



Research tissue procurement efficiency in a large Comprehensive Cancer Center 2004 – 2010: Enriched investigator service through NCI cooperative tissue procurement consortia.

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Abstract

Introduction

Human tissue procurement (TP) for translational research from remnant surgical tissue provides best quality for high priority research. The quantity of such tissue is limited by diversity of surgical cases seen in single facilities and priority given to disease diagnosis and staging. Published data is not available that characterizes the efficiency or consistency of TP in large cancer centers or the extent to which service to investigators can be enhanced by NCI supported consortia such as the Cooperative Human Tissue Network (CHTN). We report the efficiency of TP at The Ohio State University Comprehensive Cancer Center (OSUCCC) and the enrichment of research tissues resource through the CHTN Midwestern Division, a consortium of three Ohio medical centers of The Ohio State University, Cleveland Clinic Foundation, and Case Western Reserve University.

Method

TP, a shared CCC resource, tracks procurement from daytime surgical cases and researchers served. Procurement is documented and failure to procure is categorized as: inadequate quality, tissue unavailable/too small, denied by pathologist or after-hours-case. Results are regularly tabulated for quality assurance.

Results

From 2004-2010 procurement efficiency averaged 47% (39 - 48%) of presenting surgeries. Failure to procure was associated with: inadequate quality 19%, tissue unavailable/too small 21%, denied by pathologist 5% and after-hours-case 8%. Forty-four OSU investigators were served 2,377 samples and an average of 22 more OSU investigators were served each year by the CHTN Midwestern Division (210 investigators with 6,166 samples including non-OSU investigators).

Conclusions

TP consistently performs at an efficiency of 47% of opportunities. The number of OSU investigators served is significant but is enriched by cooperative service to investigators by the CHTN Midwestern Division Consortium.

Background

Human tissue procurement (TP) for translational research from remnant surgical tissue provides best quality for high priority research.¹ The primary objective in the Surgical Pathology Division is to protect the diagnostic tissue needs of the patient requiring that the interrelationship of the procurement of tissue for diagnosis and the procurement for research never compromise the patient's interest.

Obtaining research tissues in this clinical setting can be organized for both prospectively collected research tissues and for biobanking. However, this requires a defined process for tissue procurement and for consultation between research and clinical procurers.

Keeping adequate records of procurement monitors over time allows regular review and correction of processes to improve collection outcomes. While there are many publications related to the rationale, organization and techniques of tissue procurement from remnant tissues, there is little information about the efficient of such research procurement programs within the hospital surgical pathology setting.^{2,3,4} This may be because tissue procurement is not organized or that parameters of tissue procurement are not clearly enunciated and data is not collected or retained as cumulative data. The research TP service of the Midwestern CHTN has collected extensive data related to access to remnant surgical tissues for directed procurement protocols based on investigator requests and a biorepository protocol for banking.

Since there is no published data on procurement efficiency, we have no comparative data that characterizes the efficiency or consistency of TP in other large cancer centers. We hope other procurement organizations will be encouraged to report their experiences.

We report the efficiency of research TP at The Ohio State University Comprehensive Cancer Center (OSUCCC) and OSU Medical Center, Department of Pathology, Surgical Pathology Division and the enrichment of procured research tissues through the CHTN Midwestern Division, a consortium of three Ohio medical centers, The Ohio State University, Cleveland Clinic Foundation, and Case Western Reserve University.⁵

Methods

TPS is a shared activity of the CHTN and the Comprehensive Cancer Center (CCC) shared resource. TPS tracks procurement activity from daytime surgical cases and the researchers served those tissues.

The details of procurement are documented and the data that has accumulated over time is used to improve procurement processes and interactions.

Each tissue is evaluated as a procurement opportunity. Failure to procure is an important event and is categorized as:

- **Inadequate quality**
- **Tissue unavailable/too small**
- **Denied by pathologist**
- **After-hours-case**

Results are regularly tabulated for quality assurance, evaluated, discussed with supervisors and corrections made where possible.

Results

2004 - 2010 procurement efficiency averaged 47% (39 - 48%) of presenting surgical remnant tissues/cases.

Failure to procure was on average associated with: **Inadequate quality** -19%, **tissue unavailable/too small** - 21%, **denied by pathologist** - 5% and **after-hours-case** - 8%

Surgically removed tumors present smaller in size in the last two years than in the past but cooperation and shared objectives allow procurement in many cases.

Procured tissue provided a yearly average of 6,166 samples served through IRB-approved and NCI-supported programs to an average of 210 investigators. In 2009 - 2010 an additional 9000 samples were served to the CCC Biospecimen and Biorepository Resource (BBR) bank.

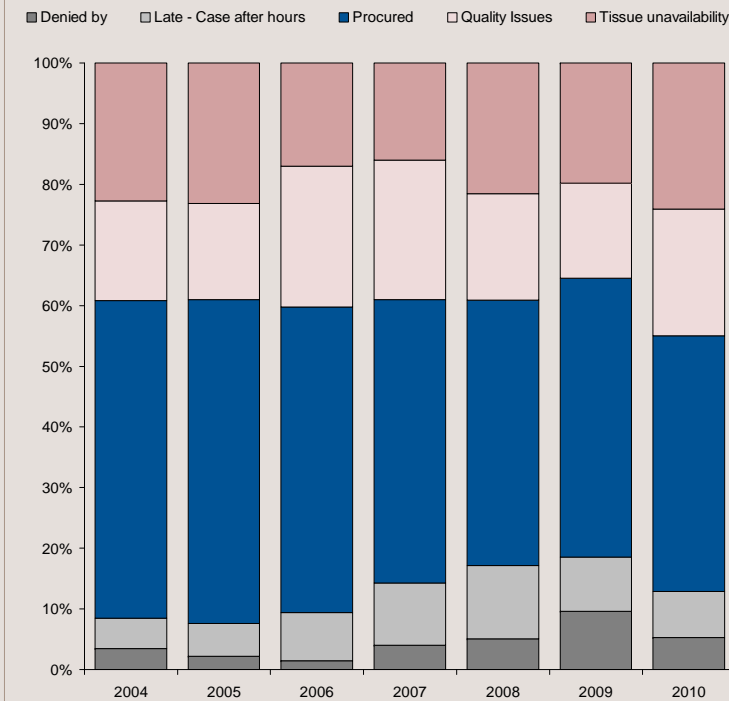


Figure 1: Procurement efficiency: percentage of cases by category and by year, 2004 – 2010.

Results

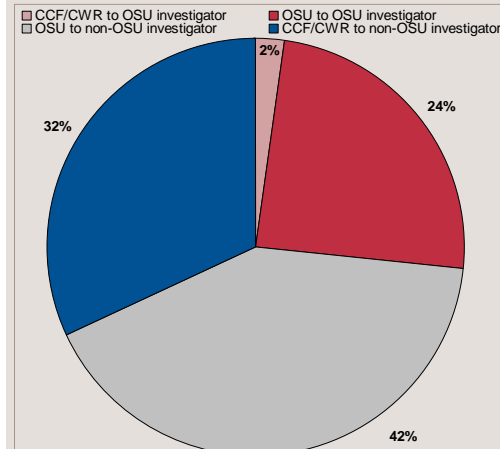


Figure 2: Percentage of samples (n=77837) by source (OSU or CCF/CWR) to investigator combination, 2004 – 2010.

Conclusions

- TP consistently performs at an efficiency of 47% of procurement opportunities.
- Investigators served by OSU are enriched by cooperative procurement with Cleveland Clinic and Case Western (CHTN Midwestern Division).

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