Date Received	Requestor Information	Research Plan Summary
4/25/2016	Robert McBurney Accelerated Cure Project, Inc; iConquerMS, the MS Patient-Powered Research Network	**Goal:** To develop information to support the design of MS clinical studies that involve one or more of the outcomes included in this dataset. **Plan**: Includes analyzing 1) graphical representations of outcome measures to examine distributions, 2) descriptive statistics of the distributions, 3) multivariate clusters, including classification analyses to determine which factors are responsible for separating subgroups; and 4) powers to detect specific effect sizes for specific cohort sizes and specific outcome measures separately or in combination.
5/10/2016	Andrew Shem George Washington University	**Goal:** To understand if there are any principal components within the multivariate data set in order to evaluate courses of treatment. **Plan**: Investigate the data set using Principal Component Analysis to identify relationships that have not been previously observed.
6/7/2016	Kathryn Fitzgerald Johns Hopkins School of Medicine	**Goal:** To develop group-based trajectories for changes in patient-reported outcomes and disability measures. Understanding normative and atypical patterns of changes in PROs will improve our ability to identify at-risk individuals and the processes or other factors by which these individuals become vulnerable. **Plan:** Use PROs (e.g. SF-36), clinical disability measures (EDSS) and performance measures (e.g. T25FW) to 1) identify distinctive trajectories of PROs/disability outcomes in patients with MS; and 2) to examine factors (comorbidity, depression) predicting individual latent trajectories of PROs/disability outcomes and assess the distribution of changes in other PROs/disability within each trajectory.
5/1/2016	Jasvinder Kandola Imperial College London	**Goal:** To distinguish severe MS patients from those with mild to moderate disease. **Plan:** Apply machine learning classification techniques to analyze the MSOAC dataset.
4/6/2016	Fred Lublin Icahn School of Medicine at Mount Sinai	**Goal:** To determine the earliest, most reliable indicators of secondary progressive disease onset in order to develop meaningful outcome measures that could be integrated into clinical trials. **Plan:** Develop clinical metrics of durable worsening and unrelenting progression in well characterized, complementary cohorts of MS patients. The placebo data from MSOAC will be

		included in our analyses of data from our partner institutions, which have a combined patient pool greater than 16,000 followed for up to 20+ years.
6/8/2016	Hosein Khazaei Islamic Azad University Karaj	**Goal:** To develop new methods of predicting MS. **Plan:** Apply data mining algorithms that are based on classification and regression tree (cart).
10/27/2016	Joseph Geraci Queen's University	**Goal**: To model placebo responders versus non-responders in MS clinical trials. **Plan:** Apply my novel machine learning paradigm that was originally developed to model placebo response in cancer and for mood disorders. Based on a combination of statistics and dynamical systems, the paradigm is particularly suited for complex populations.
1/4/2017	Ayse Kuspinar McMaster University	**Goal:** To identify symptom profiles or phenotypes in MS, the clinical course of these phenotypes over time and their impact on quality of life. **Plan:** Apply 1) group-based trajectory modelling to identify distinctive groups of individuals with similar trajectories; 2) cluster analysis; 3) hierarchical and non-hierarchical methods with a Squared Euclidean Distance Logistic regression models to estimate the association between clinical variables and MS phenotypes; and 4) linear regression analysis to evaluate the impact of these phenotypes on quality of life.
3/27/2017	George Haig AbbVie	**Goal:** To design a clinical trial for an investigational compound, using the analyses of the placebo data to inform the selection of primary and secondary endpoints, and sample sizes. **Plan:** Extract the following information from the database: 1) natural progression of EDSS by demographic group (age, gender, baseline disease severity, duration of illness, etc.); 2) correlation of EDSS change from baseline to 24 months; 3) correlation of the change in T25FT and 9HPT to the change on EDSS; 4) natural progression of T25FW and 9HPT; 5) sensitivity of other clinical endpoints compared with EDSS.
3/22/2017	Koshy George PES Institute of Technology (Indian Institute of Science, Bangalore, India)	**Goal:** To use the more recent deep learning techniques to better classify datasets. **Plan:** Test the claim that deep learning is more suitable than conventional artificial neural networks for classifying datasets.

5/17/2017	Emil DiGuilio Regis University Denver, Colorado	**Goal:** To develop a predictive model for estimating the likelihood of developing MS. **Plan:** Use supervised and unsupervised machine learning to predict the likelihood of developing MS based on specific criteria used in diagnosing MS and neuromyelitis optica.
2/16/2018	Maryam Aghili Florida International University	**Goal:** Develop computer aided diagnosis and medical image processing. **Plan:** TBD
3/5/2018	Jagadeswara Earla University of Houston	**Goal:** Assess the differential impact on relapse rate, disability progression, and health-related quality of life based on gender in MS patients. **Plan:** Compare data from men and women with MS
3/21/2018	Joanna Holbrook Benevolent AI	**Goals:** To model the disease/symptom trajectory at a patient level, to define multi-parameter outcomes across endpoint measures and access linearity of endpoints, to cluster patients by trajectories of composite outcomes in order to define endotypes; to determine predictive signatures of endotypes at baseline. **Plan:** Apply deep learning methodologies.
4/2/2018	Alex Purring Argosy University	**Goal:** Examine the relationship between the number of relapses and cognitive impairment. **Plan:** TBD
4/17/2018	Kathryn Fitzgerald Johns Hopkins School of Medicine	**Goal:** Investigate how MS-related disability and symptoms of depression change over time **Plan:** Use multivariate finite mixture latent trajectory modeling to identify subgroups of the MSOAC population that exhibit similar patterns of change over time in depression and disability severity.
5/28/2018	Pavlos Kolias Aristotle University of Thessaloniki	**Goal:** Find the underlying factors of MS **Plan:** Use stochastic methods (semi-Markov models) to evaluate the goodness of fit and to forecast.
6/7/2018	Hans-Martin Schneble Servier Forschung und Entwicklung GmBH	**Goal:** To design a clinical trial for an investigational compound, using the analyses of the placebo data to inform the selection of primary and secondary endpoints as well as sample sizes. **Plan:** Extract the following data: 1) Change in the EDSS and each performance measure from baseline to 24 months; 2) Correlation between EDSS and other clinical endpoints.
9/12/2018	Xinyan Zhang	**Goal:** To use the placebo data to assist the study design for a new compound

	Sanofi	**Plan:** Examine the relapse rate, 6-month confirmed disease progression and other efficacy endpoints in different populations; Estimate sample sizes based on the hypothesized hazard ratio.
11/5/2018	Myla Goldman University of Virginia	**Goal:** To explore the possible importance of blood pressure variability in MS subjects **Plan:** Data will be analyzed to correlate those disability and/or fatigue responses to clinical BP measurements obtained**.**
	Nahla Belal Arab Academy for Science, Technology, and Maritime Transport	**Goal:** To improve the diagnosis and treatment of multiple sclerosis through machine learning. **Plan:** Data analysis, problem definition, proposed approach and implementation by July 2019.

Data as of December 14, 2018