

# Adolescent Brain Cognitive Development<sup>®</sup>

*Teen Brains. Today's Science. Brighter Future.*

ABCD Update for CRAN Council

May 8, 2024



**Adolescent Brain Cognitive Development<sup>®</sup>**

*Teen Brains. Today's Science. Brighter Future.*

---

## **Agenda**

- ABCD Overview, Cohort Diversity, & Retention
- ABCD JEDI Initiative
- Leveraging ABCD
- Resource Sharing
- ABCD Study Outcomes and Dissemination

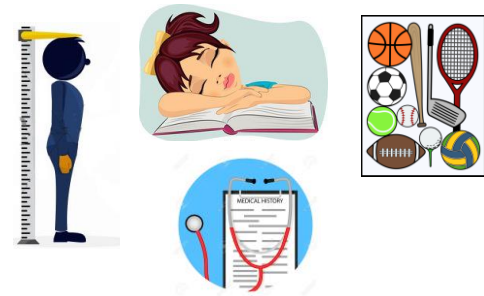


# ABCD Study

## TIMELINE OF EVENTS

**A longitudinal study of ~12,000 diverse children from 21 research sites across the country beginning at ages 9-10 and continuing through adolescence into early adulthood to assess factors that influence individual brain development trajectories and functional outcomes**

### Physical Health



### Mental Health



### Substance Use



### Culture & Environment



**LEGEND** In-Person Visit Phone Call Paper and Pencil Tests iPad Tasks Brain Scan Biosamples Interview

ABCD Study® Visit Plan										
	Baseline	1yr fu	2yr fu	3yr fu	4yr fu	5yr fu	6yr fu	7yr fu	8yr fu	9yr fu
Calendar Years:	2016-2018	2017-2019	2018-2020	2019-2021	2020-2022	2021-2023	2022-2024	2023-2025	2024-2026	2025-2027
Ages:	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19

### Biospecimens



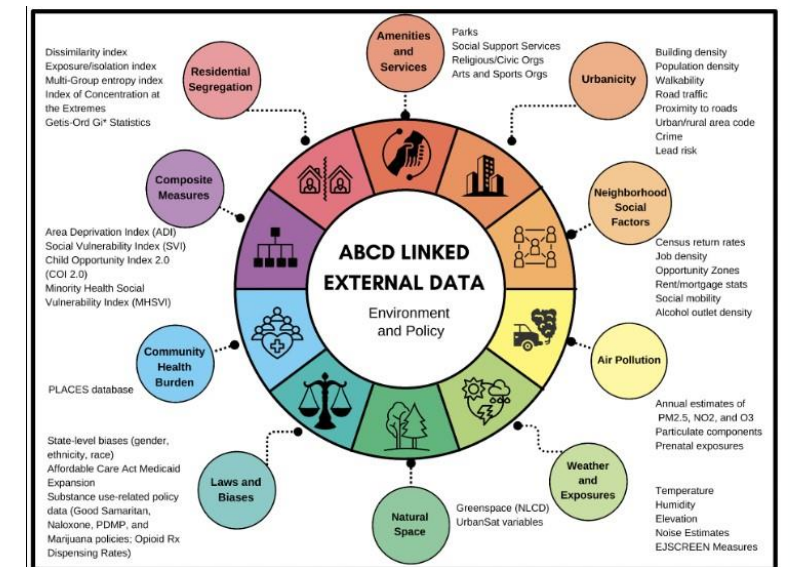
### Novel Technology



### Neurocognition



### Geocoding



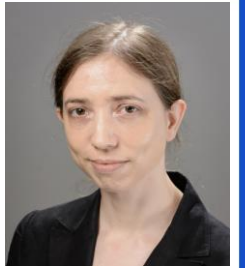
### Average test scores



### Structural and Functional MRI



# Diversity in ABCD



Diversity Category	Represented in Biomedical Research	Underrepresented in Biomedical Research (UBR)	% UBR*	Assessed at
<b>Race and Ethnicity</b>	Youth identified by caregiver as White alone and non-Hispanic/Latino/Latina	Youth identified by caregiver as other than White and non-Hispanic/Latino/Latina, including multiracial	<b>48%</b>	Baseline
<b>Access to Care</b>	Families who can afford medical care as needed	Families who could not afford to but have a needed medical visit in the past 12 months	<b>5%</b>	Baseline
<b>Annual Household Income</b>	Families with household incomes above 200% of the Federal Poverty Level	Families with household incomes equal to or below 200% of the Federal Poverty Level	<b>28%</b>	Baseline
<b>Educational Attainment</b>	Highest parental education is at least a high school degree or equivalent	Highest parental education is less than a high school degree or equivalent	<b>3%</b>	Baseline
<b>Gender Identity</b>	Youth who identify as cisgender	Youth who identify as gender variant, non-binary, transgender, or something else	<b>5%**</b>	4-year follow-up
<b>Geography</b>	Families who reside in urban metropolitan areas	Families who reside in rural and non-metropolitan areas	<b>8%</b>	Baseline
<b>Sex Assigned at Birth</b>	Male or female youth	Youth who are neither male nor female (i.e. intersex)	<b>&lt;0.001%</b>	Baseline
<b>Sexual Orientation</b>	Youth who identify as straight	Youth who identify as asexual, bisexual, gay or lesbian, unsure, or something else	<b>23%**</b>	4-year follow-up

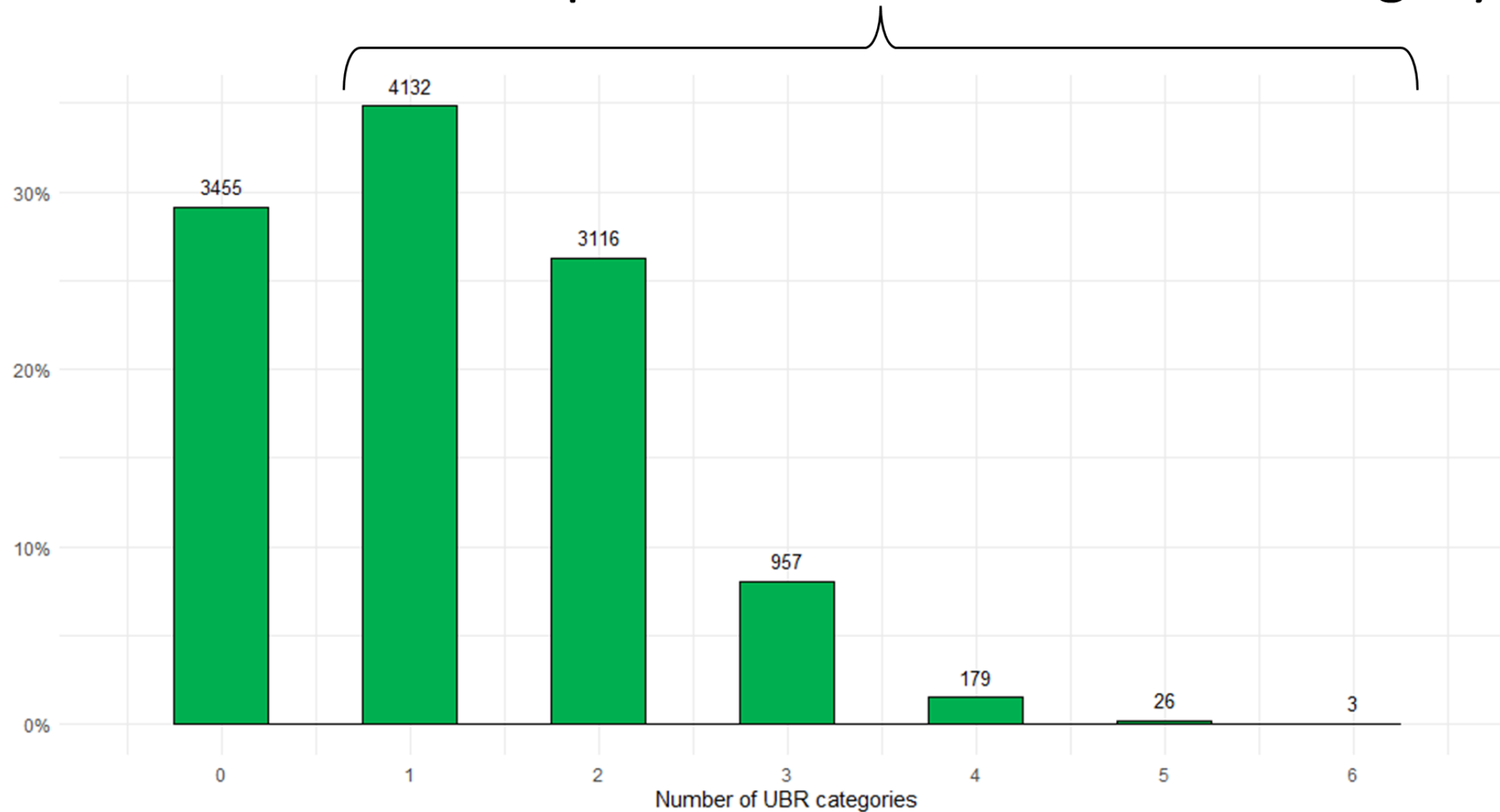
\* Denominator = 11,868 youth in baseline sample, except where otherwise noted. Includes those with missing data (e.g., don't know or decline to answer).

\*\* Denominator = 11,606 youth in 4-year sample. Includes those with missing data (e.g., don't know, decline to answer, missed visit).

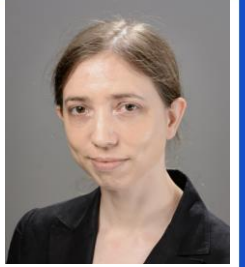
Adapted from Mapes et al. (2020). **Note:** *All of Us* uses two additional categories not used here: age, which is not relevant to a developmental cohort, and disability, which is not directly assessed in ABCD.

# Underrepresented in Biomedical Research (UBR) Populations in ABCD

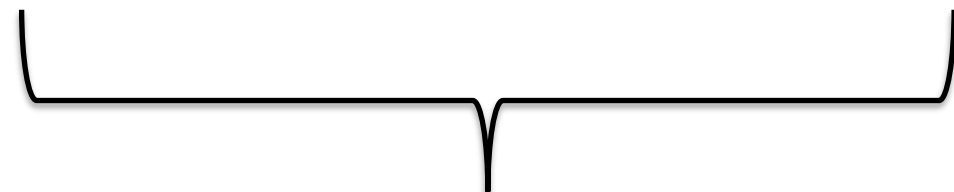
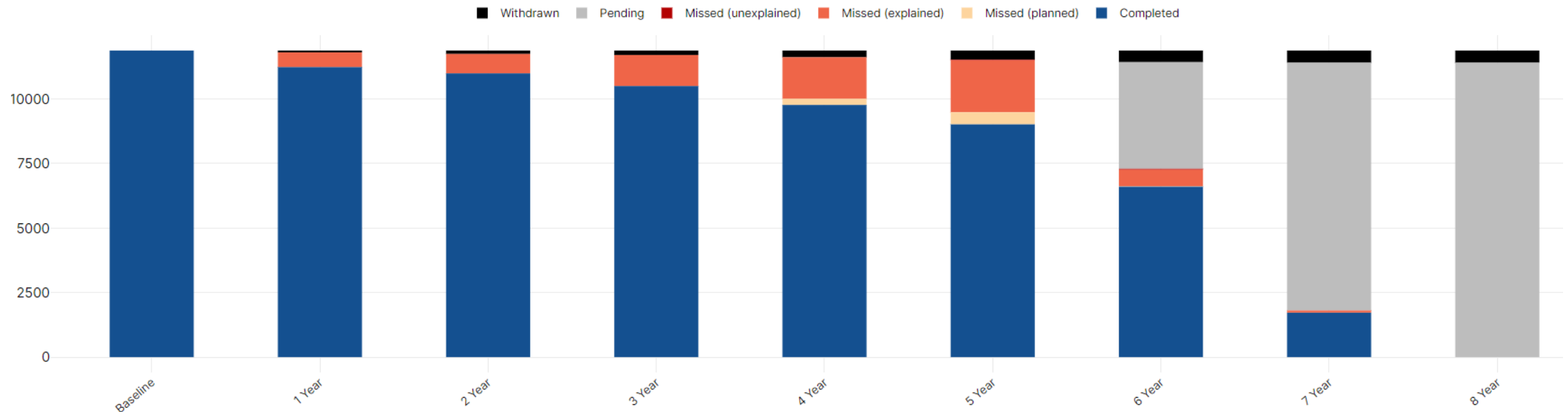
71% of ABCD sample is UBR in at least one category



# ABCD Visit Completion



96% Retained



COVID Pandemic

# Extended Absences

**Current definition:**

No complete annual visit since 2Y, 1Y, or Baseline

**ABCD Overall**

March 2023

N=753 (6% of baseline sample)

April 2024

Still absent: 551 (73% of 753)

Came back: 129 (17%)

Withdrew: 73 (10%)

	events								count ↓	freq	visits	visit_last
<input type="checkbox"/>	BL	Y1	Y2	Y3	Y4	Y5	Y6	Y7				
<input type="checkbox"/>	●	●	●	●	●	●	●	●	4020	33.84%	7	Y6
<input type="checkbox"/>	●	●	●	●	●	●	●	●	2269	19.10%	6	Y5
<input type="checkbox"/>	●	●	●	●	●	●	●	●	1490	12.54%	8	Y7
<input type="checkbox"/>	●	●	●	●	●	●	●	●	513	4.32%	6	Y4
<input type="checkbox"/>	●	●	●	●	●	●	●	●	391	3.29%	7	Y6
<input type="checkbox"/>	●	●	●	●	●	●	●	●	275	2.32%	6	Y3
<input type="checkbox"/>	●	●	●	●	●	●	●	●	204	1.72%	6	Y5
<input type="checkbox"/>	●	●	●	●	●	●	●	●	159	1.34%	7	Y6
<input type="checkbox"/>	●	●	●	●	●	●	●	●	144	1.21%	6	Y2
<input type="checkbox"/>	●	●	●	●	●	●	●	●	140	1.18%	7	Y5
<input type="checkbox"/>	●	●	●	●	●	●	●	●	125	1.05%	6	Y1
<input type="checkbox"/>	●	●	●	●	●	●	●	●	123	1.04%	6	Y5
<input type="checkbox"/>	●	●	●	●	●	●	●	●	112	0.94%	6	BL
<input type="checkbox"/>	●	●	●	●	●	●	●	●	102	0.86%	7	Y4
<input type="checkbox"/>	●	●	●	●	●	●	●	●	85	0.72%	7	Y3
<input type="checkbox"/>	●	●	●	●	●	●	●	●	81	0.68%	7	Y6

7,779

# Retention Strategies



## Hard to Reach Participants Infographic

**Hard to reach participants? Check out these tips & tricks from your fellow RAs!**

**Be Flexible**

Be available to answer calls after hours.  
Offer appointments at later times and on weekends.  
Offer to split up visit into 2 days.

**Update Secondary/Alternate Contacts**

During visits make sure to collect extensive alternative contacts. As the youths approach 18, it is extremely important to ask them for alternative contacts (in addition to the parents alternative contacts), since they will be the person scheduling.

**When to Use Secondary/Alternate Contacts**

After 3-5 varied contacts (over 1-2 months) to primary contact (email, call, text) with no response, move onto secondary and alternate contacts. If you have permission to contact youth participant, contact them before alternate contacts.

**Scheduling/Retention Coordinator**

Have 1-2 people dedicated to scheduling and retention! This will help with organization of visits and consistency in participant communication.

**Utilize Co-Investigators**

Ask your Co-Investigators or Site Clinician to call the family you're having trouble reaching. Sometimes speaking with someone higher up can help re-engage participants and also reminds them of the importance of participating.

**Bonus Payments**

Provide bonus payments to participants for not rescheduling, for scheduling within 30 days of initial reach out, etc.

**Provide Transportation & Child Care**

When scheduling offer participants reimbursement for mileage, taxi services, and let them know they can bring their younger children along with them!

**Respectful Interactions with Participants**

When communicating with participants it is extremely important to ALWAYS be respectful! Multicultural awareness should ALWAYS be practiced when communicating with participants.

**House Visits**

After using Lexis Nexis to verify participants addresses, pair up with 1-2 RA's and go visit the hard to reach participants at their homes. Bring swag bags (ABCD Shirts) and flyers to help re-engage them!  
\*Please only use this method if your RAs are comfortable doing house visits\*

**Maintain Detailed Documentation of ALL Interactions with Participants**

Each time you reach out to a participant, whether it is for scheduling purposes or not, it should always be recorded in PII Activity logs! This is helpful for the next time you reach out, as you will be able to see any notes from the initial contact attempt.

In addition to activity logs, and feedback forms, sites can create their own "pertinent visit information" where they can add important details that arose during yearly visit. This could be things as simple as "plays soccer and has cats" or could be problems that came up/things that made the youth uncomfortable.  
More information is always better than none!

**Pay Attention to Feedback**

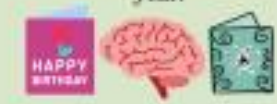
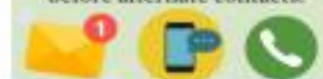
After each visit, go through participant feedback and satisfaction. If feedback was poor, have your PI or Site Coordinator reach out to the family ASAP and resolve the issue! The quicker the follow up, the better.

**Mailed Cards**

Reach out to participants throughout the year with Holiday Cards, Birthday Cards, and Brain Pictures! These are fun ways to stay connected during the year.

**Community Outreach**

Invite your participants to come to events put on by your lab! This could include public talks about ABCD, public events like pizza parties, sports games, picnics, etc!







**Adolescent Brain Cognitive Development<sup>®</sup>**

*Teen Brains. Today's Science. Brighter Future.*

---

## **Agenda**

- ABCD Overview, Cohort Diversity, & Retention
- **ABCD JEDI Initiative**
- Leveraging ABCD
- Resource Sharing
- ABCD Study Outcomes and Dissemination

# Improving JEDI in ABCD



## Reset

- Expanding efforts beyond racial discrimination
- Improving transparency and accountability
  - 2024: Conducted climate survey with external consultant

## Restructure

- Eliminated Task Force
- Broadened Advisory Council membership
  - 2024: First year of open application period for new members

## Re-engage

- Quarterly JEDI All Hands
  - 2024: Federal race/ethnicity categories, medical mistrust, autism awareness month
- Short trainings during Col/RA meetings
- More integration and collaboration with non-JEDI WGs
  - 2024: Recruitment & Retention WG, Crisis & Communication Team, Community Liaison Board Advisory Group

Advisory  
Council

~~Task Force~~

Equitable &  
Inclusive  
Methods

Diversity &  
Inclusion in  
ABCD

Responsible  
Use of ABCD  
Study Data

# Climate Survey

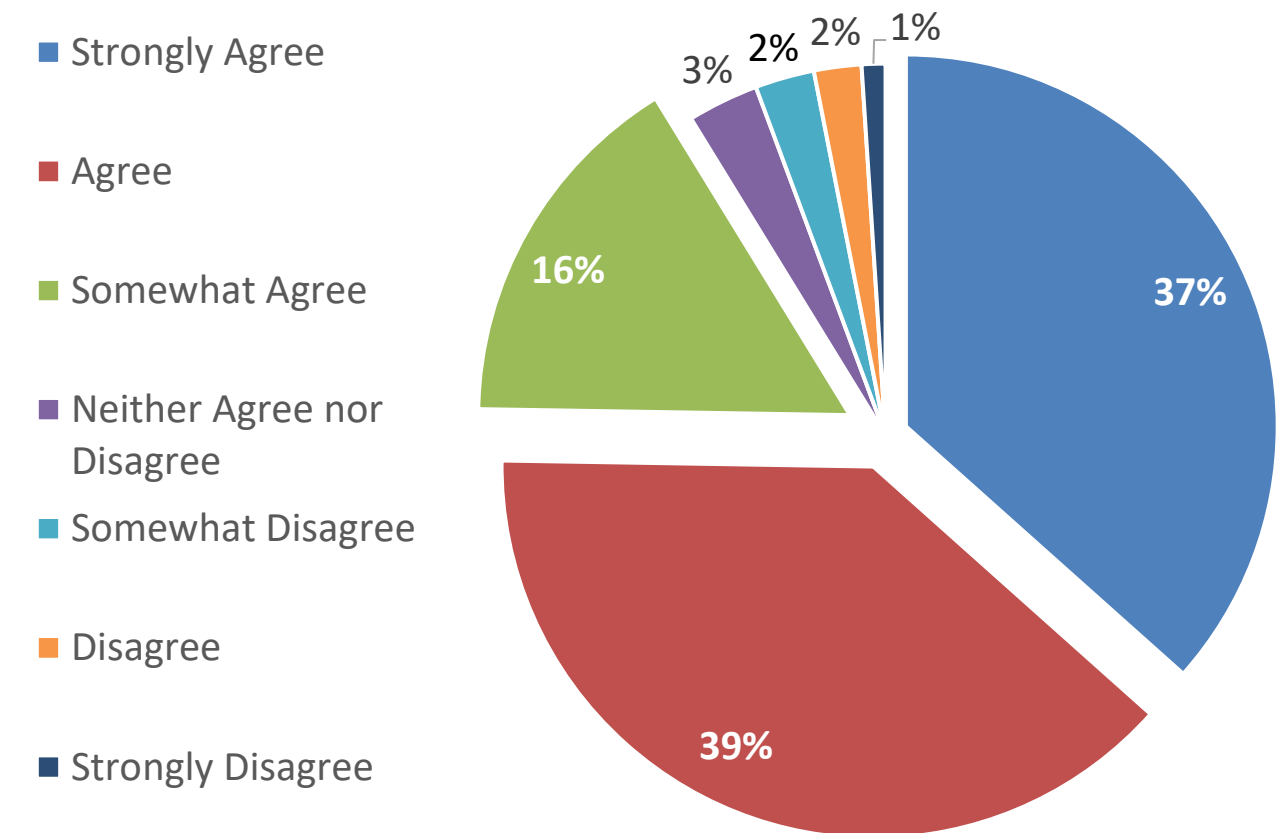
## Collaborative Process

- JEDI Advisory Council and ABCD's Coordinating Center worked with consultant to design survey

## Survey Design

- Addressed JEDI climate at site and consortium level, demographics, and recommendations
  - Response rate – 29.2%

92% agreed that the ABCD Study has a strong commitment to justice, equity, diversity, and inclusion.





**Adolescent Brain Cognitive Development<sup>®</sup>**

*Teen Brains. Today's Science. Brighter Future.*

---

## **Agenda**

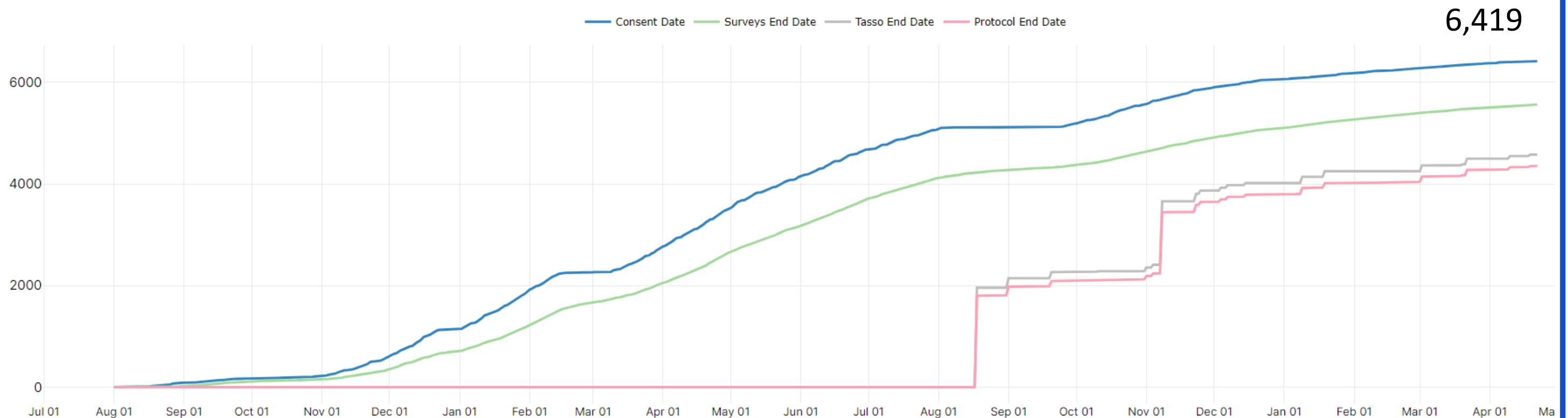
- ABCD Overview, Cohort Diversity, & Retention
- ABCD JEDI Initiative
- **Leveraging ABCD**
- Resource Sharing
- ABCD Study Outcomes and Dissemination

# ABCD-RECOVER

## Researching COVID to Enhance Recovery (RECOVER)

- Home antibody test kits
- Long COVID symptom survey
- Potential Tier 2 participation

ABCD participants constitute 45% of RECOVER Pediatric Cohort (N=14,195)





# HIV Meeting



Adolescent Brain Cognitive Development™  
These Brains. Today's Science. Brighter Future.

\*times in schedule subject to change

## HIV/STI Satellite Meeting

Saturday, November 18th

General Session Starts at 9:00am in Lyra/Lynx Conference Room

All times below are in Eastern Time To register via Zoom click [here](#)

### BREAKFAST AVAILABLE IN LYRA/LYNX FROM 8:30AM-9:00 AM

- 9:00-9:15 am **INTRODUCTION AND OVERVIEW - LINKING ABCD CONSTRUCTS TO HIV RESEARCH**  
*Raul Gonzalez, Ph.D.*
- 9:15-9:30 am **SUBSTANCE USE IN THE ABCD COHORT**  
*Natasha Wade, Ph.D.*
- 9:30-9:45 am **SEXUAL MINORITY YOUTH AND SEXUAL ACTIVITY IN THE ABCD COHORT**  
*Alexandra Potter, Ph.D.*
- 9:45-10:00 am **TRAUMA, ACES, DISCRIMINATION, AND JUSTICE SYSTEM INVOLVEMENT IN THE ABCD COHORT**  
*Erin Thompson, Ph.D.*
- 10:00-10:45 am **CONSIDERATIONS FOR SEXUAL AND REPRODUCTIVE HEALTH RESEARCH WITH SEXUAL AND GENDER MINORITY ADOLESCENTS**  
*Kathryn Macapagal, Ph.D.*
- 10:45-11:45 am **COMMUNITY PANEL SESSION ON HIV TRAJECTORIES IN ADOLESCENTS AND YOUNG ADULTS**  
*Traci M. Murray, PhD, MPH, RN, NHDP-BC, CPH*

### LUNCH IN LYRA/LYNX FROM 11:45-12:45 PM

- 12:45-1:45 pm **THE WORK SHOP: LEVERAGING COMMUNITY FEEDBACK TO INFORM STRUCTURAL HIV INTERVENTION**  
*Darnell Motley, Ph.D.*
- 1:45-2:45 pm **DEVELOPMENT AND SEXUALITY: CONSIDERATIONS FOR LEVERAGING ABCD DATA TO INFORM HIV/STI PREVENTION AND RESEARCH**  
*Angela Bryan, Ph.D.*

### FIFTEEN MINUTE BREAK

- 3:00-4:00 pm **TRANSLATIONAL RESEARCH ON HIV AND SUBSTANCE USE AMONG YOUNG MEN WHO HAVE SEX WITH MEN: FINDINGS FROM THE RADAR COHORT STUDY**  
*Brian Mustanski, Ph.D.*
- 4:00-4:30 pm **OPEN DISCUSSION**  
*Moderated by: Raul Gonzalez, Ph.D.*

### MEETING ADJOURNS AT 4:30PM

### What we already have:

- Very robust assessment of **mental health**, temperament, impulsivity
- Detailed assessment of **gender and sexual orientation**, attraction, and identity
- Detailed assessment of demographics, **cultural and racial identity**
- Assessment of **discrimination** specific to various classes
- LED data on relevant **state policies** and **structural factors**
- Longitudinal data on **parental monitoring**

### What we have that might be expanded upon:

- Sources of **social support**, community involvement, affinity groups, etc.
- **Parental knowledge** specific to youth's sexual/gender minority status and communication around issues of risk, drug use, STIs, and pregnancy
- Specific questions on use of **drugs and alcohol during sexual encounters**
- More detailed questions around **employment and supportiveness** (structural and social) of the work environment
- **Expanding information on sexual activity and context**
- Expanding on questions about **medical mistrust** and **access to care**

### What we do not have at all:

- **Biomarkers** of HIV/STI risk, including STI testing
- **Youth knowledge** and source for sexual education, PrEP availability, STI/HIV testing
- **Youth perceptions of STI/HIV diagnosis**
- **Information on HIV/STI Testing** – Any information about PrEP (do they know what it is, has anyone talked to you, would you know how to get it, what are you using)?



**Adolescent Brain Cognitive Development<sup>®</sup>**

*Teen Brains. Today's Science. Brighter Future.*

---

## **Agenda**

- ABCD Overview, Cohort Diversity, & Retention
- ABCD JEDI Initiative
- Leveraging ABCD
- **Resource Sharing**
- ABCD Study Outcomes and Dissemination

# Where we are now: ABCD 5.1 Data Release through NDA

## ABCD Study Data Availability

### Data Release 5.0/5.1

Full cohort:

- 3-year follow-up
- 24-month follow-up

Interim:

- 4-year follow-up

## Data resources

Release notes

<https://wiki.abcdstudy.org/>

Data dictionary explorer

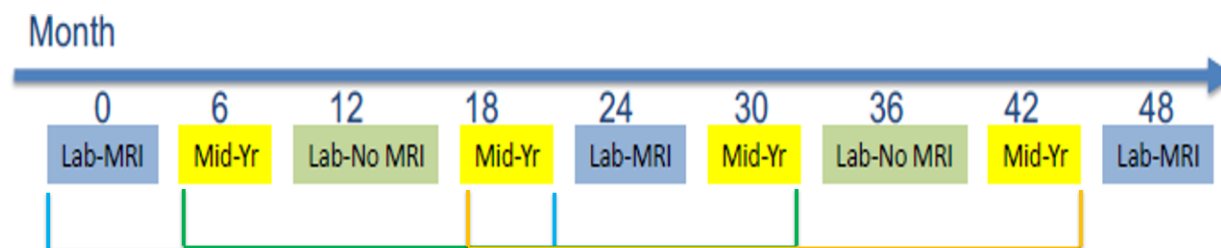
<https://data-dict.abcdstudy.org/>

Discussion forum

<https://tinyurl.com/25nvdwcc>

### ABCD Annual Data Releases

Curated data are released annually via the NIMH Data Archive (<https://nda.nih.gov/abcd>)



#### 2019 Data Release 2.0

- Full cohort baseline (with imaging)
- Hurricane Irma substudy
- Fitbit data
- Interim:
  - 6-month
  - 18-month
  - 1-year

#### 2020 Data Release 3.0

- Full cohort 1-year follow-up
- Full cohort 6-month follow-up
- Interim:
  - 18-month
  - 30-month
  - 2-year (imaging)

#### 2021 Data Release 4.0

- Full cohort 2-year follow-up (with imaging)
- Full cohort 18-month follow-up
- Interim:
  - 30-month
  - 42-month
  - 3-year





# ABCD Wiki



- Release Notes
- Non-Imaging Domains
  - ABCD (General)
  - Culture & Environment
  - Gender Identity and Sexual Health
  - Genetics
  - Linked External Data
  - Mental Health
  - Neurocognition
  - Novel Technologies
  - Physical Health
  - Substance Use
- Imaging
  - Imaging Overview
  - Administrative Tables
  - Structural MRI

- Release Notes
- Non-Imaging Domains
  - ABCD (General)
  - Culture & Environment
  - Gender Identity and Sexual Health
  - Genetics
  - Linked External Data
  - Mental Health
  - Neurocognition
  - Novel Technologies
  - Physical Health
  - Substance Use
- Imaging
- Substudies

## Neurocognition

DOI: 10.15154/z563-zd24 (Release 5.1)

PUBLISHED  
January 19, 2024

## List of Instruments

Name of Instrument	Subdomain	Table Name
<b>Youth Instruments</b>		
<a href="#">NIH Toolbox (Cognition)</a>	Task	<a href="#">nc_y_nihtb</a>
<a href="#">Cash Choice Task</a>	Task	<a href="#">nc_y_cct</a>
<a href="#">Little Man Task</a>	Task	<a href="#">nc_y_lmt</a>
<a href="#">The Pearson Rey Auditory Verbal Learning Test (RAVLT)</a>	Task	<a href="#">nc_y_ravlt</a>
<a href="#">Wechsler Intelligence Scale for Children (5th Ed.) - Matrix Reasoning [Youth]</a>	Task	<a href="#">nc_y_wisc</a>

<https://wiki.abcdstudy.org>

# ABCD Wiki

- Release Notes
- Non-Imaging Domains
  - ABCD (General)
  - Culture & Environment
  - Gender Identity and Sexual Health
  - Genetics
  - Linked External Data
  - Mental Health
  - Neurocognition
  - Novel Technologies
  - Physical Health
  - Substance Use
- Imaging Substudies

## Neurocognition

DOI: 10.15154/z563-zd24 (Release 5.1)

PUBLISHED  
January 19, 2024

### List of Instruments

Name of Instrument	Subdomain	Table Name
<b>Youth Instruments</b>		
<a href="#">NIH Toolbox (Cognition)</a>	Task	<a href="#">nc_y_nihtb</a>
<a href="#">Cash Choice Task</a>	Task	<a href="#">nc_y_cct</a>
<a href="#">Little Man Task</a>	Task	<a href="#">nc_y_lmt</a>
<a href="#">The Pearson Rey Auditory Verbal Learning Test (RAVLT)</a>	Task	<a href="#">nc_y_ravlt</a>
<a href="#">Wechsler Intelligence Scale for Children (5th Ed.) - Matrix Reasoning [Youth]</a>	Task	<a href="#">nc_y_wisc</a>

## NIH Toolbox (Cognition)

**Release 5.0 Data Table:** [nc\\_y\\_nihtb](#)

**Measure Description:** The NIH Cognition Toolbox comprises seven tasks administered via iPad ([Scoring & Interpretation Guide](#); [Composite Score Technical Manual](#)). For each task, raw scores, and uncorrected and age corrected scores are available. The following tasks are included in the battery:

- Picture Vocabulary:* Language vocabulary knowledge. A component of the *Crystallized Composite Score*. [Technical Manual](#)
- Flanker Inhibitory Control & Attention:* Attention, cognitive control, executive function, inhibition of automatic response. A component of the *Fluid Composite Score*. Note, remote assessments used a replicated Flanker task administered using the Inquisit platform, because the NIH Toolbox version could not be administered remotely. [Technical Manual](#)

<https://wiki.abcdstudy.org>

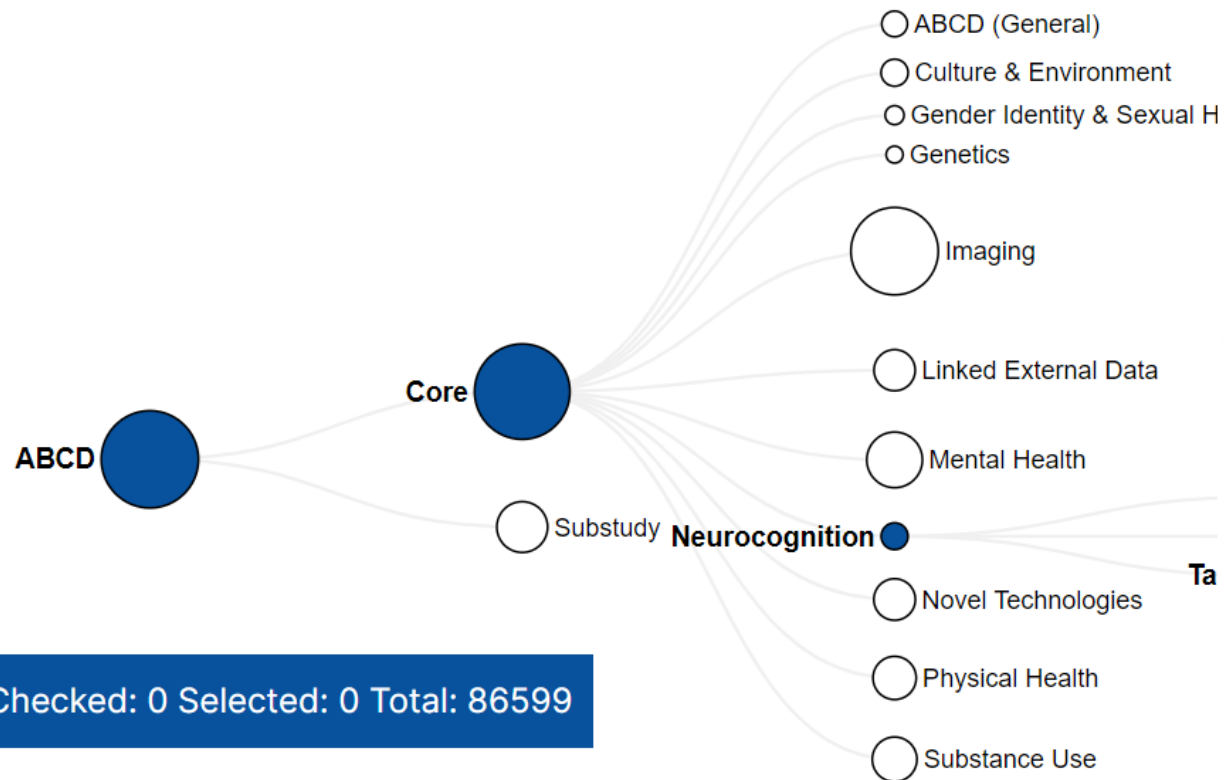
# ABCD Data Dictionary



Variable Selection Manage Selections & Download

ABCD Data Dictionary (Release 5.1)

## Filter Variables



Checked: 0 Selected: 0 Total: 86599

## Select Variables



Search:

Showing 1 to 25 of 118 entries

Add Variables to Selection

	Table Name	Variable Name	Variable Label	Notes	Conc
<input type="checkbox"/>	All	All	All	All	All
<input type="checkbox"/>	nc_y_nihtb	nihtbx_picvocab_date	NIH Toolbox Picture Vocabulary Test Age 3+ v2.0 DataFinished		

[Data dictionary explorer](#) allows users to explore the structure of the ABCD data resource in an interactive manner



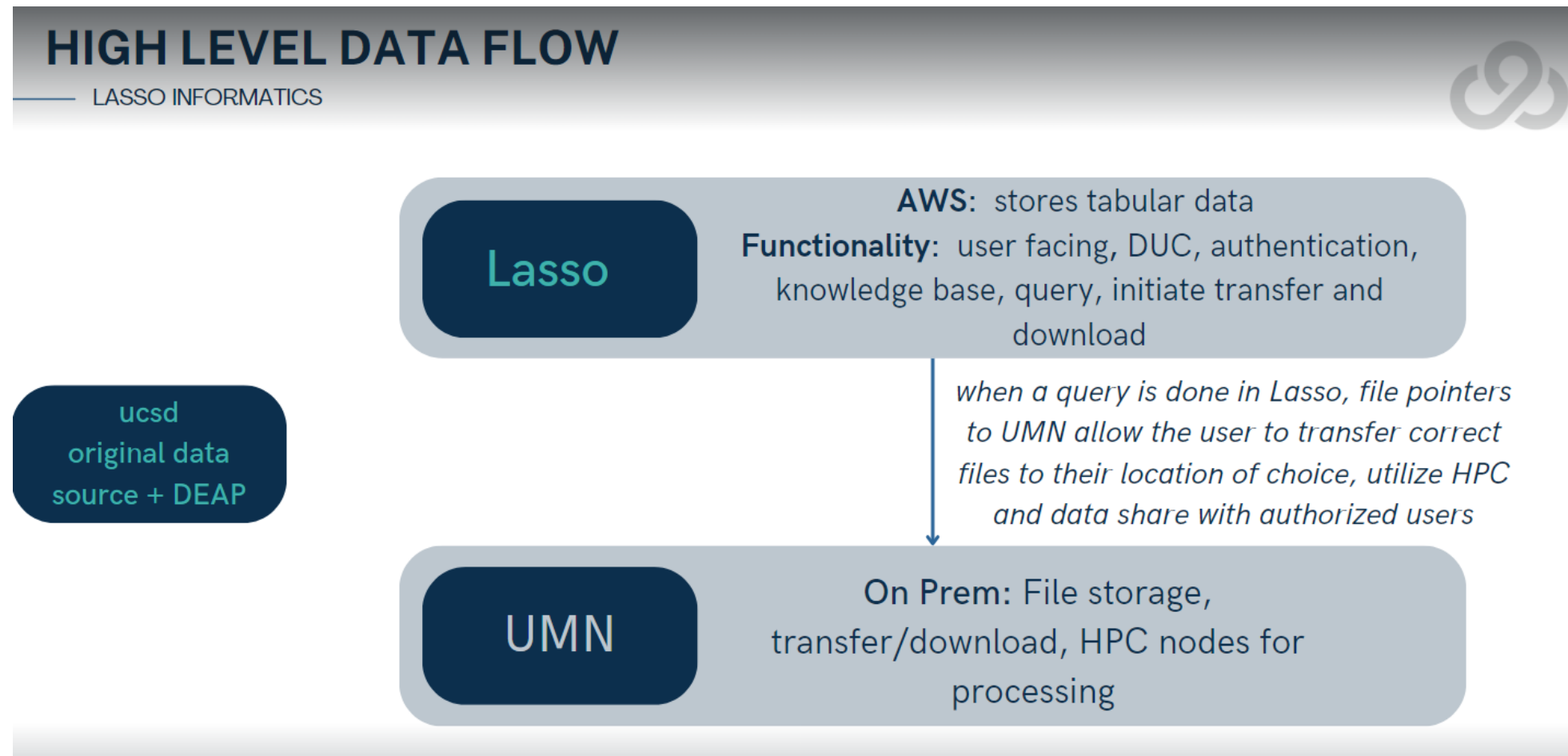
**New data sharing  
platform coming  
Summer 2024!\***

\*ABCD data will be transferred from the NIMH Data Archive

# Summer 2024 NIH Brain Development Cohorts Data Sharing Platform




- Optimized for large datasets, including neuroimaging and genomics data
- Provides scalable data ingestion, integrated data analytics, customized user experience
- Provides homogenous solution for harmonizing with planned data from the HBCD Study



# Responsible data and biospecimen use training

- Describe the ethical principles for doing secondary data analysis research involving human participants
- Describe the historical and contemporary contexts for understanding race and racism in science and medicine
- Understand how to conduct science ethically and responsibly
- Understand the data use terms and conditions for accessing the data and for using biospecimens
- Learn how to mitigate risk of participant identification



**Adolescent Brain Cognitive Development**  
Teen Brains. Today's Science. Brighter Futures.

**HEALTHy Brain and Child Development**  
Babies • Brains • Bright Futures

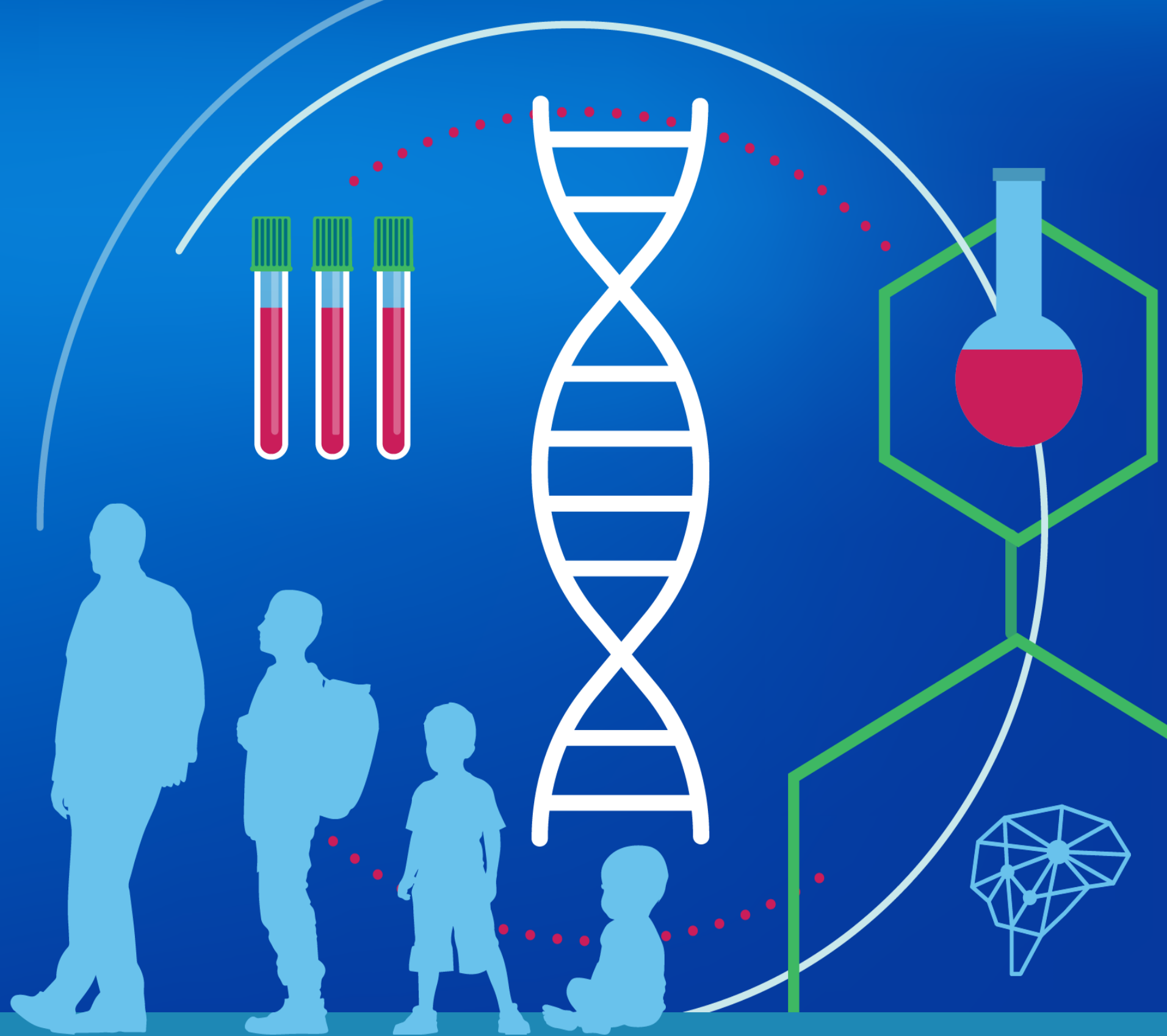
## NIH Brain Development Cohorts (NBDC) Responsible Data and Biospecimen Use Training

This training provides information about ethical and responsible data and biospecimen use of large datasets, such as the [Adolescent Brain Cognitive Development \(ABCD\) Study](#) and the [HEALthy Brain and Child Development \(HBCHD\) Study](#).

**At the end of the training, we will test your knowledge of its content.**  
Once you pass the assessment, you may sign your data use certification and access the NBDC data.

 **NIH** National Institute on Drug Abuse

NIH Brain  
Development  
Cohorts (NBDC)  
Biospecimen  
Access Program



# NBDC Biospecimen Access Program

## Purpose

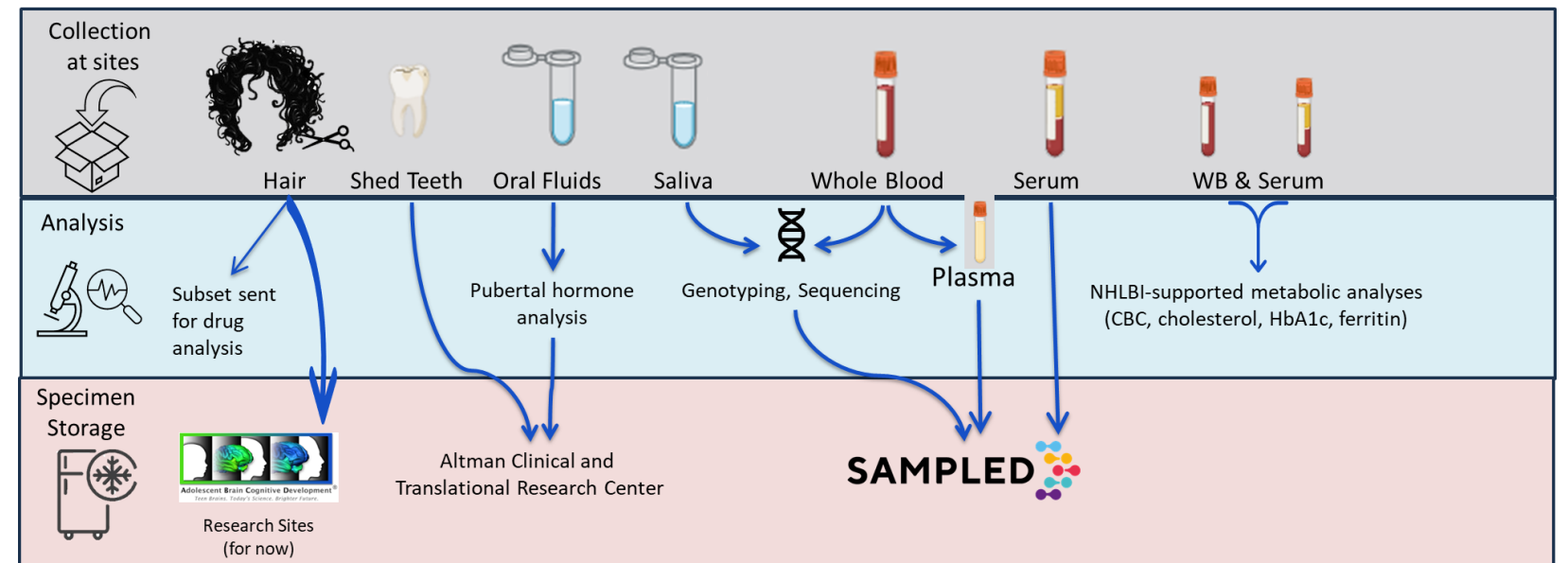
- Allow internal and external investigators to apply to use residual biospecimens from the ABCD Study

## Scope

- Studies consistent with ABCD Study objectives or which expand the knowledge of child or adolescent health more broadly
- Successful applicants are required to deposit the results of their analyses into the ABCD Data Repository

## Mechanism

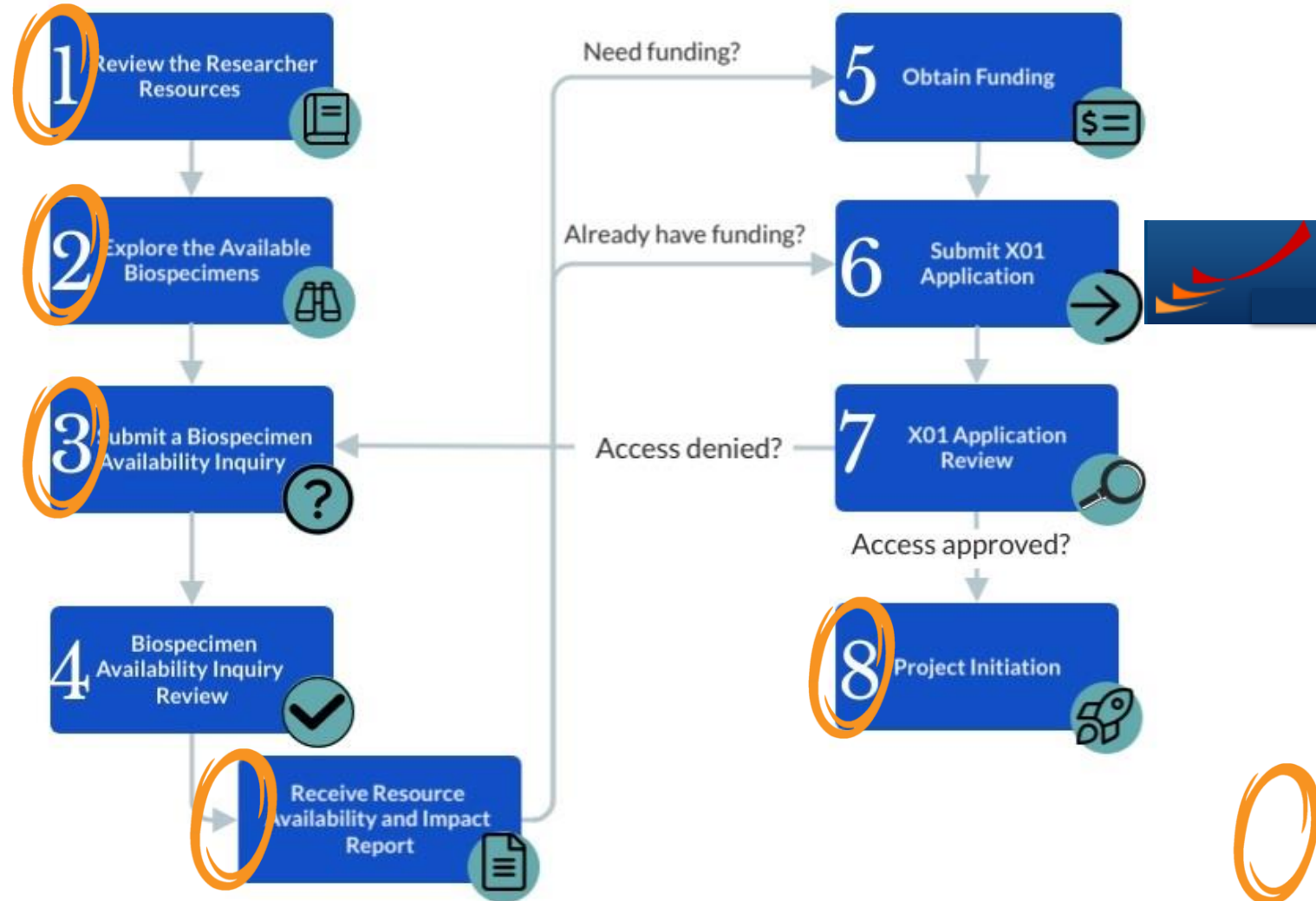
- Notice of Funding Opportunity– Resource Access Award (X01) [PAR-23-229](#)
- No funds associated with the award. Applicants need to get outside funding for analyses and sample shipment prior to submitting their X01 application.





# Process for Applying

NBDC BIOSPECIMEN ACCESS PROGRAM:  
PROCESS



 NBDC Portal



# NBDC Portal tour



<https://nbdc.nida.nih.gov/>

The screenshot shows the top navigation bar with 'Home', 'About', 'Biospecimen Explorer', 'Researchers', and 'Resources'. The 'Biospecimen Explorer' menu is open, showing 'Requesting Biospecimens' and 'Researchers Guide'. The main content area features the title 'NIH Brain Development Cohorts (NBDC) Biorepository Portal' and a description: 'A central resource for biospecimens collected from the Adolescent Brain Cognitive Development<sup>SM</sup> (ABCD) Study and the HEALTHy Brain and Child Development (HBCD) Study, two longitudinal studies of child and adolescent health and brain development.' A green button says 'Learn more about the NBDC portal'. The background has a blue gradient with icons for test tubes, a DNA helix, a flask, and silhouettes of people of different ages.

**Scientific Researchers**  
Explore inventory with the Biospecimen Explorer and request samples from the ABCD study.

[View Researcher Guide](#) [Create Account](#)

**Study Staff**  
Access tools to order supplies, submit samples, run reports, and more role-specific options.

[View User Guide](#) [Create Account](#)

# NBDC Portal – Requesting Biospecimens



<https://nbdc.nida.nih.gov/>



Sign In

Register

Home About Biospecimen Explorer Researchers Resources

Requesting Biospecimens

## Requesting Biospecimens from the NBDC Biospecimen Access Program

Requests for NBDC biospecimens must be made through the NBDC Biospecimen Explorer Portal. Click on a step below to learn more information.

The process for obtaining biospecimens from the NBDC Biospecimen Access Program is as follows:

*Click on an item to view more information*

1 Review the Researcher Resources

2 Explore the Available Biospecimens

3 Create an Account and Submit a Biospecimen Availability Inquiry

4 Biospecimen Availability Inquiry Review

5 Obtain Research Funding *(if funding is not already in place)*

6 Submit X01 Application *(when funding is in place)*

7 X01 Application Review

8 Project Initiation

# NBDC Portal – Researcher Guide



<https://nbdc.nida.nih.gov/>

## Oral Fluids

### ABCD Study Research Site Collection Details

Collection Details	<p><b>Deprivation Period:</b> avoid high sugar, caffeine, and acidic meals or major meals 60 minutes before collection; no food, snacks, beverages, gum, or candy 30 minutes before collection. At 10 minutes prior to collection, ask subject to rinse mouth well with water and spit water in a cup or sink to remove any remaining particulates.</p> <p><b>Participant Instructions:</b> allow saliva to collect in the mouth, then gently and carefully push saliva through the large straw so it can be collected in the tube below - passive drool (don't spit).</p>
Collection Container	2mL cryovial tubes - no diluent or additives/preservatives. Blue for male, pink/purple for female. Transgender/transitioning participants collected in female tube so full hormone profile is assessed.
Time From Processing To Collection	5 Minutes Or Less
Processing Procedures	Freeze Immediately In Nalgene Laptop Cooler
Time From Processing To Storage	As soon as possible, up to 1 hour
Storage Temperature and Storage Procedures	-20°C or -80°C
Time From Storage To Shipment	Up to 3 months
Shipment Packaging and Parameters	Dry Ice; FedEx Priority Overnight

### > Biorepository Storage And Processing Details

### > Recommended Volumes and Concentrations Per Assay Type

### > QC Procedures And Use Considerations

#### ON THIS PAGE

Biospecimens Collected  
in the ABCD Study, by  
Visit Timepoint

Oral Fluids

Whole Blood

Externally Produced  
Serum

DNA Whole Blood

DNA Saliva

Shed Teeth

Cost Estimates

↑ BACK TO TOP

# NBDC Portal – Biospecimen Explorer



<https://nbdc.nida.nih.gov/>



Sign In

Register

Home About **Biospecimen Explorer** Researchers Resources

Biospecimen Explorer - ABCD Study

Filters

Visit Timepoint

- Baseline Study
- Year 1
- Year 2
- Year 3
- Year 4
- Year 5
- Year 6

Biospecimen Type

- Whole Blood
- Saliva
- DNA-Saliva
- DNA-Whole Blood
- Externally Produced Serum

Min Units Per Participant

1

Tooth

The table below displays the number of participants with given biospecimens types per visit timepoint. Select and apply filters to customize the display. (Refer to the "Biospecimens Collected in the ABCD Study, by Visit Timepoint" table in [User Guides](#) as needed.)

Start Inquiry

Biospecimen Type	Visit Timepoint(s)	Participant Sex	Participant Race	Participant Ethnicity	# of Participants
Ext. Produced Serum	Year 2 & Year 4	Female	Black	Not Hispanic or Latino	47
Ext. Produced Serum	Year 2 & Year 4	Female	More than one race	Not Hispanic or Latino	28
Ext. Produced Serum	Year 2 & Year 4	Female	White	Not Hispanic or Latino	243
Ext. Produced Serum	Year 2 & Year 4	Male	Black	Not Hispanic or Latino	64
Ext. Produced Serum	Year 2 & Year 4	Male	More than one race	Not Hispanic or Latino	33
Ext. Produced Serum	Year 2 & Year 4	Male	White	Not Hispanic or Latino	307

# See website for additional information

Grants and Funding

- NIDA Funding Opportunities
- FY22 Priority Research Areas
- Small Business Innovation Research (SBIR) and Technology Transfer (STTR) Programs
- Special Considerations for NIDA Funding Opportunities and Awards
- NIDA Funding Strategy
- Trans-NIH Funding Opportunities
- NIDA Office of Acquisitions Contracting
- Technology Transfer

## NIH Brain Development Cohorts (NBDC) Biospecimen Access Program

The NIH Brain Development Cohorts (NBDC) Biospecimen Access Program provides the research community access to biospecimens collected from the Adolescent Brain Cognitive Development<sup>SM</sup> Study (ABCD Study<sup>®</sup>) participants through an X01 resource access mechanism.

[Expand All](#)

- [Introduction](#)
- [Applying for Access to Biospecimens](#)
- [Project Initiation](#)
- [Acknowledgements](#)
- [Frequently Asked Questions](#)



[https://bit.ly/NBDC\\_BAP](https://bit.ly/NBDC_BAP)

<https://nida.nih.gov/funding/nida-funding-opportunities/nih-brain-development-cohorts-biospecimen-access-program>

# Deadlines and Timelines

Availability Inquiry Due Dates	Application Due Dates	Scientific Merit Review	Earliest Start Date
September 5, 2024	October 4, 2024	January 2025	March 2025
January 6, 2025	February 6, 2025	May 2025	July 2025
April 5, 2025	May 5, 2025	September 2025	December 2025

Questions? Contact us: [devstudybiosamples@nida.nih.gov](mailto:devstudybiosamples@nida.nih.gov)



**Adolescent Brain Cognitive Development<sup>®</sup>**

*Teen Brains. Today's Science. Brighter Future.*

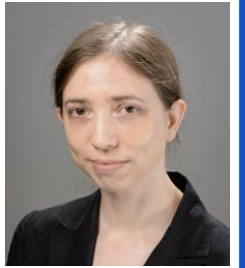
---

## **Agenda**

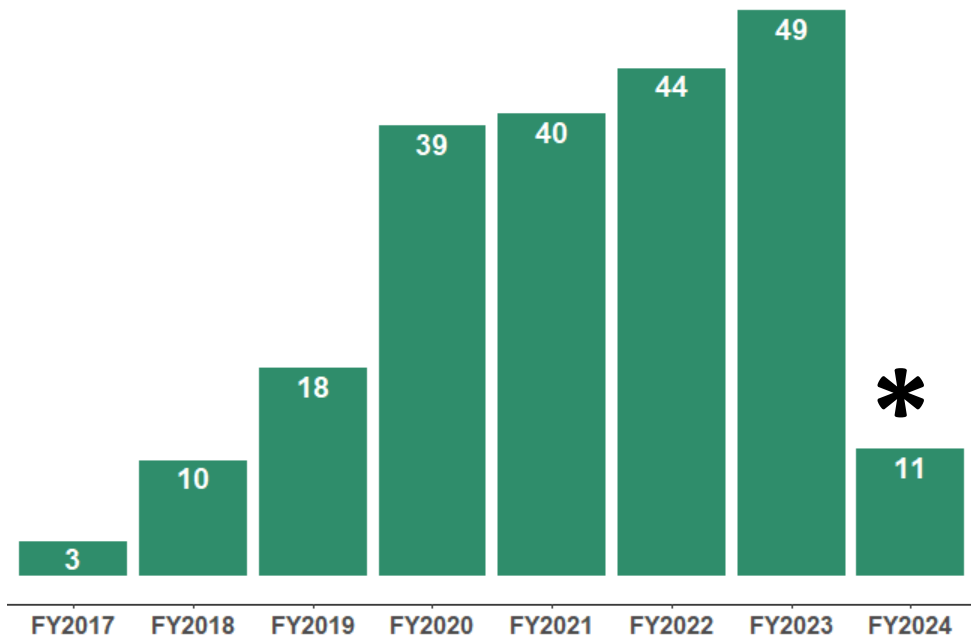
- ABCD Overview, Cohort Diversity, & Retention
- ABCD JEDI Initiative
- Leveraging ABCD
- Resource Sharing
- **ABCD Study Outcomes and Dissemination**



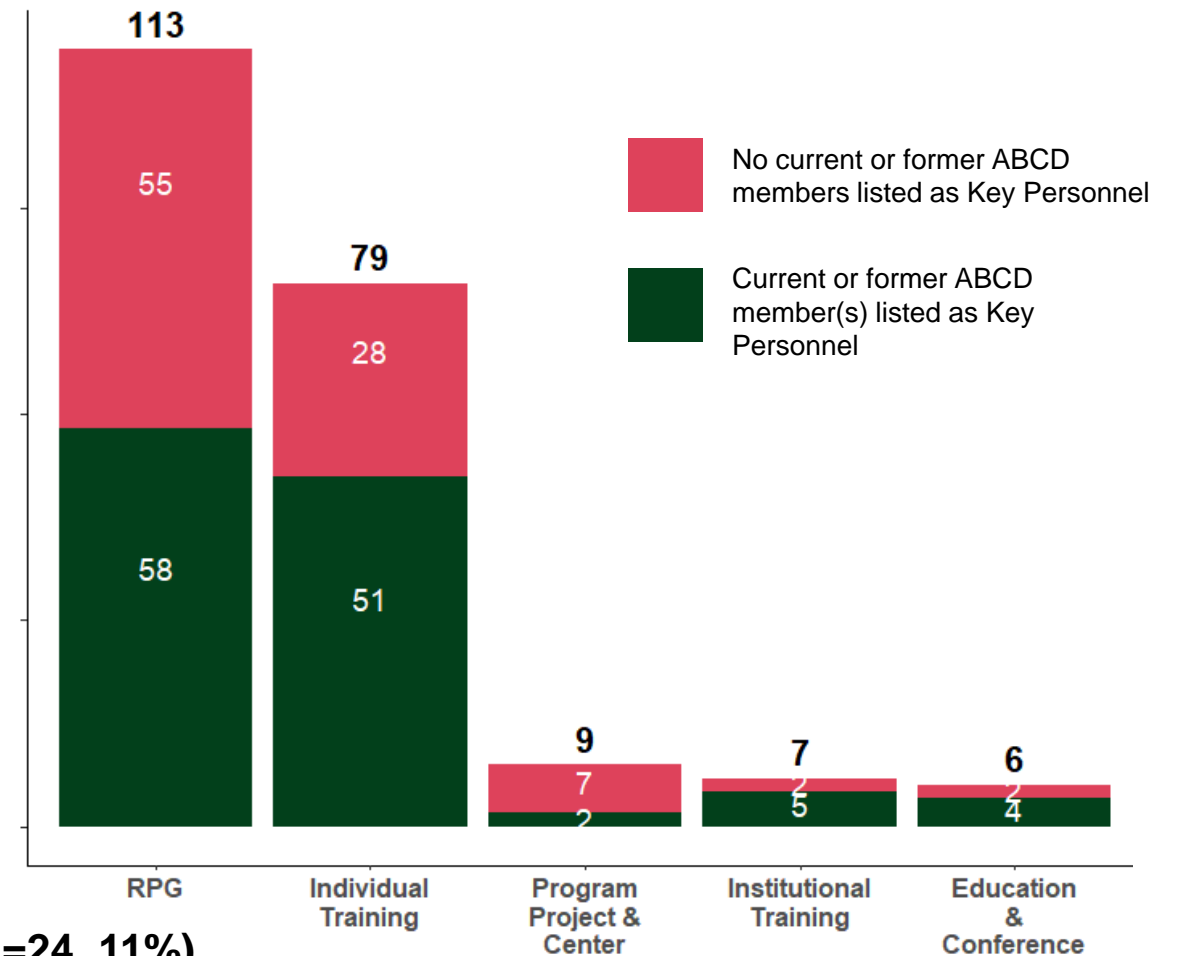
# Funded Grants Using ABCD Data/Methods



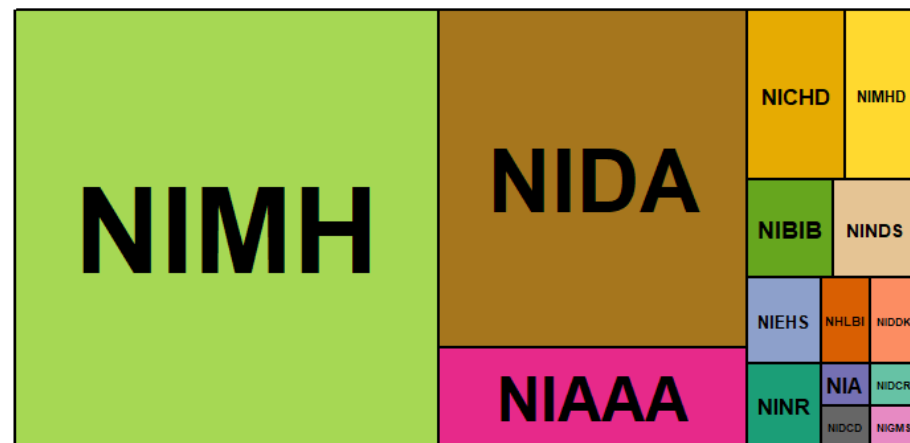
Grants by Fiscal Year (Total N=214)



Grants by Mechanism and ABCD Membership



NIH-funded Grants by IC (n=190, 89%)



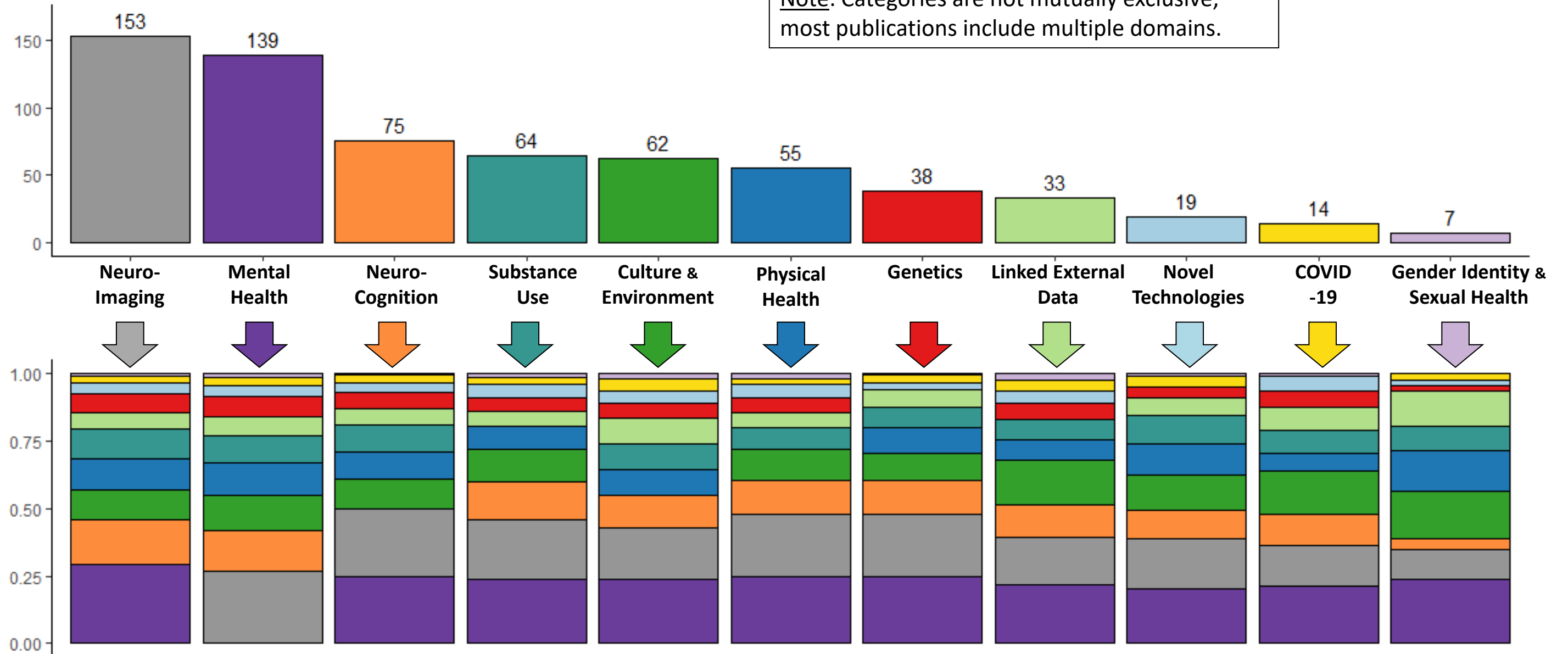
Non-NIH Funders (n=24, 11%)

- Brain & Behavior Research Foundation (12)
- National Science Foundation (7)
- Children and Screens: Institute of Digital Media and Child Development (2)
- National Institute of Justice (1)
- Institute of Education Sciences (1)
- Netherlands Organisation for Scientific Research (1)

# Funded Grants by Domain

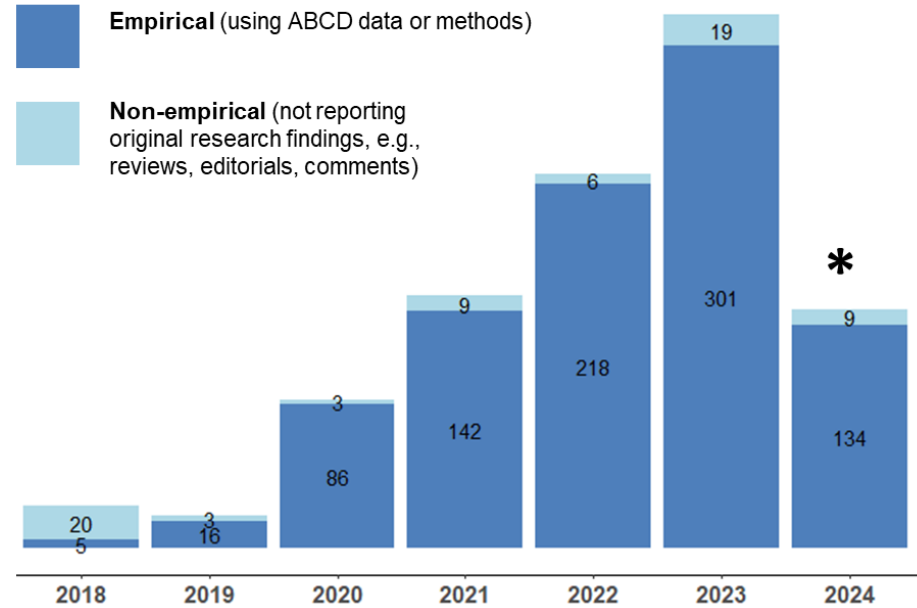
Total N = 184 RPG and Individual Training using data

Note: Categories are not mutually exclusive; most publications include multiple domains.

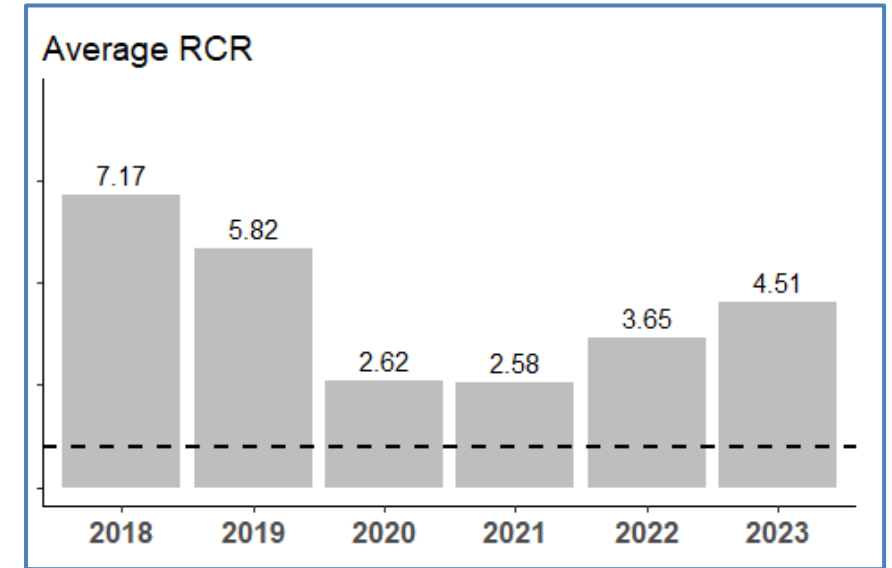


# Publications

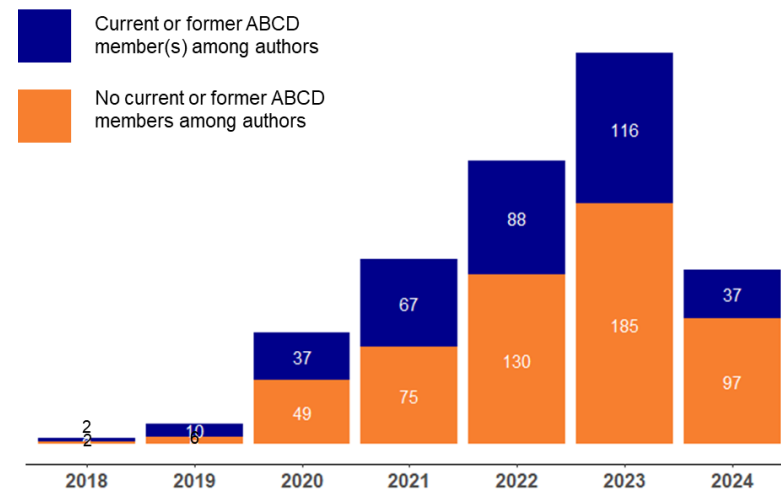
## Total Publications N=972



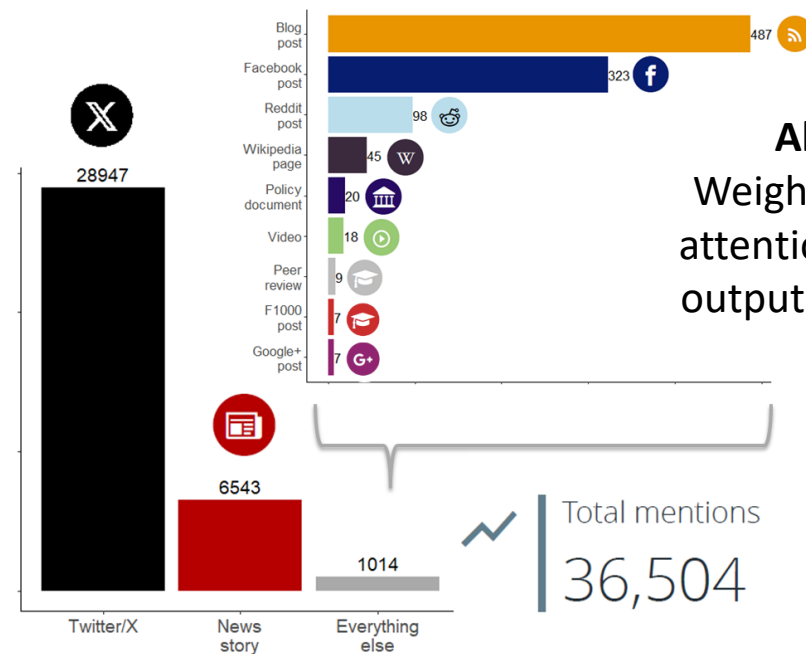
## Relative Citation Ratio (RCR) Citations per year normalized by field, year, and NIH-funded papers



## Empirical Publications by ABCD Membership N=902



60% by Non-ABCD scientists



Data as of 4/18/24

# ABCD Insights & Innovations Meeting (AIM)

March 4-5, 2024

Day 1 • 9:30 a.m. – 10:30 a.m. – Poster and Mentoring Sessions

11:00 a.m. – 5:30 p.m. – General Session

Day 2 • 9:30 a.m. – 10:30 a.m. – Poster and Mentoring Sessions

11:00 a.m. – 3:15 p.m. – General Session

In-person: Natcher Auditorium  
NIH Campus, Bethesda, Maryland



Adolescent Brain Cognitive Development®  
Teen Brains. Today's Science. Brighter Future.

NIDA, NIAAA, NIMH, OBSSR, NICHD



Over 400 attendees (in-person and virtual) with nearly 90% from outside the ABCD Study Consortium

Received 171 abstracts for consideration including 15 international submissions

Strong focus on early career researchers through group and 1:1 mentoring opportunities

Promoting ABCD Study and NIH resources with interactive lunch sessions

*"I enjoyed this meeting more than any other meeting I can remember. I thought the whole tone of the meeting was particularly warm and collegial."* – Attendee

*"I didn't feel like I missed out on too much by attending virtually. The AV capabilities of the venue were the big difference compared to some other conferences I've attended virtually."* – Poster presenter



*"It was a really wonderful experience, especially as an early career researcher, and it was great to hear from so much diverse expertise."* - Speaker

*"Thank you so much for putting this wonderful meeting together!! I hope this is the first of many such meetings."* - Attendee





# Infographics and Webinars

## The Pros and Cons of Screen Use

Research using data from the ABCD Study<sup>®</sup>, the largest long-term study of brain development and child health in the United States, has shown both positive and negative associations of screen use for preteens.

**What is screen use?**  
Activities—such as texting, video gaming, and watching movies—done in front of a screen.

**Youth use screens more as they get older**

Years Old	Per Day
9-10	4 hrs 0 min
11-12*	5 hrs 54 min
12-13*	7 hrs 42 min

**Average daily screen use\***

**Boys spend more time on:**

- Video Games (single player): Boys 1 hr 40 min, Girls 42 min
- Video Games (multiplayer): Boys 2 hrs 13 min, Girls 41 min
- TV & Movies Streaming: Boys 2 hrs 20 min, Girls 2 hrs 6 min

**Girls spend more time on:**

- Video Chat: Boys 26 min, Girls 51 min
- Texting: Boys 38 min, Girls 1 hr 3 min
- Social Media: Boys 39 min, Girls 1 hr 18 min

\*12-13 years old (during COVID-19 pandemic)

**When comparing participants' screen use, those who used screens more often showed a small increase in:**

- Sleep problems
- Attention-deficit/hyperactivity disorder (ADHD)
- Lower grades in school
- Number of close friends

**Video gaming is associated with increases in:**

- Problem-solving
- Flexible thinking
- Recalling facts & skills

**Social media is associated with decreases in:**

- Problem-solving

**Every additional hour spent watching videos meant less sleep**

Together, more video watching and less sleep were related to small increases in:

- Feeling anxious/depressed
- Feeling withdrawn/depressed
- Having thought problems

**More than 2 hours of screen use\* per day**

\*Defined as non-school-related media use: TV, movies, videos, video games, texting, social media, or video chat.

Webinar: The Pros and Cons of Adolescent Screen Use



May 2023  
617 registrants

## The Importance of Sleep for Youth

Getting enough sleep is important for the body to stay active and healthy. Research using data from the ABCD Study<sup>®</sup>, the largest long-term study of brain development and child health in the United States, has looked at how much sleep youth typically get, what influences their sleep, and what might happen when they don't get enough.

## How much sleep do youth need?

Experts recommend:

- 9-12 Year-Olds: 9-12 Hours Per Day
- Teens: 8-10 Hours Per Day

**Are Youth Getting Enough Sleep?**

Only half of 9- and 10-year-olds in the ABCD study get the recommended amount of sleep per night.

Many who don't sleep enough still don't get the sleep they need 2 years later.

**48.0%** 9- and 10-year-olds...sleep at least 9 hours

**52.0%** ...sleep less than 9 hours

In other surveys, only 22% of high school students report getting the recommended amount of sleep (at least 8 hours) on school nights. Older teens are less likely to get enough sleep than younger teens are (Healthy People 2030).

**22.0%** ...sleep less than 8 hours

**78.0%** ...sleep less than 8 hours

Webinar: The Importance of Sleep for Youth



Nov 2023  
475 registrants

## Youth Experiences During the COVID-19 Pandemic

The COVID-19 pandemic had a major impact on people around the world. The ABCD Study<sup>®</sup>, the largest long-term study of brain development and child health in the United States, collected information about adolescent experiences before and during the pandemic. Using these data, researchers have studied the many ways the pandemic affected adolescents in the U.S. These studies look at how youth activities and mental health changed during the height of the COVID-19 pandemic.

## How Did Physical Activity Change During the Pandemic?

**Decrease in physical activity**

Fewer youth met the 2018 U.S. Department of Health and Human Services weekly physical activity guidelines during the pandemic.

[cdc.gov/healthyschools/physicalactivity/guidelines](https://www.cdc.gov/healthyschools/physicalactivity/guidelines)

**Youth Meeting the Guidelines**

Time Period	Percentage
Before the pandemic	16.4%
May-August 2020	11.0%
October 2020-March 2021	4.7%

There were differences in who met physical activity guidelines. Youth were more likely to meet the guidelines when they had:

- More social support
- Better coping behaviors

Youth were less likely to meet the guidelines when they had:

- Poorer mental health
- More stress
- More COVID-19-related worry

Surveys identified that youth reported doing more physical activity per week than parents/caregivers reported them doing, especially for youth who were more active than the average.

**Lower daily step count during the pandemic:**

- 9,625 Steps: March-November 2019
- 1,437 Steps: March-November 2020

1.5 Hours vs 2.2 Hours!

UPCOMING: Youth Experiences During the COVID-19 Pandemic



April 2024  
550 registrants



Scan to find ABCD Infographics and Webinars



# Policy



ELSEVIER

Journal of Adolescent Health

Volume 69, Issue 3, September 2021, Pages 390-397



Original article

## Early Adolescent Substance Use Before and During the COVID-19 Pandemic: A Longitudinal Survey in the ABCD Study Cohort



### Addressing Youth Substance Use through School Services and Supports

Lessons from the District of Columbia, Massachusetts, and New Mexico

## nature

Article | [Open access](#) | [Published: 06 April 2022](#)

## Brain charts for the human lifespan

World Health Organization

# Optimizing brain health across the life course:

WHO position paper

nature communications

[Explore content](#) | [About the journal](#) | [Publish with us](#)

[nature](#) > [nature communications](#) > [articles](#) > article

Article | [Open access](#) | Published: 02 May 2023

## State-level macro-economic factors moderate the association of low income with brain structure and mental health in U.S. children



RESEARCH REPORT

### The Return on Investing in Children Helping Children Thrive

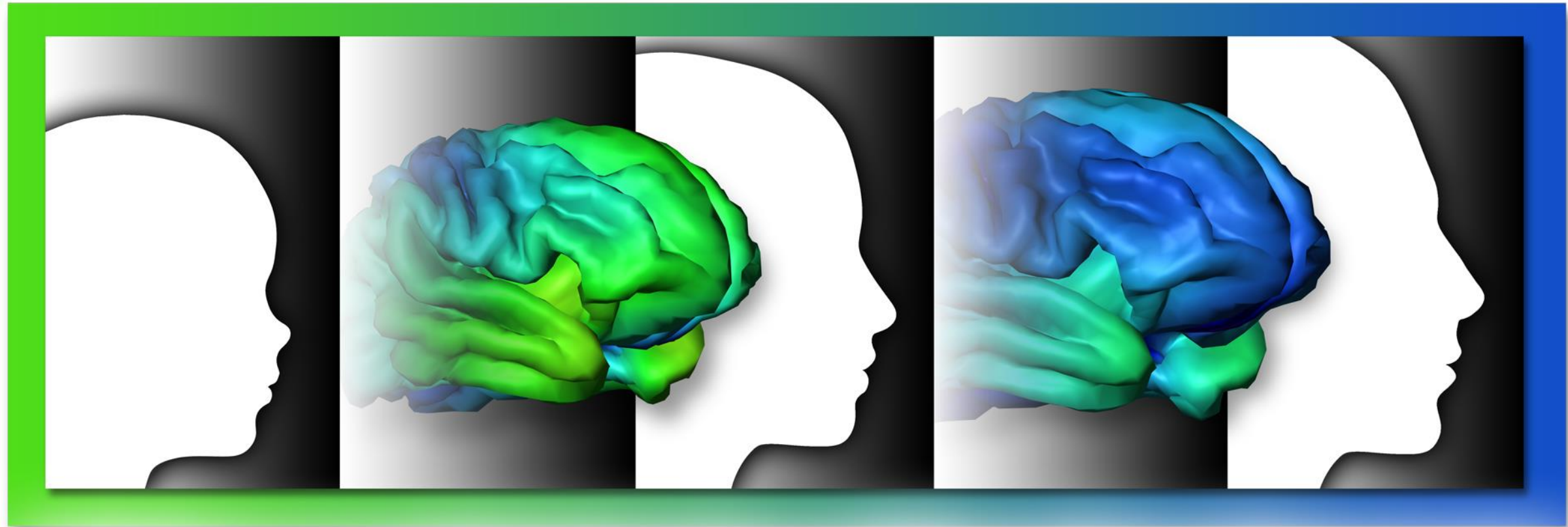
Elaine Maag, Cary Lou, Michelle Casas, Hannah Daly, Gabriella Garriga, and Lillian Hunter  
September 2023



# Thank you to...

- 10 Federal partner agencies and their staff
- 21 research sites, coordinating center, data analysis informatics and resource center
- Hundreds of investigators and trainees
- **Even more research assistants and staff**
- **And nearly 12,000 participants and their families**





# Adolescent Brain Cognitive Development<sup>®</sup>

*Teen Brains. Today's Science. Brighter Future.*

For More Information, Please Visit:

[ABCDStudy.org](http://ABCDStudy.org)