ADNI Biostatistics Group Conference Call:
Minutes, 6 October 2009

Present on call: Laurel Beckett, Danielle Harvey, Hao Zhang, David Shera, David Verbel, Fred Immerman, John Kornak, Niclas Sjogren, Kisook Yoo, Mike Weiner.

We are in the process of writing the Core for renewal. Version 1 has been torn apart and pieces stuck in so is being heavily revised and edited.

Summary of key findings:
1. Some measures of MRI and PET look like winners for clinical trial design as outcomes.
MRI: ventricles, cross-validated hippocampus, Studholme.
PET: cross-validated measure from Reimann, comparable to many of the MRI labs.
Cognitive function: In general much larger sample sizes. Not formally compared yet.

Not everyone processed all available data so some comparisons based on just 30-50 subjects but for those, processed by every lab in comparison.

There were some outliers. We tracked a few down and worked with labs and found errors.

2. Overview of other findings:
Imaging and fluid biomarkers show correlations suggesting that Abeta and Tau predict both metabolic changes and atrophy, especially hippocampal and ventricle shrinkage. These, in turn, are associated with cognitive function decline, as expected. Even the normals show patterns suggestive of a constellation of early changes (baseline Abeta problems correlate with some metabolic changes and a little with atrophy, more in E4+ though this doesn't seem to fully account for it.) Jagust R-all composite measure of FDG PET and the ventricular and hippocampal volume are overall the most strongly and consistently interrelated both with CSF biomarker levels at baseline (very little biomarker change, and too little PiB data yet to say much) and with cognitive decline.

We are also going to revise the challenge grant that Laurel submitted that got a great score and 7th %ile but not good enough to get funded. More sophisticated statistical methods are needed to characterize the multivariate trajectories of change that we believe to be related to underlying biological disease progression. We also would like to identify composite measures best reflecting this underlying change, and look at ways we can use these to improve clinical trial design.

We will share the Core proposal at next call, 3 November. We will also lay out plans for goals for the GO grant analyses, and for transforming the mountain of analytic results into coherent, publishable findings.