Aging with HIV: Trans NIH Research

8th International HIV and Aging Workshop
New York, NY

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Director, NIH Office of AIDS Research
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OAR’s Role in Trans-NIH HIV/AIDS Research

- Authorized by Congress to oversee, coordinate and manage NIH HIV/AIDS-related research
- Establishes scientific priorities
- Invests research funds in line with scientific priorities
- Reports to Congress on NIH HIV/AIDS budget
Role of Office of AIDS Research

- Catalyze
- Coordinate
- Convene
OAR Coordinates the Trans-NIH HIV Research Agenda
Organizational Chart

Secretary of Health and Human Services [DHHS]

Office of the NIH Director

Office of AIDS Research

National Institute on Aging

National Institute on Alcohol Abuse and Alcoholism

National Institute of Allergy and Infectious Diseases

National Institute of Arthritis and Musculoskeletal and Skin Diseases

National Cancer Institute

National Institute of Child Health and Human Development

National Institute on Deafness and Other Communication Disorders

National Institute of Dental and Craniofacial Research

National Institute of Diabetes and Digestive and Kidney Diseases

National Institute of Drug Abuse

National Institute of Environmental Health Sciences

National Eye Institute

National Institute of General Medical Sciences

National Heart, Lung, and Blood Institute

National Human Genome Research Institute

National Institute of Mental Health

National Institute of Neurological Disorders and Stroke

National Institute of Nursing Research

National Institute of Biomedical Imaging and Bioengineering

National Center for Complementary and Integrative Health

John E. Fogarty International Center

National Center for Advancing Translational Sciences

National Library of Medicine

National Center on Minority Health and Health Disparities

Warren G. Magnuson Clinical Research Center

Center for Information Technology

Center for Scientific Review
OAR Vision

To advance research to end the HIV pandemic and improve the health of People Living With HIV
OVERVIEW: NIH HIV/AIDS Research Portfolio

• Research and training

• Transcends every area of clinical medicine and basic scientific investigation

• Trans-NIH, multidisciplinary, global

• Largest public investment in HIV/AIDS research globally
Aging with HIV

- HIV is a chronic disease
- Even with HIV treatment, aging brings comorbidities
- Role of research
U.S. Diagnoses of HIV Infection
2015

Note. Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. Data for the year 2015 are preliminary and based on 6 months reporting delay.
United States Epidemic 2014: People Living with HIV

Youth 13-24:  
5.8% of cases

Individuals over 55:  
> 45% of cases

Source: CDC Surveillance Report #26- 2014
HIV Across the Life Span

- Neonates
- Infants
- Children
- Preteens
- Adolescents
- Youth
- Adults
- Seniors

Age [yrs]

2 9 13 18 24 65
HIV Care Continuum Across the Life Span: Linkage, Retention, and Viral Suppression Remain Low

Age in Years

% 0 20 40 60 80 100

Estimate *

Diagnosed
Linked to care
Retained in Care
Virally suppressed

13-24 25-34 35-44 45-54 55 and over
HIV Infection Increases Over Time in Older Age Groups in U.S.

- **2013**
- **2025**
- **2045**

Population in thousands

- <25
- 25-34
- 35-44
- 45-54
- 55-64
- 65+

*Projected

*Hood et al. AIDS Care 2017; Epub.*
HIV Increases Risk for Diseases Associated With Aging
Inflammation Plays a Role in Many Aging and HIV-related Co-morbidities
Comorbidities Increase with Age

No. of comorbidities

- None
- One
- Two
- Three
- Four or more

Age groups

- <50 (n=5761)
- 50-64 (n=2233)
- >64 (n=450)

Hasse B. et al. CID 2011, 53:1130-39
### Comedications Increase with Age

<table>
<thead>
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Older PLWH Have Increased Complications

- Subtle immune compromise persists with treatment
- Long term HIV treatment leads to toxicity
- HIV co-morbidities affect many organs and systems
- Inflammation may be at the root of many comorbidities
- Effects of HIV and aging are synergistic
Increasing Comorbidities Occur in PLWH Globally
OAR Coordinates the Trans-NIH HIV Research Agenda
HIV and Aging: State of Knowledge and Areas of Critical Need for Research. A Report to the NIH Office of AIDS Research by the HIV and Aging Working Group

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and Paul Volberding, MD,### For the OAR Working Group on HIV and Aging

JAIDS July 1, 2012
Community Listening Days 2017
Aging: A Research Gap

- Frailty, accelerated morbidity, mortality
- Polypharmacy
- Ethnic, sex, gender differences
- HIV and treatment impacts
NIH OAR Investment in HIV Aging Research

Source: Office of AIDS Research
MACS & WIHS: Research Opportunities

- Aging cohorts
- Combine cohorts in 2019
- Male/female comparisons
- Age comparisons with new enrollees
OAR and National Institute of Aging

• Collaboration to understand common mechanisms of Alzheimer’s and HIV neurocognitive dysfunction

• 14 HIV-related FOAs
National Institute of Mental Health

**Biomarker Tracks Accelerated HIV-Associated Aging**

Infection Adds Five Years on Average to Biological Age

*April 21, 2016 • Science Update*
Multidisciplinary Studies of HIV and Aging

- Multidisciplinary FOAs (PAR-17-320, PAR-17-321) encourages applications at the intersection of HIV and aging

  1) improve understanding of biological, clinical, and socio-behavioral aspects

  2) improve approaches for testing, prevention, and treatment of HIV infection, and management of HIV-related comorbidities, co-infections, and complications in different populations and cultural settings
Research Leading to Sound Health Policy