



# Comprehensive Data Resource Introduction

Helen Moore and Ping Guan  
Biorepositories and Biospecimen Research Branch  
Cancer Diagnosis Program  
Division of Cancer Treatment and Diagnosis  
National Cancer Institute

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# Agenda

- Introductions
- Opening Remarks – BBRB
- Collaboration Mechanism – NCI Tech Transfer
- CDR Overview – Leidos Biomedical Research
- CDR Demo – Leidos Biomedical Research
- Questions and Answers



# Biorepositories and Biospecimen Research Branch (BBRB)

- BBRB provides leadership, tools, resources, and policies in biobanking for the global biomedical research community, to enable translational research and precision medicine for patients.



# Current Initiatives

- Biospecimen Preanalytical Variables Program (BPV)
- Genotype-Tissue Expression Program (GTEx)
- NCI Best Practices for Biospecimen Resources
- Biospecimen Evidence-Based Practices (BEBPs)
- Biospecimen Research Network (BRN)
- Biospecimen Research Database (BRD) – online literature and SOPs db
- Biobank economics research and online tools
- ELSI research in biobanking
- Patient brochures



# Comprehensive Data Resource (CDR)

- CDR is part of the caHUB program.
- caHUB was not developed as a national biobank as initially envisioned, due to funding changes.
- However, two biospecimen programs were conducted under caHUB and are ongoing:
  - The Biospecimen Preanalytical Variables program (BPV) – a study of preanalytical variation in tissue processing and storage (FFPE and frozen tissues) and the effects of such variation on downstream molecular analysis.
  - The Genotype-Tissue Expression Program (GTEx) – a NIH Common Fund study of genomic variation and tissue-specific expression, analyzing up to 30 tissues per donor in 900 deceased donors.
- CDR serves as the Comprehensive Data Resource for these two programs.



# Comprehensive Data Resource (CDR)

- CDR is being adopted for other NCI programs including the CPTAC program (Clinical Proteomic Tumor Analysis).
- The CDR code was posted last year.
- Goal of the NCI Collaborative Announcement:
  - See if the community would find this useful
  - Identify one or more collaborative partners who wish to adopt CDR at their institution.
- This is not a funding opportunity.



# Program Needs Driving CDR Development

- Biospecimen science project: BPV
  - Cancer patients (primary)
  - Surgical specimens
  - Predefined preanalytical conditions
- NIH Common Fund Project: GTEx
  - Normal/Non-diseased
  - Postmortem
  - 30+ tissue types per donor
  - 900 donors

# What Types of Information Do We Want to Capture?

**Time 0**

Specimen is viable and biologically reactive

Molecular composition subject to further alteration/degradation



**Pre-acquisition**

**Post-acquisition**



# Examples of Information to Capture

- Consent
- Enrollment
- Blood and tissue collection and processing data
  - Blood tube type, time stamps for processing
  - For resected tissues: surgical clamp times, time placed in fixative or frozen, time placed in tissue processor, etc.
  - Storage conditions
- Pathology QC
- Pathology reports
- Clinical data about the donor



# Functional Requirements

Required functional areas

Not required functional areas



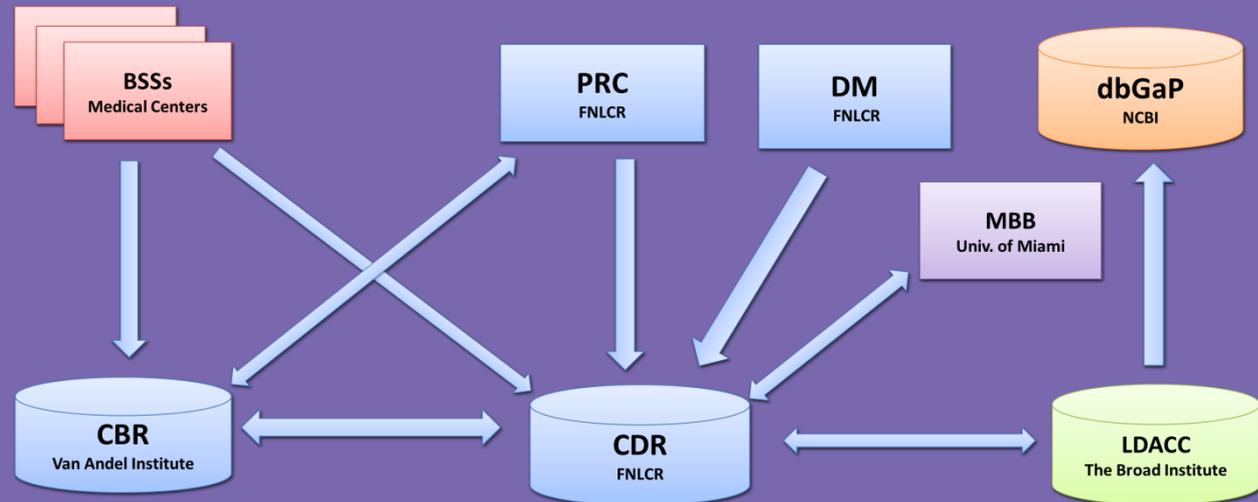


# CDR Built After Trying Other Tools

- CaTissue for data collection at BSS
  - Not suitable for real-time data entry
  - Required data fields overwhelmed the system
- OpenClinica for sample annotation
  - Difficult for data integration and management
- CDR: custom-built to meet the challenging needs of GTE<sub>x</sub> and BPV collection efforts

# Program requirements for CDR Functions

- Development of CDEs to thoroughly annotate the biospecimen life cycle to support the goals of the project
- Development of workflow-based annotation with live data entry at BSS when possible
- Record data at the BSS and transmit to project homepage (annotation, gross pathology images)
- Monitor shipping between different program sites



GTEX Data flow in CDR

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# CDR – Can This be Useful to the Biobanking Community?

- Unmet needs for management software in biobanking community
- Facilitate Best Practices and annotation of biospecimen collection and processing steps
- Collaborative Announcement:

[https://ttc.nci.nih.gov/opportunities/opportunity.php?opp\\_id=748093754466223](https://ttc.nci.nih.gov/opportunities/opportunity.php?opp_id=748093754466223)



# CDR – Collaborative Proposal

- Voluntary collaboration:
  - No funding to individual collaborator(s)
  - Collaborator(s) must have their own IT capacity to customize the software for their needs
- Interested parties should provide:
  - Description of unmet biobanking need that CDR could meet
  - Intended area of research that CDR could facilitate
  - IT experience and expertise in the proposed adoption