### Monthly Program Status Report – PROJECT

<table>
<thead>
<tr>
<th>Reporting Period:</th>
<th>November 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contracting Agency:</td>
<td>Food and Drug Administration (FDA)</td>
</tr>
<tr>
<td>FDA Project Manager:</td>
<td>Jingyee Kou, <a href="mailto:jingyee.kou@fda.hhs.gov">jingyee.kou@fda.hhs.gov</a>, 301-796-9495</td>
</tr>
<tr>
<td>FDA Subject Matter Expert:</td>
<td>Thomas Permutt, <a href="mailto:thomas.permutt@fda.hhs.gov">thomas.permutt@fda.hhs.gov</a>, 301-796-1271</td>
</tr>
<tr>
<td>FDA COTR:</td>
<td>Shaila Shaheed, <a href="mailto:Shaila.Shaheed@fda.hhs.gov">Shaila.Shaheed@fda.hhs.gov</a></td>
</tr>
<tr>
<td>Contract / Order:</td>
<td>HHSF223201310230C</td>
</tr>
<tr>
<td>Contractor PI:</td>
<td>Daniel Scharfstein, <a href="mailto:dscharf@jhu.edu">dscharf@jhu.edu</a>, 410-955-2420</td>
</tr>
<tr>
<td>Project Team:</td>
<td>Aidan McDermott (Computer Programmer)</td>
</tr>
</tbody>
</table>

**Description of Activity:** A recent FDA-sponsored National Research Council Report recommended that "examining sensitivity to the assumptions about the missing data mechanism should be a mandatory component of reporting." While the Report outlines a framework for conducting sensitivity analysis, there are two major problems with existing methods: (1) they have not been implemented in software packages and (2) they do not adequately address non-monotone missing data patterns (i.e., patients provide data irregularly). The objective of this project is to address these gaps by: 1) creating unified and coherent methods for global sensitivity analysis of clinical trials with monotone and non-monotone missing data, 2) developing free, open source and reproducible software in SAS and R to implement the methods, and 3) demonstrating the methods and software using real clinical trial data.

### Project Health Check

<table>
<thead>
<tr>
<th>Health</th>
<th>Budget</th>
<th>Schedule</th>
<th>Resources</th>
<th>Deliverables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notes</td>
<td>Within Budget</td>
<td>On Schedule</td>
<td>Adequate</td>
<td>On Target</td>
</tr>
</tbody>
</table>

### Budget Tracking – (TOTAL CONTRACT CEILING)

<table>
<thead>
<tr>
<th>POP</th>
<th>Ceiling Remaining</th>
<th>Cumulative Funding</th>
<th>Year Funding (Year 1)</th>
<th>Spent to Date</th>
<th>Year Funding Remaining</th>
<th>Month Invoice</th>
<th>Funding Covers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base</td>
<td>$1,094,565</td>
<td>$1,094,565</td>
<td>$1,094,565</td>
<td>$943,445.36 ($257,663.93 committed)</td>
<td>$151,119.64</td>
<td>$661,589.55</td>
<td>Salary, fringe, other expenses, and indirect costs</td>
</tr>
</tbody>
</table>

### Activity Summary and Highlights

We presented the SAS version of SAMON at the FDA short course on November 30, 2015. We conducted extensive simulation studies to ensure that our confidence interval procedures are working properly.
### Key Accomplishments

<table>
<thead>
<tr>
<th>Current Reporting Period</th>
<th>Planned for Next Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Gave FDA short course.</td>
<td>• Complete simulation studies and exploration of faster methods.</td>
</tr>
<tr>
<td>• Conducted extensive simulation studies.</td>
<td>• Post SAS SAMON on website</td>
</tr>
<tr>
<td>• Explored faster methods for conducting sensitivity analysis.</td>
<td>• Continue implementation of intermittent missing data methods</td>
</tr>
</tbody>
</table>

### Issues and Risks

<table>
<thead>
<tr>
<th>Category</th>
<th>Priority</th>
<th>Status</th>
<th>Opened</th>
<th>Issue</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract (FDA)</td>
<td>1</td>
<td>Closed</td>
<td>9/30/13</td>
<td>Intellectual Property</td>
<td>Revision to contract regarding intellectual property language.</td>
</tr>
<tr>
<td>Dissemination (FDA)</td>
<td>2</td>
<td>Closed</td>
<td>2/15/14</td>
<td>Website</td>
<td>FDA Personnel cannot connect to <a href="http://www.missingdatamatters.org">www.missingdatamatters.org</a> from their office computers.</td>
</tr>
<tr>
<td>Software (JHU)</td>
<td>1</td>
<td>Closed</td>
<td>3/15/14</td>
<td>Coverage of Confidence Intervals</td>
<td>Simulations indicate that standard procedures for constructing confidence intervals are not providing adequate coverage with typical sample sizes.</td>
</tr>
<tr>
<td>Computing (JHU)</td>
<td>1</td>
<td>Closed</td>
<td>4/21/14</td>
<td>Periods of slow performance of computing cluster</td>
<td>A new computing cluster was installed at Johns Hopkins. We are experiencing periods of slow performance on the cluster.</td>
</tr>
<tr>
<td>Personnel (JHU)</td>
<td>1</td>
<td>Closed</td>
<td>5/21/14</td>
<td>Re-Distribution of Effort</td>
<td>Starting April 1, Aidan McDermott has reduced his percent effort by 20%. Chenguang Wang joined the project starting July 15.</td>
</tr>
<tr>
<td>Invoicing (FDA)</td>
<td>1</td>
<td>Open</td>
<td>6/6/14</td>
<td>Payment of Invoices</td>
<td>Invoices have not been paid.</td>
</tr>
<tr>
<td>Computing (FDA)</td>
<td>1</td>
<td>Open</td>
<td>6/6/14</td>
<td>Software on FDA Cluster</td>
<td>Investigate the steps needed to run software on FDA cluster</td>
</tr>
<tr>
<td>Personnel (JHU)</td>
<td>1</td>
<td>Open</td>
<td>1/13/15</td>
<td>New Effort</td>
<td>Yi Lu joined the project to work on confidence intervals.</td>
</tr>
</tbody>
</table>

### Other Activities

### Attachments and References