March 2017

Matchmaker Exchange Tiered Consent Policy

The need for patient consent to data sharing for clinical care or research depends on the probability of occurrence and seriousness of potential harm of re-identification in the matchmaking process. The first step of matchmaking involves a search being conducted by a data requester to establish the existence of similar patients in a collection of patient records located elsewhere. This step involved exposing data to search algorithms in order to detect a match. Once a discovery hit has occurred, it is typically then desirable for more detailed patient data to be exchanged between the data depositor and the data requester.

- **Level 1** - Undertaking matchmaking based on Human Phenotype Ontology (HPO) terms and/or candidate gene names: At this level, consent to data sharing and queries involving colleagues or other health professionals may not be required for consultation with colleagues working within the same healthcare service or specialty as consultation is part of medical care (but this is dependent on local jurisdiction). However, patients may expect to be informed where consultation involves international interaction. Submission of data that come from a research setting may require additional consent if this is beyond the scope of the original data use allowances.
- Examples of Level 1 data include:
    - Structured phenotype description - as a disease name (OMIM or Orphanet e.g. Charcot-Marie-Tooth disease) or by using structured phenotypic terms (*e.g.* HPO terms). Clinical judgment should be used to assess the potential for re-identification and possible harm depending on the level of phenotypic detail provided.
    - Human Genome Organisation (HUGO) Gene Nomenclature Committee (HGNC) approved gene names - for the suspected or candidate pathogenic loci.
- In summary, for matching (i.e., data sharing) Level 1 data:
    - In a clinical setting: no additional consent (beyond consent to clinical care) will usually be required, but this will depend on local jurisdiction and notification of the patient should always be considered.
    - In a research setting: consent to data sharing may be required. Follow your local/national research ethics guidelines.

- **Level 2** - Undertaking matchmaking based on unique or sensitive phenotypic information and/or DNA or protein sequence level information including genomic variant datasets: At this level, consent to data sharing is required in both the clinical and research settings.
- Examples of Level 2 data include:

- Detailed phenotype descriptions or sets of terms detailed enough to raise concern for uniquely identifying a patient or containing highly sensitive medical information. Pooling sources of data and removing some phenotype information based on its sensitivity could minimize the risk of possible re-identification.
- Genomic variant datasets - including one or more variants (irrespective of suspected etiologic role), with or without related information such as variant class, amino-acid alteration, variant location, affected exon, etc.

- Since use of this level of information in data discovery implies a possible risk of re-identification and harm, such use requires appropriate patient consent to data sharing. Subsequent exchange of this level of information between depositor and requester (i.e., data sharing) likewise requires consent. However, an ethics committee may decide that the consent for matching and subsequent sharing of level 2 data is included within existing research consent where already provided for in the inclusion of data in an open or registered access database whose declared purpose involves data sharing for purposes consistent with matchmaking.

The following section of this document provides further practical guidance on the Matchmaker Exchange (MME) Tiered Consent Policy, including *Points and information to include for consent to data sharing via MME* (see p.3, **MME Tiered Consent Policy – Guidance Document**).

A more in-depth discussion of the ethical-legal consent considerations for MME is available in the following publication:

Stephanie O.M. Dyke, Bartha M. Knoppers, Ada Hamosh, Matthew Hurles, Helen V. Firth, Michael Brudno, Kym M. Boycott, Anthony A. Philippakis, Heidi L. Rehm. **"Matching" Consent to Purpose: the example of the Matchmaker Exchange**. *Human Mutation* https://doi.org/10.1002/humu.23278

MME Tiered Consent Policy – Guidance Document

This guidance aims to further clarify the Matchmaker Exchange (MME) Tiered Policy.

A. Summary diagram

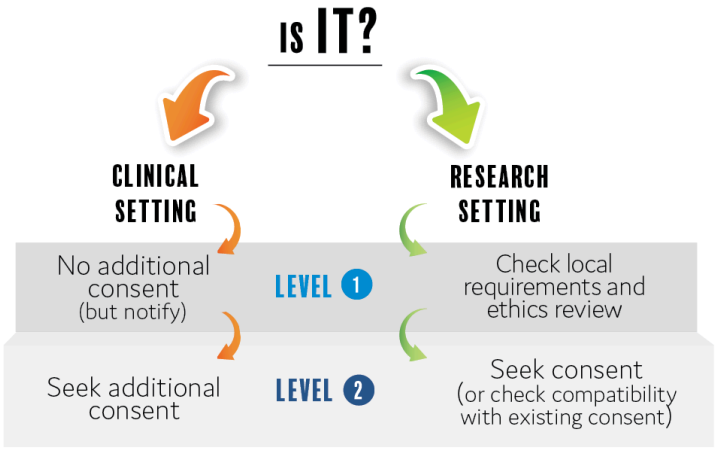

Figure from Dyke *et al*. https://doi.org/10.1002/humu.23278

B. Points and information to include for consent to data sharing *via* MME

Here are points to consider and information to include when preparing consent materials for data sharing via MME (based on the Global Alliance for Genomics and Health Consent Policy, available at: https://genomicsandhealth.org/files/public/Consent_Policy_%28Final_-_27_May_2015%29.pdf*)*

- It should be clear in any consent materials, and in discussions with data donors regarding consent, that genomic and health-related data (including data from the medical record) may be shared internationally and used by many clinicians and researchers to try to better understand rare diseases. Consent materials should specify how confidential data will be protected, such as through coding in accordance with applicable laws and/or guidelines.
- Consent materials should specify that commercialization of discoveries may occur in the future as a result of the development of products, tests, devices, etc.
- Consent materials must specify how data donors can withdraw from the sharing of clinical or research data, but state that if data have already been shared it may be impossible to retrieve and/or destroy that data.

C. For more information

Contact: Dr. Stephanie Dyke (stephanie.dyke@mcgill.ca)