

Service Pricing Model

Common Charges for Services Provided to Biobank Users

There are few if any examples of biobanks that attempt or achieve 100% cost recovery in their practice. Commercial biobanks have often failed and academic biobanks mostly operate on the basis of the assumption that user-fees generated from biospecimen release will account for a small part of their actual cost. There are several reasons for this including but not restricted to the following; it is not ethical to charge money for human tissues that are also freely donated biospecimens and so biobanks cannot 'own' their stock; many biospecimens arise within an environment of publicly funded health care where for-profit models are hard to implement; biospecimens often take many years to achieve their value as meaningful associated outcomes data becomes available; academic research funders and users have not incorporated adequate costs into funding formulas. However, several services go into consenting, obtaining and processing biospecimens and it is these services that are associated with user-fees. It is also unknown how many and what proportion of biospecimens will be requested by users from the Institutional Biobank. The Canadian Tissue Repository Network (CTRNet) is currently implementing new standards and tools relating to pricing but below is a current example.

Looking at a typical tumour bank:

- One annual period supported 14 research projects, utilizing retrospectively collected cases, with the release of biospecimens and/or data.
- In this same period, 4 additional research projects were supported utilizing prospectively collected project-specific biospecimens.
- For all projects approximately 300 cases were utilized and from these, over 1200 biospecimens were created and were similar to those in the previous year.

Example: Approximate charge for a tumour bank biospecimens in an annual operating period.

Biospecimen Type	Approximate charge* for services to obtain and process biospecimens or aliquots or products
Frozen tissue sections in tubes	\$2/mg
Frozen tissue sections mounted on slides for IHC	\$8/slide
Frozen tissue blocks	\$450/block
FFPE tissue sections in tubes	\$7/section
FFPE tissue sections mounted on slides for IHC	\$7/section
FFPE tissue blocks**	\$450/block
Vials of Buffy Coat**	\$450/vial
Vials of plasma**	\$330/vial
RNA extracted from blood	\$60/ug
H&E slides	\$8/slide
TMA sections	\$1/section/case

- *** Charges represent 100% of costs – cost to biobank**
- **** These costs are typically much lower for a biobank that is established with a design intended only to collect FFPE tissue or only Blood specimens. In this example these costs are higher because of several additional operating components and costs that are required for a biobank intended to collect frozen tissues (but the biobank also collects FFPE and blood specimens to compliment the frozen tissue which enhance the overall value of the entire case for research).**

Percent of Cost Charged to User:

User	Amount Charged
Internal user (to organization)	15%
External user - academic	30%
External user - industry	100%

Comments:

- Percent of cost charged to user: common industry practice to offers biospecimens at 15%, 30% and 100% of cost to Internal Academic, External Academic and Industry respectively
- A case may be made up of multiple blocks and/or blood, fluid or other biospecimens: e.g. 1 case may represent 10 blocks and 3 vials of blood: 1 buffy coat, 2 serum

While each biobank is different, a biobank may obtain in the order of 1000-1500 cases per year

- % of case used for a biospecimen release would be considered: a biospecimen request may only utilize 10% of a case and thus would be charged **Y x 0**

Other service fees associated with biospecimen request that may be added

Type service pertinent to case release	Comment on time	Hourly fee
Cohort selection fee	Typically 5 hrs / 100 case cohort	\$30-44/hr
Consulting (e.g. ethics review board regulatory advice; protocol development)	Typically 1 hr / study (variable)	\$30-44/hr
Release fee per case (labelling, retrieving/returning inventory, updating database, preparing shipment)	estimated ~ 3 hours per/ release	
Data beyond baseline	Request specific	\$30-35/hr
Overhead per release	May be charged only to industry or all case requests	20-25%
Pathology review (QA, QC)		\$100-\$150/hr

Specimens, upon release would have a case by case derived user-fee (via a biobank user cost calculator) for example:

Researcher A

- Request for tumour tissue biospecimens from a cohort of 100 colorectal cancer patients with a specific histology, stage, age range and sample composition criteria
- Requesting 50mg of frozen tumour tissue – this represents 1/15th or ~7% of a typical colorectal tumour collection
- The total biobank cost for the collection of a frozen tissue case = \$1244
- Use of 7% of case = \$87/specimen or a total of \$8700 for 100 cases
- Internal user is charged 15% of actual cost to result in = \$1305 for frozen tissue on 100 colorectal cases
- A cohort selection fee of \$200 was charged for 5 hours of biobank staff time to search for 100 cases that met all researcher criteria
- A Release fee of \$200 was charged for time required to process, package and ship the required amount of tissue

Comments:

- For the purpose of this exercise and the business plan, it may be pertinent to use the above figures and increase values by a factor
- the list of biospecimens is not exhaustive, but may likely represent 50-80% of biospecimen types/formats that the Institutional Biobank is likely to collect.