Phenome India CSIR Health Cohort Knowledgebase (HCP -47)

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Abstract:

The ability to predict the health trajectories of individuals based on their personalized risk scores can help formulate a preventive roadmap - of a disease or its complications. Currently, most of these risk prediction algorithms are based on epidemiological data from the Caucasian population and there is liberal evidence that they fail to work well for the Indian population due to ethnic diversity, varied dietary and lifestyle patterns, and altered risk profiles. In this multi-centric pan-India study, we aim to address these challenges and develop clinically relevant personalized risk prediction scores of cardiometabolic diseases for the Indian population. This multi-centric program will involve the longitudinal collection and bio-banking of samples from ~10,000 CSIR employees, pensioners, and their spouses of which of the baseline sample collection is now completed. Multi-parametric data collected during baseline sampling includes a clinical questionnaire, lifestyle and dietary habits, anthropometric parameters, assessment for lung function, liver elastography, ECG, biochemical data, followed by molecular assays, including genomics, plasma proteomics, metabolomics, and faecal microbiome. In addition to mining the data for associations between the different parameters and their cardio-metabolic outcomes, we intend to develop models using artificial intelligence algorithms (AI) to predict phenotypic conditions. The study may be a step towards precision medicine for the Indian population, especially middle-income group strata, and aid in refining the normative values of healthy/disease parameters in the Indian population.

Objectives

- Assess general health of CSIR regular employees, pensioners and their spouse.
- To define healthcare parameters across the diverse population.
- It includes clinical questionnaire, lifestyle and dietary habits, imaging/ scanning, biochemical and molecular data.
- To identify the risk factors associated with infectious and non infectious disease.
- To predict/identify complex metabolic disorder (cluster of conditions that occur together, Ex- risk of heart disease, stroke and type 2 diabetes together).
- To develop Indian standards for health care, since current standards are based on American and European population