Ethical risks and remedies in social behavioral research involving genetic testing

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Topics for Today

• Ethics of Sharing Predictive Genetic Results of Social-Behavioral Research with Participants or their Guardians
  – Points to consider include probabilistic nature of genetic data and associated risks and benefits of sharing personal data as well as the genetic literacy required in the informed consent process for participants and guardian

• Related Challenges of Broad Consent and Secondary Use
  – Point to consider include identifiable behavioral information and genetic data from research involving socially vulnerable populations and healthy individuals
Predictive Genetic Testing: New Solutions to Preventing Old Problems?

- Antisocial Behaviors
- Criminal Behavior/Violence/Delinquency
- Substance Use Disorders
- High Risk Sexual Behavior
- Academic/Work problems
- Intelligence
- Emotional problems
Types of Studies

- **Non-intervention studies**: Relative contribution of genes & environment on development or presence of or confirmation of diagnosis of mental health or behavioral problems.

- **Intervention studies**: Relative contribution of genes & environment on responsivity to programs to prevent or intervene mental health or behavioral problems.
Studies indicate mental health and behavioral disorders....

- Derive from multiple genetic and non-genetic factors
- May be the result of 100s of different genes that independently influence the same behaviors
- Genetic effects account for only a small proportion of individual differences (heritability)
- Test results lack individual utility because currently gene-intervention effects are probabilistic
How Are Results Shared?

• Directly through individualized feedback to participants, clinicians, guardians

• Directly through aggregated feedback

• Indirectly through participant family member

• Indirectly through publication or media dissemination of research results
Risks of Sharing Results: Genetic Determinism

- Burden on participant to report to insurers probabilistic diagnosis

- Misuse of genetic findings for psychiatric diagnosis, criminal justice decisions, educational placement

- Negative self-identification, self-fulfilling prophecy

- Asymptomatic children may be treated differently by parents, schools and practitioners. *Right to an Open Future*
Sharing Results: Who Decides?

The science establishment has traditionally determined appropriate human subjects protections

• Societal trends toward transparency, self-determination, community engaged research, and parental rights in education and healthcare

• 23&Me and other commercially available genetic testing services have shifted consumer expectations regarding the right to receive results

• Facebook and other social media means less control over dissemination and misconceptions of aggregated results
What does it mean for Informed Consent?

“Genetic Literacy”

- Can a participant apply information about the use of genetic data to make appropriate research participation decisions?

- Genetic literacy is necessary to make an informed participation decision whether or not the researcher and IRB have decided the individual’s or their child’s individual genetic information will be shared

(Fisher & McCarthy, 2013)
Informed Consent and Genetic Literacy  
What Participants/Parents Need to Know

• Evidence supporting the role of genetic factors for both predicting risk and intervention responsivity
• Multifactorial and probabilistic nature of genetic and environmental influences
• Genetic effects account for only a small proportion of individual differences (heritability)
• Lack of predictive ability for individuals
• How information can be used/misused by others
• Right not to receive results
• Possibility of incidental findings (e.g. paternity)
• Availability of genetic counseling

(Fisher, 2017a)
Sharing of Results: IRB Questions for Investigators

- Have sufficient efforts been made to ensure genetic literacy during the consent process?
- Is there evidence that sharing genetic information has predictive utility for individual adults or children?
- If not shared directly, are there adequate protections against *indirect* sharing of results?
- If information is directly or indirectly shared is debriefing and dissemination adequate to address individual needs or to reduce individual, family, or societal misconceptions?

(Fisher & McCarthy, 2013)
New methods/Big Data

• Sophisticated analyses, integrate with other data
• Push for more access, big data, move science forward, some shifts in expectations and demands about information and privacy
• Expectations of public changing – may expect return of results more often, diagnoses or genetic information. Unclear expectations about privacy and uses of data outside of research
Broad Consent

Perceived Benefits of Big Data

Push for Inclusion of Identifiable Biospecimens as Human Subjects

Ability of IRBs to rely on ‘broad’ consent for use of identifiable biospecimens in unspecified future research

Proposal/Plan for Broad Consent
What is Broad Consent?

§__.116 (d)

Participants consent to:

• Future use of identifiable information/biospecimens

• For a range of specified or unspecified future research

• Subject to a few content and/or process restrictions overseen by an IRB.
Limited IRB Review of Subsequent Research following Broad Consent

§__.111(a)(8).iii.

When broad consent is obtained, subsequently proposed research uses of the samples/data would not require additional consent, waiver or de-identification and may be exempt

If....

– Appropriate documentation of consent was obtained
– As long as the proposed use is consistent with the terms of the broad consent
– As determined by a “limited IRB review”
Broad Consent

A prolonged life course of identifiable data use by researchers

• who were not the originator of the data,
• are not regulated by the original IRB,
• who are studying issues that may be far removed from the original research questions and
• who may not be subject to traditional oversight
IRB Challenges: Criteria for Limited Review?

- What are criteria for determining secondary use is “consistent” with broad consent?
- Access to and careful evaluation of the original broad consent?
- The qualifications of secondary data users?
- The scientific and social benefit of the proposed secondary use... especially when the original broad consent was vague or unspecified?
- Potential for individual privacy violations?
- Potential for group harm?
- Does the study meet the participant’s “reasonable expectations”
  - For the purpose of study?
  - For qualifications of institution or investigator?
- Non-research uses of data and specimens?

(Fisher, 2017b)
RORR w/ Broad Consent

- Return of individual research results
- Still abide by any legal requirements
- SACHRP recommends return of individual results in clinical, genomics and SB research
- Plan to return results vs. disclosure of incidental findings (clinically meaningful, but not related to study design or endpoints)
- Unclear how would affect review
Related to RORR & limited review questions

Aggregation of big data and interconnectedness can increase statistical significance

Positive and negatives that lack meaning/clinical significance

Over-estimation of biological Influences on health

Group Harms + Individual Harms when identifiable
...for Broad Consent

- Implementation creates administrative burden/responsibility for institution
- Challenge to track data, samples, preferences and uses over time
- No guidance available to plan
- Resources needed may be great in some places
- Return of results is complex: clinically relevant information discovered by a secondary researcher, perhaps long afterwards, in children-turned-adults
- Many institutions are not pursuing broad consent

- Many debates -- guidance is crucial
Changes in Public Awareness

• With changing landscape, thoughts about rights to genetic data may create challenges for IRBs

• If Broad Consent is not implemented: waiver is still only option, will it undermine integrated data sets/big data interests and therefore scientific progress? Or would this not follow shifts towards desire for increasing access to choose? Do we need more data on who finds what to be acceptable?
Discussion - Social Behavioral Research

• What are the issues specific to social and behavioral research?

• When the problem is behavior, is there the potential for certain conditions and fields to be impacted more than others? Will vulnerable populations be affected by Broad Consent any differently? Or will people who are not considered “vulnerable” become so in future research?

• Does the type of research make a difference in terms of what people would want for future uses of their identifiable data and tissue?

(Fisher, 2017b)
Discussion

• What are the issues IRBs need to address with current directions regarding return of genetic results and research results – are there any changes in standards?

• Will be some continued tension around waivers where IRBs decide what is ok vs. people wanting to determine themselves what happens? How will IRBs deal with cultural shifts or reflect substituted judgment of those who will participate in an updated fashion?

• Scientific and social benefits of future big data research should be privileged over the burden of continually requiring consent....but Government regulates both big science and ethics oversight. What happens when there is a blending of agendas? (Fisher, 2017b)
References

