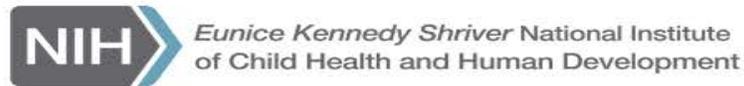


# The 2018 NICHD Strategic Planning Process: Updates Since the September Advisory Council Meeting

Diana W. Bianchi, M.D.  
Director  
January 24, 2019



# Overview of Today's Presentations

- Overview of Strategic Planning Activities
  - Initial Goals
  - Timeline
  - Core Principles
  - Implementation of Core Principles
  - Accomplishments to Date
- Draft Scientific Themes, Goals, & Opportunities
- Facilitated Council Discussion & Comment Period
- Next Steps

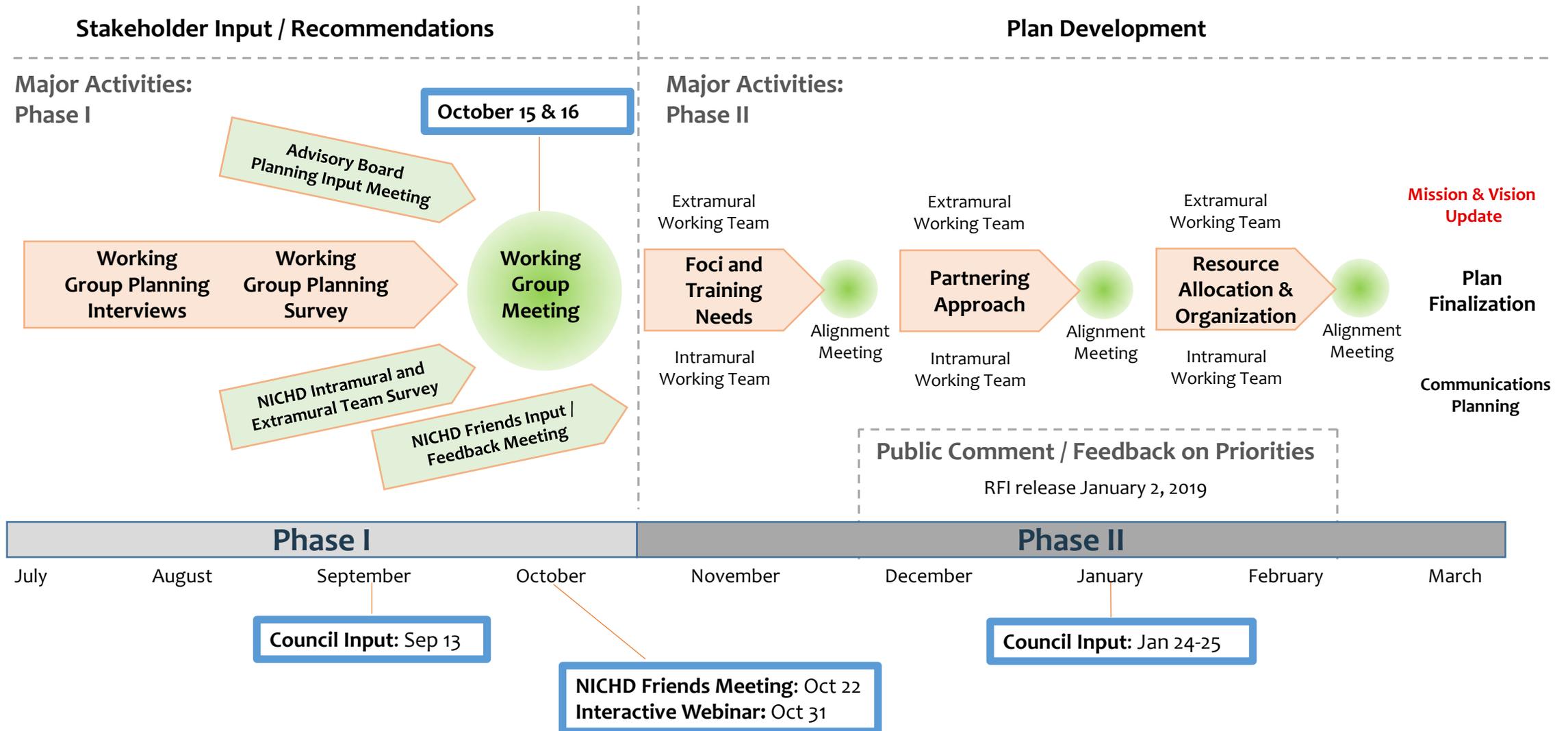


# Initial Goals of Strategic Planning Process

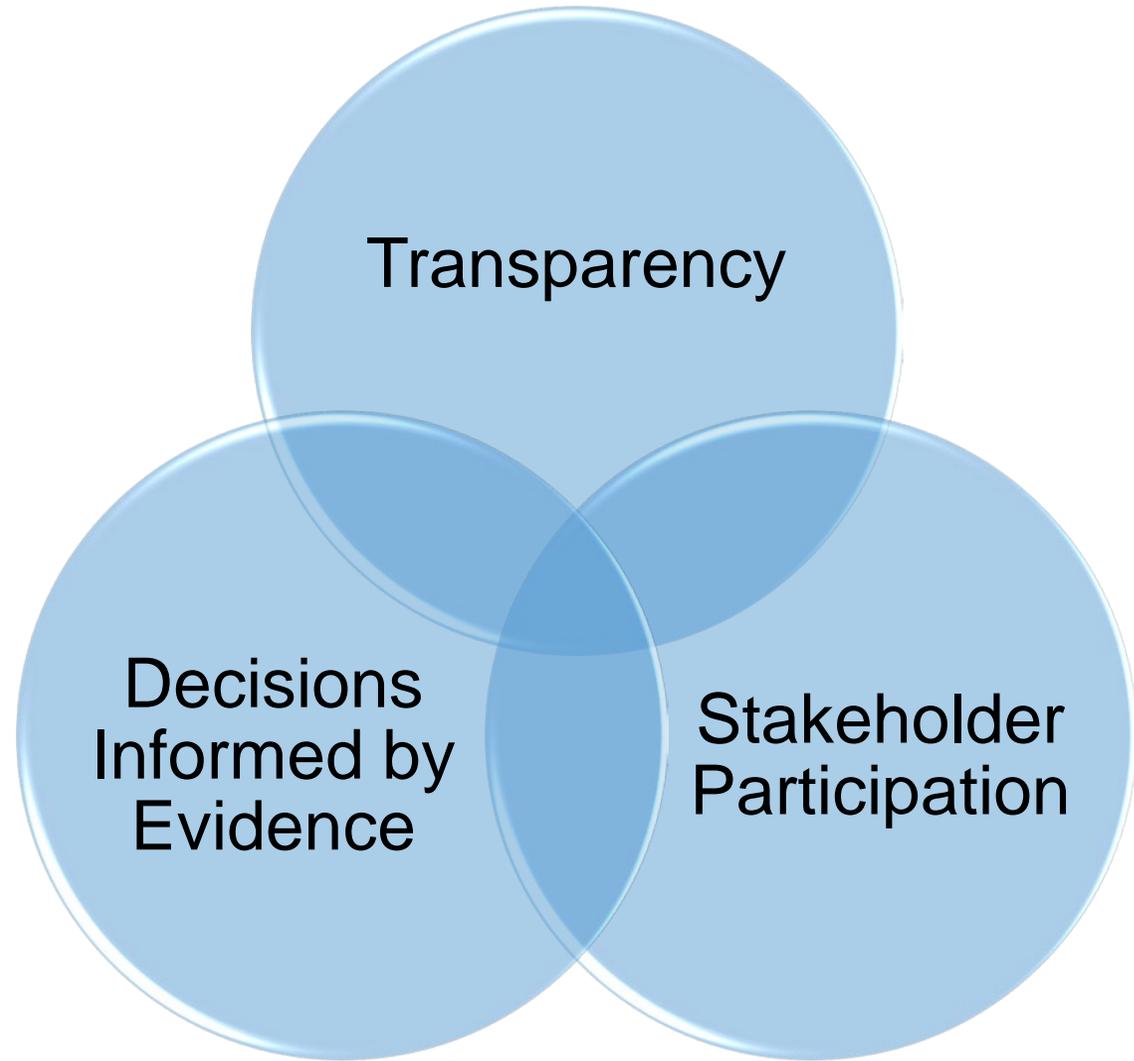
- Identify scientific priority areas in which NICHD can lead at NIH
- Identify scientific priority areas in which NICHD can be a partner/collaborator at NIH
- Additional decisions regarding funding and training opportunities to follow



# NICHD Strategic Planning – Progress on the Timeline



# Core Principles



Other Principles: Alignment of Intramural and Extramural Research  
Inclusion of Women, Children and People with Disabilities



# Implementing Core Principles: Transparency

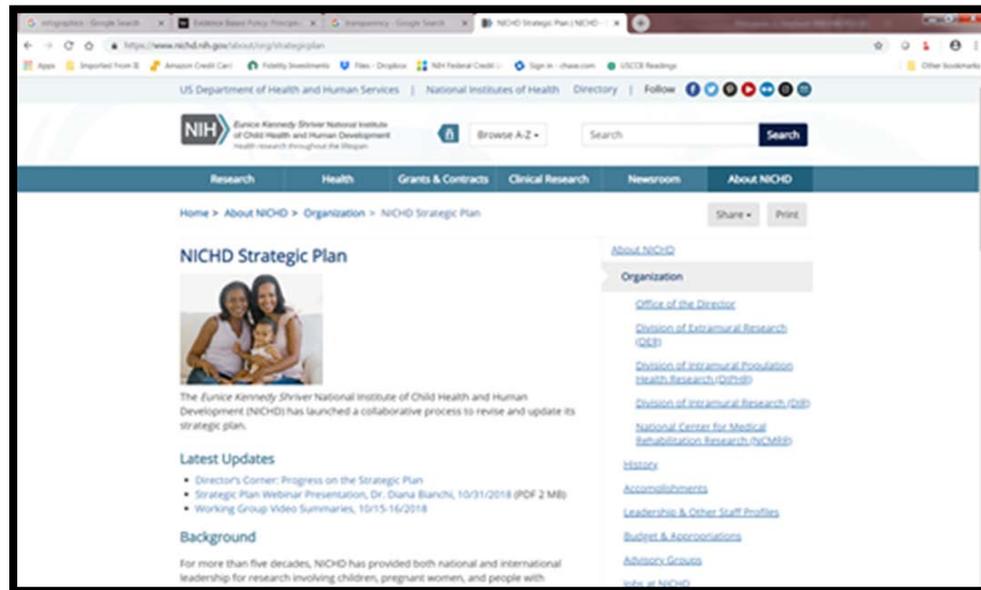


- Video Announcement:
  - Why—
  - How—
- Timeline established and shared

<https://www.nichd.nih.gov/about/org/strategicplan>



# Implementing Core Principles: Transparency



- Initial public launch at the January 2018 Meeting of the National Advisory Child Health and Human Development (NACHHD) Council
- Public-facing website established, frequently updated throughout 2018
- Goals and objectives of the process clearly outlined in multiple venues



## Implementing Core Principles: Decisions Informed by Evidence



- Collected and analyzed key NICHD data
  - Analyzed portfolio by public health and scientific domains
  - Reviewed NICHD/NIH strategic plans and internal scientific research plans
  - Reviewed areas of emphasis in NICHD Vision, 2000 Strategic Plan
  - Performed bibliometric analyses of the portfolio
  - Analyzed impact of select networks and centers within the Division of Extramural Research



# Implementing Core Principles: Stakeholder Participation

## Council & Working Group Input

- National Advisory Council Input – A Listening Session (Sept 23, 2018)
- Strategic Planning Working Group Meeting (Oct 15-16, 2018)
  - 27 Federal Members (mainly NICHD)
  - 53 External Members
  - Expertise represented the range of NICHD's research portfolio
  - Multi-disciplinary expertise, broad thinkers
  - Also included ~1/3 young investigators, who represent the future of NICHD





# Strategic Planning Working Group Meeting

## Video Summaries



<https://www.nichd.nih.gov/newsroom/digital-media/videos/KnowNICHD-2018-full>



# Implementing Core Principles: Stakeholder Participation



## General Public Input

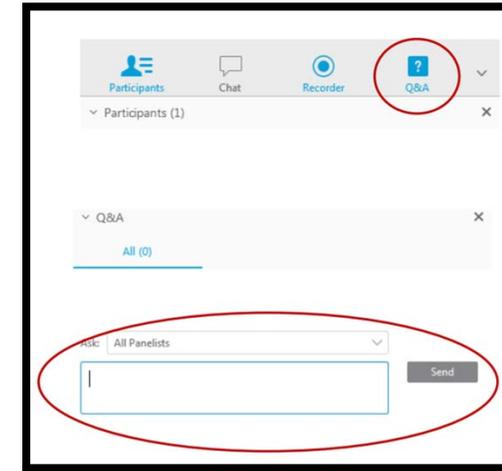
- Members of the public and NICHD stakeholders were invited to “Join the Conversation”
  - The public has been helping to shape NICHD’s research agenda
- Email questions or ideas to us at [NICHDStrategicPlan@nih.gov](mailto:NICHDStrategicPlan@nih.gov)
  - Received 119 email responses – comments, suggestions, or questions to date



# Implementing Core Principles: Stakeholder Participation

## Community Input

- October 22: Friends of the NICHD meeting
  - 35 patient and family organizations attended
    - Included research advocacy groups
    - Professional societies
- October 31: Live interactive public webinar
  - ≈300 participants across the US
  - Received questions via online system
  - Questions recorded and grouped by themes

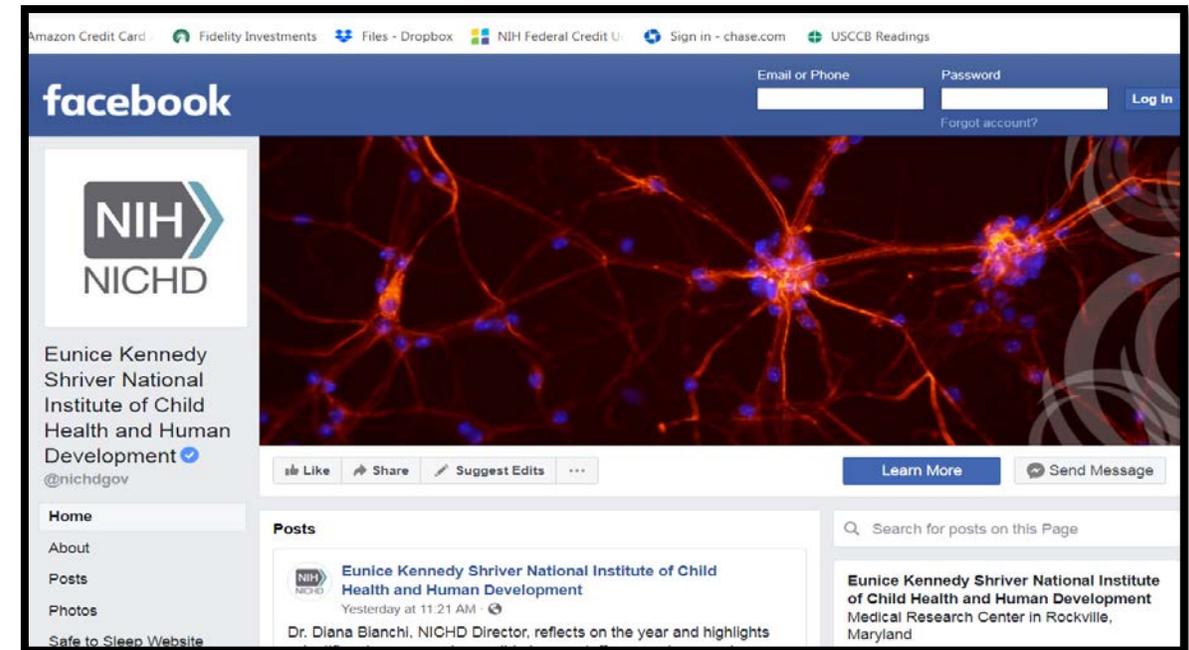
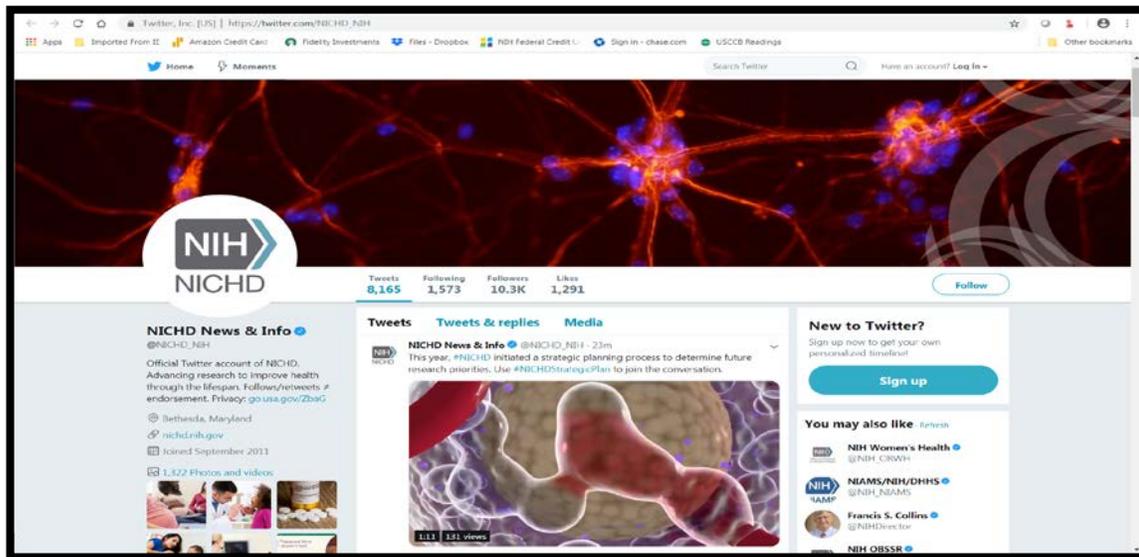




# Implementing Core Principles: Stakeholder Participation

## General Public Input

- [Facebook](#) and [Twitter](#) pages;
- Used **#NICHDStrategicPlan** to categorize comments and help others join the conversation



- NICHD has been tracking the level of social media activities we have garnered on the strategic planning process

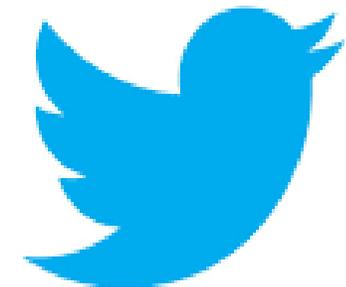


## Social Media Traffic – Results



- Since July 1, 2018 there have been **383** #NICHDStrategicPlan hashtag mentions by **199** authors, generating **1.3 million potential impressions** (this number excludes NICHD's own social media reach)
- NICHD's social media posts on the strategic plan have generated **59,624** impressions, **110** shares/retweets, and **403** link clicks. There have been **171 posts** on research priorities feedback (including retweets)

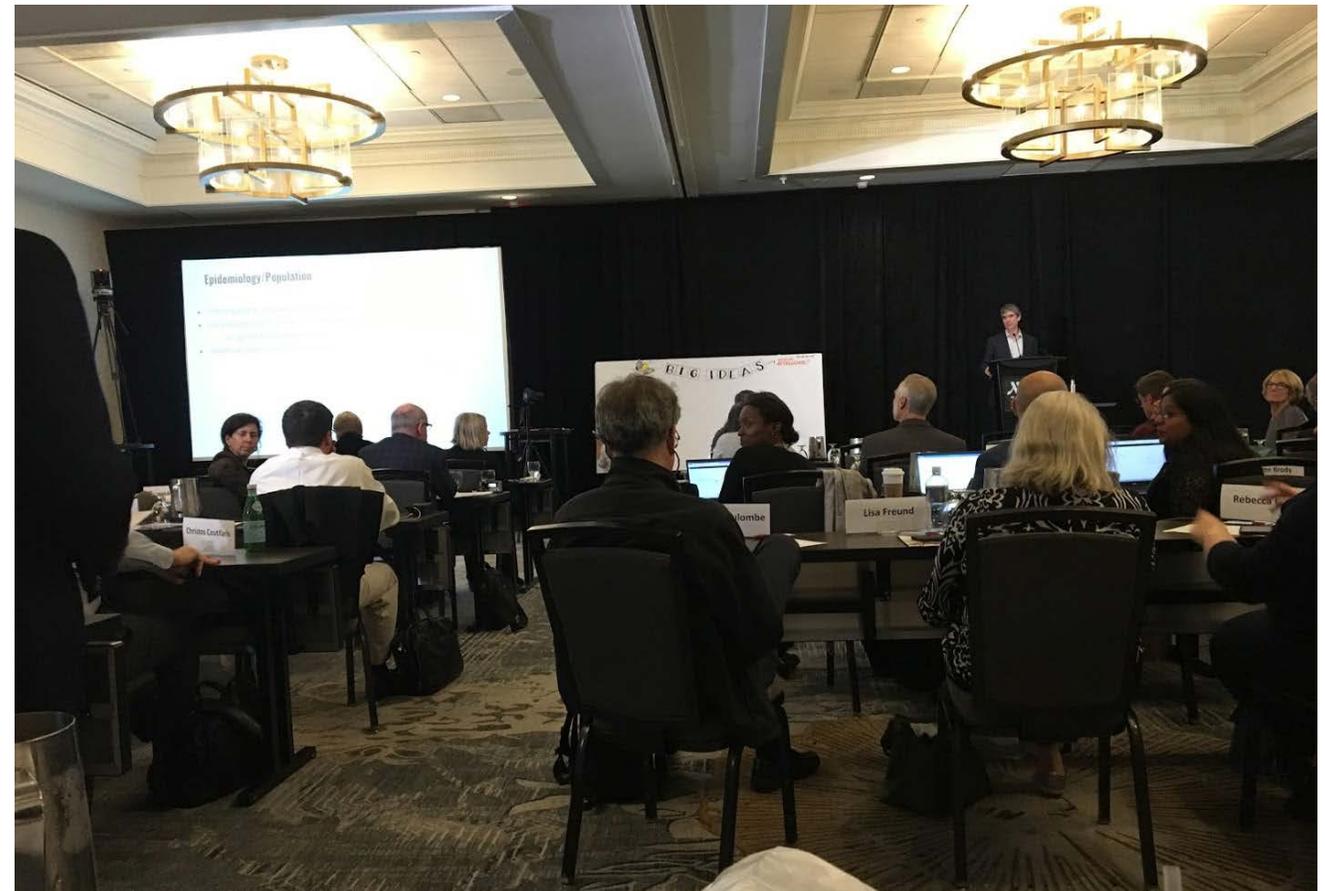
- Majority of promotional efforts occurred on Twitter – due to the large presence of researchers, healthcare providers, and other audiences





# Implementing Core Principles: Decisions Informed by Evidence

- National Advisory Council Sept 2018: Listening Session
  - Yielded 39 ideas
- NICHD Intramural and Extramural Team Surveys
- Working Group interviews and surveys
  - Yielded 270+ ideas
- Working Group identified and provided input on research priorities across scientific domains
  - **270+ great ideas, prioritized ≈50 for further consideration**





# Intramural and Extramural Working Teams

- Magnitude of the challenge
- What is NICHD uniquely suited to address?
- Scientific Impact
- Feasibility

# Activities & Accomplishments

- Collected input from various sources and documents:
  - NICHD Council – Listening Session (39)
  - Working Group meeting report (~50)
  - Public input via strategic planning mailbox (119)
  - Public input (NICHD Friends & Interactive webinar)
- NICHD Working Team Meetings
  - Intramural working team priorities nominations (7)
  - Extramural working team priorities nominations (7)
- Review Summary and Level-Setting
  - Yielded a final set of 16 priorities

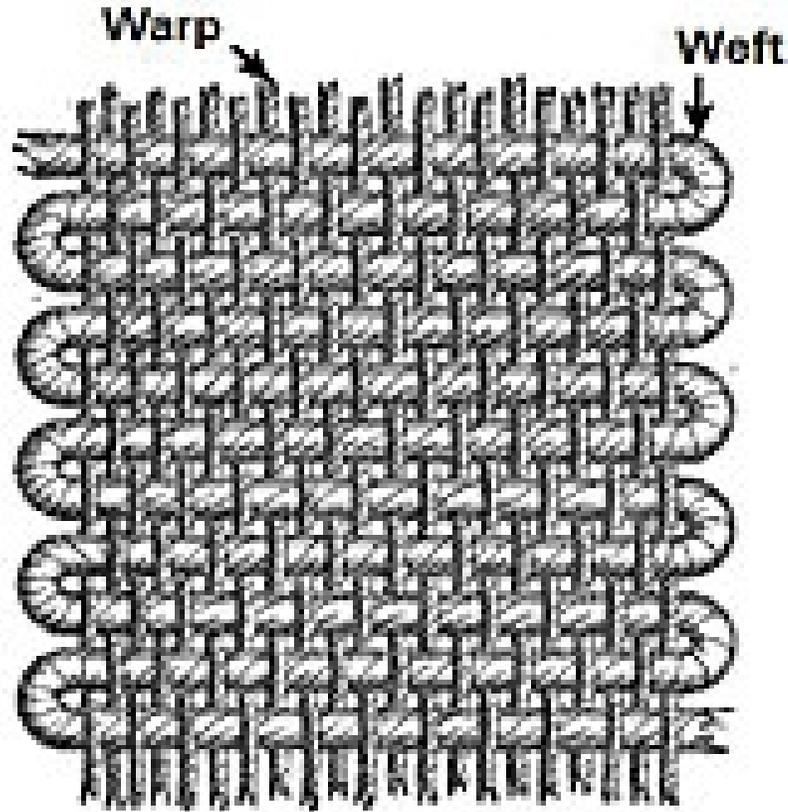




A final set of six themes, goals, and opportunities were consolidated for further consideration today and via the RFI



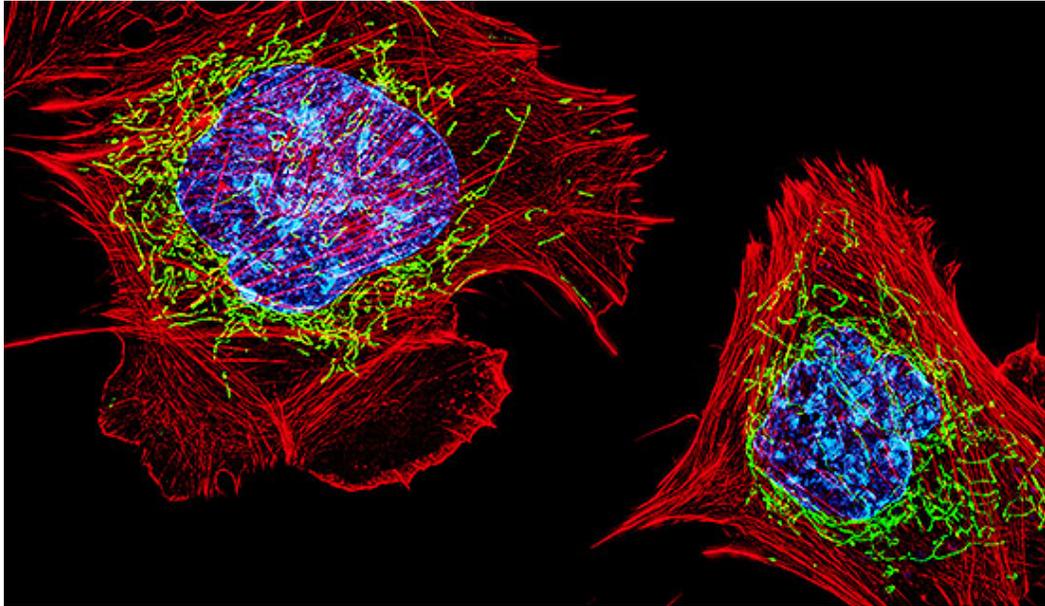
# Certain concepts are “woven” into the strategic plan



If “warps” correspond to the scientific priority areas, “wefts” refer to concepts that are embedded in all of the priority areas, such as:

- Inclusion of our populations
- Nutrition
- Health Disparities
- Infectious Diseases
- Global Health

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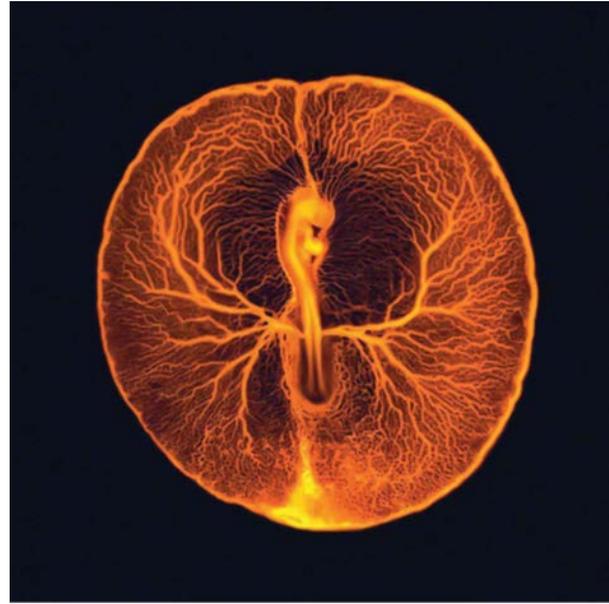


1. **Understanding Early Human Development**
2. **Setting the Foundation for a Healthy Pregnancy and Lifelong Wellness**
3. **Promoting Gynecological, Andrological, and Reproductive Health**
4. **Identifying Sensitive Time Periods to Optimize Health Interventions**
5. **Improving Health During the Transition From Adolescence to Adulthood**
6. **Ensuring Safe and Effective Therapeutics and Devices**

## Research Themes

# Research Theme #1

## Understanding Early Human Development

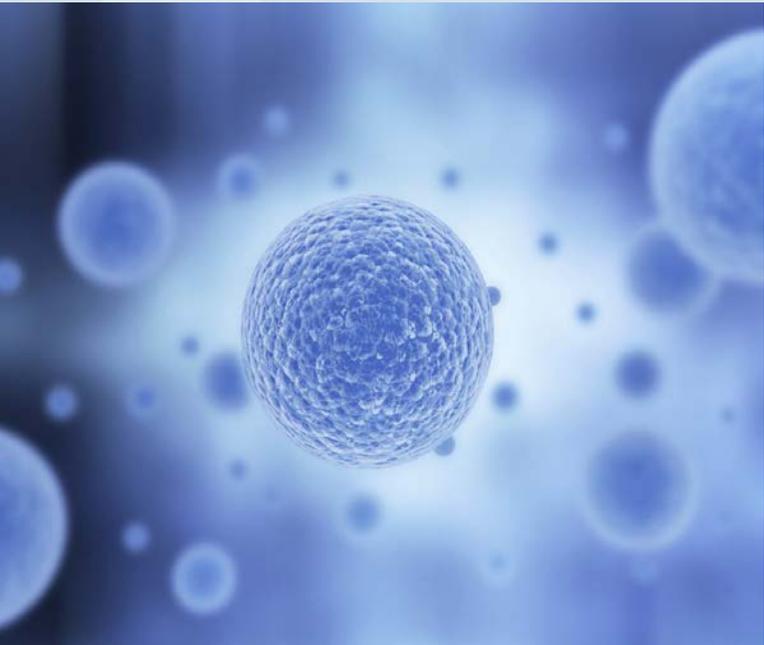


- **Goal:** Enhance knowledge of genes and regulatory networks at the single- and multi-cell levels during preconception, conception, and gestation to understand human development, improve fertility, and reduce pregnancy loss.



# Research Theme #1

## Understanding Early Human Development

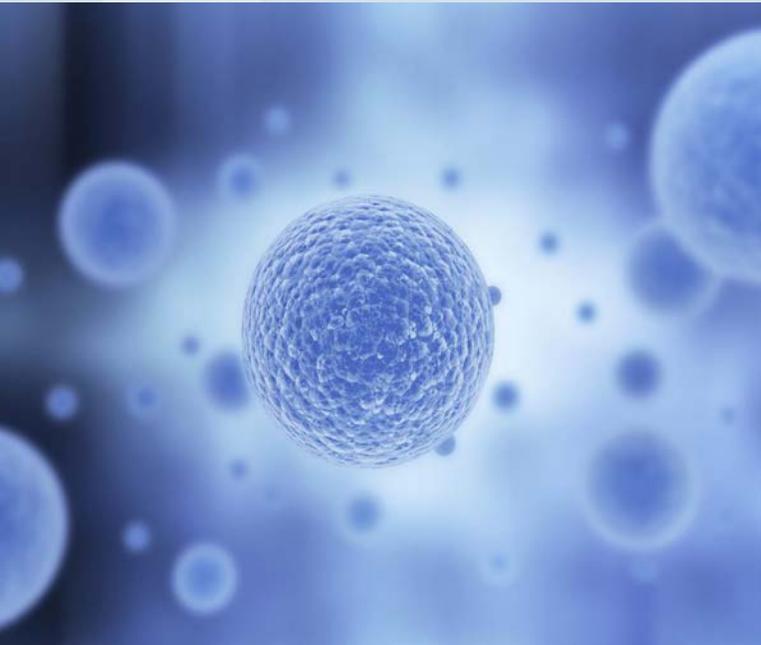


### Scientific Opportunities

- Develop novel platforms, tools, and techniques to characterize the early stages of development;
- Categorize and profile single cells to better understand:
  - novel cell types in humans and model organisms,
  - signaling pathways in vertebrate development,
  - the role of 'omics in controlling development, and
  - gene regulatory elements that potentially cause disease;
- Research on the influence of environmental exposures on early development;

# Research Theme #1

## Understanding Early Human Development



### Scientific Opportunities

- Capitalize on newly available technology to identify and describe the full range and function of cell types present during development;
- Understand at a cellular level what developmental factors contribute to infertility, miscarriage, stillbirth, birth defects, and other congenital conditions.



# Research Theme #2

**Setting the  
Foundation  
for a  
Healthy  
Pregnancy  
and  
Lifelong  
Wellness**



- **Goal:**  
Improve pregnancy outcomes to maximize the lifelong health of the woman and her child(ren).

# Research Theme #2

## Setting the Foundation for a Healthy Pregnancy and Lifelong Wellness

### Scientific Opportunities

- Support research on developmental origins of health, including the development of early indicators of risk for threats to maternal health during pregnancy;
- Understand how pregnancy-related conditions contribute to maternal mortality and influence health and well-being later in life;
- Determine the biological underpinnings of these conditions and potential targets for intervention by studying genotypic, phenotypic, exposure, and other biomarkers;



# Research Theme #2

## Setting the Foundation for a Healthy Pregnancy and Lifelong Wellness

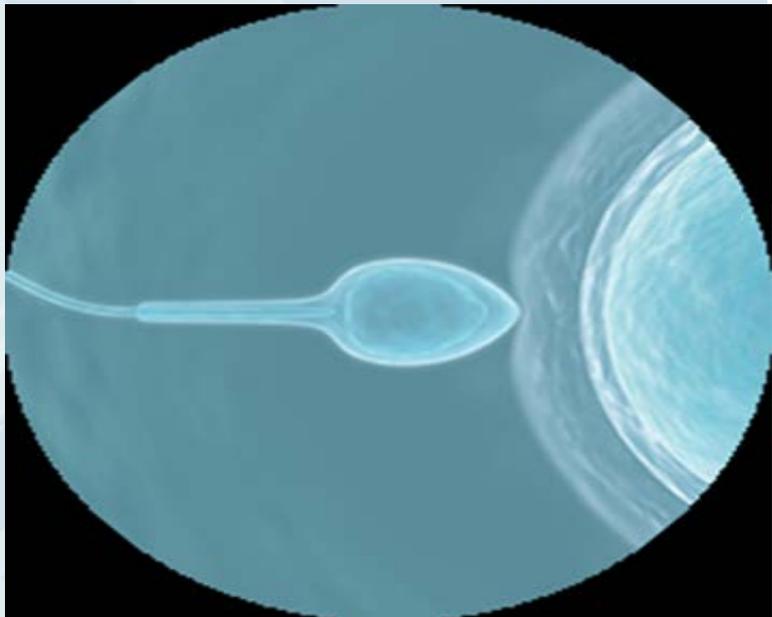
### Scientific Opportunities

- Utilize new and/or existing datasets to better understand the course and complications of pregnancy that contribute to health outcomes for woman and child through adulthood;



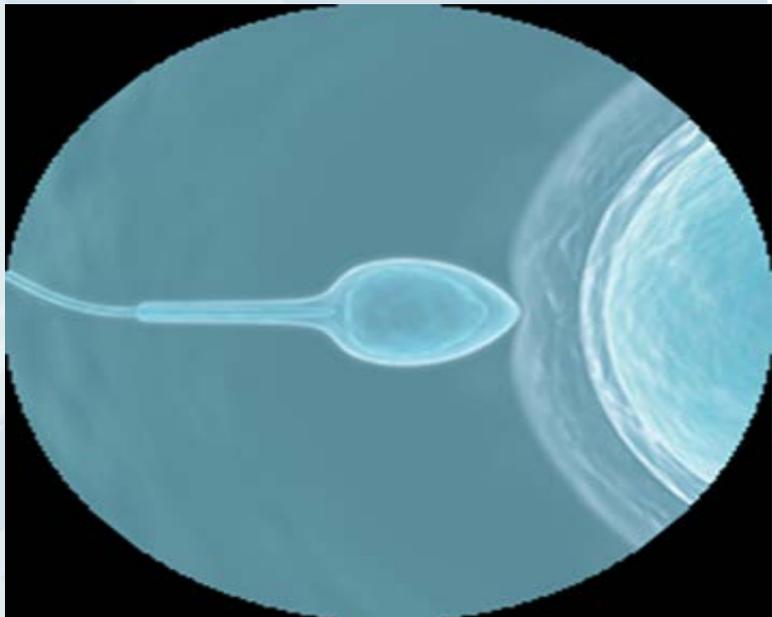
- Support or conduct studies of the placenta, including non-invasive methods to determine placental health;
- Understand the contributors to morbidity and mortality to identify and validate targets for preventing preterm birth and related adverse events.

# Research Theme #3 Promoting Gynecological, Andrological, and Reproductive Health



- **Goal:** Enable women and men to manage fertility and minimize the impact of gynecological and andrological conditions

# Research Theme #3 Promoting Gynecological, Andrological, and Reproductive Health



## Scientific Opportunities

- Improve basic biological understanding of the male and female reproductive organs;
- Utilize integrated genetic and phenotypic exposure data to understand the underlying mechanisms of health conditions;
- Focus on the science of pediatric gynecology, especially as it relates to congenital conditions or complex pediatric gynecologic conditions;



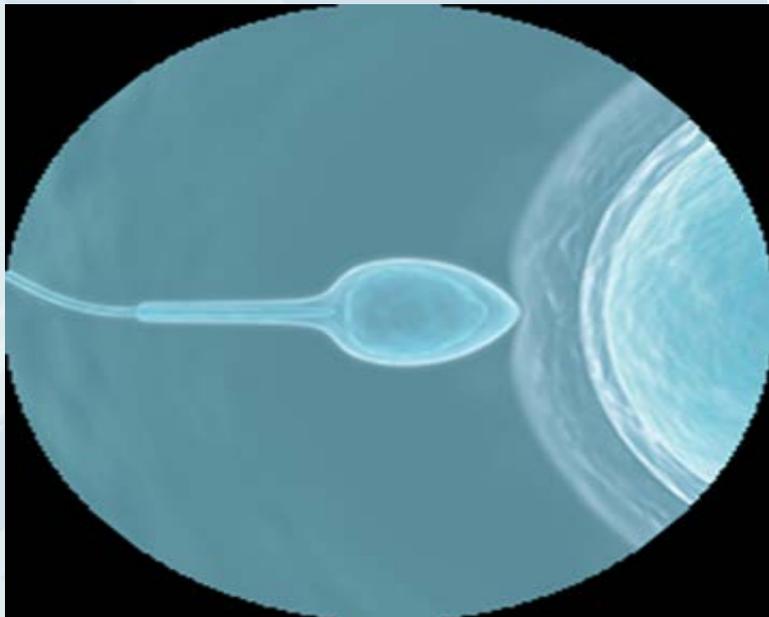
# Research Theme #3

## Promoting Gynecological, Andrological, and Reproductive Health



## Scientific Opportunities

- Understand the basic biology of healthy reproductive development;
- Ensure options to allow women and men to manage their fertility, as well as developing solutions for infertility;
- Identify modifiable factors to solve infertility both through basic science, as well as through an examination of clinical and epidemiologic data on treatments used prior to assisted reproductive technologies.



# Research Theme #4

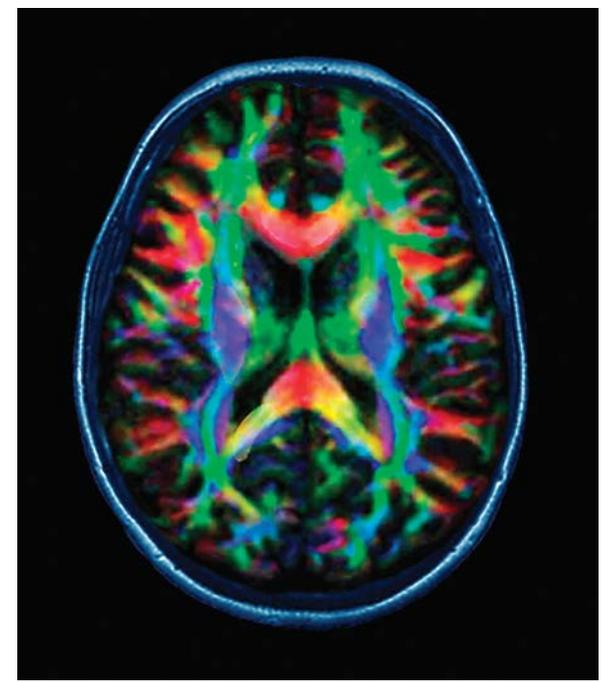
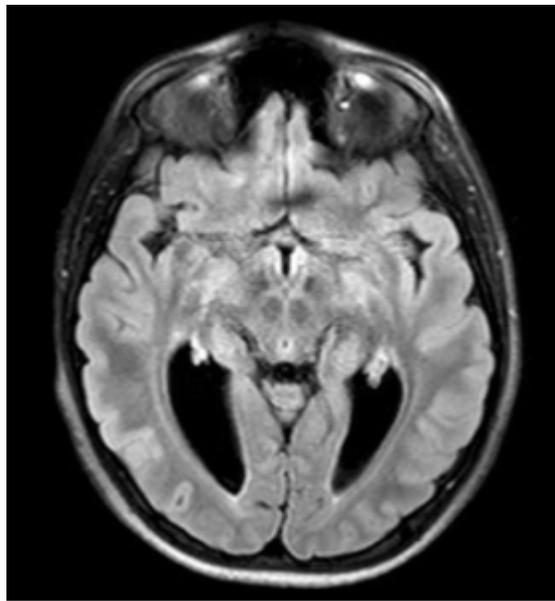
## Identifying Sensitive Time Periods to Optimize Health Interventions



- **Goal:** Understand sensitive time periods during development and rehabilitation, when prevention and treatment strategies may have their greatest impact.

# Research Theme #4

## Identifying Sensitive Time Periods to Optimize Health Interventions



### Scientific Opportunities

- Focus on change brought on by normal development or by injury or disease;
- Understand sensitive time periods in which an exposure to a disease or event—or the use of a particular intervention—will have the greatest impact;
- Identify the timing and mechanisms of plasticity in early developmental stages;



# Research Theme #4

## Identifying Sensitive Time Periods to Optimize Health Interventions



## Scientific Opportunities

- Investigate the mechanisms that determine the initiation and termination of these sensitive time periods, including different periods during gestation;
- Identify sensitive time periods after disease or injury when plasticity is high to inform the timing of prevention and management, including
  - early interventions for intellectual, developmental, and learning disabilities; and
  - therapeutic approaches in critical care and rehabilitation settings;



# Research Theme #4

## Identifying Sensitive Time Periods to Optimize Health Interventions

### Scientific Opportunities

- Explore factors that can promote or hinder health during these sensitive time periods, such as nutrition, sleep, or behavioral interventions – including very early exposures to:
  - infectious diseases,
  - early language interventions,
  - technologies or digital media, etc.
- Enhance our ability to target interventions by looking at social determinants, in conjunction with biological factors, that influence these sensitive time periods.



# Research Theme #5

## Improving Health During the Transition From Adolescence to Adulthood



- **Goal:** Improve the transition from adolescence to adulthood by identifying behavioral, social, environmental, and biological factors that enhance health, especially for adolescents with disabilities or other chronic conditions.

# Research Theme #5

## Improving Health During the Transition From Adolescence to Adulthood

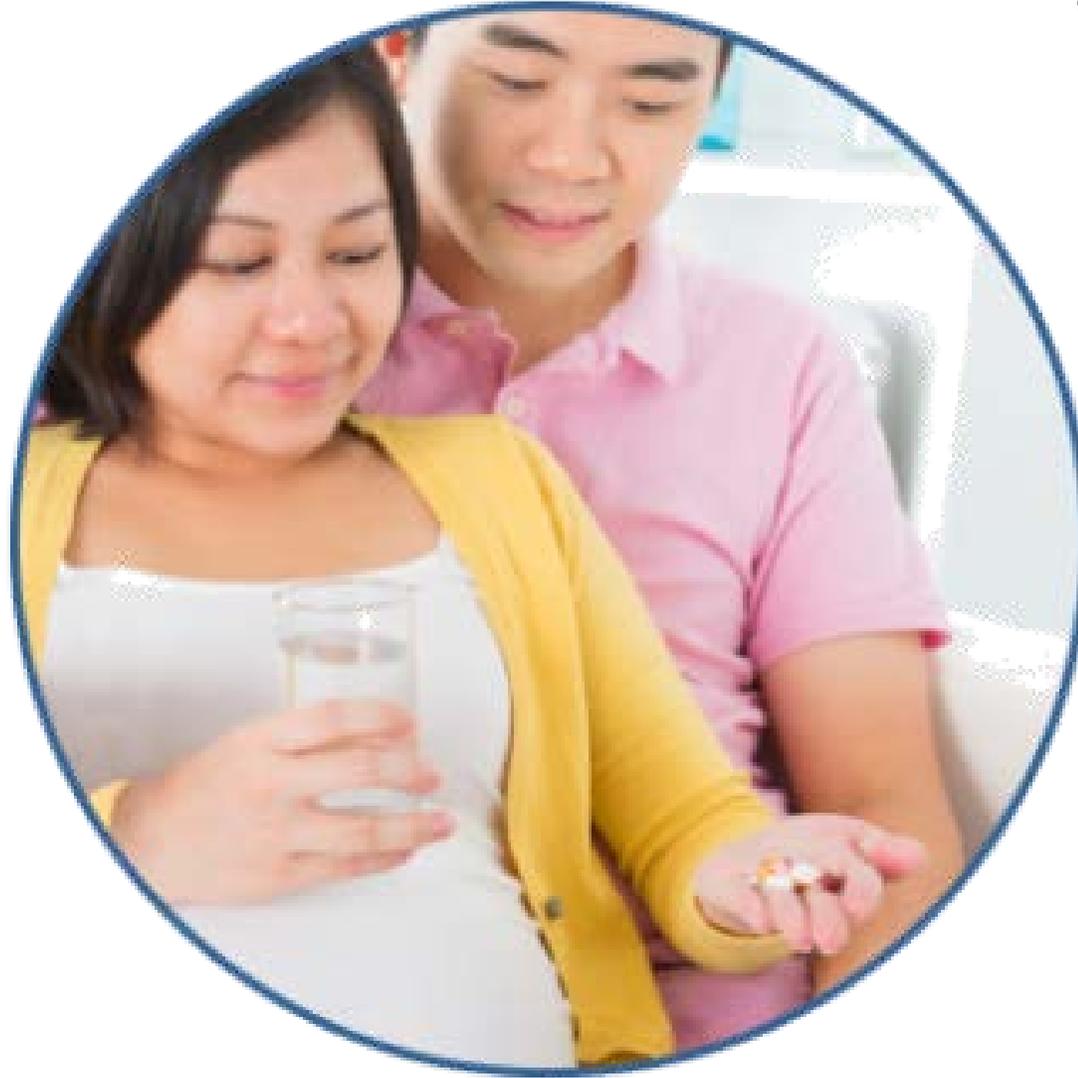
### Scientific Opportunities

- Identify the behavioral, social, environmental, hormonal, endocrine, and genetic factors that contribute to adolescent development;
- Incorporate lifestyle factors (i.e., diet, sleep, exercise, social media, etc.) as a focus of the environmental and behavioral aspects of this opportunity;
- Consider the impact of the medical transition from pediatric to adult care, especially for children with disabilities or other chronic diseases.



# Research Theme #6

## Ensuring Safe and Effective Therapeutics and Devices



- **Goal:** Develop, test, and validate safe and effective therapeutics and devices, specifically for pregnant and lactating women, children, and individuals with disabilities.



# Research Theme #6

## Ensuring Safe and Effective Therapeutics and Devices



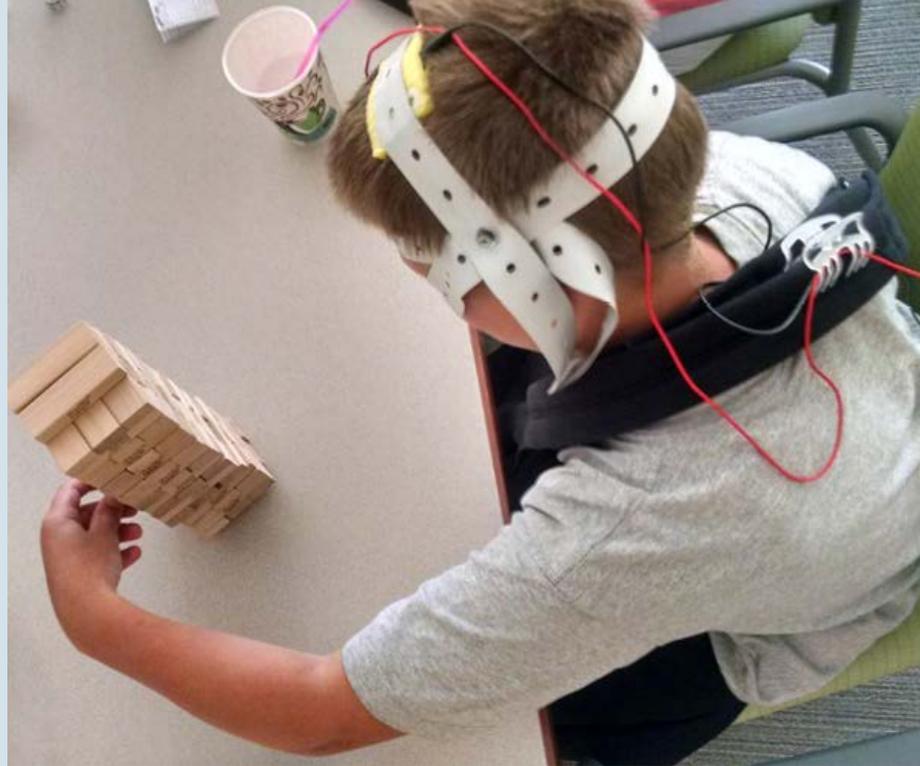
### Scientific Opportunities

- Consider and address the specific needs of pregnant and lactating women, children, and individuals with disabilities through their inclusion in the development, testing, and validation of therapeutics and devices;
- Evaluate medications, including safe and effective dosing, in these specific populations to allow for better management and treatment of common conditions;



# Research Theme #6

## Ensuring Safe and Effective Therapeutics and Devices



## Scientific Opportunities

- Utilize real-world data—i.e., EHRs, existing datasets, or other big data approaches to discover potential adverse events, positive outcomes, or common comorbidities in these populations;

- Enable implementation efforts in health systems by supporting acceptability and adherence research to ensure that interventions can be meaningfully used in these populations.

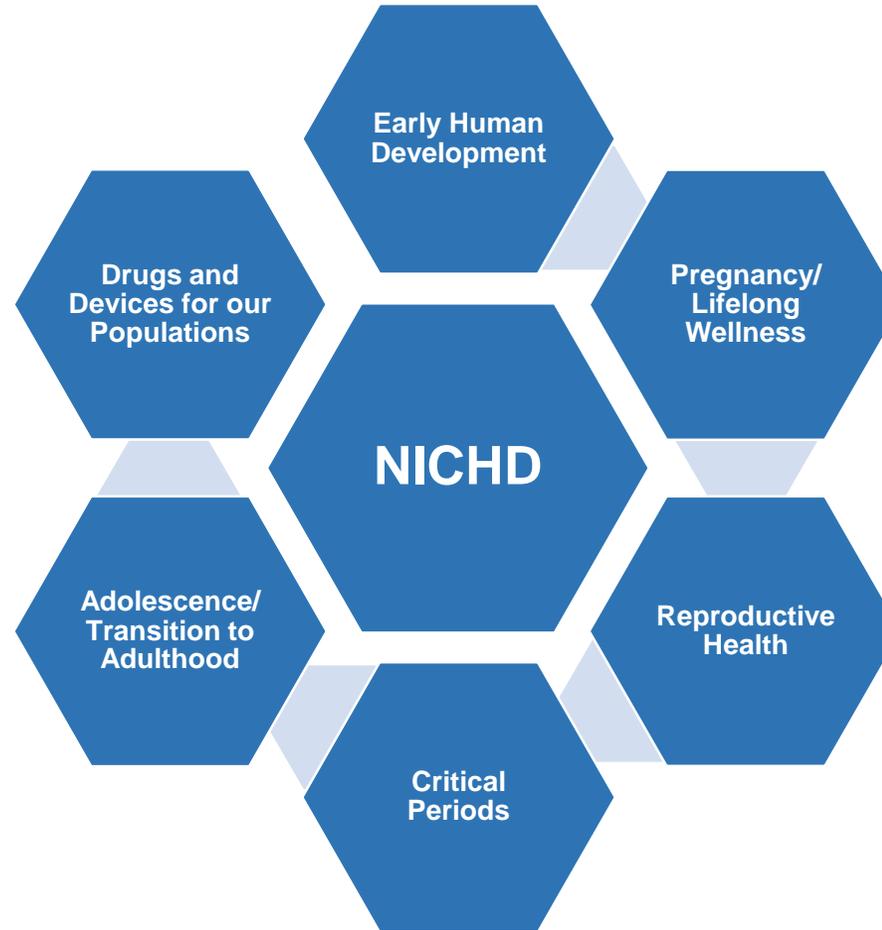


# Examples of Potential IC Partners at NIH



**NINDS, NEI, NHGRI, NIGMS, NIDCD,  
NIEHS, NHLBI, NIAID, NIDCR**

**N-PeRC  
NIBIB  
NCI  
NCATS  
NIDCR  
NCCIH**



**NIDDK  
NHLBI  
NIEHS  
NIA  
NIAID  
NCCIH**

**N-PeRC  
NIDA  
NIMH  
NIAID  
NIAAA**

**NIEHS  
ORWH  
NHGRI  
NIDDK  
CC**

**All areas:  
NIMHD, NINR, OBSSR, FIC, NLM**

**NINDS  
NIAMS  
NIMH**



# Facilitated Council Discussion/Comment Period

Scott Wheeler  
Strategy Arts

# NICHD Strategic Planning Process



Questions