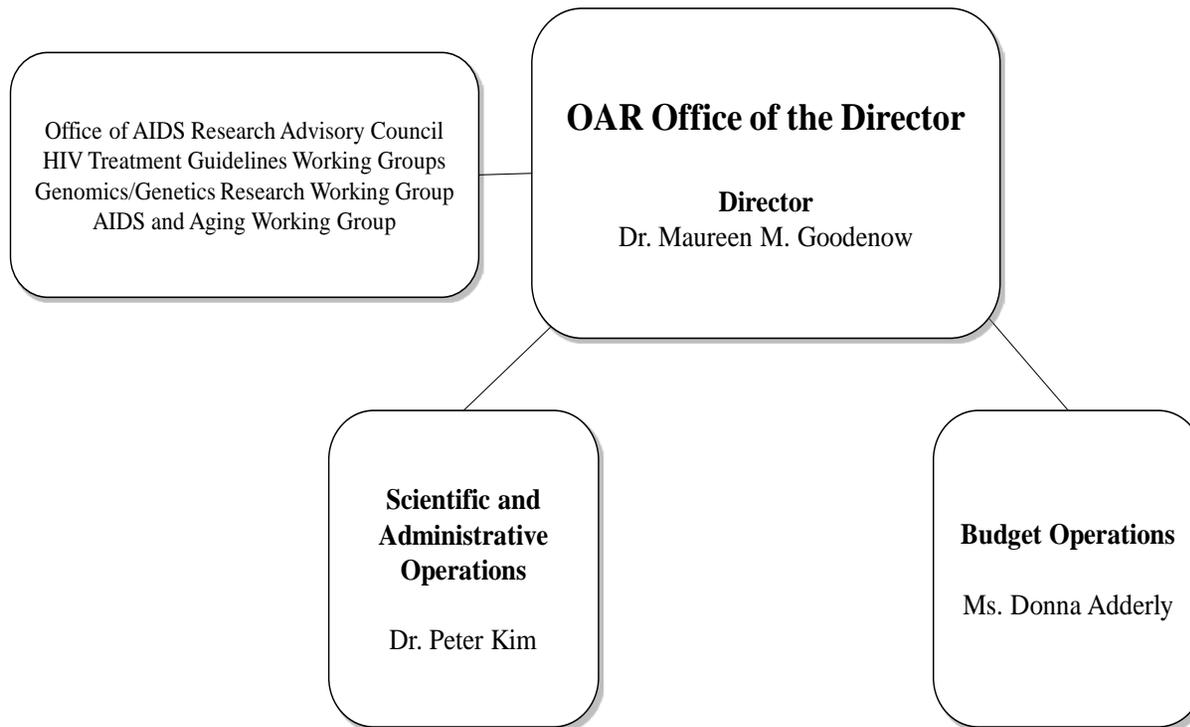


DEPARTMENT OF HEALTH AND HUMAN SERVICES
NATIONAL INSTITUTES OF HEALTH
Trans-NIH HIV/AIDS Research Budget

<u>FY 2019 Budget</u>	<u>Page No.</u>
Organization Chart.....	2
Budget Authority by Institute and Center.....	3
Budget Authority by Activity	4
Justification of the Budget Request	5
Director’s Overview.....	5
Program Descriptions and Accomplishments.....	8
Reducing the Incidence of HIV/AIDS.....	8
Next Generation of HIV Therapies.....	9
Research Toward a Cure for HIV/AIDS.....	10
HIV-associated Comorbidities, Coinfections and Complications (CCC).....	11
Crosscutting Areas.....	11
Benefits of AIDS Research to Other Scientific Areas.....	13

ORGANIZATION CHART

**National Institutes of Health
Office of AIDS Research**



NATIONAL INSTITUTES OF HEALTH
Office of AIDS Research
Budget Authority by Institute and Center
(Dollars in Thousands)

Institute / Center	FY 2017 Actual	FY 2018 CR	FY 2019 President's Budget (Revised)	FY 2019 +/- FY 2018 CR
NCI	\$249,019	\$247,328	\$241,676	-\$5,652
NHLBI	77,512	76,986	75,227	-1,759
NIDCR	18,015	17,893	17,483	-410
NIDDK	32,904	32,681	31,934	-747
NINDS	45,464	45,155	44,123	-1,032
NIAID	1,673,531	1,662,166	1,624,190	-37,976
NIGMS	52,484	52,128	50,936	-1,192
NICHD	144,125	143,146	139,875	-3,271
NEI	1,162	1,154	1,127	-27
NIEHS	5,342	5,306	5,185	-121
NIA	9,514	9,449	9,234	-215
NIAMS	4,587	4,556	4,452	-104
NIDCD	1,878	1,865	1,822	-43
NIMH	167,570	166,432	162,629	-3,803
NIDA	276,711	274,832	268,551	-6,281
NIAAA	28,566	28,372	27,724	-648
NINR	12,180	12,097	11,821	-276
NHGRI	2,502	2,485	2,428	-57
NIBIB	1,092	1,085	1,059	-26
NIMHD	20,917	20,775	20,301	-474
NCCIH	777	772	754	-18
FIC	23,884	23,722	23,180	-542
NLM	8,822	8,762	8,562	-200
OD				
OAR	62,256	61,833	60,420	-1,413
ORIP	79,247	78,709	76,910	-1,799
Subtotal, OD	141,503	140,542	137,330	-3,212
TOTAL, NIH	\$3,000,061	\$2,979,689	\$2,911,603	-\$68,086

NATIONAL INSTITUTES OF HEALTH
Office of AIDS Research
Budget Authority by Activity
(Dollars in Thousands)

Overarching Priorities	FY 2015 Actual	FY 2016 Actual	FY 2017 Actual	FY 2018 Annualized CR	FY 2019 President's Budget (Revised)	FY 2019 +/- FY 2018 CR
Reducing Incidence of HIV/AIDS	\$700,771	\$732,003	\$687,495	\$684,200	\$669,966	-\$14,234
Next Generation HIV Therapies	449,716	360,085	362,820	358,939	345,848	-\$13,091
Research Toward a Cure ^{1/}	65,206	108,337	170,375	168,875	164,458	-\$4,417
HIV-associated Comorbidities, Coinfections, and Complications	588,444	614,090	556,608	551,112	539,216	-\$11,896
Crosscutting	1,195,924	1,185,546	1,222,763	1,216,563	1,192,115	-\$24,448
Total	\$3,000,061	\$3,000,061	\$3,000,061	\$2,979,689	\$2,911,603	-\$68,086

^{1/} Beginning in FY 2017, Research Toward a Cure for HIV/AIDS became a separate activity. Dollars for Research Toward a Cure for HIV/AIDS were previously included within other science areas, such as Next Generation Therapies, Crosscutting--Basic Research, and Reducing Incidence of HIV/AIDS. The FY 2015 and FY 2016 amounts are comparable budget figures.

Justification of Budget Request

Office of AIDS Research Trans-NIH AIDS Research Budget Justification *(see also: OAR section in Office of the Director/DPCPSI)*

Budget Authority (BA):

FY 2017 Actual	FY 2018 Annualized Continuing Resolution	FY 2019 President's Budget	FY 2019+/- FY 2018
\$3,000,061,000	\$2,979,689,000	\$2,911,603,000	-\$68,086,000

Director's Overview

Groundbreaking Accomplishments with Unprecedented Scientific Opportunities

Since the first cases of AIDS were reported, NIH has been the global leader in sponsoring research to prevent, diagnose, and treat HIV and its associated comorbidities, coinfections, and complications. Currently, there are 1.1 million people living with HIV (PLWH) in the United States (U.S.) and 37 million PLWH globally.¹ In 2016, 1.8 million people globally became newly infected with HIV.¹ To date, 35 million people have died because of HIV/AIDS.¹

NIH has established a comprehensive and coordinated HIV research program that has demonstrated unprecedented progress against the global HIV pandemic. NIH-sponsored research has led to groundbreaking advances in understanding the HIV life cycle, development of safe and effective antiretroviral drugs and drug regimens for the treatment of HIV-infected individuals, and strategies to prevent HIV transmission and acquisition. While significant progress has been made, the HIV pandemic continues to spread, representing a serious global public health threat. NIH will continue to build on the scientific discoveries and knowledge that have been gained to advance research to end the epidemic and improve the health outcomes of PLWH.

Coordinated NIH-wide HIV Research Program

The Office of AIDS Research (OAR) manages the NIH-wide HIV/AIDS research program. As HIV/AIDS affects virtually every organ system in the body, leading to a myriad of HIV-associated coinfections, comorbidities, and clinical complications, almost every NIH Institute and Center (IC) is involved in HIV-related research. OAR coordinates the scientific, budgetary, and policy elements of this NIH-wide research program. OAR has established comprehensive HIV/AIDS planning, budgeting, and portfolio analysis processes to identify the highest-priority areas of scientific opportunity, enhance collaboration, minimize duplication, and ensure that precious research dollars are invested effectively. OAR also identifies specific funding for emerging scientific opportunities and public health challenges that require focused attention;

¹ UNAIDS Fact Sheet July 2017. http://www.unaids.org/sites/default/files/media_asset/UNAIDS_FactSheet_en.pdf

facilitates cross-Institute activities and collaborations; fosters research by designating funds and supplements for pilot programs; facilitates HIV research training; and sponsors scientific workshops to identify cutting-edge initiatives and catalyze change in the field.

Priority Setting Review

The Congressional Budget Justification reflects resources needed to meet the highest priorities identified through OAR's NIH-wide strategic planning, priority-setting, portfolio analysis, and budget processes; and to address the evolving clinical profile of the epidemic.

This budget request also establishes the biomedical and behavioral research foundation necessary to end the HIV/AIDS epidemic as well as mirrors the key themes established by the NIH Director, which align with OAR's priorities as indicated below.

- **Tackling Complex Challenges by Leveraging Partnerships:** NIH currently supports a significant number of partnerships across scientific disciplines and across the public and private sectors to advance HIV/AIDS research. NIH will continue to establish and leverage collaborations with academia, industry and other private partnerships to address public health needs and support opportunities to implement new approaches to accomplish these goals. For example, the OAR in collaboration with several ICs is leading an effort to re-envision the Multi-Center AIDS Cohort Study and the Women's Interagency HIV Study Combined Cohort Study (MACS/WIHS-CCS) to address the changing research needs of the pandemic. Because HIV/AIDS is such a complex disease, this effort will allow the NIH ICs to study and characterize HIV-related co-morbidities and co-infections among U.S. adults.
- **Supporting Basic Research to Drive New Understanding of Health and Disease in Living Systems:** The HIV/AIDS research field has been driven by innovative research. NIH will continue to advance all the HIV/AIDS research priorities by investing in basic research to elucidate the fundamental mechanisms that drive HIV infection and its associated diseases.
- **Investing in Translational and Clinical Research to Improve Health:** NIH supports a broad portfolio of translational and clinical research in HIV/AIDS to rapidly advance the most important findings in basic research into clinically relevant tools and strategies for treatment and prevention. NIH will continue to fund translational and clinical research to develop promising vaccine candidates, new diagnostic tools, and new drugs and formulation technologies, to address the critical needs of clinicians and public health professionals engaged in the fight against HIV/AIDS.
- **Fostering a Diverse and Talented Biomedical Research Workforce for Today and Tomorrow:** Training the biomedical, behavioral, and social science workforce required to conduct high-priority HIV/AIDS research has long been a goal of the OAR. OAR will continue to fund NIH ICs to ensure that a diverse and talented workforce is supported for driving innovation, fostering creativity, and encouraging the development of new ideas and perspectives in combating the HIV pandemic.

The key overarching scientific priorities identified within this NIH-wide budget include:

- **Reducing Incidence of HIV/AIDS:** developing and testing promising vaccines; developing and testing microbicides and pre-exposure prophylaxis candidates and methods of delivery, especially those that mitigate adherence issues; and developing, testing, and implementing strategies to improve HIV testing and entry into prevention services.
- **Next Generation HIV Therapies with Better Safety and Ease of Use:** developing and testing HIV treatments that are less toxic, longer acting, have fewer side effects and complications, and easier to take and adhere to than current regimens; implementation research to ensure initiation of treatment as soon as diagnosis has been made, retention and engagement in these services, and achievement and maintenance of optimal prevention and treatment responses.
- **Research Toward a Cure:** developing novel approaches and strategies to identify and eliminate viral reservoirs and sanctuaries, including studies of viral persistence, latency, and reactivation, that could lead toward a cure or lifelong remission of HIV infection.
- **HIV-associated Comorbidities, Coinfections, and Complications:** addressing the impact of HIV-associated comorbidities across the lifespan, including tuberculosis (TB), malignancies; cardiovascular, neurological, and metabolic complications; and premature aging associated with long-term HIV disease and antiretroviral therapy.
- **Cross Cutting Areas:**
 - **Research to Reduce Health Disparities** in the incidence of new HIV infections or in treatment outcomes of those living with HIV/AIDS.
 - **Behavioral and Social Sciences Research (BSSR):** understanding behavioral and social determinants of transmission, prevention, and treatment outcomes, and elucidate potential interventions to end the epidemic.
 - **Epidemiological Research:** conducting epidemiologic and modeling research to improve understanding of the epidemic at the population level and help prioritize strategies that will have the greatest impact on the pandemic and the health of PLWH.
 - **Research Training** of the workforce required to conduct high-priority HIV/AIDS or HIV/AIDS-related research.
 - **Basic Research:** understanding the basic biology of HIV transmission and pathogenesis; immune dysfunction and chronic inflammation; host microbiome and genetic determinants; and other fundamental issues that underpin the development of high priority HIV prevention, cure, co-morbidities, and treatment strategies.

Overall Budget Policy: The FY 2019 President’s Budget estimate for the trans-NIH AIDS research program is \$2,911.603 million, a decrease of \$68.086 million compared to the FY 2018

Annualized Continuing Resolution (CR) level. The OAR is authorized to allocate all dollars associated with this area of research across the entire NIH. The NIH HIV/AIDS research budget is tightly focused on high priority HIV/AIDS research, including: 1) discovery, translation, and development of new prevention and treatment modalities for HIV/AIDS including vaccines, monoclonal antibodies, and new drugs, 2) clinical trials to test and enhance these new products, 3) research for achieving a cure or sustained HIV remission, 4) exploration of new opportunities for basic scientific research on HIV interactions with cells and the immune responses to the virus and its components, and 5) comorbidities, coinfections, and complications associated with HIV/AIDS. This request reflects the reallocation of funds across the ICs to address new and exciting scientific opportunities in HIV/AIDS research identified through OAR's unique trans-NIH strategic planning, priority setting, portfolio analysis, and budget processes and to address the evolving clinical profile of the epidemic. In addition, these resource alignment practices have opened opportunities to incorporate improved risk-assessment tools and to enhance study designs to deliver effective interventions for prevention and treatment of HIV/AIDS.

Program Descriptions and Accomplishments

Reducing the Incidence of HIV/AIDS: NIH-sponsored studies have proven the effectiveness of viral suppression via combined anti-retroviral therapy to reduce transmission to sexual partners and have delineated modern strategies to prevent the transmission of infection from mothers to newborns. However, the pandemic continues, and further research is needed. The best long-term strategy for controlling the HIV/AIDS pandemic is the development of safe, effective, and affordable HIV prevention strategies that are easily implementable with wide uptake across all populations affected by HIV. The development of an effective HIV vaccine would be a groundbreaking advancement for the field. NIH continues to support a broad research portfolio encompassing basic, preclinical, and clinical studies to advance research on HIV vaccines and other preventive measures.

Basic and translational research to assess the human immune response to vaccines remains a high priority. While a vaccine has been elusive to date, two major HIV vaccine efficacy trials testing two different vaccine candidates will continue in 2019 with results anticipated in 2020. These candidate vaccines are built on the scientific advances of the past 10 years and showed promise in small, early phase clinical trials. NIH-funded investigators are developing next generation vaccine candidates that will be ready for testing in humans by applying novel vaccine approaches including immunization with unique, sequential proteins, designed over time to induce potent antibodies. Advances in imaging technologies have led to the development of structures that more closely mimic HIV, and in turn, could serve as improved vaccines to induce protective immunity. In preparation for these clinical trials, NIH has strategically invested in expanding manufacturing capabilities to meet current and future research demand.

NIH has made dramatic advances in research and development related to non-vaccine HIV prevention in both adults and infants. One prevention trial conducted in Sub-Saharan Africa and the Americas called AMP (antibody-mediated protection) gives participants an infusion of monoclonal antibodies—known to be highly protective in blocking infection. If successful, the trial will demonstrate that antibodies given to humans can prevent HIV infection. If the

antibodies can be produced economically on a large scale and are well-accepted by at-risk populations, antibodies could become a viable prevention option.

A new long acting formulation of the drug Cabotegravir opens the possibility for future prevention modalities that would be effective with monthly, rather than daily dosing. Studies are also underway to evaluate the long-term impact of these prevention modalities on the overall health of PLWH.

The development of microbicides, intra-vaginal rings and other modalities to protect women and men from sexual acquisition of HIV, a long-standing goal of NIH, remains a promising component of the HIV prevention toolkit that offers advantages for women who may not have other options for protection. A recently completed trial of an antiretroviral (ARV)-based intravaginal ring was up to 62 percent effective in preventing sexually-transmitted HIV infection in women who used the ring monthly.² Research to improve upon early successes and to better understand factors contributing to adherence will be critical to advance the development of a vaginal ring.

Budget Policy: The FY 2019 President's Budget request for Reducing the Incidence of HIV/AIDS is \$669.966 million, a decrease of \$14.234 million compared to the FY 2018 CR level.

Next Generation of HIV Therapies: Antiretroviral therapy (ART) has improved the health of many PLWH. Combination ART (cART) significantly suppresses virus replication to reduce damage to the host immune system, prolongs the development of viral resistance, and lessens the spread of HIV/AIDS. In addition, cART has delayed the progression of HIV infection to AIDS and reduced HIV-associated comorbidity and mortality from opportunistic infections (e.g., cryptococcal meningitis and pneumocystis pneumonia), AIDS defining cancers, and HIV-associated metabolic and neurologic syndromes.

However, even with the current cART regimens, daily, life-long treatment is required and only 17-18 million of the approximately 37 million PLWH currently receive treatment.¹ Obstacles for PLWH to receive and adhere to cART include: 1) costs associated with daily regimens, 2) toxicity and other side effects, 3) drug-drug interactions with other critical medications such as treatment for TB, 4) HIV drug resistance, and 5) disparities in access to HIV treatment which impact treatment outcomes across race, sex and gender, age, and socioeconomic status.

NIH has led efforts to advance the discovery and development of a wide range of technologies and treatment modalities that will benefit PLWH and help bring the pandemic to an end. NIH-funded research efforts are underway to develop and test longer acting, less toxic regimens with fewer side effects and complications. In the near future, PLWH may be able to receive monthly (or even longer acting) injections of sustained release cART, anti-HIV antibody infusions, or a six month long therapeutic implant. Simpler treatment schedules compared to the current daily cART regimens are expected to improve adherence. Immune-based treatment regimens, while still early in development, hold promise for a treatment that suppresses viral replication and also

² Use of a Vaginal Ring Containing Dapivirine for HIV-1 Prevention in Women. NEJM, December 1, 2016; 375: 2121 – 2132.

addresses the immune dysfunction that continues, even with viral suppression. Immune based modalities would also provide treatment for PLWH where the virus has become resistant to all known anti-retroviral drugs. Ten percent of people on ARV are resistant to at least one drug.³

NIH in partnership with industry, academia, and other research organizations is supporting a broad array of basic and clinical research to develop cutting edge diagnostic technologies that quickly identify infection, measure treatment efficacy, and determine drug resistance. NIH is also investing in research focused on the epidemiology of HIV drug resistance to inform treatment strategies and disease outcomes; and, behavioral social science, and implementation research to foster innovative strategies that will increase uptake of treatment upon HIV diagnosis, and engage PLWH in care to achieve viral suppression, prevent transmission, and improve health.

Budget Policy: The FY 2019 President's Budget request for Next Generation HIV Therapies is \$345.848 million, a decrease of \$13.091 million compared to the FY 2018 CR level.

Research Toward a Cure for HIV/AIDS: The most significant hurdles that prevent developing a cure for HIV infection are latent viral reservoirs resulting from the integration of the viral genome into the human DNA of infected cells and sanctuary sites that protect the virus from the natural immune response and current therapies. To cure HIV, new therapies that target and eliminate or silence cells harboring integrated HIV must be developed.

NIH invests in research to advance the understanding of the mechanisms that govern the establishment, persistence, and reactivation of the HIV reservoir in different cell types. Continued investment will support innovative approaches to identify and characterize the persistent HIV reservoir, including single cell and imaging technologies. A comprehensive understanding of the dynamics of the HIV reservoir will inform the development of new targeted therapeutic cure strategies. In parallel, NIH is leading efforts to advance the research and development of a wide array of technologies and strategies aimed at eradicating the reservoir or inhibiting viral reactivation.

NIH invests in a complex portfolio of research toward an HIV cure that includes phased innovation awards with research milestones and small business awards to support biotech startups to foster a diverse and talented research workforce. The research to find a cure supported by the NIH involves several public-private partnerships that conduct basic, translational, and clinical research to drive new targeted therapeutics for improved health outcomes. The investment by NIH in a multifaceted HIV/AIDS research portfolio is crucial to advance the scientific discoveries that will lead to a cure for HIV that is as safe as cART, simple to implement, and readily scalable for all PLWH.

Budget Policy: The FY 2019 President's Budget request for Research Toward a Cure for HIV/AIDS is \$164.458 million, a decrease of \$4.417 million compared to the FY 2018 CR level.

³ World Health Organization: HIV Drug Resistance Report 2017; <http://apps.who.int/iris/bitstream/10665/255896/1/9789241512831-eng.pdf?ua=1>

HIV-Associated Comorbidities, Coinfections, and Complications (CCC): HIV directly and indirectly causes a complex array of health issues that are not improved by cART and may be exacerbated by treatment. At the same time, infections such as TB and hepatitis have a negatively synergistic reaction with HIV leading to increased disease severity and worse treatment outcomes for both diseases. Research is currently aimed at understanding how the mechanisms underlying HIV infection, such as immune dysfunction and inflammation, may result in increased risk for cardiovascular disease, accelerated aging, neurologic and cognitive dysfunction, and increased mortality. NIH funds a portfolio of basic, translational, and clinical research to elucidate these mechanisms and their impact on HIV-related end-organ disease. This area of research is important not only for PLWH, but also promises to inform research strategies for other key public health challenges impacting the general population, such as cancer, heart disease, and neurologic disorders.

Through partnerships across various research sectors, these findings are actively being translated into clinical trials of new drugs and diagnostics to accelerate improvement in the health outcomes for PLWH. NIH is funding clinical trials of new diagnostic tools and drugs to facilitate early identification as well as prevention and treatment of heart disease, TB, hepatitis and other opportunistic infections, underlying inflammation, and neurologic complications in PLWH.

Budget Policy: The FY 2019 President’s Budget request for HIV-associated Comorbidities, Coinfections, and Complications is \$539.216 million, a decrease of \$11.896 million compared to the FY 2018 CR level.

Cross Cutting Areas: A significant proportion of HIV/AIDS research has relevance to not one, but all the overarching NIH HIV/AIDS priority research areas, including research in health disparities, behavior and social sciences, and epidemiology as well as training and capacity building, information dissemination, and basic research.

- **Research to Reduce Health Disparities:** NIH continues to invest in research to address disparities in the rate of infections in African Americans, Hispanics, Native Americans and other minority groups. More research is needed to understand the factors contributing to disparities, both in prevention and treatment outcomes. Data estimates from the Centers for Disease Control and Prevention (CDC) indicate that more than 70 percent of all new HIV diagnoses in the U.S. occurred in racial and ethnic populations, with less than 50 percent of PLWH being virally suppressed.⁴

Globally, young people aged 15-24 are often unaware of their HIV status and are less likely to be linked to treatment and care, consequently continuing the cycle of new infections.¹ Defining the gaps and the biologic, genetic, epidemiologic, and behavioral factors involved in health disparities, will improve understanding of the course of HIV infection in these populations, especially in young women and men of color who are most at risk.

⁴ Centers for Disease Control and Prevention: HIV Surveillance Report, 2015; vol. 27, published November 2016. <http://www.cdc.gov/hiv/library/reports/hiv-surveillance.html>.

- **Behavioral and Social Sciences Research:** HIV/AIDS-related behavioral and social sciences research is integrated within all of the high-level priorities for HIV/AIDS research including prevention and treatment of HIV infection, developing a cure, and research on comorbidities and co-infections. Behavioral and social sciences research findings continue to reveal a wide range of individual, interpersonal, social, structural, and other factors that contribute to and drive the HIV/AIDS pandemic. NIH-supported studies have led to developments in reducing HIV-related stigma, improvements in medication adherence, and the use of innovative HIV prevention technologies such as mobile health (mHealth). Other studies are improving the application of social network analysis, the creation of socioculturally specific interventions, and testing other key elements and integrative approaches needed to prevent HIV infection.
- **Epidemiological Research:** The lifetime risk of being diagnosed with HIV in the U.S. is greater for people living in the South, including the District of Columbia, than in other regions of the country.⁵ Understanding causes, patterns, and social phenomena that have led to higher rates of HIV infection in the Southern and Midwestern U.S. is key to rapidly identifying and preventing HIV outbreaks. The recent outbreak in Indiana was fueled by injection drug use. With a surging opioid epidemic, particularly among U.S. youth, methodology to detect infection clusters early and prevent future outbreaks is a cross cutting and cross-disciplinary priority.
- **Training, Infrastructure, and Capacity Building:** NIH continues a strong commitment to training the biomedical, behavioral, and social science workforce required to conduct high-priority HIV/AIDS research. NIH provides research infrastructure and capacity building support through funding equipment, shared instrumentation, and tissue and specimen repositories. NIH also provides support for infrastructure and capacity building as integral components of its commitment to carry out highly productive HIV-related research that is scientifically and ethically sound.
- **Information Dissemination:** NIH supports initiatives to enhance the dissemination of research findings to the diverse communities that rely on this information including patients, clinicians, researchers, and other stakeholders in HIV research. For example, NIH sponsors the development and dissemination of the U.S. HIV/AIDS Treatment and Prevention guidelines used by clinicians in the U.S. and globally. The Guidelines facilitate rapid translation of HIV/AIDS research into clinical practice and keep the medical and patient communities abreast of the latest advances.
- **Basic Research:** Major gaps remain in our understanding of the basic biology of HIV transmission and pathogenesis including the development of immune dysfunction, chronic inflammation, and virus/host cell interactions; the impact of the host microbiome on therapeutic efficacy, prevention and disease outcomes; genetic determinants of HIV susceptibility and disease progression; innate immune factors that may either prevent or accelerate disease; and other fundamental issues that underpin the development of high-

⁵ Centers for Disease Control and Prevention: HIV in the United States, At a Glance; published September 2017. <https://www.cdc.gov/hiv/statistics/overview/ata glance.html>.

priority strategies for the prevention, treatment, and cure of HIV and related co-morbidities and coinfections.

Budget Policy: The FY 2019 President's Budget request for Crosscutting Areas: Research to Reduce Health Disparities; Behavioral and Social Sciences Research; Epidemiological Research; Training, Infrastructure, and Capacity Building; Information Dissemination; and Basic Research is \$1,192.115 million, a decrease of \$24.448 million compared to the FY 2018 CR level.

Benefits of AIDS Research to Other Areas: NIH investment in HIV/AIDS research has resulted in critical scientific accomplishments that have contributed knowledge to the prevention, diagnosis, and treatment of many other diseases and conditions. HIV/AIDS research has informed a better understanding of immunology, virology, microbiology, molecular biology, cell biology, and the impact of genetics on human health. HIV/AIDS research continues to make discoveries that can be applied to other infections and conditions such as cancer, neurologic, autoimmune, and metabolic diseases, as well as to the complex issues of aging and dementia.

Conclusion: NIH investment in HIV/AIDS research continues to produce significant groundbreaking scientific advances, unprecedented opportunities, and new challenges. NIH's leadership and commitment to build upon these advances and strategically allocate funds to the highest priorities are essential to successfully bringing an end to the HIV pandemic and improving the life of PLWH.