
Report of the ACD Working Group on Participant and Data Protection for GWAS

Presentation by
Christine E. Seidman, M.D.
to the
Advisory Committee to the Director, NIH
December 7, 2007

Presentation Overview

- Brief review of NIH's GWAS policy and procedures and oversight structure
- Background on Working Group
- Review of Working Group issues, conclusions, and recommendations
- Discussion of Working Group recommendations
- Suggestions for future topics

NIH GWAS Policy

- Goal is to advance genome-wide association studies (GWAS) to identify common genetic factors that influence health and disease
- Promotes the sharing of GWAS data via a central repository at the NIH (dbGaP)
- Policy outlines
 - Data submission procedures
 - Data access principles
 - Protection of research participants
 - Scientific publication
 - Intellectual property

GWAS Data Management Overview



Research Participants



Informed consent

Submitting Investigators



NIH GWAS Data Repository (dbGaP)

Identifying information removed, replaced with random unique code

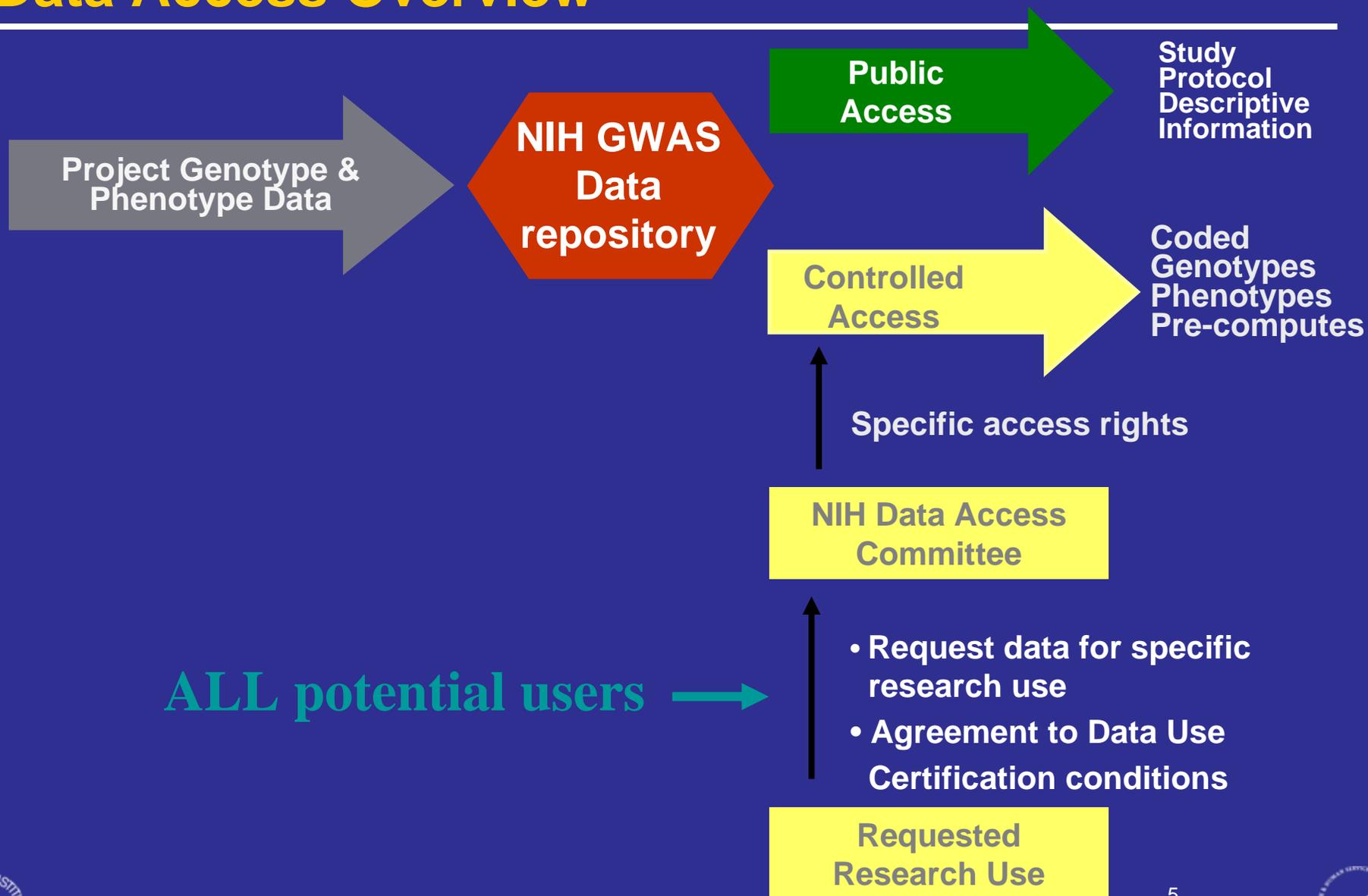


Data Access Request for Coded data

Recipient Investigators



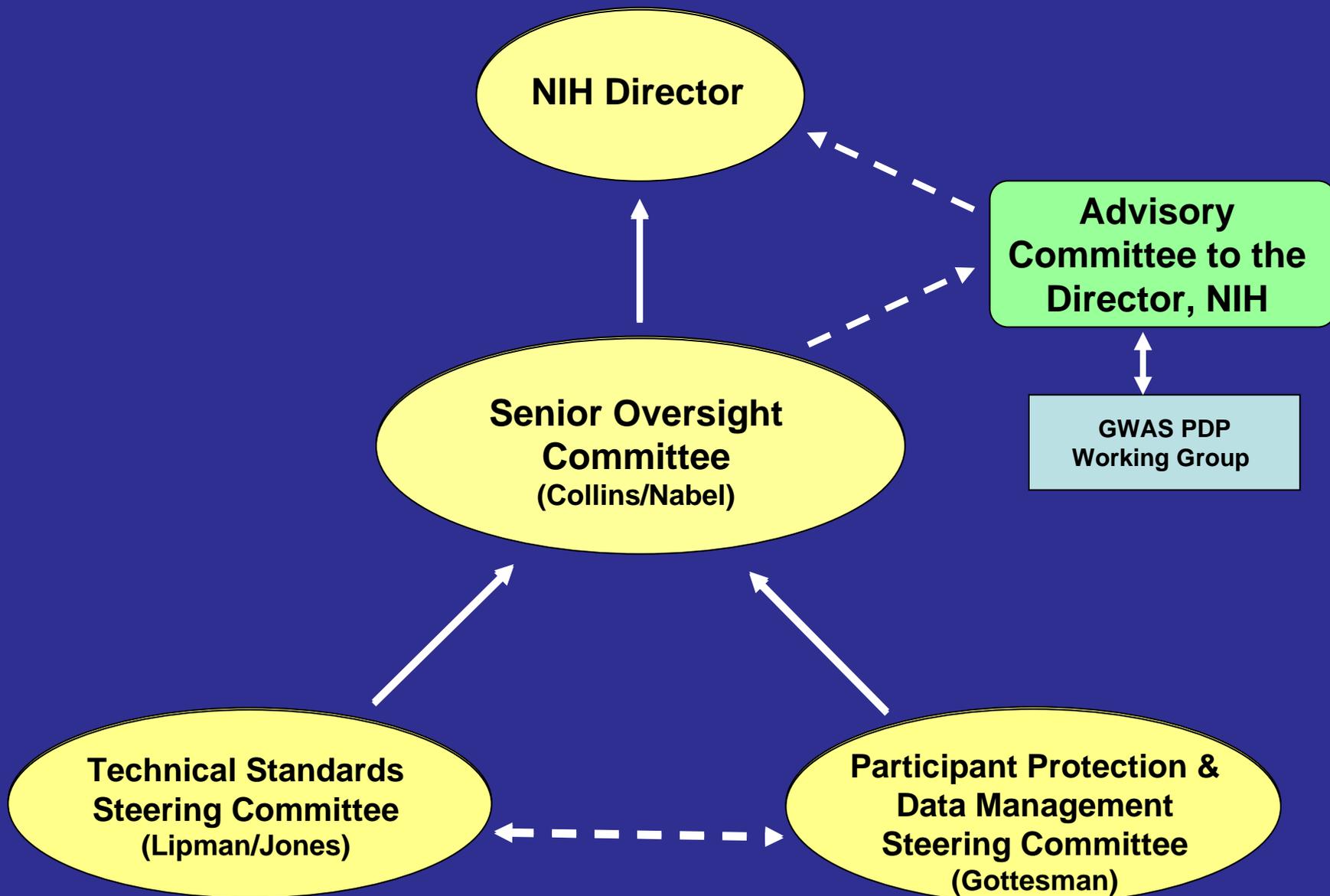
Data Access Overview



Data Access Committee Function

- Reviews requests for GWAS data to assure appropriate use
 - determines whether proposed use is consistent with the original consent
 - provides ongoing monitoring via reviews of annual reports from approved data users

NIH GWAS Oversight Structure



ACD PDP Working Group

- Provides independent advice on GWAS participant and data protection and management policies
 - Risks to participants and effectiveness of policies in protecting them
 - Return of research results
 - Developments in science and technology that affect risks to participants, their families, and identifiable groups
 - Effectiveness of publication and intellectual property policies to encourage maximum public benefit
- Monitors data use practices through review of summary reports from Data Access Committees (DAC)
- Group's first task was review of policies and practices of the Genetic Association Information Network (GAIN)

ACD PDP Working Group Composition

Genetics/genomics, epidemiology, clinical

Russ Altman
Stanford University

David Hunter
Harvard University

Christine Seidman, *Liaison to ACD*
Harvard University

Human Research Subjects/ Bioethics/Privacy, Law

Wylie Burke, *Chair*
University of Washington

Dale Hammerschmidt
University of Minnesota

Amy McGuire
Baylor College of Medicine

Charmaine Royal
Duke University

Informatics, Data Security

Joyce Mitchell
University of Utah

Participants/General Public

Rebecca Fisher
Patient/public perspective, cancer &
genetics

Jay Lander
Friends of the Framingham Heart Study
Participant perspective, community
concerns

James McNulty
Participant perspective, human subjects
issues

Cynthia Lindquist, *Liaison to COPR*
Tribal college president

Working Group Issues

- Policies & procedures governing access to and release of data from the NIH GWAS repository
- Methodological research
- Potential for group harms of proposed research uses
- Communication of information about GWAS to participants and the public
- Risks posted by Freedom of Information Act (FOIA) requests for information contained in the NIH GWAS repository

Data Access and Review

- Are the policies and procedures for data access and review sufficient?
- Working Group Conclusion
 - Data access and use review policies and procedures are robust and will serve to provide information about the use of the data and whether privacy breaches or other harms are occurring
 - Focus of oversight by Data Access Committees should be on data use requests that are particularly difficult to resolve

Methodological Research

- Some proposed research uses are methodologic, i.e.,
 - Aimed at improving methods for GWAS analysis rather than understanding a specific disease
 - Involve combining control group data from different studies for greater power and efficient use of data
- GAIN DAC requested advice on whether the use of the data for such methodological research is consistent with consents that were obtained for genetic research on specific diseases
- **Working Group Conclusion**
 - Data access requests for methodologic studies or studies combining datasets for statistical or control purposes are acceptable under disease-specific research consents

Potential for Group Harms

- Some of the data come from clearly delineated groups, e.g., ethnic/racial groups and subsets of the population
- GAIN DAC requested advice about how much consideration should the DAC give to the potential for group harm in the review of data access requests
- **Working Group Conclusion**
 - Consideration of group harm concerns is complex;
 - The DAC should err on the side of caution;
 - We will continue to consider this issue as further information is obtained.

Communication Issues

- Strategies for communicating aggregate research results to individuals whose data are in dbGaP
 - What information is most appropriate to communicate?
 - What are best approaches for communicating relevant information?

Working Group Recommendation

- Aggregate information should be provided to research participants
 - NIH should develop a strategy for disseminating general information about GWAS to study participants, including information about the types of genetic studies, the purpose of repositories and their implications, research findings, and the potential risks and benefits of data sharing.

Working Group Recommendation

- A system to address public inquiries is needed
 - The number of participants whose genomic data are included in large NIH databases will continue to increase. A system should be developed to make sure that inquiries about the NIH GWAS repository from investigators, study participants, and members of the public are addressed in a complete and timely way.

Risks of FOIA Requests

- GWAS generate large quantities of individual level genetic and phenotypic health information that, while not identifiable in the traditional sense, is unique
- Biological samples can be genotyped in commercial laboratories; data in GWAS repository could be used to make a match
- As public records databases increase, it will become easier to link information deduced from GWAS data to specific individuals
- FOIA requests for individual-level GWAS data may be made
- FOIA requests for de-identified genetic data would be granted under traditional FOIA interpretations

FOIA Exemption 6

- FOIA Exemption 6 allows agencies to withhold information if disclosure would constitute an unwarranted invasion of personal privacy
- In light of unique nature of genotypic data combined with availability of genotyping services, NIH FOIA officer determined that there is sufficient justification to withhold genotype-phenotype datasets and similar types of individual-level genetic information from disclosure under FOIA pursuant to Exemption 6

FOIA Exemption 3

- FOIA Exemption 3 allows withholding of information prohibited from disclosure by statute and provides permanent protection against unwarranted disclosures of genomic data that would not be subject to discretionary authority or variability across Federal agencies.

Working Group Recommendation

- Privacy protections for Federal databases containing individual genotype-phenotype data should be strengthened
 - Potential for inappropriate and unauthorized uses of research data highlights the obligation of the Federal Government to rigorously protect genomic data and to establish strict standards of data protection to preserve the privacy of individual research participants
 - NIH is to be commended for planning to protect data from release under FOIA using Exemption 6
 - However, the NIH Director should seek an Exemption 3 statute to enhance legal safeguards to protect the privacy of individual genotype-phenotype data held by the Federal Government

Conclusions in Sum

- GWAS policies and procedures are robust
- The focus of DAC oversight should be on data use requests that are particularly difficult to resolve
- Data access requests for methodologic studies or studies combining datasets for statistical or control purposes are acceptable under disease-specific research consents but all requests should specify clearly how the proposed research is tied to the data use approved for the particular study
- Group harm concerns are complex and the DAC should err on the side of caution in addressing potential group harms
 - Working Group will continue to consider this issue

Recommendations In Sum

- Aggregate information should be provided to GWAS research participants
- An NIH system to address public inquiries about GWAS and the NIH GWAS repository is needed
- Privacy protections for federal databases containing individual genotype-phenotype data should be strengthened
 - The NIH Director should seek a FOIA Exemption 3 statute to enhance legal safeguards to protect the privacy of individual genotype-phenotype data held by the Federal Government

ACD Discussion

- Does the ACD agree with the Working Group recommendations?
- Does the ACD wish to suggest future topics for the Working Group to consider?