

APPROPRIATIONS LANGUAGE

NATIONAL CANCER INSTITUTE

For carrying out section 301 and title IV of the PHS Act with respect to cancer, \$6,497,851,000, of which up to \$30,000,000 may be used for facilities repairs and improvements at the National Cancer Institute—Frederick Federally Funded Research and Development Center in Frederick, Maryland.

NATIONAL HEART, LUNG, AND BLOOD INSTITUTE

For carrying out section 301 and title IV of the PHS Act with respect to cardiovascular, lung, and blood diseases, and blood and blood products, \$3,822,961,000.

NATIONAL INSTITUTE OF DENTAL AND CRANIOFACIAL RESEARCH

For carrying out section 301 and title IV of the PHS Act with respect to dental and craniofacial diseases, \$513,191,000.

NATIONAL INSTITUTE OF DIABETES AND DIGESTIVE AND KIDNEY DISEASES

For carrying out section 301 and title IV of the PHS Act with respect to diabetes and digestive and kidney disease, \$2,206,080,000.

NATIONAL INSTITUTE OF NEUROLOGICAL DISORDERS AND STROKE

For carrying out section 301 and title IV of the PHS Act with respect to neurological disorders and stroke, \$2,543,043,000.

NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES

For carrying out section 301 and title IV of the PHS Act with respect to allergy and infectious diseases, \$6,268,313,000.

NATIONAL INSTITUTE OF GENERAL MEDICAL SCIENCES

For carrying out section 301 and title IV of the PHS Act with respect to general medical sciences, \$3,097,557,000, of which \$1,271,505,000 shall be from funds available under section 241 of the PHS Act: Provided, That not less than \$410,644,000 is provided for the Institutional Development Awards program.

**EUNICE KENNEDY SHRIVER NATIONAL INSTITUTE OF CHILD HEALTH AND
HUMAN DEVELOPMENT**

For carrying out section 301 and title IV of the PHS Act with respect to child health and human development, \$1,674,941,000.

NATIONAL EYE INSTITUTE

For carrying out section 301 and title IV of the PHS Act with respect to eye diseases and visual disorders, \$853,355,000.

NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES

For carrying out section 301 and title IV of the PHS Act with respect to environmental health sciences, \$932,056,000.

NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES

For necessary expenses for the National Institute of Environmental Health Sciences in carrying out activities set forth in section 311(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9660(a)) and section 126(g) of the Superfund Amendments and Reauthorization Act of 1986, \$83,035,000.

NATIONAL INSTITUTE ON AGING

For carrying out section 301 and title IV of the PHS Act with respect to aging, \$4,011,413,000.

**NATIONAL INSTITUTE OF ARTHRITIS AND MUSCULOSKELETAL AND SKIN
DISEASES**

For carrying out section 301 and title IV of the PHS Act with respect to arthritis and musculoskeletal and skin diseases, \$676,254,000.

**NATIONAL INSTITUTE ON DEAFNESS AND OTHER COMMUNICATION
DISORDERS**

For carrying out section 301 and title IV of the PHS Act with respect to deafness and other communication disorders, \$508,704,000.

NATIONAL INSTITUTE OF NURSING RESEARCH

For carrying out section 301 and title IV of the PHS Act with respect to nursing research, \$198,670,000.

**NATIONAL INSTITUTE ON ALCOHOL EFFECTS AND ALCOHOL-ASSOCIATED
DISORDERS**

For carrying out section 301 and title IV of the PHS Act with respect to alcohol misuse, alcohol use disorder, and other alcohol-associated disorders, \$566,725,000.

NATIONAL INSTITUTE ON DRUGS AND ADDICTION

For carrying out section 301 and title IV of the PHS Act with respect to drugs and addiction, \$1,843,326,000.

NATIONAL INSTITUTE OF MENTAL HEALTH

For carrying out section 301 and title IV of the PHS Act with respect to mental health, \$1,985,828,000.

NATIONAL HUMAN GENOME RESEARCH INSTITUTE

For carrying out section 301 and title IV of the PHS Act with respect to human genome research, \$629,154,000.

NATIONAL INSTITUTE OF BIOMEDICAL IMAGING AND BIOENGINEERING

For carrying out section 301 and title IV of the PHS Act with respect to biomedical imaging and bioengineering research, \$419,493,000.

NATIONAL CENTER FOR COMPLEMENTARY AND INTEGRATIVE HEALTH

For carrying out section 301 and title IV of the PHS Act with respect to complementary and integrative health, \$183,368,000.

NATIONAL INSTITUTE ON MINORITY HEALTH AND HEALTH DISPARITIES

For carrying out section 301 and title IV of the PHS Act with respect to minority health and health disparities research, \$659,817,000.

JOHN E. FOGARTY INTERNATIONAL CENTER

For carrying out the activities of the John E. Fogarty International Center (described in subpart 2 of part E of title IV of the PHS Act), \$95,801,000.

NATIONAL LIBRARY OF MEDICINE

For carrying out section 301 and title IV of the PHS Act with respect to health information communications, \$471,998,000: Provided, That of the amounts available for improvement of information systems, \$4,000,000 shall be available until September 30, 2024: Provided further, That in fiscal year 2023, the National Library of Medicine may enter into personal services contracts for the provision of services in facilities owned, operated, or constructed under the jurisdiction of the National Institutes of Health (referred to in this title as "NIH").

NATIONAL CENTER FOR ADVANCING TRANSLATIONAL SCIENCES

For carrying out section 301 and title IV of the PHS Act with respect to translational sciences, \$873,654,000: Provided, That up to \$90,000,000 shall be available to implement section 480 of the PHS Act, relating to the Cures Acceleration Network: Provided further, That at least \$599,349,000 is provided to the Clinical and Translational Sciences Awards program.

OFFICE OF THE DIRECTOR
(INCLUDING TRANSFER OF FUNDS)

For carrying out the responsibilities of the Office of the Director, NIH, \$2,302,065,000:

Provided, That funding shall be available for the purchase of not to exceed 29 passenger motor vehicles for replacement only: Provided further, That all funds credited to the NIH Management Fund shall remain available for one fiscal year after the fiscal year in which they are deposited: Provided further, That \$645,939,000 shall be available for the Common Fund established under section 402A(c)(1) of the PHS Act: Provided further, That of the funds provided, \$10,000 shall be for official reception and representation expenses when specifically approved by the Director of the NIH: Provided further, That the Office of AIDS Research within the Office of the Director of the NIH may spend up to \$8,000,000 to make grants for construction or renovation of facilities as provided for in section 2354(a)(5)(B) of the PHS Act: Provided further, That up to \$30,000,000 shall be used to carry out section 404I of the PHS Act (42 U.S.C. 283k) with respect to the National Primate Research Centers and Caribbean Primate Research Center: Provided further, That \$5,000,000 shall be transferred to and merged with the appropriation for the "Office of Inspector General" for oversight of grant programs and operations of the NIH, including agency efforts to ensure the integrity of its grant application evaluation and selection processes, and shall be in addition to funds otherwise made available for oversight of the NIH: Provided further, That the funds provided in the previous proviso may be transferred from one specified activity to another with 15 days prior notification to the Committees on Appropriations of the House of Representatives and the Senate: Provided further, That the Inspector General shall consult with the Committees on Appropriations of the House of Representatives and the Senate before submitting to the Committees an audit plan for fiscal years 2023 and 2024 no later than 30 days after the date of enactment of this Act: Provided further, That amounts available

under this heading are also available to establish, operate, and support the Research Policy Board authorized by section 2034(f) of the 21st Century Cures Act.

In addition to other funds appropriated for the Common Fund established under section 402A(c) of the PHS Act, \$12,600,000 is appropriated to the Common Fund from the 10-year Pediatric Research Initiative Fund described in section 9008 of title 26, United States Code, for the purpose of carrying out section 402(b)(7)(B)(ii) of the PHS Act (relating to pediatric research), as authorized in the Gabriella Miller Kids First Research Act.

BUILDINGS AND FACILITIES

For the study of, construction of, demolition of, renovation of, and acquisition of equipment for, facilities of or used by NIH, including the acquisition of real property, \$300,000,000, to remain available through September 30, 2027.

ADVANCED RESEARCH PROJECTS AGENCY FOR HEALTH

For carrying out section 301 and title IV of the PHS Act with respect to advanced research projects for health, \$5,000,000,000, to remain available through September 30, 2025.

NIH INNOVATION ACCOUNT, CURES ACT

(INCLUDING TRANSFER OF FUNDS)

For necessary expenses to carry out the purposes described in section 1001(b)(4) of the 21st Century Cures Act, in addition to amounts available for such purposes in the appropriations provided to the NIH in this Act, \$1,085,000,000, to remain available until expended: Provided, That such amounts are appropriated pursuant to section 1001(b)(3) of such Act, are to be

derived from amounts transferred under section 1001(b)(2)(A) of such Act, and may be transferred by the Director of the National Institutes of Health to other accounts of the National Institutes of Health solely for the purposes provided in such Act: Provided further, That upon a determination by the Director that funds transferred pursuant to the previous proviso are not necessary for the purposes provided, such amounts may be transferred back to the Account: Provided further, That the transfer authority provided under this heading is in addition to any other transfer authority provided by law.

GENERAL PROVISIONS

SEC. 214. Not to exceed 1 percent of funds appropriated by this Act to the offices, institutes, and centers of the National Institutes of Health may be transferred to and merged with funds appropriated under the heading "National Institutes of Health-Buildings and Facilities": Provided, That the use of such transferred funds shall be subject to a centralized prioritization and governance process: Provided further, That the Director of the National Institutes of Health shall notify the Committees on Appropriations of the House of Representatives and the Senate at least 15 days in advance of any such transfer: Provided further, That this transfer authority is in addition to any other transfer authority provided by law.

SEC. 240. (a) The Public Health Service Act (42 U.S.C. 201 et seq.), the Controlled Substances Act (21 U.S.C. 801 et seq.), the Comprehensive Smoking Education Act (15 U.S.C. 1331 et seq.), the Comprehensive Addiction and Recovery Act of 2016 (Public Law 114–198), the Drug Abuse Prevention, Treatment, and Rehabilitation Act (21 U.S.C. 1101 et seq.), the Omnibus Crime Control and Safe Streets Act of 1968 (34 U.S.C. 10101 et seq.), and title 5 of the United States Code are each amended—

(1) by striking "National Institute on Drug Abuse" each place it appears and inserting "National Institute on Drugs and Addiction"; and

(2) by striking "National Advisory Council on Drug Abuse" each place it appears and inserting "National Advisory Council on Drugs and Addiction".

(b) Title IV of the Public Health Service Act (42 U.S.C. 281 et seq.) is amended—

(1) in section 464H(b)(5), by striking "National Institute of Drug Abuse" and inserting "National Institute on Drugs and Addiction";

(2) in sections 464L, 464M(a), 464O, and 494A, by striking "drug abuse" each place it appears and inserting "drug use";

(3) in section 464L(a), by striking "treatment of drug abusers" and inserting "treatment of drug addiction";

(4) in section 464M(a), by striking "prevention of such abuse" and inserting "prevention of such use";

(5) in section 464N—

(A) in the section heading, by striking "DRUG ABUSE RESEARCH CENTERS" and inserting "DRUGS AND ADDICTION RESEARCH CENTERS";

(B) in subsection (a)—

(i) in matter preceding paragraph (1), by striking "National Drug Abuse Research Centers" and inserting "National Drugs and Addiction Research Centers"; and

(ii) in paragraph (1)(C), by striking "treatment of drug abuse" and inserting "treatment of drug addiction"; and

(C) in subsection (c)—

(i) by striking "DRUG ABUSE AND ADDICTION RESEARCH" and inserting "DRUGS AND ADDICTION RESEARCH CENTERS";

(ii) in paragraph (1), by striking "National Drug Abuse Treatment Clinical Trials Network" and inserting "National Drug Addiction Treatment Clinical Trials Network"; and

(iii) in paragraph (2)(H), by striking "reasons that individuals abuse drugs, or refrain from abusing drugs" and inserting "reasons that individuals use drugs or refrain from using drugs"; and

(6) in section 464P—

(A) in subsection (a)—

(i) in paragraph (1), by striking "drug abuse treatments" and inserting "drug addiction treatments"; and

(ii) in paragraph (6), by striking "treatment of drug abuse" and inserting "treatment of drug addiction"; and

(B) in subsection (d)—

(i) by striking "disease of drug abuse" and inserting "disease of drug addiction";

(ii) by striking "abused drugs" each place it appears and inserting "addictive drugs"; and

(iii) by striking "drugs of abuse" and inserting "drugs of addiction".

(c) Section 464N of the Public Health Service Act (42 U.S.C. 285o–2), as amended by subsection (b)(5), is further amended by striking "drug abuse" each place it appears and inserting "drug use".

(d) Any reference in any law, regulation, map, document, paper, or other record of the United States to the National Institute on Drug Abuse shall be considered to be a reference to the National Institute on Drugs and Addiction.

SEC. 241. (a) The Public Health Service Act (42 U.S.C. 201 et seq.) and the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment, and Rehabilitation

Act of 1970 (42 U.S.C. 4541 et seq.) are each amended—

(1) by striking "National Institute on Alcohol Abuse and Alcoholism" each place it appears and inserting "National Institute on Alcohol Effects and Alcohol-Associated Disorders"; and

(2) by striking "National Advisory Council on Alcohol Abuse and Alcoholism" each place it appears and inserting "National Advisory Council on Alcohol Effects and Alcohol-Associated Disorders".

(b) Title IV of the Public Health Service Act (42 U.S.C. 281 et seq.) is amended—

(1) in section 464H—

(A) in subsection (a)—

(i) by striking "prevention of alcohol abuse" and inserting "prevention of alcohol misuse"; and

(ii) by striking "treatment of alcoholism" and inserting "treatment of alcohol-associated disorders"; and

(B) in subsection (b)—

(i) in paragraph (3)—

(I) in subparagraph (A), by striking "alcohol abuse and domestic violence" and inserting "alcohol misuse and domestic violence";

(II) in subparagraph (D), by striking "abuse of alcohol" and inserting "misuse of alcohol";

(III) by striking subparagraph (E) and inserting "(E) the effect of social pressures, legal requirements regarding the use of alcoholic beverages, the cost of such beverages, and the economic status and education of users of such beverages on the incidence of alcohol misuse, alcohol use disorder, and other alcohol-associated disorders, "; and

(ii) in paragraph (5), by striking "impact of alcohol abuse" and inserting "impact of alcohol misuse";

(2) in sections 464H(b), 464I, and 494A, by striking "alcohol abuse and alcoholism" each place it appears and inserting "alcohol misuse, alcohol use disorder, and other alcohol-associated disorders";

(3) in sections 464H(b) and 464J(a), by striking "alcoholism and alcohol abuse" each place it appears and inserting "alcohol misuse, alcohol use disorder, and other alcohol-associated disorders"; and

(4) in section 464J(a)—

(A) by striking "alcoholism and other alcohol problems" each place it appears and inserting "alcohol misuse, alcohol use disorder, and other alcohol-associated disorders";

(B) in the matter preceding paragraph (1), by striking "interdisciplinary research related to alcoholism" and inserting "interdisciplinary research related to alcohol-associated disorders"; and

(C) in paragraph (1)(E), by striking "alcohol problems" each place it appears and inserting "alcohol misuse, alcohol use disorder, and other alcohol-associated disorders".

(c) Any reference in any law, regulation, map, document, paper, or other record of the United States to the National Institute on Alcohol Abuse and Alcoholism shall be considered to be a reference to the National Institute on Alcohol Effects and Alcohol-Associated Disorders.

LANGUAGE ANALYSIS

Language Provision to be Changed ¹	Explanation/Justification
<p>NATIONAL INSTITUTE ON ALCOHOL EFFECTS AND ALCOHOL-ASSOCIATED DISORDERS <i>For carrying out section 301 and title IV of the PHS Act with respect to alcohol misuse, alcohol use disorder, and other alcohol-associated disorders, \$566,725,000.</i></p>	<p>This revision reflects the President’s Budget proposal to change the name of the National Institute on Alcohol Abuse and Alcoholism to the National Institute on Alcohol Effects and Alcohol-Associated Disorders (NIAAA).</p>
<p>NATIONAL INSTITUTE ON DRUGS AND ADDICTION <i>For carrying out section 301 and title IV of the PHS Act with respect to drugs and addiction, \$1,843,326,000.</i></p>	<p>This revision reflects the President’s Budget proposal to change the name of the National Institute on Drug Abuse to the National Institute on Drugs and Addiction (NIDA).</p>
<p>NATIONAL CENTER FOR ADVANCING TRANSLATIONAL SCIENCES <i>For carrying out section 301 and title IV of the PHS Act with respect to translational sciences, \$873,654,000: Provided, That up to \$90,000,000 shall be available to implement section 480 of the PHS Act, relating to the Cures Acceleration Network: Provided further, That at least \$599,349,000 is provided to the Clinical and Translational Sciences Awards program.</i></p>	<p>This provision removes the reference to a percentage limit for the Cures Acceleration Network (CAN) and restores a specified dollar amount consistent with prior appropriations.</p> <p>It also restores a specified dollar amount for the Clinical and Translational Sciences Awards program consistent with prior appropriations.</p>
<p>OFFICE OF THE DIRECTOR <i>In addition to other funds appropriated for the Common Fund established under section 402A(c) of the PHS Act, \$12,600,000 is appropriated to the Common Fund from the 10-year Pediatric Research Initiative Fund described in section 9008 of title 26, United States Code, for the purpose of carrying out section 402(b)(7)(B)(ii) of the PHS Act (relating to pediatric research), as authorized in the Gabriella Miller Kids First Research Act.</i></p>	<p>This provision specifies that the 10-Year Pediatric Research Initiative Fund will provide the full authorized \$12.6 million appropriation to the Common Fund. In FY 2022, the Pediatric Fund did not have sufficient balances to support making the full appropriation, but in FY 2023, Pediatric Fund balances are expected to be sufficient.</p>

Language Provision to be Changed ¹	Explanation/Justification
<p>GENERAL PROVISIONS</p> <p><i>SEC. 240. (a) The Public Health Service Act (42 U.S.C. 201 et seq.), the Controlled Substances Act (21 U.S.C. 801 et seq.), the Comprehensive Smoking Education Act (15 U.S.C. 1331 et seq.), the Comprehensive Addiction and Recovery Act of 2016 (Public Law 114–198), the Drug Abuse Prevention, Treatment, and Rehabilitation Act (21 U.S.C. 1101 et seq.), the Omnibus Crime Control and Safe Streets Act of 1968 (34 U.S.C. 10101 et seq.), and title 5 of the United States Code are each amended—</i></p> <p><i>(1) by striking "National Institute on Drug Abuse" each place it appears and inserting "National Institute on Drugs and Addiction"; and</i></p> <p><i>(2) by striking "National Advisory Council on Drug Abuse" each place it appears and inserting "National Advisory Council on Drugs and Addiction".</i></p> <p><i>(b) Title IV of the Public Health Service Act (42 U.S.C. 281 et seq.) is amended—</i></p> <p><i>(1) in section 464H(b)(5), by striking "National Institute of Drug Abuse" and inserting "National Institute on Drugs and Addiction";</i></p> <p><i>(2) in sections 464L, 464M(a), 464O, and 494A, by striking "drug abuse" each place it appears and inserting "drug use";</i></p> <p><i>(3) in section 464L(a), by striking "treatment of drug abusers" and inserting "treatment of drug addiction";</i></p> <p><i>(4) in section 464M(a), by striking "prevention of such abuse" and inserting "prevention of such use";</i></p> <p><i>(5) in section 464N—</i></p> <p><i>(A) in the section heading, by striking "DRUG ABUSE RESEARCH CENTERS" and inserting "DRUGS AND ADDICTION RESEARCH CENTERS";</i></p> <p><i>(B) in subsection (a)—</i></p> <p><i>(i) in matter preceding paragraph (1), by striking "National Drug Abuse Research</i></p>	<p>This provision amends the Public Health Service Act to change the name of the National Institute on Drug Abuse to the National Institute on Drugs and Addiction and makes related conforming changes in other provisions of the U.S. Code.</p>

Language Provision to be Changed ¹	Explanation/Justification
<p><i>Centers" and inserting "National Drugs and Addiction Research Centers"; and</i></p> <p><i>(ii) in paragraph (1)(C), by striking "treatment of drug abuse" and inserting "treatment of drug addiction"; and</i></p> <p><i>(C) in subsection (c)—</i></p> <p><i>(i) by striking "DRUG ABUSE AND ADDICTION RESEARCH" and inserting "DRUGS AND ADDICTION RESEARCH CENTERS";</i></p> <p><i>(ii) in paragraph (1), by striking "National Drug Abuse Treatment Clinical Trials Network" and inserting "National Drug Addiction Treatment Clinical Trials Network"; and</i></p> <p><i>(iii) in paragraph (2)(H), by striking "reasons that individuals abuse drugs, or refrain from abusing drugs" and inserting "reasons that individuals use drugs or refrain from using drugs"; and</i></p> <p><i>(6) in section 464P—</i></p> <p><i>(A) in subsection (a)—</i></p> <p><i>(i) in paragraph (1), by striking "drug abuse treatments" and inserting "drug addiction treatments"; and</i></p> <p><i>(ii) in paragraph (6), by striking "treatment of drug abuse" and inserting "treatment of drug addiction"; and</i></p> <p><i>(B) in subsection (d)—</i></p> <p><i>(i) by striking "disease of drug abuse" and inserting "disease of drug addiction";</i></p> <p><i>(ii) by striking "abused drugs" each place it appears and inserting "addictive drugs"; and</i></p> <p><i>(iii) by striking "drugs of abuse" and inserting "drugs of addiction".</i></p> <p><i>(c) Section 464N of the Public Health Service Act (42 U.S.C. 285o-2), as amended by subsection (b)(5), is further amended by striking "drug abuse" each place it appears and inserting "drug use".</i></p> <p><i>(d) Any reference in any law, regulation, map, document, paper, or other record of the United States to the National Institute on Drug Abuse shall be considered to be a</i></p>	

Language Provision to be Changed ¹	Explanation/Justification
<p><i>reference to the National Institute on Drugs and Addiction.</i></p>	
<p>GENERAL PROVISIONS <i>SEC. 241. (a) The Public Health Service Act (42 U.S.C. 201 et seq.) and the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment, and Rehabilitation Act of 1970 (42 U.S.C. 4541 et seq.) are each amended—</i> <i>(1) by striking "National Institute on Alcohol Abuse and Alcoholism" each place it appears and inserting "National Institute on Alcohol Effects and Alcohol-Associated Disorders"; and</i> <i>(2) by striking "National Advisory Council on Alcohol Abuse and Alcoholism" each place it appears and inserting "National Advisory Council on Alcohol Effects and Alcohol-Associated Disorders".</i> <i>(b) Title IV of the Public Health Service Act (42 U.S.C. 281 et seq.) is amended—</i> <i>(1) in section 464H—</i> <i>(A) in subsection (a)—</i> <i>(i) by striking "prevention of alcohol abuse" and inserting "prevention of alcohol misuse"; and</i> <i>(ii) by striking "treatment of alcoholism" and inserting "treatment of alcohol-associated disorders"; and</i> <i>(B) in subsection (b)—</i> <i>(i) in paragraph (3)—</i> <i>(I) in subparagraph (A), by striking "alcohol abuse and domestic violence" and inserting "alcohol misuse and domestic violence";</i> <i>(II) in subparagraph (D), by striking "abuse of alcohol" and inserting "misuse of alcohol";</i> <i>(III) by striking subparagraph (E) and inserting "(E) the effect of social pressures, legal requirements regarding the use of</i></p>	<p>This provision amends the Public Health Service Act to change the name of the National Institute on Alcohol Abuse and Alcoholism to the National Institute on Alcohol Effects and Alcohol-Associated Disorders and makes related conforming changes in other provisions of the U.S. Code.</p>

Language Provision to be Changed ¹	Explanation/Justification
<p><i>alcoholic beverages, the cost of such beverages, and the economic status and education of users of such beverages on the incidence of alcohol misuse, alcohol use disorder, and other alcohol-associated disorders,"; and</i></p> <p><i>(ii) in paragraph (5), by striking "impact of alcohol abuse" and inserting "impact of alcohol misuse";</i></p> <p><i>(2) in sections 464H(b), 464I, and 494A, by striking "alcohol abuse and alcoholism" each place it appears and inserting "alcohol misuse, alcohol use disorder, and other alcohol-associated disorders";</i></p> <p><i>(3) in sections 464H(b) and 464J(a), by striking "alcoholism and alcohol abuse" each place it appears and inserting "alcohol misuse, alcohol use disorder, and other alcohol-associated disorders"; and</i></p> <p><i>(4) in section 464J(a)—</i></p> <p><i>(A) by striking "alcoholism and other alcohol problems" each place it appears and inserting "alcohol misuse, alcohol use disorder, and other alcohol-associated disorders";</i></p> <p><i>(B) in the matter preceding paragraph (1), by striking "interdisciplinary research related to alcoholism" and inserting "interdisciplinary research related to alcohol-associated disorders"; and</i></p> <p><i>(C) in paragraph (1)(E), by striking "alcohol problems" each place it appears and inserting "alcohol misuse, alcohol use disorder, and other alcohol-associated disorders".</i></p> <p><i>(c) Any reference in any law, regulation, map, document, paper, or other record of the United States to the National Institute on Alcohol Abuse and Alcoholism shall be considered to be a reference to the National Institute on Alcohol Effects and Alcohol-Associated Disorders.</i></p>	

¹ Language changes are relative to the appropriations language proposed in the FY 2022 President’s Budget.

BUDGET MECHANISM TABLE

Budget Mechanism - Total^{1,2,3}

(Dollars in Thousands) ^{1,2,3}	FY 2021 Final ^{8,9}		FY 2022 Continuing Resolution (CR) ^{9,10}		FY 2023 President's Budget ⁹		FY 2023 +/- FY 2022 CR	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount
Research Projects:								
Noncompeting	28,492	\$15,937,228	29,502	\$17,090,998	29,301	\$17,543,339	-201	\$452,341
Administrative Supplements ³	(2,912)	483,523	(2,326)	331,645	(2,285)	356,660	(-41)	25,015
Competing	11,258	\$6,748,930	9,806	\$5,603,786	11,878	\$6,804,460	2,072	\$1,200,674
Subtotal, RPGs	39,750	\$23,169,681	39,308	\$23,026,429	41,179	\$24,704,459	1,871	\$1,678,030
SBIR/STTR	1,863	1,176,827	1,837	1,158,777	1,950	1,228,333	113	69,556
Research Project Grants	41,613	\$24,346,508	41,145	\$24,185,206	43,129	\$25,932,792	1,984	\$1,747,585
Research Centers:								
Specialized/Comprehensive	1,024	\$2,034,952	1,047	\$2,047,849	1,122	\$2,173,695	75	\$125,846
Clinical Research	71	421,204	68	418,049	53	313,820	-15	-104,230
Biotechnology	61	92,492	59	89,489	60	92,791	1	3,302
Comparative Medicine	48	143,583	48	140,554	47	138,903	-1	-1,651
Research Centers in Minority Institutions	21	78,151	21	78,241	25	86,489	4	8,248
Research Centers	1,225	\$2,770,381	1,243	\$2,774,182	1,307	\$2,805,697	64	\$31,515
Other Research:								
Research Careers	4,684	\$880,798	4,736	\$903,266	4,851	\$923,027	115	\$19,762
Cancer Education	68	17,633	25	17,650	30	21,439	5	3,789
Cooperative Clinical Research	249	487,472	244	447,241	279	483,142	35	35,901
Biomedical Research Support	138	103,688	113	88,872	118	91,872	5	3,000
Minority Biomedical Research Support	282	95,012	263	82,094	137	50,957	-126	-31,137
Other	2,183	1,356,525	2,309	1,340,933	2,329	1,345,505	20	4,572
Other Research	7,604	\$2,941,127	7,690	\$2,880,055	7,744	\$2,915,942	54	\$35,887
Total Research Grants	50,442	\$30,058,017	50,078	\$29,839,444	52,180	\$31,654,431	2,102	\$1,814,987
Ruth L. Kirchstein Training Awards:								
	FTIPs		FTIPs		FTIPs		FTIPs	
Individual Awards	4,196	\$200,745	4,238	\$207,387	4,264	\$212,933	26	\$5,546
Institutional Awards	12,792	725,697	13,570	776,198	13,845	819,746	275	43,548
Total Research Training	16,988	\$926,442	17,808	\$983,585	18,109	\$1,032,679	301	\$49,094
Research & Develop. Contracts (SBIR/STTR) (non-add) ³	2,427 (103)	\$3,355,475 (60,525)	2,450 (102)	\$3,420,727 (58,412)	2,576 (101)	\$3,568,852 (62,482)	126 (-1)	\$148,125 (4,070)
Intramural Research		\$4,538,642		\$4,638,391		\$4,763,453		\$125,062
Res. Management & Support		2,049,666		2,145,807		2,255,892		110,084
Res. Management & Support (SBIR Admin) (non-add) ³		(7,493)		(10,362)		(10,467)		(105)
Office of the Director - Appropriation ^{3,4}		(2,521,605)		(2,519,401)		(2,728,665)		(209,264)
Office of the Director - Other		1,573,180		1,579,186		1,764,361		185,174
ORIP (non-add) ^{3,4}		(299,885)		(299,985)		(305,765)		(5,781)
Common Fund (non-add) ^{3,4}		(648,539)		(640,230)		(658,539)		(18,309)
ARPA-H		0		0		5,000,000		5,000,000
Buildings and Facilities ⁵ Appropriation ³		229,400 (199,400)		230,000 (200,000)		330,000 (300,000)		100,000 (100,000)
Type 1 Diabetes ^{6,7}		-150,000		-141,450		-141,450		0
Program Evaluation Financing ⁶		-1,271,505		-1,271,505		-1,271,505		0
Subtotal, Labor/HHS Budget Authority		\$41,309,318		\$41,424,186		\$48,956,713		\$7,532,527
Interior Appropriation for Superfund Research		81,500		81,500		83,035		1,535
Total, NIH Discretionary Budget Authority		\$41,390,818		\$41,505,686		\$49,039,748		\$7,534,062
Type 1 Diabetes ⁷		150,000		141,450		141,450		0
Pandemic preparedness		0		0		12,050,000		12,050,000
Total, NIH Budget Authority		\$41,540,818		\$41,647,136		\$61,231,198		\$19,584,062
Program Evaluation Financing		1,271,505		1,271,505		1,271,505		0
Total, Program Level		\$42,812,323		\$42,918,641		\$62,502,703		\$19,584,062

1 All Subtotal and Total numbers may not add due to rounding.
2 Includes 21st Century Cures Act funding and excludes supplemental financing.
3 All numbers in italics and brackets are non-add.
4 Number of grants and dollars for the Common Fund and ORIP components of OD are distributed by mechanism and are noted here as non-adds. Office of the Director - Appropriation is the non-add total of these amounts and the funds accounted for under OD - Other.
5 Includes B&F appropriation and monies allocated pursuant to appropriations acts provisions such that funding may be used for facilities repairs and improvements at the NCI Federally Funded Research and Development Center in Frederick.
6 Number of grants and dollars for mandatory Type 1 Diabetes (T1D) and NIGMS Program Evaluation financing are distributed by mechanism above; therefore, T1D and Program Evaluation financing amounts are deducted to provide subtotals for Labor/HHS Budget Authority.
7 Amounts in FY 2022 and FY 2023 reflect a reduction of \$8.550 million for Budget Control Act sequestration.
8 Reduced by a Secretary's Transfer of \$123.177 million.
9 Reduced by a transfer of \$5.0 million from OD to the HHS Office of Inspector General.
10 Reflects the annualized amounts provided in the continuing resolution ending 3/11/2022. Appropriation from the 10-Year Pediatric Research Initiative Fund is reduced as limited by fund balances.

AUTHORIZING LEGISLATION

(Dollars in Thousands)	FY 2022 Amount Authorized	FY 2022 Amount Appropriated ¹	FY 2023 Amount Authorized	FY 2023 President's Budget
<u>National Institutes of Health</u>				
<u>Activity:</u>				
1. Biomedical Research under Section 301 and Title IV of the PHS Act:				
General Authorization: Section 402A(a)(1) of the PHS Act ²	TBD	42,292,400	TBD	50,635,618
Pediatric Research Initiative: Section 402A(a)(2) of the PHS Act ³	12,600	4,291	12,600	12,600
2. Superfund Research Program: Section 311(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, and Section 126(g) of the Superfund Amendments and Reauthorization Act of 1986	Indefinite	81,500	Indefinite	83,035
3. 21 st Century Cures Act:				
Precision Medicine: Section 1001(b)(4)(A)	150,000	109,000	419,000	419,000
BRAIN Initiative: Section 1001(b)(4)(B)	152,000	100,000	450,000	450,000
Cancer Moonshot: Section 1001(b)(4)(C)	194,000	195,000	216,000	216,000
4. Special Diabetes Programs: Section 330B(b) of the PHS Act ⁴	150,000	141,450	150,000	141,450

¹Reflects annualized amounts under the FY 2022 Continuing Resolution.

²The authorization of appropriations expired as of September 30, 2020.

³The amount for the Pediatric Research Initiative in the FY 2022 Amount Appropriated column reflects the amount available in the the 10-Year Pediatric Research Initiative Fund.

⁴The amount for the Special Diabetes Programs in the FY 2022 Amount Appropriated column and FY 2023 President's Budget column reflects the reduction due to sequestration.

APPROPRIATIONS HISTORY

Fiscal Year	Budget Request to Congress	House Allowance	Senate Allowance	Appropriation ¹
FY 2014	\$31,323,187,000		\$31,176,187,000	\$30,142,653,000
FY 2015	\$30,353,453,000		\$30,084,304,000	\$30,311,349,000 ²
FY 2016	\$31,311,349,000 ³	\$31,411,349,000	\$32,311,349,000	\$32,311,349,000 ⁴
FY 2017	\$33,136,349,000 ⁵	\$33,463,438,000	\$34,311,349,000	\$34,229,139,000 ⁶
FY 2018	\$26,919,710,000 ⁷	\$35,184,000,000	\$36,084,000,000	\$37,311,349,000 ⁸
FY 2019	\$34,766,707,000 ⁹	\$38,564,000,000	\$39,312,349,000	\$39,313,000,000 ¹⁰
FY 2020	\$34,367,629,000 ⁹	\$41,154,000,000	\$42,084,000,000	\$41,690,000,000 ¹¹
FY 2021	\$39,133,215,000 ⁹	\$42,071,000,000	\$43,536,500,000	\$42,940,500,000 ¹²
FY 2022	\$51,957,703,000 ¹³	\$49,520,540,000	\$48,007,431,000	\$42,923,640,600 ¹⁴
FY 2023 PB	\$62,507,703,000 ¹⁵			

¹ Does not reflect comparability adjustments. Interior appropriation's Superfund Research allocation included for all years. Special Type 1 Diabetes Research mandatory funding included. Includes CURES amounts of \$352,000,000 in FY 2017, \$496,000,000 in FY 2018, \$711,000,000 in FY 2019, \$492,000,000 in FY 2020, \$404,000,000 in FY 2021, \$404,000,000 under the FY 2022 Continuing Resolution (CR), and \$1,085,000,000 in the FY 2023 Request.

² Includes Program Evaluation Financing of \$715,000,000. Excludes Ebola-related funding.

³ Includes Program Evaluation Financing of \$847,489,000.

⁴ Includes Program Evaluation Financing of \$780,000,000. Excludes Ebola-related and Zika-related funding.

⁵ Includes Program Evaluation Financing of \$847,489,000.

⁶ Includes Program Evaluation Financing of \$824,443,000.

⁷ Includes Program Evaluation Financing of \$780,000,000.

⁸ Includes Program Evaluation Financing of \$922,871,000. Excludes supplemental hurricane funding of \$50,000,000 to the Office of the Director for extramural construction.

⁹ Includes Program Evaluation Financing of \$741,000,000.

¹⁰ Includes Program Evaluation Financing of \$1,146,821,000. Does not reflect \$5,000,000 transfer from NIH to the HHS Office of the Inspector General or hurricane disaster supplemental of \$1,000,000 for National Institute of Environment Health Sciences.

¹¹ Includes Program Evaluation Financing of \$1,230,821,000. Does not reflect \$5,000,000 transfer from NIH to HHS Office of the Inspector General. Also does not reflect three COVID-19 supplementals totaling \$3,587,400,000: \$836,000,000 in P.L. 116-123, \$945,400,000 in P.L. 116-136, and \$1,806,000,000 in P.L. 116-139 that was provided to NIH through directive transfer from the PHSSEF.

¹² Includes Program Evaluation Financing of \$1,271,505,000. Does not reflect \$5,000,000 transfer from NIH to HHS Office of the Inspector General. Also does not reflect COVID-19 supplemental of \$1,250,000,000 in P.L. 116-260 for the Office of the Director.

¹³ Includes Program Evaluation Financing of \$1,271,505,000 and reflects the sequestration of the mandatory funding for the Special Type 1 Diabetes Research account. Does not reflect \$5,000,000 transfer from NIH to HHS Office of the Inspector General.

¹⁴ Reflects annualized levels under the FY 2022 CR, as limited by the amounts available in the 10-Year Pediatric Research Initiative Fund, and the sequestration of the mandatory funding for the Special Type 1 Diabetes Research account. Does not reflect \$5,000,000 transfer from NIH to HHS Office of the Inspector General.

¹⁵ Includes Program Evaluation Financing of \$1,271,505,000 and reflects the sequestration of the mandatory funding for the Special Type 1 Diabetes Research account. Does not reflect \$5,000,000 transfer from NIH to HHS Office of the Inspector General.

APPROPRIATIONS NOT AUTHORIZED BY LAW

	Last Year of Authorization	Authorization Level	Appropriations in Last Year of Authorization	Appropriations in FY 2022¹
NIH Labor/HHS Budget Authority ²	FY 2020	\$36,472,442,775	\$40,954,400,000	\$42,292,400,000

¹Reflects annualized levels under the FY 2022 Continuing Resolution.

²Appropriations under general authorization of appropriations in Section 402A(a)(1) of the PHS Act. Excludes appropriations related to the Cures Act and the Gabriella Miller Pediatric Research Initiative.

NARRATIVE BY ACTIVITY TABLE/HEADER TABLE

	FY 2021	FY 2022	FY 2023	
(Dollars in Thousands)	Final^{3,4}	Continuing Resolution (CR)^{4,5}	President's Budget⁴	+/- FY 2022 CR
Program Level ^{1,2}	\$42,812,323	\$42,918,641	\$62,502,703	\$19,584,062
FTE	18,412	19,679	20,306	627

¹ All columns exclude supplemental funds.

² Includes 21st Century Cures Act funding, Mandatory Type 1 Diabetes, and Superfund in all years; includes NIGMS Program Evaluation funding of (in thousands) \$1,271,505 in FY 2021, FY 2022, and FY 2023.

³ Reduced by a Secretary's Transfer of \$123.177 million.

⁴ All years reduced by a transfer of \$5.0 million from OD to the HHS Office of Inspector General.

⁵ Reflects the annualized amounts provided in the continuing resolution ending 3/11/2022.

Authorizing Legislation: For existing NIH program, Section 301 and Title IV of the Public Health Act, as amended.

Allocation Methods: Competitive Grants; Contract; Intramural; Other

PROGRAM DESCRIPTIONS AND ACCOMPLISHMENTS

NIH Contributions and Scientific Advances Towards Improving Human Health

The NIH works to improve health by promoting treatment and prevention, contributing to society by stimulating economic growth and productivity, expanding the biomedical knowledge base by supporting cutting-edge research and investing in the biomedical workforce of the future. To achieve its mission, NIH invests over \$42 billion in taxpayer dollars annually to research programs designed to enhance health, lengthen life, and reduce illness and disability.

In 2021, the NIH published its new *NIH-Wide Strategic Plan for Fiscal Years 2021–2025*³¹ which details priorities for research in three key areas: foundational science; disease prevention and health promotion; and treatments, interventions, and cures. Under the FY 2021-2025 Plan, NIH seeks to build a strong, diverse workforce and maintain high standards for research conduct and stewardship, while expanding its infrastructure and resource capacity. The Plan will guide innovative and bold research agendas for all areas of biomedical inquiry for the next five years.

Examples of NIH-funded accomplishments and goals that reflect the priorities identified in the *NIH-Wide Strategic Plan for Fiscal Years 2021–2025* are below.

Research Response to the COVID-19 Pandemic

Since the SARS-CoV-2 virus first arrived in the United States, the NIH has mounted a vigorous research response against COVID-19 in coordination with Congress, HHS, and partners in the private and public sectors. Major NIH efforts launched early on have shown substantial success. The Acceleration of COVID-19 Therapeutic Interventions and Vaccines (ACTIV) public-private partnership (PPP) has moved at an unprecedented speed. Currently, ACTIV is testing over 15 agents designed to treat patients with COVID-19. Many of these projects are already in late-stage clinical trials. Examples include the ACTIV-6 phase 3 trial, which will investigate possible over-the-counter treatments that could lessen the impact of mild-to-moderate COVID-19, and the ACTIV-4 phase 3 trial, investigating the safety and effectiveness of blood thinners to prevent life-threatening blood clots in adults diagnosed with COVID-19. Looking toward the future, ACTIV seeks to develop orally administered drugs designed to block replication of SARS-CoV-2, as well as drugs designed to shorten the course of the virus or prevent symptom development in individuals who have been recently diagnosed. This work may be a steppingstone toward the development of antiviral medications for all types of coronaviruses, including variants.

Another major and ongoing initiative within the NIH is the Rapid Acceleration of Diagnostics (RADx) effort, an effort designed to address the COVID-19 pandemic by speeding innovation, commercialization, and implementation of diagnostic testing. RADx Tech and RADx Advanced Technology Platforms (RADx-ATP) – two programs within the RADx focused on the acceleration, evaluation, validation, and scale up of promising testing technologies – have supported companies which have together expanded testing capacity across the United States by more than 150 million tests and have compressed the typical multi-year tech commercialization process to approximately 6 months.³² The RADx Underserved Populations (RADx-UP) program supports the development of community-engaged projects across the United States to assess and

³¹ www.nih.gov/sites/default/files/about-nih/strategic-plan-fy2021-2025-508.pdf

³² nlmdirector.nlm.nih.gov/2021/03/31/one-year-of-rapid-acceleration-of-diagnostics-and-anticipating-new-challenges/

expand COVID-19 testing for underserved or vulnerable populations. The Safe Return to School Diagnostic Testing Initiative, launched in 2021 under RADx-UP, will award up to \$58 million over two years to build evidence related to safely returning students, teachers, and support staff to in-person school in areas with vulnerable and underserved populations.

As our understanding of the virus evolves, NIH efforts have adapted to address timely needs such as ongoing health disparities both caused and exacerbated by the pandemic. Grant funding allocated to the NIH Community Engagement Alliance (CEAL) Against COVID-19 Disparities will foster research in communities which have been hit hardest by the pandemic and help strengthen COVID-19 vaccine confidence and access, as well as testing and treatment. The Collaboration to Assess Risk and Identify Long-term Outcomes for Children with COVID (CARING for Children with COVID) is developing and funding studies to investigate how COVID-19 impacts children and how to identify patients at risk for multisystem inflammatory syndrome in children (MIS-C), a life-threatening condition marked by severe inflammation of one or more parts of the body. Additionally, the NIH is dedicated to understanding and reducing widespread effects of COVID-19 within vulnerable communities. The Social, Behavioral, and Economic Health Impacts of COVID-19 in Vulnerable and Health Disparity Populations initiative will fund research devoted to assessing the best public health efforts to curb the pandemic, the impacts of the pandemic on everyday life and routine health care, and relevant community health efforts.

Learning from the Challenges of the COVID-19 Pandemic

The demands of the COVID-19 pandemic have spurred an unprecedented level of innovation and creativity in the biomedical research enterprise. Despite challenging circumstances, the scientists and staff at the NIH were able to rapidly respond to the growing crisis of COVID-19 by shifting resources to better understand the coronavirus and the disease, changing policies to allow new flexibilities in grant making, and efficiently communicating emerging knowledge and recommendations with the public. Ultimately, the NIH was able to support the record-breaking development of safe and effective vaccines for COVID-19 by leveraging critical partnerships and innovative research paradigms like ACTIV. As the pandemic has evolved, the public health needs have changed, and the NIH is now able to evaluate its response and begin to adopt best practices for future emergencies and health challenges.

The intergovernmental partnerships and PPPs leveraged during the pandemic have demonstrated the ability of diverse groups to coordinate large scale efforts to achieve public health goals. The pandemic highlighted the urgent need for increased representation of diverse communities across the research process from study design to implementation in order to better engage critical stakeholders. Finally, streamlined administrative processes and policies allowed the NIH and funded researchers to respond flexibly to changing needs.

To fulfill its mission the NIH will identify best practices used during the pandemic and maintain a flexible, adaptable infrastructure to support research programs that aim to understand the foundational biology of new organisms and emerging diseases, the role of behavioral and social factors, and their potential impact on human health. Building on the advances made during the COVID-19 crisis, NIH will continue to act swiftly to turn discoveries into health.

Addressing Racial Disparities in Biomedical Research

The NIH has long recognized that the most critical assets in the biomedical research enterprise are the scientists who comprise its workforce. The advancement of researchers with diverse backgrounds and experiences increases creativity and performance in science. Diversity is a key component of innovation and achievement in the workforce. To that end the NIH UNITE Initiative was launched in early 2021.

UNITE is an NIH-wide effort committed to ending racial inequities across the biomedical research enterprise. It is composed of 5 committees with representatives from all 27 NIH Institutes and Centers (ICs). This broad participation reflects the collective dedication to achieving UNITE's significant goals. Each committee has a specific, targeted focus: (U)nderstanding stakeholder experiences through listening and learning; (N)ew research on health disparities/minority health/health inequity; (I)mproving the NIH culture and structure for equity, inclusion, and excellence; (T)ransparency, communication, and accountability with NIH's internal and external stakeholders; and (E)xtramural research ecosystem and changing policy, culture, and structure to promote workforce diversity.

In response to the UNITE Initiative's first Request for Information (RFI), issued in March 2021,³³ stakeholders and members of the public submitted over 1,100 responses. Responses provided input on practical and effective approaches to improve and strengthen racial equity, diversity, and inclusion across all facets of the biomedical research workforce, both within NIH and the external community, and expand research to eliminate or lessen health disparities and inequities. The NIH will use this input to assist in identifying, developing, and implementing actions and solutions — through policy, procedure, or practice — to promote positive culture and structural change. The UNITE Initiative hosted an extensive series of listening sessions, focus groups, and town halls to gain input from the NIH community as to how to best foster diversity and inclusion, both internally and externally.

The NIH has a range of advisory groups, both internal and external, that guide the agency on diversity, equity, and inclusion efforts. Internal groups include the Anti-Harassment Steering Committee, the Black/African American Senior Scientists, and Supporters of 8 Changes for Racial Equity (8CRE). The UNITE Initiative was born from a series of conversations between NIH leadership and these internal affinity groups. External groups that advise the NIH on issues relevant to diversity include various Advisory Council to the Director (ACD) Working Groups and the Next Generation Researchers Initiative Working Group. The ACD Working Group on Diversity took significant steps within the past year, releasing its final *Racism in Science* report in February 2021.³⁴ The report provides recommendations as to how the NIH can best address systemic racism in the workforce. In brief, the Working Group recommended: (1) acknowledging racism and inequities, (2) conducting research to better understand system racism, (3) monitoring acts of bias and changing the culture, and (4) making structural changes to mitigate the impact of bias and racism.

Developing the Future Biomedical Workforce

Ensuring the future of U.S. competitiveness and innovation in biomedical research is of utmost importance to the NIH. Developing the future biomedical, behavioral, clinical, and social

³³ grants.nih.gov/grants/guide/notice-files/NOT-OD-21-066.html

³⁴ acd.od.nih.gov/documents/presentations/02142021_DiversityReport.pdf

sciences research workforce is critical to ensuring the most pioneering minds can contribute to our national health. For these reasons, the NIH supports multiple programs for early career scientists. This includes the Diversity Program Consortium (DPC), a large network of institutions focused on developing, implementing, and determining the effectiveness of new approaches to strengthen institutional capacity to engage individuals from diverse backgrounds. This initiative, funded by the NIH, allows DPC scholars to receive training and mentorship that prepares them for success in research careers down the line.

In line with these efforts, the Office of Intramural Research (OIR) launched the Independent Research Scholar Program (IRSP) in 2021. This program aims to build workforce diversity by recruiting and training scholars who have a commitment to building a strong NIH Intramural Research Program (IRP). IRSP scholars will receive targeted training and mentorship to develop a cohort of competitive researchers ready for Investigator positions in the IRP or at extramural research organizations. Similarly, the Future Research Leaders Conference (FRLC) provides career development opportunities for talented early-career scientists interested in pursuing careers within the NIH IRP. The June 2021 FRLC allowed a cohort of early-career scientists to showcase their research, learn about pathways to joining the IRP, and connect with a large network of scientists from across ICs. Additional opportunities are available for early career researchers through the Director's Challenge Innovation Award Program, designed to identify and fund projects that foster cross-cutting NIH collaborations. This award provides seed money from the OIR for high-impact research showing significant benefit to a variety of endeavors throughout the IRP.

The NIH Office of the Director (OD) also provides more targeted opportunities for upcoming researchers to grow and expand their careers and research portfolios. Examples include the new Office of Dietary Supplements (ODS) Research Scholars Program, a one-year competitive scholarship opportunity for early career NIH intramural scientists to study the role of dietary supplements and/or their ingredients in health promotion and disease prevention. Additionally, the Medical Research Scholars Program (MRSP) provides one year of residential immersion training for medical, dental, and veterinary students seeking careers as clinician-scientists. The MRSP is supported with private co-sponsorship through the Foundation for the NIH.

Advances in Rigor and Reproducibility

Scientific advancement hinges on transparency within biomedical research. Rigor in application of the scientific method and reproducibility of methods, results, and inferences ensures robust and well-controlled experimental design, methodology, analysis, interpretation, and reporting of results. These factors ultimately affect translation into the clinic and human health. The NIH OD is committed to supporting high quality research through policies and processes that incentivize rigorous and reproducible research. To expand these efforts, assess the current landscape, and make recommendations toward improving rigor and reproducibility in animal research, the ACD Working Group on Enhancing Rigor, Transparency, and Translatability in Animal Research, organized in 2017, was tasked with identifying gaps and opportunities to improve rigor and reproducibility of animal studies, to evaluate how animal models of human disease are developed and how they may be improved, and to consider all aspects of the process for validating alternative models for animal research.

In June 2021, the Working Group released its final report, *Enhancing Rigor, Transparency, and Translatability in Animal Research*.³⁵ Recommendations from the report cover five key needs: 1) Improving study design and data analysis; 2) Addressing incomplete reporting and questionable research practices; 3) Improving selection, design, and relevance of animal models; 4) Improving methodological documentation and results reporting; and 5) Crosscutting needs related to measuring and evaluating the costs and effectiveness of these efforts. Each of the five components includes specific opportunities for the NIH to improve scientific design and awareness of challenges and opportunities in these areas. The report provides a roadmap for the NIH and the broader research community to deliver lasting enhancements to research integrity. In working to improve rigor and reproducibility, the NIH will next begin implementing the Working Group's recommendations to enhance its mission of pursuing discovery and health.

Scientific Breakthroughs Ushered by NIH

Each NIH IC aims to support scientific research in specific areas of health, the human body, and disease to advance the NIH mission of enhancing public health and advancing scientific breakthroughs. Across the NIH, these unique approaches to research have led to critical scientific discoveries. Among many examples of accomplishments supported by the ICs this past year are those provided below:

- Anarthria, the loss of the ability to articulate speech, can be caused by neurodegenerative diseases or stroke. Researchers supported by the National Institute on Deafness and Other Communication Disorders (NIDCD) recently developed a device that interfaces with the brain to decode signals into words and sentences, a major leap beyond existing technology which requires individuals to spell out messages letter by letter.³⁶ The device learns from its wearer and uses speech pattern recognition software to translate speech-related brain activity to language. This advance could lead to dramatic improvements in quality of life for countless anarthria patients.
- A National Institute on Minority Health and Health Disparities (NIMHD) trial this year compared several types of remote mental health care for homebound or disabled older adults struggling with symptoms of depression.³⁷ Researchers supported by the NIMHD found that therapy via videoconference from trainees could be a viable alternative to telephone support from research assistants. With advances in telehealth spurred by COVID-19, better understanding of virtual treatment effectiveness will be critical to caring for remote patients.
- A study supported by the National Institute on Drugs and Addiction (NIDA)³⁸ has utilized wastewater-based epidemiology to measure opioid exposure in communities.³⁹ Similar to the technology developed for COVID-19 testing, this novel approach will automatically sample wastewater across a community and collect data on the presence of

³⁵ acd.od.nih.gov/documents/presentations/06112021_ACD_WorkingGroup_FinalReport.pdf

³⁶ www.nih.gov/news-events/nih-research-matters/device-allows-paralyzed-man-communicate-words

³⁷ www.nimhd.nih.gov/news-events/research-spotlights/research-spotlights-telehealth-depression.html

³⁸ The FY 2023 President's Budget proposes to rename the National Institute on Drug Abuse to the National Institute on Drugs and Addiction.

³⁹ www.nida.nih.gov/new-events/nida-notes/2021/02/human-opioid-exposure-can-be-measured-using-wastewater

opioid metabolites. This allows researchers and public health officials to more effectively allocate resources including medical services and community outreach programs to the hardest hit areas. Wastewater tracking could also be used to measure the effectiveness of community programs and call attention to rising opioid crises in previously unaffected communities.

- Researchers funded by the National Eye Institute (NEI) have developed a new gene therapy for the treatment of Fuchs’ endothelial corneal dystrophy, a genetic eye disease impairing vision in roughly one in 2,000 people worldwide. Currently, the only treatment available is an invasive and risky corneal transplant. This new approach could rescue non-reproducing cells from disease progression for the first time and could lead to new and safer treatments for Fuchs’ endothelial corneal dystrophy and diseases with similar degeneration of non-reproducing cells including neurological and immune diseases and genetic disorders affecting joints.⁴⁰
- Scientists and clinicians funded by the National Center for Complementary and Integrative Health (NCCIH), the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), and the National Institute of Allergy and Infectious Diseases (NIAID) identified an intestinal fungus which could be impairing healing in individuals with Crohn’s disease.⁴¹ The fungus, a type of yeast called *Debaryomyces hansenii*, is used in the food industry and could be a new target for Crohn’s disease treatments or diet-based prevention strategies for over 3 million people in the United States affected by gastrointestinal disorders.

These and other discoveries of NIH funded scientists and clinicians drive new technologies, ideas, and knowledge to communities and patients across the world. In FY 2023, the NIH will continue to fulfill its mission of advancing research to enhance knowledge of health and disease. The NIH will pursue the goals outlined in the *NIH-wide Strategic Plan for Fiscal Years 2021-2025* by making bold investments in innovative ideas and enabling the scientific workforce with cutting-edge resources and opportunities.⁴²

Expanding Sex and Gender Research

Significant progress has been made in research related to sex and gender, but gaps remain in our understanding of how these factors impact health and well-being. The NIH has multiple initiatives aimed at enhancing our understanding of sex as a biological variable (SABV), the social construction of gender and its effect on health, and the health and well-being of sexual and gender minorities.

The Office of Research on Women’s Health (ORWH) supports NIH-wide research policies and programs that focus on all aspects of women’s health. This year for its 30th anniversary, ORWH hosted a full-day symposium on a wide range of topics, including women’s mental health, environmental factors affecting women’s health, pain management for women, and sex as a biological variable. In 2021, ORWH launched a collection of new independent, interactive online modules designed to help the biomedical research community—including researchers, NIH grant

⁴⁰ www.nei.nih.gov/about/news-and-events/news/university-oregon-researchers-develop-gene-therapy-eye-disease

⁴¹ www.nih.gov/news-events/nih-research-matters/fungi-may-impair-wound-healing-crohns-disease

⁴² www.nih.gov/sites/default/files/about-nih/strategic-plan-fy2021-2025-508.pdf

applicants, and peer reviewers—account for and appropriately integrate SABV across the full spectrum of biomedical sciences.

The Centers for Disease Control and Prevention (CDC) estimates 700 women die each year in the United States of pregnancy-related deaths, 60 percent of which are preventable, and over 50,000 experience severe pregnancy-related morbidity.⁴³ To address this alarming trend, the OD leads the Maternal Morbidity and Mortality Task Force, an NIH-wide collaboration with ORWH and the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development (NICHD). The Task Force coordinates the Implementing a Maternal health and PRenancy Outcomes Vision for Everyone (IMPROVE) Initiative, which invests in studies to promote an integrated understanding of biological, behavioral, sociocultural, and structural factors that contribute to maternal morbidity and mortality and engages communities in the development of solutions to address the needs of pregnant and postpartum individuals. In FY 2021, the NIH awarded over \$13 million to support 22 projects via IMPROVE and is set to fund additional projects in FY 2022.

The Sexual & Gender Minority Research Office (SGMRO) continues to coordinate and encourage sexual and gender minority (SGM) research across NIH. In September 2020, the SGMRO released the *Strategic Plan to Advance Research on the Health and Well-being of Sexual & Gender Minorities*.⁴⁴ The Plan details how the SGMRO will pursue rigorous research on the health of SGM populations, strategic partnerships, a skilled and diverse workforce in SGM health research, and high-quality data analysis on SGM populations in research.

With support and leadership from the SGRMO, NIH has continued to advance research on sexual orientation and gender identity (SOGI). Gender identity information is collected at the NIH Clinical Center. The National Human Genome Research Institute (NHGRI) and several other ICOs support the PhenX Toolkit, which provides investigators with standard protocols for inquiring about SOGI and sex assigned at birth. The *All of Us* Research Program includes questions on SOGI, sex assigned at birth, and intersex status in its surveys and maintains a targeted focus on participants who typically are underrepresented in biomedical research, including SGM individuals.

Confronting the Ongoing Crisis of HIV/AIDS

The NIH has made critical investments into HIV research in the decades since the AIDS pandemic emerged and has supported groundbreaking advances in virology, immunology, and pathogenesis of HIV as well as in care and treatment for those affected by HIV. However, HIV remains a global public health concern. NIAID and the Office of AIDS Research (OAR) have led the way to innovative methods for understanding disease prevention and progression. Investigators supported by the NIH have created opportunities for discovery and development of technologies and tools for preventing HIV transmission, improving quality of life for people with HIV, and ending the ongoing pandemic.

The NIH aims to reduce the incidence of HIV by prioritizing the development of a safe, effective preventative vaccine against HIV and preventative approaches such as pre-exposure prophylaxis (PrEP), a daily antiretroviral therapy. Most recently, NIH has expanded research into long-

⁴³ www.cdc.gov/vitalsigns/maternal-deaths/

⁴⁴ dpcpsi.nih.gov/sites/default/files/SGMStrategicPlan_2021_2025.pdf

acting formulations of PrEP and other antiretroviral agents for prevention and HIV treatment. Early studies done with participation from several at-risk populations have indicated that the injectable, long-acting PrEP regimen is more effective than daily treatments due largely to the increased ease of use. Strategies for preventing the transmission must acknowledge the disproportionate impacts of HIV on marginalized groups across the United States. A recent series, *HIV in the USA*,⁴⁵ outlines recommendations for overcoming societal barriers for implementing HIV services such as counseling, testing, and treatment. Funded by NIDA, NIH-funded Centers for AIDS Research, and NIAID, the series showed that HIV services are critical to preventing transmission and recommended allocating additional resources for the hardest-hit areas such as the U.S. South and in communities with high proportions of at-risk individuals such as Black/African American and Latin communities, women, people who use drugs, and men who have sex with men.

In 2020, the NIH released the *FY 2021-2025 NIH Strategic Plan for HIV and HIV Related Research*.⁴⁶ NIH prioritizes research extending across the lifespan and inclusive of all people at risk of HIV. The Plan provides a framework for the NIH-wide HIV research agenda and outlines the specific role of OAR in supporting HIV-related research across the agency. Top priorities for the HIV research community at the NIH include advancing research to end the HIV pandemic, stewarding a flexible research portfolio to respond to emerging needs and opportunities, promoting the implementation of high impact health discoveries across the U.S. government, and building human and research infrastructure that includes a diverse, multidisciplinary workforce. The Plan aligns NIH-supported research with the newly released HIV National Strategic Plan and the U.S. President’s Emergency Plan for AIDS Relief.^{47,48}

Applying Data Science Tools and Technologies to Biomedical Research

To leverage the full scope of technologies and tools available to biomedical research, NIH applies data science techniques, such as artificial intelligence and machine learning (AI/ML), to systematically enhance the ability of investigators and clinicians to improve public health. Researchers across the biomedical research landscape use computational tools and data science to unlock complex biological mechanisms and leverage the power of large datasets to better understand the processes behind health, disease, and aging.

For example, the NIH Common Fund is supporting the Bridge to Artificial Intelligence (Bridge2AI) program which sets the stage for the broad adoption of AI in research by generating “flagship” data sets suitable for machine learning and best practices for machine learning analyses. The program will bring together data scientists and biomedical experts with social scientists to create automated tools for integrating, disseminating, and analyzing interoperable, ethically sourced data sets. In 2021, Bridge2AI released two opportunities for funding to support a center to integrate, disseminate, and evaluate results of the program and to generate datasets that could address health challenges for AI/ML analysis.

Led by the Office of Data Science Strategy (ODSS), NIH’s Artificial Intelligence/Machine Learning Consortium to Advance Health Equity and Researcher Diversity (AIM-AHEAD)

⁴⁵ www.niaid.nih.gov/news-events/end-hiv-epidemic-we-must-address-health-disparities

⁴⁶ oar.nih.gov/about/directors-corner/fiscal-year-2021-2025-nih-strategic-plan-for-hiv-and-hiv-related-research

⁴⁷ www.hiv.gov/federal-response/hiv-national-strategic-plan/hiv-plan-2021-2025

⁴⁸ www.state.gov/pepfar/

program will establish partnerships between researchers and underrepresented communities to enhance emerging AI/ML technology.⁴⁹ Currently, the field lacks diversity in its workforce and in data which creates a risk of perpetuating biases in health-related algorithms and research results. The program will begin to address those gaps first by creating mutually beneficial research networks to engage underrepresented scientists, utilizing electronic health records to apply AI approaches to address health inequities, and supporting coordinated training and infrastructure resources. AIM-AHEAD has begun its work by soliciting applications for the development of a Coordinating Center with cores focused on leadership, training, data and research, and infrastructure.⁵⁰

Emerging public health needs and the growing availability of data tools have demonstrated the need for the scientific community to openly share interoperable data and analysis tools. NIH has addressed this need by working with researchers, study participants, developers, and others to create a policy designed to shift the culture toward transparency and engagement. In FY 2021, NIH released a new *Final NIH Policy for Data Management and Sharing*, which requires funded investigators to submit a plan for how they will manage and share scientific data.⁵¹ The requirement will reinforce NIH's commitment to making research accessible and to promote multidisciplinary collaboration and responsible research management. The new policy will go into effect in January 2023.

Public Health in a Changing Climate

The changing climate has become a critical public health concern affecting community health and well-being by worsening chronic diseases, increasing infectious diseases by exposure to pests and pathogens, triggering extreme weather events, and risking access to medical care and basic resources. Research has shown the impact of climate change differs across populations depending on socioeconomic advantages, adaptive capabilities, and life stage. NIH aims to expand investments in scientific research to identify and respond to the range of human health outcomes associated with climate change.

In the immediate future, the National Institute of Environmental Health Sciences (NIEHS) will lead collaborative new research in the impact of climate change on health. Critical priorities for innovative research include studies of climate-related vulnerability with special attention to health disparities populations, the development of new tools to assess health impacts associated with climate and extreme weather, research on gene-environment interactions, and the design and implementation of strategies for building health resilience. Most recently, the NIH Climate Change and Human Health Working Group has solicited feedback from the public on approaches the agency could take to enhance research on the health implications of climate change.⁵² Public input will provide a critical framework for planning the NIH's research goals.

To enable research on the interaction of climate and health, NIEHS has developed a number of widely accessible tools for researchers. The Disaster Research Response Resources Portal (DR2) provides researchers with tools to quickly collect data and build trust with communities

⁴⁹ data.science.nih.gov/artificial-intelligence/aim-ahead

⁵⁰ data.science.nih.gov/sites/default/files/AIM-AHEAD-ROA-202107013-final-508.pdf

⁵¹ grants.nih.gov/grants/guide/notice-files/NOT-OD-21-013.html

⁵² grants.nih.gov/grants/guide/notice-files/NOT-ES-21-009.html

during and immediately after extreme weather and disaster situations.⁵³ The Climate Change and Human Health Literature Portal is a curated database of peer-reviewed research and general literature on the science of health and climate change.⁵⁴ Investigators and the public can access regularly updated research in biomedical and geological science using over 300 keywords. Finally, the Research to Action (R2A) program enables scientists to collaborate with community organizations to address local environmental health concerns and translate research findings into an action plan.⁵⁵ R2A awardees develop education programs to improve understanding of risks and promote actions to prevent harmful exposures. The future of climate research will depend on tools and programs that bring together researchers and communities to learn about and address common concerns.

Helping to End Addiction Long-Term (HEAL) Initiative

Through the NIH Helping to End Addiction Long-term (HEAL) Initiative, NIH has supported over \$2.0 billion for more than 600 research projects across the United States. Through these projects, HEAL aims to identify new therapeutic targets for both pain and opioid use disorder, reduce the risk of opioids through nonpharmacological strategies for pain management, and improve opioid addiction treatment in a variety of settings. The NIH-wide initiative was launched in 2018 to address the historic rise in opioid misuse and addiction and better understand pain in the United States by advancing multidisciplinary research across basic, translational, clinical, and implementation science.

During the COVID-19 pandemic, opioid misuse, addiction, and overdoses have risen dramatically. In addition, the use of stimulants and other illicit drugs together with opioids is also increasing, leading to an overall dramatic rise in overdose and overdose death. The compounding crises have been made worse by limited access to support systems, medications for treating opioid use disorder (OUD), and mental health care as services are interrupted. As the COVID-19 pandemic has intensified the factors that commonly contribute to pain and addiction, like economic stressors, the NIH HEAL Initiative has adapted existing knowledge of OUD prevention and treatment and leveraged infrastructure and research capacity to meet changing needs. NIH leadership, intramural and extramural investigators, and key stakeholders have collaborated to monitor the impact of COVID-19 on communities, provision of treatment services, and available outcomes data.

NIH HEAL responded quickly to supplement ongoing research to collect additional measures related to the impact of the pandemic on HEAL research participants. Many HEAL programs including the HEALthy Brain and Child Development Study⁵⁶ and the HEALing Communities Study⁵⁷ have transitioned to virtual participant recruitment, patient consenting, and data collection. Others such as the HEAL Prevention and the Behavioral Research to Address Medications for the Treatment of OUD Program have adapted their behavioral intervention strategies to virtual environments and implemented telemedicine for clinical decision-making.

⁵³ tools.niehs.nih.gov/dr2/

⁵⁴ tools.niehs.nih.gov/cchhl/

⁵⁵ www.niehs.nih.gov/research/supported/translational/rta/index.cfm

⁵⁶ heal.nih.gov/research/infants-and-children/healthy-brain

⁵⁷ heal.nih.gov/research/research-to-practice/healing-communities

Today, NIH HEAL is addressing the many crosscutting issues exposed by the pandemic by prioritizing new research on diversity, equity, and inclusion in research and healthcare and enhancing access to novel telehealth practices for those with co-occurring disparities or limited health and technical literacy. This year, NIH HEAL hosted a workshop on “Achieving Health Equity in the NIH HEAL Initiative” which brought together experts to discuss factors that impact diversity in research participation and highlighted innovative recruitment strategies to increase underrepresented populations in HEAL studies.⁵⁸ Finally, the NIH HEAL funds Justice Community Opioid Innovation Network⁵⁹ which investigates the effectiveness of treatment programs in justice-involved populations, telehealth technologies, and trainings to enable continued research and community engagement.

All of Us Genomic Program

In the past year, the *All of Us* Research Program has celebrated several milestones in its mission to build one of the largest and most diverse datasets to advance health research. In December 2020, the program began releasing the first genetic results to participants who have donated their biosamples, demonstrating *All of Us*’ commitment to give back information to its research participants. Now, participants have the opportunity to understand how their DNA and genetic variants may affect their body’s response to certain types of medicines or increase their risk of certain diseases. Genetic data will also be available to researchers in the next year—with strict privacy and security safeguards—that will allow scientists to learn more about how to tailor health care to individual genetic needs. Since 2018, when the program opened its enrollment, more than 270,000 people have contributed biosamples, more than 80 percent of which are from communities historically underrepresented in biomedical research.⁶⁰

The Research Workbench has allowed *All of Us* to continue its groundbreaking research. The Workbench now includes information from more than 315,000 participants in total, more than three-quarters of whom are from communities that are underrepresented in biomedical research and about half of whom are racial and ethnic minorities.⁶¹ The newly expanded dataset represents a 40 percent increase in participants with survey information and a 60 percent increase in participants with electronic health record information over the original beta release in May 2020. As of February 2022, more than 1,400 researchers have gained access to the Researcher Workbench, over 1,100 research projects have been launched, and nearly 300 institutions have signed on to the Data Use and Registration Agreement. In 2021, the first peer-reviewed publication using *All of Us* data by researchers outside of the program was published,⁶² examining health care access by cancer survivors.

For the first time, researchers utilizing the program’s Research Workbench have access to information about study participants’ experience with the pandemic through survey responses on mental health, social distancing, and economic impacts. Over 63,000 participants have completed the COVID-19 Participant Experience (COPE) Survey, which covers topics including

⁵⁸ heal.nih.gov/news/events/achieving-health-equity-workshop

⁵⁹ heal.nih.gov/research/research-to-practice/jcoin

⁶⁰ allofus.nih.gov/news-events-and-media/announcements/nih-s-all-us-research-program-returns-first-genetic-results-participants

⁶¹ allofus.nih.gov/news-events-and-media/announcements/researchers-guide-and-drive-workbenches-first-year

⁶² onlinelibrary.wiley.com/doi/full/10.1002/cam4.3924

stress, mood, discrimination, social distancing, and economic and work changes.⁶³ This data set is the largest infusion of mental health information for the program so far.

This year, *All of Us* has expanded its commitment to working with and respectfully engaging American Indian and Alaska Native (AI/AN) people and supporting their inclusion in precision medicine research. In response to tribal leader input gathered from a nearly two-year consultation process, the program will initiate specialized education efforts for researchers, take steps to ensure the perspectives and needs of AI/AN communities are integrated into the program, and support ongoing engagement activities with Tribal Nations to pave the way for expanded collaborations in the future. There are 574 federally recognized tribes within the United States, each with its own government and laws. The formal Tribal Consultation process supports engagement with Tribal Nations on a government-to-government basis, respecting tribal sovereignty. The *All of Us* consultation was one of the most extensive Tribal Consultations that NIH has held to date and was scaled to match *All of Us*'s national scope, which reflects a growing momentum across the agency to expand tribal engagement efforts generally.

⁶³ allofus.nih.gov/news-events-and-media/announcements/all-us-releases-initial-covid-19-survey-data-researchers

FUNDING HISTORY (FIVE YEAR FUNDING TABLE)

Fiscal Year	Amount^{1, 2}
2019.....	\$39,313,000,000
2020.....	\$41,690,000,000
2021.....	\$42,940,500,000
2022 ³	\$42,923,640,600
2023 Budget Request ⁴	\$62,507,703,000

¹ Appropriated amounts include discretionary budget authority received from both Labor/HHS appropriations that fund ICs as well as the Interior, Environment & Related Agencies appropriation that supports NIH Superfund Research activities. Also includes mandatory budget authority derived from the Special Type 1 Diabetes account. Includes NIGMS Program Evaluation financing of \$1,146,821,000 in FY 2019, \$1,230,821,000 in FY 2020, \$1,271,505,000 in FY 2021, \$1,271,505,000 under the FY 2022 Continuing Resolution (CR) and \$1,271,505,000 in the FY 2023 request. Includes CURES amounts of \$711,000,000 in FY 2019, \$492,000,000 in FY 2020, \$404,000,000 in FY 2021, \$404,000,000 under the FY 2022 CR and \$1,085,000,000 in the FY 2023 request.

² Excludes supplemental appropriations and permissive and directive transfers.

³ Reflects annualized levels under the FY 2022 CR, as limited by the amounts available in the 10-Year Pediatric Research Initiative Fund, and the sequestration of the mandatory funding for the Special Type 1 Diabetes Research account.

⁴ Reflects the sequestration of the mandatory funding for the Special Type 1 Diabetes Research account.

SUMMARY OF REQUEST NARRATIVE

The FY 2023 President's Budget request provides a program level of \$62.5 billion for NIH, which is \$19.6 billion more than the FY 2022 Continuing Resolution (CR) level of \$42.9 billion.⁶⁴ This request includes \$5.0 billion to continue funding the recently established Advanced Research Projects Agency for Health (ARPA-H) and \$12.1 billion in new mandatory funding for NIH, available through FY 2027, to prepare for pandemics and other biological threats.

The following summary references program level funding, which is the sum of discretionary budget authority in the Department of Labor, Health and Human Services, and Education, and Related Agencies appropriations (\$49.0 billion in FY 2023); discretionary budget authority in the Department of the Interior, Environment, and Related Agencies appropriations dedicated to the Superfund Research Program (\$83.0 million in FY 2023); mandatory budget authority provided for Type 1 Diabetes research (\$141.5 million in FY 2023⁶⁵) and for pandemic preparedness (\$12.1 billion in FY 2023); and Program Evaluation Financing for the National Institute of General Medical Sciences under Section 241 of the Public Health Service Act (\$1,271.5 million in FY 2023).

The primary budget mechanisms discussed below include allocations by mechanism of Program Evaluation Financing and Type 1 Diabetes funds. The Superfund Research program, ARPA-H, and funding for pandemic preparedness activities are lump-sum amounts within the NIH mechanism tables.

In FY 2023, NIH will continue providing upfront funding for certain research projects, as appropriate, to facilitate efficient management of resources across multiple years. In general, NIH discretionary research project grants are awarded for more than one year and funded incrementally; each year's commitment is obligated from that year's appropriation. Grants are classified as Competing in the first year of award or renewal, and Non-competing in the remaining years of each award. Certain categories of NIH grants are awarded for multiple years with the full funding provided up front. This includes the NIH Director's New Innovator Award (DP2) and the NIH Research Enhancement Award (R15). The latter consists of two programs, the Academic Research Enhancement Award (AREA) for Undergraduate-Focused Institutions, and the Research Enhancement Award Program (REAP) for Health Professional Schools and Graduate Schools. In addition, full funding can be provided up front for other NIH grants and cooperative agreements as appropriate in special circumstances. Situations that may benefit from such an approach can include, but are not limited to, appropriations for new programs, rapid increases in funding, or variable outyear funding streams (e.g., under the 21st Century Cures Act). The use of upfront funding for new programs makes some base funding available for competing awards in the following year. Up-front funding has increased over the last few years, due in part to the large Congressional increases for Alzheimer's disease research.

⁶⁴ At the time the President's Budget was prepared, NIH and other agencies were operating under a CR providing a funding level that was flat to FY 2021 enacted appropriations.

⁶⁵ Reflects a mandatory appropriation of \$150.0 million, reduced by \$8.6 million for sequestration pursuant to the Budget Control Act.

Research Project Grants (RPGs)

The FY 2023 President's Budget provides \$25.9 billion for RPGs, which is \$1.7 billion more than the FY 2022 CR level. This amount would fund 11,878 Competing RPGs, or 2,072 more than the FY 2022 CR level. It would also support 29,301 Noncompeting RPGs, 201 less than the FY 2022 CR level. In addition, the projected average cost for Competing RPGs of approximately \$573,000 would be 0.4% above the FY 2022 CR level projected average cost of \$571,000.

- **Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) RPGs.** The FY 2023 President's Budget provides \$1,228.3 million for SBIR/STTR program grants, which is \$69.6 million above the FY 2022 CR level. The statutory minimum set-aside requirement of 3.65% for NIH-wide SBIR/STTR support is achieved in FY 2023.

Research Centers

The FY 2023 President's Budget provides \$2,805.7 million for Research Centers, which is \$31.5 million more than the FY 2022 CR level. This amount would fund 1,307 grants, 64 more than the FY 2022 CR level.

Other Research

The FY 2023 President's Budget provides \$2,915.9 million for this mechanism, which is \$35.9 million more than the FY 2022 CR level. This amount would fund 7,744 grants, which is 54 more than the number of awards projected in the FY 2022 CR level.

Training

The FY 2023 President's Budget provides \$1,032.7 million for research training, which is \$49.1 million above the FY 2022 CR level. This amount would fund 18,109 Full-Time Trainee Positions (FTTPs), which is 301 more than planned for in the FY 2022 CR level, and would continue to fund the new childcare subsidy allowance for individual and institutional trainees that was phased in starting in FY 2021.

Research & Development (R&D) Contracts

The FY 2023 President's Budget provides \$3,568.9 million for R&D contracts, which is \$148.1 million more than the FY 2022 CR level. The requested amount would fund an estimated 2,576 contracts, or 126 more than the FY 2022 CR level.

- **SBIR/STTR R&D Contracts.** The FY 2023 President's Budget includes a \$62.5 million set-aside within the R&D Contracts mechanism for support of qualified SBIR/STTR contracts.

Intramural Research (IR)

The FY 2023 President's Budget provides \$4,763.5 million for IR, which is \$125.1 million more than the FY 2022 CR level.

Research Management and Support (RMS)

The FY 2023 President's Budget provides \$2,255.9 million for RMS, which is \$110.1 million more the FY 2022 CR level.

Office of the Director (OD)

The FY 2023 President's Budget provides \$2,728.7 million for OD, which is \$209.3 million more than the FY 2022 CR level.

- **Common Fund (CF)**
Funding of \$658.5 million is allocated for CF-supported programs. This amount is \$18.3 million more than the FY 2022 CR level.
- **Office of Research Infrastructure Programs (ORIP)**
Funding of \$305.8 million is allocated for ORIP. This amount is \$5.8 million above the FY 2022 CR level.
- **Other**
The \$1,764.4 million allocated for OD components other than the Common Fund or ORIP is a net increase of \$185.2 million from the FY 2022 CR level.

Advanced Research Projects Agency for Health (ARPA-H)

The FY 2023 President's Budget provides \$5.0 billion to support the recently established ARPA-H.

Buildings & Facilities (B&F)

The FY 2023 President's Budget provides \$330.0 million for infrastructure sustainment projects associated with the B&F program, which is \$100.0 million more than the FY 2022 CR level. This amount includes \$300.0 million for NIH's Buildings and Facilities appropriation, an increase of \$100.0 million from the FY 2022 CR level, and \$30.0 million within the appropriation for the National Cancer Institute (NCI) for facility repair and improvement activities at NCI's Frederick, Maryland, facility.

Superfund Research Program

The FY 2023 President's Budget provides \$83.0 million for the Superfund Research Program, which is \$1.5 million more than the FY 2022 CR level.

Program Evaluation Financing

The FY 2023 President's Budget provides \$1,271.5 million for Program Evaluation Financing purposes in NIGMS, which is the same as the FY 2022 CR level.

OUTPUTS AND OUTCOMES

Measure	Year and Most Recent Result / Target for Recent Result / (Summary of Result)	FY 2022 Target	FY 2023 Target	FY 2023 Target +/-FY 2022 Target
SRO-2.1 By 2021, develop, optimize, and evaluate the effectiveness of nano-enabled immunotherapy (nano-immunotherapy) for one cancer type. (Output)	<p>FY 2021: While the two nanodelivery systems are being tested in clinical trials, they have been further optimized to increase their effectiveness. Early results in an animal model showed that they can successfully deliver multiple interventions simultaneously to induce an immune response to eradicate both local and distant tumors.</p> <p>Target: Further optimize the top candidate nanoformulation for co-delivery of antigens, adjuvants and immunomodulators and evaluate its efficacy towards near and distant metastatic lesions in preclinical models with established tumors.</p> <p>(Target Met)</p>	N/A	N/A	N/A
SRO-2.4 By 2025, increase the number of potential treatment options for communication disorders that are being tested in clinical trials by adding one new treatment option per year. (Outcome)	<p>FY 2021: This study is not currently enrolling participants due to COVID-19 restrictions.</p> <p>Target: Initiate testing one new potential treatment option for a disorder affecting voice, speech, or language.</p> <p>(Target Not Met)</p>	Initiate testing one new potential treatment option for a disorder affecting language.	To be determined ⁶⁶	N/A
SRO-2.5 By 2021, develop three non-invasive imaging technologies that can image retinal cell	FY 2021: All five teams in the Audacious Goals Functional Imaging Consortium have developed novel non-invasive imaging technologies. Some of the	N/A	N/A	N/A

⁶⁶ The longer-term impact of COVID-19 on patient recruitment and treatment implementation is unknown at this time.

Measure	Year and Most Recent Result / Target for Recent Result / (Summary of Result)	FY 2022 Target	FY 2023 Target	FY 2023 Target +/-FY 2022 Target
function and circuitry. (Output)	<p>teams have completed their work ahead of schedule and are showing results in human participants.</p> <p>Target: Complete development of three non-invasive imaging technologies which image retinal cell function and circuitry.</p> <p>(Target Exceeded)</p>			
SRO-2.7 By 2021, file Phase II Investigational New Drug (IND) application with the FDA for a therapy to treat geographic atrophy in age-related macular degeneration (AMD) using patient-derived stem cells. (Outcome)	<p>FY 2021: The COVID-19 pandemic prevented both enrollment and treatment of 12 AMD patients (three are enrolled and zero completed treatment). Cell therapy product manufacturing was completed for one patient but was not able to be transplanted, and cell manufacturing has begun for a second patient.</p> <p>Target: Complete Phase I trial enrollment to treat a total of 12 AMD patients.</p> <p>(Target Not Met)</p>	N/A	N/A	N/A
SRO-2.8 By 2023, advance the development of three novel drug or biologic therapeutic candidates for Alzheimer's disease (AD) or related dementias toward the point of entry into Phase I human studies. (Output)	<p>FY 2021: Investigational New Drug (IND)-enabling studies were initiated for three novel drug candidates.</p> <p>Target: Initiate Investigational New Drug (IND)-enabling studies for 2-3 new candidate therapeutics.</p> <p>(Target Met)</p>	Complete IND-enabling studies for 2-3 new candidate therapeutics.	Advance the development of three novel drug or biologic therapeutic candidates for AD or related dementias toward the point of entry into Phase I human studies.	N/A
SRO-2.9 By 2022, evaluate the safety and effectiveness of 1-3 long-acting strategies	FY 2021: NIH-funded investigators analyzed data from the two studies and published their findings	Complete enrollment of two open label extension studies (HPTN 083	N/A	N/A

Measure	Year and Most Recent Result / Target for Recent Result / (Summary of Result)	FY 2022 Target	FY 2023 Target	FY 2023 Target +/-FY 2022 Target
for the prevention of HIV. (Outcome)	<p>online in March 2021.</p> <p>Target: Strategy 1: Analyze data of two studies testing the safety, tolerability, and effectiveness of VRC01 broadly neutralizing antibody (bnAb).</p> <p>(Target Met)</p>	and HPTN084) investigating the safety and efficacy of the long-acting injectable antiretroviral drug cabotegravir (CAB LA).		
SRO-2.10 By 2022, develop methods for the regeneration of functional tissues of the human dental, oral, and craniofacial complex to enable initiation of human Phase I clinical trials. (Outcome)	<p>FY 2021: Ten Interdisciplinary Translational Projects have completed or nearly completed Stage 3 (Verification) of the process that ends at Stage 5 with the IDE/IND preparation and submission.</p> <p>Target: The Resource Centers will facilitate the development of five Investigational New Drug (IND)/Investigational Device Exemption (IDE) applications from the current pool of Interdisciplinary Translational Projects.</p> <p>(Target Exceeded)</p>	One FDA application for a tissue regeneration combination product will be approved and one Phase I clinical trial protocol will be developed.	N/A	N/A
SRO-2.12 By 2021, develop, validate, and/or disseminate 3-5 new research tools or technologies that enable better understanding of brain function at the cellular and/or circuit level. (Output)	<p>FY 2021: The Brain Research Through Advancing Innovative Neurotechnologies (BRAIN) Initiative's investigators have used multiple new tools and technologies to expand our understanding of brain function at the cellular or circuit level.</p> <p>Target: Expand our understanding of brain function at the cellular or circuit level using 3-5 new tools and technologies.</p>	N/A	N/A	N/A

Measure	Year and Most Recent Result / Target for Recent Result / (Summary of Result)	FY 2022 Target	FY 2023 Target	FY 2023 Target +/-FY 2022 Target
	(Target Met)			
SRO-2.13 By 2023, advance the development of 1-2 new drugs and/or other therapeutic candidates for neurological diseases from lead optimization or device development toward the point of preparedness for first-in-human studies. (Output)	FY 2021: Studies on 14 therapeutic or device candidates have provided sufficient evidence of safety for testing in people to proceed. Target: Determine the margin of safety for 1-2 therapeutic or device candidates. (Target Exceeded)	Demonstrate efficacy of trial-ready formulation of 1-2 therapeutic or device candidates in preclinical disease models.	Advance the development of 1-2 new drugs and/or other therapeutic candidates for neurological diseases from lead optimization or device development toward the point of preparedness for first-in-human studies.	N/A
SRO-3.1 By 2025, identify neurobehavioral precursors or consequences of adolescent substance use or other childhood experiences. (Outcome)	FY 2021: Researchers found that adolescent alcohol consumption may result in reduced neurogenesis in the hippocampus as well as an inflammatory response and investigated whether these neurological changes could be prevented by the drug galantamine in a preclinical model of adolescent alcohol exposure. Target: Conduct preclinical studies to identify persistent neurobiological adaptations that occur as a result of exposure to alcohol during adolescence. (Target Met)	Continue preclinical research to identify brain-based predictors of alcohol use initiation and misuse among adolescents.	Conduct preclinical and clinical studies to better understand the predictors and consequences associated with adolescent alcohol misuse.	N/A
SRO-3.2 By 2022, establish the feasibility of using one emerging technology to safely and non-invasively obtain real time data on human placenta development and function during pregnancy. (Outcome)	FY 2021: NIH-funded researchers used a novel ultrasound technique and blood oxygen-level dependent magnetic resonance imaging (MRI) to collect longitudinal data and outcomes for 625 healthy pregnancies, and to generate comparative data between	Establish the feasibility of using one emerging technology to safely and non-invasively obtain real time data on human placenta development and	N/A	N/A

Measure	Year and Most Recent Result / Target for Recent Result / (Summary of Result)	FY 2022 Target	FY 2023 Target	FY 2023 Target +/-FY 2022 Target
	<p>pregnancies with normal vs. abnormal placenta.</p> <p>Target: Utilize one innovative technology to characterize longitudinal changes in normal vs. abnormal placenta during pregnancy.</p> <p>(Target Met)</p>	function during pregnancy.		
SRO-4.9 By 2023, evaluate the efficacy of new or refined interventions to treat opioid use disorders (OUD). (Output)	<p>FY 2021: NIH conducted one Phase I clinical trial to test the safety and efficacy of an anti-opioid vaccine, and two Phase I clinical trials to test the safety and efficacy of two novel treatment drugs for OUD.</p> <p>Target: Conduct a Phase I clinical trial of an anti-opioid vaccine and a new medication to treat OUD.</p> <p>(Target Met)</p>	Conduct a clinical trial of a medication for relapse prevention of OUD or overdose.	Complete a Phase 2 trial of a long-acting formulation of an opioid antagonist.	N/A
SRO-4.15 By 2025, develop, refine, and evaluate the effectiveness of evidence-based intervention strategies for facilitating treatment of alcohol misuse in underage populations. (Output)	<p>FY 2021: Researchers tested the effectiveness of motivation enhancement therapy and cognitive-behavioral therapy in reducing alcohol and cannabis use and co-occurring depression among adolescents.</p> <p>Target: Test another behavioral therapy for intervening with alcohol misuse in an underage population.</p> <p>(Target Met)</p>	Evaluate the effectiveness of a digital-based alcohol screening and brief intervention for adolescents.	Evaluate the effectiveness of an alcohol intervention in reducing alcohol misuse among emerging adults outside of college settings.	N/A
SRO-5.2 By 2025, develop or evaluate the efficacy or effectiveness of new or	FY 2021: Two clinical trials were launched as part of the Helping to End Addiction Long-term (HEAL)	Conduct 1-2 studies to test the effectiveness of prevention	Launch 1-2 clinical trials testing multi-level approaches to prevent opioid and	N/A

Measure	Year and Most Recent Result / Target for Recent Result / (Summary of Result)	FY 2022 Target	FY 2023 Target	FY 2023 Target +/-FY 2022 Target
<p>adapted prevention interventions for substance use disorders (SUD). (Outcome)</p>	<p>Initiative®. Target: Launch 1-2 clinical trials, based on pilot study results, to test the effects of a prevention intervention for opioid use disorder. (Target Met)</p>	<p>interventions focused on electronic nicotine delivery systems (including vaping).</p>	<p>other substance misuse by intervening on social determinants of health in addition to individual level risk factors.</p>	
<p>SRO-5.3 By 2023, identify risk and protective alleles that lead to one novel therapeutic approach, drug target, or pathway to prevention for late-onset Alzheimer’s disease. (Output)</p>	<p>FY 2021: Data analysis for the Alzheimer’s Disease Sequencing Project (ADSP) Discovery Follow-up Study continued and an initiative was launched to expand the ADSP sample sets to represent more diverse populations. The ADSP continued its confirmation of genomic regions of interest in ethnically diverse cohorts and identified important functional genomic elements that characterize the architecture of the Alzheimer’s Disease genome. The ADSP continued to quality control check and harmonize genetic data across all cohorts and all phases of the study. Target: Continue analysis of ADSP Discovery Follow-Up Study in ethnically diverse cohorts. Continue confirmation of genomic regions of interest from Discovery Phase and Discovery Follow-Up Phase in ethnically diverse datasets. Begin harmonization of phenotypic data with ADSP genetic data across multiple types of study approaches from large epidemiology and clinical cohorts that are outside of the ADSP.</p>	<p>Continue analysis of ADSP Discovery Follow-Up Study in ethnically diverse cohorts. Continue confirmation of genomic regions of interest from Discovery Phase and Discovery Follow-Up Phase in ethnically diverse datasets. Continue harmonization of phenotypic data with ADSP genetic data across multiple types of study approaches from large epidemiology and clinical cohorts that are outside of the ADSP. Begin analysis of ADSP genetic data using artificial intelligence approaches.</p>	<p>Identify risk and protective alleles that lead to one novel therapeutic approach, drug target, or pathway to prevention for late-onset Alzheimer’s disease.</p>	<p>N/A</p>

Measure	Year and Most Recent Result / Target for Recent Result / (Summary of Result)	FY 2022 Target	FY 2023 Target	FY 2023 Target +/-FY 2022 Target
	(Target Met)			
SRO-5.8 By 2022, obtain pre-clinical and clinical data from newly initiated and current studies to evaluate 1-2 HIV vaccine candidate(s). (Outcome)	FY 2021: HIV Vaccine Trials Network (HVTN) 706 Mosaico, a Phase 3 clinical trial, completed enrollment in September 2021 with 3,903 participants. Target: Enroll 25 percent-50 percent of the 3,800 participants needed for a Phase 3 vaccine study. (Target Exceeded)	Analyze laboratory data from a Phase 2b vaccine efficacy study.	N/A	N/A
SRO-5.13 By 2022, complete research to the pre-clinical stage of development of a new or significantly improved targeted, minimally invasive biomodulation technology for therapy. (Outcome)	FY 2021: Researchers have created an ultrasound-based technique called electromechanical wave imaging (EWI) that noninvasively creates three-dimensional cardiac maps of the areas that cause arrhythmias during treatment procedures. Target: Conduct research on continued development and preliminary testing of one prototype technology that uses a acoustic, optical, or electromagnetic waves to manipulate cells for treatment of a specific disease and begin to develop a plan for initiating the regulatory process. (Target Met)	Evaluate the feasibility and safety of one pre-clinical prototype technology that uses a acoustic, optical, or electromagnetic waves to manipulate cells for treatment of a specific disease.	N/A	N/A
SRO-5.15 By 2025, develop, refine and evaluate evidence-based intervention strategies and promote their use to prevent substance misuse and substance use disorders	FY 2021: NIH hosted webinars and developed fact sheets to disseminate information about evidence-based interventions for underage populations. Target: Disseminate	Develop and/or evaluate preventive interventions to address underage alcohol use among specific underserved populations.	Evaluate a culturally appropriate family-based intervention to prevent and reduce underage drinking among an	N/A

Measure	Year and Most Recent Result / Target for Recent Result / (Summary of Result)	FY 2022 Target	FY 2023 Target	FY 2023 Target +/-FY 2022 Target
and their consequences in underage populations. (Outcome)	information to the public about evidence-based interventions for underage populations. (Target Met)		underserved population.	
SRO-5.16 By 2021, conduct research to support pharmaceutical labeling changes for five drugs, to reflect safe and appropriate dosing and use specifically in children. (Outcome)	FY 2021: NIH-supported research led to pharmaceutical labeling changes for eight drugs or devices, to reflect safe and appropriate dosing and use specifically in children. Target: Assess pharmacokinetics, pharmacodynamics, and safety of five drugs in pediatric populations. (Target Exceeded)	N/A	N/A	N/A
SRO-5.17 By 2022, develop and test the effectiveness of three strategies to enhance end-of-life and palliative care. (Outcome)	FY 2021: Studies found that an advanced care planning intervention showed sustained agreement on end-of-life decisions over time between individuals living with HIV and their family surrogate decision-makers. Target: Develop and test at least one effective intervention for improving quality of life for patients at the end of life through enhanced shared decision-making and support of informal caregivers. (Target Met)	Develop and test at least three effective interventions to enhance end-of-life and palliative care by: improving quality of life for patients; providing support for family members and informal caregivers; and/or facilitating shared decision-making.	N/A	N/A
SRO-5.18 By 2026, enhance understanding of how five health information technologies can be applied effectively to improve minority	FY 2021: NIH investigators developed a new smoking cessation mobile application, QuitJourney, based on QuitGuide (not QuitSTART which is for adolescents) and conducted acceptability and	Determine if a mobile phone app is effective in promoting physical activity or reducing weight among racial	Investigate the utility of a natural language processing (NLP) algorithm to identify patients from health	N/A

Measure	Year and Most Recent Result / Target for Recent Result / (Summary of Result)	FY 2022 Target	FY 2023 Target	FY 2023 Target +/-FY 2022 Target
health or to reduce health disparities. (Output)	<p>usability testing with 48 young adults.</p> <p>Target: Develop an adaptive smoking cessation intervention targeting adolescents of health disparity populations using the quitStart mobile application.</p> <p>(Target Met)</p>	and ethnic minority populations.	disparity populations who are experiencing social isolation or other social stressors using clinical narratives in electronic health record (EHR) systems.	
SRO-5.19 By 2026, establish a formalized funding pathway for the development, validation, and regulatory review of diagnostic technologies to enhance surveillance and pandemic preparedness. (Outcome and Efficiency)	Note: SRO-5.19 will begin reporting in December 2022.	Receive FDA authorization for marketability for three home, point-of-care, or lab-based diagnostics.	Receive FDA authorization for marketability for two home, point-of-care, or lab-based diagnostics.	N/A
SRO-5.20 By 2026, advance the preclinical or clinical development of 10 antivirals for current or future infectious disease threats. (Outcome)	Note: SRO-5.20 will begin reporting in December 2022.	Advance preclinical or clinical development of one antiviral therapeutic.	Advance preclinical or clinical development of two antiviral therapeutics.	N/A
SRO-6.1 By 2023, perform comparative effectiveness studies to test five therapies for prevention or treatment of type 2 diabetes. (Outcome)	<p>FY 2021: GRADE (Glycemia Reduction Approaches in Diabetes: A Comparative Effectiveness Study) completed participant visits in April 2021.</p> <p>Target: Complete all final participant visits in the Glycemia Reduction Approaches in Diabetes: A Comparative Effectiveness (GRADE) Study, according to the study protocol.</p> <p>(Target Met)</p>	Analyze the primary outcome results from Glycemia Reduction Approaches in Diabetes: A Comparative Effectiveness (GRADE) Study.	Determine the long-term durability of diabetes remission following bariatric surgery compared with medical/lifestyle intervention.	N/A

Measure	Year and Most Recent Result / Target for Recent Result / (Summary of Result)	FY 2022 Target	FY 2023 Target	FY 2023 Target +/-FY 2022 Target
SRO-6.2 By 2025, advance 1-2 new or repurposed compounds that act on neurobiological targets that may have the potential for treating alcohol or other substance use disorders. (Outcome)	<p>FY 2021: NIH supported multiple preclinical studies to examine compounds that act on neurobiological targets involved in alcohol use disorder and relapse, such as inhibiting a signaling pathway thought to play a role in stress-induced alcohol seeking behavior in animal models.</p> <p>Target: Conduct a preclinical evaluation of a novel or repurposed compound that acts on neurobiological targets implicated in alcohol use disorder.</p> <p>(Target Met)</p>	Evaluate the efficacy of a candidate compound used in combination with a behavioral therapy for the treatment of alcohol use disorder.	Evaluate a candidate compound for the treatment of alcohol use disorder in a preclinical and/or clinical study.	N/A
CTR-7 By 2022, engage a national community in the development, dissemination, and implementation of a comprehensive national strategy to address the burden of Chronic Obstructive Pulmonary Disease (COPD) in the US. (Output)	<p>FY 2021: NIH launched the COPD National Action Plan Community Action Tool in February 2021, with a webinar to introduce the tool to the <i>Learn More Breathe Better</i>® program's <i>Breathe Better Network</i> partners.</p> <p>Target: Launch COPD National Action Plan Community Action Tool for stakeholders to capture Action Plan progress and conduct webinar and other promotional activities to encourage its use.</p> <p>(Target Met)</p>	Analyze Action Plan implementation activities reported by stakeholders.	N/A	N/A
CBRR-1.1 Provide research training for predoctoral trainees and fellows that promotes greater retention and long-term success in research careers. (Output)	<p>FY 2021: Award rate to comparison group reached 10 percent</p> <p>Target: N ≥ 10%</p> <p>(Target Met)</p>	N ≥ 10%	N ≥ 10%	N/A

Measure	Year and Most Recent Result / Target for Recent Result / (Summary of Result)	FY 2022 Target	FY 2023 Target	FY 2023 Target +/-FY 2022 Target
CBRR-1.2 Provide research training for postdoctoral fellows that promotes greater retention and long-term success in research careers. (Output)	FY 2021: Award rate to comparison group reached 17 percent and exceeded target by 7 percent Target: N ≥ 10% (Target Exceeded)	N ≥ 10%	N ≥ 10%	N/A
CBRR-2 Promote data sharing and provide information in real time through the NIH Business System (NBS) by developing, integrating, deploying and maintaining business modules. (Output)	FY 2021: NBS continues to conduct priority deployment activities for the NIH Corrective Action Plan Remediation efforts. Target: (Development) Continue to conduct priority deployment activities for the NIH Corrective Action Plan remediation efforts. (Target Extended)	(Development) Initiate development of planned business modules to build capacity and functionality of the NIH Business System.	(Development) Identify or initiate development effort for the implementation of the G-Invoicing platform.	N/A
CBRR-4 By 2021, produce and phenotype 2,500 knockout mouse strains to enhance the capacity of researchers to investigate the in vivo function of mammalian genes and identify new models of human disease. (Outcome)	FY 2021: Over 2,500 knockout mouse juvenile lines and associated resources were produced and made available to the research community. Target: Provide a cumulative total of 2,500 knockout mouse juvenile lines and associated resources to support research into gene function and human diseases. (Target Exceeded)	N/A	N/A	N/A
CBRR-18 By 2023, develop and validate a new protocol for dementia assessment for use in large nationally representative samples. (Outcome)	FY 2021: The evaluation of data from the US Harmonized Cognitive Assessment Protocol (HCAP) baseline and the international HCAP baseline data is complete. The follow-up HCAP assessments were planned but not conducted due to COVID-19 safety	Initiate a follow-up HCAP assessment to provide new data on the incidence and prevalence of dementia and ADRD in the U.S.	Develop and validate a new protocol for dementia assessment for use in large nationally representative samples.	N/A

Measure	Year and Most Recent Result / Target for Recent Result / (Summary of Result)	FY 2022 Target	FY 2023 Target	FY 2023 Target +/-FY 2022 Target
	<p>issues.</p> <p>Target: Complete follow-up assessment in the Health and Retirement Study using the refined HCAP.</p> <p>(Target Not Met)</p>			
<p>CBRR-25 Increase the total number of mentored research career development experiences for trainees from diverse backgrounds, including groups underrepresented in biomedical research, to promote individual development and to prepare them for a range of research-related careers. (Output)</p>	<p>FY 2021: Trainees from diverse backgrounds received a total of 3,779 career development experiences across all career stages.</p> <p>Target: 3,540 career experiences across all career stages.</p> <p>(Target Exceeded)</p>	<p>3,545 career experiences across all career stages.</p>	<p>3,550 career experiences across all career stages.</p>	<p>N/A</p>
<p>CBRR-26 Maintain the yearly number of undergraduate students with mentored research experiences through the IDeA (Institutional Development Award) Networks of Biomedical Research Excellence (INBRE) program in order to sustain a pipeline of undergraduate students who will pursue health research careers. (Output)</p>	<p>FY 2021: An estimated 1,450 undergraduate students participated in mentored research experiences, consistent with 2020 level.</p> <p>Target: Sustain the number of undergraduate mentored research experiences from 2020 level.</p> <p>(Target Met)</p>	<p>Sustain the number of undergraduate mentored research experiences from FY 2021 level.</p>	<p>Sustain the number of undergraduate mentored research experiences from FY 2022 level.</p>	<p>N/A</p>
<p>CBRR-28 Collect and distribute human tissue samples and molecular and genetic data from human tissues to the scientific community with the purpose of supporting research on</p>	<p>FY 2021: Brain tissue from 52 new donors was obtained. Samples were distributed to 28 researchers.</p> <p>Target: Collect brain tissue from an additional 30 new donors and distribute tissue samples or data derived from</p>	<p>Collect brain tissue from an additional 40 new donors and distribute tissue samples or data derived from tissue to 20 researchers studying mental or</p>	<p>Collect brain tissue from an additional 50 new donors and distribute tissue samples or data derived from tissue to 25 researchers studying mental or</p>	<p>N/A</p>

Measure	Year and Most Recent Result / Target for Recent Result / (Summary of Result)	FY 2022 Target	FY 2023 Target	FY 2023 Target +/-FY 2022 Target
brain and behavior. (Output)	tissue to 20 researchers studying mental or neurological disorders. (Target Exceeded)	neurological disorders.	neurological disorders.	
CBRR-30 By 2024, expand the use of program-focused versus target-focused award mechanisms by National Institute of General Medical Sciences (NIGMS) investigators. (Output)	FY 2021: Out of 4,294 investigators supported by R01 or the Maximizing Investigators' Research Award (MIRA/R35) grants, 1,741 were MIRA/R35 investigators (41 percent). This is an increase of 9 percentage points from 32 percent in FY 2020. Target: Expand NIGMS investigator participation in the Maximizing Investigators' Research Award (MIRA) program by two percentage points. (Target Exceeded)	Expand NIGMS investigator participation in the Maximizing Investigators' Research Award (MIRA) program by two percentage points.	Expand NIGMS investigator participation in the Maximizing Investigators' Research Award (MIRA) program by two percentage points.	N/A
MPO-1 Reduce the footprint of office and warehouse space in NIH's owned and leased facilities portfolio by one percent annually to comply with guidelines in the Office of Management and Budget (OMB) Memorandum M-12-12, Promoting Efficient Spending to Support Agency Operations. (Output and Efficiency)	Note: MPO-1 will begin reporting in December 2022.	Reduce: One percent of FY 2021 usable square feet	Reduce: One percent of FY 2022 usable square feet	N/A

Measure	Year and Most Recent Result / Target for Recent Result / (Summary of Result)	FY 2022 Target	FY 2023 Target	FY 2023 Target +/-FY 2022 Target
MPO-3 Address diverse workforce recruitment needs to ascertain highly qualified staff to conduct or support biomedical research. (Ongoing) (Output)	<p>FY 2021: Organizational leadership, in partnership with the organization’s analytics unit, focused on methods to further improve and streamline the recruitment process for NIH customers. The collection and analysis of data continued to be utilized to identify opportune times and strategies for targeted recruitment to best meet customers’ needs, save resources, and streamline the hiring process.</p> <p>Target: Assess [AS] results of implementation Assess process in place to identify the most opportune times throughout the year for NIH to recruit for varying occupations. [EX 2019/IM 2020]</p> <p>(Target Met)</p>	<p>Assess [AS] results of implementation</p> <p>Assess the shared recruitment approach, using data gathered in first year of full-time practice, to determine if hiring goals are being met. [EX 2020/IM 2021]</p>	<p>Examine (EX) key area to enhance recruitment</p> <p>Examine use of advanced applicant assessments to help improve the quality of applicant pools for highly skilled positions at the NIH and determine whether or not there is an impact on hiring and retention. [IM 2022/AS 2023]</p>	N/A
MPO-4 Reallocate laboratory resources based on external reviews by Boards of Scientific Counselors (BSC). (Output)	<p>FY 2021: 25 percent of Principal Investigators were reviewed resulting in approximately 25 percent of resources recommended to be reallocated.</p> <p>Target: Conduct BSC reviews annually of 25 percent of Principal Investigators to assess quality of science and prioritize resources.</p> <p>(Target Met)</p>	<p>Conduct BSC reviews annually of 25 percent of Principal Investigators to assess quality of science and prioritize resources.</p>	<p>Conduct BSC reviews annually of 25 percent of Principal Investigators to assess quality of science and prioritize resources.</p>	N/A
MPO-5 Improve facility conditions in order to reach and maintain a Condition Index (CI) weighted average of 85 or above	<p>FY 2021: The condition of the facilities portfolio reached a CIwa of 75.6.</p> <p>Target: CIwa = 77.63</p>	N/A	N/A	N/A

Measure	Year and Most Recent Result / Target for Recent Result / (Summary of Result)	FY 2022 Target	FY 2023 Target	FY 2023 Target +/-FY 2022 Target
(CIwa=85). (Output and Efficiency)	(Target Not Met)			
MPO-7 Manage all Buildings and Facilities (B&F) line-item projects so it is completed within 100 percent of the final approved project cost. (Ongoing)(Output)	FY 2021: 31 of the 36 active projects at the Facility Project Approval Agreement (FPAA) level threshold were effectively managed to ensure completion within 100 percent of the final approved cost. Target: 21 Active Projects (Target Exceeded)	28 Active Projects	24 Active Projects	N/A
MPO-8 Manage design and construction of capital facility projects funded by B&F so that no more than 10 percent of the projects may incorporate plus or minus 10 percent adjustments of the approved scope. (Ongoing)(Output)	FY 2021: NIH managed the design and construction of 32 of the 36 funded projects within a plus or minus 10 percent adjustment to the scope. Target: 21 Active Projects (Target Exceeded)	28 Active Projects	24 Active Projects	N/A
MPO-9 Utilize performance-based contracting (PBC). (ongoing)(Output)	FY 2021: Obligated 47 percent of eligible service contracting dollars to PBC. Target: Obligate the FY 2021 goal of eligible service contracting dollars to PBC. (Target Met)	Obligate the FY 2022 goal of eligible service contracting dollars to PBC.	Obligate the FY 2023 goal of eligible service contracting dollars to PBC.	N/A
MPO-11 Verify 75 percent of a awarded state-of-the-art instruments are installed at NIH-supported research institutions across the nation. (Output)	FY 2021: Of the 134 grant awards, 88 instruments (66 percent) were installed within 18 months of the Notice of Award date. A large number of grantees requested no-cost extensions due to the COVID-19 pandemic and related supply chain issues. Target: Verify 75 percent of a awarded state-of-the-art instruments are installed at	Verify 60 percent of a awarded state-of-the-art instruments are installed at NIH-supported research institutions across the nation 24 months after a ward.	Verify 60 percent of a awarded state-of-the-art instruments are installed at NIH-supported research institutions across the nation 24 months after a ward.	N/A

OVERALL APPROPRIATIONS

Measure	Year and Most Recent Result / Target for Recent Result / (Summary of Result)	FY 2022 Target	FY 2023 Target	FY 2023 Target +/-FY 2022 Target
	NIH-supported research institutions across the nation 18 months after a ward. (Target Not Met)			

GRANT AWARDS TABLE

	FY 2021 Final³	FY 2022 CR³	FY 2023 President's Budget^{a,3}
Number of Awards	50,442	50,078	52,180
Average Award (in Whole \$s)	\$595,893	\$595,859	\$606,639
Range of Awards (in Whole \$s) ^{1,2}	\$1,000 to \$52,933,106	\$1,000 to \$38,910,110	\$1,000 to \$39,373,218

¹ Award range excludes minimum values of zero to under \$1,000 related primarily to no-cost extensions and co-funded actions.

² Award maximum estimates are based on an extrapolation from the most recent historical actual while accounting for expected budget policies applicable to each future fiscal year. The actual year-to-year fluctuations are roughly eight million dollars, plus or minus.

³ Includes 21st Century Cures Act funding.

^a Figures do not include any awards related to the recently established ARPA-H or proposed mandatory funding for pandemic preparedness activities.

NEF NARRATIVE

Budget Summary
(Dollars in Thousands)

	FY 2021	FY 2022	FY 2023 ⁶⁷
Notification⁶⁸	\$225,000	--	\$63,140

Authorizing Legislation:

Authorization.....Section 223 of Division G of the Consolidated Appropriations Act, 2008
Allocation Method.....Direct Federal, Competitive Contract

Overview of NEF

The Nonrecurring Expenses Fund (NEF) permits HHS to transfer unobligated balances of expired discretionary funds from FY 2008 and subsequent years into the NEF account. Congress authorized use of the funds for capital acquisitions necessary for the operation of the Department, specifically information technology (IT) and facilities infrastructure acquisitions.

Please see Exhibit A for a summary of the total NEF amount NIH has received, per fiscal year.

Program Description

In FY 2023, NIH plans to use \$63.1 million in NEF resources to improve the safety and electrical power reliability in the Clinical Center Complex through replacement and upgrades of aging services with safe, state-of-of the art, cost effective, contiguous, and secure electrical systems. Additionally, NEF funds will be used for the Rocky Mountain Laboratories campus to improve, centralize, consolidate, and integrate support functions.

Program Accomplishments

The Surgery, Radiology and Lab Medicine Building (SRLM) on the Bethesda campus received \$437.4 million in FY 2020 and FY 2021 combined for the development of enhanced bridging documents and the design build construction of the project. This project will construct a new addition and repurpose two floors of the west laboratory wing of the Clinical Research Center (CRC). The project will include the Clinical Center’s (CC) Surgical (Department of Perioperative Medicine and Interventional Radiology – DPM/IR), Radiology (Radiology and Imaging Sciences – RADIS) and the Laboratory Medicine (Department of Laboratory Medicine - DLM) departments now located in the 1982-era Ambulatory Care Research Facility's (ACRF) wings S&T and the National Cancer Institute’s (NCI) research laboratories. These departments involve some of the most advanced and technology dependent cutting-edge programs supporting NIH’s Translational Research initiatives. The project is focused on developing a facility that

⁶⁷ HHS has not yet notified for FY 2023.

⁶⁸ Pursuant to Section 223 of Division G of the Consolidated Appropriation Act, 2008, notification is required of planned use. Indicates the amount HHS intends to notify for in 2023; these amounts are planned estimates and subject to final approval.

supports medical research initiatives to improve the nation's health and strengthen NIH's biomedical research capacity in close proximity to the CRC. The most recent "Building Condition Index" conducted by the NIH has the ACRF in the POOR category. The new wing will be an 8-story above-grade structure, plus one floor below grade and a mechanical penthouse. A below-grade Cardiovascular Intervention Program (CIP) suite is also planned. The funds for the Enhanced Bridging Documents (\$12 million) have been obligated; the funds for the D/B construction will be obligated in early FY 2022.

In FY 2020 \$12.6 million was allocated for the Building Automation System (BAS) Replacement, Building 10, Bethesda. The project is to upgrade and replace the obsolete Johnson Controls, Inc. (JCI) BAS with a new state-of-the-art, cost-effective, contiguous, simple, and secure system. The upgrade includes replacement of primary network controllers, controllers serving air-moving equipment and associated sensors, controllers serving hydronic systems and associated sensors, and replacement of pneumatic actuators with electronic actuators. To a large extent, existing network and end device wiring will remain and be reused. These funds have been obligated.

In FY 2019, \$63.5 million was allocated to the NIH for construction of the Utility Vault and Patient Parking Garage on the Bethesda campus. The new Utility Vault and Parking Garage will: 1) ensure the reliability and long-term sustainability of the electrical power feeds to the 4.5 million square foot hospital and biomedical research complex; 2) mitigate the security risk, personal safety risk, and liability risk associated with the existing underground parking garage; and 3) enable the new SRLM Building addition. These funds have been obligated.

In FY 2019, \$19.5 million was allocated to the NIH for Phase 1 of the Electrical Power Reliability program to replace failing and unreliable electrical power systems in the CCC on the Bethesda campus. The work under the program will be executed under four phases to replace the most critical vaults first and work through critical upgrades to the rest. These funds have been obligated.

In FY 2017, \$35.3 million was allocated for the replacement of Refrigerant Chillers. This project involves replacing two existing dual steam turbine/electric driven chillers. Due to the efficiency achieved in the current chilled water upgrades accomplished between 2013 and 2015 and the additional efficiency and capacity of the four new chillers the remaining four chillers will not have to be replaced. The refrigerant removed from the demolished chillers will be used as backup for the four remaining chillers if needed. These funds have been obligated.

In FY 2017, \$16.5 million was allocated for Emergency Generators to support the Centralized Utility Plant (CUP). This project will direct the new emergency power generator or generators toward the startup of the plant should a loss of power occur from the local utility. To protect the critical mission of the NIH from disruption if the electric utility service for any reason suffers a severe voltage reduction or loss of the electrical system, the COGEN system and campus electric distribution system would automatically shut down and restart through the new emergency generation system. This system will guarantee uninterrupted cooling and steam service to the most critical facilities on campus. These funds have been obligated.

In FY 2016, \$162.1 million was allocated for the Renovation of the E-Wing in the NIH Clinical Center (Building 10). The renovation is the conversion of 217,285 gross square feet of former patient care and laboratory areas on Floors 2 through 13 to build out laboratory, laboratory support space and offices for 520 personnel in the clinical research programs of the National Institute of Allergy and Infectious Disease (NIAID), National Cancer Institute (NCI), National Heart, Lung, and Blood Institute (NHLBI), National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), National Institute of Mental Health (NIMH), National Institute of Neurological Disorders and Stroke (NINDS), National Eye Institute (NEI), National Human Genome Research Institute, National Institute of Dental and Craniofacial Research (NIDCR) and the National Center for Complementary and Integrative Health (NCCIH). These funds have been obligated.

Exhibit A: NEF Amounts Received by NIH for FY 2016-2021

(In millions of dollars)

Project	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021
E-Wing Renovation, Building 10, Bethesda, MD	\$ 162.10					
R22 Refrigerant Chillers Replacement, Bethesda, MD		\$ 35.27				
Emergency Power Generators to Assure Chilled Water, Bethesda		\$ 16.48				
Surgery, Radiology and Lab Medicine Building (SRLM), Bethesda, MD		\$ -			\$ 212.40	\$ 225.00
Electrical Power Reliability, Building 10, Bethesda, MD			\$ -	\$ 19.50		
Building Automation System (BAS) Replacement, Bldg 10, Bethesda, MD				\$ -	\$ 12.60	
Utility Vault and Patient Parking Garage, Bethesda, MD			\$ -	\$ 63.54		
Totals:	\$ 162.10	\$ 51.75	\$ -	\$ 83.04	\$ 225.00	\$ 225.00