**Predicting amyloid burden to accelerate recruitment of secondary prevention clinical trials**

**Supplemental Material**

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| **Supplemental Figure 1.** Predictors such as age, *APOEε*4 dose, and Clinical Function Instrument (CFI), both participant (“Pt”) and study partner (“SP”), were assumed to have monotonic relationship with amyloid PET SUVR. |

Table 1 - Model fitting algorithm steps

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| **Algorithm** XGBoost – Bayesian optimization | |
| 1: | Generate an initial search space of the hyper-parameters |
| 2: | Fit XGBoost hyper-parameters using CV |
| 3: | Return out-of-fold predictions for each of the training data |
| 4: | Query summary metric to obtain |
| 5: | Augment data |
| 6: | Fit Gaussian Process Model using |
| 7: | **For do** |
|  | Select new |
| 9: | Fit XGBoost model hyper-parameters using CV |
| 10: | Return out-of-fold predictions for each of the training data |
| 11: | Query summary metric to obtain |
| 12: | Augment data |
| 13: | Update Gaussian Process Model using |
| 14: | Fit XGBoost model using hyper-parameters such that |
| 15: | Fit XGBoost quantile models using hyper-parameters |