NICHD Strategic Plan 2020
Healthy pregnancies. Healthy children. Healthy and optimal lives.

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September 18, 2019

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

Outline

- Strategic Planning Process
  - Goals and Core Principles
- Responses to Stakeholder Feedback
- Finalizing the Strategic Plan
- Aspirational Goals Section
- Scientific Stewardship Section
- Management & Accountability Section
- Moving to Implementation
- Performance Monitoring and Reporting
  - Module Prototype

Revised NICHD Mission Statement

The *Eunice Kennedy Shriver* National Institute of Child Health and Human Development leads research and training to understand human development, improve reproductive health, enhance the lives of children and adolescents, and optimize abilities for all.

NICHD Strategic Plan 2020

Goals

1. Identify where NICHD should lead (priorities)

2. Identify where NICHD should partner and collaborate

3. Inform future investments in research, training, and infrastructure

Core Principles

Transparency

Decisions Informed by Evidence

Stakeholder Participation

Responses to Stakeholder Feedback

Responses to Stakeholder Feedback

- Developmental Biology and Animal Models
  - Increased emphasis on a variety of model systems, expanded from single cell focus to broader view of genes and gene regulatory networks

- Neurodevelopment and Intellectual & Developmental Disabilities
  - Focus on typical and atypical neurodevelopment from earliest developmental stages; incorporated individuals with IDD throughout, from early human development to transition to adult care and inclusion in development and testing of therapeutics and devices

- Reproductive Health
  - Included clearer emphasis on reproductive health as a "window to future health", and clarified the need to better characterize and define gynecologic and andrologic conditions

Responses to Stakeholder Feedback

- Healthy Pregnancies
  - Incorporated pre-pregnancy factors, re-emphasized priority on placental biology and placental clinical research, inclusion of the "fourth trimester", and ensured an emphasis on research to address SUID/SIDS and infant mortality

- Child Development
  - Articulated continued support for studying typical and atypical child development and provided a stronger emphasis on the impact of and treatments for the exposure to violence, stress, and trauma

Responses to Stakeholder Feedback

- Adolescent Development
  - Concentration on a better understanding of puberty and incorporated transition of adolescents to the adult health care system, especially those with intellectual, developmental, and physical disabilities and those with chronic conditions
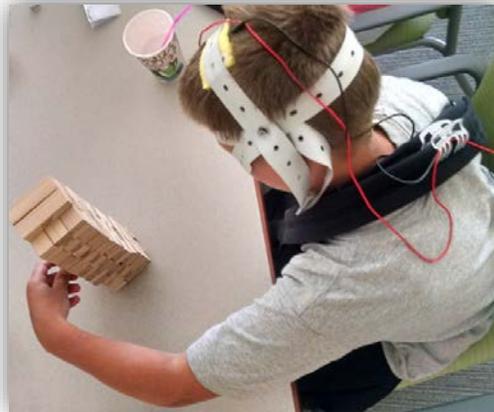

- Safe and Effective Therapeutics and Devices
  - Focus on development and validation of drugs and devices that affect NICHD's populations and integrate the use of clinical trial and use of "real world" data to measure exposures and responses to therapeutics and devices

Finalizing the Strategic Plan

NICHD Strategic Plan 2020
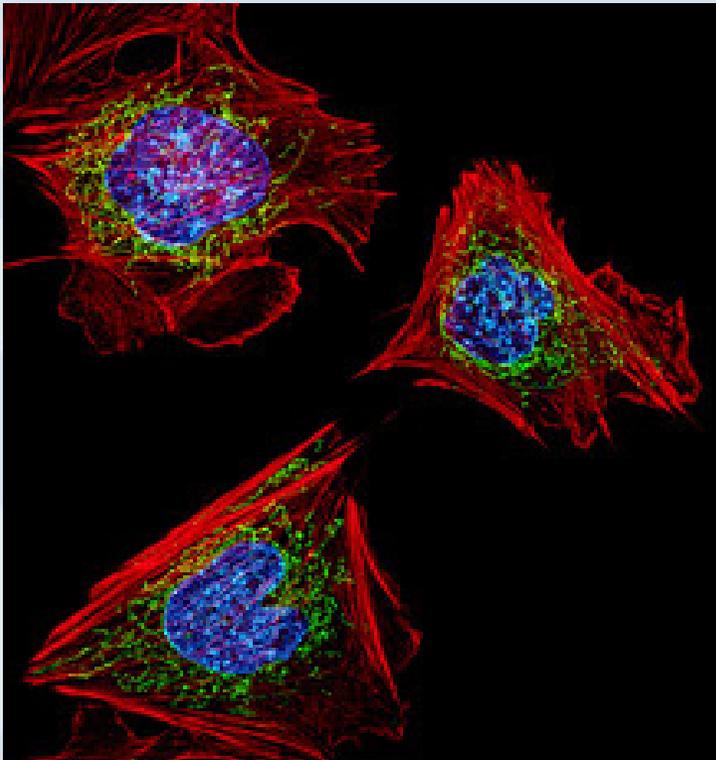
Final Research Themes

1. Understanding the Molecular, Cellular, and Structural Basis of Development

2. Promoting Gynecologic, Andrologic, and Reproductive Health

3. Setting the Foundation for Healthy Pregnancies and Lifelong Wellness

4. Improving Child and Adolescent Health and the Transition to Adulthood

5. Advancing Safe and Effective Therapeutics and Devices for Pregnant and Lactating Women, Children, and People with Disabilities

Cross-Cutting Themes

1. **Global Health:** Improve pre-pregnancy health globally using new interventions to benefit pregnancy outcomes, and prevent prematurity, malnutrition, childhood stunting, disease, and developmental delays.

2. **Health Disparities:** Understand how social, economic, structural, and regional factors are vital to the advancement of preventive, diagnostic, and intervention efforts.

3. **Prevention:** Prevent adverse health outcomes, improve early detection, and understand the optimal timing of prevention efforts.

4. **Nutrition:** Improve our understanding of the lifetime impact of nutrition on reproductive health, fertility, pregnancy, and fetal, child, and adolescent growth and development.

5. **Infectious Disease:** Improve the basic understanding of how infectious pathogens affect pregnant women and young children, address the impact of infections on reproductive and overall health in children and adolescents, and advance safe and effective treatments for pregnant and lactating women, children, and people with disabilities.
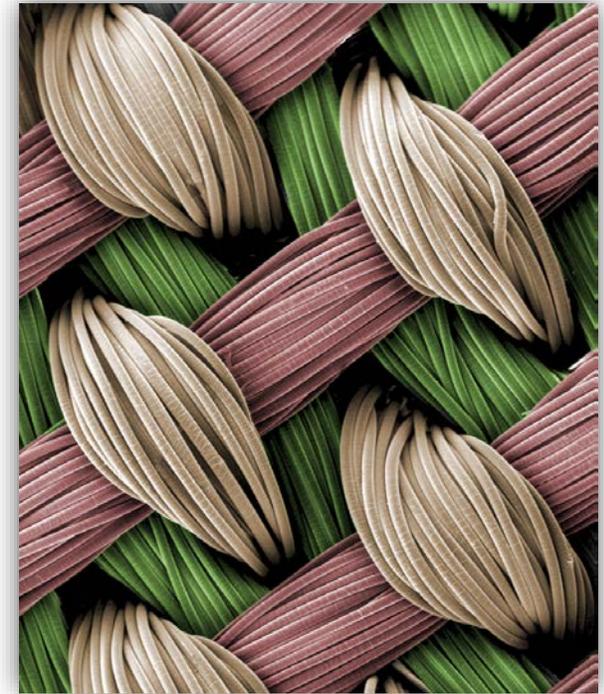
Credit: Guilak Lab, Washington University

NICHD Strategic Plan 2020

Aspirational Goals
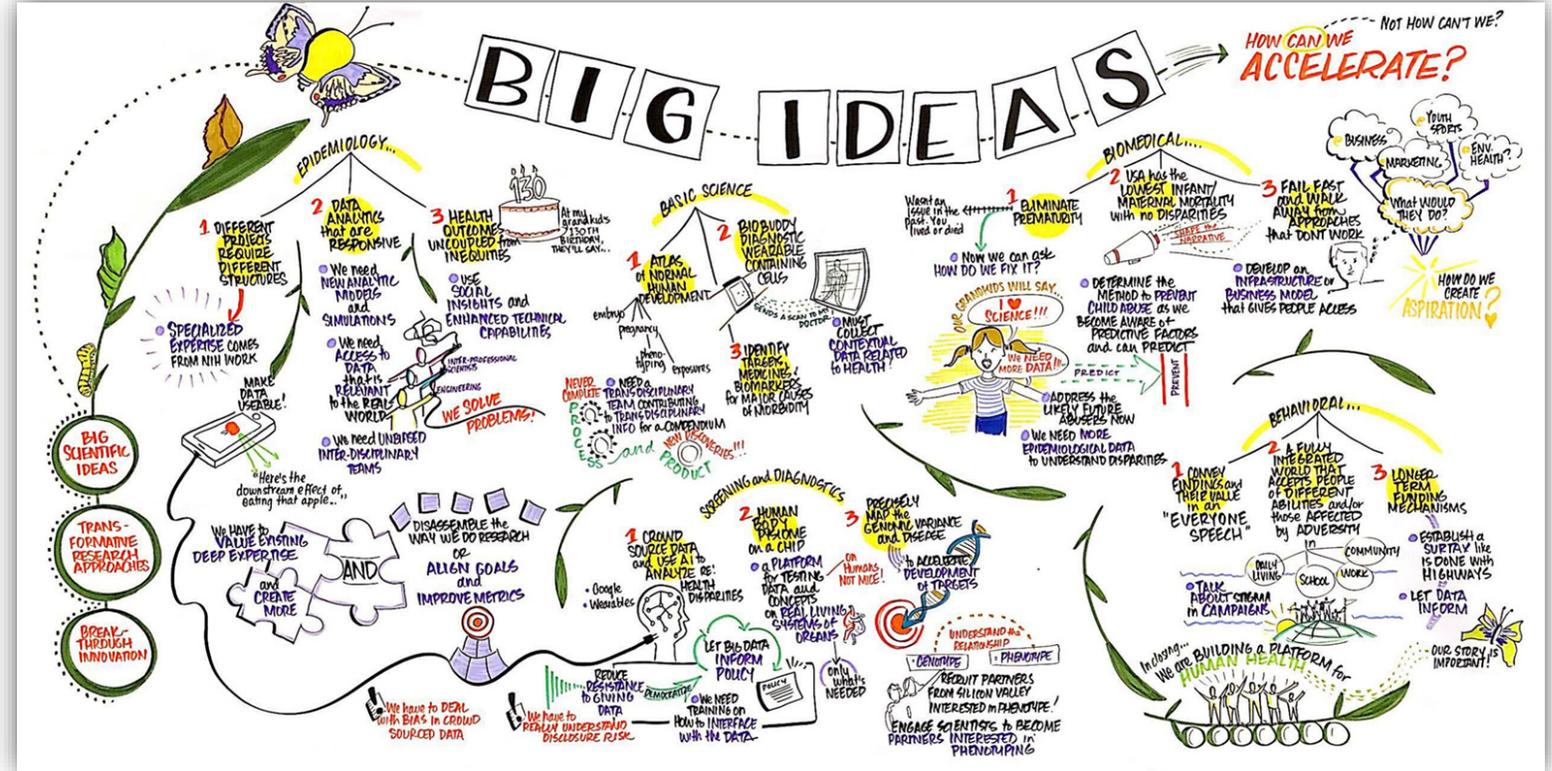
To encourage scientists to aim beyond what is considered possible and strive to further advance research we have identified Aspirational Goals.

Aspirational Goals (Slide 1 of 5)

Goal 1: Limb Regrowth

- Advance our ability to regenerate human limbs using emerging methodologies in developmental biology and rehabilitation.


Goal 2: Personalized Medicine for Children

- Improve health outcomes for children through the development and application of personalized or precision medicine approaches and updated normative data on the growth and development of children.

Goal 3: Diagnose, Treat, and Cure Endometriosis

- Up to 10 percent of reproductive-age women in the U.S. experience endometriosis; we aim to accelerate efforts to definitively understand, diagnose, prevent, and treat this chronic and debilitating condition.
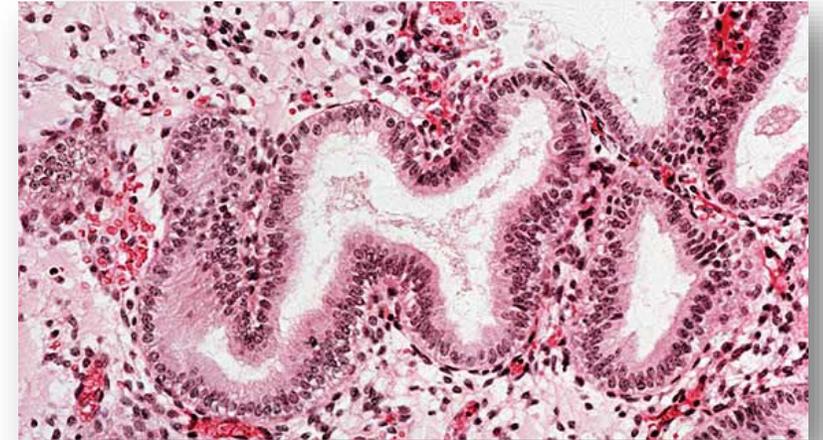
Goal 4: Predict Pregnancies at Risk for Fetal Loss

- Identify genome changes and exposure risks that explain or predict fetal loss using advanced technological approaches and population-based study methods.

Goal 5: Advance and Apply Knowledge of the Fetomaternal Immune Relationship

- Use the growing understanding of immune factors in pregnancy and placental development to determine reasons for pregnancy rejection, mechanisms to prolong at-risk pregnancies, and ways to transfer this knowledge to other medical needs, such as organ transplantation.

Goal 6: Improve Care of Premature Infants

- Enhance the survival and healthy development of preterm infants by exploring the role of environmental factors, such as feeding methods and nutritional support, human touch, and music and lighting.

Aspirational Goals (Slide 4 of 5)

Goal 7: Explore Risks of Technology and Media Exposure in the Developing Brain

- Discover how technology exposure and media usage affect developmental trajectories, health outcomes, and parent/child interactions in early childhood.

Goal 8: Synthesize and Personalize Human Milk

- Optimize infant survival by synthesizing human milk, capturing all its components and properties and individualizing it to the characteristics of the infant's mother.

Goal 9: Build Connections Between Atypical Neurodevelopment and Risk of Neurodegeneration

- Identify biomarkers of atypical neurodevelopment that can establish the likelihood of neurodegenerative disorders later in life.

Goal 10: Train Investigators in Artificial Intelligence

- Train the next generation of scientists to be poised to harness the techniques necessary for future investigation, such as machine learning and artificial intelligence.

Scientific Stewardship

21st Century Cures Act – Legislative Requirements

In 2016 the 21st Century Cures Act, SEC. 2031. 'National Institutes of Health (NIH) Strategic Plan' outlined requirements for the NIH Strategic Plan.

Specifically, Section 402(m) of the PHS Act stipulated that Strategic plans developed and updated by the national research institutes and national centers of NIH…shall have a common template

NIH Template for IC Strategic Plans:

- Overview and Introduction

- Scientific Goals/Objectives/Priorities

- Serving as an Efficient and Effective Steward of Public Resources
  - Priority Setting
  - *Scientific Stewardship*
  - *Management & Accountability*

- Description of the Strategic Planning Process

Goal 1: Promote an Inclusive Scientific Workforce that Fosters Research Training

- Focusing on early-stage investigators, opportunities on new methods and technologies, and recruiting and retaining a diverse biomedical, biobehavioral, and clinical research workforce
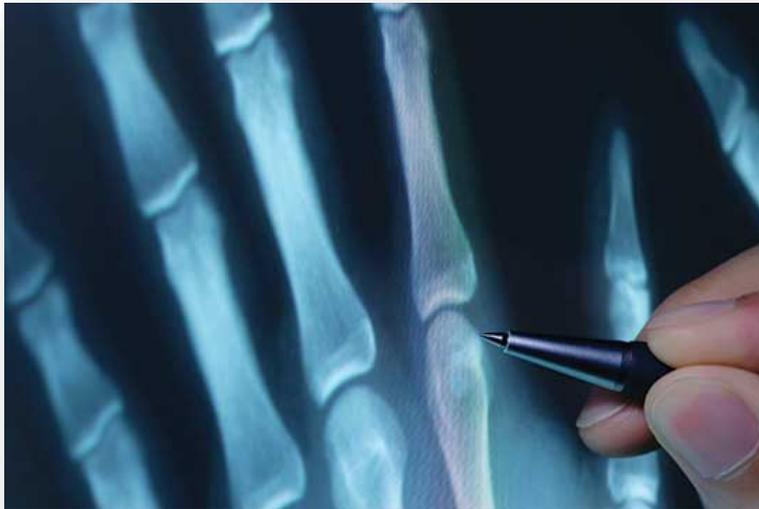
Goal 2: Facilitate Data Sharing and Access to Biospecimens

- Support the accessibility, utility and usability of NICHD created or sponsored data or biospecimens; enabling secondary data analysis and encouraging reproducibility; and safeguarding participants' privacy and confidentiality

Goal 3: Partner to Enhance Science

- Leveraging partnerships with public and private entities, and/or other federal agencies and leading trans-NIH or trans-HHS committees, task forces, and consortia

Goal 4: Setting Research Priorities

- Supporting strategic and operational planning efforts to help prioritize our research and continued reliance on peer review, programmatic review from experts, advisory council members, and NICHD staff to identify and support meritorious programs and projects

Scientific Stewardship Goals (Slide 3 of 4)

Goal 5: Align Resources to Support Science

- Align budget allocations to advance scientific priorities, utilize appropriate mechanisms and approaches, and ensure timely responses to public health crises or emerging scientific opportunities

Goal 6: Improve Clinical Trial Oversight and Management

- Ensure appropriate funding mechanisms and infrastructure, inclusion criteria, risk management, sharing of clinical trials data, and safeguarding research participants and their data

Scientific Stewardship Goals (Slide 4 of 4)

Goal 7: Monitoring and Evaluating Programs

- Track, review and report on NICHD research and training program activities and accomplishments utilizing rigorous analytical and evaluation approaches and techniques

Goal 8: Facilitating Transparency and Communication

- Seek new ways to reach NICHD's audiences to convey the significance and value of NICHD research

Management and Accountability

Goal 1: Promote Workforce Development and Balance

- Foster leadership, supervisory, technical, and scientific skills; preserve institutional knowledge, and encourage career development

Goal 2: Ensure Infrastructure Innovation

- Ensure that our infrastructure is responsive to staff needs. Lead efforts on effective stewardship of resources, anticipation of potential needs of our workforce, and leverage NIH-wide efforts aimed at enhancing common infrastructure

Goal 3: Improve Administrative Efficiency

- Improve and streamline administrative management and processes, while retaining accountability and quality of service

Goal 4: Advance Enterprise Risk Management

- Ensure appropriate assessment of internal and external risks and utilize opportunities to proactively adapt risk management procedures when confronted with emerging, unanticipated issues

Moving Toward Implementation

Strategy Management Overview

Strategy Model

Mission

Vision

Goals/Outcomes

Objectives

Initiatives

Performance Measures
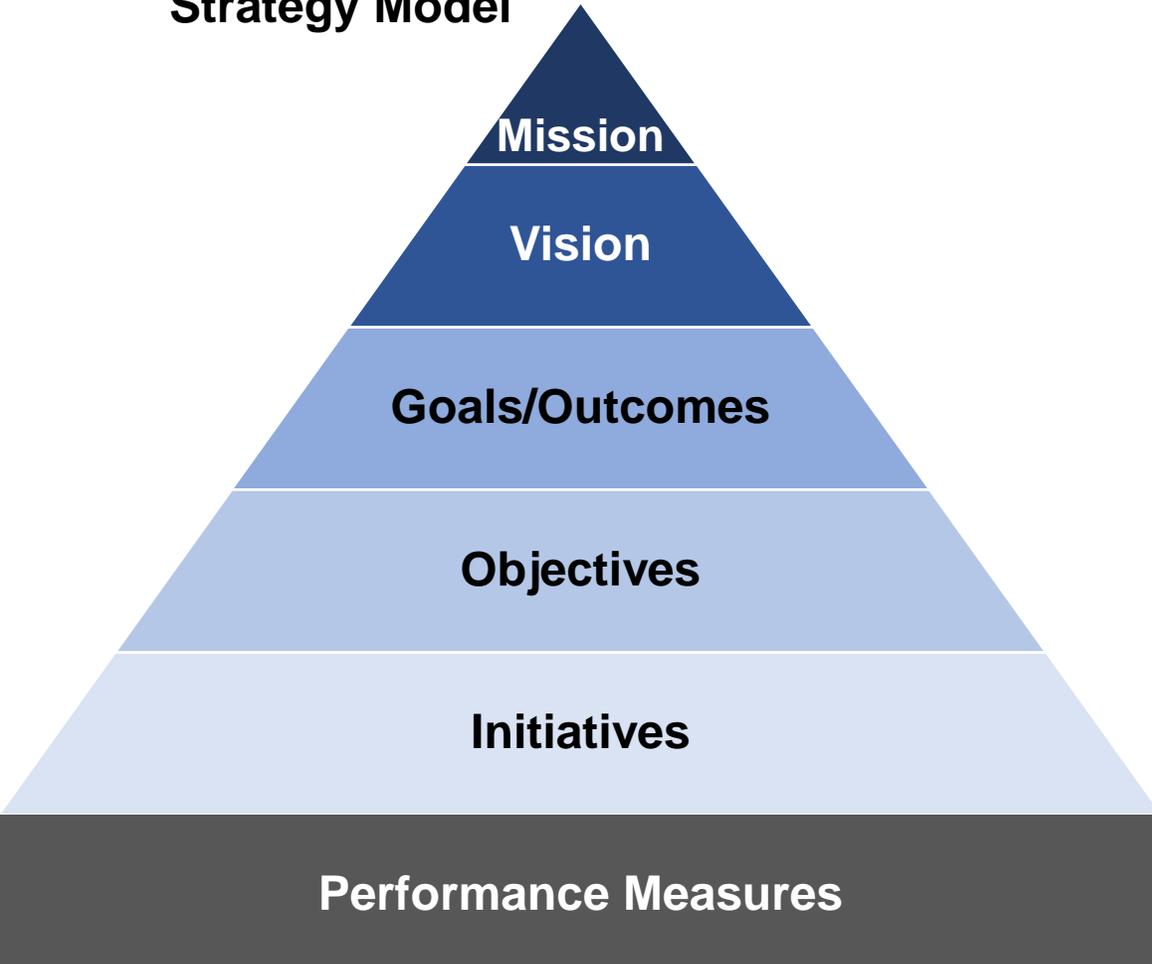
- A Strategy is comprised of tiered, interrelated components which sets an organization's path and direction. The model shown here illustrates the interrelationship between key strategy components.

- Each level of the Strategy builds upon the last to provide the clarity and translation required to make the Strategy actionable.

Strategy Management Overview

Strategy Model
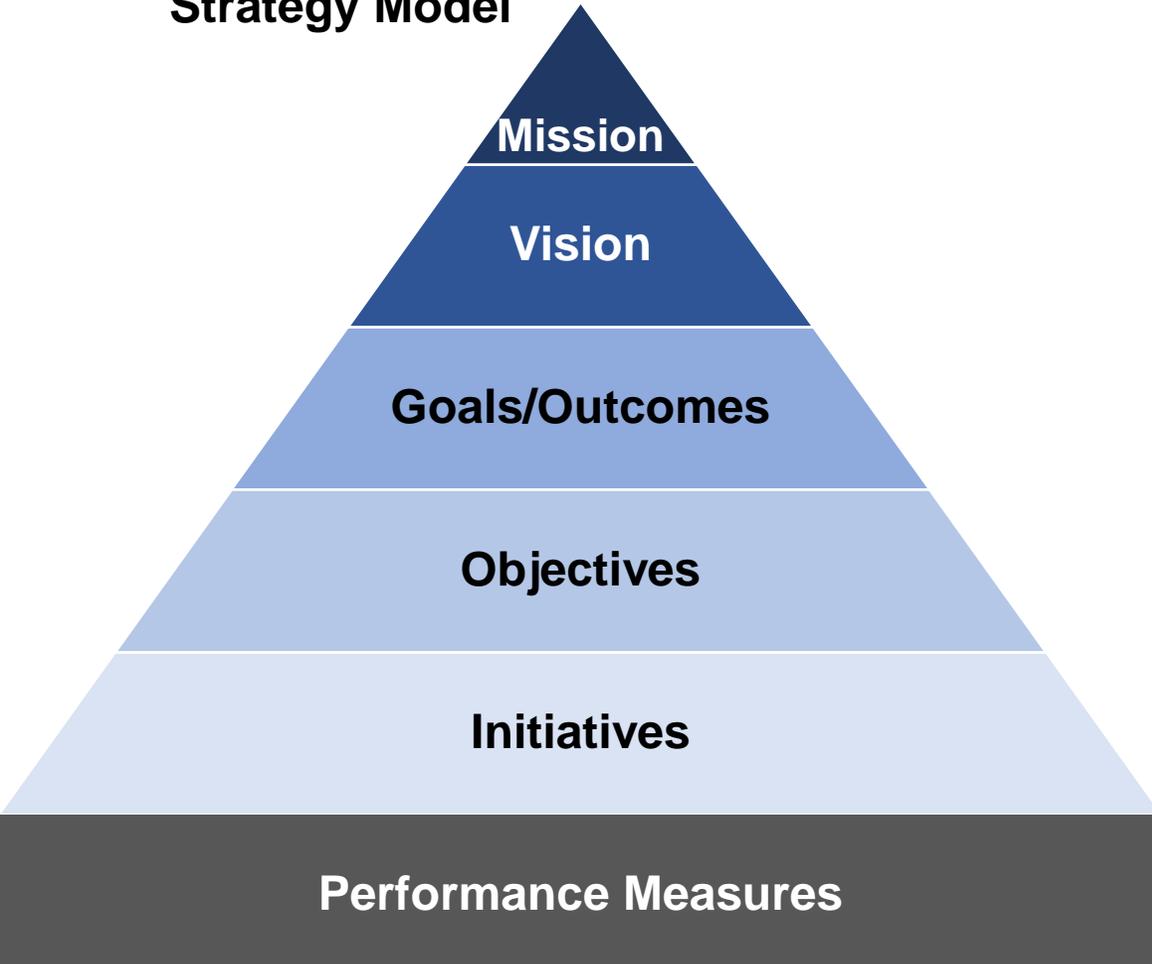
- The **Mission** clearly communicates the purpose of the organization to internal and external stakeholders; the reason why an organization exists.

- The **Vision** articulates an inspiring, long-term, end state; illustrates the ideal image of where the organization wants to be.

- **Goals** are broad and directional statements that identify an organization's overarching priorities and enable Vision achievement. **Outcomes** are clear statements describing the expected future results of Goal achievement.

- **Objectives** articulate Goals into more detailed statements that can be executed against by the organization.

- **Initiatives** are tactical activities that support the achievement of the Objectives.

- **Performance Measures** clearly articulate progress and performance against the strategy.

Scientific Research Measurement

Existing Extramural[1] (top) & Intramural (bottom) metrics that can be collected/monitored include:

Products	Impact	Practice	Public Engagement	Other
• Publications • Clinical Trials • Biologics • Devices • Patents • Collaborations • Resource Sharing • Training Outcomes • Future Funding	• Scientific Impact • Field Saturation • Funding Impact	• Medical Guidelines • Practice Guidelines • Insurance Guidelines	• News • Policy • Conferences	• Portfolio distribution of prioritized topics • Workshops • Initiatives • Involvement in Common Fund or Trans-NIH activities • Partnerships • Infrastructure Development • Dissemination • Communications metrics

[1]Extramural metrics are credited to the Child Health Assessment of Research impacT (CHART) analysis group, with additional "Other" metrics suggested in 7/17 working session

Individual PI Performance	DIR Publications	Training Programs	Results of Reorganization	Other
• H-index • RCR • Site visit scores • Institute service	• Bibliometric Analysis • Network Analysis • H-index/RCR	• Publications • Presentations • Accomplishments • Diversity Tracking • Career Transitions	• Analysis ongoing	• Publications or scientific work in progress presented at meetings (Mtrac system)

Stewardship and Management Metrics

The metrics below are representative examples of performance measures which could be generated for the Scientific Stewardship and Management and Accountability Focus Areas.

ID	Focus Area	Sample Metric
1	**Scientific Stewardship**	# of trainees who are part of underrepresented biomedical, biobehavioral, and clinical sciences groups
2	**Scientific Stewardship**	Average readership levels for various NICHD communications platforms
3	**Scientific Stewardship**	# of legislative milestones relevant to NICHD programs
4	**Management and Accountability**	% of employees who left within the last year (attrition rate)
5	**Management and Accountability**	# of trainings/coursework/certifications completed by staff
6	**Management and Accountability**	# of Enterprise Risks in identified 2019

Performance Monitoring and Reporting

- Monitoring and tracking program performance are important activities that will enable NICHD to properly measure progress towards achieving the strategic goals and objectives outlined in the plan.

- In anticipation of this need, NICHD is partnering with the NIH Office of Evaluation, Performance, and Reporting (OEPR), and the Division of Program Coordination, Planning and Strategic Initiatives (DPCPSI) to develop a new performance monitoring and reporting module that will support NICHD's ability to identify metrics and facilitate transparent monitoring and reporting of Strategic Plan performance.

- NICHD selected this platform because OEPR already works across NIH to assist in harmonizing individual IC Strategic Plans with the overall NIH Strategic Plan using the NIH Common Template for Strategic Plans, in response to the mandate of the 21st Century Cures Act.

Dashboard to Track Metrics (Example)

The OEPR Strategic Plan Tracking System has Dashboard capabilities that can:

- Showcase visualizations of the ongoing status and performance of plan elements

- Codify information into a comprehensive report on qualitative progress against plan elements, milestone achievement, and metric targets

- Provide transparency to leadership (e.g., Council)

NIH National Institutes of Health
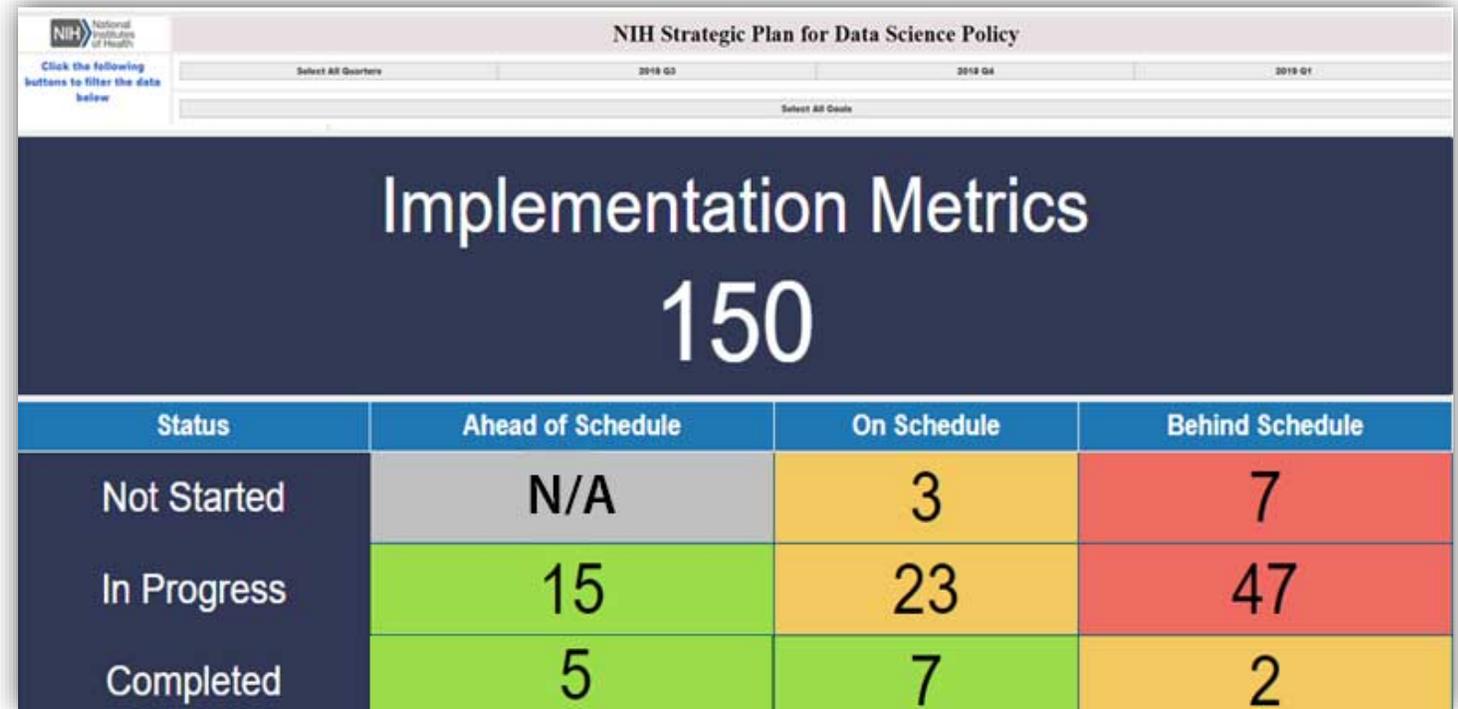
NIH Strategic Plan for Data Science Policy

Click the following buttons to filter the data below | Select All Quarters | 2018 Q3 | 2018 Q4 | 2019 Q1

Select All Goals

Implementation Metrics
150

Status	Ahead of Schedule	On Schedule	Behind Schedule
Not Started	N/A	3	7
In Progress	15	23	47
Completed	5	7	2

Acknowledgments

- NACHHD Council members—you have been with us all along the way!

- Strategic Planning Committee members

- OD (including OSPRA for all of the program analyses)

- DIR, DIPHR, and DER staff members who brainstormed and provided feedback on draft objectives

- External Working Group—all 53 of you!

- Those who participated in the interactive webinar

- Everyone (all 924 of you) who took the time to write their comments in response to the RFI

Questions?