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| **eMERGE Network: Manuscript Concept Sheet** | | |
| **Reference Number**  *(to be assigned by CC)* | NT420 | |
| **Submission Date** | 3/18/2021 | |
| **Project Title** | Probing the polygenic architecture of left atrial diameter | |
| **Tentative Lead Investigator** *(first author)* | Ali Manouchehri | |
| **Tentative Lead Investigator Email Address** | [ali.m.manouchehri@vumc.org](mailto:ali.m.manouchehri@vumc.org) | |
| **Tentative Senior Author**  *(last author)* | Jonathan Mosley | |
| **All Other Authors** | Quinn Wells, RJ Vaitinadin, Mingjian Shi, Vineet Aggarwal, Jane Ferguson | |
| **Sites Participating** | Current participants: Vanderbilt  Open to all sites | |
| **Background / Significance** | The left atrium (LA) plays a major role in cardiac physiology by collecting blood during systole and modulating left ventricular filling during diastole and preserves pulmonary capillary circulation from hemodynamic overload. A main determinant of left atrial diameter and volume is ventricular diastolic function. The left atrium is exposed directly to left ventricular diastolic pressure and dilates with increasing pressure. The degree of left atrial enlargement is associated with adverse prognosis in different clinical settings. | |
| **Outline of Project** | To identify clinical phenotypes associated with a polygenic score for LA diameter developed in a VUMC clinical population.   1. Perform a PheWAS using a polygenic score developed from a population of ~16,000 European Ancestry individuals who has LA diameter measured by TTE as part of routine clinical care at VUMC. | |
| **Desired Data - Common Variables\***  *(Available from the CC)* | Demographics  ICD9/10 codes  CPT codes  Phecodes  BMI | Common Variable Labs  Common Variable Meds  Other: Case/Control status on Phase I and Phase II phenotypes |
| **Other Desired Data *(Available from participating sites)*** |  | |
| **Desired Genetic Data** | eMERGE I-III Merged set (HRC imputed, GWAS)  eMERGE PGx/PGRNseq data set  eMERGEseq data set (Phase III)  eMERGE Whole Genome sequencing data set  eMERGE Exome chip data set  eMERGE Whole Exome sequencing data set  Other (not listed above): | |
| **Does project pertain to an existing eMERGE Phenotype?** | Yes, if so please list  No | |
| **Planned Statistical Analyses** | PheWAS | |
| **Ethical Considerations** | None | |
| **Target Journal** | Will be determined by the results, but anticipate an AHA journal. | |
| **Milestones**  *(This section should include the key dates for completion of project, including approval, project duration, draft completion, and submission.)* | Gather data from coordinating center: 04/01/2021  Conduct statistical analyses: 04/5/2021  Write manuscript: 04/15/2021  Circulate and submit manuscript: 04/30/2021 | |