected in pre-ejaculatory fluid, but the significance of “cell-associated” HIV in transmission of the virus is an area of long-standing debate. We know that men who are undetectable on antiretroviral therapy do not have HIV DNA detectable in pre-ejaculatory fluid. Generally, the advice should be to use barrier methods to prevent contact with any genital fluid –including pre-ejaculatory fluid –if the HIV status of the “source” of the fluid is unknown or they are not yet undetectable on therapy.*

## SLIDE #10



### How is HIV not transmitted? (2)

The virus is **NOT** transmitted through



condomless sex with people with HIV **IF** they take antiretroviral medications consistently **AND** their viral load is “undetectable”

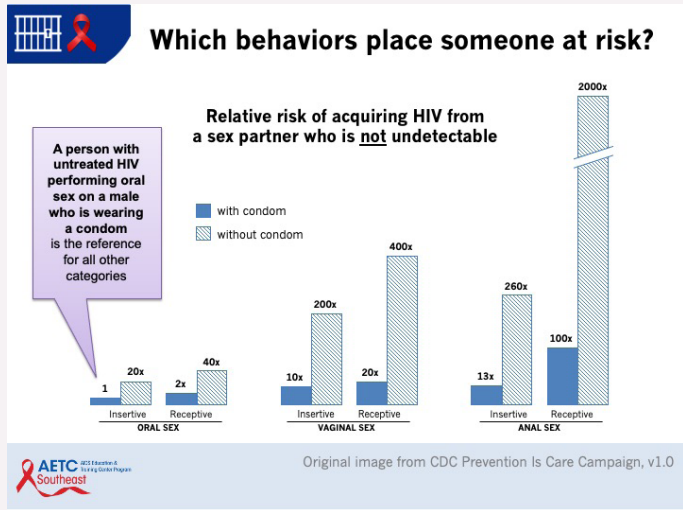


<https://www.cdc.gov/hiv/basics/transmission.html>  
Image: <https://www.sfaf.org/collections/beta/start-and-continue-hiv-meds-as-soon-as-you-can/>

Finally, we know that HIV cannot be transmitted through condomless sex with someone with HIV if their viral load is undetectable. This is true for sex between men and women and sex between men, and it has been definitively proven through a series of very large studies conducted all over the world. This concept was originally called “treatment as prevention” but now most people refer to it as “undetectable equals untransmittable” or “U equals U.”

*Side note: for a summary of the evidence supporting U=U, the Prevention Access Campaign is an excellent resource.*  
<https://www.preventionaccess.org>

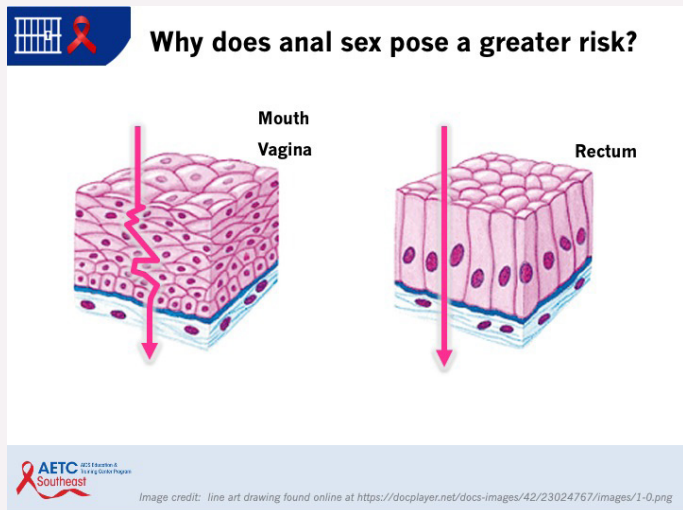
# SLIDE #11



This bar chart, adapted from the CDC, shows the relative risk of acquiring HIV from a sex partner who is not yet undetectable on antiretroviral therapy. The solid bars show the risk with a condom, and the bars with diagonal cross-hatching show the risk without a condom. The category to which all the others are compared is the risk to a man of acquiring HIV from someone who is performing oral sex on him, without a condom. Everything else is presented relative to that risk. We can see that, across the board, the risk is higher with condomless sex –and the risk is greater if you’re the receptive partner for any of these kinds of sex. Receptive anal sex –regardless if you’re biologically male or female –is by far the greatest risk for acquiring HIV through sex.

Why is that?

# SLIDE #12



These drawings show what you’d see under a microscope, if you were looking at the lining of the rectum (on the right) and the linings of the mouth or the vagina (on the left). The lining of the mouth and the vagina is much more complex. It’s tougher to break through all of those layers to get inside the body. That’s very different from the lining of the rectum, which is more fragile. For a virus to make its way inside the body, it just has to find its way down between those columns of cells. Keep in mind that anything that disrupts the normal way all of these cells fit together may increase the risk of acquiring HIV. Certain sexually transmitted infections (like herpes or syphilis) can cause ulcers to form in these linings. Rough sex, sex without adequate lubrication, or sex under the influence of drugs or alcohol can

also result in microscopic damage to these linings, too.  
Image credit: line art drawing found online at:

<https://docplayer.net/docs-images/42/23024767/images/1-0.png>



# SLIDE #13



## How is HIV transmission prevented?

If you're HIV-uninfected...

- Abstain from sex
- Use condoms consistently
- Never share needles or "works"
- Talk with all sex and drug-using partners about their HIV status
- Use pre-exposure prophylaxis (PrEP) exactly as directed
- Use post-exposure prophylaxis (PEP) in emergencies
- Get tested for HIV & STIs regularly

If you're living with HIV...

- Abstain from sex
- Use condoms consistently
- Never share needles or "works"
- Talk with all sex and drug-using partners about your HIV status
- Take antiretroviral medications consistently
- Get tested for STIs regularly



<https://www.cdc.gov/hiv/basics/transmission.html>

Now that we've talked about what the risks are for acquiring HIV through sex, let's talk about some ways people can keep themselves from acquiring HIV.

For people that do not have HIV, the only way to avoid HIV with certainty is to not have sex and not share equipment used to inject drugs. For people who are sexually active, using condoms consistently with all sex partners (and limiting your number of sex partners) greatly reduces the likelihood of acquiring HIV and other sexually transmitted infections. It's also important to have discussions with sex partners about their HIV status (and your own status) and to make sure you're both as informed as you can be about the risk of HIV through sex.

Pre-exposure prophylaxis, or "PrEP," is a proven way to reduce the risk of acquiring HIV. If you consistently take a single tablet of HIV medications once a day, it can reduce the risk of acquiring HIV by as much as 90-100%. Generally we recommend people use PrEP in conjunction with other risk-reduction strategies like condoms and limiting their number of sex partners. In emergency situations, like when a condom breaks or following a sexual assault, you can take post-exposure prophylaxis, or "PEP," and this will help keep you from developing HIV if you've been exposed.

And for everyone, we recommend getting regular testing for HIV and other sexually transmitted infections.

If you're someone who already has HIV, then a lot of these same methods will help keep you from passing the virus on to others. Taking antiretroviral medications consistently can render you non-infectious to others – that's the "U equals U" concept we talked about earlier. And you should get tested for sexually transmitted infections regularly, since these can increase the likelihood of passing HIV to others.

# SLIDE #14



## What can I do if I've been exposed?

If you've had a meaningful HIV exposure...



You have **72 hours** to start 3-drug, emergency anti-HIV treatment (post-exposure prophylaxis, PEP)



Dominguez KL, et al. CDC nPEP Guidelines 2016. <https://stacks.cdc.gov/view/cdc/38856>

Just one additional word about post-exposure prophylaxis, or PEP.

There is a 72-hour window to start these emergency medications, following a meaningful exposure to HIV. Beyond that period of time, there's no evidence that starting PEP will keep you from developing HIV, if you've been infected from whatever exposure you had.

Most experts feel that the "bar" for what constitutes a meaningful exposure to HIV involves either a condom break during sex or condomless sex with a partner who has HIV or with someone whose status you don't know. If you've had a needlestick injury from someone (in a healthcare setting or in a

community setting), that may also put you at risk for HIV and other bloodborne infections. Consulting with an HIV or infectious disease specialist is usually a good idea if you've had an exposure and you're not sure if you should take PEP or not.

# MODULE B:

## UNDERSTANDING THE US EPIDEMIC

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### OBJECTIVES

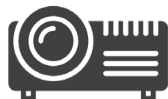
- 1) Describe recent trends in the number of new HIV infections in the United States.
- 2) List some social and behavioral characteristics of key populations at risk for acquiring HIV.
- 3) Compare and contrast HIV statistics among prisoners and the general population.
- 4) Explain some of the factors contributing to HIV prevalence among persons in jails and prisons.

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### MATERIALS NEEDED



POWERPOINT

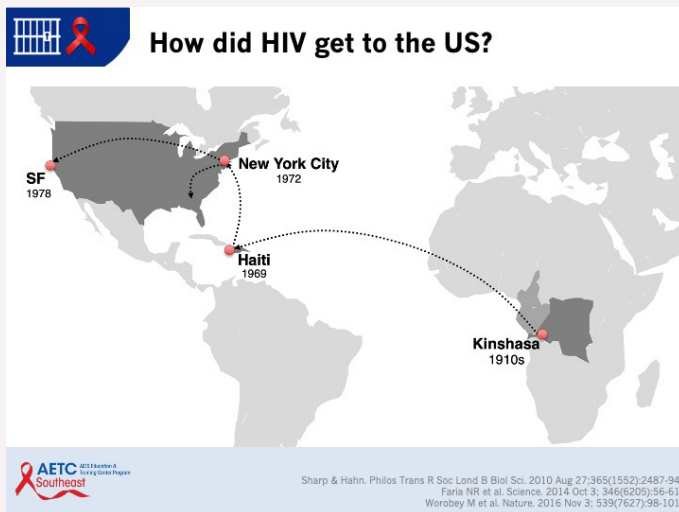


PROJECTOR



HANDOUTS

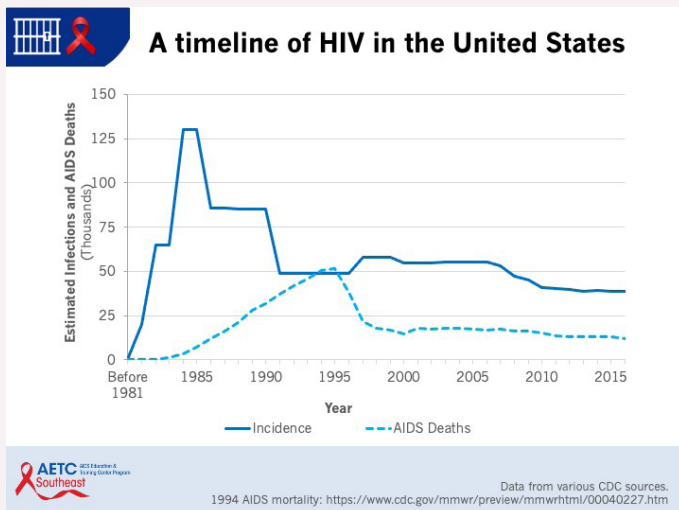
# SLIDE #5



Through detailed studies of virus specimens collected over many years, we know that HIV jumped into humans in the early 1900s in the area of western Africa between Cameroon and the Congo. Hunters who caught and butchered chimpanzees acquired a retrovirus that had been circulating among chimps, and because humans and chimpanzees are genetically similar, the virus was able to survive in people. With international commerce, HIV was able to spread throughout Africa, and then to Europe in the 1960s, Haiti by 1969, and the United States after that. The earliest case of a death attributable to HIV occurred in Congo in 1959.

*Side note: the earliest documented case in the United States was of Robert Rayford, a 16-year old man who died in St. Louis, Missouri in 1968. Very little is known about Robert Rayford's life or how he acquired HIV – but careful studies of tissues preserved after he died showed that HIV was present, and complications of AIDS were responsible for his death.*

# SLIDE #6



This graph shows the estimated numbers of new HIV infections and deaths from AIDS in the United States, over time.

Following the solid line across, we can see that the peak number of new infections occurred around 1985, followed by a decline through around 1990. Effective combination therapy for HIV wasn't available until 1996, so this decline is attributable to community-driven efforts among gay men and injection drug users, public education, and dramatically increased use of condoms.

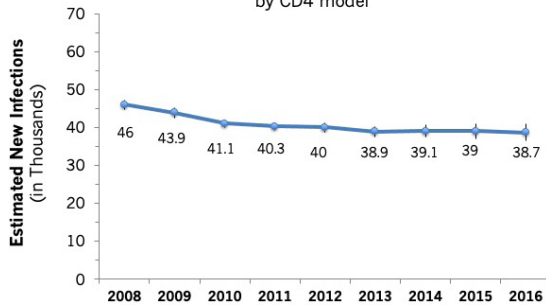
The dashed line shows deaths attributable to AIDS. Between 1981 and 1994, this number rose steadily – in fact, by 1994, HIV was the leading cause of death among \*all Americans\* aged 25-44. In 1995, the first effective treatment regimens were identified through clinical research studies, and by 1996 these new treatments were widely available. This led to a steep drop-off in the number of deaths attributable to HIV between 1995 and 2000.

# SLIDE #7



## How many infections occur each year?

HIV incidence in United States, 2008-2016  
by CD4 model



Hall HI et al. JMMR Public Health Surveill 2017 Feb 3;3(1):e8.  
Satcher Johnson A et al. JAIDS 2017 Oct 1;76(2):116-22  
CDC. HIV Surveillance Suppl Rep 2019;24(1).

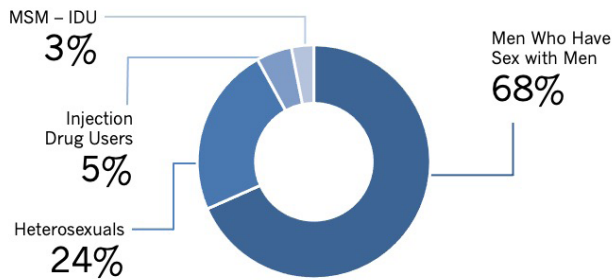
If we zoom in on the tail end of the previous graph, we can see that the number of new HIV infections has remained relatively stable at around 40,000 infections per year in the United States. This statistic – the number of new cases over time – is called “HIV incidence” or the “incidence rate.”

# SLIDE #8



## Who is acquiring HIV?

Estimated new infections by transmission category, 2016



CDC. HIV Surveillance Suppl Rep 2019;24(1).

Who are those 40,000 people who acquire HIV each year?

In 2016, the majority (68%) of incident HIV infections were among cisgender men who have sex with men, or “MSM” for short. Cisgender means someone identifies their gender as the sex they were assigned at birth, while transgender means that someone was assigned a sex at birth but they identify as the opposite gender. We’ll talk about why MSM and transgender women are at disproportionately high risk for acquiring HIV a little later.

About a quarter of all new infections occur among cisgender heterosexual men and women, and

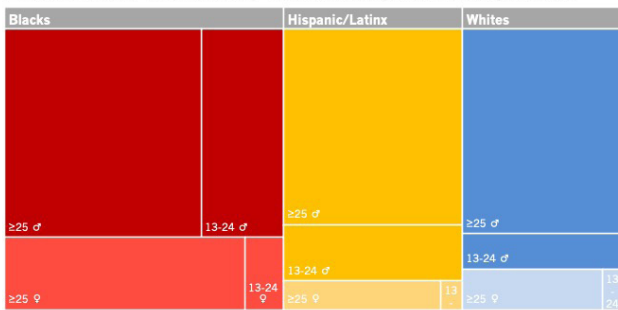
about 8% are attributable to injection drug use in some way.

# SLIDE #9



## Who is acquiring HIV?

Estimated new infections by race/ethnicity, sex, and age, 2016



CDC. HIV Surveillance Suppl Rep 2019;24(1).

In 2016, it's estimated that about one in five new infections (21%) occurred among Americans aged 13-24.

This diagram looks a little complicated, but it shows you at a glance who is acquiring HIV, based on race or ethnicity, sex and age. The darker shades at the top of each group are males, the lighter shades at the bottom of each group are females. The size of each box is proportional to the number of people infected.

So what we can see is that the majority of all new infections are occurring in communities of color (in red and yellow shades), with the greatest numbers occurring among Blacks or African Americans. Although women make up a smaller proportion of new infections across the board, Black women are disproportionately burdened, compared to Latina or White women.

# SLIDE #10



## How do incarcerated populations compare?

HIV transmission **can** occur in prison settings but is **very rare**.

### Factors associated with acquiring HIV during incarceration in Georgia Dept. of Corrections, 2005 (n=68)

- Any male-male sex in prison
- Received a tattoo in prison
- Body mass index at entry ≤25.4 (a "normal" weight)
- Black race

### Considering 10,000 male inmates over a 1-year period...

<p><b>8</b></p> <p><b>infections</b></p> <p>may occur among those <b>continuously incarcerated</b></p> <p><small>(0.08 per 100P<sup>yr</sup>)</small></p>	<p><b>292</b></p> <p><b>infections</b></p> <p>may occur among those <b>released and reincarcerated</b></p> <p><small>(2.92 per 100P<sup>yr</sup>)</small></p>
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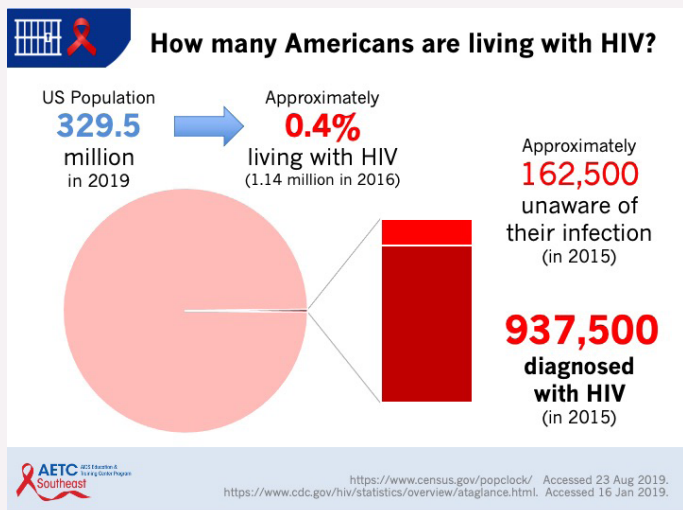
Gough E, et al. BMC Public Health. 2010 Dec 21;10:777  
Taussig J, et al. MMWR. 2006 Apr 21;55(15):421-6

sex between men, receiving a tattoo, having a "normal" body mass index at entry to prison, and being Black or African American.

A separate group of researchers used the Georgia data and other resources to calculate that one might expect 8 HIV infections among 10,000 male inmates continuously incarcerated for one year – a very low number overall compared to 292 infections among 10,000 male inmates who were released and reincarcerated.

What's are the take-home messages from these data? First, HIV transmission in prison is a very rare event – and could be completely eliminated if inmates know their HIV status and have access to HIV medications while in prison. (Side note: access to condoms in prison is a thorny topic that people have strong feelings about, both for and against. Be cautious about bringing this up with corrections officials or providers.) Second, the risk of acquiring HIV upon release from prison is 36 times greater than the risk of acquiring HIV in prison – so taking steps to help at-risk, HIV-negative inmates stay HIV-negative after release from prison is important.

# SLIDE #11



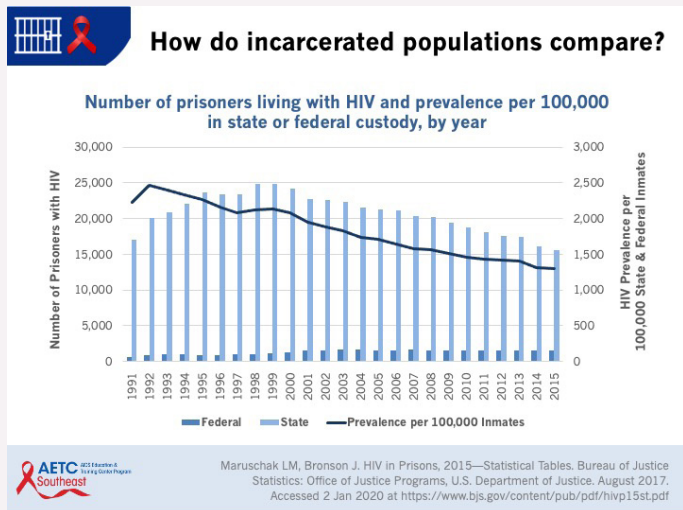
Let’s shift gears from talking about HIV incidence (the number of new infections over time) to talk about the number of people living with HIV in the U.S – a statistic called the “HIV prevalence.”

Using a variety of data sources, the CDC estimates that there were around 1.14 million Americans living with HIV as of 2016, which equates to about 0.4% of the country’s population.

Not everyone living with HIV knows they are infected, however – so this prevalence estimate includes both the 937,000 Americans diagnosed with HIV and the 162,000 people who have HIV but have not yet been diagnosed. This

group of “infected but unaware” individuals is a major problem in public health, because they may unknowingly be placing others at risk for acquiring HIV.

# SLIDE #12



What about incarcerated populations?

We really don’t know anything about HIV prevalence among persons in jails in the United States, but we do have really good data about inmates in state or federal prisons.

On this graph, the bars are the absolute numbers of inmates – with federal prisoners in darker blue and state prisoners in lighter blue. The dark blue line is the HIV prevalence – in this case, it’s depicting the number of state and federal inmates living with HIV for every 100,000 total inmates.

The absolute number of prisoners living with HIV peaked in 1998 at around 25,000 inmates

and has declined since. The numbers of federal prisoners living with HIV increased around 2001 and has remained relatively steady after. The prevalence peaked in 1992 and has steadily declined; this is explained somewhat by a decrease in the total numbers of inmates with HIV but also by the increase in the total number of incarcerated individuals in the state and federal prison system over that same period of time.

# SLIDE #13



## How do incarcerated populations compare?

The prevalence of HIV among state and federal prisoners is **more than 3 times** that of the US population

Approximately  
**0.4%**  
of Americans are  
living with HIV  
(1.14 million in 2016)

**1.3%**  
of prisoners are  
living with HIV  
(17,150 in 2015)



Maruschak LM, Bronson J. HIV in Prisons, 2015—Statistical Tables. Bureau of Justice Statistics; Office of Justice Programs, U.S. Department of Justice, August 2017. Accessed 2 Jan 2020 at <https://www.bjs.gov/content/pub/pdf/hivp15st.pdf>

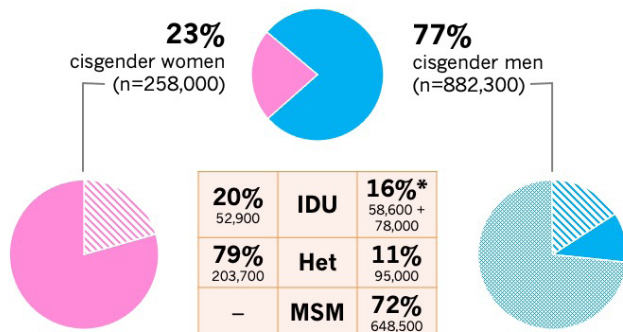
So the take home message for those data is that the proportion of prisoners living with HIV (1.3%) is more than 3 times greater than the proportion of the general population living with HIV (0.4%).

With a greater “concentration” of people living with HIV in prison systems, it’s important to make sure that we support their healthcare needs – both to protect their individual health but also to help protect their fellow inmates. We’ll talk more about how individual HIV care protects the community a little later on.

# SLIDE #14



## Who are those living with HIV?



\* This chart is simplified from CDC data  
MSM who also inject drugs = 58,600  
CDC. HIV Surveillance Supplemental Report, Vol 24 (No. 1) 2019.

If we look at a breakdown of people living with HIV by sex and how they acquired the infection, we can see that about a quarter (23%) of people living with HIV are women and the remainder (77%) are men.

Among women living with HIV, about 8 out of every 10 acquired HIV through sex with men (79%), and the remainder acquired HIV through injection drug use.

Among men, 16% acquired HIV through injection drug use, 11% through sex with a woman, and 72% through sex with another man.

*Side note: we don't have great data for HIV prevalence among transgender people. In part it's because of misclassification of their data (in the case of transgender women, lumping them in with MSM). In 2018, the CDC released an estimate suggesting that 14% of transgender women are living with HIV – even though transgender people represent about 0.3% of the US population.*

*For transgender HIV prevalence, see: Becasen JS, et al. Estimating the Prevalence of HIV and Sexual Behaviors Among the US Transgender Population: A Systematic Review and Meta-Analysis, 2006-2017. Am J Public Health. 2018 Nov 29:e1-e8 (available at: <https://www.ncbi.nlm.nih.gov/pubmed/30496000>)*

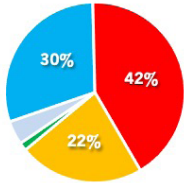
*For estimate of the number of transgender women in the US, see: Crissman HP, et al. Transgender Demographics: A Household Probability Sample of US Adults, 2014. Am J Public Health. 2017 Feb;107(2):213-215 (available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5227939/>)*

# SLIDE #15

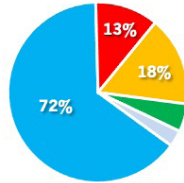


## Who are those living with HIV?

**HIV Prevalence**  
2016 (estimated)



**US Population**  
2017



■ Black ■ Hispanic/Latinx ■ Asian ■ Multi/Other ■ White



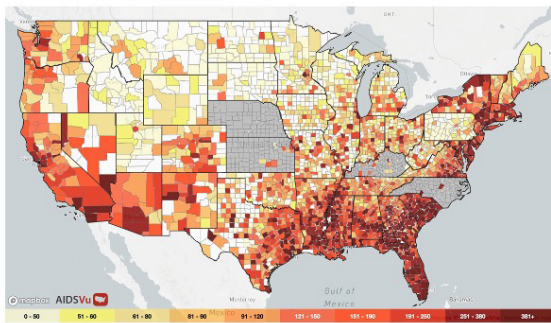
Census data from: [https://factfinder.census.gov/bkmk/table/1.0/en/ACS/17\\_5YR/DP05/0100000US](https://factfinder.census.gov/bkmk/table/1.0/en/ACS/17_5YR/DP05/0100000US)  
Prevalence data from: <https://www.cdc.gov/hiv/pdf/library/reports/surveillance/cdc-hiv-surveillance-supplemental-report-vol-24-1.pdf>

If we look at the breakdown by race and ethnicity, we see that communities of color are disproportionately impacted, with Blacks making up 42% of persons living with HIV in 2016 and Hispanic/Latinx people making up 22%. The US population by race/ethnicity is shown on the right, for reference.

# SLIDE #16



## Where are those living with HIV?



Number of persons living with HIV per 100,000 residents, by county, 2016



<https://aidsvu.org/local-data/united-states/>

This map is from AIDSvU, a service of the CDC and Emory University, that lets you examine HIV by geography. Darker shades indicate higher numbers of people living with HIV, and areas that are gray haven't reported data in the most recent update to the CDC.

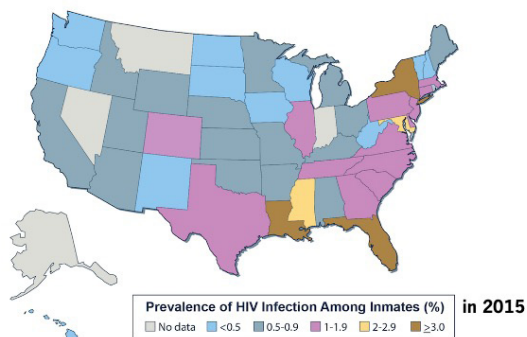
Major urban centers like New York City, San Francisco, and Los Angeles have large numbers of people living with HIV, but the historical Deep South – the states stretching from North Carolina to Louisiana – have the greatest density of people living with HIV in the United States.



## SLIDE #17



### How do incarcerated populations compare?



Data from: Maruschak LM, Bronson J. HIV in Prisons, 2015—Statistical Tables. Bureau of Justice Statistics: Office of Justice Programs, U.S. Department of Justice. August 2017.  
Image from: <https://www.hiv.uw.edu/go/key-populations/hiv-corrections/core-concept/all>  
Accessed 2 Jan 2020

This map shows the prevalence of HIV among inmates at the state level as of 2015, and there are some clear similarities to the map from AIDSvU. New York state, Florida, and Louisiana have the highest prevalence of inmates living with HIV, but we can also see the historical Deep South represented here, as well.

## SLIDE #18



### Why such disparities by race?



"The Louisville Flood" by Margaret Bourke-White, 1937  
<https://rarehistoricalphotos.com/there-no-way-like-american-way-1937/>

healthcare benefits, access to healthcare providers, and the likelihood of encountering someone else living with HIV as a sex partner – are key elements.

There are many intersecting reasons for the disparities we see in HIV incidence and prevalence by race and ethnicity – most of which are beyond the scope of this training.

Studies assessing individual-level factors – things like numbers of sex partners, how consistently condoms are used, and sex under the influence of drugs or alcohol – are not enough to explain the HIV disparities we see. In fact, in many cases, Blacks and Hispanics have greater uptake of HIV prevention resources and more consistent use of them.

We do know that structural factors – things like access to jobs that provide steady income and

# MODULE C:

## UNDERSTANDING HIV-RELATED DISEASE

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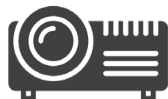
### OBJECTIVES

- 1) Explain how HIV establishes infection in the body, following a sexual exposure.
  - 2) Describe what happens to CD4+ T-cells and HIV RNA (viral load) after someone is infected with the virus.
  - 3) Outline three opportunistic infections that can affect people with HIV.
  - 4) Identify which opportunistic infections are the most common among people with HIV in the US.
- 

### MATERIALS NEEDED



POWERPOINT



PROJECTOR

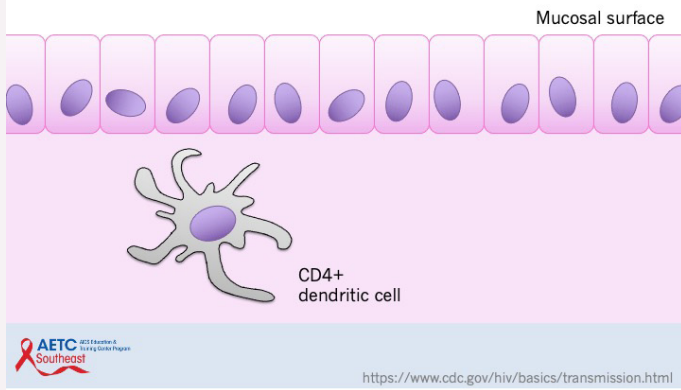


HANDOUTS

# SLIDE #5



## How does HIV infect someone?



<https://www.cdc.gov/hiv/basics/transmission.html>

meaning that they can be infected with HIV if they're exposed to the virus.

Let's look at the first steps of HIV infection in the body.

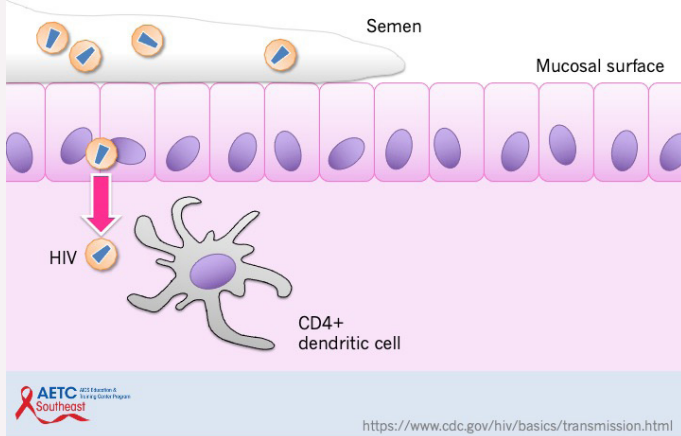
This diagram shows cells of a mucosal surface – a wet lining of the body – across the middle. This is a rectal mucosal lining, since the cells are like cylinders or columns and not layers and layers of flatter cells like you would find in the mouth or the vagina.

Underneath that layer of cells, special kinds of immune system cells are constantly on “patrol” to identify germs that may have crossed that surface and invaded the body. The ones that are especially important for HIV infection are called “dendritic cells” and they are CD4-positive,

# SLIDE #6



## How does HIV infect someone?



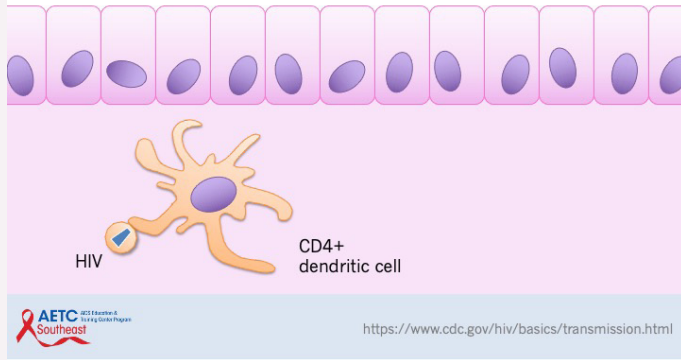
<https://www.cdc.gov/hiv/basics/transmission.html>

If someone has condomless receptive anal sex and is exposed to semen that contains HIV, then the virus may find its way across that mucosal lining, down to the layer where the dendritic cells are.

# SLIDE #7



## How does HIV infect someone?

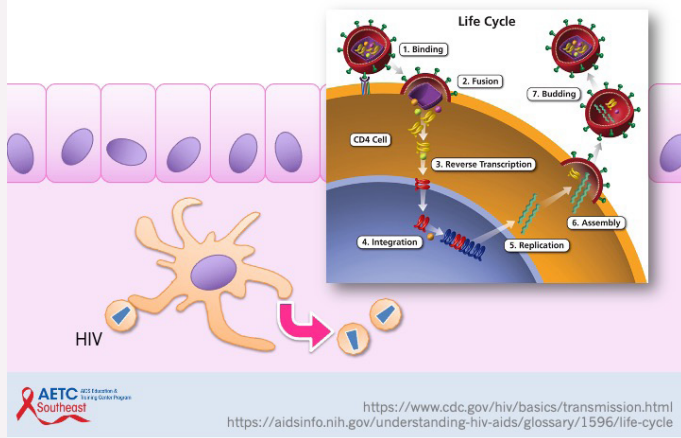


If HIV comes into contact with that dendritic cell, it will bind to its surface and gain entry inside the cell.

# SLIDE #8



## How does HIV infect someone?



Once inside the cell, HIV goes through a number of changes that allow it to "hijack" the cell and begin making copies of itself.

Remember that HIV is a retrovirus, meaning that an essential part of its life cycle is to "integrate" itself into the host's genes. HIV literally becomes a part of your own DNA, and this is the major hurdle we have in trying to cure the infection. We don't know how to get HIV out of cells, once it has had a chance to integrate.

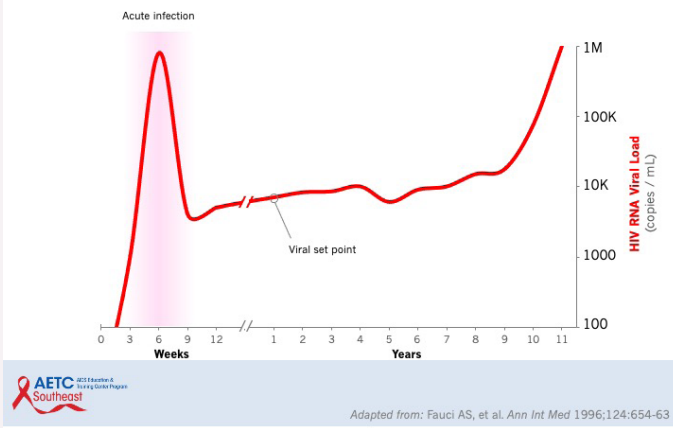
For clinical audiences ONLY: The inset diagram shows the steps of the life cycle of HIV. Once the virus has gained entry into the cell, its genome – made of RNA – gets converted into DNA

through a process called "reverse transcription." That newly formed DNA is escorted into the nucleus of the cell, and that's where it is able to integrate into the host cell. At this stage, we refer to HIV as a "provirus" or "proviral DNA." From this integrated DNA, the cell's own machinery makes RNA copies, which get processed into new virus components. Those assemble into new viruses and pinch or "bud" off from the cell surface, where they go on to infect other cells.

# SLIDE #9



## What happens after HIV disseminates?



Let's look at what happens after the infection has become established.

The red line on this diagram shows the amount of virus that you can detect in the blood, over time – this is the “viral load.” In the first few weeks after infection, the viral load increases rapidly, sometimes reaching millions of copies. This period is called “acute infection” or “acute HIV infection.” Almost everyone has some symptoms during this period of time – it usually looks or feels like an influenza-like illness or “mono” (infectious mononucleosis), with fevers, a sore throat, swollen glands (lymph nodes), and sometimes body rashes. Many people with acute HIV feel poorly enough to seek medical attention, but unless a provider is thinking

about HIV as a possibility, it's easy to dismiss this as just a viral illness of some sort.

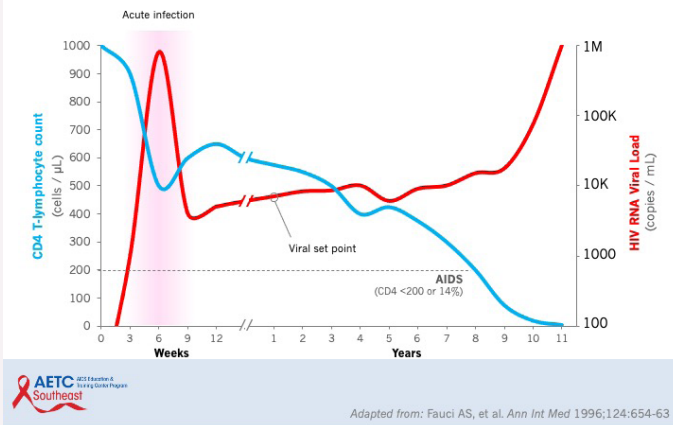
Around 6 weeks after infection, the immune system is able to get a little bit of control over the infection, and the viral load will come down. Once it comes down, the viral load will stay at a lower level for a long period of time. That level is called the “viral set point,” and for most people it's somewhere between 5,000 and 10,000 copies.

If someone does not get treated for HIV and it continues to advance or worsen, the viral load will start to rise again.

# SLIDE #10



## What happens after HIV disseminates?

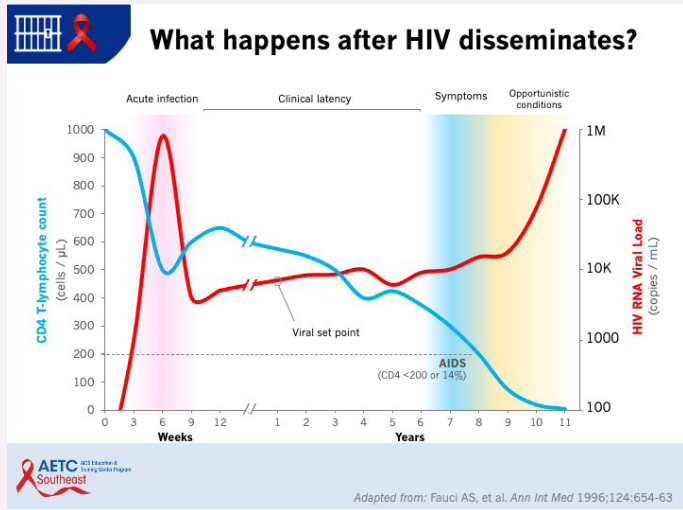


On this graph, we've added the CD4 count over time in blue. A “normal” CD4 count is somewhere around 1,000 cells. During acute HIV infection, the CD4 count takes a big hit, sometimes dropping into the low hundreds. Around the time that the immune system gets some control over the virus and the viral load drops, the CD4 count begins to recover. That coincides with recovery from the symptoms of acute HIV infection.

Over time, the CD4 count will decline for someone with untreated HIV infection. When it reaches 200, that person has met criteria for a diagnosis of AIDS. On average, someone with untreated HIV infection will lose about 100 cells from their CD4

count per year. That explains why it takes about 8 years (on average) to progress to AIDS from the time of infection, if they are not diagnosed and started on antiretroviral medications.

# SLIDE #11

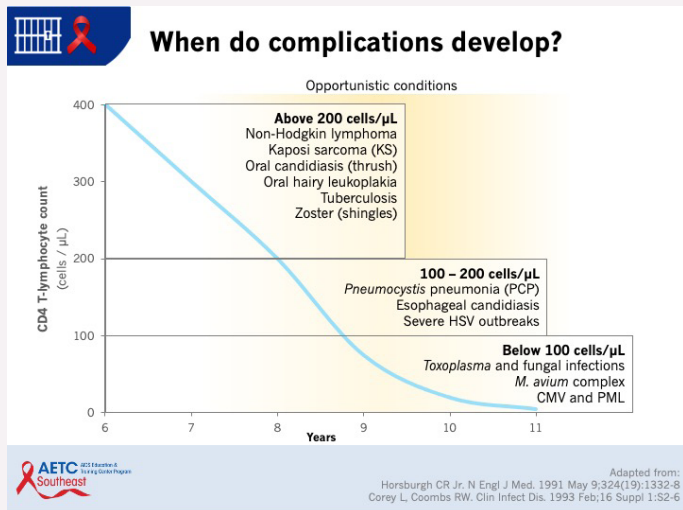


Most people will start to lose weight, have fevers or night sweats, or develop other symptoms before they reach a CD4 count of 200. As the count continues to fall, people with HIV may develop less common infections and some types of cancer. We call these “opportunistic conditions” because they are a sign of other germs taking advantage of a weakened immune system to grow and cause illness – they’re opportunists.

Again, this graph is showing what happens for someone who is not on HIV treatment. When someone starts on medications, their viral load will fall to being undetectable and their CD4 count will recover (at least somewhat). The degree to which the immune system can recover depends a lot on

how long the person has been living with HIV. People who start on treatment during acute HIV infection almost always return to a numerically normal CD4 count. People who were diagnosed very late – with AIDS or an opportunistic condition – may not ever have their CD4 count rise over 200 again. Every patient is unique, and the amount their immune system can recover isn’t always predictable.

# SLIDE #12



If we zero in on the “tail” of the CD4 curve, we can get an idea of when certain kinds of opportunistic conditions develop.

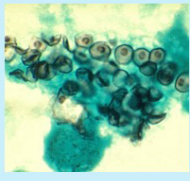

Certain types of cancer that are driven by infections with viruses may develop at CD4 counts above 200 – especially non-Hodgkin lymphoma (associated with Epstein-Barr virus) and Kaposi sarcoma (associated with human herpesvirus 8). Tuberculosis and shingles can develop at essentially any CD4 count.

At CD4 counts below 200, we see some of the more severe complications of advanced HIV. We’ll talk more about the details of the most common conditions next.

# SLIDE #13



## What is *Pneumocystis pneumonia (PCP)*?

Caused by	Signs & Symptoms	Diagnosis
<p><i>Pneumocystis jirovecii</i></p> <p>(a fungus acquired through our lungs, from other people)</p> 	<p>Fevers</p> <p>Progressively worsening shortness of breath (especially with exertion)</p> <p>Dry cough</p> <p>Chest discomfort</p> <p>Poor oxygenation of the blood</p>	<p>Chest x-ray</p> <p>Microscopy of specimens (sputum or bronchoscopy)</p> 



Photomicrograph: <https://phil.cdc.gov/Details.aspx?pid=554>  
 Chest x-ray: Case courtesy of Dr Andrew Dixon, Radiopaedia.org, rID: 9613  
<https://aidsinfo.nih.gov/guidelines/html/4/adult-and-adolescent-opportunistic-infection/321/pneumocystis-pneumonia>

What is Pneumocystis (“NEW-mo-SISS-tiss”) pneumonia? This is a type of lung infection that’s caused by an unusual kind of fungus called *Pneumocystis jirovecii* (“yee-roh-VET-zee”). We acquire the *Pneumocystis* fungus as small children by inhaling the organism deep into the lungs. The source is probably from other people – likely our parents or caregivers when we were children.

Normally our immune systems keep *Pneumocystis* in check and it doesn’t cause us any problems. But if our immune system gets weakened (as with advanced HIV disease), the fungus can start replicating in our lungs. This causes fevers and a dry cough – along with a progressively worsening shortness of breath. Sometimes the infection can



cause the lung to rupture, causing air to leak into the space between the lung and the inside of the chest wall (a serious condition called a “pneumothorax”).

Diagnosis of *Pneumocystis* is made by recognizing abnormalities in the lungs on chest x-rays, or seeing the organism under the microscope in sputum samples from patients with PCP.

# SLIDE #14



## What is esophageal candidiasis?

Caused by	Signs & Symptoms	Diagnosis
<p><i>Candida albicans</i></p> <p>(a fungus that normally lives in our GI tract)</p> 	<p>Painless, white plaques in mouth or throat</p> <p>Red patches without white plaques on palate or tongue</p> <p>Pain with swallowing</p> <p>“Burning” chest pain (especially behind sternum)</p>	<p>History</p> <p>Physical exam</p> <p>Microscopy (if needed)</p> 



Photomicrograph: [https://upload.wikimedia.org/wikipedia/commons/b/b6/Candida\\_albicans.jpg](https://upload.wikimedia.org/wikipedia/commons/b/b6/Candida_albicans.jpg)  
 Clinical photograph: <https://phil.cdc.gov/details.aspx?pid=6053>  
<https://aidsinfo.nih.gov/guidelines/html/4/adult-and-adolescent-opportunistic-infection/331/candidiasis>

What is esophageal candidiasis (“uh-saw-fuh-JEE-uhl kan-duh-DIE-uh-suss”)? This is an infection of the lining of the mouth and the esophagus caused by a fungus named *Candida albicans* (“KAN-duh-duh AL-buh-kans”) – the same organism that causes vaginal yeast infections. *Candida* organisms are normally found in our mouths and our gut, but our bodies are able to keep them in check if our immune systems are working properly. Just like with *Pneumocystis*, if our immune system gets weakened (as with advanced HIV disease), *Candida* can start overgrowing. This causes white patches in the mouth or the throat that are called “thrush.” People with esophageal candidiasis most often complain of pain with swallowing or a burning sensation in their chest that’s sort of like heartburn

or acid reflux.

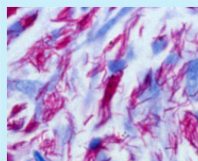
Diagnosis of esophageal candidiasis is made when you see thrush inside the mouth (as shown in the picture) or if similar patches are seen in the esophagus during a procedure called an endoscopy (“en-DOSS-koh-pee”).

# SLIDE #15



## What is MAC?

Caused by	Signs & Symptoms	Diagnosis
<b><i>Mycobacterium avium</i> complex</b> (bacteria acquired through our lungs or GI tract, from the environment)	Fever Night sweats Weight loss Fatigue Diarrhea Abdominal pain Anemia	Physical exam (Enlarged liver or spleen) Abnormal blood tests (alkaline phosphatase) Cultures Imaging findings Microscopy of specimens



Photomicrograph of lymph node: <https://wellcomecollection.org/works/twg449nb>  
<https://aidsinfo.nih.gov/guidelines/html/4/adult-and-adolescent-opportunistic-infection/326/mycobacterium-avium-complex>

What is MAC? MAC is an acronym for Mycobacterium avium complex (“my-koh-back-TEER-ee-um AY-vee-um”), a group of special bacteria that are cousins of tuberculosis. (We’ll talk about tuberculosis in a minute.) MAC organisms are naturally found in our environment – often in water – and we usually acquire this infection by inhaling organisms or ingesting them in foods or drinks. In the picture, the reddish-purplish lines are MAC organisms that have been stained with a special dye to make them stand out under the microscope.

In people with HIV, MAC usually only starts to cause problems when the immune system has been very severely worn down, with CD4 counts of 50 or less. At that point, MAC can leave the gut and get into the

liver or the bloodstream. Patients often have fevers and night sweats, but other symptoms depend on where the MAC is growing. If MAC is in the liver, then patients may have abdominal pain and some abnormal liver test results. If the MAC has gotten into the bloodstream, it can often make its way into the bone marrow, where it can crowd out the normal blood-making cells, resulting in low red blood cell counts (anemia).

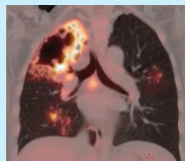
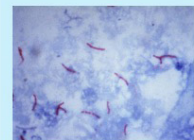
Diagnosis of MAC is made by examining the patient, their lab tests, and any specimens that can be collected from parts of the body that might have MAC growing in them.

# SLIDE #16



## What is tuberculosis (TB)?

Caused by	Signs & Symptoms	Diagnosis
<b><i>Mycobacterium tuberculosis</i></b> (a bacteria acquired through our lungs, from people with “active” pulmonary TB disease)	Cough Blood in sputum Shortness of breath Fevers Weight loss Night sweats Anemia	Microscopy of specimens Lab tests Imaging findings



Photomicrograph: <https://phill.cdc.gov/details.aspx?pid=5789>  
 PET scan image: Case courtesy of Dr. Daria Ibrahim, Radiology, [radiologyassistant.org](http://radiologyassistant.org), rID: 30824  
<https://aidsinfo.nih.gov/guidelines/html/4/adult-and-adolescent-opportunistic-infection/325/mycobacterium-tuberculosis>

What is tuberculosis (“too-burr-kyoo-LOW-siss”) or TB? This is an infection caused by Mycobacterium tuberculosis (“my-koh-back-TEER-ee-um too-burr-kyoo-LOW-siss”), a special bacteria that we acquire from other people who have the lung or pulmonary form of the disease. Unlike MAC, TB isn’t found in the environment. We can only acquire TB from other people. In the picture on the left, the purplish lines are TB organisms that have been stained with a special dye to make them stand out under the microscope.

After the TB organism is inhaled, a healthy immune system is able to wall off the bacteria inside a special structure called a granuloma (“gran-yoo-LOW-muh”). Granulomas are like little cocoons that trap the TB bacteria and keep it from causing problems. But if your immune system degrades (like we see

with advancing HIV disease), those granuloma cocoons can fall apart – releasing the TB bacteria. This is called “reactivation disease” and it’s the most common cause of TB-related problems among people with HIV in the United States. We think of TB as causing fevers, often with a cough that may bring up phlegm (sputum) with streaks of blood – but TB can present itself in many ways.

Diagnosis of TB depends on identifying the bacteria from specimens of sputum, but we also look very carefully at x-ray pictures to see if there are patterns of damage consistent with what TB can do. In the picture on the right, TB has caused a cavity to form at the top of the patient’s right lung. (This is a special kind of CT scan called a PET scan. On most x-rays or CT scans, there aren’t areas that are highlighted or “lit up” like in this picture).

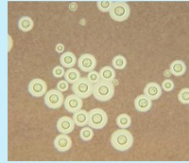


# SLIDE #17



## What is cryptococcal meningitis?

Caused by	Signs & Symptoms	Diagnosis
<b><i>Cryptococcus neoformans</i></b> (a fungus acquired through our lungs, from the environment)	Fever  Constant headache (most often <b>without</b> neck stiffness)  Loss of energy / feeling unwell  Confusion or disorientation	Spinal tap  Elevated intracranial pressure (ICP)  Analysis of spinal fluid  Cultures  Lab tests



Photomicrograph: <https://phil.cdc.gov/Details.aspx?pid=3771>  
<https://aidsinfo.nih.gov/guidelines/html/4/adult-and-adolescent-opportunistic-infection/333/cryptococcosis>

What is cryptococcal (“krip-toe-COK-uhl”) meningitis (“meh-nuhn-JAI-tuhs”)? This is an infection caused by a fungus called *Cryptococcus neoformans* (“krip-toe-COK-uhs nee-yo-FOR-muhs”) that we acquire through inhalation into the lungs. *Cryptococcus* is found in the environment, especially in soil that has been enriched with bird droppings. The organism has a special way of preventing our immune system from attacking it – a thick, slimy capsule that makes it harder for white blood cells to attack it. In the picture, you can see a cluster of *Cryptococcus*; the inner circle is the fungus itself, and the “halo” around that inner circle is the slimy capsule.

After the fungus is inhaled, it can make its way out of the lung and get into the bloodstream. From there,

it can go anywhere – but most often we see it causing problems in or around the brain, a condition called meningitis. For people with HIV, cryptococcal meningitis most often happens with pretty advanced disease, when the CD4 count has fallen to around 100. Patients with cryptococcal meningitis have fevers, a pounding headache, and sometimes feel confused or disoriented.

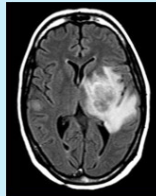
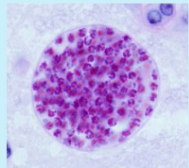
Diagnosis of cryptococcal meningitis requires a spinal tap (lumbar puncture) with analyses of the spinal fluid in the lab.

# SLIDE #18



## What is toxoplasmosis?

Caused by	Signs & Symptoms	Diagnosis
<b><i>Toxoplasma gondii</i></b> (a parasite acquired through our GI tract, from cat feces or certain undercooked meats)	Fever  Headache  Confusion  Focal neurologic problems (strokes, seizures, weakness, numbness)	Spinal tap  Imaging findings (brain abscess)



Photomicrograph: [https://commons.wikimedia.org/wiki/File:Toxoplasma\\_gondii\\_tissue\\_cyst\\_in\\_mouse\\_brain.jpg](https://commons.wikimedia.org/wiki/File:Toxoplasma_gondii_tissue_cyst_in_mouse_brain.jpg)  
 Head CT image: Case courtesy of Dr Augusto César Vieira Teixeira, Radiopaedia.org, ID: 23270  
<https://aidsinfo.nih.gov/guidelines/html/4/adult-and-adolescent-opportunistic-infection/322/toxoplasma-gondii>

What is toxoplasmosis (“tok-soh-plaz-MOH-suhs”)? This is a brain infection caused by a parasite called *Toxoplasma gondii* (“tok-soh-PLAZ-muh GON-dee-eye”), or “toxo” for short. People generally acquire the toxo parasite’s eggs one of two ways: contact with cat feces or eating certain undercooked meats. Once we’ve ingested the parasite’s eggs, they hatch, cross into our bloodstream, and then embed themselves in muscle or brain tissue. Once they’ve embedded, they mature a bit, form a protective cyst, and then go dormant. The picture on the left shows a cyst in a mouse’s brain; each of the little purple shapes is an individual toxo organism (called a bradyzoite [“bray-dee-ZOH-ite”]).

Normally, our immune system is able to keep those cysts under surveillance and eliminate any toxo

organisms that “wake up” from their dormant form. But if the CD4 count falls to 100 or less, our immune systems can’t keep up the necessary surveillance and the cyst may develop into a pocket of active toxo organisms – essentially a brain abscess. This condition is called *Toxoplasma encephalitis* (“en-sef-uh-LIE-tuhs”) and patients can develop fevers, headaches, confusion, and a variety of serious neurologic symptoms.

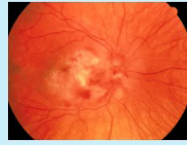
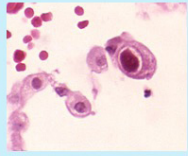
Diagnosis almost always includes imaging of the brain showing an abnormality consistent with Toxo – along with a spinal tap (lumbar puncture) and spinal fluid analyses in the lab.

# SLIDE #19



## What is CMV retinitis?

Caused by	Signs & Symptoms	Diagnosis
Cytomegalovirus (a virus acquired through saliva or body fluids from other people)	<b>Initially in one eye...</b> <i>(or, less commonly, both)</i>  New “floaters”  Areas of altered or lost vision  Peripheral vision defects  Blindness	Dilated eye exam  Sampling of fluid from eye  Blood tests



Photomicrograph: [https://en.wikipedia.org/wiki/File:Cytomegalovirus\\_01.jpg](https://en.wikipedia.org/wiki/File:Cytomegalovirus_01.jpg)  
 Clinical photo: National Eye Institute, National Institutes of Health Ref#: ED407 (via Wikipedia)  
<https://aidsinfo.nih.gov/guidelines/html/4/adult-and-adolescent-opportunistic-infection/337/cytomegalovirus>

What is CMV retinitis (“ret-in-EYE-tuhs”)? CMV stands for cytomegalovirus (“sy-toe-MEG-uh-low-vie-ruhs”), and retinitis is inflammation or infection of the retina – the part of the eye that senses light. CMV is a virus that is acquired from other people through saliva or other body fluids. Most Americans get infected with CMV by the time they’re age 40, although in many cases we don’t realize we’ve been infected. CMV can go to many different areas of the body and can remain dormant or silent for most of our lives. In people with HIV, CMV can reactivate when the CD4 count falls to very low levels – usually less than 50. Manifestations in the eye are the most feared

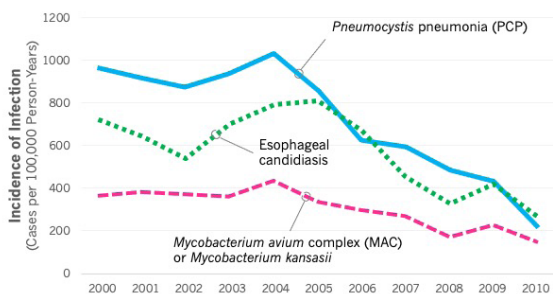
complication of CMV, because they can progress rapidly and lead to blindness. Patients usually have some new abnormality in their field of vision, often sudden onset and initially in only one eye.

Diagnosis involves having an ophthalmologist (“off-thal-MOLL-oh-jist”) perform a thorough exam of the eye, sometimes including sampling of fluid from the eye itself.

# SLIDE #20



## Which OIs are the most common?



Adapted from Buchacz K, et al. J Infect Dis. 2016 Sep 15;214(6):862-72

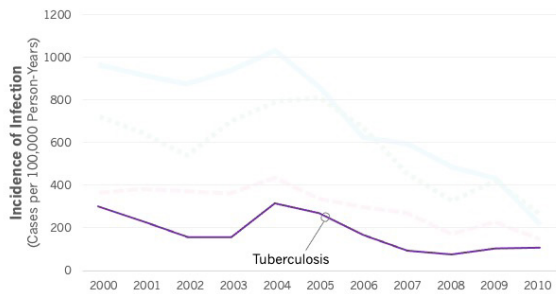
Over time, we’ve seen decreases in the incidence of people with HIV developing opportunistic conditions. These data come from a large study looking at over 60,000 people with HIV in the US and Canada over a decade. PCP, candidiasis, and MAC incidence have decreased over the 10-year period from 2000 to 2010. (Remember incidence is the number of new cases that accumulate over time.)

These downward trends are probably due in large part to people with HIV being diagnosed earlier and getting started on medications before their immune systems are worn down.

# SLIDE #21



## Which OIs are the most common?



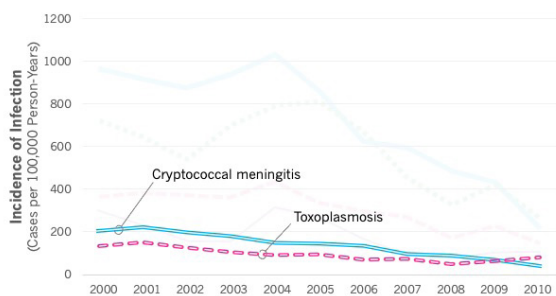
Adapted from Buchacz K, et al. J Infect Dis. 2016 Sep 15;214(6):862-72

TB has also decreased somewhat over time...

# SLIDE #22



## Which OIs are the most common?



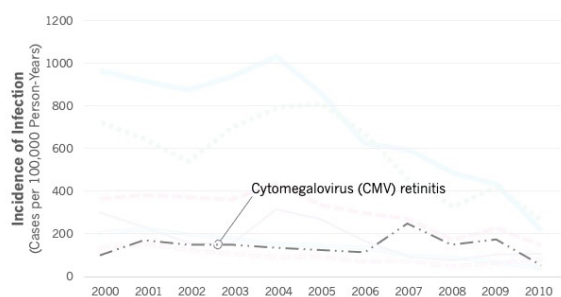
Adapted from Buchacz K, et al. J Infect Dis. 2016 Sep 15;214(6):862-72

...as have cryptococcal meningitis and toxoplasmosis...

# SLIDE #23



## Which OIs are the most common?



Adapted from Buchacz K, et al. J Infect Dis. 2016 Sep 15;214(6):862-72

... and CMV retinitis is in the same general range as cryptococcal meningitis and toxoplasmosis.

So, in general, we're seeing fewer cases of these conditions among people with HIV, over time – but they're not completely gone. For people with HIV who have low CD4 counts, it's important to keep these conditions in mind and to recognize them if someone has compatible signs and symptoms.

# MODULE D:

## UNDERSTANDING THE HIV CARE CONTINUUM

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### OBJECTIVES

- 1) List the steps of the HIV care continuum.
  - 2) Explain the “window period” of an HIV test.
  - 3) Outline the steps involved in linking someone with HIV to care and treatment.
  - 4) Describe how anti-HIV (antiretroviral) treatment works to keep someone’s viral load undetectable.
- 

### MATERIALS NEEDED



POWERPOINT



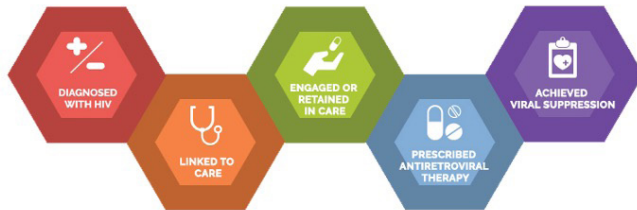
PROJECTOR



HANDOUTS

## SLIDE #5

### What is the HIV care continuum?



Gardner EM, et al. *Clin Infect Dis*. 2011;52(6):793-800  
<https://www.hiv.gov/federal-response/policies-issues/hiv-aids-care-continuum>

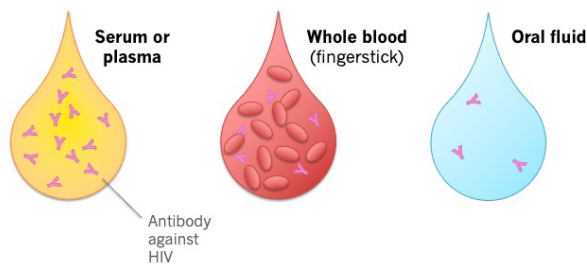
care continuum is a very useful framework for thinking about HIV service delivery.

The HIV care continuum is a model that describes what it takes to get someone with HIV connected to the care they need in order to stay healthy. It was first published in 2011 by Dr. Ed Gardner and colleagues and since then, it has become a very commonly used tool in HIV program evaluation and development.

The model has 5 main steps: diagnosis, linkage to care, engagement and retention in care, getting started on antiretroviral therapy, and achieving viral suppression through consistent adherence. It's a very simplified framework, and there are lots of different things that contribute to the success of each step or milestone, but the

## SLIDE #6

### How do you diagnose someone with HIV?



Whenever possible, select **automated, laboratory-based assays** to test for HIV from **serum, plasma, or whole blood** specimens



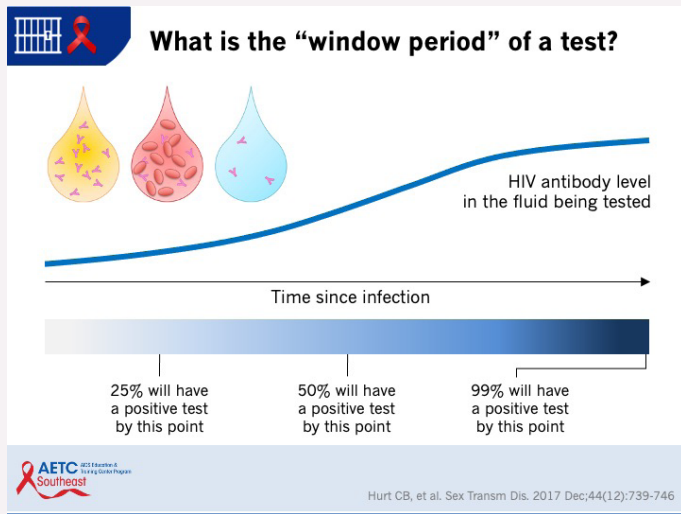
Hurt CB, et al. *Sex Transm Dis*. 2017 Dec;44(12):739-746

HIV tests that involve having your blood drawn and processed in a lab are generally more sensitive than “rapid” or “point-of-care” tests that are done in some clinical settings.

The first step of the HIV care continuum is testing. To diagnose someone as having HIV, we usually perform tests on blood or oral fluid to look for antibodies against the virus. Antibodies are special proteins that are made by our immune system to grab onto and neutralize germs that are trying to invade our body.

Our ability to make an accurate diagnosis depends on how much antibody there is to detect in any given specimen. The highest concentration of antibodies is found in serum or plasma – the straw-colored fluid that our blood cells float in. Whole blood is next, and oral fluid has the lowest concentrations. This means that

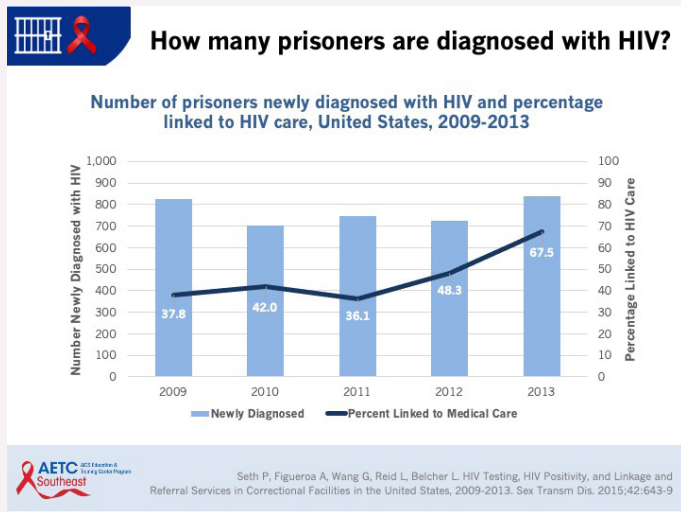
# SLIDE #7



It’s also important to keep in mind that antibody levels rise over time, the longer that someone has been infected with HIV. Early in the infection, there aren’t as many antibodies as later on. This gradation helps to explain the “window period” of a test – the time that it takes before a test will become positive or reactive. Window periods are dependent on the type of test being used and the specimen being tested. For example, oral fluid has a very long window period compared with plasma or serum, as long as 90 days after an infection. This is because it takes that long for antibody levels to rise to detectable levels in oral fluid. If you were to test the same person

with a lab-based test using serum or plasma, their test result would be positive much, much earlier – sometimes as little as 10 to 14 days.

# SLIDE #8



How many prisoners are diagnosed with HIV each year? This chart comes from a paper published in 2015 that looked at 5 years’ worth of data from CDC-funded testing initiatives in correctional facilities. Participants in this project included jails, prisons, community-based rehabilitation centers, and adult and juvenile detention facilities in all US states and territories. The bars show the number of persons newly diagnosed with HIV through this testing initiative, and the dark blue line shows the percentage of those newly diagnosed persons who were linked to HIV medical care. Overall, you can see that annually, between 700-850 persons were diagnosed – a very substantial

number – and that linkage to care improved over time.

# SLIDE #9



## How does someone get linked to care?



Image from: <https://houstoniamlife.com/tasp/service-linkage-program/>

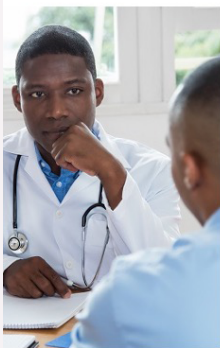
trainings.

What does “linkage to care” mean? For a long time, people working in HIV service delivery have known that it takes a strong, committed team of professionals to help get people with HIV connected to a knowledgeable provider. That’s why the state and federal systems that support people with HIV include funding for medical case managers, social workers, and counselors who are familiar with the various resources available to these clients. The Transitional Care Coordination model developed for people re-entering the community after incarceration includes these components – and we’ll learn more about that later in these

# SLIDE #10



## What happens when you enter HIV care?



### Medical history & physical exam

To identify other health issues they may have

### Social history

To get to know them... and also identify things that can help or hinder adherence to ARVs

### Sexual history

To characterize future risks and screening needs

### Lab tests

Viral load, baseline resistance test(s), kidney and liver health, screening for STIs & hepatitis

### Connection to resources

Social work, medication assistance programs, counseling, Ryan White service eligibility, etc.



Image from: <https://www.bjfm.co.uk/the-outer-consultation-the-doctor-patient-relationship>

how healthy the patient is, and to help guide decision-making about which HIV medications might be best. And finally, clinic-based social workers, financial or benefits counselors, and other health professionals meet with the patient to help them understand the social services and special programs for which they might be eligible.

Engagement and retention in HIV care is the next step of the continuum. Case managers and patient navigators have practical knowledge of the HIV care providers in the community and often can help match up their clients to providers or clinics that would be a better “fit” for their situation or needs.

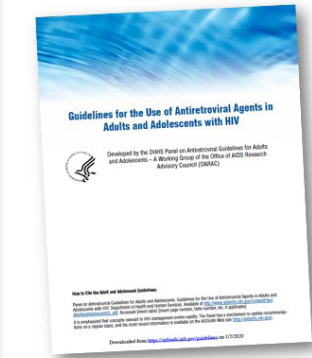
Once a client or patient enters care, there are a variety of medical and non-medical activities that happen. At the first few visits, the provider will take time to understand the patient’s past medical history and a bit about their social circumstances. There is also a pretty substantial amount of lab work that happens to understand



# SLIDE #11



## Who should be prescribed ARVs?



**Everyone living with HIV should be offered treatment as soon as possible after diagnosis**



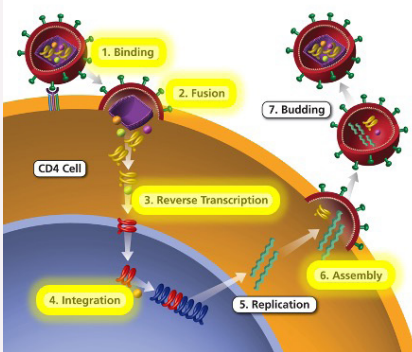
Panel on Antiretroviral Guidelines for Adults and Adolescents, Guidelines for the use of antiretroviral agents in HIV-1-infected adults and adolescents, Department of Health and Human Services, March 2012. <https://aidsinfo.nih.gov/contentfiles/AdultandAdolescentGL003093.pdf>

Getting started on antiretroviral (anti-HIV) medications is the next step of the continuum. In the past, because of concerns about adverse side effects of HIV medications and their long-term tolerability, providers would often wait to start medications until the CD4 count had fallen to a certain threshold. But as we learned more about the consequences of having your immune system worn down by HIV, the thinking has changed. Since early 2012, the official recommendation for people with HIV in the United States has been to offer antiretroviral therapy as soon as possible after diagnosis.

# SLIDE #12



## How does antiretroviral therapy work?



**At least 2 steps need to be targeted, to be efficacious.**

**We have HIV medicines to target each of the highlighted steps**



<https://aidsinfo.nih.gov/understanding-hiv-aids/glossary/1596/life-cycle>

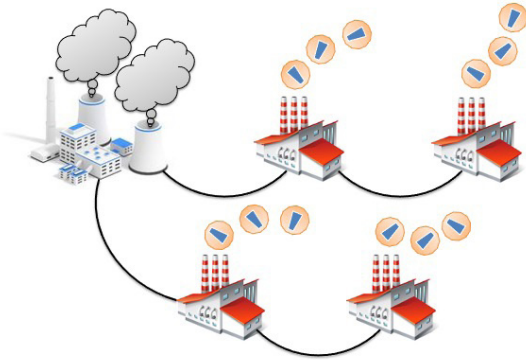
Let's talk a little about how antiretroviral medications work. Remember that all viruses hijack cells in order to complete their life cycle – they can't replicate or reproduce on their own. The steps that HIV goes through to take over a CD4 cell and make copies of itself are very well characterized, and we have drugs that target various different steps of that process. Generally speaking, at least 2 steps have to be targeted in order to shut off the copy machine, so to speak. We have medications that target each of the highlighted steps shown on this diagram, and the medication regimens we prescribe to people with HIV go after at least 2 of those highlighted steps.

It's not essential to understand the mechanisms of how those drugs work in the body unless you're a provider or a pharmacist.

# SLIDE #13



## How does antiretroviral therapy work?



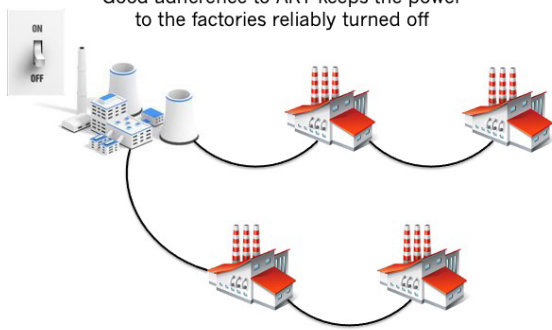
Here's an analogy that might be helpful to consider. Remember that HIV integrates itself into the genes of the cells it infects. Those are essentially factories that are churning out new HIV viruses all the time, in the absence of any treatment. There are two possible ways to stop those factories from manufacturing new viruses: you could blow them up or tear them down somehow, or you could disable them by shutting off the power.

# SLIDE #14



## How does antiretroviral therapy work?

Good adherence to ART keeps the power to the factories reliably turned off



Taking antiretroviral medications consistently is like turning off the power to the factories. We haven't eliminated them – they're still there – but they're effectively shut down.

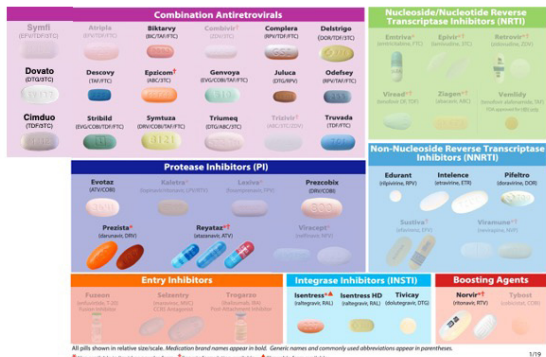
Side note: Curing someone of HIV would be the equivalent of dismantling or blowing up the factories. To date, there are only three reported cases of people with HIV being cured, and each of them were patients who had aggressive forms of blood cancers (leukemia) who needed to undergo bone marrow transplantation in order to beat their cancer. The treatments that these patients got in order to be able to receive a transplant sort of bulldoze the factories – but

also wipe out the rest of the immune system, too. It's a complicated and risky treatment, and it isn't something that can be scaled up to treat everyone with HIV.

# SLIDE #15



## How difficult is it to treat HIV?



All pills shown in relative scale. Medication brand names appear in bold. Generic names and commonly used abbreviations appear in parentheses.

\* Pills available in liquid or powder form. † Generic formulation available. ‡ Chewable form available.

1/19



Adapted from: <https://aidsetc.org/resource/hiv-medication-chart-pad>

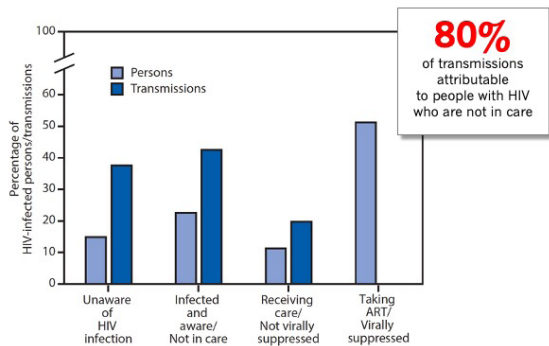
This chart shows all of the different options available for treating HIV in the U.S., up-to-date as of February 2020. Medications that we don't use as often have been grayed-out or faded-out.

It's worth pointing out that there are a lot of "co-formulated" or "fixed-dose combination" tablets on the market, which are shown in the upper left box. By combining different medications into a single pill, it reduces the number of pills someone with HIV needs to take. Many of the tablets in that top left box are complete regimens for treating HIV – meaning someone only needs to take a single tablet, one time a day, and their HIV will be suppressed.

# SLIDE #16



## How does HIV care impact transmission?



Li Z, et al. MMWR. 2019 Mar 22;68(11):267-272

Treating individual people with HIV helps them preserve their health, but it also has an impact on a bigger scale. Remember that people with HIV whose viral loads are undetectable are not infectious to others through condomless sex. But to get to be undetectable, someone has to go through all of the steps of the HIV care continuum – and that can be a challenge depending on their individual life circumstances.

You can see the impact of retention in HIV care shown on this chart from the CDC. The lighter blue bars show the percentages of people with HIV at different steps of the care continuum – and the darker blue bars show the percentage of transmissions attributable to people at each of

those steps. The CDC estimates that about 80% of all new HIV infections are attributable to people with HIV who are not in any kind of care – that's the combination of the darker blue bars from the first two groups on the left. When people get into care and start bringing their viral loads down, they contribute much, much less to ongoing transmission of the virus.

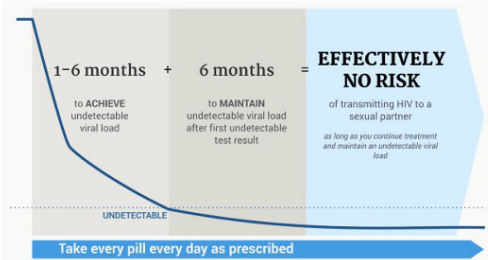
# SLIDE #17



## What does “U=U” mean?

**Undetectable = untransmittable**

If someone living with HIV is adherent to their ARVs and their viral load is durably undetectable, they have effectively no risk of transmitting HIV through sex



<https://www.niaid.nih.gov/news-events/10-things-know-about-hiv-suppression>

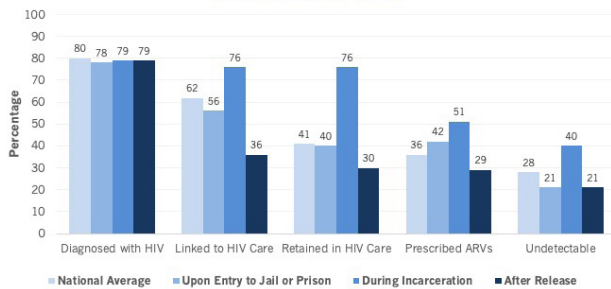
In 2017, the National Institutes of Health and the CDC both endorsed the concept of “undetectable equals untransmittable” or “U equals U” and encouraged providers to discuss the science with their patients. We know definitively that, as long as someone has been taking their HIV medications for at least 6 months and their viral load is undetectable, there is effectively no risk of transmitting HIV to a partner through condomless sex. This finding has really reshaped the way that providers talk to their patients with HIV about risk, and it’s slowly helping to de-stigmatize HIV.

# SLIDE #18



## How does incarceration affect HIV outcomes?

HIV care cascade before, during, and after incarceration (through January 2015)



Iroh PA, Mayo H, Nijhawan AE. The HIV Care Cascade Before, During, and After Incarceration: A Systematic Review and Data Synthesis. Am J Public Health. 2015;105:e5-16

Here are the steps of the continuum separated out by incarceration status, benchmarked to national averages. Generally speaking, improvement in outcomes at every step of the HIV care continuum is higher for people who are incarcerated, relative to people before or after release. Intuitively, this should make sense. People in jail or prison don’t have to manage competing interests, transportation, or out-of-pocket costs for medical services while they’re incarcerated – and often jails or prisons will have contracts with HIV specialists.

The more important take-home message of these data is what happens after release. We

can see big declines in the engagement steps (linkage and retention), reflecting the challenges that formerly incarcerated persons have in re-entering the community. Medical care often takes a backseat to other priorities, like securing food and housing, fulfilling parole obligations, and reconnecting with loved ones.

The Transitional Care Coordination model that is described in later trainings is designed to help improve those outcomes after release, with the ultimate goal of improving rates of viral suppression for people with HIV re-entering the community after release from jail or prison.



The mission of the North Carolina HIV Education and Training Center (NCHETC) is to support persons engaged in HIV prevention and treatment across our state, through training and technical assistance. Our team of experts helps social workers, case managers, providers (physicians & APPs), nurses, dentists and pre-professional students learn how to provide high-quality care for persons living with or at risk for HIV. Topics include sexual health, issues of race and sexuality in HIV medicine, care for transgender persons, current trends in the HIV epidemic, biomedical and behavioral HIV prevention, antiretroviral therapy for persons living with HIV and the care of persons living with viral hepatitis.

**Find your local AETC here:**

**<https://aidsetc.org/directory>**

