**eMERGE Network Proposal for Analysis**

ROR Project Concept Sheet

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| **Reference Number** | NT273 |
| **Submission Date (draft)** | 2/6/18 |
| **Project Title** | Returning genomic results to eMERGE participants: The who, what, where, and how of disclosure |
| **Tentative Lead Investigator (first author)** | Wiesner, Georgia (Vanderbilt) |
| **Tentative Senior Author (last author)** | Leppig, Kathleen (KP/UW)  Wiesner, Georgia (Vanderbilt) |
| **All other authors** | ROR workgroup members from each site |
| **Sites Involved** | All eMERGE sites |
| **Background / Significance** | The eMERGE (Electronic Medical Records and Genomics) Network is a national consortium of 10 sites) supported by the NHGRI that combines DNA biorepositories with electronic health record (EHR) systems for large-scale, high-throughput genetic research. In eMERGE 3, up to 25,000 patients with a variety of phenotypes will be sequenced for approximately 100 genes that are known to cause human disease. Returning the genetic results (ROR) to the patients is the essential and overarching goal for the entire project, and has required the development of a “clinical pipeline” at each institution.  This proposal will use an implementation science (IS) approach to document the ROR plans for eMERGE sites prior to the release of results from the sequencing laboratories. This framework is relevant for eMERGE 3 because it is agnostic to type of disease, population, or institution. Further, IS projects are focused on experiments that are conducted in the “real world”, rather than in a tightly controlled manner 1,2. IS studies are implemented in three iterative phases of pre-implementation, implementation and review/refinement and is ideal way to assess the productivity and reach of eMERGE 3.  We will use the RE-AIM framework (<http://re-aim.org>) to review and assess the plans for ROR to patients and provides as well as how the results are added to the patients electronic medical record. For the purposes of this manuscript, the eMERGE genetic testing would be the intervention and the integration into the EHR and release of the results to the patient and provider would be the outcome measures. In this process, we will describe the pre-implementation strategies of the eMERGE consortium, and delineate the protocols and clinical pipeline that were developed at each site. We anticipate that the results of this proposal will be used for future IS eMERGE assessment that will correlate the return of results (ROR) with actual results and /or outcomes for each participant. |
| **Outline of Project** | 1. Survey all eMERGE sites for current plans or “pipeline” for disclosure (see data elements below) using the RE-AIM assessment of reach, effectiveness, adoption, implementation, and maintenance. The pre-implementation phase will primarily examine the plans that will be supported at deployment of the project. 2. Develop a core set of processes that will be employed by the eMERGE sites in returning results. These may include: no return, message through electronic medical record, letter, phone call, phone call with follow up clinic visit, clinic visit without prior phone call, and others. 3. Analyze and compare the site’s processes across for return of results to participants and healthcare providers. 4. Determine the type and role of the healthcare provider associated with each disclosure practice. 5. Report on the key elements of return of results and describe the range and type of return processes. |
| **Desired**  **Variables (essential for analysis**  **indicated by \*)** | 1. \*Site 2. \*Are results returned to participants and/or providers (Y/N) 3. \*Are results included in site/institution EHR (Y/N) 4. \*Genes to be returnedACMG59; Phenotype specific; Site specific 5. \*Type of result (P/LP; VUS; No mutation) 6. \*Type of participant (adult/pediatric) 7. \*Specific phenotype 8. \*Proposed method of disclosure (see below) |
| **Desired data** | 1. Flow diagram for ROR and integration with EHR |
| **Planned Statistical and Qualitative Analyses** | Summary statistics  Description of RE-AIM elements of reach, effectiveness, adoption, implementation, and maintenance  Determination of a “common pipeline” for ROR  Characterize variabilities for each step of the ROR process |
| **Ethical considerations** | Each eMERGE site has developed and approved IRB for this study |
| **Target Journal** | American Journal of Human Genetics |
| **Milestones\*\*** | 1. Present to Steering Committee ROR Workgroup |

**\*\*** This section should include: Timeline for completion of project, including approval, project duration, first and second draft of the paper and submission.

**Survey of sites: elements to collect**

Note that we have some of this information already gathered--

1. Site name
2. Are results returned to participants and/or providers (Y/N)
3. Are results included in site/institution EHR (Y/N)
4. Genes to be returned
   1. Total number
   2. ACMG59
   3. Phenotype specific
   4. Site specific
   5. Pharmacogenetic
5. Type of result to be returned (P/LP; VUS; No mutation; special circumstances)
6. Estimated number of participants; estimated number/proportion of returned variants
7. Type of participant
   1. adult/pediatric
   2. specific phenotype
   3. prospective vs Biobank
8. Mode of ascertainment and enrollment
9. Proposed method of disclosure to participant/provider
   1. EHR health portal
   2. Letter
   3. phone call/clinic visit with non-genetic specialist
   4. phone call/clinic visit with geneticist or genetic counselor
   5. combination of methods
10. Current plans to disclose
    1. To whom (patient, parent, provider)
    2. By whom (GC, specialist, PCP)
    3. How (letter, passage message (no f/u), active message w/f/u, phone call, letter, clinic visit, combination)
    4. When (as results are returned, at end of study, batch)estimated number
11. Atypical situations: How are results handled (upload EHR, contact provider) in the following situations:
    1. death of participant
    2. refuse test results
    3. cascade testing
    4. Loss to follow up
    5. Response to participants who want “all results”

**References**

1. Damschroder LJ, Aron DC, Keith RE, Kirsh SR, Alexander JA, Lowery JC. Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. *Implement Sci.* 2009;4:50.

2. Orlando LA, Sperber NR, Voils C, et al. Developing a common framework for evaluating the implementation of genomic medicine interventions in clinical care: the IGNITE Network's Common Measures Working Group. *Genet Med.* 2017.