

# NICHD Director's Report

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



## Talk Outline

- NICHD 60<sup>th</sup> Anniversary
- COVID-19 Research Updates
- Decoding Maternal Morbidity and Mortality Challenge
- Bespoke Gene Therapy Consortium
- NCMRR Updates
- NIH and NICHD Staff Updates

NICHD



YEARS OF  
INNOVATION



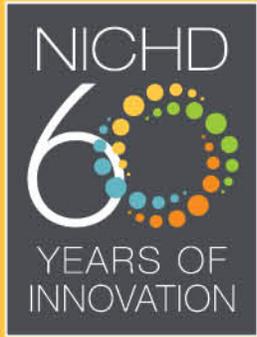
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# Join Us in Celebrating NICHD's 60th Anniversary



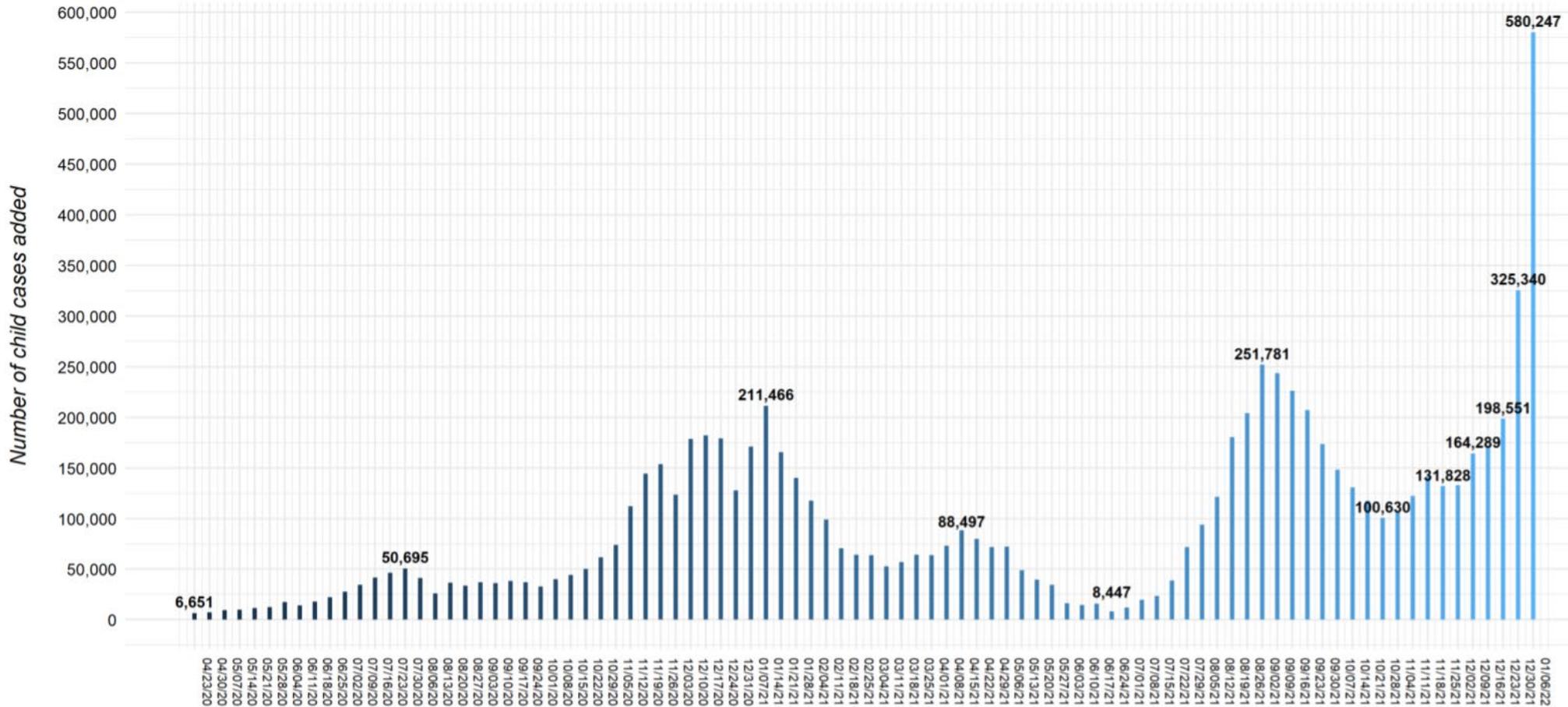
- Visit the NICHD 60th anniversary webpage: <https://www.nichd.nih.gov/60years>
  - Highlights key advances and milestones in NICHD's history
  - Focus on the people who help NICHD achieve its mission
  - Learn about NICHD's future research directions
  - Get updates on anniversary activities and events
- Hold the date!
  - October 17, 2022: 60th Anniversary Symposium: Healthy Pregnancies, Healthy Children, and Healthy and Optimal Lives
  - More details to come





# COVID-19 Research Updates

# Number of Child COVID-19 Cases Added Each Week (Week of 1/6/2022)

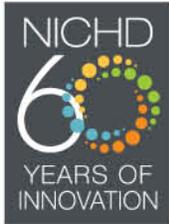


- Children represented 17.4% of all cases
- Seventeen states reported 20% or more of cumulated cases were children





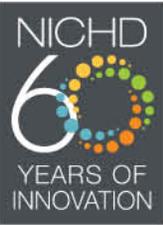
# Post-Acute Sequelae of COVID (PASC)



- Comprehensive research effort to understand, prevent, and treat long COVID
- Infrastructure: Administrative, Clinical, and Data coordinating centers and a Biorepository
- Infrastructure will support adult, pregnancy, pediatric, and autopsy clinical cohorts, along with real-world data from EHRs
- Up to 20,000 pediatric participants will be enrolled, with enrollment targets balanced to reflect the impact of COVID-19 in racial and ethnic minorities
  - Will address epidemiology, risk factors, pathobiology, and outcomes in children and adolescents
- Participants with MIS-C (a form of PASC) will be included in RECOVER



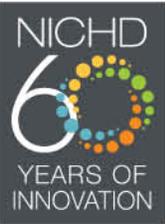
# National COVID Cohort Collaborative: Pediatric COVID-19 Severity Dashboard



- PI Tell Bennett is funded by NIH's RECOVER program
- Interactive pediatric COVID-19 severity dashboard for near-real-time tracking
- Analyzes the trajectories of pediatric COVID-19 hospitalization rates
- Leverages the National COVID Cohort Collaborative (N3C), a resource developed with funding from the National Center for Advancing Translational Sciences (NCATS)
- N3C aggregates electronic health record data from over 50 U.S. pediatric centers
  - 1,457,888 pediatric patients in the N3C were tested for SARS-CoV-2
  - 220,177 (15.1%) of those tested were positive
  - Among 13,672 hospitalized children (6.2% of SARS-CoV-2 positive children), 1,989 had severe disease (14.5% of children hospitalized with SARS-CoV-2)

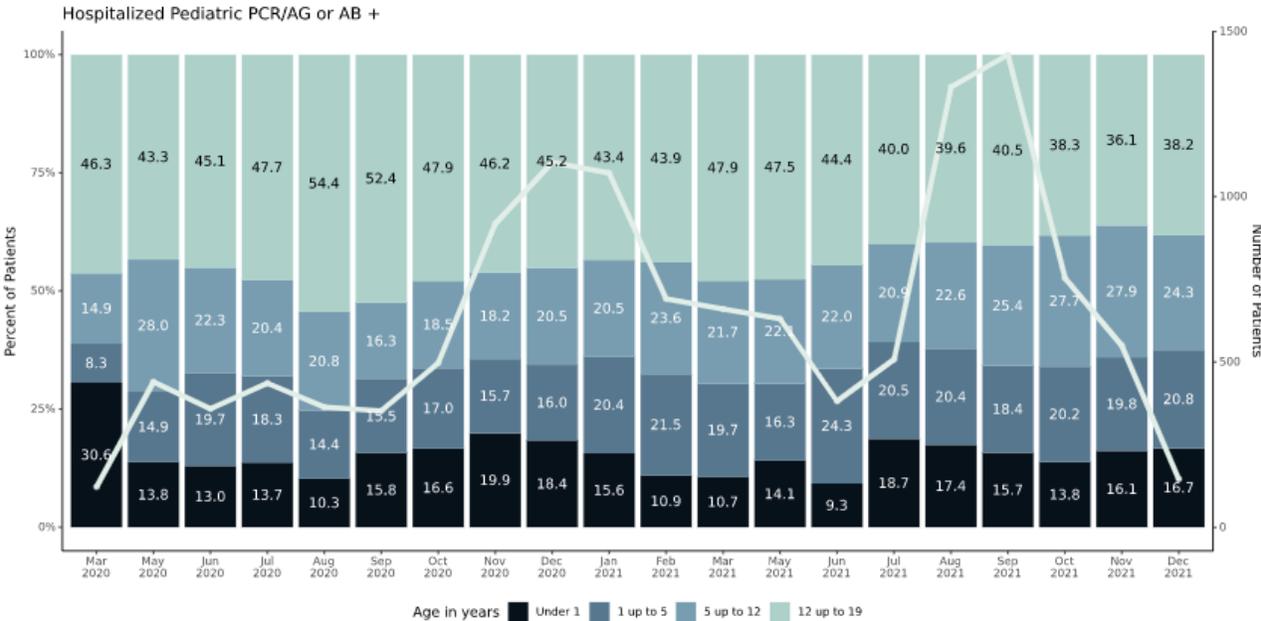
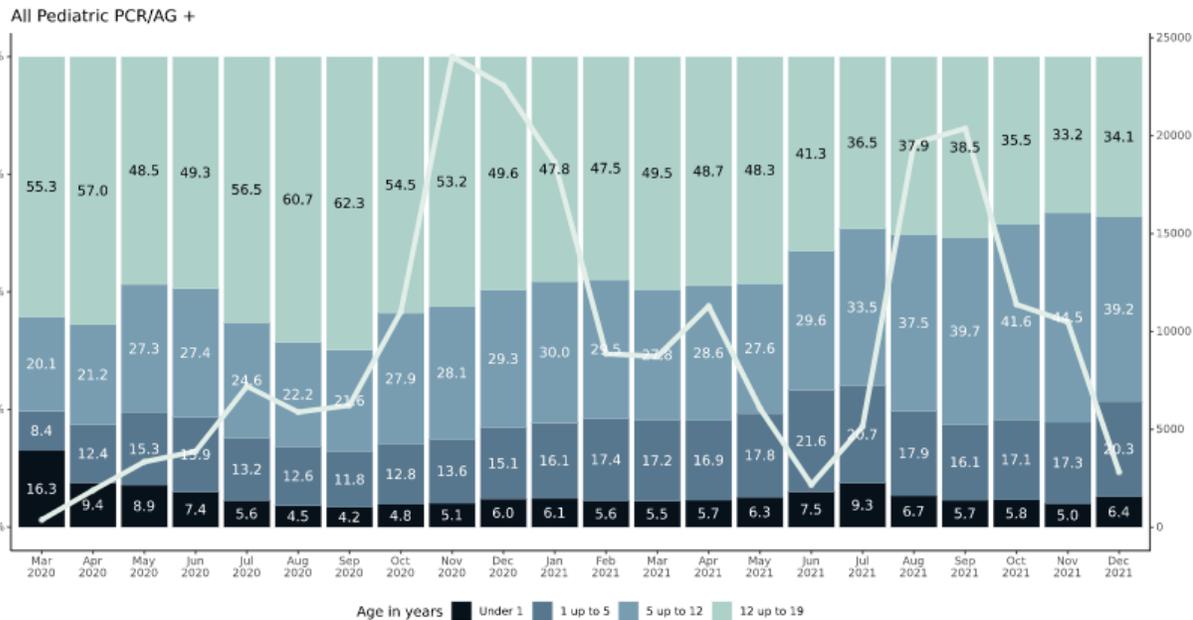


# COVID-19 Age Distribution Over Time



## All positive COVID-19 cases by age

## Hospitalized COVID-19 cases: Positive Test or Antibody



Data updated Dec. 16, 2021

<https://covid.cd2h.org/pediatrics-dashboard/>



# COVID-19 Vaccines and Menstruation



- Analyzed de-identified data from nearly 4,000 women via a fertility tracking app
- One dose of a COVID-19 vaccine during a single menstrual cycle increased cycle length by nearly one day compared to unvaccinated women
  - Two vaccine doses in same menstrual cycle increased cycle length by ~ 2 days
  - Increased cycle length not associated with change in the number of days of menses
  - Cycle length returned to normal in subsequent cycles
  - International Federation of Gynecology and Obstetrics classifies a variation in cycle length as normal if the change is less than eight days
- Additional research may determine if COVID-19 vaccination influences associated menstrual symptoms (e.g., pain, mood changes) and characteristics of bleeding (e.g., heaviness of flow)

Edelman, A. et al. *Obstetrics & Gynecology*.  
DOI:10.1097/AOG.0000000000004695 (2022)

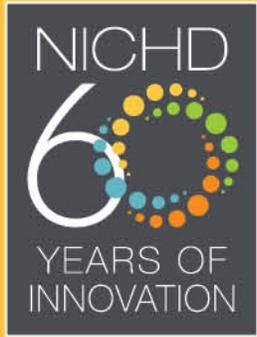


# Recent Key Findings: Maternal, Placental and Fetal Immune Response to the COVID-19 Vaccines



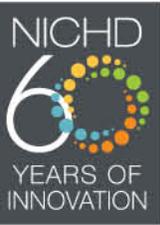
- Increased SARS-CoV-2 antibody levels in pregnancy post-vaccination vs. natural infection (Gray KJ et al. *AJOG*, 2021)
- Maternal immune responses were superior in 3rd and 1st trimester vaccination (Atyeo et al., *Medrxiv*, 2021)
  - Maternal cord transfer was highest in 1st trimester vaccination
  - Potential maternal and fetal benefits with earlier vaccination in pregnancy
- Vaccine-induced antibodies in breastmilk samples (Gray KJ et al. *AJOG*, 2021)
- Best protection for an infant is to vaccinate the mother during the 3<sup>rd</sup> trimester and have the mother breast feed





# Decoding Maternal Morbidity and Mortality Challenge

# NICHD's First Data Challenge Aims to Identify Risk Factors for First-time Pregnancies



- Proposals analyzed participant data from NICHD's [Nulliparous Pregnancy Outcomes Study: Monitoring Mothers-to-Be \(nuMoM2b\)](#), a racially, ethnically and geographically diverse sample of people who are pregnant for the first time
  - Established in 2010, NuMoM2b has compiled data on more than 10,000 pregnant women, from the sixth week of pregnancy and continuing through delivery
- Twelve prizes totaling \$400,000 were awarded to seven winners
  - Seven prizes of \$50,000 awarded for innovation
  - Five additional prizes of \$10,000 awarded for addressing health disparities
- Winners developed computational methods to analyze data and flag cases that were high-risk for complications
  - These methods can now be used to analyze additional data from other pregnancies

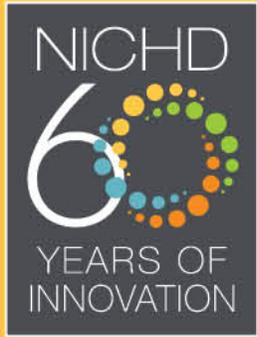


# Challenge Award Winners



- Sample of award-winning submissions:
  - Multiple approaches to predicting and understanding preeclampsia and hypertensive disorders of pregnancy
  - Developed an inter-sectional social determinants of health (SDoH) phenotype (using 14 indicators) to reveal specific groups who would experience maternal morbidity disproportionately across the sample
  - Understanding the relationship between marginalizing behaviors and postpartum complications for nulliparous women receiving an undesired C-section
  - Tracking changes in health metrics between visits to model adverse pregnancy outcomes





# Bespoke Gene Therapy Consortium

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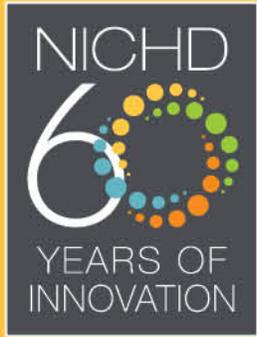
- Part of NIH's Accelerated Medicines Partnership, a public-private partnership with the Foundation for NIH, FDA and private organizations
- NIH-wide participation: NCATS, NICHD, NINDS, NIMH, NHLBI, NIH Clinical Center
- Aims to develop platforms and standards that will speed the development and delivery of customized or 'bespoke' gene therapies that could treat rare diseases
  - Optimize creation of adeno-associated viruses (AAVs) for use in humans
  - Conduct clinical trials using AAVs to treat rare diseases
- De-risks this area for the commercial sector and create a straightforward path for FDA approval



# Bespoke Gene Therapy Consortium

- Value to NICHD
  - Strategic Plan Theme 5 – Advancing Safe and Effective Therapeutics
  - Accelerates path to gene therapy for monogenic disorders relevant to NICHD (e.g., Fragile X syndrome, Williams syndrome, Phelan McDermid syndrome)
  - 9 of 12 extramural research branches support research on genetic disorders
- NICHD role
  - Help develop FOAs; provide programmatic input during funding discussions; encourage intramural involvement
- Progress to date
  - Released two requests for proposals seeking high-throughput screens or other developments to optimize individual steps of the AAV vector generation and human gene expression pathways
  - Steering Committee seeking information on rare diseases and disorders that could be candidates for future BGTC AAV gene therapy trials

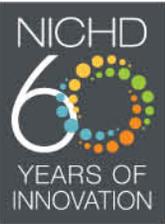




# National Center for Medical Rehabilitation Research (NCMRR) Update

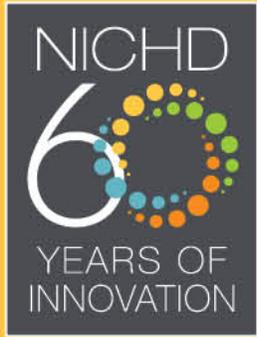
# NCMRR Looking Forward

- Published the 2021 NIH Research Plan on Rehabilitation
- Pathways to Prevention Program resulted in a Request for Applications - Home and Community-Based Physical Activity Interventions to Improve the Health of Wheelchair Users
  - [HD-22-017](#)
  - Due date March 30, 2022



NIH Pub. No. 21-HD-8171  
October 2021





# NIH and NICHD Staff Updates

# NIH Director Transition



- Dr. Francis Collins stepped down as NIH Director on December 20, 2021
  - Now a tenured senior investigator in NHGRI
- Dr. Larry Tabak is Acting NIH Director
- The White House is conducting the search for the next NIH Director
  - Political appointment requiring Senate confirmation

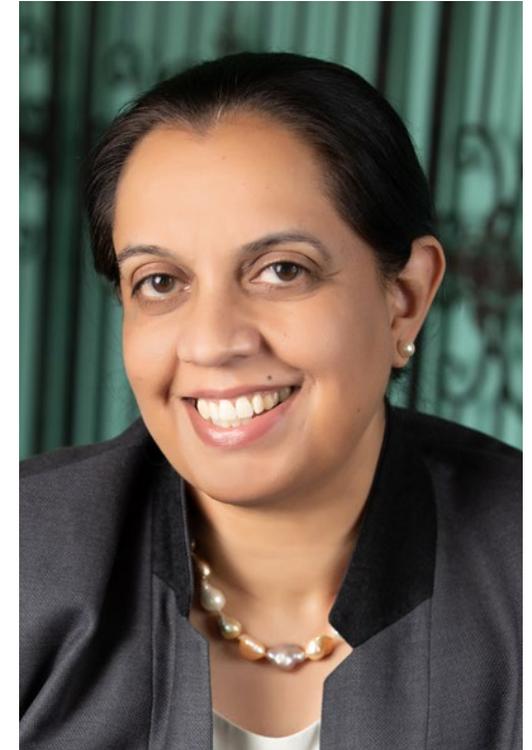


# Director, Division of Population Health Research (DiPHR)

## Dr. Una Grewal



- Earned MPH and PhD degrees in epidemiology at the University of Michigan School of Public Health
- Joined the DiPHR Epidemiology Branch as a staff scientist in September 2007
- Research focuses on fetal growth and pregnancy outcomes (e.g., labor and delivery, gravid disorders, intrauterine growth restriction, birth defects), especially in relation to maternal nutrition
- Appointed DiPHR Deputy Director in 2013; Acting Director since February 2020



# Division of Extramural Research Leadership Positions

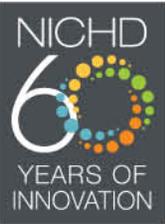


- Associate Director for Extramural Research
  - Oversees NICHD's 12 extramural scientific research branches
  - Selection expected in early 2022; approvals to follow
- Director of Extramural Activities
  - New position
  - Will oversee NICHD's scientific review and grants management branches, as well as the extramural policy and training offices
  - Selection expected in early 2022; approvals to follow



# Farewells

- Louis DePaolo, Ph.D., Chief, Fertility and Infertility Branch
  - Retired after 28 years of service



- Charisee Lamar, Ph.D., M.P.H., Director, Office of Health Equity (OHE)
  - To become Deputy Director of Extramural Activities at NIMH

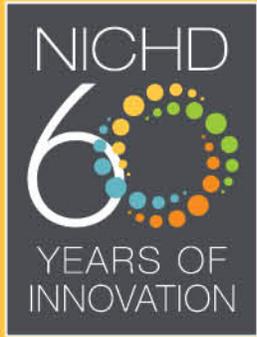


# Status Update: Search for New NICHD Scientific Director



- Four finalists completed second round interviews
- Each gave a virtual presentation to DIR
  - Included overview of their science, vision for the DIR, track records in mentoring and in hiring a diverse work force
- Next step:
  - Selection expected in early 2022; approvals to follow
- Additional NICHD intramural and extramural job opportunities: <https://www.nichd.nih.gov/about/jobs>





Thank You!