Editorial

Key Elements of Access Policies for Biorepositories Associated with Population Science Research

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Rationale

The National Cancer Institute Best Practices for Biospecimen Resources recommend that each biorepository establish clear guidelines for access to biospecimens and their associated data (1). The National Cancer Institute's Division of Cancer Control and Population Sciences currently supports 18 cohorts and 7 case-control studies with more than 5,000 participants. Of these 25 studies, 21 of them have collected biological specimens in addition to questionnaire data.[4] To facilitate the creation of clear guidelines for access for these studies and others, we attempted to identify the current best practices used to access data and biospecimens from biorepositories associated with population science research. To do this, we searched the Internet and located 14 publicly available access policies (2). In these 14 examples, we identified nine key elements crucial to access policies: (*a*) the existence of a Data Access Committee (DAC); (*b*) a timeline for collaboration; (*c*) criteria for evaluating proposed ancillary studies; (*d*) publicly available information about the host study; (*e*) cost-recovery plans; (*f*) considerations of human subject and intellectual property issues; (*g*) information on the handling of the biospecimen; (*h*) guidelines for publications, presentations, and credit; and (*i*) a process for resolving disputes.

Each of these elements will be described in detail in this piece. Based on the information presented here, we strongly recommend that all large biorepositories associated with population science research develop access policies that are consistent with these key elements.

Materials and Methods

In 2006, we searched the Internet using ''cancer cohorts.'' This led us to the Epidemiology and Genetics Research Program–sponsored Cohort Consortium Web page[5] and a list of the Epidemiology and Genetics Research Program–funded cohorts. From this list, we eliminated those with fewer than 5,000 participants. We then reviewed each cohort to determine if they (*a*) collected biospecimens; (*b*) had a public Web site; and (*c*) described a procedure for external investigators to contact and propose a collaboration with the host study. This search identified 18 large Epidemiology and Genetics Research Program–supported cohort studies, 3 of which had a process for collaboration clearly stated on their Web site. We then reflected on any non–Epidemiology and Genetics Research Program–sponsored studies that had collaborator instructions publicly available on their Web sites. This identified a total of 11 additional studies with publicly available access policies: 14 in total. We did not use any form or survey instrument to gather these data.

Data Access Committees

DACs are established by the host study to evaluate the scientific merit and feasibility of ancillary studies that are proposed to use the host bank. They are responsible for eliminating redundant studies and determining the best use of the biospecimens and their associated data. DACs work to ensure that the biospecimens are used for the most appropriate research and that samples are not squandered when the biorepository runs low. DACs generally include 6 to 15 senior scientists (3-5). Members, such as those of the Esophageal Adenocarcinoma and Barrett's Esophagus Research Consortium DAC at the Mayo Clinic are commonly members of the study's scientific review or advisory panel (4). In addition to senior scientists, the National Biospecimen Network Blueprint recommends that the DAC also include advocates, industry, and government representatives (6).

Criteria for Evaluating Proposed Ancillary Studies

Typically, the principal investigator of the host study is the first to review a proposed ancillary study (7, 8). He or she determines whether the host study has the requested data and biospecimens. Increasingly, studies such as the Prostate, Lung, Colorectal, and Ovarian Cancer Screening Trial are posting more information about their data and biospecimens on their publicly available Web sites so that potential external collaborators can more quickly determine whether their request would be supported by the host study (9).

After determining that the host study can physically ''fill'' the ancillary study's request for data and biospecimens, either the principal investigator or the DAC reviews the ancillary study to determine whether it is compatible with the original consent of the host study participants (3). Next, ancillary studies are typically reviewed by the DAC for their scientific merit (3, 7, 8). Many Web sites post their review criteria, most of which are similar to the NIH grant review

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[4] An analysis of the grants supported by the Division of Cancer Control and Population Sciences identified these cohort and case-control studies. Further review of these grants identified the number of participants in each cohort and whether they collected biospecimens.

[5] http://epi.grants.cancer.gov/access_policies.html

process with the following criteria: significance, approach, innovation, investigators, and environment (3, 7, 8). Importantly, the proposals are reviewed to determine whether the proposal is consistent with the scientific aims of the original study. Last, ancillary studies are reviewed to determine whether the proposed hypothesis overlaps with any existing areas of research by the host study or any ancillary studies (3, 7, 8).

Timelines for Collaboration

Most of the Web sites surveyed include a timeline for when letters of intent and full applications will be accepted and reviewed by the host study (3, 5, 7-12). Whether applications are accepted several times throughout the year or on a rolling basis tends to be consistent with the way the biorepository was established. If the biorepository was established as part of a study, such as the Nurses' Health Study or the Health Professionals Follow-up Study, then requests to use the biorepository are typically reviewed three times a year (7, 8). However, if the biorepository was established as a research resource, such as the Cooperative Human Tissue Network or the Cancer Genetics Network, requests are reviewed when they are received (10, 13).

The epidemiologic studies that have large biorepositories associated with them and are included in this assessment have all been established for many years. Therefore, they have completed their first cycle of funding and published on the main effects and hypothesis of their original studies. They welcome outside collaborators to assist in the analysis of the data and the biospecimens they have gathered. Most of the biorepositories listed here are funded with more than $500K in direct costs in any calendar year from the NIH. Therefore, they are all subject to and compliant with the NIH data-sharing policy (14).

Public Information about the Host Study

All 14 of the policies included the study name, a brief description of the study, and a contact person for the study on their publicly accessible Web site (2). Many of the biorepositories associated with large epidemiologic studies included a selected study bibliography (3, 7, 8). Few, such as the Prostate, Lung, Colorectal, and Ovarian Cancer Screening Trial, included tables of the number of study participants on a public Web site (9). One included the process for an external collaborator to initiate contact with the host study; the process sanctioned by the Health Insurance Portability and Accountability Act and Institutional Review Board for transferring biospecimens between institutions; and the process for integrating the data/biospecimens generated by the ancillary study back into the host-study database/biorepository (3). Many, but not all sites, include whether questionnaire data were collected and make their questionnaires available (3, 7, 8). Few sites tabulated these outcome data (e.g., cancer cases and mortality data; ref. 9).

Cost-Recovery Plans

Both the Cooperative Human Tissue Network and the Cancer Family Registries list their per specimen charges (10, 11). The biorepositories associated with large epidemiologic studies tended to list the personnel effort and data set charges as part of the cost of collaborating (3, 7, 8). Others, such as the Agricultural Health Study, simply stated that the charges for furnishing biospecimens would be determined by the DAC (4, 5).

Human Subjects Considerations and Intellectual Property

Access policy must be consistent with Institutional Review Board approval, Health Insurance Portability and Accountability Act, and the Common Rule, where applicable. The Esophageal Adenocarcinoma and Barrett's Esophagus access policy dealt with these issues in great detail (4). Most other existing access policy documents addressed the issues in other ways (3, 7, 8). Many policies require Institutional Review Board approval, as needed, from both the host and ancillary study institutions (2, 3, 7, 15). Several of the sites, such as the Southern Community Cohort Study, mandate that the ancillary study be compliant with the original signed informed consent form (3, 4). The access policy must be consistent with federal and state human subject protections, including Health Insurance Portability and Accountability Act and the Common Rule (4). Last, the access policy should include appropriate language governing intellectual property generated through the collaboration between the host and the ancillary studies. The Esophageal Adenocarcinoma and Barrett's Esophagus policy serves as a fine example of such language (4).

Information on the Handling of Biospecimens

Few Web sites or access policies discuss the nuances of sample distribution. Questions such as ''Do I need to return any unused biospecimen?'' and ''Has this sample been thawed before?'' greatly weigh on the minds of the potential external collaborators. This information is available on some of public Web sites. For instance, the blood bank associated with the Nurses' Health Study addresses both of these concerns stating that ''Any plasma, DNA, or RBC samples remaining... must be returned promptly to the Nurses' Health Study sample archive'' (7). The Nurses' Health Study access policy further provides the potential external collaborator with additional information, such as the biomarkers under investigation must be stable in whole blood for up to 48 h in sodium heparin tubes (7). The Southern Community Cohort Study discusses the role of freeze thawing in affecting the validity of the biomarker (3). This access policy states that Southern Community Cohort Study staff may coordinate and centralize the assaying of samples for several studies to minimize the freeze-thaw cycles of the biospecimens (3). Last, some access policies, such as the Health Professionals Follow-up Study, require that the laboratory where the biospecimens will be assayed must conduct the stated assay with a high degree of precision (7, 8).

Guidelines for Publications, Presentations, and Credit

Most of the reviewed access policies included a section on guidelines for publication, presentations, and credit (3, 7, 8, 15). Some studies, such as the Nurses' Health Study and the Health Professionals Follow-up Study, define the criteria for authorship for both host and ancillary study collaborators on manuscripts, posters, and oral presentations (7, 8). Some include procedures and timelines for the host study to review and approve the submission of any manuscript, poster, or oral presentation generated from the ancillary study (3, 7, 8). Most, such as the Australian Longitudinal Study on Women's Health, require the inclusion of an acknowledgment statement for both the host study and the funding source (15).

Process for Resolving Disputes

Some of the current access policies include a process for resolving disputes between the ancillary and host study

investigators (3, 7, 8). Those that do either have the final power resting with the study principal investigator (7, 8) or with a mediation committee (4).

Summary and Recommendations

Our survey suggested that key elements to access policies include (*a*) the existence of a DAC; (*b*) a timeline for the collaboration; (*c*) criteria for evaluating proposed ancillary studies; (*d*) publicly available information about the host study; (*e*) cost-recovery plans; (*f*) human subject and intellectual property considerations; (*g*) information on the handling of the biospecimens; (*h*) guidelines for publications, presentations, and credit; and (*i*) a process for resolving disputes. We recommend that biorepositories associated with population science research develop access policies consistent with these key elements.

In addition to the policies and actions described above, we recommend that the DAC maintains a list of all planned research projects associated with the study. The project information should include the study leader, the scope of the work, and planned project initiation and completion dates. Ideally, the DAC would update and review this list annually.

We note that public Web sites are becoming increasingly common. We recommend that these Web sites state whether questionnaire data were collected; whether outcome data (incidence, mortality, and other) were collected; whether the host study is willing to share data and/or biospecimens with the external collaborators to determine whether the proposed ancillary study is a reasonable and feasible use of the host's resources; and a procedure and timeline for action if the ancillary study is not completed or published on time.

Cost-recovery plans are not widespread, but high-volume biorepositories may need to consider developing one. The plan would explicitly include the costs for the retrieval and transfer of the data; the retrieval, handling, storing, and shipping of the biospecimens; an effect analysis of the cost of splitting and retaining the biospecimen; and the cost of the scientific application review process. Similarly, only a few biorepositories currently designate an impartial study ombudsperson, but other biorepositories may adopt the approach. The ombudsperson has clearly defined duties and authority to help settle disputes that arise during the letter-of-intent phase, when full applications are submitted, at data analysis, or during the publication process.

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