From Psychological Risks to Human Immunodeficiency Virus (HIV): How Walter Reed Army Institute of Research (WRAIR) is Promoting Women's Health Across the Globe

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Susannah Knust, Ph.D.

Susannah Knust, Ph.D. is a research psychologist and the director of the Research Transition Office at the Walter Reed Army Institute of Research. Dr. Knust was the Liaison Officer to the Army Resilience Directorate (HQDA, G-1) from 2017-2022. She is a subject matter expert and senior advisor for performance psychology, resilience, coach education, leadership, motivation, trust, deployment cycle resilience, curriculum development, and research transition. Dr. Knust conducts program evaluations, develops resilience and suicide prevention curricula, and advises on policy changes for ARD-funded projects.

Dr. Knust earned her Bachelor's degree in Spanish K-12 Education (minor in Social Studies) from Calvin College in 2002; her Master's degree in Coach Education from Western Michigan University in 2009, and her Ph.D. in Sport Psychology and Motor Behavior from the University of Tennessee in 2013.

Army Col. Lisa Teegarden, Psy.D., A.B.P.P.

COL Lisa A. Teegarden currently serves as the psychologist for the People First Task Force and as the OIC of the Cohesion Assistance Team (CAT). In these roles, she utilizes her expertise in organizational consultation and the application of psychological principles within and across individuals, groups and organizations in order to maximize individual and organizational performance. Prior to this assignment, she served a clinical psychologist for the White House Medical Unit. She has served in the Defense Health Agency as the Director for Behavioral Health at Walter Reed National Military Medical Center and as the Behavioral Health Market Chair for the National Capital Region Enhanced Multi-Service Market where she led 380 military, civilian and contract staff across 3 Departments, 17 services and the largest Psychiatric Graduate Medical Education Residency in the DOD with 70 GME and non-GME students combined. Preceding her assignment at Walter Reed, she served as the Command Psychologist and Program Manager for the Behavioral Health Resilience Program within the Preservation of the Force and Families Task Force (POTFF-TF) at Headquarters, United States Special Operational Command located at MacDill Air Force Base. As the Command Psychologist, COL Teegarden also served as a consultant to the Commander, USSOCOM and provided direct consultation and support to all levels of HQ USSOCOM.

COL Teegarden completed a two-year tour at Joint Task Force, Guantanamo as the Director of the Behavioral Science Consultation Team (BSCT). As the Director of the BSCT, COL Teegarden served as a consultant to the Commander, JTF Guantanamo and provided direct consultation, training and education at all levels of the organizational structure to the Joint Detention Group, Joint Intelligence Group and the Joint Medical Group. The core mission of the Behavior Science Consultation Team is to assist in the safe, humane, legal and transparent care and custody of detainees, including those convicted by military commission and those ordered released.

COL Teegarden began her military career in 1997 as a direct commission and completed her internship at Walter Reed Army Medical Center. From 1998 – 2001 she was the Division Psychologist for the 10th Mountain Division. Since then, COL Teegarden has been assigned as a Staff Psychologist for the 902nd MI Group, Chief of Behavioral Health at Kimbrough Ambulatory Care Center, completed a rigorous two-year APA Accredited Clinical Neuropsychology fellowship and served as the Deputy Chief for the Department of Psychology and as the Program Director, Clinical Psychology Internship Program at Walter Reed Army Medical Center located in Washington, D.C.

COL Teegarden holds a Bachelor of Science degree in Psychology and Philosophy from Colorado State University (1988), a Masters of Science Degree in Clinical Psychology from University of Idaho (1993) and a Doctor of Psychology in Clinical Psychology from Baylor University (1998). She has completed the AMEDD Officer Basic Course, Aeromedical Psychology Training Course, the AMEDD Officer Advanced Course, the Command and General Staff College Intermediate Level Education Course and is a graduate of Level C SERE course. COL Teegarden is current as a SERE psychologist and a certified Crisis and Hostage Negotiator.

Army Capt. John Eric M. Novosel-Lingat, Ph.D., M.Ed

Army Capt. John Eric M. Novosel-Lingat, Psy.D. currently serves as the Deputy Director for the Research Transition Office at the Walter Reed Army Institute of Research, with assigned responsibilities as Liaison Officer to the Army Resilience Directorate.

CPT Novosel-Lingat is a doctoral graduate of the Educational, School, and Counseling Psychology Department at the University of Kentucky. He was awarded his undergraduate and master's degree from the American University in Washington, DC, where he taught as adjunct faculty in the School of Education, Teaching, and Health. He has completed professional development programs for instructional coaching at Teachers College, Columbia University and data inquiry for continuous improvement at the Harvard Graduate School of Education. Currently, he is pursuing a certificate in positive psychology at the University of Pennsylvania.

U.S. Public Health Service (USPHS) Capt. Joseph (Sean) Cavanaugh, M.D.

U.S. Public Health Service (USPHS) Capt. Joseph (Sean) Cavanaugh M.D. is a public health physician and the Chief of the International HIV Prevention and Treatment (IHPT) for the U.S. Military HIV Research Program (MHRP) at the Walter Reed Army Institute of Research (WRAIR).

CAPT Cavanaugh currently supervises the development and refinement of WRAIR's President's Emergency Plan for Acquired Immunodeficiency Syndrome (AIDS) Relief program (PEPFAR) in Tanzania, Uganda, Nigeria, and Kenya and contributes to relevant programmatic research in these countries. He also serves as the Deputy Principal to the Office of Global AIDS Coordinator (OGAC), supervises the Associate Directors for IHPT, and coordinates with WRAIR's primary implementing partner, the Henry Jackson Foundation.

USPHS Capt. Neha Shah, M.D., M.P.H.

CAPT Neha Shah, M.D., M.P.H., is public health physician who serves as the Associate Director for Clinical and Laboratory Services with the International HIV Prevention and Treatment (IHPT) for the U.S. Military HIV Research Program (MHRP) at the Walter Reed Army Institute of Research (WRAIR). As part of that role, she works with our technical teams in Kenya, Tanzania, Uganda and Nigeria to improve laboratory and clinical services to ensure we reach out programmatic goals.

In addition to these programmatic roles, CAPT Shah serves at the co-chair of the AFRICOS cohort study. AFRICOS is a long-term cohort study at multiple African sites that evaluates HIV prevention, care and treatment services it supports through local facilities, funded by the U.S. President's Emergency Plan for AIDS Relief (PEPFAR).

Previously, CAPT Shah was a medical officer at the National Institutes of Health (NIH), where she oversaw tuberculosis (TB) clinical research trials for ACTG studies. She also served as a field medical officer in the Centers for Disease Control & Prevention (CDC's) Division of TB Elimination, first to the Chicago Department of Health and then the San Francisco TB Program and was Director, TB Free California within the California Department of Health's TB Control Program for ten years. She was also a CDC EIS officer in the Global AIDS Program, CDC's original PEPFAR program.

Disclosures

- Dr. Knust, Col. Teegarden, Capt. Novosel-Lingat, Capt. Cavanagh, and Capt. Shah have no relevant financial or non-financial relationships to disclose relating to the content of this activity.
- The views expressed in this presentation are those of the authors and do not necessarily reflect the official policy or position of the Department of Defense, Department of the Army nor the U.S. Government.
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- The investigators have adhered to the policies for protection of human subjects as prescribed in AR 70-25.

Learning Objectives

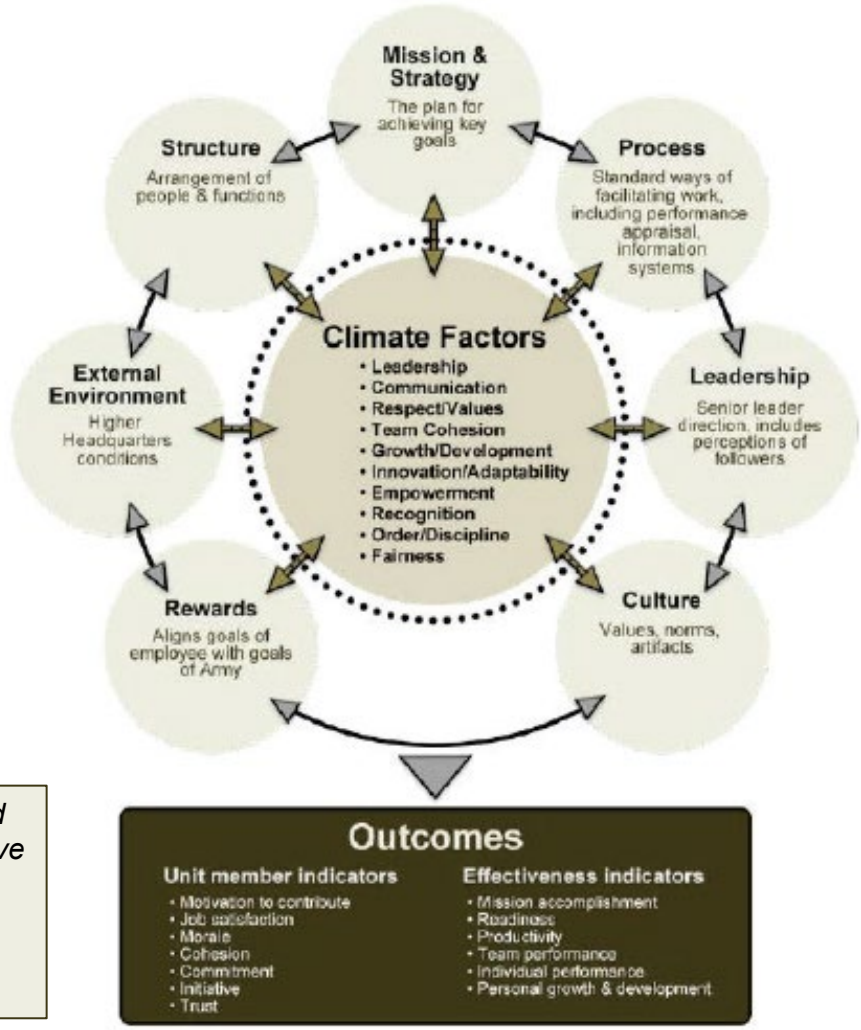
At the conclusion of this activity, participants will be able to:

1. Identify integration issues women experience as Soldiers currently serving in combat arms, combat support, and combat service support units.
2. Discuss opportunities to enhance unit cohesion and readiness through evidence-based integration initiatives.
3. Explain the U.S. government (USG) response to the Human Immunodeficiency Virus (HIV) pandemic and the Department of Defense (DoD) and Military HIV Research Program (MHRP) role in that response.
4. Understand the reasons that women are particularly vulnerable to health consequences of HIV.
5. Describe how USG programming and clinical care is structured to address those vulnerabilities.

Outline

- Center for Military Psychiatry and Neuroscience
  - *Cohesion Assistance Team*
- Center for Infectious Disease
  - *HIV Risks in Women*

Cohesion Assistance Team (CAT)



From: *Building and Maintaining a Positive Climate* from the **Center for Army Professional Leadership**

(Center for Army Professional Leadership, 2020)

Focus Group Data

- Data were collected between 2021-2022 across eight installations (Continental United States [CONUS]/Outside the Continental United States [OCONUS])
  - 60 focus groups
    - 15 E2-E4 male focus groups
    - 15 E2-E4 female focus groups
    - 15 E5-E6 male focus groups
    - 15 E5-E6 female focus groups

- Quotes are only from female focus group members

Professional Soldiers

- “I think a big challenge is in infantry units. It would be good to have more females in the line companies. There is only one female. Having a predominately male environment, leadership not being disciplined to sit down and treat her with respect and acknowledging that they might not have worked with women. There are cat calls, and they check her out. At work, it should be a professional environment. Treat females with respect and not as objects.”
- “I have a female Soldier and males come up to me and ask, ‘what is up with her?’ That’s the type of stuff that pisses me off. She minds her own business. She’s a grown-a** adult and gets s*** done and she’s an amazing mechanic and she knows what she’s doing, and they still treat her like she’s just a female.”
- “The guys won’t talk to me. I want to perform my job like everybody else, a difficult thing to deal with as a female in a male-dominated field.”
- “I don’t have any difference because I’m a female. They treat me the same.”

(CAT Female Focus Groups, 2021-2022)

Identities

- “Right now, it’s mostly the males taking my time – like ‘Sergeant, I’m going to punch someone in the face’ and I’m like, ‘no, calm down.’ They call us the company moms.”
- “You people are f***ing with my livelihood. That’s how they get us - you lose sense of self, and you don’t know what is going on around you. All females can contest to that. She’s a whore. She’s been with that one. You’re f***ed up in the head and you start questioning yourself and then I became an alcoholic, and I would get f***ed up with myself. Females being analytical – what could I do better? Am I too revealing? You can’t even talk nice to people because they think you want to f*** them.”
- “Either you’re really nice talkative, people person, or a straight up b****.”
- “We have to become, not masculine, but have to have some sort of persona to keep up.”
- “I get called barracks bunny every other week. They’ll be joking about it. You ain’t got nothing but male friends, you must be a barracks bunny.”
- “We have to be as tough as a man so we don’t show our emotions. I know that I can’t show emotion, so if I’m feeling something, I can’t say anything.”
- “Sometimes I feel personally there are a lot of things said about me being a female and it affects my career path. ‘Oh, she’s going to be a slut.’ But my job is to be a medic. “

(CAT Female Focus Groups, 2021-2022)

Career Progression

- “Being a female, I’m a little hesitant to ask. I don’t ask people of my rank. If I can jump to a Non-Commissioned Officer (NCO) I will, otherwise I’ll ask the task leader.”
- “I’ve never had a female NCO, never had female leadership. It would have been nice to have a female role model. It would have saved me a lot of time and a lot of mistakes, even just a mentor.”
- “It’s like sometimes you get issues where certain females feel distrusting of other females, I think it’s because it’s such a male-dominated atmosphere. It feels competitive, not for the male gaze, but competitive for your job. When you’re working with another female, your opportunity for that quota can be stripped away.”
- “I think it’s always great to see women pursue higher positions, it motivates me. I feel like this is a man’s Army. We always have to be one step above so to have us all together [in a women’s mentorship group] is great.”
- “How am I supposed to get anywhere in my career if they refuse to work with me because I’m a woman?”
- “With a lot of the higher ups, they are old school Army, still have that mentality, no, women shouldn’t be in combat. They bring up female issues, menstrual cycles, pregnancy, breast feeding.”
- “Guys are still in the mindset of females shouldn’t be in the Infantry. The last thing on their mind is to help this female out that they don’t even want on their team.”
- “As a female, it’s sometimes harder to make it to standard, but I mentioned it with my squad leader and platoon sergeant, and they’ve been helping me with the gym during their off time and helping me keep up and pushing me.”

(CAT Female Focus Groups, 2021-2022)

Sexual Harassment

- “When there are the little (sexual harassment) things, they get squashed, the other guys in the company will squash it at all ranks.”
- “I reached out to (a female) sergeant because I wasn’t comfortable talking to my leaders. She reached out to my squad leader, and he talked about it with me and handled it.”
- “Like if they see a female they will cat call, and I would tell them to shut the f*** up, like obviously it’s junior enlisted. Like the other older junior NCOs would see it, like why won’t you say something and tell them not to do it?! Like why do I have to say that it’s wrong and shouldn’t be doing it?!?”
- “My males are very protective of me, even the Command Sergeant Major (CSM). Apparently, there was an incident. They were very concerned; they don’t want any of that.”
- “I wouldn’t report anything if I saw an older NCO slap the a*** of a younger female, I probably wouldn’t report it because nothing is going to change. It will only be reported if someone is really physically harmed.”
- “Like they know I’m married, and I’m married to a female, and they know I don’t like [being propositioned by males]. And they tell you that you should get used to it because you’re working in a male-dominated Military Occupational Specialty (MOS), but like no, I shouldn’t have to get used to it.”
- “In our company, we just shoot the s***, but the guys make sure they know they’re boundaries about the jokes. Like they pulled me aside and said, “if I say something, let me know if I pushed the boundary.” They’re being respectful and understanding how to work with females.”
- “I was with the first group of females to come to this company; the guys were like piranhas.”

(CAT Female Focus Groups, 2021-2022)

Sexual Assault

- “I was the only female, like I thought everyone was being friendly, but not everyone was. Like when I was in the barracks, I’ve been followed, I’ve been touched when I didn’t want to be.”
- “Like they were having a conversation about a woman’s vagina. Like, ‘you have to look at it before you go in there because you have to see if they’re washed up.’ It means they’re tore up. Like, it bothers me because I was assaulted in my last unit, like, what are you saying about me? Like I’m tore up because I got raped. Like no.”
- “And [the male NCO] knocks on their (barracks) door and walks right in, like they see the NCO rank and they know the (female) private isn’t going to say or do anything. Like you shouldn’t just walk into their room and shut the door because of that barrier and rank, like with that age barrier and rank barrier.”

(CAT Female Focus Groups, 2021-2022)

Fear

- “I have seen instances where males are afraid to correct a female because they don’t want to be SHARPed (Sexual Harassment/Assault Response and Prevention).”
- “Guys are cautious about what they say and can’t associate with females, that they will catch a SHARP case with females.”
- “The females are afraid of reprisals, so they don’t talk to who they need to talk to. There is the help there, but you need to use it.”
- “Some female Soldiers don’t want to say anything because ‘I snitched. Now I am getting in trouble.’ Getting moved if I report a problem…it’s a different form of reprisal.”
- “We are afraid to use the bathroom (at National Training Center [NTC]) because I think we might be a SHARP case. Females have to cover each other and we’re afraid a SHARP thing would happen.”

(CAT Female Focus Groups, 2021-2022)

Double Standards

- “Oh, you’re a female, you have to work harder at everything to prove a point. It gets hard, so stressful. You feel you have a target on your back because of your sex.”
- “There’s a thing where since I’m a female in the Army, I’m not seen the same. I have to try ten times harder than any man in the Army to be hard. If I’m running next to a man, I’m not running fast enough.”
- “All the males are pretty supportive. Maybe when we are smaller females, when we have rucks, we have to end up running all the time. They are like ‘you got this, don’t quit.’”
- “It’s almost like a double-edged sword; you have these female Soldiers who want to do what they want to do because they have been getting away with it. They go and bat their eyes at the male NCOs. You’re just trying to uphold the standard.”
- “I feel like the females get a little harder than the males, we are held to a different standard within the leadership than the male NCOs are. It’s a little more lax. We have to keep that composure 99% of the time. You see the males and I don’t feel like they are kempt.”
- “For my company, a lot of male NCOs don’t feel comfortable talking to female Soldiers so they get away with a lot more.”

(CAT Female Focus Groups, 2021-2022)

Female Hygiene

- “We’re at NTC and First Sergeant didn’t want the females to go to the bathroom by themselves, because there were five assaults when we got out of the box. Like, my platoon sergeant would smoke me if I went out by myself, but it makes me mad that, like I can’t go to the bathroom by myself.
- “Like when we’re talking about NTC, and they had me as the only female in the training meeting and I asked, ‘oh ok, so what about females when they get their periods?’ and then they get *ugh, gestures gross things* but they don’t think about that! Like you have to figure out how to f***ing do it and clean yourself, like when you’re on the line, like you either get off of the line, or you have to wait till dark to do your business.”
- “Like I educated all of my females on she-wees, so I’m proud of that.”
- “With [field training exercise], they were really good about it. [My leader] had daughters so he knew. Me and him came up with a plan so supply could have a box whenever we go to the field. They can stock up on pads and tampons, extra toilet paper, and wipes for the females. Let us go shower, they are going to start doing that, carry it to the field. He really helped out in that, I had a suggestion and he brought it up.”
- “They had never worked with females before. Mainly it was all my chief, he helped me really good. He’s very understanding with female hygiene. If I have a problem with menstruation, I’m like, ‘I have a problem’ and he’s like, ‘go take care of it.’”

(CAT Female Focus Groups, 2021-2022)

Pregnancy/Post-Partum

- “The Command Sergeant Major told the First Sergeant and he asked me ‘are you pregnant?’ I know you’d be out for 9 months. Your career is stopped because of your family. Your career is affected. I would have been a sergeant earlier. Like why should my career be affected just because I’m the one that has to get pregnant? I see the same things with other females.”
- “Pregnant females are treated like s***. It’s not my fault that I am the only one that can carry the child. I was made this way. But it makes us undeployable for longer; I get the frustration.”
- “I tried telling the other NCOs that it’s not that she’s useless, she’s just pregnant.”
- “We had a platoon sergeant – a horrible man – in my last unit, the female was pregnant and she said, ‘I don’t have to go to [location] if I’m pregnant,’ and he said, ‘I can change that, I just have to kick you in the stomach.’”
- “And when the NCO found out when I was pregnant, he would say, ‘oh, now I have reason to fire you.’”
- “[Leaders] want family planning around their schedule.”
- “This command team that we have has been better. They’ve actually been really helpful with [me having a baby at home] as well.”
- “No way, no way, like post-partum – when I first got here, they were like, ‘here, you go do an Army Physical Fitness Test (APFT)’, And I was like, ok... Like, they came in like, here, do the APFT, and I was like ok, but no. like first, we’re in a pandemic, you can’t make me do PT, but like second, like it’s in the reg I don’t have to. And then he was like, ‘ok, you don’t have to do it, but if you’re nice to me, I won’t put it on your record.’ And I was like, ‘no, it’s not going on my record.’ And I had to show him the regs! Like same with operational deferment -- I had to show the platoon sergeant how to do it, like he let me show him how to do it, and how to put it in the system. Like teaching them about lactation and breast feeding, and all of the regulations related to post-partum.”

(CAT Female Focus Groups, 2021-2022)

Survey Data

- Data were collected between 2021-2022 across eight installations (CONUS/OCONUS)
- Units were provided a QR code and URL link to a digital survey (Qualtrics)
- Iterative process of survey design during the evaluation pilot resulted in 7 versions
  - Response options
  - Wording/Phrasing
  - Utility

Male Soldiers = 8,422

Female Soldiers = 1,069

Other/Missing = 1,235
TOTAL = 10,726

(CAT, 2022)

CAT Survey Results

Balanced Approach

n_{FS} = 803 (10%)

Pride

n_{FS} = 586 (11%)

Well-Being*

n_{FS} = 1,055 (11%)
$\chi^2(1, 9{,}397) = 21.07$

Respect*

n_{FS} = 1,056 (11%)
$\chi^2(1, 9{,}393) = 10.83$

Agree
Disagree
Between-group differences

(CAT, 2022)

*$p < .001$

CAT Survey Results

Racist Comments*

n_{FS} = 783 (11%)
$\chi^2(1, 7{,}352) = 35.20$

Thoughts of Suicide & Self-Harm**

n_{FS} = 802 (11%)
$\chi^2(1, 7{,}475) = 10.47$

Sexual Comments*

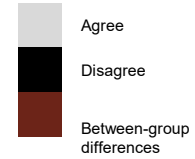
n_{FS} = 784 (11%)
$\chi^2(1, 7{,}351) = 150.24$

Unpleasant Assignments (based on gender)*

n_{FS} = 633 (11%)
$\chi^2(1, 6{,}124) = 99.64$

Unwanted Touching*

n_{FS} = 782 (11%)
$\chi^2(1, 7{,}350) = 47.09$



(CAT, 2022)

*p < .001 **p = .001

Conclusions and Way Forward

- Awareness
- Allyship
- Policy
- Education

HIV Risks in Women

HIV VACCINE DEVELOPMENT • THREAT ASSESSMENT • PREVENTION CARE AND TREATMENT • CURE RESEARCH

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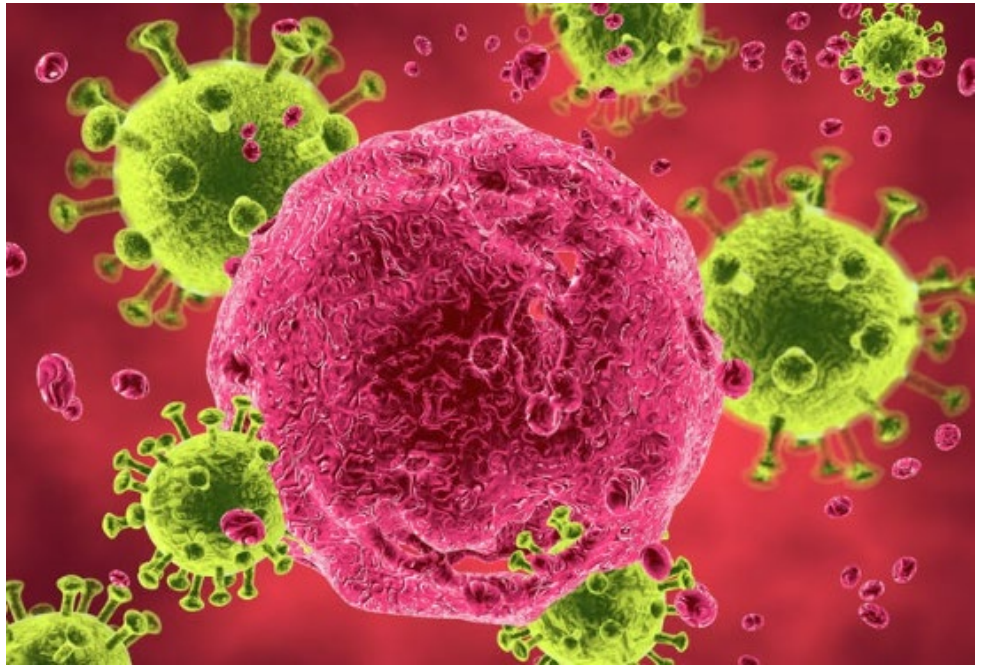
(Photos courtesy of US Army, n.d.)

HIV in 2023

- HIV transmitted by contact with infected bodily fluids
  - Receptive sexual partners at higher risk (per sex act)
  - Risks, from sex or exposure to infected blood or blood products, depends on viral load and barrier of exposure (intact skin vs mucosa vs open wound vs intravenous)
- Preventable, but once infected, results in progressive immune dysfunction
  - Untreated, results in death within ~10 years
- Treatment (currently one combo-pill, once/day), confers normal life expectancy, requires adherence to lifelong therapy



(stock.adobe.com, n.d.)

HIV Risk per Exposure to HIV Infected Source

Lowest (negligible) → High (>1%)

Splash to eye/mouth

Wound care

Sex on HIV Prophylaxis

Insertive **Penile-**Vaginal Intercourse (0.04%)

Receptive Penile-**Vaginal** Intercourse (0.08%)

IV Drug Use needle sharing (0.6%)

Needlestick (0.2 – 0.5%)

Projectile bone fragments & blood through skin

Insertive Anal Intercourse (0.1%)

Receptive Anal Intercourse (1.4%)

Blood transfusion (93%)

(https://www.cdc.gov/hiv/risk/estimates/riskbehaviors.html)

(Photo courtesy of health.mil, n.d.)

Healthcare Workers are at risk for HIV during Mass Casualty Situation

Unable to promptly seek care (needlestick wound care & post exposure meds)

Sexually active service-members at risk when deployed in higher-risk environments

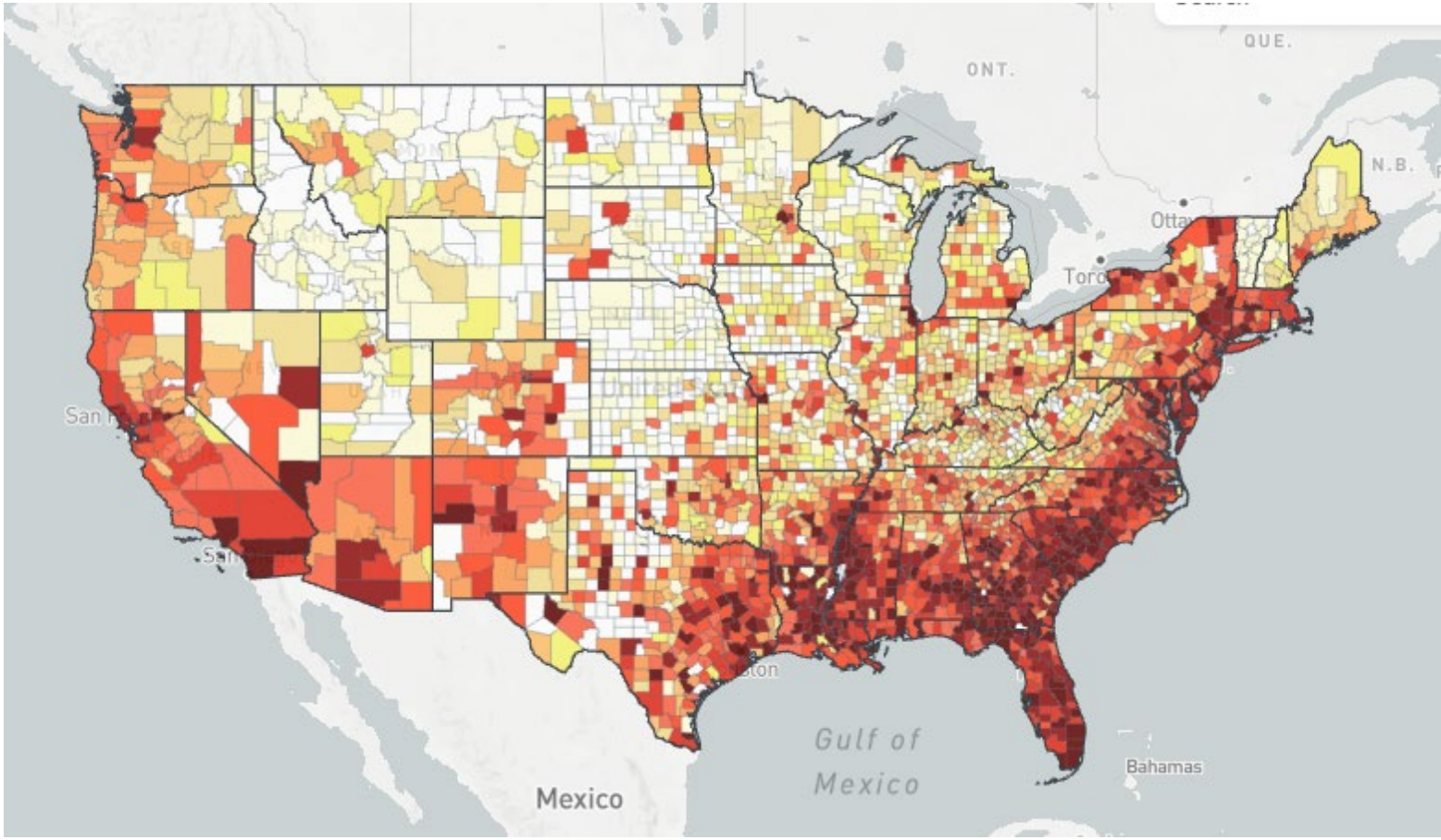
HIV in the Military

HIV Affects US and US Military

- Increased incidence in younger age groups, and higher burden in the South mirrors and limits DoD accessions

- ~300 new cases in the DoD each year costing >$500k/case; >1000 service members with HIV currently serving

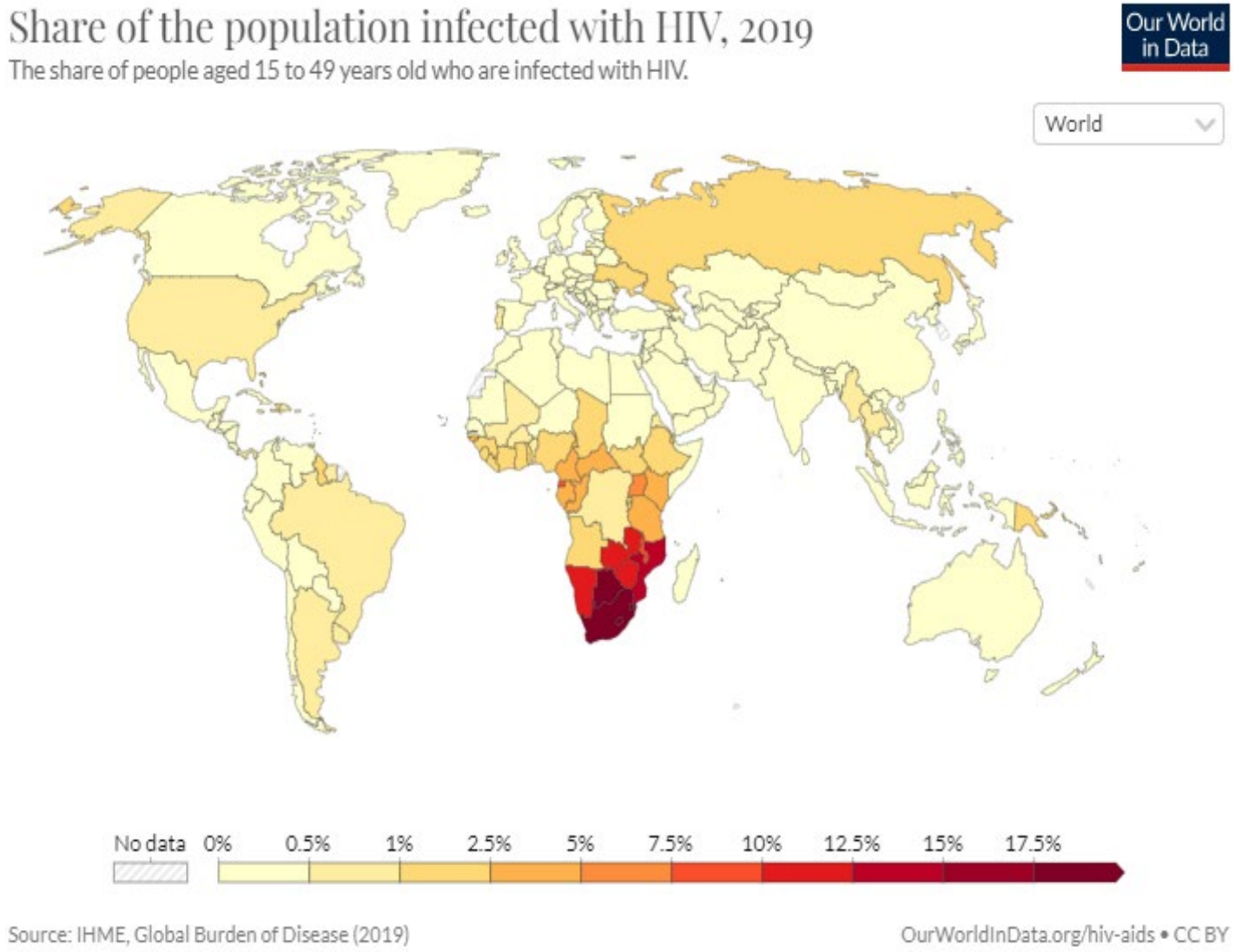
HIV Prevalence (per 100,000 population) by US County, 2020



(https://map.aidsvu.org/map, 2020)

HIV Risks for Active Military

- Militaries have higher HIV incidence; risk factors include long deployments in potentially higher risk environments, alcohol (ETOH) use, regular pay, transactional sex, sexual violence, battlefield exposure and combat casualty care
- HIV prevalence elevated in potential theaters of conflict
  - 1-2+% in Russia, Ukraine, Nigeria; much higher across East and Southern Africa
  - Prevalence <1% in China but incidence is rising there and in the Philippines



Battlefield Risks

- **Hemorrhage causes ~90% of survivable trauma death**
- In a near-peer conflict model, **71,308** units of blood will be needed over **90 days,** necessitating use of “Walking Blood Banks”
  - Servicemembers (SMs) with HIV are serving overseas and are deployed
  - Testing limitations for recent exposures after peri-deployment high risk activities
  - Coalition partners do not reliably test SMs for HIV
  - Donor pools would need to pull from local nationals with increased HIV risk

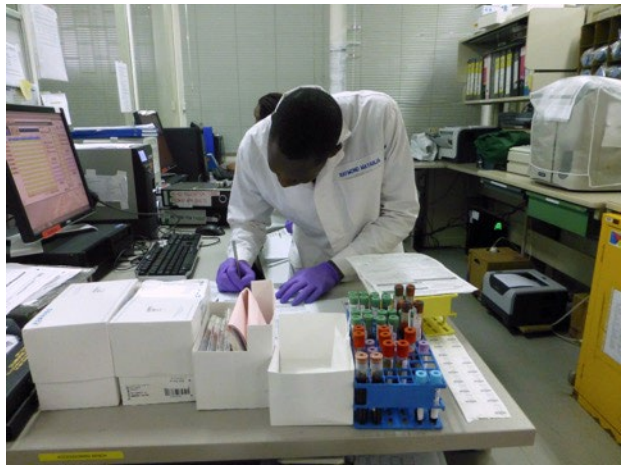
(Photo courtesy health.mil, n.d.)

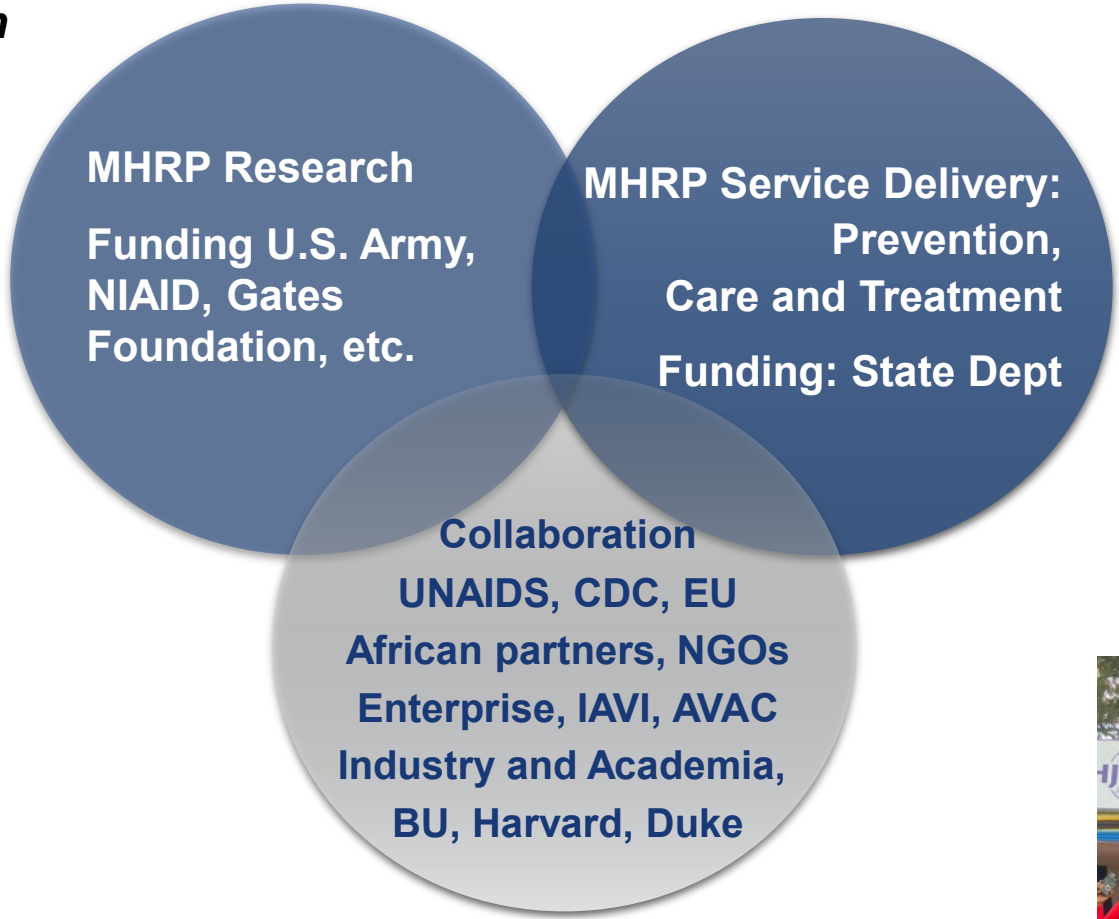
Military HIV Research Program (MHRP)

Integrated Care, Treatment and Research

Generalized scientific research and cohort studies to inform best practices and practical solutions in resource-limited settings for prevention as well as care and treatment

(MHRP, n.d.)





PEPFAR funding allows for a comprehensive community-based platform in the communities that participate in WRAIR research

NIAID- National Institute of Allergy and Infectious Disease
UNAIDS- United Nations Program on HIV/AIDS
CDC- US Centers for Disease Control and Prevention
EU- European Union
NGO- Non-government Organizations
IAVI- International AIDS Vaccine Initiative
AVAC- AIDS Vaccine Advocacy Coalition
BU- Boston University

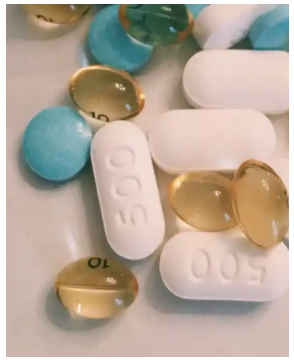
Collaborations and technology transfer develop sustainable capacity and infrastructure; contribute to global agenda

(Walter Reed Program- Tanzania, n.d.)

Future

HIV Prevention strategies

Current



(adobe.stock.com, n.d.)

HIV Vaccine

Pre- Exposure Prophylaxis:
Investigational - Initial Army vaccine 60% effective at 12 months. Need higher, long lasting effectiveness,

Post-Exposure Prophylaxis
Investigational vaccines decrease virus levels

Infusion of Antibodies Against HIV

Pre-Exposure Prophylaxis
Investigational
Prevents HIV sensitive strains sexually w/ q2 month injection. Antibody durability up to 6 months

Post-Exposure Prophylaxis
Investigational
antibodies suppress virus levels

Injectable Antivirals Long-Acting*

Pre-Exposure Prophylaxis
Investigational -
1 injection every 2 months superior at preventing HIV sexually compared to oral antivirals

Post-Exposure Prophylaxis

Investigational

**FDA Approval for HIV treatment*

Oral Antivirals

Pre-Exposure HIV Prophylaxis
FDA Approved
1 pill 1x/day to prevent HIV sexually

HIV test every 3 months

Post-Exposure HIV Prophylaxis
FDA Approved
2 pills 1x/day for 28 days after sex or needle stick; currently not recommended during deployment

HIV test @ 1, 3, 4 months

MHRPs Scientific Research to Prevent HIV

Objectives:
Provide large amount of HIV-safe fresh whole blood via walking blood bank
&
Prevent HIV in deployed servicemembers and healthcare workers

Goals:
Oral and injectable antiviral prophylaxis studies, particularly for HIV+ blood product receipt

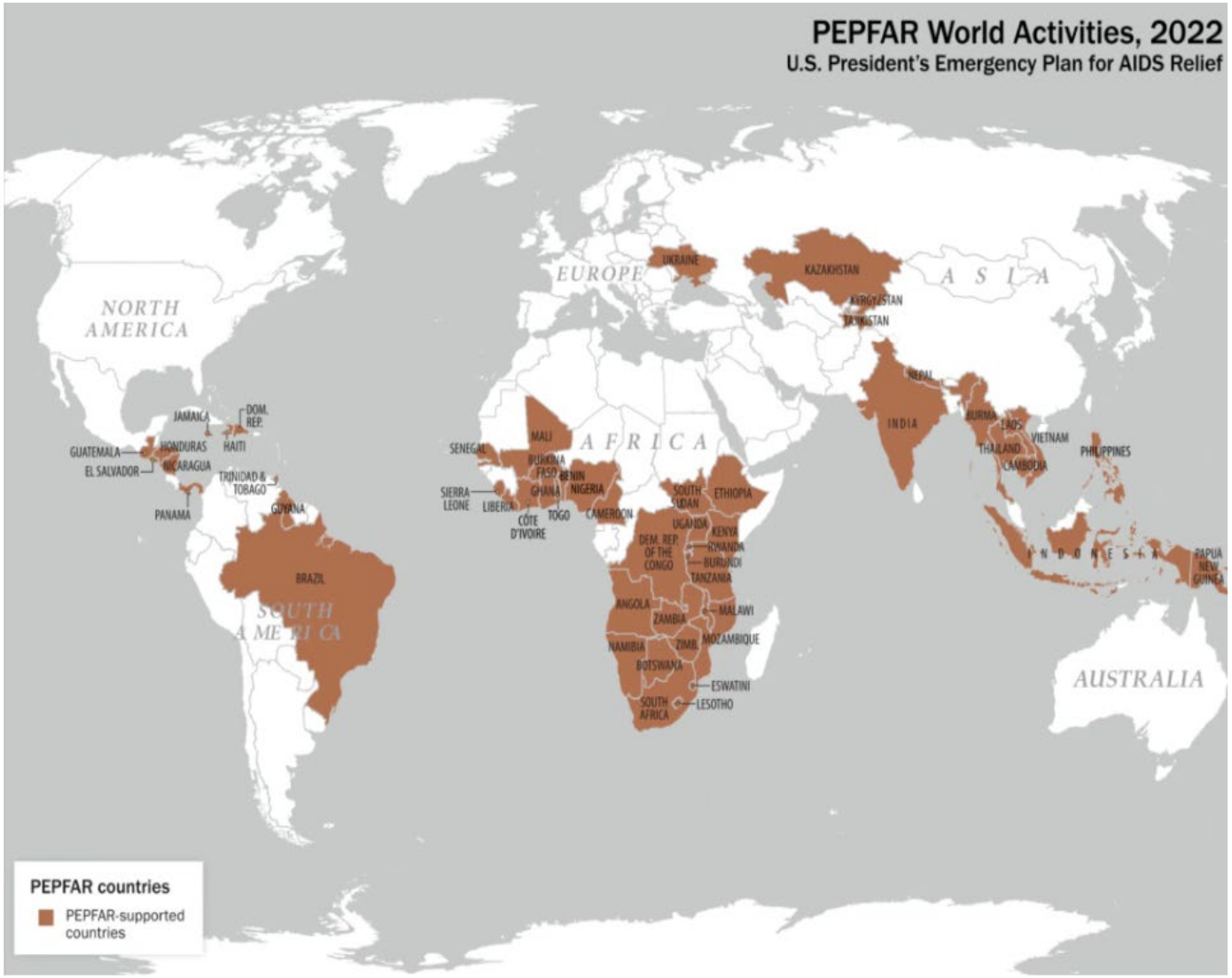
Develop broad antibodies against HIV strains, especially those in China & Russia

Understand how to dose drugs & antibody with massive blood loss

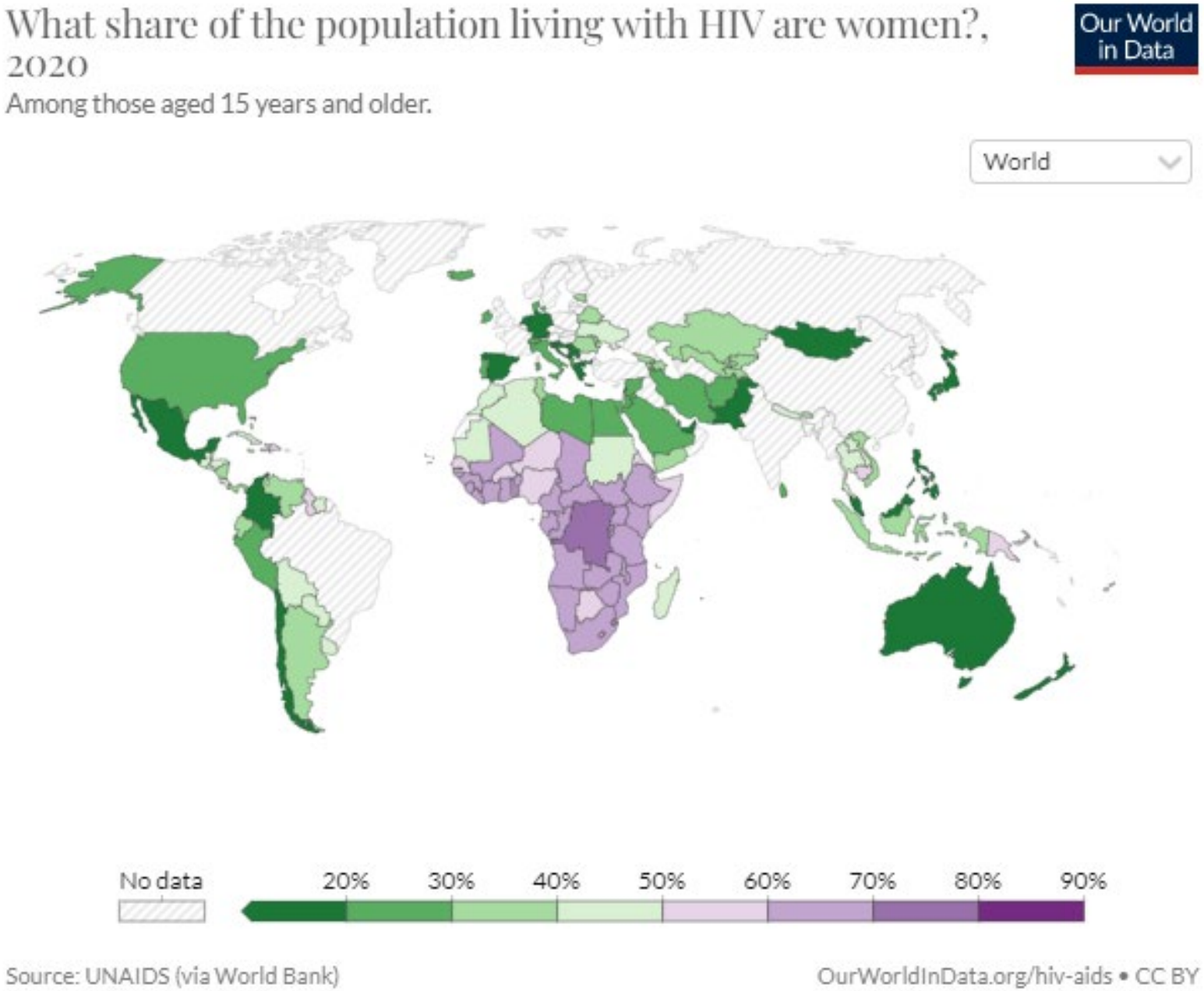
Develop an HIV vaccine as the end goal to achieve high levels of protection

DoD and the President's Emergency Plan for AIDS Relief (PEPFAR)

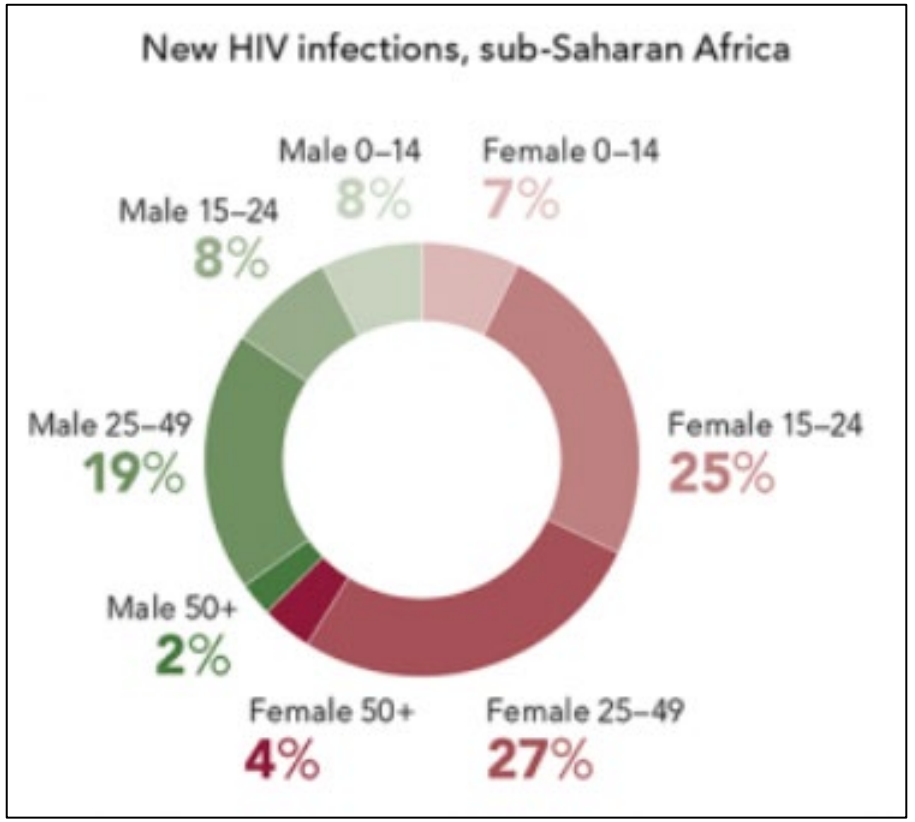
- PEPFAR is the largest HIV implementing program in the world; started in 2003 and funded at $6-7 billion/year since 2009
  - Currently ~20 million people on treatment
- DoD AIDS/HIV Prevention Program (DHAPP) works with partner militaries in 50+ countries across the globe
- WRAIR/MHRP works in 4 African countries + Philippines, with large mil-to-civ programs as well as mil-to-mil
- Both DoD programs support on-the-ground HIV services, including prevention and care and treatment



Women and HIV

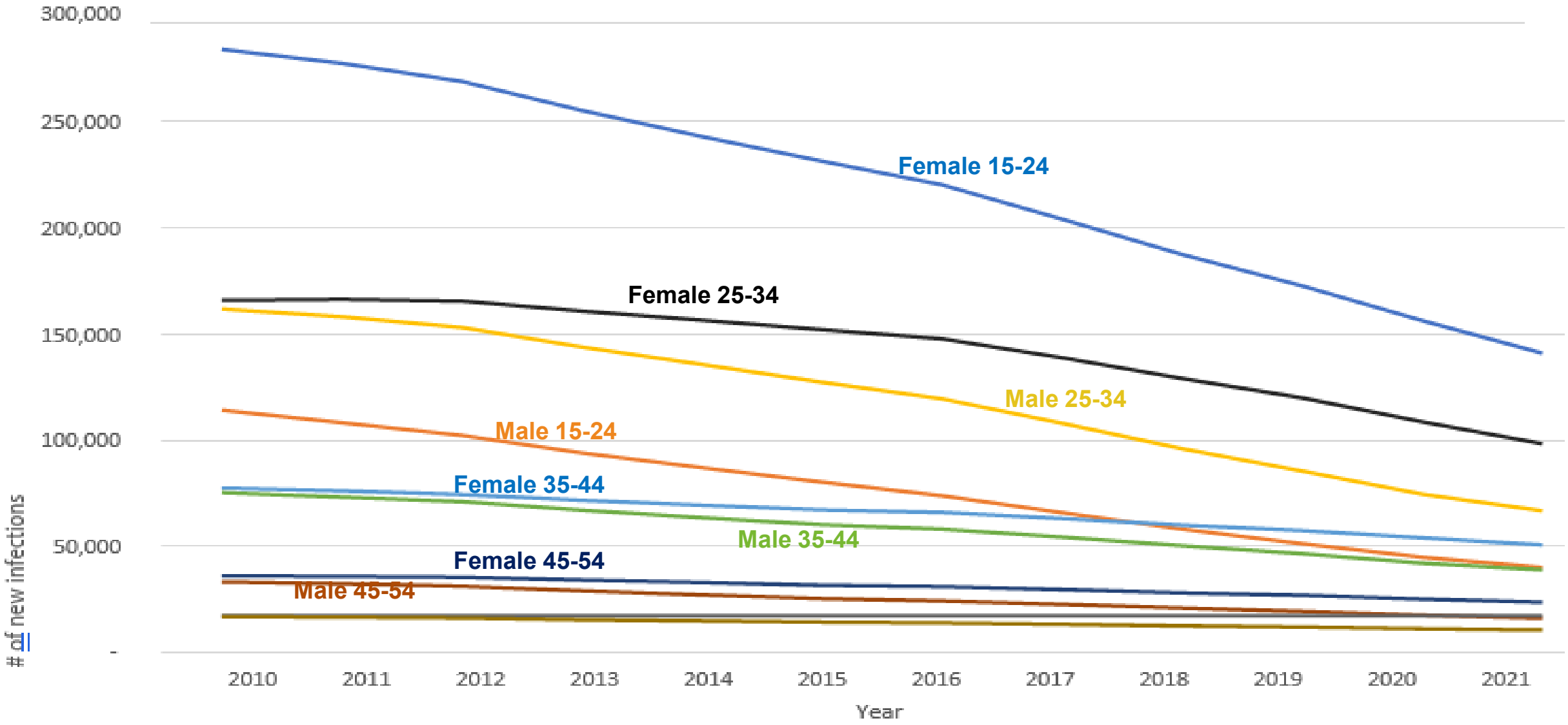


- **Nearly 70% of global people living with HIV (PLHIV) are in <u>sub-Saharan Africa</u> (SSA)**
  - **25% of new infections in SSA are among <u>adolescent girls and young women</u> (AGYW, aged 15-24)**
- **Globally, 54% of PLHIV are women**



UNAIDS estimates, 2021 (https://aidsinfo.unaids.org)

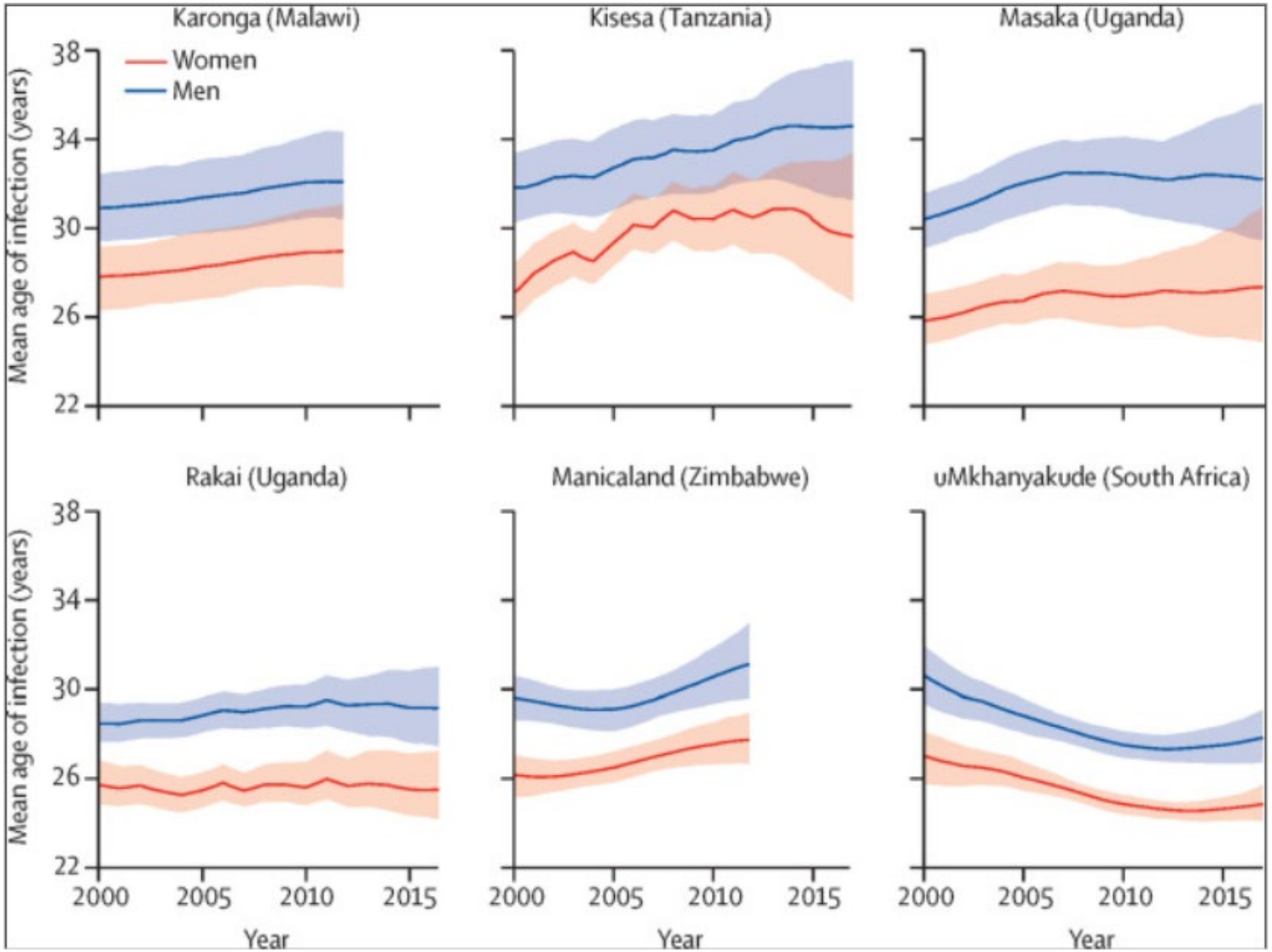
Estimated Trends in New Infections (by Age and Gender) in PEPFAR-Supported Countries



(PEPFAR FY2024 Country Operating Plan Technical Considerations, derived from UNAIDS Data, 2022)

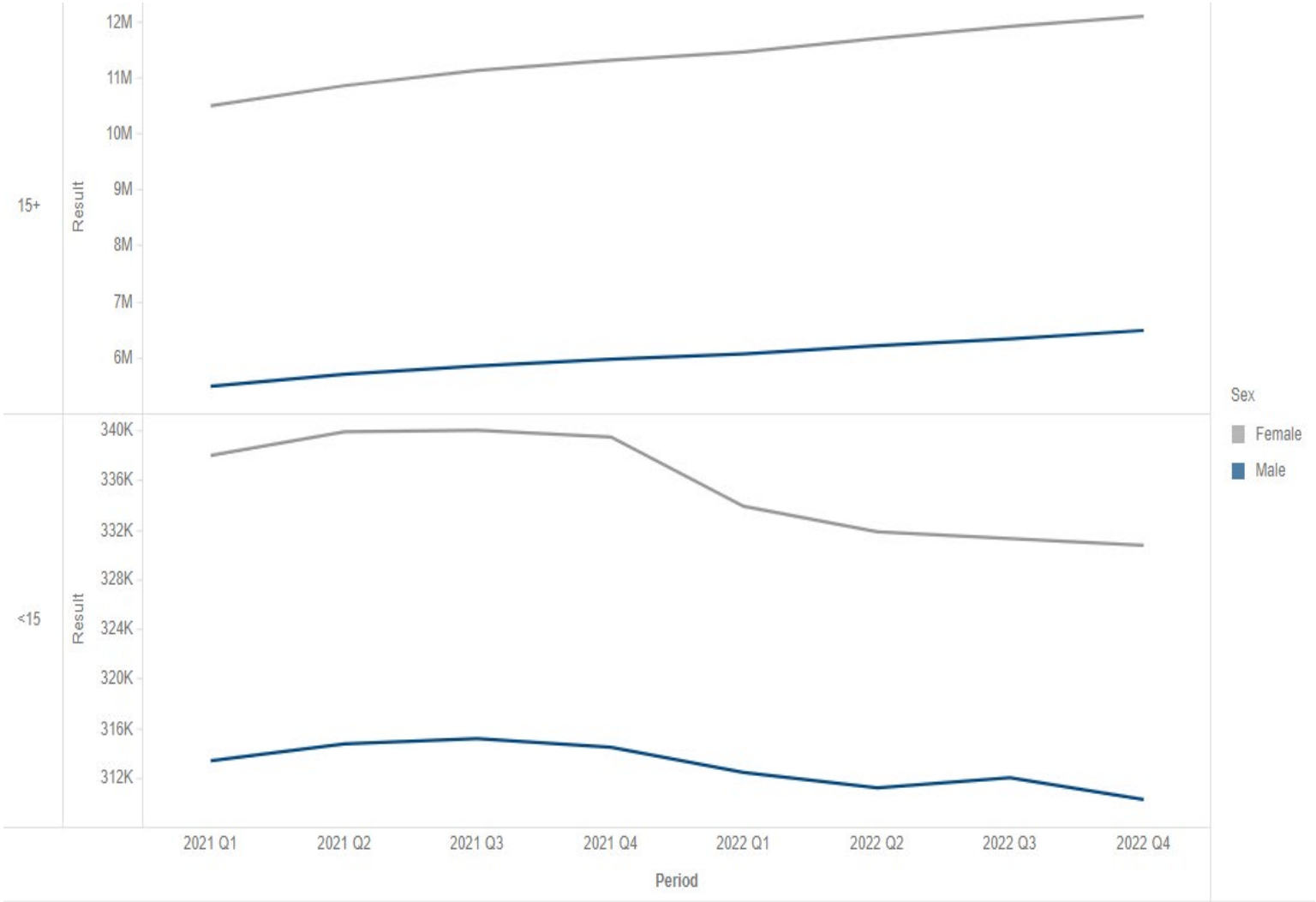
Age of HIV Infection, Men vs Women

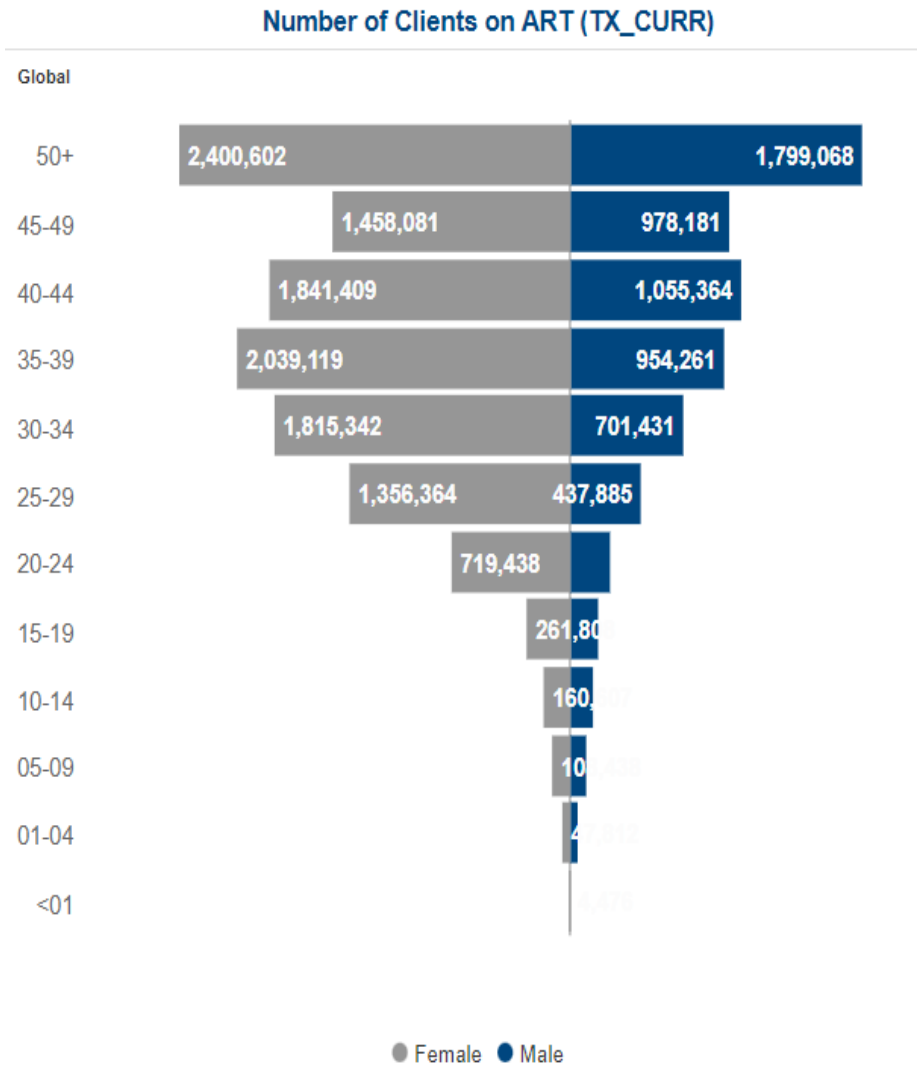
- Mean age of infection is generally lower for women than for men
- Older men are likely an important source of infection for younger women
  - Field research supports this hypothesis



(Risher et al., 2021)

Recent Trend in Number of PLHIV on Treatment in PEPFAR-Supported Countries, by Age and Gender

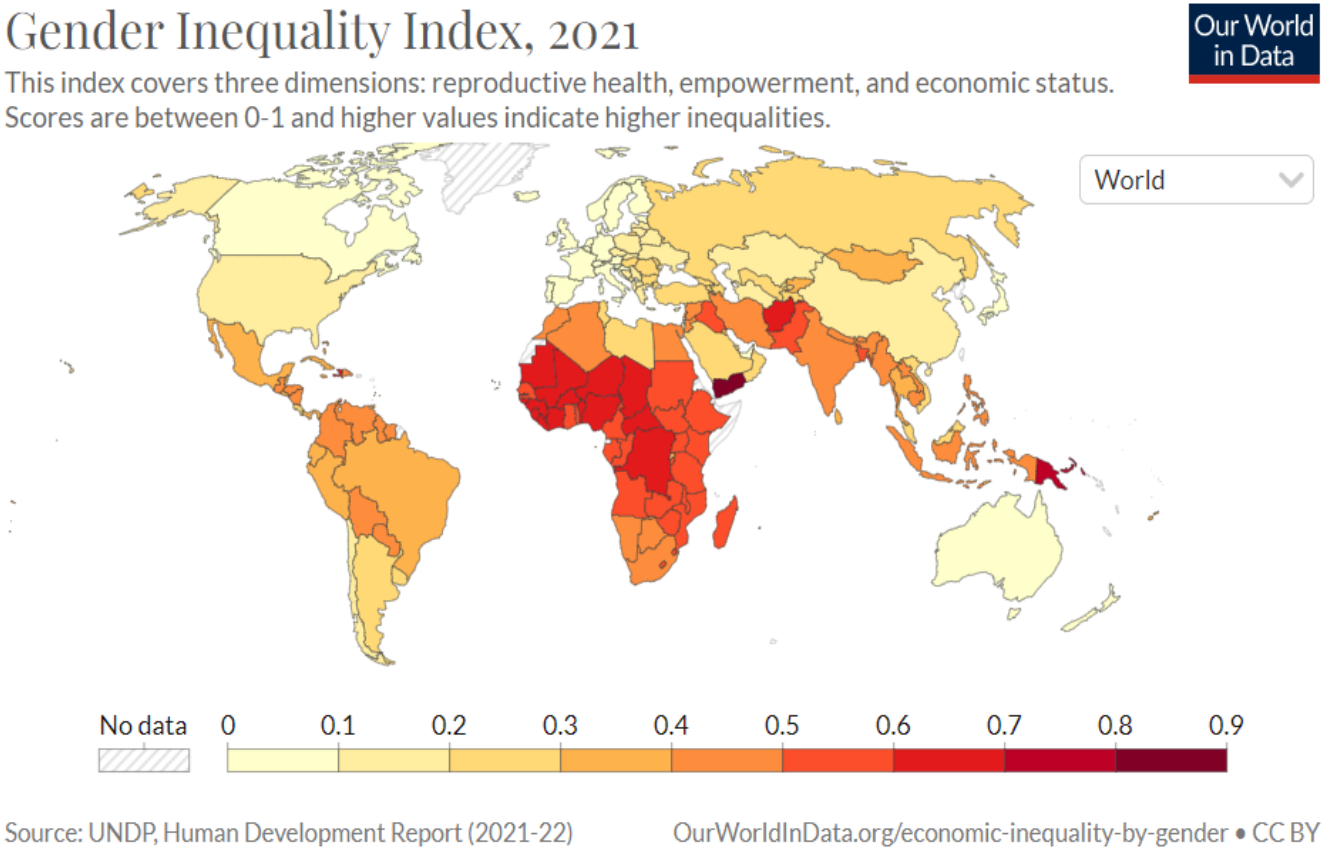




(Data Visualizations from PEPFAR Panorama)

Factors Related to Gender Differences in HIV Incidence

- Stark gender inequalities in education, employment, and property/inheritance rights increase the likelihood of transactional relationships and sex
- Unequal access to education on sexually transmitted diseases
- Forced sex and Gender-Based Violence
- Cultural norms that limit sexual autonomy and decision-making for AGYW
- Increased risk from receptive sex



Cycle of Transmission between Younger Women and Older Men

- Qualitative data paired with genotyped phylogenetic constructions show that sexual partnering between AGYW and older men is a key feature of the sexual networks driving transmission, particularly in SSA
  - Among women <25 years in Africa with phylogenetically linked HIV transmission chain, ~70% were linked to older men and mean age difference between women and men was 8.7 years
  - Women <25 with male partners who are at least 5 years older than them are more likely to engage in condomless sex, transactional sex, more frequent sex, and/or concurrent sexual partnering
  - HIV is two times more likely (aOR=1.96) in women with an intergenerational partner.

(De Oliveira et al., 2017; McCloskey et al., 2021)

Sex Work and Transactional Sex

Risk Factor	Estimated Prevalence (globally)	Increased Risk for HIV
Sex work	**0.7 – 5%**	**10-30X**
Transactional Sex	**2 – 52%**	**2-3X**

- Transactional sex refers to non-marital, non-commercial sexual relationships exchanging sex for material support
- Proportion of women of reproductive age who report engaging in sex work ranges up to 5%; female sex workers are 10 – 30 times more likely to be living with HIV than other women of reproductive age
- Proportion of AGYW engaging in transactional sex >50% in some settings
  - very difficult to estimate and highly variable
- When transactional and intergenerational sex overlap, the chance of contracting HIV increases substantially (aOR=4.57)

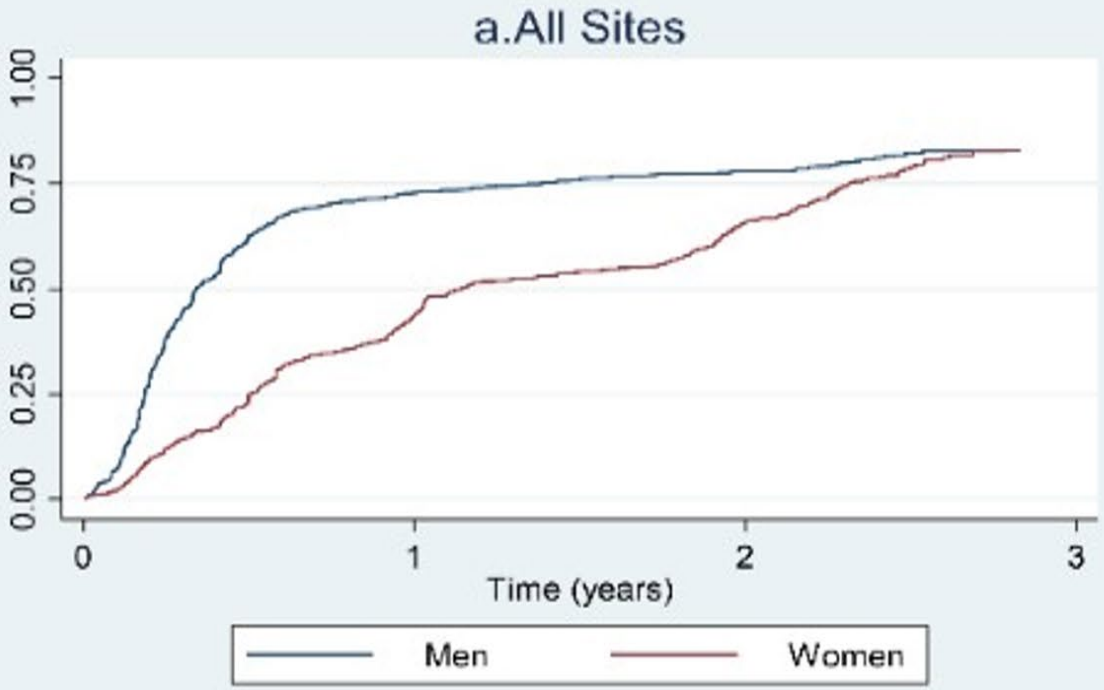
(Laga et al., 2023; McCloskey et al., 2021; Wamoyi et al., 2016; UNAIDS, 2018)

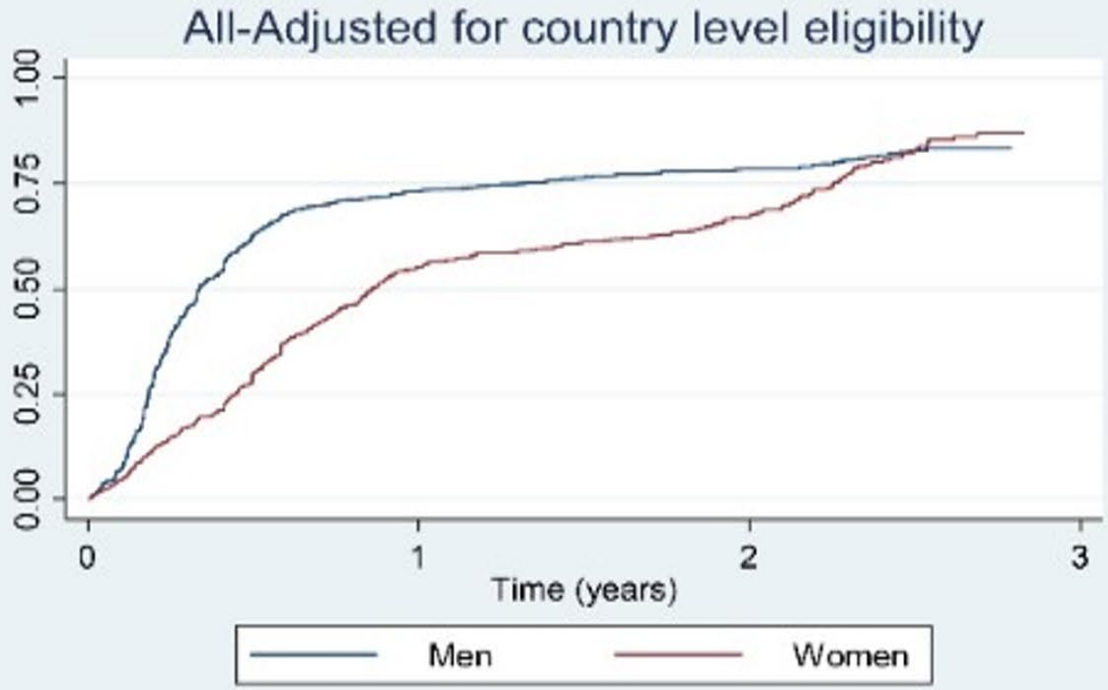
Sexual and Gender Based Violence (SGBV)

- **Globally, more *than a third* of all women have experienced SGBV; less than 40% seek help**
  - **70% of women in conflict settings or refugee populations are exposed to SGBV**
- The U.S. DoD:
  - >8% of active-duty women and ~1.5% of active-duty reported some form of unwanted sexual contact in the year before the survey was conducted
  - Reports of sexual violence increased 13% from FY20 to FY2021 (from 7,816 to 8,866)
- Data from 9 sub-Saharan African country militaries (2009 to 2014) show that over 9% of women and 5% of men reported experiencing SGBV; 6% of men reported committing SGBV
- **SGBV associated with >50% increase in risk for HIV**

(UNAIDS, 2022; US DoD Fiscal Year (FY) 2021 Annual Report on Sexual Assault in the Military; Nightingale et al., 2017)

Women Less Likely to be Switched to Better Antiretroviral Therapy (ART)

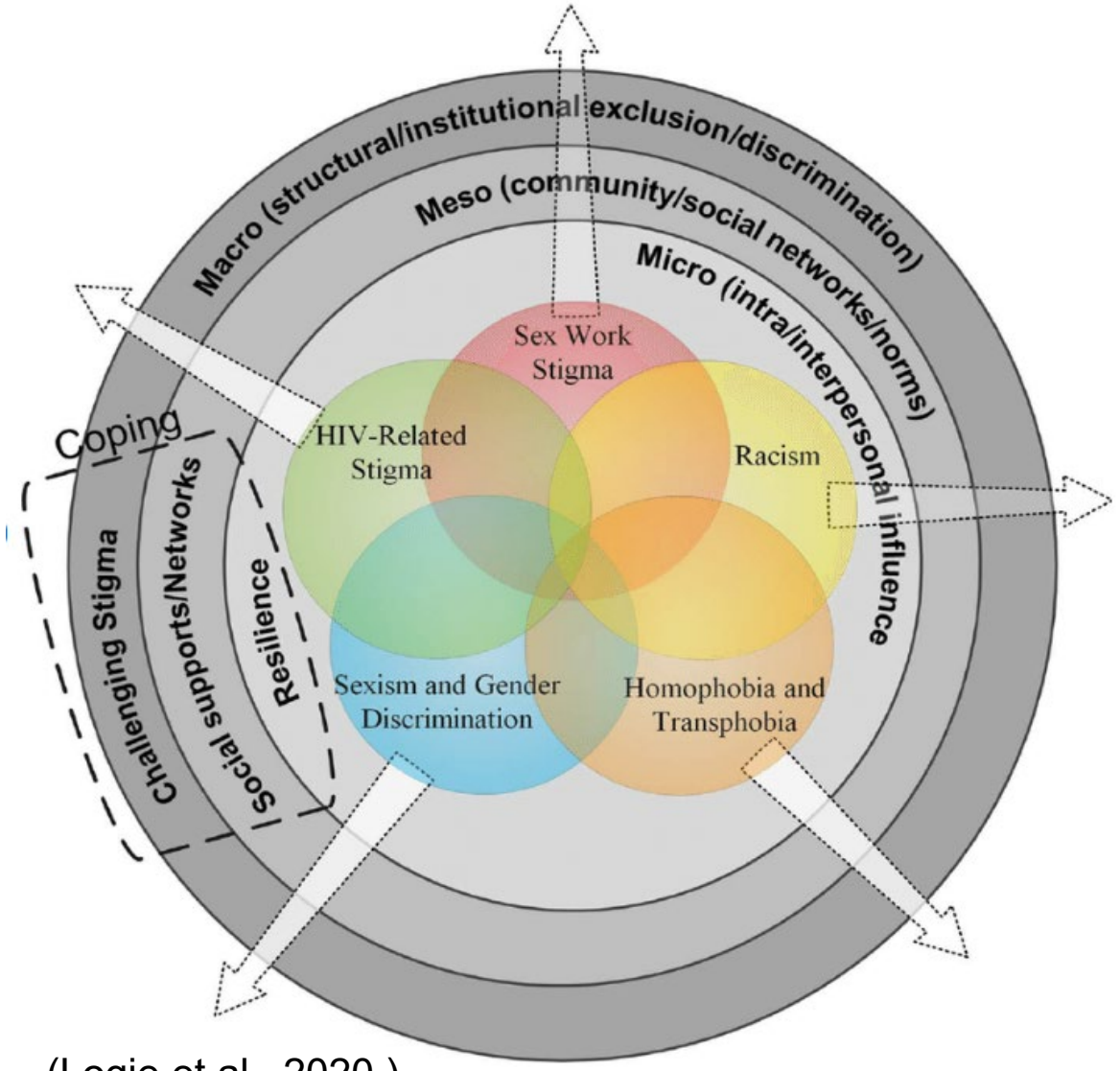




(Shah et al., 2022)

Women and Treatment Initiation and Treatment Interruption

- Overall, women have similar retention in HIV care as men
- Women face particular challenges with entry into and retention in HIV care:
  - Disclosure of HIV status can lead to violence and/or neglect and abandonment
  - Socially, HIV and sexual stigmas interact with gender discrimination/inequities to create unique pressures



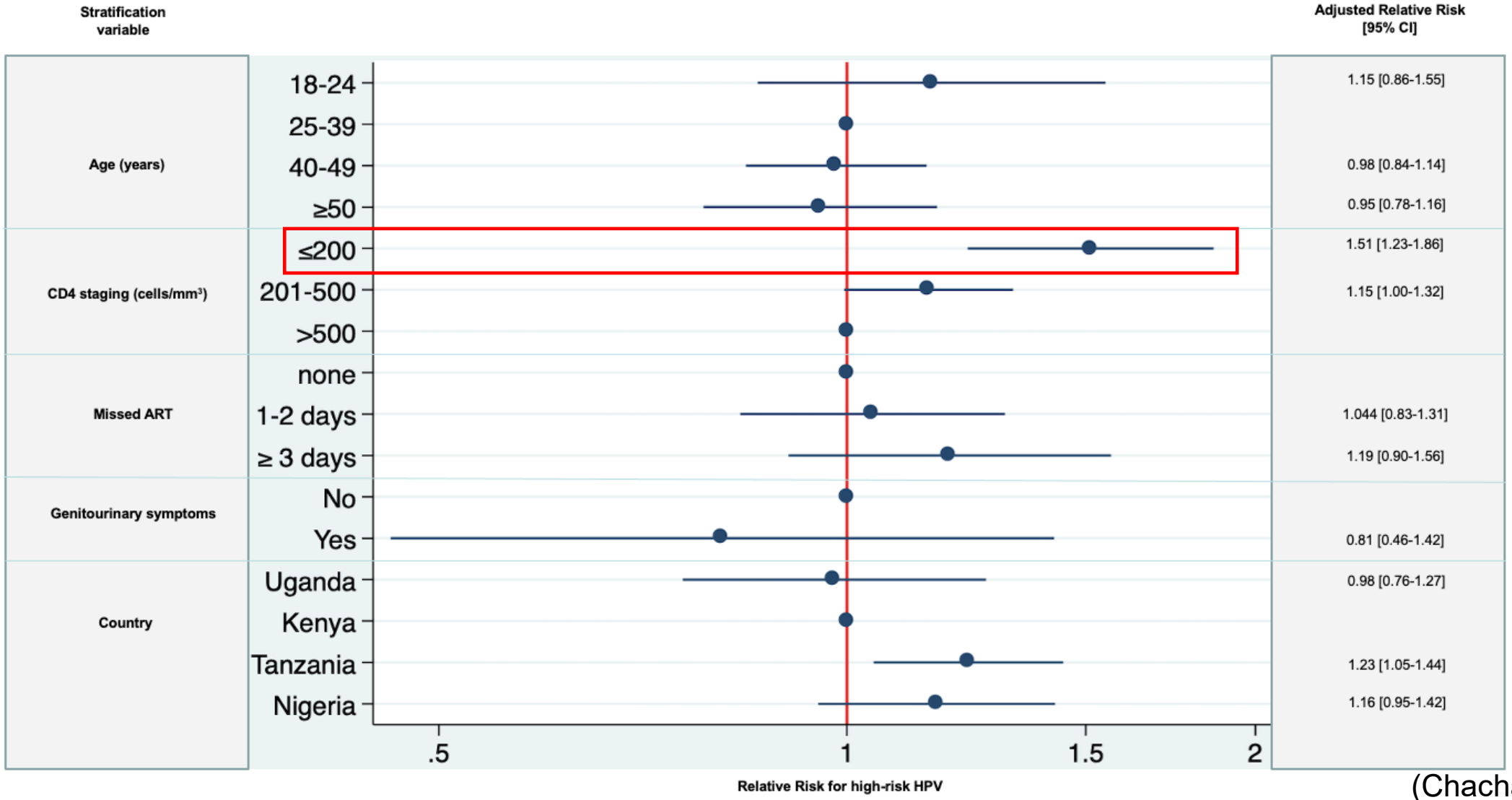
(Logie et al., 2020)

HIV and Cervical Cancer

Human Papilloma Virus (HPV) and Cervical Cancer

- Both HIV and HPV are sexually transmitted; diseases can result from similar risks
- HIV reduces specificity of molecular HPV testing
- High prevalence and diversity of high-risk HPV infection in women with HPV
- Women with HIV and HPV are ~6X more likely to develop cervical cancer than women without HIV, and more likely to progress faster
- HIV is responsible for ~5% of cervical cancer worldwide

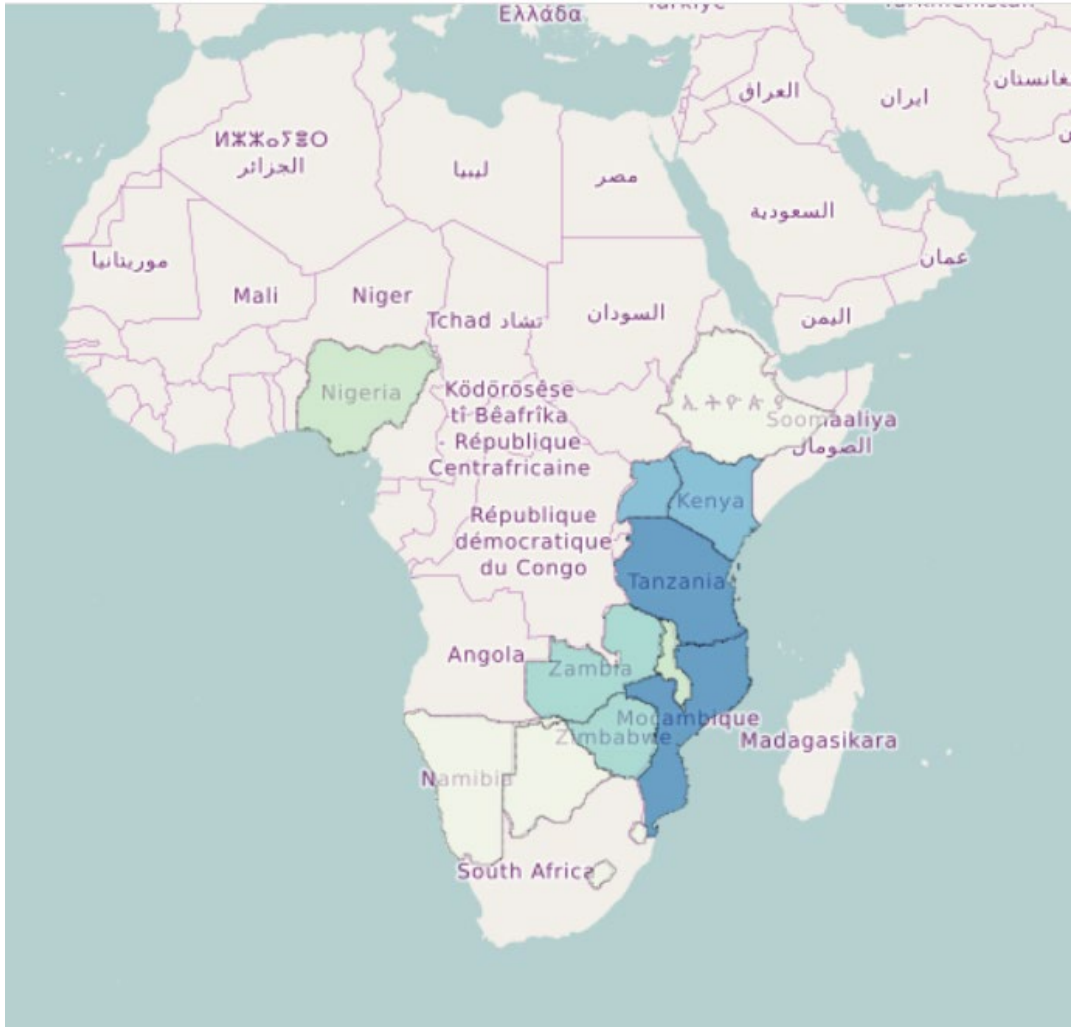
Risk Factors for High Risk HPV Infection in AFRICOS at First Screening



(Chachage et al., 2022)

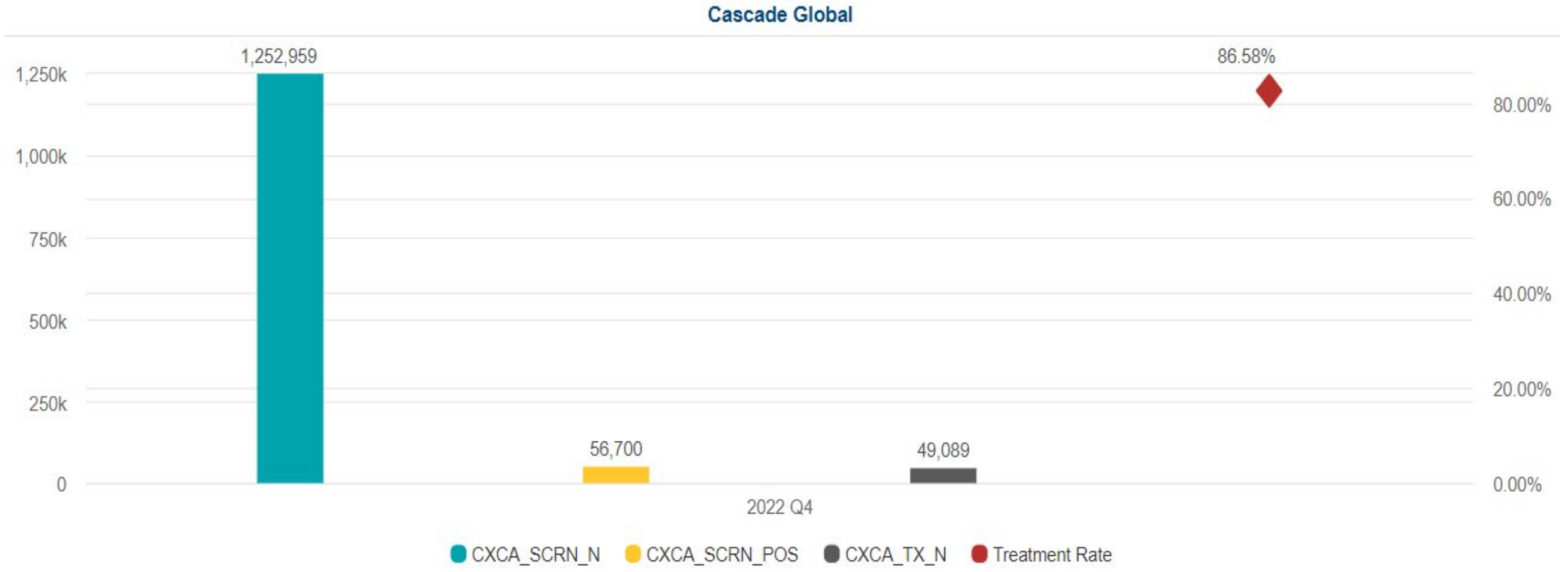
PEPFARs Cervical Cancer Screening Activities

- PEPFAR supports cervical cancer programming in 13 countries in Africa, including the four where WRAIR works
- Services include screening and treatment for non-invasive lesions



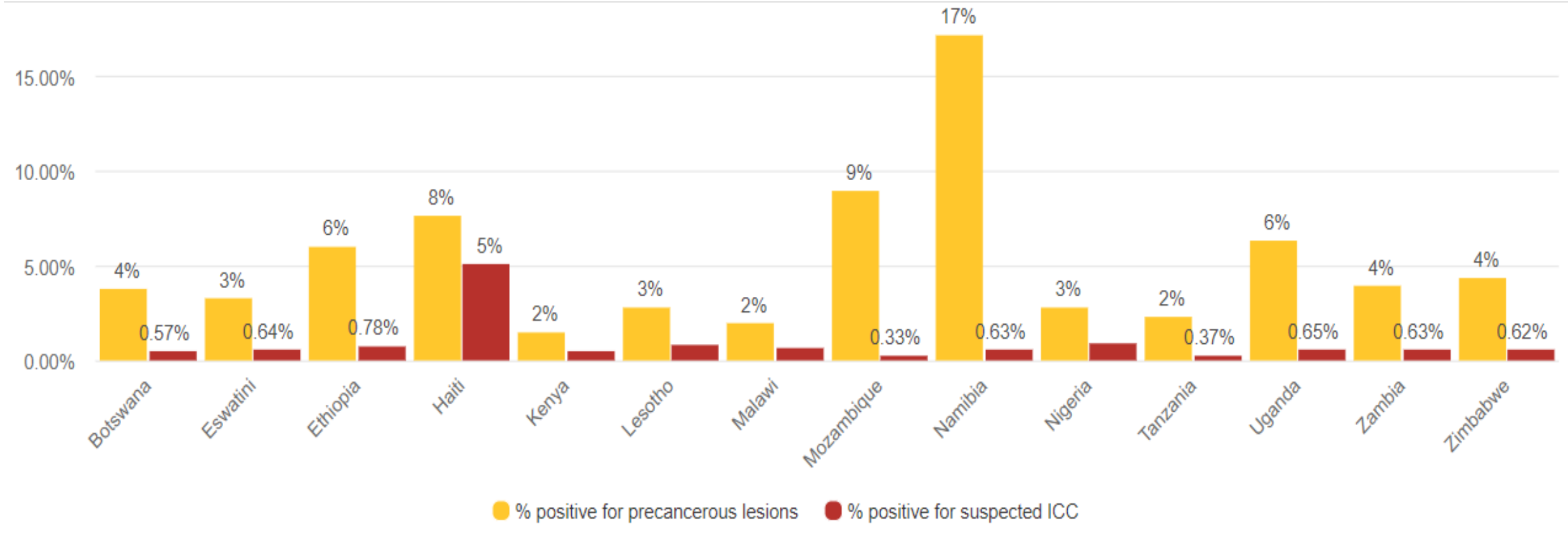
(PEPFAR, n.d.)

Screening and Treatment of Cervical Cancer in PEPFAR-supported Sites



(Data Visualizations from PEPFAR Panorama, 2022)

Cervical Cancer Screening Results in PEPFAR-supported Sites, by Country



(Data Visualizations from PEPFAR Panorama, 2022)

PEPFARs HIV Programming to Protect Women

Prevention of Mother to Child Transmission (PMTCT)

- PEPFAR started as a PMTCT treatment program, remains a cornerstone of programming in all PEPFAR countries
- Focused on increasing entry into ante-natal care (and maintaining lifelong therapy) and improving quality of pre- peri- and post-natal HIV care and treatment
  - Current ART reduces transmission to <1% (<0.1% if ART is started before conception)
- Since 2004, estimated that over 5.5 million babies have been born HIV-free as a result of PEPFAR
  - Of whom 2.5 million were HIV-exposed

The DREAMS Partnership

- Announced on World AIDS Day 2014
- Over **$1.6 billion** invested
- **15 countries**
- Original partners: Bill & Melinda Gates Foundation, Gilead Sciences, Girl Effect, Johnson & Johnson, ViiV Healthcare
- **Comprehensive HIV prevention for AGYW 10-24** who are highly vulnerable to HIV acquisition

(DREAMS, n.d.)

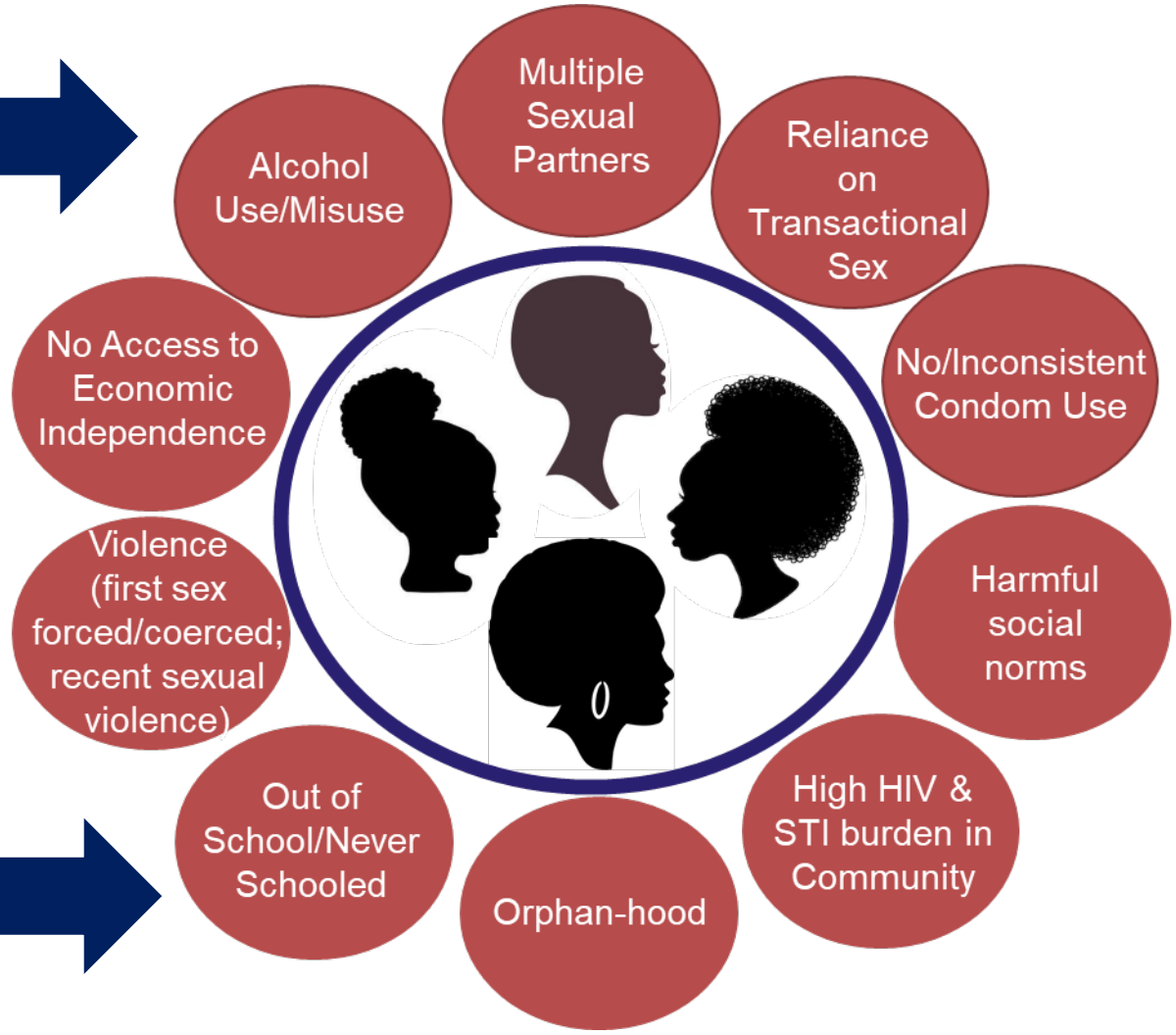
Complex AGYW Vulnerabilities

INDIVIDUAL
Behaviors
Experiences
Resources

FAMILY
Structures
Resources

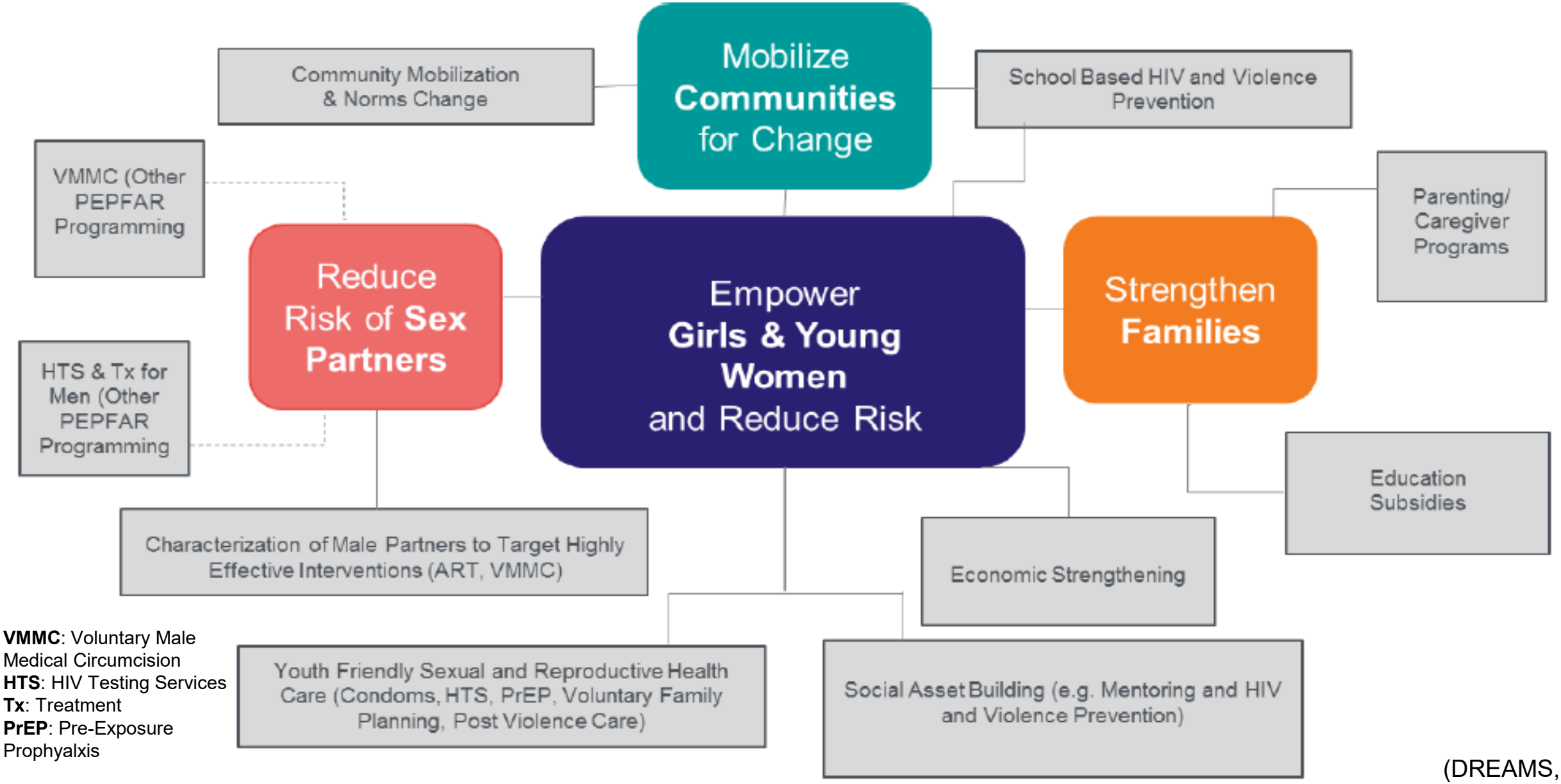
PARTNER
Relationships

COMMUNITY
Risks
Gender norms
Resources



(DREAMS, n.d.)

DREAMS Core Package



VMMC: Voluntary Male Medical Circumcision
HTS: HIV Testing Services
Tx: Treatment
PrEP: Pre-Exposure Prophyalxis

(DREAMS, n.d.)

DREAMS Logic Model/Theory of Change

Epidemiologic Context

AGYW vulnerabilities
Potential determinants include age, education, economic vulnerability, violence victimization, social isolation, lack of empowerment, child marriage

Male partner risk
Potential determinants include age, age disparity with AGYW, education, economic vulnerability, adherence to harmful gender norms, untreated HIV infection, uncircumcised

Family/ Community risk
Potential determinants include family economic vulnerability, harmful community norms on gender and violence, high HIV prevalence, high violence prevalence

Interventions

Adolescent-Friendly Health Services
- Condom promotion
- HTC & linkage
- PrEP
- Post-violence care
- Contraceptive mix expansion

Social Protections for AGYW & their families
- Education Subsidies
- Combination Socio-Economic supports
- Violence reduction programs

Targeting male sex partners
- Review demographic information in surveys
- Target ARTs , VMMC and condoms to males who fit sexual network partner profiles

Community Strengthening
- Parent/caregiver programs
- School-based HIV/violence/gender education
- Community mobilization, prevention & norms/perception change

Program Outputs

Improve AGYW Health Services
- Increase # receiving condoms
- Increase # receiving HTC
- Increase # linked to service
- Increase # initiated on PrEP
- Increase # receiving post violence care
- # FP sites with expanded method mix

Improve AGYW & family assets
- Increase # AGYW or families receiving education subsidies or other social protection interventions

Improve male sex partner participation in ART/VMMC
- Increase # of males on ART who fit sexual network partner profile
- Increase # of males provided VMMC who fit sexual network partner profile

Improve Family / Community Support
- Increase # receiving parenting intervention
- Increase # receiving school-based HIV / violence prevention and gender sensitization
- Increase # receiving community-based HIV & violence interventions
- Increase # of AGYW and families receiving cash transfer

Program Outcomes

AGYW aged 15-24
- Decrease sexual risk
- Reduce # of pregnant 15-24 with HIV + status
- Reduce maternal mortality
- Decreased unplanned pregnancy
- Reduce rates of violence victimization
- Increase empowerment/agency

Increased assets for AGYW & their families
- Increased access to money in an emergency
- Increased educational attainment for girls

Male Partners
- Increased favorable attitudes toward gender equity
- Reduce rates of violence perpetration

Family/Community
- Improved family interactions
- Increased community mobilization/commitment to prevent HIV in AGYW
- Improved gender & violence-related norms
- Improve health and economic outcomes for families

Program Impact

Reduce New HIV Infections

The Evolution of DREAMS

2014: DREAMS Launch

2016: DREAMS full implementation

2017: DREAMS COP integration and 5 new countries

2018: DREAMS Efficiency Questions

2018: Increased focus on violence prevention in 10-14 year olds

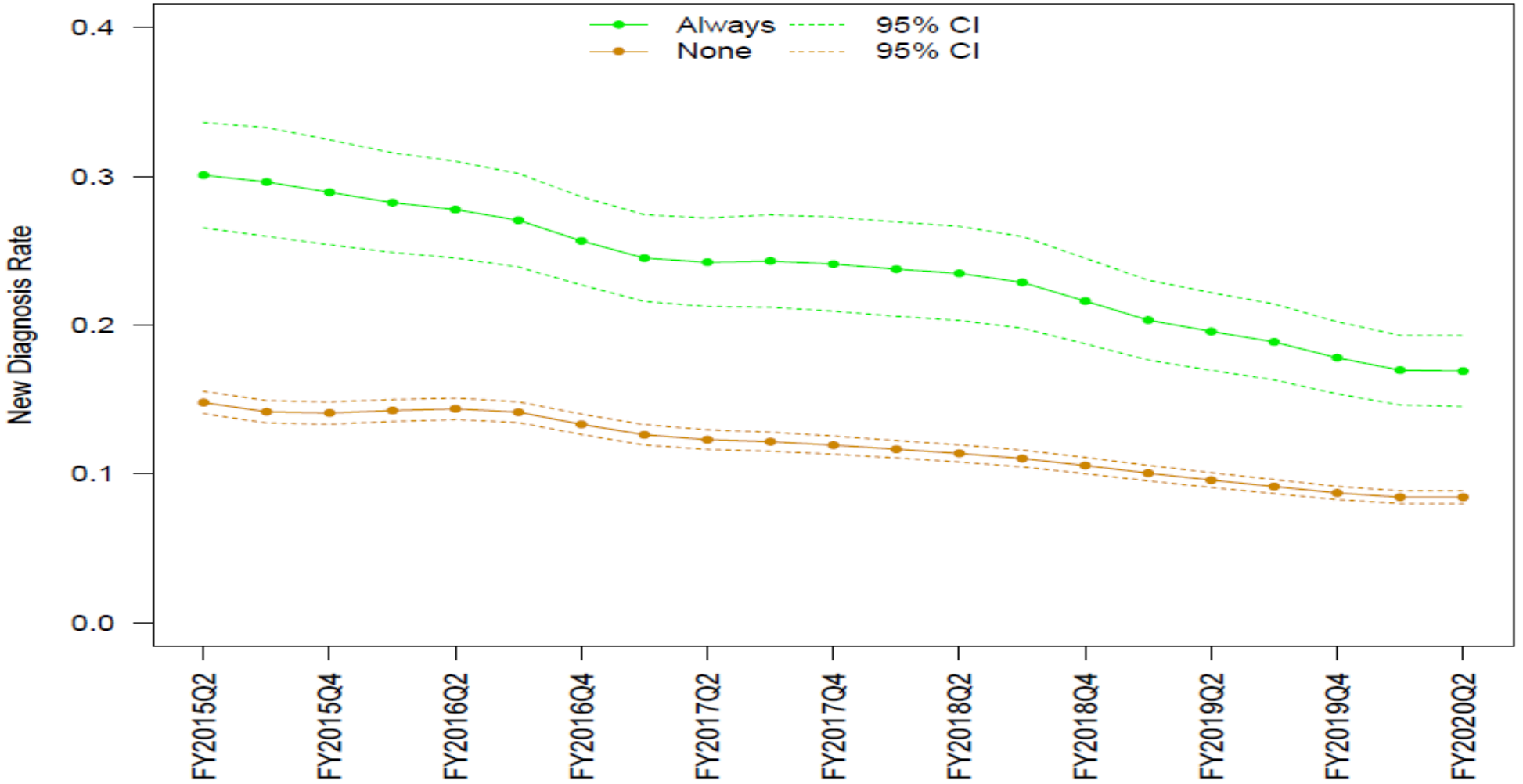
2019: Active referrals, AGYW_Prev, Completion and Saturation guidance

2019/2020: Criteria for finding the most vulnerable girls

2019/2020: PrEP scale

2020- : Geographic expansion, Economic Strengthening enhancements

Decline of New Diagnoses in ANC in DREAMS vs. Non-DREAMS Geographic Areas 10 Countries, 2015-2020Q2



(Saul et al., 2022)

Key Takeaways

- Women are at higher risk for HIV in epidemics driven by heterosexual transmission
- Military servicemembers at higher risk; women in military settings may face higher risk than male counterparts
- WRAIR is addressing these risks in two ways:
  - Scientific research focused on developing technologies for HIV prevention and protection
  - HIV service delivery and programming, with particular initiatives to address women-specific issues

Overall Discussion

Protecting Our Nation's Top Weapon System
The U.S. Soldier Since 1893

WRAIR PROTECTS YOUR SIX

WRAIR | Walter Reed Army Institute of Research

Protecting your brain - the most important six inches on the battlefield

CENTER FOR MILITARY PSYCHIATRY AND NEUROSCIENCE

- Blast Induced Neurotrauma and Neuroprotection
- Sleep & Resilience
- Team Performance and Mental Fitness
- Military Psychiatry

Protecting the most important six microns between you and the threat of disease

CENTER FOR INFECTIOUS DISEASE RESEARCH

- Vaccines & Entomology
- Viral & Bacterial Diseases
- Military HIV Research Program
- Experimental Therapeutics & Emerging Infectious Diseases

WHETHER YOU'RE AT HOME STATION OR SIX THOUSAND MILES AWAY

Soldier Health • World Health

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How to Obtain CE/CME Credits

To receive CE/CME credit, you must register by 0825 ET on 24 February 2023 to qualify for the receipt of CE/CME credit or certificate of attendance. You must complete the program posttest and evaluation before collecting your certificate. The posttest and evaluation will be available through 9 March 2023 at 2359 ET. Please complete the following steps to obtain CE/CME credit:

- Go to URL: https://www.dhaj7-cepo.com/content/feb-2023-ccss
- Click on the REGISTER/TAKE COURSE tab.
  - If you have previously used the CEPO CMS, click login.
  - If you have not previously used the CEPO CMS click register to create a new account.
- Follow the onscreen prompts to complete the post-activity assessments:
- Read the Accreditation Statement
- Complete the Evaluation
- Take the Posttest
- After completing the posttest at 80% or above, your certificate will be available for print or download.
- You can return to the site at any time in the future to print your certificate and transcripts at: https://www.dhaj7-cepo.com/
- If you require further support, please contact us at: dha.ncr.j7.mbx.cepo-cms-support@health.mil