EPAD Deliverable 2.8

Disease Risk Modelling Report V2

Executive Summary

This document describes the disease modelling work done within Work Package 2 by the MRC Biostatistics Unit, University of Cambridge since the final submission of Deliverable D2.6 Disease Modelling Report V2.0 document in May 2017.

In the last six months, we have continued using historical/existing data to develop appropriate methodology and to explore issues that may be relevant for the modelling of the EPAD Longitudinal Cohort Study (EPAD-LCS) data. Additionally, we have begun to explore the data arising from the EPAD-LCS and formulate research questions to address using these data. Specifically, we have investigated the most appropriate parameterisations of our latent class mixed models for cognitive outcomes such as Mini Mental State Examination (MMSE) and the Clinical Dementia Rating Sum of Boxes (CDRSOB) in terms of the link function; and have analysed using multi-state modelling methodology transitions between disease states in the Alzheimer's Disease Neuroimaging Initiative (ADNI) Study. We have also explored the issue of practice effects using the OCTO-Twin Study ("Origins of Variance in the Old-Old") and considered a variety of statistical models for capturing practice effects when they exist. This work, in collaboration with University of Edinburgh, has been done to mitigate against any practice effects that may result from the repeated administration of the Repeatable Battery for the Assessment of Neuropsychological Status (RBANS) to participants recruited to the EPAD-LCS. Our initial work on the EPAD-LCS has focused on characterising the participants recruited so far and understanding the cognitive outcomes and biomarkers. Finally, we have interacted with Interuniversity MicroElectronics Center (IMEC), Leuven, in order to deliver optimised software which can be used in EPAD, presented at meetings, interacted with other partners through teleconference calls and face to face, and been involved in the Balancing Committee for the EPAD-LCS and the amendments to the EPAD-LCS protocol.

For more information: info@epad.org