

**National Cancer Institute  
Survey of Human Biospecimen Needs and Challenges  
for the Biomedical Research Enterprise**

Thank you for assisting us with this survey.

The NCI's Office of Biorepositories and Biospecimen Research has as its mission to ensure that human specimens available for cancer research are of the highest quality in terms of physical integrity and associated clinical data. The NCI has formulated a long-range plan to address the challenges raised by current biorepository practices and procedures. As one element of this plan, the NCI is investigating the feasibility of developing a national human biorepository.

To ensure that a national biorepository responds to all stakeholder needs, the NCI Office of Market Research and Evaluation (OMRE) will be conducting an online survey to glean critical information about current biospecimen-related practices, gauge stakeholder support of a national biospecimen infrastructure, as well as elicit input into its design and implementation. We are interested in participation from a broad range of individuals, from those with direct contact with biospecimens to those whose concern for biospecimens is related to the biomedical products that result from the research as well as public policies used to govern biospecimen usage.

We appreciate your interest and look forward to receiving your input on this important survey. If you have any questions about the survey, please do not hesitate to contact the NCI OBRR at [biospecimens@mail.nih.gov](mailto:biospecimens@mail.nih.gov).

It will take about 15 minutes of your time.

**Note: Are you wondering whether you are the right person to answer this or not? Click here to see a sampling of the questions. If not, click here to forward this survey to another person.**

**To continue and begin the survey, click the 'next' button below.**

[in footer] If you experience any technical difficulties, please contact the survey administrator at User-Centered Design at [survey@user-centereddesign.com](mailto:survey@user-centereddesign.com).

## Privacy Statement

Your participation in this survey is completely voluntary. Please be assured that your responses will be kept confidential and will not be disclosed to anyone outside NCI or its contractor, User-Centered Design, Inc. All data will be reported in aggregate only and neither your name nor your organization's name will be included in any reports. You may skip any questions that you prefer not to answer or withdraw at any point during the survey. If you choose to withdraw and want to delete your data, simply click the "Delete Survey" link at the top of the page.

Public reporting burden for this collection of information is estimated to average 15 minutes total, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to: NIH, Project.

**In order to better understand your responses, we would like to know a little more about you and your field of work.**

**Information about You and Your Work**

1. Which of the following best describes the primary role you undertake on a day-to-day basis? (Please select one.)

- Clinical researcher
- Surgeon
- Oncologist/Other MD clinician
- Nursing personnel/Clinical research coordinator
- Other clinical or healthcare staff
- Pathologist
- Laboratory scientist/researcher
- Laboratory personnel/technician
- Non-laboratory scientist/researcher
- Bioinformatics specialist
- Information technology specialist
- Executive/Administrator
- Program manager
- Policy analyst
- Health educator
- Patient/Patient advocate
- Biorepository manager
- Other: \_\_\_\_\_

2. How many years have you been involved in the biomedical field?

- < 1
- 1 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- More than 20

3. In what type of organization are you currently working or involved?  
(Please select one.)

- Academic/Research institution
- Hospital, clinic, or other care setting
- NCI
- NCI-designated cancer center
- NIH institute other than NCI
- Federal government agency (other than NIH)
- State/local government agency
- Non-profit organization (e.g., foundations)
- Advocacy organization
- Pharmaceutical/Biotechnology company
- Other biomedical company
- Biospecimen "broker" or commercial biobank
- Other (specify): \_\_\_\_\_

4. Do you work in a biospecimen bank?

- Yes
- No

## **Experience with biological specimens**

5. In what capacity do you deal with biological specimens in your work?  
(Select all that apply from the following lists.)

### **Collect**

- + Administer informed consent
- + Collect/gather samples for my own use
- + Collect/gather samples for use by others
- + Collect/gather samples specifically for medical care purposes (e.g., surgical removal of tumors, tissue for biopsies or screening tests)
- + Obtain/purchase samples (e.g., from a biobank) for my own use
- + Obtain/purchase samples (e.g., from a biobank) for use by others

### **Process**

- + Process Intellectual Property (IP) and Material Transfer Agreements (MTA)
- + Prepare/review IRB proposals

### **Store**

- + Oversee or work with the storage of specimens (e.g., responsible for storage conditions, inventory)

### **Distribute/Supply/Share**

- + Share/supply specimens to others in my organization
- + Supply specimens to others external to my organization

### **Use in Research**

- + Use specimens for biomedical research
- + Surgical treatment
- + Medical care delivery
  
- + Other \_\_\_\_\_
- + I do not deal directly with biological specimens in my work

## Access to Biospecimens

**Before we ask your opinions about a national biospecimen resource, we would like your input on accessing biospecimens today.**

6. What percentage of the biospecimens you work with or obtain come from each of these sources?

- \_\_\_\_\_ % - My patients/study participants/volunteers
- \_\_\_\_\_ % - Other patients/volunteers in my organization
- \_\_\_\_\_ % - Other medical care facilities (e.g., community hospitals)
- \_\_\_\_\_ % - Other research institutions (e.g., SPORES)
- \_\_\_\_\_ % - Non-profit biobank
- \_\_\_\_\_ % - Commercial biobank in the U.S.
- \_\_\_\_\_ % - Commercial biobank outside the U.S.
- \_\_\_\_\_ % - Cooperative Human Tissue Network (CHTN)
- \_\_\_\_\_ % - Other: \_\_\_\_\_
- \_\_\_\_\_ Question does not apply to me

6a. What proportion of your biospecimens come from individuals or organizations who are your research collaborators (excluding biospecimen samples you collect yourself or receive from your patients or biobanks)?

- None
- Some
- Most
- All
- Does not apply

7. What types of biospecimen samples do you most want or need for the research you conduct? (Select all that apply.)

Patient demographics:

- Fetal
- Neonatal
- Pediatric
- Young adult
- Aged
- Racial/Ethnic Minorities

Biospecimen characteristics

- Normal blood
- Normal serum / plasma
- Blood (disease states)

- Serum / plasma (disease states)
- Cell lines from human tissue
- Normal healthy tissue
- Cancer
- Pre-malignant (dysplastic, adenomatous, intraepithelial, neoplasia, etc)
- Inflammatory / Autoimmune states
- Infectious
- Degenerative
- Brain / central nervous system
- Urine
- Saliva
- Duct secretions

Other: \_\_\_\_\_

8. What information do you typically know about the biospecimens available to you in your work? (Select all that apply.)

- Biospecimen type (e.g. cell, fluid, tissue)
  - Anatomical location
  - Collection procedures
  - Storage procedures
  - Transfer procedures
  - Patient demographics
  - Patient complaint/history of current illness
  - Patient past medical history
  - Patient family history
  - Clinical diagnosis
  - Pathological diagnosis
  - Patient treatment information
  - Patient treatment outcomes
  - Patient consent/authorization status
  - Quality control data on the specimen itself (e.g., use of standard operating procedures for collection, storage, and management)
  - Does not apply
- Other: \_\_\_\_\_



9. Thinking about the information you typically know about the biospecimens you work with, which statement best describes your situation?

- I usually have enough information about the biospecimens, and don't need more
- I usually have enough information about the biospecimens, but I would like to have more
- I usually do not have enough information about the biospecimens
- I am not sure whether or not I have the information I need or should have
- Does not apply to me

10. How easy or difficult is it for you to obtain the quantity of biospecimens you need for your work?

- Very easy
- Easy
- Somewhat easy
- Somewhat difficult
- Difficult
- Very difficult
- Does not apply to me

## Perceptions of the Quality of Biospecimens

11. If all barriers were removed, what information or characteristics about biospecimens would you consider ideal to know in order for you to label them “high quality”?

- Biospecimen type (e.g. cell, fluid, tissue)
  - Anatomical location
  - Collection procedures
  - Storage procedures
  - Transfer procedures
  - Patient demographics
  - Patient complaint/history of current illness
  - Patient past medical history
  - Patient family history
  - Clinical diagnosis
  - Pathological diagnosis
  - Patient treatment information
  - Patient treatment outcomes
  - Patient consent/authorization status
  - Quality control data on the specimen itself (e.g., use of standard operating procedures for collection, storage, and management)
  - Does not apply
- Other: \_\_\_\_\_

[INSERT OPEN-ENDED TEXT BOX TO ELABORATE ON ANSWERS]

Elaborate on how you would define a “high quality” biospecimen by completing the following sentence:

A specimen is most valuable to my work objectives when \_\_\_\_\_.

**For the remaining questions about “high quality” biospecimens, please think of the characteristics of biospecimens that you defined as ideal to the work you do and for producing quality outcomes.**

12. What percentage of the time in your work is biospecimens of “high quality” necessary?

- Never (0%)
- Rarely (1-25%)
- Sometimes (26-50%)
- Often (51-75%)
- Usually (76-99%)
- Always (100%)
- Don't know
- Not applicable

In what situations with your work is it necessary or desirable to use these “high quality” biospecimens?

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13. In general, how easy/difficult do you think it is to obtain “high quality” biospecimens when they are needed?

- Very Easy
- Easy
- Somewhat easy
- Somewhat difficult
- Difficult
- Very difficult
- Don't know

14. Below is a list of possible challenges to accessing “high quality” biospecimens. For each one, please indicate how much of a problem it is overall for you in your work.

[Likert: Not a problem → very big problem]

- Lack of evidence-based best practices for collection of biospecimens
- Lack of evidence-based best practices for processing biospecimens
- Lack of evidence-based best practices for storing biospecimens
- Lack of adherence to existing best practices
- Time needed to obtain specimens
- Restrictive nature of HIPAA and human subjects guidelines
- Lack of standardized IRB review
- Lack of funding or reimbursement to collect or process specimens
- High cost of specimens
- Lack of willingness of researchers to share specimens
- Lack of standardized patient recruitment and consent procedures
- Lack of patient willingness to provide or donate biospecimens

[INSERT OPEN-ENDED TEXT BOX TO ELABORATE ON ANSWERS]

What other problems or barriers would you say impede access to biospecimens and what could be done to improve access?

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15. How often, if ever, have you questioned findings/outcomes from your work because you had concerns about the quality of the samples you had available to use?

- Never (0%)
- Rarely (1-25%)
- Sometimes (26-50%)
- Often (51-75%)
- Usually (76-99%)
- Always (100%)
- Don't know
- Not applicable

16. How often, if ever, have you limited the scope of your work/objectives because of difficulty obtaining biospecimen samples that met your needs?

- Never (0%)
- Rarely (1-25%)
- Sometimes (26-50%)
- Often (51-75%)
- Usually (76-99%)
- Always (100%)
- Don't know
- Not applicable

17. What percentage of the specimens you typically acquire for your work/objectives are you unable to use because of poor quality or other problems with the sample itself?

- None (0%)
- Rarely (1-25%)
- Sometimes (26-50%)
- Often (51-75%)
- Usually (76-99%)
- Always (100%)
- Don't know
- Not applicable

\_\_\_ Does not apply to me

18. To what degree do the following existing sources meet your needs for “high quality” biospecimens?

[Likert: Never → Always DK/NA

- My patients/study participants/volunteers
- Other patients/volunteers in my organization
- Other medical care facilities (e.g., community hospitals)
- Other research institutions (e.g., SPORES)
- Non-profit biobank
- Commercial biobank in the U.S.
- Commercial biobank outside the U.S.
- Cooperative Human Tissue Network (CHTN)

19. Imagine all challenges were removed and you had unlimited access to “high quality” specimens. How would this change the work you conduct? That is, what possibilities would it create for furthering biomedical research and product development?

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## **Perceptions of a Standardized Repository for Biospecimens**

### National Biobank and Standards Development Initiative

The NCI's mission is to ensure that human specimens available for cancer research are of the highest quality. The reliability of data derived from biospecimens is directly related to the quality and consistency of the biospecimens themselves. The NCI has formulated a long-range plan to address the challenges raised by current biorepository practices and procedures. As part of this plan, the NCI is investigating the feasibility of a national cancer biorepository for human specimens. The NCI envisions this national cancer biorepository as a nonprofit, public service project to collect and store biospecimens of the highest quality required for research in an open, transparent manner and in compliance with human subjects regulations. The stored biospecimens will be made available to the entire cancer research community. As such, this initiative has widespread implications not only for cancer researchers but also for a number of stakeholders, including pathologists, biorepository managers, National Institutes of Health-funded researchers, other Federal agencies such as the Food and Drug Administration and the Centers for Disease Control and Prevention, pharmaceutical and biotechnology companies, patient advocates, and ultimately the patients who will benefit from the products and therapies that result from the research. The reach of this initiative could extend beyond cancer to other diseases. Normal human tissue would also be collected under the same rigorous protocols to serve as a point of comparison and control.

20. After reading this description, what is your initial reaction to the idea of creating a standardized, national repository for "high quality" biospecimens?

- Mostly positive
- Positive
- Somewhat positive
- Somewhat negative
- Negative
- Mostly negative

20a Please elaborate Tell us why you think this way. What potential benefits or downsides do you foresee?

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21. If a biospecimen resource like the one described in this survey was created, how likely do you think you would be to obtain specimens from it for your work?

- Definitely would
- Very likely
- Somewhat likely
- Somewhat unlikely
- Very unlikely
- Definitely would not

22. How willing would you be to contribute samples to a biospecimen resource like the one described in this survey?

- Completely willing
- Very willing
- Somewhat willing
- Somewhat unwilling
- Very unwilling
- Not at all willing



23. A repository of “high quality” biospecimens would need to be multifunctional and useful for a diverse group of individuals. Which of the following aspects do you think are the **most important** for a national resource to provide? (Mark up to 5 aspects that are most important to you.)

- Provide highly-annotated specimens
- Provide enough samples for statistical analyses
- Provide a central resource for investigators to access available specimens
- Provide quality criteria met by each specimen to allow researchers to choose specimens that fit the needs of their research
- Provide a searchable database to quickly find out information about biospecimens and locate available biospecimens
- Provide an equitable access process
- Provide a biospecimen resource to include in proposals that will be trusted and expedite grant support
- Serve as a standard for other groups that are establishing repositories
- Serve as a leader for standardized human subjects and HIPAA protocols to other groups collecting biospecimens
- Enable addition of follow-up data over time
- Establish standardized quality control and assurance mechanisms
- Provide standardized “reference samples” to serve as controls during validation of discovery research and technology development
- Enable comparison of findings across research studies
- Enable interdisciplinary and multidisciplinary research
- Other (specify): \_\_\_\_\_

24. Based on the description of the proposed repository, how concerned are you about each of the following issues? [Likert: Not at all concerned → very concerned]

- Potential for the repository to shift funds from other current biomedical projects
- Expense of such a repository
- Potential lack of long-term funding or commitment
- Establishment of equitable procedures for access
- Quality of the biospecimens
- Quality of associated clinical data
- Availability of biospecimens relevant to your work
- Potential for under usage because researchers will continue to use their current sources for biospecimens
- Adequate infrastructure to manage such a large enterprise
- Challenges posed by our current medical enterprise system

25. What other issues, if any, would you have about a standardized repository?

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## **Recommendations for Alternative Measures to Improve Access to “High Quality” Biospecimens**

26. Of the following actions that NCI could take as an alternative to developing a national-scale biorepository for “high quality” specimens, which of these alternatives would be worth pursuing. Please mark up to 3 choices.

- Developing a virtual biospecimen repository that links researchers to biospecimens at various host institutions
- Supporting the infrastructure and science of biobanking with grants
- Managing a consortium of cancer centers to share repository practices and samples
- Continuing or expanding research on best practices for collecting, processing, storing and distributing high quality specimens
- Creating a smaller scale biorepository focused on specific, rare diseases
- Creating a smaller scale biorepository focused on reducing health disparities (e.g., collecting/providing specimens from underserved populations)
- Creating a smaller scale biorepository focused on providing specimens to particular researchers (e.g., investigators just beginning their careers)
- Developing a public partnership or campaign to increase interest in donating specimens among the public
- Developing a public partnership or campaign to increase interest in collecting specimens among specific health care providers
- Developing an outreach effort designed to foster greater collaboration and sharing among investigators

Please share any other approaches to fulfilling this mission of “making high quality biospecimens available” that come to mind.

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## **Final Thoughts**

**27.** Are there any other details about biospecimens or biorepositories that have not yet been mentioned that you would like to comment on? Please elaborate below.

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