Aging with HIV: Biopsychosocial Considerations

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Introduction

- The first cases of AIDS in the world were described by the U.S. Center for Disease Control (CDC) in 1981.
- 35 million: Estimated number of people living with HIV (PLWH) in the world in 2013. This includes ≈3.2 million children, most of which were infected during pregnancy, childbirth or breastfeeding
- According to the global estimates of the WHO and UNAIDS, women comprise 50% of people living with HIV. In sub-Saharan Africa, women constitute 60% of PLWH.
- HIV is the world's leading infectious killer.

Joint United Nations Programme on HIV/AIDS (UNAIDS) (2013).

Introduction

- For the majority of the HIV-infected population, the period of latent, asymptomatic HIV infection ranges from 10 to 15 years.
- Without HIV treatment, the loss of CD4 cells continues as the virus load increases, with a significant toll on various bodily systems, particularly the immune system.
- Most untreated persons develop AIDS & associated opportunistic infections, resulting in death within 2 to 3 years of AIDS diagnosis (or sooner).
- Thus, at the beginning, infection with HIV was a terminal diagnosis.
- In 1987, zidovudine (AZT) was the first FDA-approved antiretroviral drug.

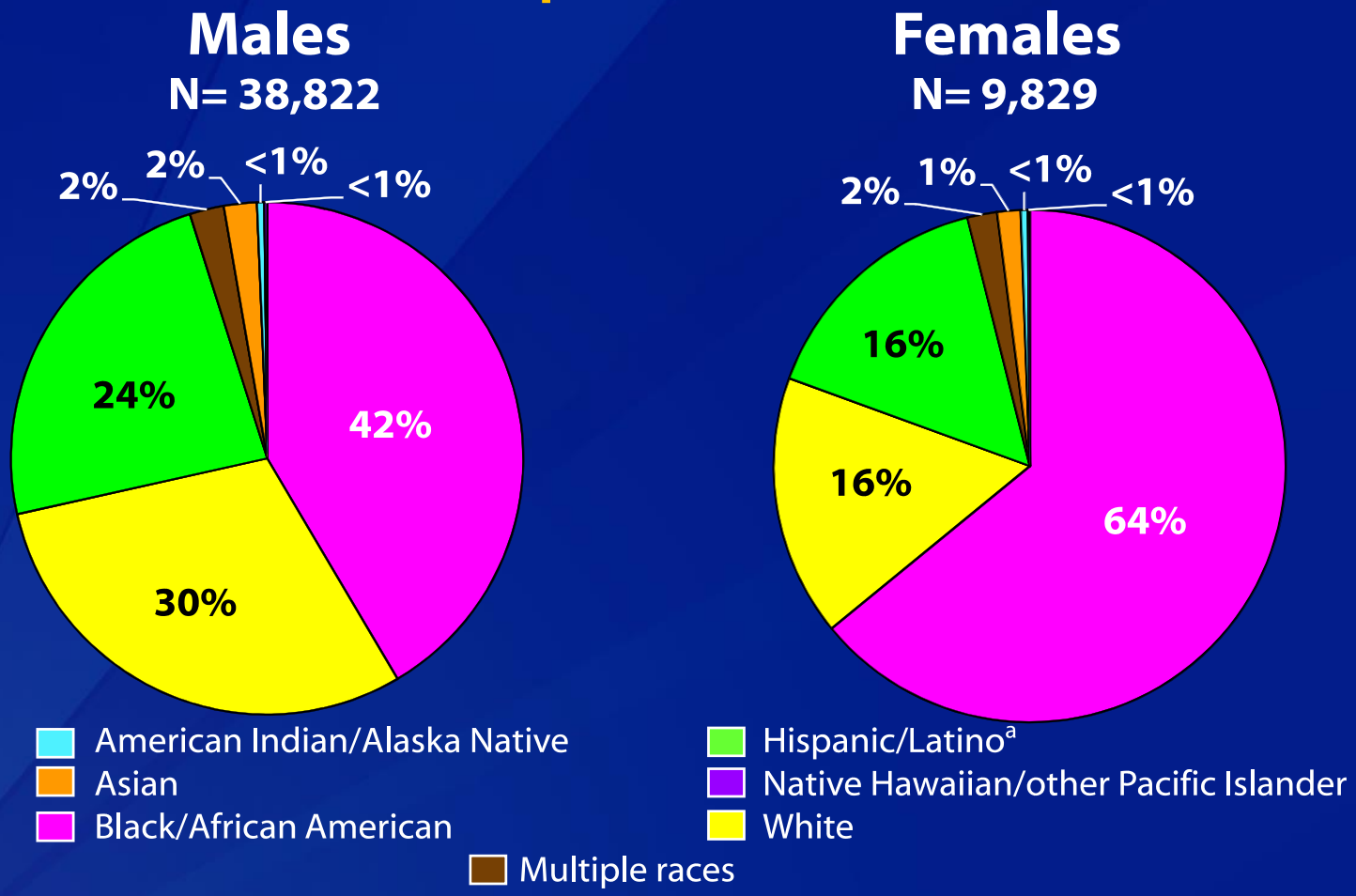
A timeline of AIDS. Downloaded on 03/3015, from https://www.aids.gov/hiv-aids-basics/hiv-aids-101/aids-timeline/

HIV in the U.S.

- At present, there are ≈1.2 million persons living with HIV (PLWH) in the U.S.
- In the U.S. ≈50,000 people become infected with HIV each year.

Center for Disease Control (2011); Nguyen & Holodniy (2008)

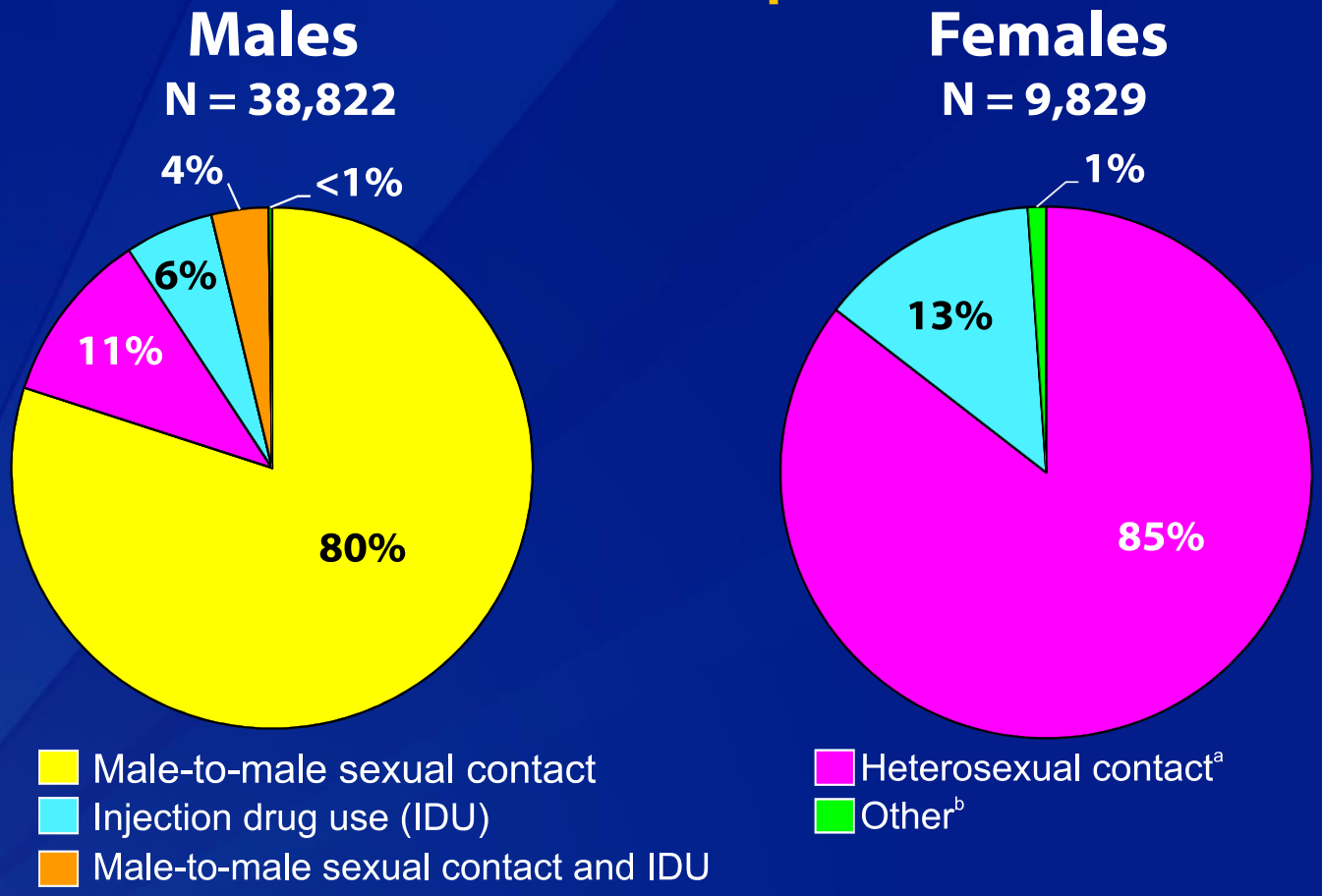
Diagnoses of HIV Infection among Adults and Adolescents, by Sex and Race/Ethnicity, 2012—United States and 6 Dependent Areas



Note. Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. All displayed data have been statistically adjusted to account for reporting delays, but not for incomplete reporting.

[a] Hispanics/Latinos can be of any race.

Diagnoses of HIV Infection among Adults and Adolescents, by Sex and Transmission Category, 2012—United States and 6 Dependent Areas



Note. Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. All displayed data have been statistically adjusted to account for reporting delays and missing transmission category, but not for incomplete reporting.

[a] Heterosexual contact with a person known to have, or to be at high risk for, HIV infection.

[b] Includes hemophilia, blood transfusion, perinatal exposure, and risk factor not reported or not identified.

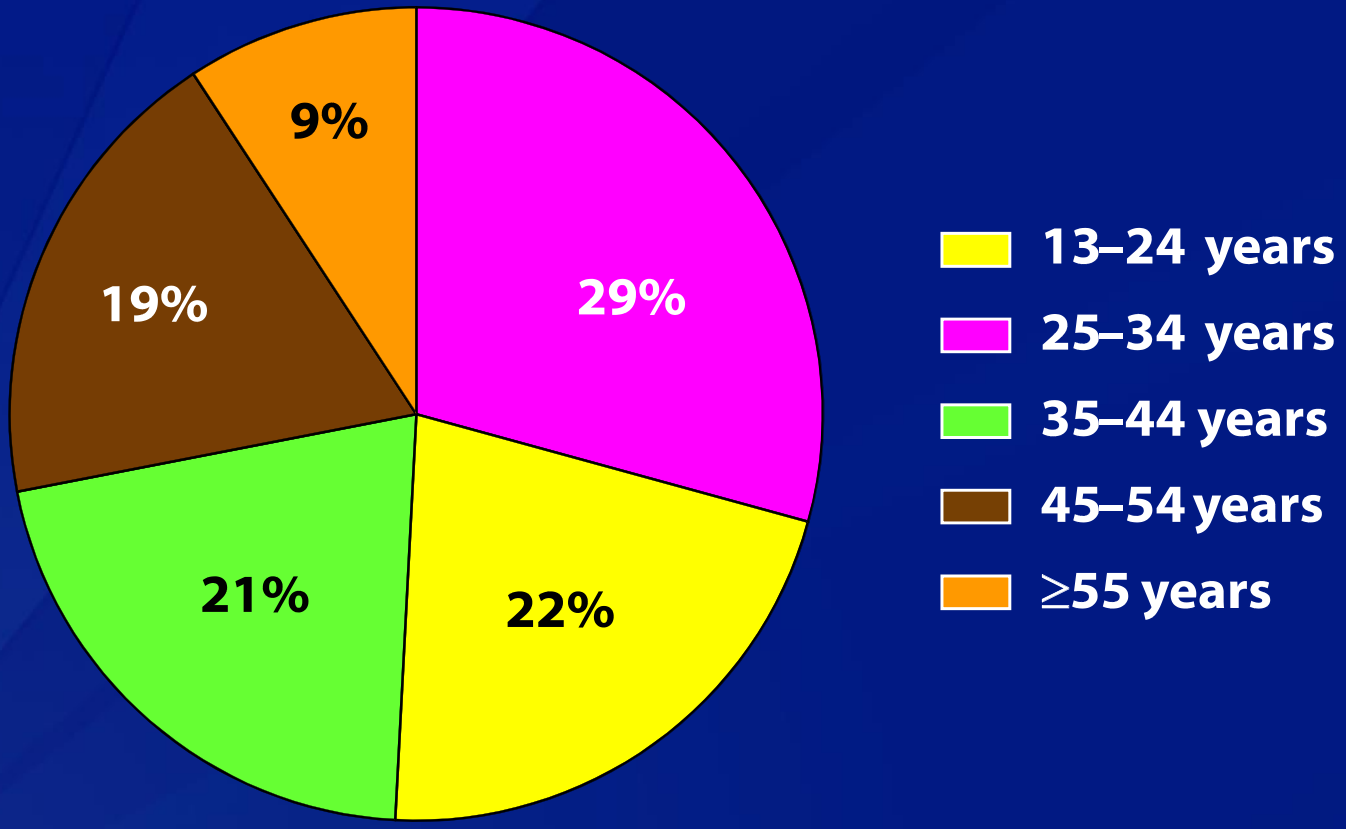
Transgender Persons & Gender Non-Conforming

- As a group, persons of transgender communities in the U.S. are among the groups at highest risk for HIV infection.
- In 2010, the highest percentage of newly identified HIV-positive test results was among transgender persons (2.1%).
- The above contrasts with the percentages of newly identified HIV-positive test results, with 0.4% being females, and1.2%males (1.2%).

CDC (2015)

Diagnoses of HIV Infection among Adults and Adolescents, by Age at Diagnosis, 2012—United States

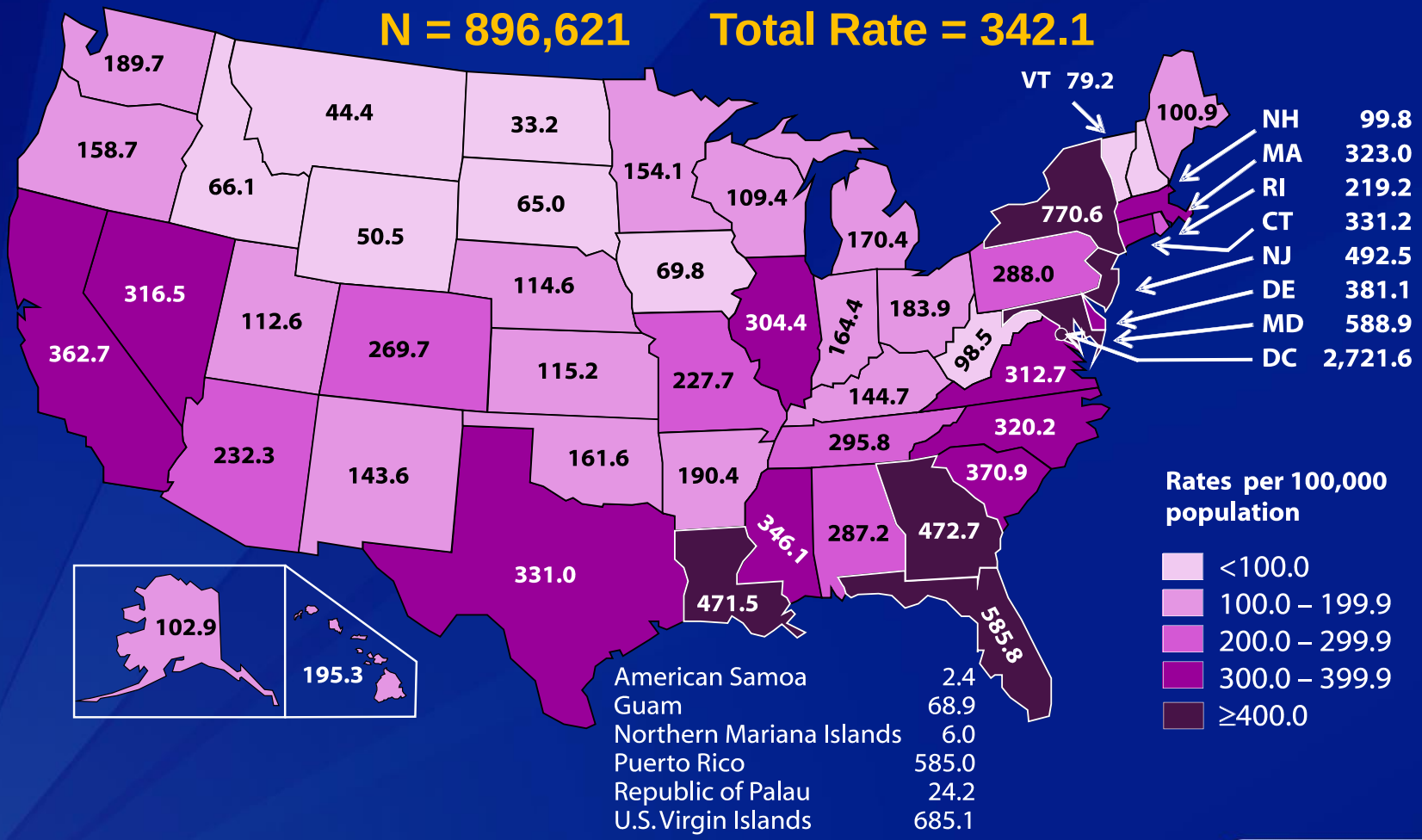
N = 47,746



Note. Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. All displayed data have been statistically adjusted to account for reporting delays, but not for incomplete reporting.

Rates of Adults and Adolescents Living with Diagnosed HIV Infection, Year-end 2011—United States and 6 Dependent Areas

N = 896,621 Total Rate = 342.1



Note. Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. All displayed data have been statistically adjusted to account for reporting delays, but not for incomplete reporting.

Increased Longevity of PLWH

- For the first couple of decades, most HIV cases in the U.S. were among younger adults.
- With the availability of other antiretroviral drugs, particularly highly active antiretroviral therapy (HAART) in the mid-1990s, most HIV+ persons can now live with HIV for decades.
- The increased longevity of PLWH has public health implications at the individual and societal level.

Increased Longevity *(Cont.)*

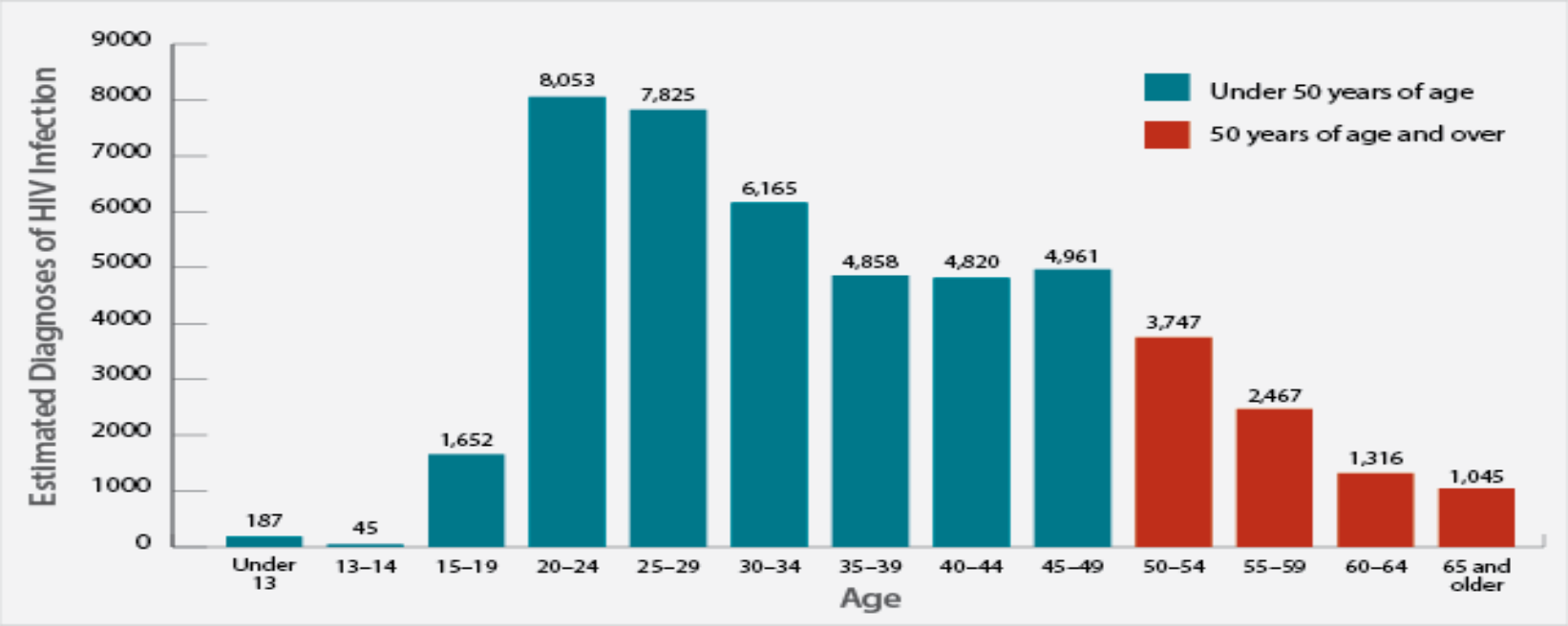
- Since the advent of HAART, the HIV-infected population in the US has shifted from 91% of persons being younger than 45 yrs of age, to an HIV+ population where ≈50% are currently older than 45 yrs.
- Other countries have the same "problem:"
  - Canada: Number has doubled in past 20 yrs.
  - United Kingdom: Number has tripled over the past 10 years.
- HAART (and other medical advances) has transformed HIV into a chronic medical condition.
- Before we continue…

See Wendelken & Valcour, 2013.

Clarifications…

- "Older Adult:" Consistent with most studies of HIV and aging, including reports from the Centers for Disease Control and Prevention (CDC) and other policy makers & governmental organizations, the term "older adult" (OA) in this presentation refers to persons aged 50 and above.
- "HIV:" Presentation will be on HIV-1 infection, which is the most prevalent in the U.S., and accounts for 95% of all infections worldwide.
- Diversity issues will be discussed throughout the presentation.

New HIV Diagnoses (CDC, 2013)



- In 2013, there were ≈ 8,575 new HIV diagnoses among people aged 50 and over. Forty four percent [44%] of these (i.e., 3,747) were among those aged 50-54.
- Among those aged 50-54, the estimated rate (per 100,000) of new HIV diagnoses for persons of black race was 59.3, Hispanic/Latinos (of any race) was 23.3, and for Non-Hispanic whites was 8.7.

New Diagnoses vs. AIDS Diagnoses

- As noted, in 2013, ≈44% of all new HIV diagnoses were among persons aged 50+
- In 2013, people aged 50+ accounted for 27% (7,108) of the estimated 26,688 AIDS diagnoses in the United States.
- Sexual contact is the most common mode of HIV transmission in adults age 50 and over.
- OA are more likely than their younger counterparts to be diagnosed with HIV infection later in the course of the disease.

CDC, 2015.

HIV+ Older Adults: Two Groups

- The number of new infections in older adults is steadily increasing. They are comprised by two groups:
  - Persons who became infected in the 1980s, 1990s, etc. when they were in their 20s, 30s, and 40s who, because of HAART and other medical advances, are now living with HIV into their 60s and beyond.
  - Adults who became infected after age 50 (i.e., new, late-life infection)

New, Late-Life Infection: Possible Reasons?

- OA are sexually active.
- Because birth control is unnecessary after menopause, OA may be unfamiliar with or reluctant to use condoms.
- OA demonstrate inconsistent use of condoms.
- Cohort differences: Negotiating condom use, belief that it only happens in "other groups," etc.
- Less perceived risk of sexually transmitted diseases in OA.

Coleman, 2003; Orel et al., 2010.

New, Late-Life Infection?

- Physical changes: Age-related thinning and dryness of vaginal tissue may promote membrane ruptures during sex and provide an opening for transmission of the virus.
- Erectile dysfunction medications have also been implicated.
- Limited HIV education focused on OA.

Coleman, 2006; Orel et al., 2010.

Late-Life Infection & Delayed Dx

- Although they visit their doctors more frequently, OA are less likely than younger adults to discuss their sexual habits or drug use with their health providers, who in turn may be less likely to ask their older patients about these issues.
- Health professionals may feel uncomfortable asking their OA patients if they are sexually active and/or having the “safe sex talk” with them.
- Health professionals may not recognize signs and symptoms of HIV infection in OA and may attribute them to other medical conditions.

Late-Life Infection & Delayed Diagnosis

- Health professionals do not always test OA for HIV/AIDS as a rule out, thus missing some cases during routine check-ups.
- OA have low levels of HIV testing, which usually delays HIV diagnosis and treatment.
- Because of this, OA are at a higher risk of late diagnosis.
- Delayed diagnosis may lead to inadvertently transmitting the virus to another person.
- Delayed diagnosis delays the initiation of treatment.

Orel et al., 2010.

A Timely Discussion

- Persons age 50 and over will soon constitute more than half of all HIV cases in the U.S.
- In specific medical settings (e.g., V.A. Health Care System) and cities (e.g., New York City, San Francisco), the median age of HIV+ persons has already crossed 50 years of age.
- The graying of HIV…

CDC, 2005; Justice, 2010; Justice & Falutz, 2014

The Graying of HIV

BULLETIN

AARP

Ed Shaw: Educating Older Adults About HIV/AIDS

Disease is no stranger to the 50-plus crowd

by: Susan Kreimer | from: AARP Bulletin | January 25, 2011

Ed Shaw. — *Katja Heinemann/Aurora Select*

Psychosocial Considerations & Mental Health Issues

HIV & Aging: Psychosocial Issues

- Social stigma
- Disclosure-related stress
- Sexual preference
- Gender identity
- Social isolation
- Loss of friends & social networks
- Detrimental effects of HIV as person ages
- Adverse effects of ART
- Possible changes in neurocognitive status
- Unhealthy coping styles (e.g., substance use)
- Social support & social support networks
- Mental health & Quality of Life (QoL)

Stigma

- Stigma is more likely to be experienced by HIV-infected persons as compared to persons with other medical conditions.
- Possibilities:
  - HIV is perceived to be the person's responsibility
  - HIV is perceived to be contagious (sometimes in ways that are not real)
  - Other (e.g., HIV as unalterable or degenerative)

HIV-Associated Burdens: Possible Layers of Stigma & Discrimination

- HIV-associated social stigma
- Older adult (i.e., ageism)
- Gender (i.e., sexism)
- If perceived or known to be from LGBT/gender non-conforming (e.g., homophobia; stereotypes)
- Ethnicity/Race (e.g., African American, Latino)
- Other (e.g., physical disability)

HIV-Associated Burdens

- Medication requirements
- Medical complications
- Decisions re: disclosure
- Concerns re: sexual intimacy
- Financial concerns
- Physical changes (including ART-associated lipodystrophy)
- Fear of HIV-associated cognitive decline
- Fear of dying
- Other (e.g., personal regrets)

Stigma

- Emlet (2006) conducted in-depth interviews with 25 HIV-infected adults (ages 50-72 yrs, mean = 56.1± 5.8).
- The majority (68%) of respondents reported having experienced both ageism and HIV-associated stigma.
- In addition, HIV+ persons frequently report social isolation and being avoided by family, friends, and intimate partners.

Emlet, 2006

Stigma

- In addition, HIV+ persons face discrimination in employment, health care, and housing-related settings.
- PLWH, particularly women and MSM, report experiencing physical violence and/or assault associated with their HIV status.
- Person may internalize the experiences of social rejection, discrimination, & disapproval, potentially leading to symptoms of depression, anxiety, and hopelessness.

Gostin & Webber, 1998; Lee et al., 2002; Zierler et al. 2000

HIV and OA: Mental Health Issues: Depression

- Anyone facing a serious disease like HIV/AIDS may become depressed.
- OA who may not have a strong social support network may be at a higher risk.
- Having other medical conditions such as HTN, diabetes, or cardiovascular disease may increase risk for mental health issues, particularly among OA who lack a strong social support network.
- Health-Related Quality of Life (HRQoL)

Health-Related Quality of Life (HRQoL)

- HRQoL: Multidimensional concept that describes the person's well-being and includes physical, mental, emotional, and social functioning.
- HIV-infected persons in general, and older HIV+ adults in particular, have lower HRQoL than the general population.
- Low HRQoL is associated with depression, particularly in OA.

Piette et al., 1995

Mental Health Problems: Beyond Emotional Suffering

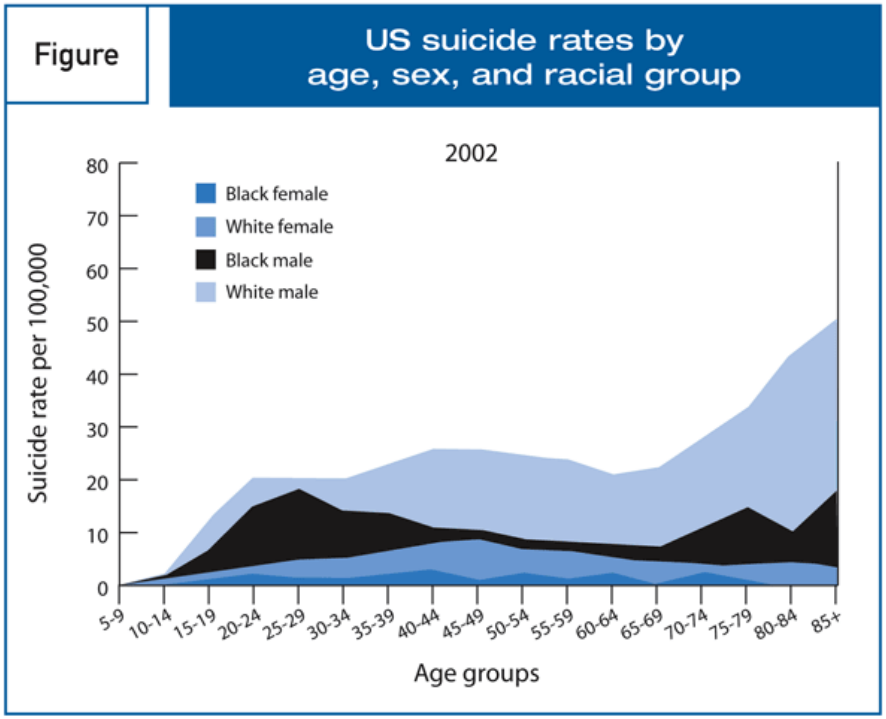
- Decrease psychological resilience (e.g., more difficult to cope with stresses of daily life; low frustration tolerance, decreased motivation).
- May interfere with healthy behaviors, such as amount and quality of sleep, nutrition, exercise, etc.
- Likely to affect attention & concentration, memory, mental processing speed, etc.
- May make it harder to keep health appointments and to comply with medication schedules
- May decrease interest in social interactions that may offer support. May lead to social isolation.
- May increase risk behaviors (e.g., using intoxicating substances; having unprotected sex)

Depression

- Adults with HIV are twice as likely to experience depression compared with their HIV- peers.
- Depression and suicide rates are higher in persons with HIV than in the general population.
- Depression and suicidal ideation are particularly prevalent after the initial diagnosis of HIV and when HIV-associated health problems become evident.
- Manifestations of depression and other psychiatric symptoms are likely to vary, depending on many factors, including the disease stage.

Carrico et al., 2007; Ciesla & Roberts, 2001; Moneyham et al., 2005

Suicide Rates in the U.S.



- Older adults, particularly white males 65 yrs of age and older, are more likely to commit suicide than any other age/ethnic group in the U.S.

HIV, OA, & Suicidality

- Studies suggest that HIV+ adults may be at greater risk for suicide than their HIV- peers.
- Kalichman et al. (2000) recruited 113 HIV+ adults, age 45+ yrs, who completed questionnaires about emotional distress, suicidal ideation, coping, QoL and social support. Of these, 27% reported having thoughts about ending their own life in the previous week

Marzuk et al., 1997; Kalichman et al., 2000

Additional Possible Psychosocial Stressors

- Difficulty getting needed services
- Employment: Actual loss (or fear) of losing job; Concerns that they may not be able to perform as before
- Disclosure: Discomfort & fears re: disclosing HIV+ status
- Managing HIV medication and/or other medications
- Going through changes in physical appearance or abilities due to HIV/AIDS.
- Dealing with loss, including loss of relationships
- Financial stressors

Medical & Medication-Related Considerations

Aging & Aging with HIV

- As a group, OA are more likely to experience aging-related medical conditions such as cardiovascular disease, diabetes mellitus, hyperlipidemia, hypertension, liver and/or kidney problems, osteoporosis, etc.
- A considerable proportion of OA take prescription medications for some of these conditions.
- Aging with HIV presents its own challenges, which several concurrent medical conditions, numerous treatments for those conditions, concurrent viral infections, & polypharmacy.

Multimorbidity

- Pts who have been infected with HIV for many years or decades, have taken ART as a long-term treatment, which has its own undesirable side effects (e.g., lipodystrophy).
- In addition, use of substances like alcohol, abuse of illegal and prescribed drugs, and smoking are more common among PLWH than among their HIV- counterparts.
- High prevalence of hepatitis C.

Green et al., 2010; Edelman et al., 2014

Hepatitis & HIV

- In the US, most persons infected with hepatitis C were born between 1945-1965 (i.e., "baby boomers"). Co-infection with hepatitis B and C is common among persons living with HIV, which increases the need for multiple medications.
- Further, HIV increases the rate of progression of hepatitis C.

Smith et al., 2014.

Hepatitis & HIV

- At present, in the US, less than 33% of deaths of persons with HIV/AIDS are caused by AIDS-associated opportunistic infections.
- Liver disease and cardiovascular disease, which are associated with long-term use of HAART are the leading cause of mortality among older adults living with HIV.

Smith et al., 2014.

Neurocognitive Considerations

HIV & Brain

- HIV enters the brain relatively early in the infection process, and can be found in the brain as early as15 days post-infection
- Neurons are not directly infected by the virus, but neuroglia are infected (particularly astroglia & microglia).
- Neuronal damage occurs as a result of release of cytokines (e.g., platelet activating factor) & toxic viral gene products, which trigger inflammation. A series of events follow.

Davis et al., 1992; Palmer et al., 1994

HIV: Most Affected Brain Areas

- Hippocampus: Important in memory
- Basal Ganglia: Important in motor control
- White Matter: Axons that communicate different parts of the brain
- Frontal Cortex: Important in executive function
- Other: Deposition of amyloid plaques, which are both intra- and extra-neuronal

Green et al., 2005; Soontornniyomki et al., 2012.

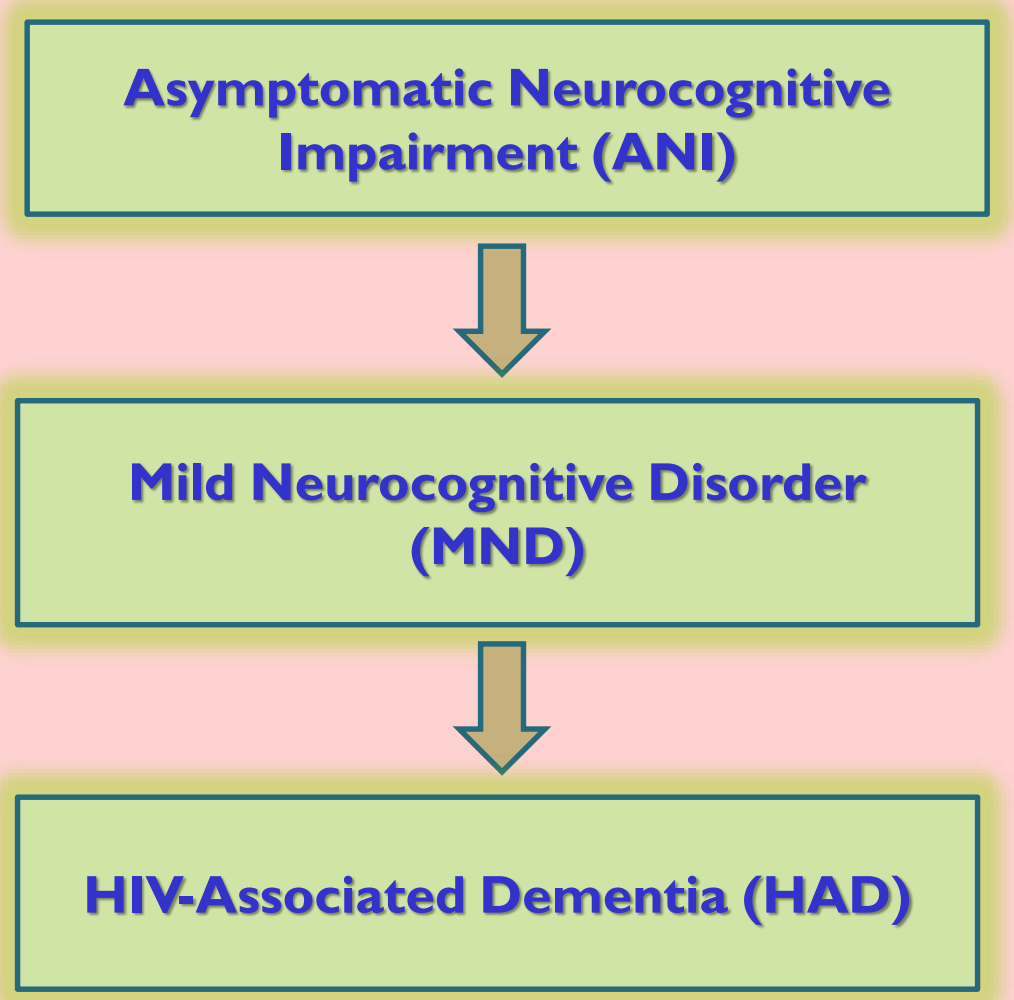
HIV-Associated Neurocognitive Disorders (HAND)

NeuroCognitive Domains*

- Attention & Concentration
- Learning & Memory
- Executive Functioning
- Language & Verbal Functioning
- Visuospatial/Visuoconstructional Abilities
- Motor/Psychomotor Functioning
- Speed of Information Processing

*As part of clinical workup for HAND, neuropsychological evaluations usually inquire re: changes in mood and in ability to function in everyday life.

HIV- Associated Neurocognitive Disorders (HAND)



HIV-Associated Neurocognitive Disorders (HAND)*

Term (Acronym)	Neurocognitive Impairment	Functional Status
Asymptomatic Neurocognitive Impairment (ANI)[1]	• 2 (or more) cognitive domains • 1 SD (or more) below the mean	Cog. impairment does ***not*** interfere with everyday functioning.
Mild Neurocognitive Disorder (MND) [1]	• 2 (or more) cognitive domains • 1 SD (or more) below the mean	Cog. impairment produces ***at least mild interference*** in daily functioning.
HIV-Associated Dementia (HAD) [2]	• 2 (or more) cognitive domains • 2 SD (or more) below the mean	Cog. impairment produces ***marked interference*** in day-to-day functioning.

* Antinori et al. (2007).

[1] *Previously, the combination of ANI + MND was called Minor Cognitive Motor Disorder*
[2] *Previously known as AIDS Dementia Complex*

Most Common Cognitive* Findings in Persons with HIV

- Forgetfulness, difficulty retrieving information from memory
- Mental slowing (i.e., decreased processing speed, both cognitive and motor); not feeling as "sharp" as before
- Difficulty with attention tasks (particularly divided attention) & concentration tasks
- Difficulty with multi-tasking, planning, problem solving (i.e., executive functioning)
- Motor slowness, difficulty with fine motor skills, or decreased motor coordination

*Non-cognitive changes: Mood changes (e.g., depression)

Neurocognitive Status: Differences Pre-cART & Current (i.e., during cART)

Cognitive Disorder	*Pre-cART*	*Current*
Severity	**High (i.e., HAD)**	**Lower (i.e. ANI; MND)**
Nature of Deficits	**Characterized by impairment in motor skills, cognitive speed, & verbal fluency**	**Characterized by decline in learning & memory, as well as executive function**
Description	**Subcortical**	**Cortical**

Heaton et al., 2011; McArthur, 2004

HAND: Real Life Implications

- Persons with HAND usually experience mental slowing and problems with attention, concentration, learning new information, retrieving information, & completing multi-step tasks.
- Problems with balance & motor coordination, including manual dexterity, are also common.

HAND: Real Life Implications

- Extensive review of the literature comparing HIV+ persons with/without cognitive impairment. Their findings on HIV+ persons with cog. impairment:
  - Less likely to be employed & to maintain employment
  - Difficulty organizing household finances, managing daily monetary transactions, shopping for needed goods
  - Poorer driving ability in a simulator & real world driving (e.g., being involved in a MVA the prior year or were cited for a moving violation).
  - Higher apathy and irritability
  - Lower medication adherence

Gorman et al., 2009

HIV & HAART Adherence Issues

- Suboptimal adherence to HAART can lead to increased viral load, immunosuppression, drug-resistant viral strains, co-morbidities, and opportunistic infections.
- In order to counter disease progression, multi-drug resistance, and immunologic failure adherence to HAART has to be almost perfect (i.e., 95% or higher)
- OA with HIV who have cognitive impairment, including problems with memory, executive functioning, and psychomotor speed have 2.5 times higher risk for non-adherence than their peers without cognitive impairment.

Ghidei et al., 2013

HAND: Real Life Implications

- The specific cognitive domains that were most associated with these functional abilities were executive functioning, attention, learning and memory; which are among the cognitive domains most frequently affected by HIV-related neurodegeneration.
- Other researchers have identified prospective memory: problems as a sub-domain that is particularly relevant to medication adherence and QoL in PLWH.

Gorman et al., 2009; Doyle et al. , 2012; Doyle et al., 2013

Despite heavy disease burden,
psychosocial factors
& all other issues…

Psychosocial Resilience

Psychosocial Resilience

- Various studies have assessed resilience and the factors associated with capacity to cope with change and/or negative life events such as medical illnesses, trauma, stress, etc.
- Some themes that have emerged re: OA living with HIV
  - Social support (formal & informal)
  - Finding meaning
  - Self-acceptance
  - Will to live
  - Positive outlook
- Relational living: Personal relationships with others Social support, the importance of personal relationships with others.

Emlet et al., 2011.

What's in the Future?

Projections

- Trends suggest that the proportion of older persons living with HIV/AIDS will continue to increase steadily.
- Care of HIV-infected patients increasingly will involve adults 60 to 80 years of age, a population for which data from clinical trials or pharmacokinetic studies are very limited.
- These would provide a better understanding of the interaction between the important factors….

Older Adults & HIV

- The psychosocial challenges of aging with HIV are complex and may require the assistance of social workers, psychologists, and/or other mental health professionals.
- Similarly, the medical complexity of the older HIV+ patient, in the context of immunosenescence, chronic inflammation, polypharmacy, and the long-term effects of ART requires the integrated collaboration of an interprofessional team!

Cahill & Valadez, 2013

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