Clinical Incentive Pilot Grant Final Report:
Population-Based Pediatric Cardiology Studies

Amount Received: $14,643
Start date: May, 2012; End date: September, 2013

Principal Investigator: Jeanette M. Jerrell, Ph.D., Professor, Department of Neuropsychiatry and Behavioral Science, University of South Carolina School of Medicine (Columbia)

Co-Principal Investigator: C. Osborne Shuler, M.D., Director, Division of Pediatric Cardiology and Vice Chair, Department of Pediatrics, University of South Carolina School of Medicine (Columbia)

Investigator: Avnish Tripathi, M.D., Ph.D., Department of Medicine, University of Mississippi School of Medicine

Investigator and Research Associate: George B. Black, B.S., second year medical student, University of South Carolina School of Medicine (Columbia)

Statistical Analyst: Yong-Moon (Mark) Park, M.D., Ph.D., graduate student Epidemiology and Statistics, Arnold School of Public Health

Accomplishments

During the period of support, we proposed to investigate the general prevalence of various types of congenital heart diseases (CHD) and then focus on four main heart disorders in children and adolescents with (CHD): atrial septal defects, patent ductus arteriosus, supraventricular tachycardia, and bicuspid aortic valve. During the process of performing the literature reviews for each study, it became apparent that there was not enough information in the Medicaid data set about the nature of the anomaly itself or its important covariates (related conditions) to perform the bicuspid aortic valve study and get it published. However, there has been some recent investigations of the neurodevelopmental sequelae of multiple surgeries for more severe CHDs, so this topic was instead pursued, as the final study performed and submitted for publication.

We obtained IRB approval and received the de-identified statistical data set in March, 2013. For each cardiac condition, a separate cohort of patients with that CHD was identified and, using a case-control methodology, a series of descriptive and comparative analyses were performed to determine the prevalence of, progression of, and treatment of the cardiac condition, the development of comorbid conditions (e.g., neurologic, renal, or psychiatric disorders) and their impact on the primary cardiac
disorder, and the outcomes associated with these “predictors” (treatments provided and comorbid conditions which develop). Once calculated, prevalence rates and progression of these primary cardiac conditions were further explored and compared using logistic regression analyses, Kaplan-Meier survival analyses, or Cox Proportional Hazards regression to describe the time elapsed from the diagnosis of the primary disease to the main surgical or pharmacotherapy intervention, or the development of comorbid cardiac or comorbid conditions (renal, neurological, psychiatric, etc.), and the personal or intervention factors (covariates) which predict progression, e.g., receipt of pharmacotherapy interventions or surgical procedures performed for the main or comorbid diseases, individual risk factors (i.e., age, gender, race), percentage of service from a pediatric cardiology specialty clinic, etc.

Our research team produced 5 publications in peer-reviewed journals from this series of studies and we have a 6th paper currently under review at Congenital Heart Disease. Research funding obtained from the Provost’s Clinical Incentive Grant Award was acknowledged in all publications. These publications are listed below and pdf copies of the published manuscripts are attached.


Although Dr. Jerrell identified several potential NIH RFAs/PAs to which our investigative team could have responded, a formal grant proposal was not possible for several reasons. First, Dr. Shuler had increasing clinical and administrative responsibilities as Vice Chair in the Department of Pediatrics during the latter part of
2012 and could not devote the time necessary to help write a competitive proposal in pediatric cardiology. Furthermore, as noted in the next section, we had several staffing changes during the grant period which reduced our capacity to work around Dr. Shuler’s absence in submitting a proposal.

**Staffing Changes**

Dr. Shuler had less time available to work on this research project than originally anticipated due to increased clinical and administrative duties in the Pediatrics Department, but provided input to all of the analyses except those papers on SVT and the neurodevelopmental sequelae of multiple cardiac surgeries in children with CHD. Dr. Jerrell assumed the role of principal investigator for all the studies/analyses performed and worked directly with the SC Office of Research and Statistics to obtain the Medicaid statistical file. Dr. Tripathi finished his USC SPH doctorate and went to the University of Mississippi, School of Medicine for his residency training in Internal Medicine. However, after the first six months of training he had more time available for research and he worked on 5 of the 6 publications emanating from this grant. Dr. Yong-Moon (Mark) Park took Dr. Tripathi’s place on the grant as our statistical analyst and also co-authored 5 of the 6 papers.

**Final Accounting of Expended Funds**

<table>
<thead>
<tr>
<th>Personnel</th>
<th>Amount Expended</th>
</tr>
</thead>
<tbody>
<tr>
<td>C. Osborne Shuler, M.D.</td>
<td>0</td>
</tr>
<tr>
<td>Co-Principal Investigator</td>
<td></td>
</tr>
<tr>
<td>Jeanette M. Jerrell, Ph.D.</td>
<td>0</td>
</tr>
<tr>
<td>Principal Investigator</td>
<td></td>
</tr>
<tr>
<td>Yong Moon (Mark) Park, M.D., Ph.D.</td>
<td>$10,453</td>
</tr>
<tr>
<td>Investigator and Statistical Analyst</td>
<td></td>
</tr>
<tr>
<td>George B. Black, B.S.</td>
<td>$ 2,645</td>
</tr>
<tr>
<td>Investigator and Research Associate</td>
<td></td>
</tr>
<tr>
<td>Contractual Services (paid for Medicaid data set and preliminary analyses)</td>
<td>$ 1,545</td>
</tr>
</tbody>
</table>

If additional information is necessary, please contact Dr. Jerrell directly.