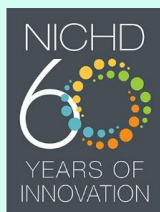


Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)



CONGRESSIONAL JUSTIFICATION
FY 2024

Department of Health and Human Services
National Institutes of Health



Eunice Kennedy Shriver National Institute
of Child Health and Human Development

Healthy pregnancies. Healthy children. Healthy and optimal lives.

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DEPARTMENT OF HEALTH AND HUMAN SERVICES
NATIONAL INSTITUTES OF HEALTH

Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)

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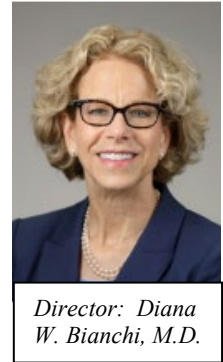
General Notes

1. FY 2023 Enacted levels cited in this document include the effects of the FY 2023 HIV/AIDS transfer, as shown in the Amounts Available for Obligation table.
2. Detail in this document may not sum to the subtotals and totals due to rounding.

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Director's Overview

For six decades, the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development (NICHD) has provided dedicated national leadership and scientific expertise for research across the life span to ensure health at all stages of life for all people. Scientific research is the key to achieving NICHD's mission -- to "lead research and training to understand human development, improve reproductive health, enhance the lives of children and adolescents, and optimize abilities for all." To attain our ultimate goals, we need a talented, diverse, multi-generational scientific research workforce.



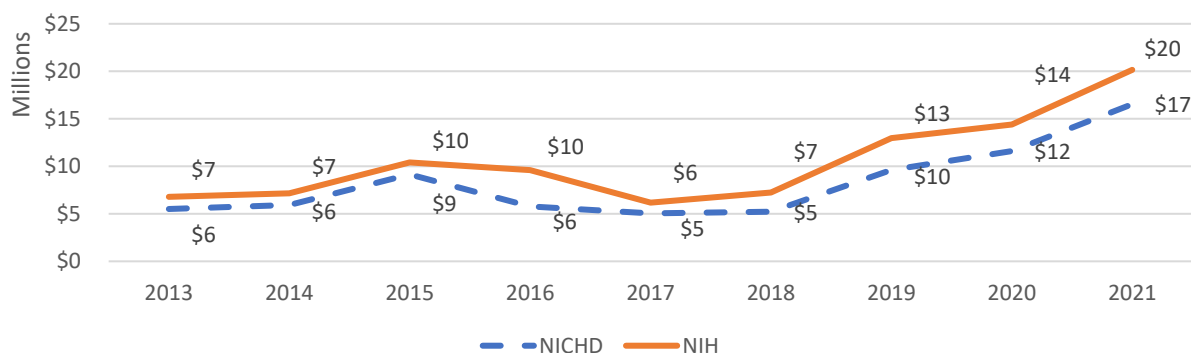
Director: Diana
W. Bianchi, M.D.

Scientific research is the key to advancing reproductive health. Both men and women need safe, reversible, convenient, effective contraception and targeted treatments for infertility. Addressing contraceptive and infertility treatment in men has been especially difficult, but a new generation of scientists is eager to take on this challenge. Research on an effective male contraception has now reached clinical trials and is showing promising results. In addition, advances in fundamental reproductive sciences are pointing the way to the next generation of contraceptives and infertility treatments. Intramural scientists at NICHD, working with colleagues at the National Institute on Allergy and Infectious Diseases (NIAID), designed several small compounds called cyclic peptides that can block the activity of a protein that is found in the testes and is essential for making healthy sperm. This research may ultimately yield new approaches not only for non-hormonal male contraception, but also for male infertility, where it is often difficult to pinpoint a specific cause.

Gynecologic conditions such as endometriosis, uterine fibroids, vulvodynia, and pelvic floor disorders affect many women. Because these conditions often have origins earlier in life but are diagnosed only later, taking a life course approach to prevention is especially important. NICHD-funded researchers have developed a prototype genetic test for uterine fibroids (non-cancerous tumors in the uterus). Fibroids are frequently misdiagnosed or underdiagnosed. This test could be used to identify fibroid cases early and to help treat them before painful symptoms become debilitating. Detecting fibroids at earlier stages will also help scientists understand why Black women are more likely to experience fibroids and why their fibroids tend to be more severe. To mitigate this health disparity, NICHD plans to establish new multidisciplinary research centers and expand its portfolio of studies on uterine fibroids.

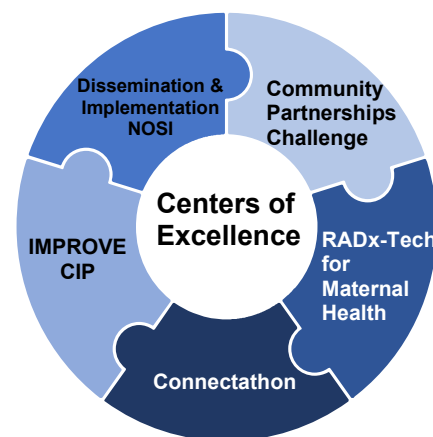
NICHD has already begun to see the returns on its recent investment that more than doubled the size of the research portfolio in endometriosis, which causes debilitating pain and infertility in millions of women. To move towards new non-surgical treatment approaches, scientists adapted an experimental cancer therapy to develop a less-invasive treatment for endometriosis. Using a mouse model of endometriosis, the researchers applied an alternating magnetic field that could safely remove all the endometriosis tissue within 20 minutes without affecting other tissues. Further research is anticipated to determine if this type of treatment could be used in people.

NICHD and NIH Endometriosis Spending, FY 2013-2021



NICHD has also been providing evidence-based information on any potential risk to reproductive health posed by coronavirus disease 2019 (COVID-19) infection and subsequent vaccinations. In a new study of more than 2,000 couples, researchers found no differences in the chances of conception if either male or female partner had been vaccinated, compared to unvaccinated couples. However, couples had a slightly lower chance of conception if the male partner had been infected with SARS-CoV-2 within 60 days before a partner's menstrual cycle, suggesting that COVID-19 could temporarily reduce male fertility. In two other studies, NICHD-supported scientists showed that COVID-19 vaccination was associated with a small, temporary increase in the length of the interval between menstrual cycles, but no change in the number of days of bleeding.

Scientific research is the key to making the U.S. a safer country for giving birth. As many as 900 U.S. women die each year from conditions related to or associated with pregnancy or childbirth, a high rate among developed nations. More than 50,000 U.S. women experience severe maternal morbidity, life-threatening health problems that are present at delivery. NICHD, along with NINR and ORWH, is leading the NIH-wide Implementing a Maternal health and PRegnancy Outcomes Vision for Everyone (IMPROVE) effort to expand maternal health research. New initiatives under IMPROVE include: (1) Maternal Health Research Centers of Excellence, a national network to develop, implement, and evaluate community-tailored interventions to address health disparities in maternal morbidity and mortality; (2) the Rapid Acceleration of Diagnostics (RADx[®]) Tech for Maternal Health Challenge, to accelerate the development of advanced maternal health technologies (e.g., wearable devices, sensors, smartphone-enabled tools) for use in geographic areas where maternity care is more difficult to access; (3) Connecting the Community for Maternal Health Challenge, a prize competition to help community and advocacy organizations build research infrastructure; (4) Community Implementation Program, where researchers and community organizations will work together to integrate interventions of known effectiveness into community settings; (5) research to study dissemination and implementation of maternal health efforts, and (6) a "Connectathon" to work



IMPROVE INITIATIVES

towards electronic health record standards to enable real world maternal health research before and after pregnancy.

Pregnant women represent a high-risk population for severe and critical COVID-19 infection. In a study of nearly 2,400 pregnant women infected with the virus that causes COVID-19, scientists found that those with moderate to severe infection were more likely to have a cesarean delivery, to deliver preterm, to die around the time of birth, or to experience serious illnesses. The findings underscore the need for women of child-bearing age and pregnant individuals to be vaccinated and to take other precautions against becoming infected.

Over the past several years, NICHD has emphasized tackling the undiscovered secrets of the placenta. The investment in the multidisciplinary Human Placenta Project (HPP) is now paying dividends. In just one example, researchers demonstrated that it is possible to measure placental blood flow to help identify at-risk pregnancies. The scientists used a measurement method called “T2*”, which can measure blood oxygenation to areas in the body. They found that in pregnancies with adverse primary outcomes (such as hypertensive disorders of pregnancy, low birth weight, or stillbirth), placental blood flow was reduced starting at 15 weeks and continuing through 33 weeks of gestation. This demonstrates that scanning using T2* has potential to help identify at-risk pregnancies so that treatment can begin before adverse outcomes occur. A different team of researchers recently developed a new method to detect genetic material from the placenta in the blood of pregnant people, allowing physicians to identify the risk for gestational, or pregnancy-related, diabetes earlier than current methods allow.

Scientific research is the key to improving survival and long-term health for infants. Thanks in part to medical advances from NICHD-supported research, survival rates have improved for extremely preterm infants. However, the rate of preterm births is particularly high in the United States at approximately 10 percent of deliveries. Researchers found that concentrations of certain metabolites of phthalates (synthetic chemicals used in consumer products) were associated with the risk of preterm birth.

The risk of stillbirth – fetal death at 20 or more weeks of gestation – is associated with vascular lesions in the placenta and with some forms of chromosomal structural abnormalities. However, scientists do not fully understand how these factors increase the risk of stillbirth, or how the two issues may be related. Researchers used data from a previous stillbirth study to examine the associations of placental pathological lesions (PPLs) with placental and fetal DNA copy number variants (CNVs, which are changes in the number of copies of a particular gene or segment of DNA). The scientists found that of 387 stillborn fetuses, 327 (about 85 percent) had maternal vascular PPLs and 60 (about 16 percent) had abnormal CNVs. Maternal vascular PPLs were more common in stillborn fetuses with abnormal CNVs than in those with normal CNVs. These results may help physicians develop new ways to identify risk for stillbirth and prevent tragedies.

Preterm and low birthweight infants have an increased risk of life-threatening intestinal disorders. Scientists assessed surgical options for infants with necrotizing enterocolitis (NEC), in which intestinal tissue dies, and intestinal perforation, where a hole forms in the intestinal wall. They found that one of the two surgical options was more effective for infants with NEC, although there was no difference in outcomes for infants with intestinal perforation. NICHD’s

upcoming renewal of the long-standing Neonatal Research Network will continue to emphasize rigorous clinical trials, with more opportunities for a wider range of scientists from all over the United States.

Scientific research is the key to keeping children healthy. NICHD researchers quickly developed an extensive evidence base to support efforts to return children to school and to minimize quarantine-related disruptions during the COVID-19 pandemic. Researchers rigorously studied an on-site SARS-CoV-2 school testing program in North Carolina and found that providing access to in-school testing following within-school SARS-CoV-2 exposure reduced the number of missed school days. In a study including more than 1.1 million students attending in-person school across nine states, scientists found that schools with mandatory masking during the Delta surge had approximately 72 percent fewer cases of in-school transmission of SARS-CoV-2 when compared to schools with optional or partial masking policies. NICHD also funded a multicenter follow-up study of U.S. children and adolescents hospitalized with COVID-19 or multisystem inflammatory syndrome in children (MIS-C), a serious condition some children develop after exposure to the virus. They found that more than 1 in 4 patients had persistent symptoms or activity impairment 2 to 4 months after their illness, highlighting the need to study “Long COVID” in children as well as in adults.

In addition to its direct effects, the pandemic has amplified concerns about the time away from the in-person learning and peer interactions that are so important to child development. An international study funded by NICHD confirmed that children engaged with screens more during the pandemic than before, but also found that a greater proportion of this increase was driven by screen use for entertainment purposes compared to use of educational applications. However, researchers also found that electronic applications can be used to improve health. For example, scientists found that a mobile app could be used to teach parents activities to help children’s motor skill development. Compared to children who did not partake in the intervention but who performed the same amount of physical activity, children’s motor skill performance increased after 3 months, and these increases remained 3 months later. While the relationship of interaction with digital media and child development has varied across studies, we do know the pandemic had a significant impact on child mental health. Scientists found that although the number and proportion of youth suicide varied among states, when data from 14 states were considered together, there was an increase during the pandemic in the number of youth suicides.

Scientific research is the key to enabling people with disabilities to maximize their talents. The effects of disability, including secondary complications, touch all aspects of life and health. NICHD-supported researchers analyzed data from more than 223,000 deliveries in 19 U.S. hospitals, including about 2,200 women with a disability. They found that pregnant women with disabilities had a much higher risk for severe pregnancy- and birth-related complications and death than other pregnant women. In children with spinal cord injury (SCI), curvature of the spine due to trunk muscle paralysis frequently requires surgical treatment. In a small study, scientists investigated the safety and feasibility of noninvasive transcutaneous spinal stimulation in children with SCI. They found that spinal stimulation was found to be well-tolerated and enabled upright sitting posture in most of the young participants.

NICHD-supported scientists reported the results of a study in a mouse model of Rett syndrome, a

rare genetic neurological disorder that affects mostly girls. Rett syndrome disrupts memory, cognition and especially communication. However, researchers found that in their mouse model, they were able to enhance long-term memory recall by increasing the activity of certain cells affected by the genetic mutation involved in Rett syndrome.

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Eunice Kennedy Shriver National Institute of Child Health and Human Development

Healthy pregnancies. Healthy children. Healthy and optimal lives.

NICHD's mission is to lead research and training to understand human development, improve reproductive health, enhance the lives of children and adolescents, and optimize abilities for all.

<http://nichd.nih.gov>

Key populations: Children, Pregnant and Lactating Women, People with Disabilities



Director:
Diana W. Bianchi, M.D.

HISTORY

NICHD founded

National Center for Medical
Rehabilitation Research
(NCMRR)

Best Pharmaceuticals
for Children Act
(BPCA)

Renamed: *Eunice
Kennedy Shriver*
NICHD

New Mission
and Vision



1962

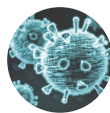
1990

2002

2007

2020

2022



ADDRESS COVID-19 IMPACT

Safety and effectiveness of COVID-19 vaccination

- Vaccines during pregnancy boost maternal and newborn immunity
- Vaccination did not affect female or male fertility
- Vaccination associated with small, temporary increase in time between menstrual cycles

Safe return to school

- In-school COVID testing reduced missed school days
- Testing and safety measures allowed children with intellectual and developmental disabilities to return to school safely
- Masking did not interfere with children's ability to follow nonverbal test instructions
- Schools with mandatory masking during the Delta surge had approximately 72 percent fewer cases of in-school transmission of SARS-CoV-2

IMPROVE MATERNAL HEALTH

- Collaborative effort involving multiple NIH ICs
- Maternal Health Research Centers of Excellence



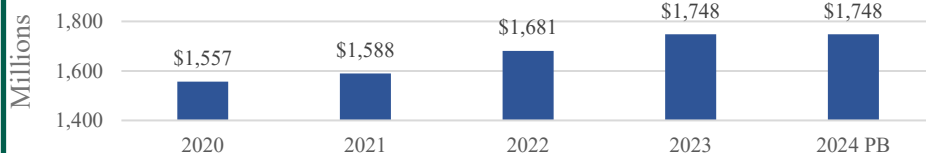
- Connecting the Community: prize competition for community infrastructure
- RAD-x Tech challenge: innovative technologies for maternal care
- Connectathon: electronic health record standards and linkages
- Community Implementation: integrate effective interventions into communities
- Dissemination & Implementation research

PROMOTE HEALTH EQUITY

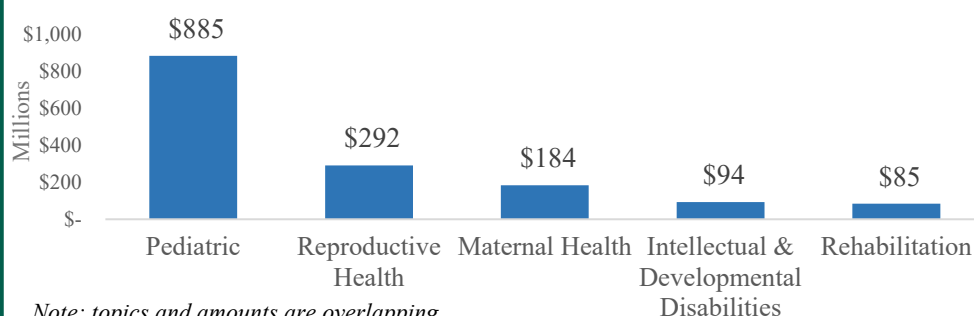
- Integrated care approach increased preventive care doctor visits for at-risk young mothers and infants
- Patterns of gene expression in uterine muscle tissue may help explain why fibroids disproportionately affect Black women
- Age-based distribution of vaccines benefitted older Whites instead of younger minorities



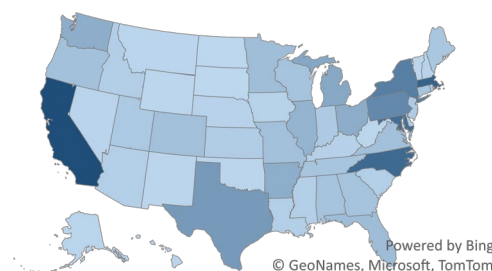
NICHD Appropriation History, FY 2020-2024



NICHD Funding by Research Area, FY 2021



NICHD Funding by State, FY 2016-2021



In the past decade, NICHD has supported research in all 50 states, also involving at least 138 countries across the globe.



Healthy pregnancies. Healthy children. Healthy and optimal lives.

RECENT ACCOMPLISHMENTS

Prenatal testing and newborn screening can identify issues and allow treatment to begin early, preventing or alleviating developmental problems. Now, a same-day, less expensive test can identify abnormal fetal chromosomes.

Human Development



Scientists adapted a technique from cancer treatment—using heat to remove disease-causing tissue—to treat endometriosis. The experimental treatment was effective in animal studies.

Reproductive Health



Researchers developed a test to measure placental genetic material in maternal blood. This new method could potentially diagnose gestational diabetes earlier in pregnancy.

Maternal Health



Researchers found that an in-person school COVID-19 testing program reduced missed school days. Another team showed that mandatory masking policies in schools were associated with a strong reduction in COVID-19 cases.

Child Health



Early diagnosis and intervention can help children with autism spectrum disorder (ASD).

Researchers found that infants who were diagnosed with ASD at 24 months old had differences in the visual processing areas of the brain that were apparent at 6 months old.

Optimizing Abilities for All



CURRENT ACTIVITIES

NICHD leads the birth defects portion of the Gabriella Miller Kids First Pediatric Research Program at NIH, to help researchers uncover new insights into the biology of structural birth defects and share these data.

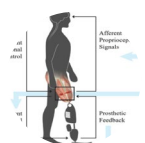
The Centers to Advance Research in Endometriosis support basic, translational, and/or clinical studies of endometriosis, a chronic painful condition affecting 1 in 10 women of reproductive age.

The Study of Pregnancy and Neonatal Health will analyze data from more than 7,000 pregnant women and partners to examine maternal risk factors and genomic associations, and to determine optimal delivery time.

Building on the work of the PRGLAC Task Force, the Maternal and Pediatric Precision in Therapeutics (MPRINT) Program supports therapeutics-focused research in obstetrics, lactation, and pediatrics while enhancing inclusion of people with disabilities.

Supported by NICHD's National Center for Medical Rehabilitation Research (NCMR), the Medical Rehabilitation Research Resource Network builds infrastructure, focusing on tissue engineering, pediatric rehabilitation, technology development, and neuromodulation.

RESEARCH HIGHLIGHTS



- Researchers developed a prototype genetic test with the potential to predict the development and eventual severity of uterine fibroids.
- A history of endometriosis and fibroids was associated with higher risk of adverse pregnancy outcomes.
- Asthma, allergy risk may be higher for children conceived with infertility treatment
- Pregnant women with disabilities have a much higher risk for severe pregnancy- and birth-related complications and death than other pregnant women.
- Weight-based dosing of opioid medications for children may result in over-exposure.
- A survey of physicians indicated that more than one third of them did not know their legal requirements under the Americans with Disabilities Act.

NEW AND FUTURE INITIATIVES



- Studying “long COVID” in children, as well as pregnant women and their infants
- Examining the impact of digital media and online learning on child development
- Establishing new multidisciplinary research centers and expanding the portfolio of studies on uterine fibroids
- Expanding translational science in regenerative medicine, with a focus on limb regeneration
- Complete development and testing of a safe, effective, reversible male contraceptive
- Studying how neurobehavioral factors, feeding practices, and early life food exposures affect diet and growth in children
- Researching the health effects of discrimination against people with disabilities

Major Changes in the Budget Request

Major changes by budget mechanism and/or budget activity detail are briefly described below. Note that there may be overlap between budget mechanisms and activity detail and these highlights will not sum to the total change for the FY 2024 President's Budget for NICHD, which is same as the FY 2023 Enacted level, for a total of \$1,747.8 million. The FY 2024 President's Budget reflects the Administration's fiscal policy goals for the Federal Government. Within that framework, NICHD will pursue its highest research priorities through strategic investments and careful stewardship of appropriated funds.

Research Project Grants (RPGs) (-\$4.2 million, total \$999.4 million):

NICHD will support a total of 1,905 Research Project Grant (RPG) awards in FY 2024, including SBIR/STTR awards. Non-competing RPGs will increase by 30 awards to an estimated level of 1,336 awards, while the amount to support the costs associated with the commitments of these prior year awards will increase by \$8.4 million compared to the FY 2023 Enacted level. Some non-competing RPGs will be reduced by 2.0 percent of the committed levels in order to support competing grants. Competing RPGs will decrease by 16 grants compared to the FY 2023 Enacted level of 504 awards, and the amount to support the costs associated with new competing awards will decrease by \$11.4 million compared to the FY 2023 Enacted level.

Research Centers (+\$2.6 million, total \$97.8 million):

NICHD will support a total of 54 Research Centers awards in FY 2024, the same level as the FY 2023 Enacted level.

Other Research (-\$2.2 million, total \$135.2 million):

NICHD will support a total of 437 awards in the Other Research areas in FY 2024, an increase of 4 awards compared with the FY 2023 Enacted level of 433 awards. NICHD will continue to support Career awards and clinical trial networks within these funding amounts.

Research Management and Support (+\$2.8 million, total \$93.2 million):

NICHD will increase support for the Research Management and Support program by \$2.8 million compared to the FY 2023 Enacted level, increasing support for cybersecurity efforts, clinical trials management, and automating business practices, as well as maintaining support for staffing levels.

BUDGET MECHANISM TABLE

NATIONAL INSTITUTES OF HEALTH
National Institute of Child Health and Human Development

Budget Mechanism *
(Dollars in Thousands)

Mechanism	FY 2022 Final		FY 2023 Enacted		FY 2024 President's Budget		FY 2024 +/- FY 2023	
	Number	Amount	Number	Amount	Number	Amount	Number	Amount
<u>Research Projects:</u>								
Noncompeting	1,326	\$671,091	1,306	\$699,374	1,336	\$707,785	30	\$8,411
Administrative Supplements	(95)	\$15,947	-(60)	\$11,793	(54)	\$10,700	(114)	-\$1,093
<u>Competing:</u>								
Renewal	49	\$31,999	50	\$31,908	49	\$30,400	-1	-\$1,508
New	449	\$210,112	454	\$209,370	439	\$199,478	-15	-\$9,892
Supplements	0	\$0	0	\$0	0	\$0	0	\$0
Subtotal, Competing	498	\$242,111	504	\$241,278	488	\$229,878	-16	-\$11,400
Subtotal, RPGs	1,824	\$929,149	1,810	\$952,445	1,824	\$948,363	14	-\$4,082
SBIR/STTR	79	\$49,624	81	\$51,123	81	\$50,998	0	-\$125
Research Project Grants	1,903	\$978,774	1,891	\$1,003,568	1,905	\$999,361	14	-\$4,207
<u>Research Centers</u>								
Specialized/Comprehensive	45	\$68,428	51	\$89,358	51	\$92,041	0	\$2,683
Clinical Research	0	\$0	0	\$0	0	\$0	0	\$0
Biotechnology	3	\$4,883	3	\$5,602	3	\$5,590	0	-\$12
Comparative Medicine	0	\$513	0	\$263	0	\$200	0	-\$63
Research Centers in Minority Institutions	0	\$0	0	\$0	0	\$0	0	\$0
Research Centers	48	\$73,825	54	\$95,223	54	\$97,831	0	\$2,608
<u>Other Research:</u>								
Research Careers	236	\$41,992	246	\$44,814	247	\$45,583	1	\$769
Cancer Education	0	\$0	0	\$0	0	\$0	0	\$0
Cooperative Clinical Research	41	\$14,081	52	\$24,403	52	\$24,378	0	-\$25
Biomedical Research Support	0	\$0	0	\$0	0	\$0	0	\$0
Minority Biomedical Research Support	0	\$0	0	\$0	0	\$0	0	\$0
Other	118	\$46,606	135	\$68,156	138	\$65,225	3	-\$2,931
Other Research	395	\$102,679	433	\$137,373	437	\$135,186	4	-\$2,187
Total Research Grants	2,346	\$1,155,277	2,378	\$1,236,164	2,396	\$1,232,378	18	-\$3,786
<u>Ruth L. Kirschstein Training Awards:</u>	<u>FTTPs</u>		<u>FTTPs</u>		<u>FTTPs</u>		<u>FTTPs</u>	
Individual Awards	303	\$14,758	299	\$14,920	310	\$15,672	11	\$752
Institutional Awards	424	\$25,556	438	\$27,073	420	\$26,303	-18	-\$770
Total Research Training	727	\$40,314	737	\$41,993	730	\$41,975	-7	-\$18
Research & Develop. Contracts	135	\$174,783	132	\$149,410	130	\$150,436	-2	\$1,026
SBIR/STTR (non-add)	(0)	(\$551)	(0)	(\$551)	(0)	(\$564)	(0)	(\$13)
Intramural Research	287	\$225,334	297	\$229,770	297	\$229,770	0	\$0
Res. Management & Support	251	\$85,523	305	\$90,447	305	\$93,225	0	\$2,778
SBIR Admin. (non-add)		(\$231)		(\$285)		(\$0)		-\$285)
Construction		\$0		\$0		\$0		\$0
Buildings and Facilities		\$0		\$0		\$0		\$0
Total, NICHD	538	\$1,681,231	602	\$1,747,784	602	\$1,747,784	0	\$0

* All items in italics and brackets are non-add entries.

NATIONAL INSTITUTES OF HEALTH
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, [\$1,749,078,000]*\$1,747,784,000*.

SUMMARY OF CHANGES

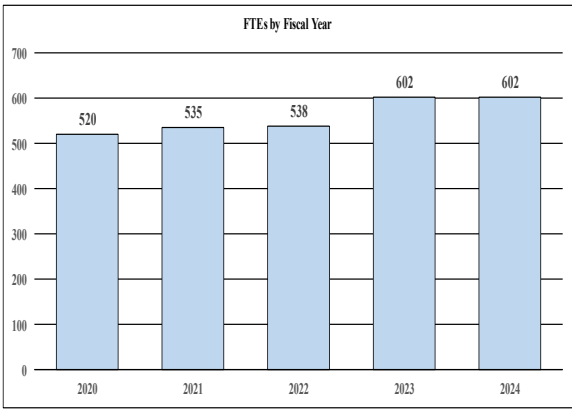
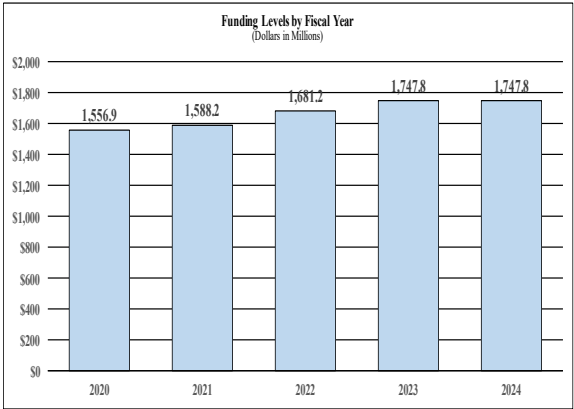
NATIONAL INSTITUTES OF HEALTH
National Institute of Child Health and Human Development

Summary of Changes
(Dollars in Thousands)

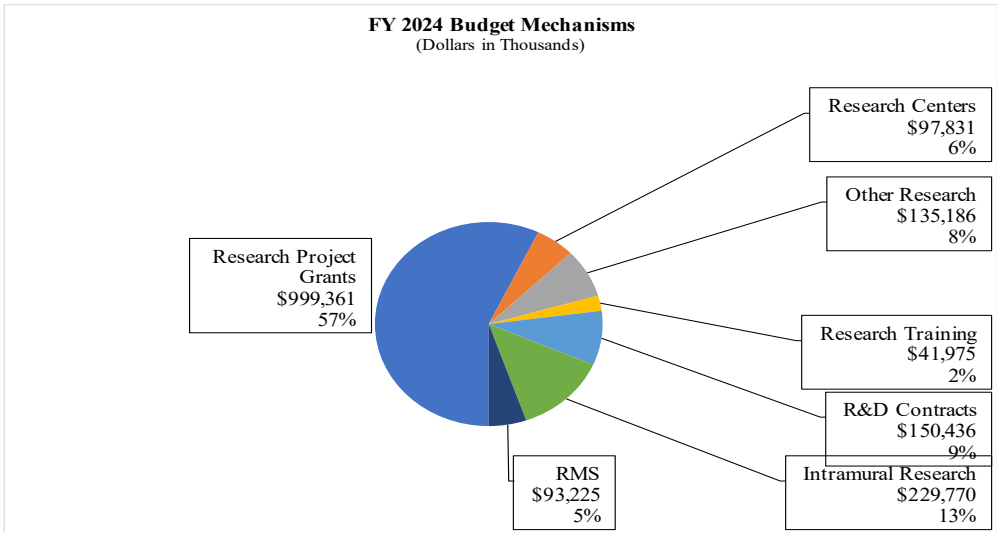
FY 2023 Enacted	\$1,747,784
FY 2024 President's Budget	\$1,747,784
Net change	\$0

CHANGES	FY 2023 Enacted		FY 2024 President's Budget		Built-In Change from FY 2023 Enacted	
	FTEs	Budget Authority	FTEs	Budget Authority	FTEs	Budget Authority
A. Built-in:						
1. Intramural Research:						
a. Annualization of FY 2023 pay and benefits increase		\$76,175		\$80,223		\$847
b. FY 2024 pay and benefits increase		\$76,175		\$80,223		\$2,922
c. Paid days adjustment		\$76,175		\$80,223		\$293
d. Differences attributable to change in FTE		\$76,175		\$80,223		\$0
e. Payment for centrally furnished services		\$37,535		\$38,135		\$601
f. Cost of laboratory supplies, materials, other expenses, and non-recurring costs		\$116,060		\$111,412		\$2,489
Subtotal						\$7,152
2. Research Management and Support:						
a. Annualization of FY 2023 pay and benefits increase		\$52,793		\$55,609		\$584
b. FY 2024 pay and benefits increase		\$52,793		\$55,609		\$2,020
c. Paid days adjustment		\$52,793		\$55,609		\$203
d. Differences attributable to change in FTE		\$52,793		\$55,609		\$0
e. Payment for centrally furnished services		\$6,933		\$7,044		\$111
f. Cost of laboratory supplies, materials, other expenses, and non-recurring costs		\$30,721		\$30,571		\$606
Subtotal						\$3,523
Subtotal, Built-in						\$10,675
CHANGES	FY 2023 Enacted		FY 2024 President's Budget		Program Change from FY 2023 Enacted	
	No.	Amount	No.	Amount	No.	Amount
B. Program:						
1. Research Project Grants:						
a. Noncompeting	1,306	\$711,167	1,336	\$718,485	30	\$7,318
b. Competing	504	\$241,278	488	\$229,878	-16	-\$11,400
c. SBIR/STTR	81	\$51,123	81	\$50,998	0	-\$125
Subtotal, RPGs	1,891	\$1,003,568	1,905	\$999,361	14	-\$4,207
2. Research Centers	54	\$95,223	54	\$97,831	0	\$2,608
3. Other Research	433	\$137,373	437	\$135,186	4	-\$2,187
4. Research Training	737	\$41,993	730	\$41,975	-7	-\$18
5. Research and development contracts	132	\$149,410	130	\$150,436	-2	\$1,026
Subtotal, Extramural		\$1,427,567		\$1,424,789		-\$2,778
6. Intramural Research	297	\$229,770	297	\$229,770	0	-\$7,152
7. Research Management and Support	305	\$90,447	305	\$93,225	0	-\$745
8. Construction		\$0		\$0		\$0
9. Buildings and Facilities		\$0		\$0		\$0
Subtotal, Program	602	\$1,747,784	602	\$1,747,784	0	-\$10,675
Total built-in and program changes						\$0

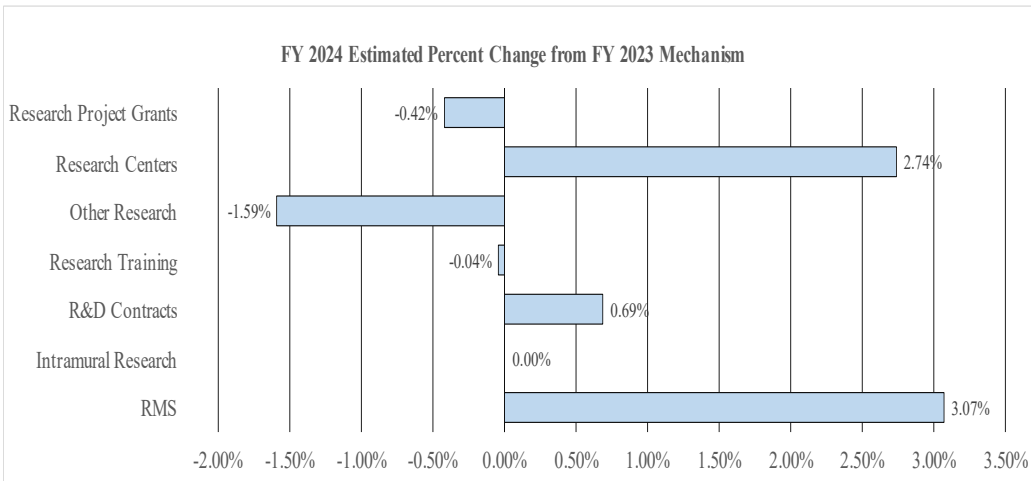
History of Budget Authority and FTEs:



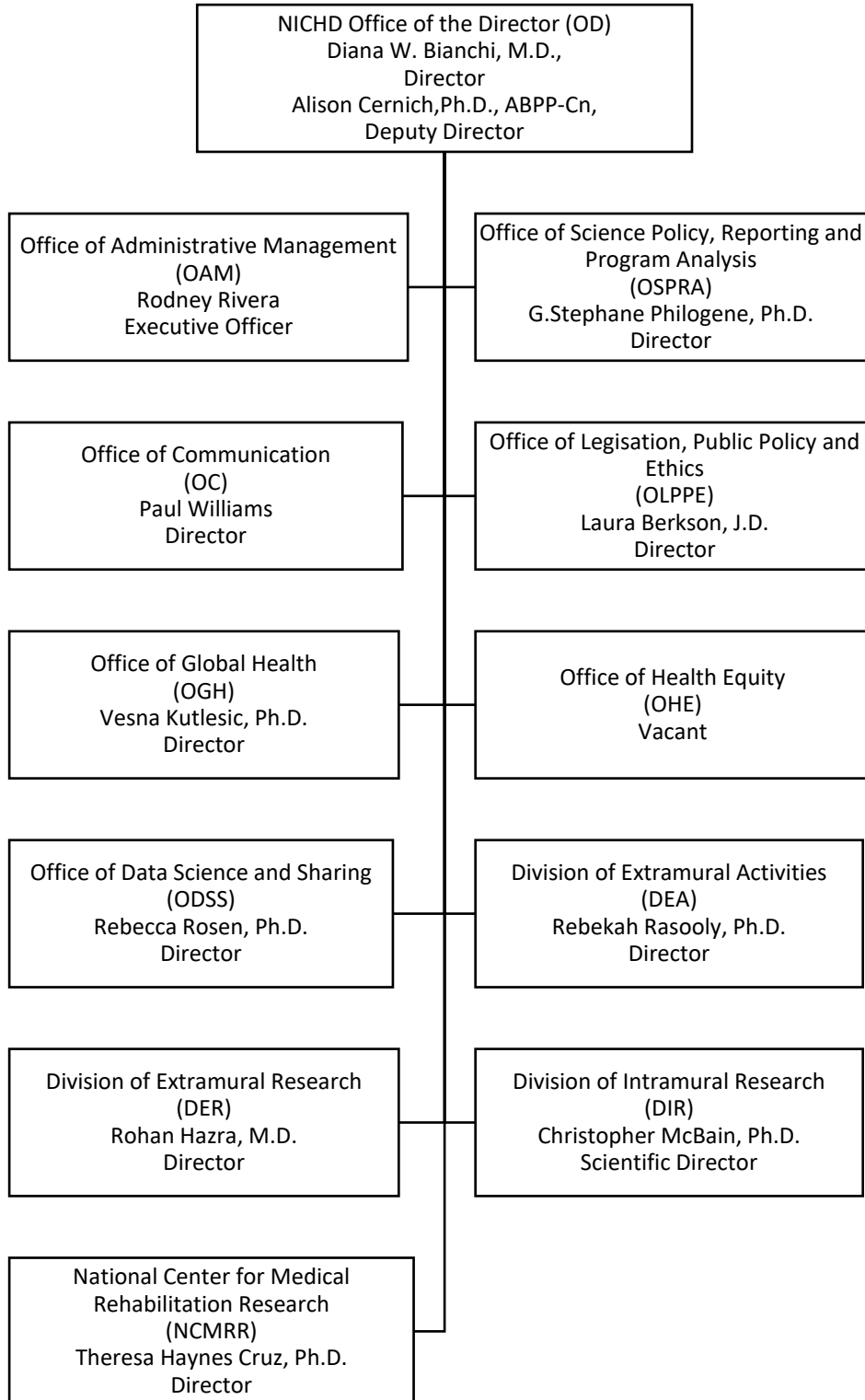
Distribution by Mechanism



Changes by Selected Mechanism:



Eunice Kennedy Shriver
National Institute of Child Health and Human Development



BUDGET AUTHORITY BY ACTIVITY TABLE

NATIONAL INSTITUTES OF HEALTH
National Institute of Child Health and Human Development

Budget Authority by Activity *
(Dollars in Thousands)

	FY 2022 Final		FY 2023 Enacted		FY 2024 President's Budget		FY 2024 +/- FY 2023 Enacted	
<u>Extramural Research</u>	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>
<u>Detail</u>								
Reproductive Health, Pregnancy, and Perinatology		\$435,728		\$453,913		\$453,030		-\$883
Child Health		\$444,694		\$463,254		\$462,352		-\$901
Demography and Behavior		\$244,027		\$254,211		\$253,716		-\$495
Intellectual and Developmental Disabilities		\$145,416		\$151,485		\$151,190		-\$295
Rehabilitation		\$100,509		\$104,704		\$104,500		-\$204
Subtotal, Extramural		\$1,370,374		\$1,427,567		\$1,424,789		-\$2,778
Intramural Research	287	\$225,334	297	\$229,770	297	\$229,770	0	\$0
Research Management & Support	251	\$85,523	305	\$90,447	305	\$93,225	0	\$2,778
TOTAL	538	\$1,681,231	602	\$1,747,784	602	\$1,747,784	0	\$0

* Includes FTEs whose payroll obligations are supported by the NIH Common Fund.

***Eunice Kennedy Shriver National Institute of Child Health and Human Development
(NICHD)***

Authorizing Legislation: Section 301 and Title IV of the Public Health Service Act, as amended.

Budget Authority (BA):

	<u>FY 2022 Final</u>	<u>FY 2023 Enacted</u>	<u>FY 2024 President's Budget</u>	<u>FY 2024 +/- FY 2023</u>
BA	\$1,681,231,000	\$1,747,784,000	\$1,747,784,000	\$0
FTE	538	602	602	0

Program funds are allocated as follows: Competitive Grants/Cooperative Agreements; Contracts; Direct Federal/Intramural and Other.

Overall Budget Policy: The FY 2024 President's Budget request for NICHD is \$1,747.8 million, the same as the FY 2023 Enacted level. Within this level, NICHD will allocate \$30.0 million for the Implementing a Maternal health and PRegnancy Outcomes Vision for Everyone (IMPROVE) initiative, one component of NIH's substantial annual commitment to maternal morbidity and mortality research funding. NICHD will also support other high priority research in its portfolio, including sustaining the investments in research on the health impacts on children of technology and social media use, effects of COVID-19 on pregnant and lactating individuals, and effects of COVID-19 on children provided in FY 2023 appropriations.

Program Descriptions and Accomplishments

Reproductive Health, Pregnancy, and Perinatology: The NICHD program in reproductive health, pregnancy, and perinatology supports basic, clinical, and translational research on gynecologic and andrologic disorders; contraception; fertility and infertility; pregnancy; and newborn care. NICHD manages a broad research portfolio to understand, treat, and prevent common, painful, and costly gynecologic health conditions, including endometriosis, uterine fibroids, Polycystic Ovary Syndrome (PCOS), chronic pelvic pain, and pelvic floor disorders.

Health disparities in gynecologic conditions are a special priority for NICHD. Uterine fibroids have been reported at higher rates in Black women. Researchers have identified a potential contributor to these racial disparities. The scientists observed higher expression of the Von Willebrand factor (VWF) gene in the uterine muscle of Black women, compared to that of White women. VWF provides instructions for a protein that helps regulate the formation of blood vessels (vascularization), and higher vascularization could indicate that the uterine muscle tissue of Black women contains more vascular smooth muscle cells, from which many scientists suspect fibroids arise. Hysterectomy (removal of the uterus) is a common treatment for fibroids, although it can lead to serious health risks later in life. Researchers analyzed hysterectomy rates

Program Portrait: Gynecologic Health

Millions of women experience gynecologic disorders that can cause chronic pain, bladder dysfunction, and infertility. For many women, diagnosis can take years and the only treatment options can involve invasive surgery. Researchers are seeking to change this situation by applying techniques that have advanced other areas of science. For example, while the detrimental health effects of uterine fibroids are well known, there is still a need to learn more about the biological mechanisms that start uterine fibroid growth. Researchers compared genes for women with and without uterine fibroids by analyzing information from two databases with thousands of patients. The scientists found that certain combinations of variant genes were predominant in fibroids cases. This genetic test has the potential to predict the development and eventual severity of uterine fibroids.

To move towards new non-surgical treatment approaches for endometriosis, scientists adapted a treatment approach that has been used to remove cancerous tissue. Using a mouse model of endometriosis, the researchers showed that their nanoparticles can accumulate in endometriosis tissues. Researchers administered an alternating magnetic field that targets the nanoparticles and found they could safely remove all the endometriosis tissue within 20 minutes. The team also showed that the magnetic field can be applied to one part of the body, ensuring that other tissues are not affected. Overall, the technique appears safe and effective, and scientists are continuing to do the necessary work so that it can be used in people.

researchers sought to determine how long antibodies against SARS-CoV-2 virus spike protein remained in the infant's blood when women are vaccinated during pregnancy. They compared antibody levels for infants whose mothers were vaccinated or infected during 20 to 32 weeks of pregnancy. At two months of age, almost all of the infants of vaccinated mothers had detectable levels of antibodies. At six months, about half of the infants of vaccinated mothers had detectable levels of antibodies, compared with 8 percent of infants born to mothers who had COVID-19.

Millions of couples across the United States have difficulty conceiving and establishing a healthy pregnancy, yet only limited information is available to understand the causes of infertility, minimize risk factors, and improve treatment options. In addition, nearly half of U.S. pregnancies are unintended. There is an urgent need for safe, effective, and less invasive infertility treatments as well as contraception options for both men and women. NICHD researchers created a new website to help scientists search for drug targets for both contraceptive

among reproductive aged women in North Carolina, excluding women with cancer. They found that hysterectomy rates were higher for Black women than White women, with the widest racial difference in the counties in the highest economic tier.

Another team of scientists is developing a better understanding of PCOS. In addition to infertility, women with PCOS have an increased risk of developing type 2 diabetes and cardiovascular disease. Using a mouse model, researchers identified specific bile acid metabolites that were associated with both the gut microbiome and the metabolic changes of PCOS. This may help scientists explore how to prevent the long-term increases in the risk of chronic diseases associated with PCOS.

NICHD has supported research on the effects of COVID-19, and COVID-19 vaccination, on reproductive health and pregnancy. To assess potential effects of the COVID-19 vaccines on the menstrual cycle, researchers analyzed de-identified data from a fertility tracking app and found that women receiving one dose of a COVID-19 vaccine during a single menstrual cycle had a temporary increase in cycle length of nearly one day, compared to unvaccinated women. In another study,

development and infertility research. The Contraceptive Infertility Target Database is a free public resource that offers reproductive health researchers a way to search for genes, proteins, and other molecules that could provide the basis for studies to develop new contraceptive methods and infertility treatments.

As NIH's leading funder in pregnancy and maternal health research, NICHD supports studies on clinical treatments to reduce the risk of pregnancy complications for both pregnant women and their offspring. As part of NIH's Implementing a Maternal health and PRegnancy Outcomes Vision for Everyone (IMPROVE) initiative, NICHD is establishing Maternal Health Research Centers of Excellence to develop and evaluate innovative approaches to reduce pregnancy-related complications and deaths and promote maternal health equity. The IMPROVE initiative also includes two Challenge initiatives, in addition to traditional grant funding, that provide innovative approaches to well defined barriers in maternal health care and research engagement. The Rapid Acceleration of Diagnostics (RADx) Tech for Maternal Health Challenge leverages an innovation funnel approach to accelerate the development of maternal health diagnostic or other remote-sensing technologies (e.g., wearable devices, sensor technologies, smartphone-enabled tools) to improve access to care in the postpartum period and complement the use of telehealth in areas without sufficient maternity care. The Connecting the Community for Maternal Health Challenge aims to address the structural barriers faced by community and advocacy organizations to conduct maternal health research by helping them to build effective research infrastructure and capacity. In addition to cash prize awards to incentivize participation and reward successful outcomes, it provides expert guidance and consultation on maternal health

research project design, implementation, and evaluation. The goal is to support successful organizations to compete for federal grant funding and sustain their research capabilities for future efforts.

Program Portrait: Maternal and Infant Nutrition

Good nutrition is never more important than in pregnancy and early childhood, where it is critical to healthy development. NICHD supports and conducts a wide array of research to explore how optimal nutrition supports healthy pregnancy, as well as short- and long-term child growth. Scientists are moving toward "precision nutrition," where understanding of dietary habits, genetics, microbiomes, and metabolism (among many factors) combine to help develop more effective, highly targeted dietary interventions. Through the initiative "Human Milk as a Biological System", scientists are conducting comprehensive analyses of the nutritive and non-nutritive compositions of human milk, along with the effects of the mother's diet, exercise, lifestyle, genetics, and gut microbiome. These studies will help scientists understand the connection between infant nutrition and child health, and inform future interventions for optimal infant feeding and infant growth. Another NICHD study is developing a clinical decision system to be used in the neonatal intensive care unit (NICU) to track the nutritional status of preterm infants, formulate and predict their nutritional needs, and advise the clinicians and caregivers on the optimal feeding regime.

Survival rates for preterm infants continue to gradually increase, in part due to advances from perinatal research supported by NICHD. Researchers found that on average, infants born earlier in the range of a term pregnancy—from 37 to 41 weeks— had lower scores on development tests than those born later in the range. The slight difference in scores, first apparent at 8 months, persisted through age 7. The findings suggest that neurocognitive development continues through the term period. In another study, researchers found that episodes of maternal stress or depression during pregnancy are associated with chemical modifications to placental genes. The modifications involve DNA methylation which can alter a gene's activity. Some of

the methylation changes associated with maternal depression occurred near genes involved in brain development, suggesting that maternal depression in pregnancy could have long-term implications for the development of the child.

Budget Policy: The budget request for this program is \$453.0 million, a decrease of \$0.1 million or 0.2 percent compared with the FY 2023 Enacted level. The NICHD plans to continue emphasizing maternal health, elimination of disparities in maternal morbidity and mortality, breastfeeding and lactation, gynecologic and andrologic conditions, and prevention of preterm birth and advancement of the health of the newborn. FY 2024 funding will sustain the \$30.0 million NICHD investment in the IMPROVE program, one component of NIH's substantial annual commitment to maternal morbidity and mortality research funding. In addition, the \$3.0 million investment in the effects of COVID-19 on pregnant and lactating individuals will continue in FY 2024. The NICHD plans to support clinical long-standing research networks in maternal-fetal medicine and neonatal intensive care, but to restructure these networks to allow for more opportunities for researchers from a wider geographic range across the country.

Child Health: Research on child and adolescent health encompasses biological and behavioral processes that control development, including development of social-emotional health, cognitive development, learning, and physical growth. This research program also supports the evidence base for pediatric medicine, through clinical studies in pharmacology, infectious diseases, endocrinology, trauma and critical illness, and other aspects of health throughout infancy, childhood, and adolescence.

Childhood development is driven by complex interactions among physical, behavioral, and environmental factors. The COVID-19 pandemic led to dramatic changes in how children interacted with their families, schools, peers, and communities. Researchers have only begun to delineate the full effects of this transformation. Scientists showed that children born during the pandemic, or who were exposed to SARS-CoV-2 in the womb, were more likely to show developmental delays or develop neurodevelopmental disorders. As schools have returned to in-person teaching, NICHD has supported research to ensure children remain safe despite threats of outbreaks. Researchers showed that school masking policies have high adherence, reduce in-school transmission of SARS-CoV-2, and do not interfere with children's test scores and ability to follow nonverbal instructions. With the development of the COVID-19 vaccine, researchers demonstrated its safety in children who have previously developed MIS-C, easing fears that the vaccine may retrigger symptoms. Another team of scientists showed that COVID-19 antibodies can still be present in six-month-olds when their mothers were vaccinated in mid to late pregnancy.



With their growing bodies and changing metabolism, children are physiologically different from adults, and medications tested in adults can act differently in children. However, many drugs prescribed for children have been tested only in adults, with no pediatric safety and dosage guidelines. The Best Pharmaceuticals for Children Act (BPCA) program supports pharmacology research and rigorous clinical trials to test the safety of medications in children and determine appropriate pediatric dosing. For

instance, research showing that the antibiotic clindamycin behaves differently in premature infants due to their immature metabolic and kidney pathways led to a medication label change from the U.S. Food and Drug Administration (FDA) concerning the dosage for very young patients. Another FDA label change—for diazepam, an anti-seizure medication—resulted from NICHD-funded research. The new information available to physicians includes pharmacokinetic (i.e., how a drug is distributed, metabolized, and cleared) and dosing data for children as young as 3 months and up to 17 years of age. Recent research also suggests that weight-based dosing of opioid pain medications may result in children with obesity being exposed to twice the amount of the drug as necessary.

NICHD's emphasis on life course research has helped to uncover early origins of a variety of pediatric chronic conditions. Researchers found that children conceived following fertility treatment, and children born to mothers with obesity, were more likely to have persistent wheezing by age three, a potential indication of asthma. At 7 to 9 years old, children conceived following fertility treatment were 30 percent more likely to have asthma, 77 percent more likely to have the allergic skin condition eczema, and 45 percent more likely to be prescribed allergy medication. Early screening for at risk children may be considered.

Approximately one in five new cases of HIV in the United States occur in individuals aged 13-24 years, who are also least likely to know their HIV status. NICHD is working to reduce HIV transmission and improve care for adolescents through the Adolescent Medicine Trials network, along with a strong portfolio of individual research projects. For example, NICHD funded efforts to develop and test a digital health tool to improve HIV screening in adolescents. The Pediatric HIV/AIDS Cohort Study (PHACS) investigates the long-term safety of fetal and infant exposure to antiretroviral therapy, and the effects of perinatally acquired HIV in adolescents. Recently, researchers used PHACS data to determine that pregnant women with HIV who received treatments with the drug raltegravir or the combination therapy atazanavir-ritonavir were less likely to have viral suppression at delivery compared with women who received the drug dolutegravir, and there were no differences in adverse birth outcomes.

Finally, NICHD's sustained commitment to pediatric training and career development provides the foundation for child health research in the coming decades. From predoctoral training to career development programs for junior faculty, NICHD's institutional programs provide sustained mentoring and intense laboratory-based training, including protected time for research training in the laboratories of scientific leaders. NICHD's early-career training programs in pediatrics have been unusually successful—as measured by funding rates of scholars—and have become a key resource for U.S. academic pediatric departments. The resulting generation of

physician-scientists has exceptional training in both clinical pediatrics and basic science, bridging the gap between fundamental research and the successful treatment of human diseases.

Budget Policy: The budget request for this program is \$462.4 million, a decrease of \$0.9 million or 0.2 percent compared with the FY 2023 Enacted level. NICHD plans to place a high priority on pediatric pharmacology, adolescent health promotion, pediatric critical care research, and childhood injury through the implementation of the NICHD Strategic Plan. Studies on the long-term effects of the COVID-19 pandemic will continue.

Demography and Behavior: The program in demography and behavior incorporates NICHD's strong portfolio on behavioral and social influences on health. Key priorities for this research area include childhood obesity; studies of family and population dynamics; neurobiology underlying child learning and learning disabilities; adolescent health behavior, including the transition to adulthood; and the effects of technology use in children. A significant component of NICHD's work in this research area is to support large survey and longitudinal cohort studies of children and families, often in collaboration with other NIH Institutes and Centers (ICs) and other federal agencies such as the Centers for Disease Control and Prevention. These surveys and cohorts, such as the Fragile Families and Child Well-Being Study, the National Survey of Family Growth, and the Pregnancy Risk Assessment Monitoring System, provide the underlying data used by many researchers to analyze behavioral and social risk factors.

Obesity and overweight are common even in young children, and researchers have been studying a range of environmental factors and behaviors to discover the roots of obesity and to identify ways to address obesity and overweight at the youngest possible ages. Scientists recently confirmed that children from low-income families were more likely to experience overweight or obesity, and of all the possible risk factors they included in their analysis, it was poverty that had the strongest impact on obesity risk. Although some have expressed concern about the effects of support programs for low-income families, another team of researchers conducting a careful statistical study found that participation in the Supplemental Nutrition Assistance Program, Free/Reduced Priced Lunch, or Special Supplemental Nutrition Program for Women, Infants, and Children was not associated with increased risk of childhood obesity. Using data from another longitudinal study, researchers assessed how the origins of childhood obesity can relate to events even prior to birth. The scientists measured the levels of mercury, lead, and cadmium in a sample of the mothers' blood drawn shortly after giving birth to estimate the concentrations of metals that her fetus was exposed to in the womb. The higher the concentration of this combination of toxic metals, the more likely a child was to experience overweight or obesity in early and middle childhood.

Violence is another major public health threat to children and pregnant people. Firearm violence increased during the COVID-19 pandemic. Combining data from the Gun Violence Archive with U.S. census data, researchers found that in an average year before the pandemic, nine million 5- to 17-year-olds lived in a neighborhood in which at least one firearm fatality occurred. In the first year of the pandemic, this rose to 11 million children. Moreover, disparities by race and ethnicity in exposure to firearm fatalities grew during the pandemic. Another research team analyzed death records of reproductive-aged women in the United States for that year. In 2020, for every 100,000 live births, 5.2 pregnant or postpartum women and 3.9 women who were not

pregnant or postpartum died by homicide. While the homicide rate increased for both groups, the pregnant and postpartum group saw a larger increase, and were now 35 percent more likely to die by homicide than those who were not pregnant or postpartum. The majority of homicides occurred in the home, and over 80 percent of these homicides involved a firearm.

Budget Policy: The budget request for this program is \$253.7 million, a decrease of \$0.5 million or 0.2 percent compared with the FY 2023 Enacted level. NICHD plans to capitalize on the advances made possible by the population research centers and expand population health research related to health disparities, particularly social determinants of health related to maternal and child health and development. Additional research on the impact of digital media on child development, especially in light of pandemic-related changes, is also needed.

Intellectual and Developmental Disabilities: Research on intellectual and developmental disabilities (IDDs) has been fundamental to the NICHD since the founding of the Institute. At that time, IDDs were widely thought to be permanent and untreatable, and only a few visionaries imagined a future where people with IDDs were widely included in society and had the chance to maximize their talents. Now, science has shown the importance of early intervention and the potential for even more effective ways to improve the lives of individuals with IDDs. NICHD's IDD research program is designed to discover new ways to prevent and ameliorate both common and rare disorders, including Down syndrome (DS), Fragile X syndrome (FXS), Rett syndrome, and muscular dystrophy; inborn errors of metabolism; autism spectrum disorders (ASD); congenital conditions currently or potentially detectable through newborn screening; and IDDs that have no identified cause or are not associated with a specific syndrome. NICHD's Eunice Kennedy Shriver Intellectual and Developmental Disabilities Research Centers offer a wide range of research services to scientists, including informatics and biostatistics; genomic, proteomic, and metabolomics facilities; cellular neuroimaging and optogenetic services; and animal and human behavioral testing. The Autism Centers of Excellence (ACE) program, sponsored by multiple NIH ICs, supports large-scale multidisciplinary studies to identify causes and potential treatments for ASDs. Another cooperative effort, the Centers for Collaborative Research in Fragile X and FMR1-Associated Conditions, stimulates multidisciplinary research to facilitate the translation of basic science research findings to the clinical and community settings. The Newborn Screening Translational Research Network (NBSTRN) supports research infrastructure to facilitate the development of new screening methods and the study of new interventions. A broad array of investigator-initiated projects complements these programs to support rigorous research in detection and screening, early intervention, and supporting child development for individuals with IDDs.

ASD affect as many as 1 in 68 U.S. children, and the differences in neurodevelopment for children with ASD range from very minor to profound. NICHD-funded research related to ASD emphasizes efforts to improve understanding of how ASD manifests in very young children, and how to identify at-risk children at the earliest possible age. For example, scientists discovered that infants who were diagnosed with ASD at 24 months old had differences in the visual processing areas of the brain that were apparent at 6 months old. Moreover, scientists have recently determined that the amygdala—a brain structure enlarged in 2-year-old children diagnosed with ASD—begins its accelerated growth between 6 and 12 months of age. The amygdala is involved in processing emotions, such as interpreting facial expressions or feeling

afraid when exposed to a threat. The findings indicate that therapies to reduce the symptoms of ASD might have the greatest chance of success if they begin in the first year of life, before the amygdala begins its accelerated growth.



NICHD continues to lead research on Down syndrome (DS) and associated conditions, in conjunction with the NIH-wide INCLUDE (Investigation of Co-occurring conditions across the Lifespan to

Understand Down Syndrome) project. Researchers recently studied adaptive socialization, daily living, and communication skills in young children with DS. They found that there were a variety of patterns of skill levels among the children, underscoring the importance of individualizing interventions.

Down syndrome, and other IDD, often co-exist with cardiovascular, metabolic, and other disorders. Scientists found that around one-third of children with Down syndrome had gastrointestinal issues and/or congenital heart defects, and study participants with gastrointestinal issues had significantly more challenges with social behaviors and executive function compared to those without gastrointestinal issues. However, people with disabilities are frequently excluded from clinical research studies about the conditions that affect them. A strong priority for NICHD is promoting the inclusion of individuals with IDD in clinical research. Through the NIH-wide INCLUDE program and the Down Syndrome Registry (DS-Connect™), expanded opportunities for individuals with Down syndrome to participate in research are now available. Lessons from the success of these programs are ready to be applied to other IDD conditions.

Budget Policy: The budget request for this program is \$151.2 million, a decrease of \$0.3 million or 0.2 percent compared with the FY 2023 Enacted level. NICHD plans to continue to emphasize the inclusion of IDD populations in broader clinical research and to study the impact of COVID-19 on the IDD population. The transition to adult medical care for the IDD population will also receive special attention within this program. This will include care for reproductive health, as well as chronic conditions. Finally, NICHD plans to continue emphasizing research on genetic and environmental risk factors for IDDs and ways to address these risk factors through early intervention.



Rehabilitation: The National Center for Medical Rehabilitation Research (NCMRR) fosters the development of scientific knowledge to enhance the health, productivity, independence, and quality of life of people with physical disabilities. NCMRR supports research and research training in medical rehabilitation, including efforts to advance safe and effective therapeutics and devices for people with disabilities. Among its initiatives is the Medical Rehabilitation Research Resource (MR3) Network, made up of six resource centers across the country. MR3 centers provide expertise, technologies, and resources to promote multidisciplinary collaborations, develop research opportunities, and expand the nation's capability for medical rehabilitation research. MR3 complements a sizeable scientific portfolio on interventions to improve functionality for individuals with neurological, motor, cognitive, and other conditions.

NCMRR's research expands across various topics including pathophysiology and management of chronically injured nervous and musculoskeletal systems; repair and recovery of motor and cognitive function; rehabilitative strategies involving pharmaceutical, stimulation, neuroengineering approaches, motor training, and behavioral modifications; pediatric rehabilitation; secondary conditions associated with chronic disabilities; improved diagnosis, assessment, and outcome measures; and development of orthotics, prosthetics, and other assistive technologies and devices. As the principal organization for coordinating rehabilitation research across the NIH, NCMRR leads the development of the NIH Research Plan on Rehabilitation. The most recent plan, released in November 2021, will help guide NIH's rehabilitation research programs and projects to advance the science of rehabilitation medicine for the next 5 years.

A major crosscutting theme of the NIH Research Plan on Rehabilitation is the need to address health inequities for individuals with disabilities. The importance of addressing these issues is apparent from the results of a recent NICHD-funded representative survey of U.S. physicians in a variety of medical specialties. Over 35 percent of survey respondents said they knew little or nothing about their responsibilities under the Americans with Disabilities Act, the federal law that governs accessibility for people with disabilities. Slightly more than 70 percent of the physicians surveyed were unaware that patients and providers jointly make decisions about reasonable accommodations for patients with disabilities in accordance with the law. NCMRR is exploring initiatives to conduct research on the health effects of ableism, or discrimination and stereotyping of people with disabilities.

Rehabilitation researchers are also studying issues unique to individuals with mobility impairments, who often experience secondary complications. For example, researchers surveyed adults with a spinal cord injury who used a manual wheelchair and performed Magnetic Resonance Imaging (MRI) on their upper limbs. Nearly 60 percent of participants reported experiencing shoulder pain, and MRI results showed that 98 percent had tendon inflammation, mostly mild or moderate in severity. This confirms that shoulder injuries are highly prevalent in

individuals with spinal cord injuries who use a manual wheelchair and suggests that strategies to monitor for shoulder injuries in this population should focus more on years of wheelchair use and age than on patients' self-reported pain.

Budget Policy: The budget request for this program is \$104.5 million, a decrease of \$0.2 million or 0.2 percent compared with the FY 2023 Enacted level. NICHD plans to continue supporting a broad range of rehabilitation research in accordance with the updated NIH Rehabilitation Research Plan.

Intramural Research: NICHD's Division of Intramural Research (DIR) conducts laboratory and clinical research programs to seek fundamental knowledge about the nature and behavior of living systems through basic, clinical, and population-based research. DIR supported studies lead to discoveries that answer fundamental biomedical research questions and can be used to create novel innovations and therapeutics for various medical conditions. For example, over the past several years researchers have studied Niemann-Pick disease type C1 (NPC1), a rare genetic disorder affecting children and adolescents. NPC1 results from an impaired ability to move cholesterol through cells, leading to difficulty controlling movements, liver and lung disease, impaired swallowing, intellectual decline and death. Much of the movement difficulties in NPC1 result from gradual loss of brain cells known as Purkinje neurons. DIR researchers studied whether Riluzole, a drug approved to treat amyotrophic lateral sclerosis (ALS), another disease affecting nerve cells controlling movement, could slow the gradual loss of a particular brain cell that occurs in NPC1. The researchers found that mice with a form of NPC1 have a diminished ability to lower levels of glutamate—a chemical that stimulates neurons in the brain—after it has bound to a neuron's surface. High levels of glutamate can be toxic to cells. The researchers believe the buildup of glutamate contributes to the brain cell loss seen in the disease. They found that mice with NPC1 survived 12 percent longer when treated with Riluzole, compared to untreated mice; thus, suggesting that Riluzole or similar drugs may provide a way to slow disease progression in patients with NPC1.

Researchers in NICHD's Division of Population Health Research analyzed data on more than 3,500 children from Upstate KIDS, a study of children born between 2008 and 2010 in New York State. Mothers responded to questionnaires, rating their children's eating patterns and developmental milestones when the children were 18, 24, and 30 months old. Compared to children who did not have eating problems, children who scored high on eating problems at one or two time points were more than twice as likely to miss a developmental milestone. Children with feeding problems at all three ages were four or more times as likely to miss a milestone. The researchers noted that feeding problems likely do not cause developmental delay. Rather, problems associated with developmental delay, such as undiagnosed neurological issues, communication difficulties or lack of fine motor skills may underlie feeding problems. They added that while feeding problems only at 18 and 24 months may result from temporary variations in maturation, children with feeding problems that persist until 30 months are at greatest risk for developmental delay and could benefit from screening.

Budget Policy: The budget request for this program is \$229.8 million, the same as the FY 2023 Enacted level. NICHD's intramural research efforts will continue to support studies with implications across the NICHD mission areas.

Research and Management Support: Research and Management Support (RMS) activities include administrative and technical functions that support and enhance the effectiveness of NICHD's research investments. Included among these functions are public communications; budget, contracts, and grants management; peer review; reporting; program evaluation; public policy; and information technology. NICHD anticipates increased investment in information technology development to support sophisticated data analysis for research, to take advantage of advanced technologies to support administration and reporting, and to modernize program monitoring systems. Efforts will continue to develop systems to help enhance the accountability and transparency of clinical research. To support responsible stewardship of valuable resources, NICHD will continue to support systematic evaluations of NICHD's scientific and administrative programs, helping to identify ways to ensure program effectiveness.

Budget Policy: The budget request for this program is \$93.2 million, an increase of \$2.8 million or 3.1 percent compared with the FY 2023 Enacted level. Priorities for RMS will emphasize information technology development and cybersecurity, along with efforts to maintain excellent stewardship of federal resources as outlined in the NICHD Strategic Plan.

NATIONAL INSTITUTES OF HEALTH
National Institute of Child Health and Human Development

Appropriations History

Fiscal Year	Budget Estimate to Congress	House Allowance	Senate Allowance	Appropriation
2015	\$1,283,487,000			\$1,286,571,000
Rescission				\$0
2016	\$1,318,061,000	\$1,305,586,000	\$1,345,355,000	\$1,339,802,000
Rescission				\$0
2017 ¹	\$1,338,348,000	\$1,373,408,000	\$1,395,811,000	\$1,380,295,000
Rescission				\$0
2018	\$1,032,029,000	\$1,401,727,000	\$1,426,092,000	\$1,452,006,000
Rescission				\$0
2019	\$1,339,592,000	\$1,469,346,000	\$1,507,251,000	\$1,506,458,000
Rescission				\$0
2020	\$1,296,732,000	\$1,580,084,000	\$1,587,278,000	\$1,556,879,000
Rescission				\$0
2021	\$1,416,366,000	\$1,582,269,000	\$1,657,606,000	\$1,590,337,000
Rescission				\$0
2022	\$1,942,117,000	\$1,689,786,000	\$1,678,970,000	\$1,683,009,000
Rescission				\$0
2023	\$1,674,941,000	\$1,756,630,000	\$1,745,682,000	\$1,749,078,000
Rescission				\$0
2024	\$1,747,784,000			

¹ Budget Estimate to Congress includes mandatory financing

**NATIONAL INSTITUTES OF HEALTH
National Institute of Child Health and Human Development**

Authorizing Legislation

	PHS Act/ Other Citation	U.S. Code Citation	2023 Amount Authorized	FY 2023 Enacted	2024 Amount Authorized	FY 2024 President's Budget
Research and Investigation	Section 301	42§241	Indefinite	\$1,747,784,000	Indefinite	\$1,747,784,000
National Institute of Child Health and Human Development	Section 401(a)	42§281	Indefinite		Indefinite	
Total, Budget Authority				\$1,747,784,000		\$1,747,784,000

NATIONAL INSTITUTES OF HEALTH
National Institute of Child Health and Human Development

Amounts Available for Obligation ¹
(Dollars in Thousands)

Source of Funding	FY 2022 Final	FY 2023 Enacted	FY 2024 President's Budget
Appropriation	\$1,683,009	\$1,749,078	\$1,747,784
Secretary's Transfer	\$0	\$0	\$0
OAR HIV/AIDS Transfers	-\$1,778	-\$1,294	\$0
Subtotal, adjusted budget authority	\$1,681,231	\$1,747,784	\$1,747,784
Unobligated balance, start of year	\$0	\$0	\$0
Unobligated balance, end of year (carryover)	\$0	\$0	\$0
Subtotal, adjusted budget authority	\$1,681,231	\$1,747,784	\$1,747,784
Unobligated balance lapsing	-\$70	\$0	\$0
Total obligations	\$1,681,161	\$1,747,784	\$1,747,784

¹ Excludes the following amounts (in thousands) for reimbursable activities carried out by this account:
FY 2022 - \$34,840 FY 2023 - \$37,000 FY 2024 - \$38,000

NATIONAL INSTITUTES OF HEALTH
National Institute of Child Health and Human Development

Budget Authority by Object Class¹
(Dollars in Thousands)

	FY 2023 Enacted	FY 2024 President's Budget	FY 2024 +/- FY 2023
Total compensable workyears:			
Full-time equivalent	602	602	0
Full-time equivalent of overtime and holiday hours	0	0	0
Average ES salary	\$212	\$224	\$12
Average GM/GS grade	12.8	12.8	0.0
Average GM/GS salary	\$133	\$140	\$7
Average salary, Commissioned Corps (42 U.S.C. 207)	\$97	\$103	\$5
Average salary of ungraded positions	\$153	\$162	\$8
OBJECT CLASSES	FY 2023 Enacted	FY 2024 President's Budget	FY 2024 +/- FY 2023
Personnel Compensation			
11.1 Full-Time Permanent	\$50,103	\$52,836	\$2,733
11.3 Other Than Full-Time Permanent	\$28,133	\$29,667	\$1,534
11.5 Other Personnel Compensation	\$2,913	\$3,072	\$159
11.7 Military Personnel	\$299	\$287	-\$12
11.8 Special Personnel Services Payments	\$15,911	\$16,779	\$868
11.9 Subtotal Personnel Compensation	\$97,359	\$102,641	\$5,282
12.1 Civilian Personnel Benefits	\$31,537	\$33,116	\$1,579
12.2 Military Personnel Benefits	\$72	\$76	\$4
13.0 Benefits to Former Personnel	\$0	\$0	\$0
Subtotal Pay Costs	\$128,968	\$135,833	\$6,865
21.0 Travel & Transportation of Persons	\$1,686	\$1,877	\$190
22.0 Transportation of Things	\$292	\$299	\$7
23.1 Rental Payments to GSA	\$11	\$11	\$0
23.2 Rental Payments to Others	\$263	\$270	\$6
23.3 Communications, Utilities & Misc. Charges	\$724	\$741	\$17
24.0 Printing & Reproduction	\$0	\$0	\$0
25.1 Consulting Services	\$65,995	\$66,279	\$284
25.2 Other Services	\$49,257	\$49,572	\$314
25.3 Purchase of Goods and Services from Government Accounts	\$126,761	\$127,539	\$778
25.4 Operation & Maintenance of Facilities	\$363	\$365	\$2
25.5 R&D Contracts	\$89,255	\$85,253	-\$4,002
25.6 Medical Care	\$610	\$635	\$25
25.7 Operation & Maintenance of Equipment	\$4,291	\$4,197	-\$94
25.8 Subsistence& Support of Persons	\$0	\$0	\$0
25.0 Subtotal Other Contractual Services	\$336,532	\$333,840	-\$2,692
26.0 Supplies & Materials	\$10,733	\$10,789	\$56
31.0 Equipment	\$8,901	\$8,554	-\$346
32.0 Land and Structures	\$1,344	\$1,044	-\$300
33.0 Investments & Loans	\$0	\$0	\$0
41.0 Grants, Subsidies & Contributions	\$1,258,315	\$1,254,511	-\$3,804
42.0 Insurance Claims & Indemnities	\$0	\$0	\$0
43.0 Interest & Dividends	\$15	\$15	\$0
44.0 Refunds	\$0	\$0	\$0
Subtotal Non-Pay Costs	\$1,618,816	\$1,611,951	-\$6,865
Total Budget Authority by Object Class	\$1,747,784	\$1,747,784	\$0

¹ Includes FTEs whose payroll obligations are supported by the NIH Common Fund.

NATIONAL INSTITUTES OF HEALTH
National Institute of Child Health and Human Development

Salaries and Expenses
(Dollars in Thousands)

Object Classes	FY 2023 Enacted	FY 2024 President's Budget	FY 2024 +/- FY 2023
<u>Personnel Compensation</u>			
Full-Time Permanent (11.1)	\$50,103	\$52,836	\$2,733
Other Than Full-Time Permanent (11.3)	\$28,133	\$29,667	\$1,534
Other Personnel Compensation (11.5)	\$2,913	\$3,072	\$159
Military Personnel (11.7)	\$299	\$287	-\$12
Special Personnel Services Payments (11.8)	\$15,911	\$16,779	\$868
Subtotal, Personnel Compensation (11.9)	\$97,359	\$102,641	\$5,282
Civilian Personnel Benefits (12.1)	\$31,537	\$33,116	\$1,579
Military Personnel Benefits (12.2)	\$72	\$76	\$4
Benefits to Former Personnel (13.0)	\$0	\$0	\$0
Subtotal Pay Costs	\$128,968	\$135,833	\$6,865
Travel & Transportation of Persons (21.0)	\$1,686	\$1,877	\$190
Transportation of Things (22.0)	\$292	\$299	\$7
Rental Payments to Others (23.2)	\$263	\$270	\$6
Communications, Utilities & Misc. Charges (23.3)	\$724	\$741	\$17
Printing & Reproduction (24.0)	\$0	\$0	\$0
<u>Other Contractual Services</u>			
Consultant Services (25.1)	\$50,587	\$51,071	\$484
Other Services (25.2)	\$49,257	\$49,572	\$314
Purchase of Goods and Services from Government Accounts (25.3)	\$77,264	\$78,497	\$1,233
Operation & Maintenance of Facilities (25.4)	\$363	\$365	\$2
Operation & Maintenance of Equipment (25.7)	\$4,291	\$4,197	-\$94
Subsistence & Support of Persons (25.8)	\$0	\$0	\$0
Subtotal Other Contractual Services	\$181,762	\$183,702	\$1,940
Supplies & Materials (26.0)	\$10,733	\$10,789	\$56
Subtotal Non-Pay Costs	\$195,461	\$197,678	\$2,217
Total Administrative Costs	\$324,429	\$333,511	\$9,082

DETAIL OF FULL-TIME EQUIVALENT EMPLOYMENT (FTE)

**NATIONAL INSTITUTES OF HEALTH
National Institute of Child Health and Human Development**

Detail of Full-Time Equivalent Employment (FTE)

Office	FY 2022 Final			FY 2023 Enacted			FY 2024 President's		
	Civilian	Military	Total	Civilian	Military	Total	Civilian	Military	Total
Office of the Director									
Direct:	96	2	98	114	2	116	114	2	116
Reimbursable:	13	-	13	13	-	13	13	-	13
Total:	109	2	111	127	2	129	127	2	129
Division of Extramural Research									
Direct:	130	1	131	119	1	120	119	1	120
Total:	130	1	131	119	1	120	119	1	120
Division of Extramural Activities									
Direct:	-	-	-	48	-	48	48	-	48
Total:	-	-	-	48	-	48	48	-	48
National Center for Medical Rehabilitation Research									
Direct:	8	-	8	8	-	8	8	-	8
Total:	8	-	8	8	-	8	8	-	8
Division of Intramural Programs									
Direct:	284	-	284	291	-	291	291	-	291
Reimbursable:	4	-	4	6	-	6	6	-	6
Total:	288	-	288	297	-	297	297	-	297
Total	535	3	538	599	3	602	599	3	602
Includes FTEs whose payroll obligations are supported by the NIH Common Fund.									
FTEs supported by funds from Cooperative Research and Development Agreements.	0	0	0	0	0	0	0	0	0
FISCAL YEAR	Average GS Grade								
2020	12.5								
2021	12.6								
2022	12.7								
2023	12.8								
2024	12.8								

**NATIONAL INSTITUTES OF HEALTH
National Institute of Child Health and Human Development**

Detail of Positions¹

GRADE	FY 2022 Final	FY 2023 Enacted	FY 2024 President's Budget
Total, ES Positions	1	1	1
Total, ES Salary	\$203,700	\$212,100	\$223,659
General Schedule			
GM/GS-15	66	74	75
GM/GS-14	74	85	87
GM/GS-13	104	121	122
GS-12	76	89	90
GS-11	16	18	18
GS-10	0	0	0
GS-9	16	22	22
GS-8	11	11	11
GS-7	9	11	11
GS-6	2	2	2
GS-5	3	3	3
GS-4	0	0	0
GS-3	1	1	1
GS-2	0	0	0
GS-1	0	0	0
Subtotal	378	437	442
Commissioned Corps (42 U.S.C. 207)			
Assistant Surgeon General	0	0	0
Director Grade	1	1	1
Senior Grade	2	2	2
Full Grade	0	0	0
Senior Assistant Grade	0	0	0
Assistant Grade	0	0	0
Subtotal	3	3	3
Ungraded	172	173	174
Total permanent positions	379	441	446
Total positions, end of year	554	614	620
Total full-time equivalent (FTE) employment, end of year	538	602	602
Average ES salary	\$203,700	\$212,100	\$223,659
Average GM/GS grade	12.7	12.8	12.8
Average GM/GS salary	\$127,489	\$132,653	\$139,862

¹ Includes FTEs whose payroll obligations are supported by the NIH Common Fund.