Breaking Barriers: Cultivating a Collaborative Infrastructure in a Hybrid Academic Community Cancer Center

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Breaking Barriers: Cultivating a Collaborative Infrastructure in a Hybrid Academic Community Cancer Center

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Integrative Processes

Human biospecimens (tissues and fluids) are an essential foundation for effective translational and genomic-based cancer research and have proven critical for the development of personalized cancer medicine. The demand for more high quality and clinically annotated biospecimens and the challenges of finding them to conduct clinical research or validation studies have grown rapidly, primarily due to an unprecedented level of genomic, post-genomic and personalized medicine research. The increased complexity of biospecimen requests in terms of linked clinical variables, biospecimen types, and multidimensional longitudinal clinical follow-up data has created new challenges but also opportunities for adapting existing collection and annotation strategies to supply the biospecimen needs of the future.

In response to this critical need, the Miami Cancer Institute (MCI) designed and launched a centralized Biorepository Program, to facilitate the procurement of disease-based and normal biospecimens by providing resources and services to expedite discoveries and its translation to more effective diagnostics and therapeutics.

Cultivating an internal collaborative infrastructure is critical for the success of new initiatives that require multi-departmental and multidisciplinary services. It requires a logically cohesive and dynamic design to continuously enroll participants, collect fit-for-purpose biospecimens, and annotate them with clinical information, and a strong operations and regulatory oversight. Six pivotal Departments were identified to the collaborative effort: Scheduling, Surgery, Infusion Services, Laboratory, Pathology, and the Oncology Data Mart team.

Building the Collaborative Infrastructure: The Six Pivotal Departments

- **Surgery**
  - Increased participant enrollment
  - Expedited tissue procurement
  - Surgeon involvement
- **Infusion**
  - Increased participant enrollment
  - Accessible, specific, tailored collection for longitudinal studies
- **Pathology**
  - Expedited tissue processing
  - Dedicated area for tissue processing
  - Accessible tissue
  - Tissue Quality Control
  - Expedited tissue grossing
- **Laboratory**
  - Continuous peripheral blood draw
  - Accessible, specific biofluid collection
  - Increased participant enrollment
  - Tissue Quality Control
  - Expedited tissue grossing
  - Processing
  - Development for longitudinal studies
- **Clinic**
  - Continuous peripheral blood draw
  - Accessible, specific, tailored collection for longitudinal studies
- **MRI Data Mart**
  - Real-time patient identification
  - Biospecimen associated clinical data
  - Development for longitudinal studies

**Patient**

- Increased participant enrollment
- Medical Assistant support
- Clinic Operations Support
- Physician involvement

**The Collaborative Operational Model for patient consent and collection of fit-for-purpose biospecimens.**

- **Figure 1.** Collaborative Operational Model for patient consent and collection of fit-for-purpose biospecimens.

- **Figure 2.** Collaborative Operational Model for patient consent began in January 2018 and has gradually expanded, allowing flexibility to target patients for enrollment.

- **Figure 3.** The MCI Data Mart provides associated clinical data obtained via EMR to allow for multi-disciplinary research in a variety of research initiatives.

The Development of the BRF Dashboard: An Illustrative Performance Tool

- **Figure 4.** Operational workflows depict the integration of the Biorepository Program within Infusion, Clinics, Surgery, Pathology and Laboratory Departments. All pertinent staff are trained on the processes set forth using these workflows, that are considered the operational blueprints of the Program.

**Collaborative Strategy**

- **Figure 5.** The BRF interactive dashboard provides real-time productivity data related to patient enrollment and biospecimen collection by disease site and illustrates how the various Departments' involvement directly impacts productivity.

- **Figure 6.** The 2019 BRF dashboard displays the gradual growth in enrollment and biospecimen collection that resulted from the pivotal Departments support.

**The Biorepository Program**

- **Figure 7.** The 2019 BRF interactive dashboard provides real-time productivity data related to patient enrollment and biospecimen collection by disease site and illustrates how the various Departments' involvement directly impacts productivity.

**Conclusions**

- **Figure 8.** To fulfill the research requirements of the many intricate requests the BRF receives at a rather expedited pace, particularly from our affiliated university members, the collaborative infrastructure must expand to other Baptist Health South Florida locations. The processes shown here must be tailored to these locations and to the new patient cohorts targeted.

- **Figure 9.** The expansion of existing capabilities to health care professionals as well as the implementation of an e-consenting platform will increase enrollment efficiency and collection of key biospecimens on real-time.

- **Figure 10.** The establishment of an IT platform for locating and sharing remnant biospecimens collecting for clinical purposes will increase the support provided by Baptist Health South Florida to the generation of new knowledge and more effective diagnostics and therapeutics strategies.

**A Shift in the Research Paradigm**

- **Figure 11.** To fulfill the research requirements of the many intricate requests the BRF receives at a rather expedited pace, particularly from our affiliated university members, the collaborative infrastructure must expand to other Baptist Health South Florida locations. The processes shown here must be tailored to these locations and to the new patient cohorts targeted.

- **Figure 12.** The expansion of existing capabilities to health care professionals as well as the implementation of an e-consenting platform will increase enrollment efficiency and collection of key biospecimens on real-time.

- **Figure 13.** The establishment of an IT platform for locating and sharing remnant biospecimens collecting for clinical purposes will increase the support provided by Baptist Health South Florida to the generation of new knowledge and more effective diagnostics and therapeutics strategies.