



Preliminary Ethical, Legal, and Social Considerations for the cancer Human Biobank (caHUB)

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I. Introduction and Guiding ELSI Principles for the caHUB

This document outlines key ethical, legal, and social issues (ELSI) relevant to the establishment and operation of the cancer Human Biobank (caHUB), a national biospecimen resource established by the National Cancer Institute (NCI). It was prepared based on the deliberations of the caHUB ELSI Subgroup (a member roster is included as appendix 1) and contains their preliminary recommendations in the areas of governance, privacy, access to data and biospecimens, data sharing, custodianship and intellectual property (IP), return of research results, informed consent, and conflicts of interest (COIs). Special issues related to research participation by children, risk identification for vulnerable populations, and collection of biospecimens through rapid autopsy are also addressed. The ELSI Subgroup considers their deliberations and recommendations as the first steps in developing the ELSI guidance for the caHUB. A number of issues remain unresolved or require further input and consideration. This document includes the subgroup's recommendations on how the caHUB should proceed in the near term with regard to these issues. In addition, new issues will arise over time that will require ongoing ELSI review.

The vision for the caHUB is to contribute to medical advances by providing high-quality human biospecimens and associated information as well as analysis, scientific tools, and services to the research and development communities. The caHUB will be the custodian of the public trust, and every effort will be made to ensure that appropriate-quality biospecimens and associated information are collected and maintained according to the highest ethical standards and the most rigorous science. As such, the caHUB will be transparent regarding its processes, including how institutions are engaged to supply biospecimens and associated information, how the confidentiality of those data are maintained, how researchers can access biospecimens and associated information, and what may be done with the data that are released from the caHUB.

The caHUB will be subject to all relevant U.S. Federal laws and regulations. In addition, biospecimens and associated information collected at caHUB biospecimen source sites (BSSs) will be subject to the laws of the State in which they are obtained. Certain U.S. Government agency policies may also be applicable, such as those from the Office for Human Research Protections (OHRP), the Office for Civil Rights, the National Institutes of Health (NIH), and the Food and Drug Administration. Those policies are cited throughout this document where relevant and referenced in footnotes; Web resources are provided in appendix 2. In addition, this document was informed by the *NCI Best Practices for Biospecimen Resources*,¹ and the recommendations contained therein were adopted, as appropriate, to the caHUB or the BSSs. BSSs and recipients of biospecimens and associated information from the caHUB must comply with the ELSI criteria outlined by the caHUB to be considered for participation in the caHUB.

¹ An updated version of the *NCI Best Practices for Biospecimen Resources* is expected to be published in 2010. The appropriate reference to this revision of the *NCI Best Practices* will be added to this document as soon as it becomes available.

II. Governance

A. Introduction and Major Issues

In keeping with the *NCI Best Practices*, the ELSI Subgroup believes that the caHUB should accept the following custodial responsibilities, thereby demonstrating its accountability to promote public trust:

- Establish, document, and implement transparent ethical and legal policies governing the caHUB;
- Educate and obtain feedback about the policies from individuals and the community, where practicable and appropriate;
- Exercise sound scientific, ethical, legal, and social practice in the use of a limited resource of high-quality human biospecimens and associated information;
- Undertake appropriate measures to ensure the security of biospecimens and the confidentiality of their associated information;
- Ensure appropriate scientific assessment of requests for access to biospecimens and associated information;
- Develop and implement transparent policies for managing COIs;
- Ensure research results generated from the analysis of the information and biospecimens are available to the research community while protecting the privacy and confidentiality of patients;
- Ensure equal opportunity to contribute to the caHUB across all socioeconomic and or/cultural groups to achieve the utmost diversity of samples;
- Ensure that all biospecimens are voluntarily obtained from individuals who are treated respectfully and adequately informed about the requirements and rights of those contributing.

The caHUB will be governed by a steering committee that includes researchers, ethics and policy experts, and patient advocates. Its day-to-day operations staff will include individuals responsible for ELSI matters. The ELSI staff will ensure that the caHUB is operating according to its internal policies and regulations as well as relevant Federal policies and regulations governing human subjects research.

Given the national scale and large scope of the caHUB, it is appropriate that the caHUB establish an independent ELSI oversight committee to provide ongoing review of the ELSI pertinent to the caHUB operations as described below. A survey of existing large biospecimen resources, including international, privately held, and public entities, reveals that each of them has a panel dedicated to the review and consideration of ethical matters related to the activities of that resource. In almost all cases, the panels serve in an advisory role to an overall governing body, which is responsible for considering and implementing the recommendations of the ethical advisory panel. There are, however, differences in the composition of the panels; the level of transparency of the panels' membership, deliberations, and recommendations; and whether the meetings are open to the public.

Key to the ethical implementation of the caHUB is the relationship between the caHUB and the BSSs. The caHUB must establish a close working relationship with each BSS, which in turn may be part of a biospecimen accrual network, to ensure that each site maintains the highest ethical practices. A key ethical principle of the caHUB is to promote uniform ethical standards and practices at the BSS for the collection of biospecimens and associated information.

Lastly, as custodian of biospecimens and associated information, the caHUB must establish a plan for the disposition of existing biospecimens and associated information in the event that the caHUB closes or is no longer under the sole jurisdiction of the NCI.

B. Recommendations

- Recommendation 1. The caHUB should have an independent, external ELSI oversight committee that periodically reviews caHUB operations from an ELSI perspective as well as the activities of staff who conduct day-to-day ELSI-related tasks. The caHUB ELSI oversight committee should be a stand-alone entity (not a Federal advisory committee) that reviews the policies outlined in this or subsequent policy documents on an ongoing basis and makes recommendations to the caHUB steering committee. A high-level ELSI oversight committee member (e.g., the chair) should also sit on the steering committee. Additional details are as follows:
 - The ELSI oversight committee should be composed of ELSI experts and patient advocates.
 - The caHUB operational budget should include funds for modest compensation of ELSI oversight committee members.
 - In addition to periodic reviews of caHUB operations, the ELSI oversight committee should consider emerging ELSI issues (e.g., deidentification of genomic data and disclosure of research results) and provide recommendations to the steering committee.
- Recommendation 2. As custodian of the biospecimens and the associated information it holds, the caHUB should establish a plan that outlines what will happen to the biospecimens and associated information if the caHUB closes or if it is no longer under the sole jurisdiction of the NCI. The ELSI oversight committee would participate in the establishment of such a plan.
- Recommendation 3. Only institutions that agree to comply with all of caHUB's policies, including its ethics policies, should be designated a BSS, and the ELSI oversight committee and caHUB staff should be responsible for ensuring that ELSI guidelines are met by all participating sites.

C. Issues for Further Consideration

- The change in funding mechanism that will occur between phase 1 and phase 2 of the caHUB (i.e., from a Government-funded initiative to potentially a public-private partnership) may impact the ELSI governance structure, which will need to be reconsidered in that context. Notwithstanding the potential change, the role of the ELSI oversight committee will be maintained, and both partnerships will have a voice in

determining the composition and structure of the governance model. Consistent with the *NCI Best Practices*, section C.4.4, accessibility to biospecimens and associated information and resource sustainability should be achieved in a manner that maintains public trust. Furthermore, cost recovery should be limited to the recovery of reasonable costs associated with caHUB operations.

- In addition, the full composition and operation of the ELSI oversight committee needs to be determined, including greater detail about membership, scope, and the relationship to other caHUB committees.
- As recommended in the *NCI Best Practices*, section C.1, engaging the community in ELSI issues is important. Additional consideration needs to be given to the issue of what kinds of communities the caHUB will try to engage and how that will occur.

III. Informed Consent

A. Informed Consent—Content and Process

1. Introduction and Major Issues

In developing its recommendations for informed consent, the ELSI Subgroup reviewed several national regulatory and guidance documents, Federal regulations governing research with human subjects, policies and recommendations of national ethics advisory committees and biobanking initiatives in the United States and elsewhere, and the research ethics literature. Of note, the ELSI Subgroup relied heavily on section C.2 of the *NCI Best Practices*.

The ELSI Subgroup's recommendations focus on how the ethical and regulatory elements of informed consent laid out in the above-cited sources apply specifically to the caHUB. Notably, the ELSI Subgroup gave particular consideration to some of the central issues associated with informed consent—among them the scope of consent, content of informed consent documents, return of research results, termination of participation, custodianship and IP, and access to and sharing of biospecimens and associated information. The ELSI Subgroup believes that it is important to maintain consistency in the approaches to these central issues across all participating biospecimen sites and for all participants. In addition, the ELSI Subgroup was concerned with ensuring that the informed consent document be easily understood by a diverse audience while simultaneously being comprehensive enough to answer questions and ensure that those who provide consent have been adequately informed. The ELSI Subgroup also addressed informed consent issues related to biospecimens obtained at rapid autopsy.

As with many other biospecimen repositories, biospecimens for the caHUB will be collected and stored for future, unspecified research. Thus, the ELSI Subgroup discussed the implications of the informed consent approach for anticipated broad future research purposes (including genetic/genomic, proteomic and other “omic” studies).

2. Recommendations

- Recommendation 4. The caHUB ELSI oversight committee will determine the minimum criteria for informed consent elements, and the BSS must document that they have met

those criteria. The caHUB ELSI oversight committee will periodically review the criteria by which the BSS obtain informed consent.

Rationale—Establishment of such minimum criteria and steps to ensure adherence to requirements for informed consent is a method of preserving the rights of biospecimen contributors. As a national biorepository, the caHUB is expected to have in place procedures for ensuring that use of biospecimens and associated information is consistent with contributors' informed consent (*NCI Best Practices*, section C.2.2).

- Recommendation 5. In addition to meeting the minimum requirement for informed consent elements, institutional review boards (IRBs) at BSSs should use the caHUB informed consent templates—a general one or one for rapid autopsy, as appropriate. Only minor modifications are expected to be made to meet local institutional requirements. More substantive changes should be reviewed by the ELSI oversight committee.

Rationale—The subgroup has developed a template informed consent document for BSS IRBs. The suggested informed consent language developed by the ELSI Subgroup addresses caHUB-specific considerations in the context of anticipated procedures regarding biospecimen/data collection and the potential risks and benefits of research with biospecimens and associated information. The template language balances the requirement of sufficient information given to biospecimen contributors with the need for a comprehensible document, as recommended in the *NCI Best Practices*, section C.2.3. To guide IRBs as they consider the specific elements to include in the informed consent document, the ELSI Subgroup developed the templates after carefully reviewing relevant informed consent documents created by research institutions such as the Mayo Clinic, the NCI Group Banking Committee, The Cancer Genome Atlas (TCGA), and the eMERGE Network.

Some subgroup members suggested that the caHUB should require BSSs to adopt a user-tested version of the template, with allowance for only minor local modifications. Exceptions to using the template could be subject to approval of the ELSI staff or oversight committee. Further, from time to time, the ELSI oversight committee should review all requests for changes as well as other input and revise the template. This would streamline the process of IRB review and provide better quality and consistency in the consenting process.

- Recommendation 6. Because substantially divergent issues can arise when obtaining biospecimens at rapid autopsy as opposed to obtaining them from living individuals, the subgroup recommends that separate language for informed consent documents be used in those contexts. (Also see recommendations below under Normal Tissue Acquisition Through Rapid Autopsy.)
- Recommendation 7. The informed consent document must clearly convey that participation in the caHUB is voluntary and present the alternative to participation; i.e., an individual may refuse to contribute a biospecimen.

Rationale—The requirement of voluntariness is a basic element of adequate informed consent.

- Recommendation 8. The informed consent document should explain that researchers studying a wide range of diseases and human biological processes—not just cancer—will have access to the biospecimens and associated information in the caHUB. The informed consent document should make clear that biospecimen contributors will not be contacted each time their biospecimens/associated information will be used.

Rationale—The subgroup reached consensus that because the purpose of the caHUB is to support a broad range of medical and scientific research, broad consent rather than tiered consent is the appropriate consent approach for this initiative. This information about the varied research uses of the biospecimens and associated information must be communicated to adequately inform people that the caHUB is a repository of biospecimens and associated information to which researchers will seek access for many different types of medical and scientific research, much of which cannot be contemplated at this time. (See, for example, *NCI Best Practices*, section C.2.)

- Recommendation 9. The informed consent document should indicate that requests for access will be reviewed and authorized by the caHUB access committee based on scientific merit and ethical integrity, and requests for access to specimens and associated information will be granted only for research that is legally permissible and conducted according to the ethical standards outlined in this document. Further, it should be made clear that scientists at universities and nonprofit research entities, as well as at for-profit companies such as and pharmaceutical and biotechnology companies, may be granted access to specimens and information.

Rationale—Biospecimen and information contributors should be aware of the caHUB’s intent to make biospecimens and associated information widely available for advancement of research while being assured that only scientifically meritorious and ethically valid uses will be allowed. Contributors should also be aware that the caHUB will be a resource to for-profit companies as well as academic and other nonprofit researchers.

- Recommendation 10. The informed consent document (in a section such as “What will happen when I enroll in the caHUB?”) should explain what biospecimens will be collected, how, and when. The informed consent document should also explain that various types of medical and personal information might also be collected by the BSSs. This information could include medical records information, family history, and responses to questionnaires. The process for deidentification of biospecimens and data (if applicable) should be described as well.

Rationale—The ELSI Subgroup’s recommendation is consistent with the *NCI Best Practices*, section C.2.3.2, which states that the informed consent document should describe what type of data will be collected and how data will be used and stored. The *NCI Best Practices* also recommends that the informed consent document clearly state whether longitudinal data will be collected from biospecimen contributors’ medical records.

- Recommendation 11. Informed consent documents should explicitly mention the possibility that researchers will use biospecimens for genetic/genomic research and should include information about the coverage and limitations of the Genetic Information

Nondiscrimination Act (GINA) regarding the use and disclosure of genetic/genomic information.

Rationale—As discussed further under Access Policies and Privacy and Confidentiality, the ELSI Subgroup concluded that genetic research may merit specific mention in informed consent documents. Such attention may be necessary because of possible implications for biospecimen contributors and their expectations of privacy, including the issue of whether GINA is applicable. Under the OHRP guidance for biospecimen resources and GINA (available at <http://www.hhs.gov/ohrp/humansubjects/guidance/reposit.htm> and <http://www.hhs.gov/ohrp/humansubjects/guidance/gina.html>, respectively, and cited by *NCI Best Practices* C.2.1.2), information about the consequences of DNA typing should be included in the informed consent document when human genetic research is anticipated. Also, see the *NCI Best Practices*, section C.2.3.5, regarding informed consent for studies involving genetic sequencing or analysis.

- **Recommendation 12.** If researchers from other countries are to be given access to biospecimens and associated information at the caHUB, the informed consent document must state this since it is sometimes a factor for people considering whether to contribute their biospecimens and associated information for research.

Rationale—The ELSI Subgroup recognizes that the issue of whether international researchers or only U.S. investigators will have access to the biospecimens may bear on some people’s willingness to participate and therefore must be covered in the informed consent document.

- **Recommendation 13.** The informed consent document should parallel the *NCI Best Practices* language articulating that a person contributing a biospecimen has no rights to downstream IP or research data associated with the biospecimen.

Rationale—The subgroup cited the *NCI Best Practices*, section C.5, in this regard, which states that the mere act of providing a biospecimen does not make one a part owner in an invention. (Being a custodian of a biospecimen likewise does not confer an ownership stake in an invention as also addressed in the *NCI Best Practices*, section C.5.)

- **Recommendation 14.** The informed consent document should address the question, “How long will my participation last?” This section should define the coverage of the current consent as well as circumstances under which new consent will be sought.

Rationale—The ELSI Subgroup’s recommendation is consistent with the *NCI Best Practices*, including section C.2.2.1, which addresses the issue of transparency in policies concerning the informed consent process and the possibility that some biospecimen contributors may be opposed to being recontacted to consent for additional research or future uses of their biospecimens and associated information.

- **Recommendation 15.** The informed consent document should clarify whether the biospecimen contributor agrees to be recontacted in the future for either additional samples or information.

Rationale—In some cases, additional biospecimens or information may be desired in support of research. In these instances, it must be clear whether a biospecimen contributor is willing to be recontacted with such a request.

- Recommendation 16. The informed consent document and other informational materials should be written at an appropriate grade level so people can understand and comprehend the information in them. The informed consent document should be concise and not overly detailed. Supplemental informational materials should be made available to people so they can inform themselves, to the desired extent, about the collection, storage, distribution, use, and final disposition of their biospecimens and other complex issues.

Rationale—This recommendation is consistent with the *NCI Best Practices*, section C.2.3, which encourages a balance in informed consent documents between sufficient information for informed decisions and a document that is comprehensible and reasonable in length. It also is consistent with the *NCI Best Practices*, section C.2.3.10, which states that the use of supplementary materials should be considered in addition to the informed consent document. This approach will ensure that the informed consent document is not unduly long while providing all necessary information to biospecimen contributors via supplementary information.

- Recommendation 17. The informed consent document should describe the caHUB in sufficient detail that biospecimen contributors understand that the caHUB is a national resource under Federal governance for biomedical research. A more extended description of the caHUB can be placed in supplementary materials.

Rationale—The OHRP guidance on regulatory requirements for biospecimen resources (available at <http://www.hhs.gov/ohrp/humansubjects/guidance/reposit.htm> and cited in the *NCI Best Practices*, section C.2.1.2) recommends that informed consent documents include a clear description of the operation of the biospecimen resource, including information about whether identifiable information will be maintained by the resource.

- Recommendation 18. To explain custodianship and associated complex issues, the development and distribution of communication materials beyond the informed consent document (such as an information brochure, booklet, newsletter, or links to a Web site) should be provided to potential biospecimen contributors.
- Recommendation 19. The timing of and procedures for obtaining informed consent and other decisions about the consent process will be defined in the contract between the caHUB and the BSS. These should be consistent with the *NCI Best Practices*.

Rationale—The specifics of the informed consent process depend on various factors, including the extent to which biospecimens will have or be linked to identifiers; the timing and method of collecting biospecimens (e.g., healthy or diseased tissue remaining from an initial surgical procedure versus tissue obtained subsequently specifically for research processes); cultural and religious views about biospecimens that may be prevalent in the community; and a biospecimen contributor's primary language, which if not English may require the need for translators and documents written in the relevant language.

Although approaches must be consistent with applicable laws and regulations, BSSs may wish to tailor decisions on timing of and procedures for obtaining informed consent as

well as other decisions about the consent process. Sites are also encouraged to adhere to relevant recommendations in the *NCI Best Practices*, section C.2.

- Recommendation 20. The caHUB informatics system should allow for querying of the consent status associated with a specific biospecimen. The database should also contain a scan of the informed consent document template for each BSS.

Rationale—This recommendation is in keeping with the *NCI Best Practices*, section C.4.3, which states that biospecimen resources should consider developing an informatics system to facilitate use or disclosure of biospecimens consistent with the current status of a biospecimen contributor’s consent.

3. Issues for Further Consideration

The subgroup suggested that further consideration be given to the following issues:

- A template informed consent for rapid autopsy remains to be developed.
- Additional informational materials to accompany the informed consent materials remain to be developed.
- Template informed consent documents should be tested in a pilot study to determine their effectiveness on several measures; e.g., readability, understanding, content, cultural sensitivity.
- The ELSI Subgroup did not arrive at definitive conclusions about the circumstances under which reconsenting would be necessary. The subgroup discussed that initial consent might apply to ongoing research without a time limitation. The informed consent document could be written to require re-consent to obtain an individual’s specimen from a new medical circumstance, such as a separate disease occurrence or recurrence, as the defining factor for new consent.
- The amount and type of clinical data collected and how it will be collected remain to be determined. Some adjustments to the informed consent document may be needed to reflect what is occurring at each BSS.
- Some members thought that the caHUB should consider a central IRB that would standardize informed consent across all BSSs. However, members recognized this to be a complex issue with significant implications for how the caHUB would operate. Further, it is not clear whether a central IRB would result in any efficiencies given the fact that even with a central IRB local IRBs may conduct their own reviews.
- The issue of access by individuals in other countries has not yet been resolved. Changes to the informed consent document many need to be made to reflect these policies when they are developed.

B. Informed Consent—Termination of Participation

1. Introduction and Major Issues

Biospecimen contributors have the right to terminate their participation in the caHUB at any time. However, specimen and/or associated information that have already been distributed to researchers cannot be retracted by the caHUB. The ELSI Subgroup discussed the conditions and

processes that should be in place if a biospecimen contributor no longer wants his/her biospecimen(s) and/or associated information used for research and considered (1) whether biospecimens in the repository should be destroyed or returned to the BSS and (2) whether investigators must destroy biospecimens in their possession or return them to the caHUB or the BSS. The subgroup also addressed how associated data derived from the biospecimen and other sources should be handled when a biospecimen contributor no longer agrees to research with his/her biospecimen and associated information. The subgroup also noted that recommendations related to this topic may be affected by new guidance currently under development by OHRP.

2. Recommendations

- Recommendation 21. Following a contributor's termination of participation, biospecimens remaining in the caHUB will not be used for future research, nor will they be made available to any other entity. Any information associated with the biospecimen will no longer be available for research use, but biospecimen associated information that has already been distributed to researchers will not be retracted by the caHUB. Research data that has been generated from the use of the biospecimens and the associated information from the caHUB will not be removed or destroyed.

Rationale—The subgroup determined that when contributors no longer want their biospecimens and associated information used for research, the caHUB should consider destroying existing biospecimens or returning them to the BSS. The subgroup recognized that, to the extent possible, the biospecimens (and associated information) of contributors who want to terminate research with those materials should no longer be used. Deidentification of biospecimens for continued use was not considered acceptable. Existing research data generated from biospecimens and associated information should remain available, as appropriate, unless otherwise determined. Removal or destroying existing research data would potentially compromise the usefulness and validity of research studies.

3. Issues for Further Consideration

The caHUB, with the appropriate external ELSI and biospecimen expertise, will continue to investigate and consider existing policies on how samples are handled when a contributor terminates his or her participation.

C. Informed Consent—Children as Biospecimen Contributors

1. Introduction and Major Issues

As noted in the *NCI Best Practices*, section C.2.5, studies that use biospecimens and/or associated information from children that were obtained with parental or guardian permission, as well as with child assent where appropriate, should consider the need for obtaining informed consent when a child reaches the legal age to consent.

It is anticipated that the caHUB will not initially collect biospecimens from children. Therefore, the ELSI Subgroup deferred recommendations for the collection of biospecimens from children until that practice becomes relevant for the caHUB. At that time, the ELSI oversight committee should readdress this issue.

2. Issues for Further Discussion

In addition to the general considerations listed above, the appropriateness of and operational issues related to recontact to obtain the informed consent of now-adult biospecimen contributors were discussed, including the following:

- Whether the proposed research project poses greater than minimal risk to biospecimen contributors;
- Whether an adequate information technology system is in place to keep track of when biospecimen contributors reach the age of majority;
- Whether accurate contact information is available for biospecimen contributors;
- The age/maturity level of the child at the time of biospecimen donation;
- Whether the child’s assent was obtained at the time of biospecimen donation and, if so, the nature of that assent;
- Whether recontact should be initiated as soon as the age of majority is reached or delayed until a research request for the biospecimen and/or associated information is received;
- Who should contact the biospecimen contributor to obtain informed consent (e.g., the BSS or the caHUB);
- What should happen to biospecimens and associated information if the biospecimen contributor cannot be located at the age of majority;
- Whether information about the planned approach at the age of majority should be included in the parental permission and assent documents; and
- How to incorporate community input (e.g., from pediatric/adolescent biospecimen contributors and former biospecimen contributors) about the issue of recontact and whether experts in pediatric ethics should be consulted during development of these policies.

D. Informed Consent—Risk Identification for Vulnerable Populations

1. Introduction and Major Issues

The ELSI Subgroup has not considered the special issues related to the collection of biospecimens and associated information from “vulnerable” populations, such as those with cognitive impairment.

2. Issues for Further Consideration

It has not yet been determined whether biospecimens from vulnerable populations will be collected for the caHUB, and the ELSI Subgroup did not address the issue of what consent and other policies will apply under these circumstances. If and when a decision is made to collect biospecimens from vulnerable populations, the ELSI oversight committee should be charged with providing guidance about implementation.

E. Informed Consent—Normal Tissue Acquisition Through Rapid Autopsy

1. Introduction and Major Issues

High-quality, well-annotated normal human tissues are essential to support the study of cancer and other diseases, and postmortem collection enables myriad research applications. If managed appropriately, postmortem tissue collection can meet current research demands and serve, in some instances, as a surrogate for surgically acquired tissues from living donors in biospecimen research. A common method to acquire tissues postmortem is at rapid autopsy, which is performed soon after death for diagnostic purposes and with concomitant collection of tissues for research. Rapid autopsy programs are generally organized within academic medical centers and recover specialized tissues (e.g., brain, prostate, large amounts of normal tissue or metastatic cancers) for specific research projects that are difficult to impossible to acquire by other means. Rapid autopsy offers the advantage of a relatively brief postmortem interval, thereby minimizing ischemia time and preserving the molecular integrity of collected specimens. It also provides access to metastatic sites and normal tissue that may not be readily accessible among the living. A well-functioning institutional research autopsy program requires a fully dedicated, pathologist-directed multidisciplinary team (attending physicians and residents, technicians, data managers, study nurses, and research coordinators) that is well trained in donor recruitment and informed consent and in ethical and legal requirements. Notably, although postmortem collection technically is not considered human subjects research and therefore does not *require* IRB approval, there are different sensitivities among medical centers concerning risk management and due diligence for permitting postmortem collection of research tissues, and some may request IRB review. There is also variation in procedural and legal requirements related to specimen donation by both institution and State. Permission for autopsy can be obtained before death via consent provided by the individual or by next of kin (NOK) after death. Ethical and regulatory best practices should aim to ensure that the donor's wishes are honored and carried out if the donor makes an anatomical gift during his/her lifetime and to confirm consent given by the NOK in instances when the deceased did not make an anatomical gift.

2. Recommendations

Recommendations related to procuring normal research tissues postmortem are based on discussions and guidance provided in the *Best Practices for Postmortem Recovery of Normal Human Tissues for Research*² prepared by the caHUB Acquisition of Normal Tissues Subgroup.

- Recommendation 22. Where State law allows, individual consent for postmortem tissue donation should take precedence over NOK authorization.
- Recommendation 23. The informed consent process should meet all Federal, local, and institutional requirements.
- Recommendation 24. Institutions should aim to implement a formal authorization process that specifically addresses issues related to donor recruitment, biospecimen recovery, and research utilization of postmortem biospecimens. This process should provide for broad,

² As of April 13, 2010, the *Best Practices for Postmortem Recovery of Normal Human Tissues for Research* remained under development. A reference will be added to this document once the former is available.

unspecified research use of biospecimens and implement informed consent for all living donors and the authorization of NOK of deceased donors.

- Recommendation 25. Informed consent language for postmortem tissue donation should clearly address any potential disfigurement to the body, include a description of what the postmortem recovery or rapid autopsy process will involve, state the length of time that the postmortem recovery or rapid autopsy will require, and note when the body will be returned to the family.
- Recommendation 26. The consent or NOK authorization process should address the risks that may be associated with extensive genomic and other molecular characterization for both the individual and the NOK.
- Recommendation 27. Ethical and scientific oversight for research with tissue obtained postmortem should be consistent with that for living tissue donation.
- Recommendation 28. To avoid the perception and/or risk of duress, all individuals involved in determination of death should be excluded from the consent process of the NOK antemortem and postmortem.

V. Custodianship and Intellectual Property

A. Introduction and Major Issues

The caHUB as the custodian of biospecimens and associated information must protect the integrity and quality of the biospecimens and information while still ensuring access, promoting commercialization of inventions, fostering future research use of downstream inventions, and preserving the interests of all stakeholders in the research process.

In developing its recommendations regarding IP generated from research on biospecimens and their associated information, the ELSI Subgroup deferred to the *NCI Best Practices for Biospecimen Resources* and other NIH policies relevant to IP. The following is a summary of key recommendations.

B. Recommendations

- Recommendation 29. The caHUB will be the custodian of the biospecimens and associated information submitted by the BSSs and will operate with the custodial principles documented in the *NCI Best Practices*, section C.1, regardless of any changes in the structure and organization of the caHUB.
- Recommendation 30. Consistent with the NIH Research Tools Policy, inventions and discoveries associated with caHUB biospecimens and associated information should be made available for future research use to the greatest possible extent while encouraging commercialization of new biomedical products to achieve the associated potential benefits to the public.

Rationale—The subgroup placed great importance on the goal of promoting access to inventions and data for research use while obtaining appropriate IP protection to encourage commercial development of biomedical products that would benefit the public.

VI. Access Policies

A. Introduction and Major Issues

To inform their recommendations for achieving equitable access to potentially scarce resources, the ELSI Subgroup reviewed the policies of several large, population-based biorepositories as well as several small biobanks. The subgroup members also discussed the experience of other research projects, such as TCGA and the database of Genotypes and Phenotypes (dbGaP).

Biospecimens, associated information, and in some cases results of research using the caHUB (see Data Sharing below) will be available to researchers based on caHUB access policies that aim to maximize the resource's usefulness while maintaining privacy of participants and confidentiality of research data. These policies have not been finalized; however, it is anticipated that the policies will be similar to NIH data access policies. These include the following:

- caHUB access requests will be reviewed for both scientific merit and ethical integrity by an access committee.
- The caHUB will make biospecimens and associated information widely available for research use.
- Requests will first be assessed for completeness and statistical validity by caHUB staff who will guide researchers in developing their requests.

In considering recommendations related to researchers' access to caHUB biospecimens and associated information, the ELSI Subgroup bore in mind the *NCI Best Practices* principles in section C.4, which include the principle that guidelines for biospecimen distribution and data sharing should be clear to ensure comprehension and adoption, flexible to allow application to diverse and evolving scientific needs, and amendable to facilitate their adaptability over time. Open access to genetic/genomic aggregate-level data should only be considered within the context of the ongoing exploration of the possible risk of biospecimen contributor identification based on these data. The subgroup also recognizes that there is a potential risk for identification through open access to extensive clinical data.

B. Recommendations

- Recommendation 31. Investigators receiving caHUB biospecimens and/or associated information will follow standardized and transparent processes, including completion of a material transfer agreement (MTA) and/or data use agreement, as appropriate.

Rationale—Standardized processes are key for ensuring appropriate and fair distribution of caHUB biospecimens and associated information to researchers. The *NCI Best Practices*, section C.4.1, recommends that researchers who wish to access biospecimens and/or associated information should enter into a written agreement in an MTA or other appropriate document that is consistent with the NIH Research Tools Policy (http://ott.od.nih.gov/policy/research_tool.html).

- Recommendation 32 Biospecimens in the caHUB will be accessible to all types of scientific investigators, including academic, nonprofit, and industry researchers. Therefore, broad prohibitions on future commercial use or development of products will not be possible.

Rationale—The subgroup recognizes that the caHUB’s purpose of advancing science and medicine can only be achieved with broad researcher access to its resources.

- Recommendation 33. Procedures should be in place to ensure that an adequate amount of biospecimen is retained for critical medical or legal needs, and standards for such access by a biospecimen contributor should be established.

C. Issues for Further Consideration

The subgroup began to address but did not fully develop comprehensive recommendations about the following issues:

- The use of biospecimens for induced pluripotent stem cell research and human cloning and whether these issues should be specifically addressed in the informed consent document or supplementary materials, if at all.
- Access to biospecimens differs from access to associated patient and clinical information, which differs from access to downstream scientific and genetic data. These terms should be defined and each distinct process outlined.
- How the caHUB will enforce its data use policies and address violations. Any data use policies developed should be consistent with relevant NIH policies.

VII. Data Sharing

A. Introduction and Major Issues

The subgroup discussed the best ways to achieve an appropriate balance between open access to biospecimen and patient related information in the caHUB and necessary protections of biospecimen contributors and researchers who generate data using biospecimens. Their conclusions were guided by *NCI Best Practices C.5*, “Intellectual Property and Resource Sharing,” which states, “[R]esearch data and tools generated through the use of biospecimens should be shared in a timely manner and, to the greatest extent possible, in a manner consistent with the NIH Data Sharing Policy and the NIH Research Tools Policy.” To this end, submission of, and access to, caHUB data will be governed by NIH policies (available at http://grants.nih.gov/grants/policy/data_sharing/) as a minimum standard. More stringent guidelines may be imposed.

Additional relevant information considered by the ELSI Subgroup is available at:

- http://ott.od.nih.gov/policy/research_tool.html
- http://www.autm.net/AM/Template.cfm?Section=Technology_Transfer_Resources&Template=/CM/ContentDisplay.cfm&ContentID=2810
- http://cabig-ut.nci.nih.gov/working_groups/DSIC_SLWG

B. Recommendations

- Recommendation 34. To the greatest extent possible and in keeping with NIH policy on sharing of research resources, research findings supported with Federal funding should be made available to the research community. Completed datasets and resources should be

released or returned to the caHUB in a timely manner because retaining data only as long as necessary for legitimate and imminent research purposes further fosters biomedical research. A reasonable delay to ensure priority of publication or IP applications is appropriate.

Rationale—Advances in science and medicine rely on the free flow of information so that research can build on previous findings. The goal of the caHUB’s data sharing policy should be the same as the objective of the NIH Data Sharing Policy, as summarized in the February 26, 2003, *Final NIH Statement on Sharing Research Data*, which states. “Data should be made as widely and freely available as possible while safeguarding the privacy of participants, and protecting confidential and proprietary data.”

The subgroup’s recommendation echoes *NCI Best Practices C.4.4*, which states that receipt of Federal funding carries with it the expectation that biospecimens and resulting research resources and data will be available, consistent with NIH policy. Further, since caHUB itself is federally supported, the ELSI Subgroup believes this policy is applicable to all researchers who gain access to caHUB specimens and/or associated information.

See also *NCI Best Practices C.4.2*, NIH Research Tools Policy (available at http://ott.od.nih.gov/policy/research_tool.html), and Revised Policy on Enhancing Public Access to Archived Publications Resulting from NIH-Funded Research (available at <http://grants.nih.gov/grants/guide/notice-files/NOT-OD-08-033.html>).

This policy will ensure that biospecimen associated information are available for the broadest possible future use and will help minimize the administrative burden involved in tracking data use restrictions for individual sample sets. Because all specimens and associated information will be collected prospectively, the caHUB will be able to enforce the policy of no data use limitations by stating it in the data submission guidelines.

C. Issues for Further Consideration

- The ELSI Subgroup is still considering how researchers can be encouraged to share their research data in the face of opposing priorities. For example, researchers sometimes want to maintain research data for further research, such as when they have published some findings but want to continue mining their data and conducting follow-up research. The ELSI Subgroup suggested that, at a minimum, researchers could be required to report back on publications and inventions (e.g., via an annual report) and submit a raw data file. The following recommendation language is under consideration:

Researchers are encouraged to submit their caHUB biospecimen-associated research data to the caHUB. Incentives such as discounted sample pricing should be considered as a way to encourage researchers to submit research data to the caHUB.

- It remains unclear how the caHUB can best encourage researchers to share their research data without discouraging, for example, industry users from participating.
- What policies should be put in place to address issues of quality control with research data returned to the caHUB data repository also remains to be clarified.
- The ELSI Subgroup plans to consider the data sharing practices of the following resources, among others, as it crystallizes its recommendations in this area: The

International Cancer Genome Consortium (addresses data sharing and has developed an informed consent template for international contribution of samples), eMERGE (also addresses complex data sharing issues), the NCI cancer Biomedical Informatics Grid (is developing technological capability to enable the sharing of biospecimens and associated information), and dbGaP (requires researchers to submit a description of their research to the database).

VIII. Privacy and Confidentiality

A. Introduction and Major Issues

The caHUB will embrace the relevant privacy guidelines outlined in the *NCI Best Practices*, including the use of coding, defined levels of data access, and an honest broker system. Although the caHUB will possess only coded data, this is not the same as deidentified data as defined by the HIPAA Privacy Rule, and there may be ways now or in the future to use multiple datasets to reidentify biospecimen contributors. Although this risk is currently low, it is expected to grow as more individuals' genetic data enter the public domain. Thus, although the risk of identification is relatively low, the caHUB is still the custodian of public trust with regard to the confidentiality of research data and related health information.

One scenario of major concern to the general public is that national security and Federal, State, and local law enforcement agencies may wish access to their DNA and related health information. The HIPAA Privacy Rule has exceptions for access to protected health information (PHI) by law enforcement authorities when certain conditions are met. One way to protect the confidentiality of data could be in the form of certificates of confidentiality (CoCs). The ELSI Subgroup agreed that each BSS should possess a CoC, and the caHUB should help the sites obtain CoCs. Also of interest is whether the entire caHUB can be covered by a CoC; this matter will also be put to legal experts.

The ELSI Subgroup agreed on the importance of transparency in informed consent documents with regard to issues surrounding privacy and confidentiality, including the disclaimer that the caHUB cannot provide an absolute guarantee that privacy and confidentiality will be maintained. In addition, the subgroup recommends that informed consent documents include language such as that suggested by OHRP regarding GINA.

B. Recommendations

- Recommendation 35. The caHUB ELSI oversight committee should be responsible for monitoring scientific advances in using deidentified data to reidentify individuals or family members and adjust policies accordingly to minimize the risk of reidentification.

Rationale—Recent research (Homer et al. 2009) has raised concern that individuals could be identified, under certain circumstances, based on aggregate-level data. As a result, the NIH has put all genomewide association study (GWAS) data behind a controlled-access system, including aggregate data that had previously been publicly available. The *NCI Best Practices*, section 3.2.5, recommends that biospecimen resources use a system of access privileges that protects confidentiality of data. The ELSI Subgroup recommends

that the caHUB continue to promote appropriate access while monitoring emerging information about the privacy risks associated with broad access to genetic data.

- Recommendation 36. The caHUB should require each BSS to have a CoC in place, and the caHUB should assist sites in obtaining CoCs.

C. Issues for Further Consideration

The subgroup is seeking legal expertise on whether the caHUB itself can obtain a CoC and whether the caHUB is subject to the Freedom of Information Act (FOIA), which is another avenue that could be used to obtain data in the caHUB. Legal advice on the issue of FOIA should be sought, including whether Government contracts (under which phase 1 of the caHUB will operate) are subject to FOIA.

The ELSI Subgroup will also give further consideration to the issue of requests for contributors' DNA from national security/law enforcement agents. A review of the Health Information Technology for Economic and Clinical Health Act's provisions regarding the Health Insurance Portability and Accountability Act's Privacy Rule will be undertaken by the subgroup to determine if and how they affect sites collecting biospecimens and data and the caHUB as the biorepository.

IX. Return of Information from Research

A. Introduction and Major Issues

With new technologies, including GWAS, epigenetics, and whole genome sequencing, the biomedical research community's historical "nondisclosure" stance on individual research results may be challenged by the increased likelihood that clinically actionable and relevant findings (both related and incidental to the research aims) will be revealed. Strong arguments persist, in support and against the disclosure to biospecimen contributors of research information obtained from their biospecimens. The same ethical principles of respect for persons, beneficence, and nonmaleficence support both sides of the argument. Those in favor of disclosing research-derived information to individual biospecimen contributors cite respect for individual autonomy, empowerment of research participants, and treating research participants as partners in the research process. Opponents express concern about the risk of harm to individuals resulting from disclosure, citing unclear scientific validity, inconclusive results, and the unknown psychosocial implications of the disclosure. Opponents also cite that disclosure of individual results is anathema to the concept of research, which is to provide generalizable, not individual information.³

While there is general consensus among Federal, professional, advisory, and advocacy groups that disclosed research results must be analytically and clinically validated and that the researcher should not make this decision alone but in conjunction with an IRB and other experts, there is no consensus among these same groups on the specific determinants for disclosure or

³ Dressler, LG. Disclosure of Research Results from Cancer Genomic Studies: State of the Science. Clin Cancer Res. 2009;15(13).

what constitutes clinical validity.⁴ In any case, the intent to disclose or not disclose such results should be made clear to biospecimen contributors in the informed consent process.^{5,6,7}

In general, there are three types of results that could potentially be communicated to biospecimen contributors to the caHUB:

- For cancer patients contributing biospecimens: A medical diagnosis that is different from the one that a biospecimen contributor received at the BSS (uncovered through the pathology quality assurance review that each incoming biospecimen will undergo);
- Cancer-related research breakthroughs achieved using caHUB specimens (e.g., a new diagnostic tool, therapeutic, new understanding about the development or prevention of cancer, etc.); and
- Incidental but clinically significant cancer or non-cancer-related findings discovered through laboratory research or database mining (e.g., increased risk of a particular disease (s) or adverse response to a drug or class of drugs).

With regard to the first type of results, each sample that is received at the caHUB will undergo pathological review. In addition, the associated data will undergo quality control review. There may be times when a discrepancy is discovered that could be important to the medical care of the biospecimen contributor. For diagnostic discrepancies, several subgroup members favored the approach that the BSS must develop and document its process for reporting those results to the biospecimen contributor as part of the terms of the contract (the reporting process created by the Cancer and Leukemia Group B should be consulted as a guide). This subject will need further discussion with the Biospecimens Subgroup.

Regarding the second type of results, the ELSI Subgroup agreed that these should be communicated to biospecimen contributors on an aggregate level only. This means that summary information describing how the caHUB bank of specimens were used and what resulted from this use be assessable to those who desire the information.

Return of research information generated significant discussion. A central point of contention centered around *who* should be responsible for returning research results: The institution that contributed the sample, the caHUB, or the BSS? After initial discussion, there was general agreement that it is unreasonable to impose this responsibility on researchers; their responsibility is limited to reporting the findings to the appropriate body. However, the researcher would be responsible to bring the finding to the attention of a responsible party or group (once this process is established). Some subgroup members felt strongly that the caHUB is the responsible entity because once biospecimens and associated information are submitted to the caHUB, they are the custodian, which carries with it certain responsibilities (see section I, Introduction and Guiding

⁴ *Ibid.*

⁵ *Ibid.*

⁶ Dressler, LG. Human Specimens, Cancer Research, and Drug Development: How Science Policy can Promote Progress and Protect Research Participants. Commissioned paper prepared for the National Cancer Policy Board, 2005. Institute of Medicine and National Research Council of the National Academies.

⁷ Office of Biorepositories and Biospecimen Research. NCI Best Practices for Biospecimen Resources. 2010.

ELSI Principles for the caHUB). Further, the informed consent document indicates that any serious health findings will be evaluated for return; however, it does not indicate who will be evaluating this information to determine its value for being communicated to the biospecimen contributor. If the caHUB is not responsible for matters related to research results, then that should be clearly stated in the informed consent document. Subgroup members who supported the notion of caHUB responsibility suggested that one approach to this issue is that findings could be vetted by a central IRB (e.g., established by the NCI), which would then determine which findings to share with relevant biospecimens contributors. Other potential options would include an infrastructure to maintain contact with research subjects and not only evaluate the findings for appropriateness, but also communicate the findings to the research subject, including followup referrals if needed. It is important that a consistent approach be adopted to returning research results to avoid the possibility that people contributing biospecimens from different BSSs with identical medical conditions receive different information.

Other subgroup members felt that even if the caHUB accepts responsibility, the BSSs must also accept some responsibility. However, there are concerns with this approach. First, local IRBs may be resistant to accepting the decisions of a central IRB and still want to review any findings. Second, it was agreed that a medical professional trained in communicating clinically important results be the individual to contact biospecimen contributors; this individual will likely reside at the BSS. Third, the BSS will hold the key that links the coded biospecimen and associated information to the contributor. Notably, efforts to return results to individuals will be challenged by the fact that people may not continue their relationship with the BSS and could be difficult to locate after they have contributed a biospecimen.

The ultimate question about who is responsible remained unresolved, but subgroup members generally felt uncomfortable about leaving the decision about which results to communicate and the process by which that is handled wholly to the local BSS given the probability of heterogeneous outcomes; i.e., that some individuals in certain areas will get results while others will not. There was agreement that there needs to be some consistency in the processes to guide decision-making regarding if, how, and under what conditions return of results to individuals should take place and, furthermore, that the caHUB should be involved. To ensure that this occurs, the issue of return of results must be addressed in the contract with the BSS. Importantly, the contract must indicate that the BSS's involvement in return of results may extend beyond the end of the contract; institutions unwilling to agree to these terms should not be designated a BSS.

In terms of how compelling results are vetted, the ELSI Subgroup agreed that the process at each site should be articulated by the BSS but that the specific process should not be prescribed. Some subgroup members suggested that the caHUB ELSI oversight committee would be an appropriate group to determine which results are compelling.

In terms of the informed consent document, the subgroup recommends keeping the language regarding return of research results simple in the main document and putting examples and more detailed information in the appended consent materials.

B. Recommendations

- Recommendation 37. The overall intent of the caHUB is to not return individual research results. However, plain language summaries of aggregate results of research conducted with biospecimens contributed to the caHUB should be made available to biospecimen contributors and the general public; e.g., on a publicly accessible Web site. Where practical, lay-language summaries of landmark study publications (e.g., those accompanied by a press release) should be provided on the caHUB Web site.
- Recommendation 38. Even though the caHUB will indicate in the informed consent document that individual research results generally will not be returned, there may be times when there are results so compelling that it would be unethical to not disclose such information to the individual. Thus, the informed consent document should inform biospecimen contributors that if a primary or secondary investigator generates clinically valid results of immediate clinical significance, the caHUB and BSS will ensure that this information reaches the individual through the appropriate medical caregiver. BSSs should be contractually obligated to document their process for returning such results to individuals, and the caHUB will be responsible for coordinating the various institutional processes to achieve a level of uniformity. BSSs should also be contractually obligated to document their processes for communicating to individuals discrepant diagnostic findings from the caHUB review process.
- Recommendation 39. The informed consent document should inform individuals that their samples will be reviewed by the caHUB and any clinically relevant information regarding diagnosis communicated to them via their institution. Specific examples and details should be provided in appended consent documents. Further, the BSS contract should be specific about the process involved.

C. Issues for Further Consideration

No decision was reached about who is responsible for determining whether or not research results should be communicated to the biospecimen contributor and is still a point of debate. The process by which results are communicated and guidance for the overall process of returning results are undecided and require further discussion.

Other unresolved topics include disclosure to family in the case of a deceased biospecimen contributor and disclosure of findings in a health area unrelated to cancer if caHUB research is expanded.

X. Conflicts of Interest

A. Introduction and Major Issues

Although the subgroup did not formally discuss the issue of COIs, they did agree that the caHUB and BSSs should comply with existing NIH policies on disclosure and management of financial COIs.⁸ Additional policies may be developed by the ELSI oversight committee as necessary.

⁸ For more information on COIs, visit the NIH Office of Extramural Research Web site at <http://grants.nih.gov/grants/policy/coi/>.

At a minimum, individuals involved with the administration of the caHUB should disclose funding from the NIH, either as an employee or a recipient of salary support through grants and contracts, as well as funding obtained from commercial interests. Regarding commercial funding, the level of such funding that triggers disclosure should be specified. Disclosure should also cover patents held on genes, gene sequences, and any other materials, diagnostics, etc., that are related to the type of research that might be conducted with biospecimens and/or associated information in the caHUB. Such funding or patents should not be a bar to participation but should be disclosed and an appropriate process put into place for managing the disclosed information.

The UK Biobank Ethics and Governance Council Conflicts Policy presents the following three-part rationale for this level of disclosure: To promote transparency; to protect the [caHUB] against COIs that may be detrimental to its aims and objectives, by ensuring that, as far as possible, individuals covered by the policy make decisions free from any external influences, either personal or fiduciary; and to protect the [caHUB] from accusations of impropriety or the appearance of impropriety.

B. Issues for Further Consideration

The preceding recommendations relate primarily to administration of the caHUB and do not cover BSSs or researchers using caHUB biospecimens and associated information. Additional COI policies should be developed for these entities and individuals that cover their unique relationships to the caHUB.

XI. Conclusions and Next Steps

A national resource of well-annotated human biospecimens that are obtained under standardized protocols is a critical research tool that will help advance our understanding of cancer and other diseases. It will serve the research community for years to come and will lead to better methods of detection, treatment, and prevention of disease.

The ethical collection and use of human biospecimens and associated information, however, raises complex ethical issues. These issues need to be thoughtfully addressed before human biospecimens and associated information are accrued into the caHUB and will need to be assessed on an ongoing basis throughout the life of the caHUB. Further, it is of paramount importance that the policies that guide the caHUB in this endeavor be completely transparent to the public, to potential contributors of human biospecimens and associated information, and to the research community.

This document outlines the initial deliberations of the caHUB ELSI subgroup. As noted throughout, a number of issues are yet to be addressed or fully resolved. It is the recommendation of the caHUB ELSI subgroup that the caHUB establish the ELSI oversight committee as soon as possible to continue the work begun by this subgroup. Some of the issues that remain to be clarified need additional discussion, some require policy decisions by the caHUB steering committee, and some are ongoing issues being discussed in the broader ELSI community. In addition to addressing the remaining issues, a key action item for the caHUB is to field test the informed consent document for content and readability with a diverse group of

readers. This will ensure that the best possible template is used by the BSSs. In the interim between the closing activities of the current subgroup and the establishment of the ELSI oversight committee, some members of the subgroup have agreed to be available for ad hoc consultation on ELSI with the OBBR/caHUB staff.

APPENDIX 1: ELSI SUBGROUP ROSTER

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APPENDIX 2: WEB RESOURCES

Code of Federal Regulations

Government Printing Office Access
<http://www.gpoaccess.gov/cfr/index.html>

Genetic Information Nondiscrimination Act of 2008

<http://www.gpo.gov/fdsys/pkg/PLAW-110publ233/pdf/PLAW-110publ233.pdf>

Health Information Portability and Accountability Act of 1996

Medical Privacy–National Standards to Protect the Privacy of Personal Health Information
Office for Civil Rights–HIPAA
Office for Civil Rights
Department of Health and Human Services
<http://www.hhs.gov/ocr/hipaa/>

Human Subjects Regulations

Office for Human Research Protections
Department of Health and Human Services
<http://www.hhs.gov/ohrp/>

Human Subjects Policy Guidance
Office for Human Research Protections
Department of Health and Human Services
<http://www.hhs.gov/ohrp/policy/index.html#human>

Guidance on Research Involving Coded Private Information or Biological Specimens
Office for Human Research Protections
Department of Health and Human Services
<http://www.hhs.gov/ohrp/humansubjects/guidance/cdebiol.htm>

Informed Consent Policy Guidance

Office for Human Research Protections
Department of Health and Human Services
<http://www.hhs.gov/ohrp/policy/index.html#informed>

Office for Human Research Protections Informed Consent Frequently Asked Questions
Department of Health and Human Services
<http://www.dhhs.gov/ohrp/informedconsfaq.pdf>

Issues to Consider in the Research Use of Stored Data or Tissues
Office for Human Research Protections
Department of Health and Human Services
<http://www.hhs.gov/ohrp/humansubjects/guidance/reposit.htm>

Intellectual Property

Intellectual Property Policy
Office of Extramural Research
<http://grants.nih.gov/grants/intell-property.htm>

National Cancer Institute

Data Sharing & Intellectual Capital Workspace
cancer Biomedical Informatics Grid™
http://cabig-ut.nci.nih.gov/working_groups/DSIC_SLWG

National Institutes of Health Policies and Guidelines

Certificates of Confidentiality Kiosk
Office of Extramural Research
National Institutes of Health
<http://grants2.nih.gov/grants/policy/coc/index.htm>

Conflict of Interest
Office of Extramural Research
National Institutes of Health
<http://grants.nih.gov/grants/policy/coi/>

Genome-Wide Association Studies
NIH Points to Consider
http://grants.nih.gov/grants/gwas/gwas_ptc.pdf

NIH Data Sharing Policy
Office of Extramural Research
National Institutes of Health
http://grants.nih.gov/grants/policy/data_sharing/

NIH Research Tools Policy
Sharing Biomedical Research Resources: Principles and Guidelines for Recipients of NIH
Research Grants and Contracts
Office of Technology Transfer
National Institutes of Health
http://ott.od.nih.gov/policy/research_tool.html

NIH Revised Policy on Enhancing Public Access to Archived Publications Resulting from NIH-
Funded Research
<http://grants.nih.gov/grants/guide/notice-files/NOT-OD-08-033.html>

Uniform Biological Material Transfer Agreement

UBMTA Federal Register

The Association of University Technology Managers

http://www.autm.net/AM/Template.cfm?Section=Technology_Transfer_Resources&Template=/CM/ContentDisplay.cfm&ContentID=2810