

**Foundation for SMFM  
2020 Garite Mini-Sabbatical Grant**

“Advanced Training in Cardio-Obstetrics and the Application of Non-invasive Hemodynamic Assessments”

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*Thank you to Dr. Garite, the Garite Mini-Sabbatical Selection Committee, and the [Foundation for SMFM](#) for this truly influential opportunity to further train in Cardio-Obstetrics. It has shaped every facet of my career goals in both patient care and clinical research.*



During my eight-week mini-sabbatical with Dr. Josephine Chou, I obtained more formalized, advanced clinical training in the field of Cardio-Obstetrics through direct patient care in Cardiology Clinics and online didactic sessions.

During the clinical component, I worked with Dr. Chou in the Yale Center for Maternal Health and Yale Cardiology Clinic. I learned how to care for patients with a wide range of pathology including aortopathies, cardiomyopathies, and arrhythmias, including the unique physical exam maneuvers that are warranted for these patients. This training dovetailed nicely with the two livestreamed conferences that I attended: the 6<sup>th</sup> Annual International Congress on Cardiac Problems in

Pregnancy and Cardio Obstetrics Virtual Symposium.

Each of our patients was uniquely complex and required multi-disciplinary care, but I will always remember one particular patient suffering from severe pulmonary hypertension. After learning about pulmonary hypertension from the experts in cardiology, anesthesiology, and maternal-fetal medicine during the aforementioned conferences, I presented a review of management during pregnancy and facilitated a multi-disciplinary conference to coordinate her complex care and delivery. This experience motivated me to dedicate my future career to optimizing care for women with cardiac pathology and facilitate collaboration with our cardiology colleagues in order to provide the most evidence-based, compassionate care to our shared patients. My mentor has shown me first-hand the true value of a multidisciplinary team and importance of collaboration. As I seek a position after graduation from fellowship, I look forward to the opportunity to build relationships with my cardiology colleagues, develop a Cardio-Obstetrics clinic, and work to incorporate a formal comprehensive curriculum for fellows and residents in Cardio-Obstetrics.

In addition, I acquired the skills and training in crucial new hemodynamic monitoring techniques, including both bioimpedance analysis (noninvasive cardiac output monitor (NICOM), Cheetah Medical) and arterial pulse wave analysis (ClearSite finger cuff, Edwards LifeSciences). Since I initially became interested in Cardio-Obstetrics through my research in severe maternal morbidity and mortality, specifically related to preventable cardiovascular complications of preeclampsia, I applied these skills to begin a pilot study with my mentor Dr. Chou on hemodynamic monitoring in patients with severe preterm preeclampsia. After obtaining IRB approval, we prospectively enrolled 12 patients with severe preterm preeclampsia and singleton gestations. We performed 3 hours of monitoring with both the NICOM and ClearSite monitors on each patient and 2 echocardiograms.



Through mentorship with Dr. Chou, I learned the interpretation of hemodynamic data and drafted an abstract that was accepted for a poster presentation for the 2022 SMFM Annual Pregnancy Meeting, entitled, "Non-invasive hemodynamic trend before and after delivery in severe preterm preeclampsia patients." In normal pregnancy cardiac output increases up to 50% from pre-pregnancy values and begins to reduce immediately after delivery with normalization of cardiac output by about 2-4 weeks postpartum. In our study, we demonstrated that patients with severe preterm preeclampsia have lower cardiac output during pregnancy with subsequent rise in cardiac output postpartum. These findings suggest that patients with preterm severe preeclampsia have a distinct hemodynamic profile that warrants unique clinical management. I'm looking forward to discussing our research in February 2022 and am currently drafting the manuscript with Dr. Chou. This has inspired me to apply my skills with interpreting non-invasive hemodynamic metrics to future research projects and to mentor residents and students in these hemodynamic techniques.

I hope to continue my collaboration with Cardiology throughout my career as an academician in order to improve the standard of care for pregnant people, while working together to apply advances in cardiology to our high-risk obstetric population. Due to this unparalleled opportunity to obtain more formal advanced training in Cardio-Obstetrics, I feel well prepared and excited to embark on the next journey of my career. I am extremely grateful for the support of the Foundation for SMFM which allowed me to individualize my training and pursue my dream of developing a clinical and research niche in Cardio-Obstetrics.