NEST
Coordinating Center
An initiative of MDIC

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RAPID Meeting - Wednesday, March 20, 2019

NESTcc GOALS

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By end of December 2017

- Establish functional governance
- Engage with key stakeholders to develop NESTcc strategy and goals
- Issue strategic and operational plans
- Issue draft data strategy for standing up NESTcc data network
- Designate first NESTcc Demonstration Projects
- Initiate planning for sustainability

By end of December 2018

- Ensure functional governance given MDIC leadership changes
- Establish NESTcc Data Network and begin testing the capacity of the Network
- Develop draft data quality and methods frameworks
- Initiate sustainability planning
- Ensure buy-in for NESTcc from key stakeholders

By end of December 2019

- Conduct case studies to show the ROI of RWE
- NESTcc is operational
- Ensure governance is consistent with NESTcc structure and strategy
- Establish mature Data Network with data quality and methods frameworks
- Deploy viable sustainability plan

By end of December 2022

- NESTcc is fully operational
- NESTcc has sustainable revenue streams
- Offer a range of compensated services, including access to a Data Network and reduced transaction costs
- NESTcc is a recognized partner for conducting RWE studies with the medical device ecosystem

FRAMEWORK STRATEGY TO ACHIEVE ESTABLISHED GOALS

To achieve success, NESTcc will focus on four strategic priority areas in 2019:

1. Establish NESTcc **Governance**
2. Develop NESTcc's **Data Network**
3. Establish NESTcc's **Sustainability**
4. Ensure NESTcc **Stakeholder Engagement**

Find the full Strategic & Operational plan online: https://nestcc.org/about/nestcc-strategic-operational-plan/

1 ESTABLISH NESTcc GOVERNANCE

2019 STRATEGIC PRIORITY

- Ensure NESTcc governance is consistent with sustainability plans and adapt accordingly, if needed

2019 OPERATIONAL MILESTONES

1.1	Report regularly to the MDIC Board
1.2	Work collaboratively with the FDA to meet FDA priorities, including MDUFA and FDARA requirements
1.3	Conduct annual revision of the NESTcc Charter
1.4	Produce a mid-year staffing assessment based on the findings of the NESTcc sustainability plan
1.5	Review governance structure based on sustainability plan
1.6	Ensure functioning of the subcommittees
1.7	Manage the ongoing RWE assessment

2 DEVELOP NESTcc'S DATA NETWORK

To achieve success for developing NESTcc's Data Network, NESTcc will:

2019 STRATEGIC PRIORITIES

- Establish mature Data Network with Data Quality and Methods Frameworks
- Become a preferred resource for industry and other stakeholders for RWE studies

2019 OPERATIONAL MILESTONES

2.1	Develop and implement the Data Quality and Methods Frameworks
2.2	Develop and implement a roadmap for active surveillance through NESTcc
2.3	Expand the Data Network and explore options for using data sources outside the U.S.
2.4	Develop ROI case studies to describe the value of utilizing RWE
2.5	Execute agreements to enhance operational simplicity
2.6	Receive interim results and lesson learned from Round 1 Test-Cases
2.7	Launch Round 2 Test-Cases
2.8	Develop process for launching first non-NESTcc funded project to utilize the Data Network
2.9	Implement a transparent triage system for Data Network requests

3 ESTABLISH NESTcc'S SUSTAINABILITY

To achieve success for establishing the sustainability of NESTcc, NESTcc will:

2019 STRATEGIC PRIORITIES

- Develop and implement a sustainable business plan, including products and services and a staffing model.

2019 OPERATIONAL MILESTONES

3.1	Complete market analysis
3.2	Develop a complete business plan
3.3	Obtain approvals from the Governing Committee and MDIC Board of Directors for the business plan
3.4	Implement the approved business plan
3.5	Develop products and services
3.6	Engage stakeholders to use NESTcc products and services

4 ENSURE NESTcc STAKEHOLDER ENGAGEMENT

To successfully engage stakeholders from across the ecosystem, NESTcc will:

2019 STRATEGIC PRIORITIES

- Establish NESTcc as the front-door to conducting RWE studies

2019 OPERATIONAL MILESTONES

4.1	Develop NESTcc as a Collaborative Community
4.2	Develop and implement targeted engagement strategies for high-priority stakeholders (e.g. FDA, MDEpiNet, Pediatric Device Consortia, and payers)
4.3	Enhance the recognition of the NESTcc brand, including the creation of a concise overview of NESTcc
4.4	Solicit ecosystem feedback for the Data Quality and Methods frameworks
4.5	Disseminate learnings from the test-cases
4.6	Disseminate NESTcc progress through peer reviewed publications

ESTABLISHING THE NESTcc DATA NETWORK

NESTcc has established relationships with 12 Network Collaborators that represent more than 195 hospitals and 3,942 outpatient clinics to advance evaluation and use of high-quality Real World Data (RWD) from various sources.

TO DATE, MEMORANDA OF UNDERSTANDING (MOUs) HAVE BEEN SIGNED WITH 12 NETWORK COLLABORATORS:

DukeHealth
HealthCore
Lahey Hospital & Medical Center
MAYO CLINIC
MDEpiNet PPP
Mercy
OneFlorida Clinical Research Consortium
PEDSnet A Pediatric Learning Health System
STAR Stakeholders, Technology, and Research CRN
VANDERBILT UNIVERSITY MEDICAL CENTER
Weill Cornell Medicine
Yale

NESTcc surveyed its Network Collaborators to determine current capabilities, gaps, and priority areas.

Network Collaborators

Duke University Health System • HealthCore • Lahey Clinic • Mayo Clinic • MDEpiNet • Mercy • NYC-CDRN • OneFlorida • PEDSnet • STAR • Vanderbilt University • Yale New Haven Health System

Network Collaborators represent:

195
Hospitals

3,942+
Outpatient Clinics

Patient data represents:

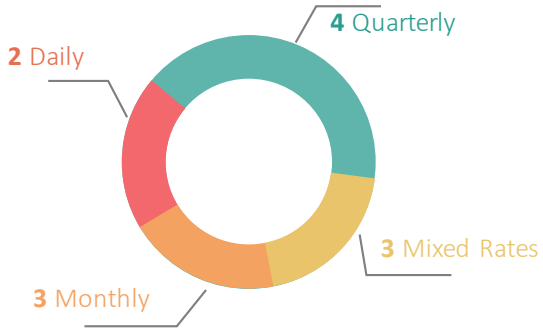
494M+*
Patient Records

*Does not account for duplicate records

Common data models:

- ✓ I2b2
- ✓ OMOP
- ✓ PCORnet
- ✓ Sentinel

Network Collaborators report regular data refreshes:



Most cited expertise:

- ✓ Cardiovascular and Cardiac Surgery
- ✓ Women's Health
- ✓ Neurosurgery
- ✓ Gastroenterology
- ✓ Orthopedic

Numbers reflect data as of February 2018

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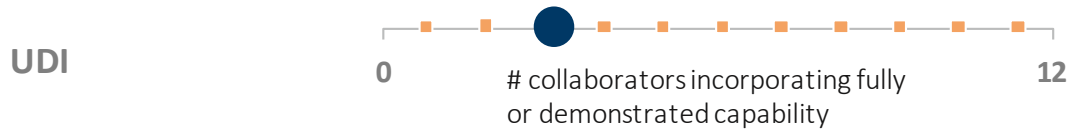
The collaborators comprising the NESTcc Data Network have access to a range of available data sources, including those listed below.

AVAILABLE DATA SOURCES

UDI IMPLEMENTATION



***Registries Include (but are not limited to):**

- Anesthesia Quality Institute's National Anesthesia Clinical Outcomes
- Cardiac Catheterization
- Cardiogenic Shock
- Immunization
- Implant registries
- Integrated tumor
- International Consortium Lower-GI
- American College of Surgeons National Surgical Quality Improvement Program
- Oncology
- Pediatric Cardiomyopathy
- Prostate Ablation-Related Energy Devices
- Robotic Surgery
- Society of Thoracic Surgeons National Database
- Society for Vascular Surgery
- Thalassemia Clinical Research Network - Thalassemia Registry
- Vital Records (Birth and Death)

High-level concepts of each Test-Case that are currently in development are summarized below:

TOTAL-PRODUCT LIFE CYCLE (TPLC) ALIGNMENT	REGULATORY PATHWAY	PRODUCT(S)	PARTICIPATING NETWORK COLLABORATORS (n)	DISEASE AREA
Pre-market Submission	510(k)	Wound Closure Devices (topical skin adhesives, staples, sutures)	2	Dermatology
Label Expansion	PMA	Endovascular stent	3	Vascular
Label Expansion	PMA	Catheters used in Rx of Cardiac Arrhythmias	3	Cardiology
Label Expansion	PMA	Mechanical Aortic Heart Valves	2	Cardiology
Label from General to Specific Indication	510(k)	Microwave Ablation Device	4	Surgery
Post-market Surveillance	510(k)	Total Knee Arthroplasty	2	Orthopedics
Post-market Surveillance	510(k)	Craniomaxillofacial Bone Distractors	1	Orthopedics
Post-market Surveillance	510(k)	Intervertebral Lumbar Body Fusion Devices	2	Orthopedics

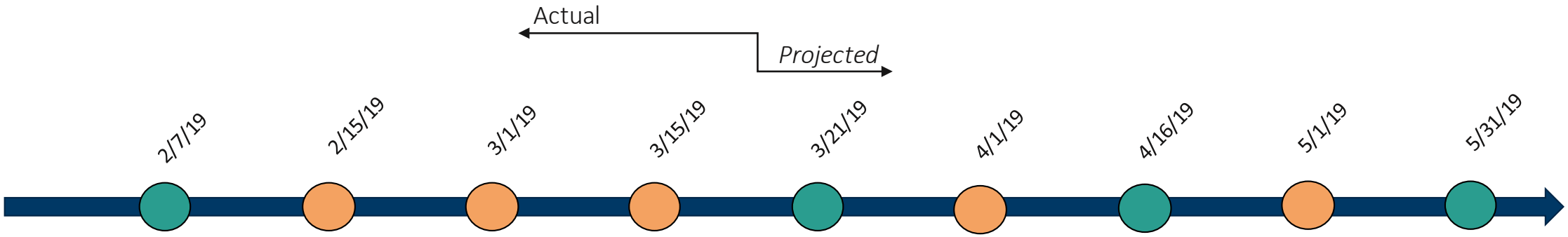
Round 2 Test-Case concepts saw a four-fold increase from Round 1 submissions

Key Takeaways	Round 2	Round 1
Announcements Round 2 included the **first targeted test-case announcement and multiple announcements** posted together.	**2 Announcements** • 1 Broad • 1 Targeted Patient-Generated Heath Data (PGD)	**1 Announcement** • 1 Broad
Submissions Round 2 received **more than 4 times as many submissions** as Round 1.	**40 Submissions** • 25 Broad • 15 Targeted	**9 Submissions**

- Full proposals (20 total) received in February 2019 and currently under review
- Maximum 14 projects (broad and targeted) will be selected for funding

OVERVIEW OF LAUNCHING ROUND 1 AND ROUND 2

Anticipated execution dates are based on: (1) current status, (2) anticipated feedback times, (3) industry input, and (4) connection between agreements:



Retrospective MSAs (12)		**17%** 2/12	**17%** 2/12	**25%** 3/12			***100%*** *12/12*	
Round 1 SOWs (9)			**0%** 0/9	**11%** 1/9		***100%*** *9/9*		
Round 2 Test-Cases	Applications Due				*Selection Team Approval*			*Final Approval*

Notes
*All MSAs required for Round 1 completed
Projections were developed in February 2019

LAUNCHING ACTIVE SURVEILLANCE ACTIVITIES

NESTcc received $3m in targeted funding from FDA and formed a Task Force which will establish a Roadmap for advancing NESTcc's active surveillance work

- A public announcement was made about the Task Force in late 2018. Members represent patients, clinicians, health systems, FDA, public and private payers, and industry
- An initial meeting took place on January 30, 2019
- The goal over the first couple months will be for the Task Force to develop the Roadmap (formally referred to as Blueprint) for NESTcc's active surveillance activities, including a plan for selecting a small number of Test-Cases

Task Force Members

Name	Perspective	Institution
Kathy Blake	GC/Providers	American Medical Association
Owen Faris	FDA	FDA
Kevin Haynes	Network Collaborators/Payers	HealthCore
Harlan Krumholz	GC/Network Collaborators	Yale
Brad Malin	Network Collaborators/Privacy	Vanderbilt
Michelle McMurry-Heath	GC/Industry	Johnson & Johnson
Bray Patrick-Lake	Patients	DCRI
Fred Resnic	Network Collaborators/Integrated Health System	Lahey

NESTcc ACTIVE SURVEILLANCE ROADMAP

The creation of an initial draft of the active surveillance Roadmap is currently underway, and by November 2019, the Active Surveillance Task Force will aim to have a progress statement prepared for public release.

The NESTcc Active Surveillance Roadmap will be developed to lay out the high-level foundation for Version 1.0 of Active Surveillance activities, including:

- Initial users (FDA and medical device manufacturers)
- Products and services (signal detection and signal discernment)
- User experience
- Infrastructure and operations
- Data quality and methodology aspects
- Future directions (future users, products and services)

NESTcc has launched Data Quality & Methods Subcommittees to help establish its value in the medical device ecosystem:

DATA QUALITY SUBCOMMITTEE

- Establish Data Quality Framework and address issues with data quality, particularly as they impact NESTcc's mission

Data Quality Timeline

- **2/11-2/22**: Data Quality Framework Initial Comment Period
- **4/1-4/12**: Data Quality Framework Second Comment Period
- **5/27-6/14**: Data Quality Framework Final Comment Period
- **7/31**: Final Version 1 of Data Quality Framework Released

METHODS SUBCOMMITTEE

- Develop a research agenda identifying critical issues in methods across the TPLC and establish Methods Framework to include device-specific considerations

Methods Timeline

- The Methods Framework will follow a similar timeline to the Data Quality Framework beginning in March 2019
- The Final Version 1 will also be released on 7/31/19

DATA QUALITY SUBCOMMITTEE & FRAMEWORK

Charge:

- Develop Data Quality Framework for NESTcc Network Collaborators
- Design a process by which NESTcc Network Collaborators can demonstrate their aptitude with the NESTcc Data Quality Framework

Vision:

- Develop first, simple, pragmatic, iteration of NESTcc Data Quality Framework that will apply to a "first wave" of NESTcc Network Collaborators
- Data Quality Framework will evolve for a "second wave" of data vendors or similar collaborators with large de-identified datasets

Data Quality Framework

- Initial version lays out the foundation for the capture and use of high-quality data for post-market evaluation of medical devices
- Grounded in the use of real-world data (RWD) gleaned from the clinical care setting and the electronic health record (EHR)

Organized Into Five Sections
1. Governance
2. Characteristics of Data
3. Data Capture and Transformation
4. Data Curation
5. NESTcc Data Quality Maturity Model

NESTcc's 2nd Annual Data Strategy Convening took place on February 27, 2019. Key takeaways included:

- NESTcc should engage in conversations around device related aspects of current Common Data Models (CDMs)
- In terms of data capture and transformation, attendees recommended that CDRH provide an essential list of topics that can be prioritized
- Groups agreed that in terms of governance and data quality/CDMs NESTcc should be leveraging existing resources and learnings from approaches that have already been tried

MATURITY MODEL

- The maturity model could be done both at the Network Collaborator level and for individual priority areas within Network Collaborators to help get a better sense of the available data
- Instead of self-reporting, the Data Quality Subcommittee could consider creating a questionnaire that Network Collaborators complete at the NC level or for a specific priority area

CONNECT WITH NESTcc

Explore opportunities to connect with NESTcc online with the following resources:

NEST
Coordinating Center
An initiative of MDIC

www.nestcc.org

@NESTccMedTech

nestcc@mdic.org

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An initiative of MDIC

NESTcc Mission Statement

To accelerate the development and translation of new and safe health technologies, leveraging Real-World Evidence (RWE) and innovative research.

History of NESTcc

2012 FDA proposed the development of a **national system**

2015 NESTcc envisioned as a **voluntary data network** of collaborators by Planning Board

2016 FDA awarded grant for NESTcc to **Medical Device Innovation Consortium (MDIC)**

2017 NESTcc **Executive Director** named and **Governing Committee** selected

NESTcc **Strategic and Operational Plan** developed

2018 Initial NESTcc **Data Network** formed and testing initiated

NESTcc **Data Quality and Methods Subcommittees** formed

DATA QUALITY & METHODS SUBCOMMITTEES

These individuals have been selected to serve on the Methods and Data Quality subcommittees:

Methods Subcommittee

Member Name	Organization
Jesse Berlin	Johnson & Johnson
Mitchell Krucoff	Duke University Medical Center/Duke Clinical Research Institute (DCRI)
Heng Li	U.S. Food and Drug Administration (FDA)/Center for Devices and Radiological Health (CDRH)/OSB/DBS
Nilsa Loyo-Berrios	U.S. Food and Drug Administration (FDA)
Joao Montiero	Medtronic
Didier Morel	Becton Dickinson
Sharon-Lise Normand*	**Harvard Medical School**
Nilay Shah	Mayo Clinic
Scott Snyder	Cook Research Incorporated

*Subcommittee Chair

Data Quality Subcommittee

Member Name	Organization
Jeffrey Brown	Harvard Pilgrim HealthCare Institute/Harvard Medical School
Lesley Curtis*	**Duke University School of Medicine**
John Laschinger	U.S. Food and Drug Administration (FDA)/ Center for Devices and Radiological Health (CDRH)/ODE/DCD/SHDB
Aaron Lottes	Cook Research Incorporated
Keith Marsolo	Cincinnati Children's Hospital Medical Center
Frederick Masoudi	University of Colorado Anschutz Medical Campus
Joe Ross	Yale University
Art Sedrakyan	Weill Cornell Medicine
Kara Southall	Medtronic
James Tcheng	Duke University Health System
Karen Ulisney	U.S. Food and Drug Administration (FDA)/ Center for Devices and Radiological Health (CDRH)/ODE/Clinical Trials Program
Charles Viviano	U.S. Food and Drug Administration (FDA)/ Center for Devices and Radiological Health CDRH/ODE/DRGUD

CHARGE OF METHODS SUBCOMMITTEE

- Develop a "living" methods playbook for NESTcc addressing device-specific considerations in:
  - Benefit/risk studies
  - Safety signal detection
- Develop a research agenda identifying critical issues in methods for:
  - Device, imaging, and other diagnostic technologies studies across the TPLC
- Consult on an ad hoc basis to NESTcc to ensure that NESTcc activities employ the most appropriate and rigorous methods of analysis

METHODS SUBCOMMITTEE 'LIVING PLAYBOOK – PROTOCOL'

1. **Background**: Disease, Available Therapies, and Device Risk
2. **Device Description**
3. **Study Specific Objectives**
4. **Target Population and Patient Selection**
5. **Outcomes:** Primary, Secondary, Procedural, and Device
6. **Device Exposure**
7. **Study Design**
    - 7.1 Specific Design
    - 7.2 Blinding (Masking)
    - 7.3 Units of Randomization and Observation
    - 7.4 Mechanism of Treatment Assignment
    - 7.5 Other Covariates
8. **Study Procedures**
    - 8.1 Patient Consent
    - 8.2 Randomization
    - 8.3 Protocol Deviation Handling
9. **Required Sample Size**
10. **Study Registration**
11. **Monitoring Plan**
12. **Statistical Analysis Plan**

Single protocol for both randomized trials observational studies