Detailed Description of Plan to Carry Out Project

Background

High risk infants are at increased risk for morbidity and mortality after hospital discharge compared to healthy term infants. Infants who are born less than 32 weeks gestation and who weigh less than 1500 grams at birth, or who have cardiac, respiratory, or other issues are especially at risk for developmental delay, and are considered high risk. Often these infants are discharged from the Neonatal Intensive Care Units (NICU) requiring individually tailored feeding regimens, home medical equipment, medications and a multitude of follow-up appointments. Parents of high risk infants are responsible for carrying out these complex and dynamic care regimens upon NICU discharge, and thus have an increased need for support. The Santa Clara Valley Health and Hospital System’s (SCVHHS) Babies Reaching Improved Development and Growth in their Environment (BRIDGE) program was developed in 2011 to optimize high risk infants' care transition from Neonatal Intensive Care Unit (NICU) to home. The objectives of the SCVHHS BRIDGE program are to provide caregiver interventions to minimize home care errors after NICU discharge and to optimize health care access and utilization across the transition of care. SCVHHS NICU infants who are at risk for developmental delay, who meet Department of Health and Human Services (DHHS) California Children’s Services (CCS) criteria qualify for SCVHHS BRIDGE and High Risk Infant Follow-up (HRIF) visits. HRIF visits are crucial to evaluate these infants and be proactively refer them to needed medical and social services. While the goals of the program are clear, no research yet exists that has determined the effectiveness of this program, and published studies of other programs have not established their effectiveness conclusively.
I am the High Risk Infant Follow-up (HRIF) Nurse Practitioner Provider with the SCVHHS HRIF program, leading multidisciplinary team management and evaluation and support for infants who have been in a neonatal intensive care unit, including monitoring these infants for developmental problems at ages 7, 15, and 30 months. My team of seven provide the following services for these infants at our weekly clinic: comprehensive history and physical examination with neurologic assessment; developmental assessment via Bayley Scale of Infant and Toddler Development, family psychosocial assessment; hearing, ophthalmologic, and other specialty referral and assessment; coordination of care with community primary care provider.

Project Plan and Preparatory Work

The overarching purpose and goal of this sabbatical project is to determine the effect of these comprehensive interventions on developmental outcomes of the high-risk infant, the research question is: “Did the (expensive and labor intensive) BRIDGE/HRIF programs improve developmental outcomes for these high-risk infants?” The program started in 2011, so pre- and post- comparisons can be drawn. The project plan for this sabbatical is to deep-dive into the data that already exists in the BRIDGE/HRIF database at SCVHHS, with specific concentration on several parameters including the following. Associated sub-questions include:

- What is the variance of growth parameters? (Based on height, weight, and head circumference percentiles)
- What is the variance of developmental parameters? (Based on the Bayley Scale of Infant and Toddler Development)
- Is cerebral palsy or other sequela of prematurity, (e.g. autism) present?
- What is the indication/need for Physical and/or Occupational Therapy, Speech Therapy, and special education, and is it being received?
- What developmental and neurologic outcomes including seizures, MRI abnormalities, feeding issues and behavioral concerns requiring intervention exist?
- What was the BRIDGE visit frequency?

Preparatory work is already in place. As HRIF Nurse Practitioner provider at SCVHHS, I maintain access to the NICU database for this population and am in close weekly contact with
essential stakeholders of this project including the BRIDGE director, NICU Medical Director, and NICU data manager. For the period of time I am requesting release, I will gather data via the SCVHHS electronic health record (EHR) and quantitatively analyze data using descriptive statistics. I will consult with a statistician in advance of project initiation. Institutional Review Board (IRB) approval is already present for BRIDGE/HRIF research. Data collection will take place during the first part of the release time, with data analysis and interpretation during the second part. SJSU IRB approval will need to be obtained. They are eager for me to mine this data and determine implications. Close examination of this information from caregivers and health care providers in the inpatient, home, and outpatient environments, has the potential to improve health, reduce health care costs, and optimize growth and development for high risk infants. Deliverables from this project will include: a) a research study examining the questions you’ve identified; b) 1-2 academic journal articles and a Poster Session submission; and c) a professional report with recommendations to the SCVHHS. Future plans include building on the available longitudinal data of this population with future research likely focusing on school performance of these formerly high risk infants.

**Statement of Project’s Benefit to the University**

My research and practice agenda at SJSU are enhanced by continued clinical practice. Through clinical practice I have enhanced research agenda and skills. Since clinical practice informs my teaching daily, this project will be an excellent venue to produce useful evidence-based knowledge for the discipline which directly benefits the University. Undergraduate and graduate student involvement and collaboration will be involved in many aspects of the project including project plan, data collection, data analysis, and discussion. Intimate involvement with this research project will improve their translational research understanding and skill.
This proposed project aligns with the University mission: To enrich the lives of its students, to transmit knowledge to its students along with the necessary skills for applying it in the service of our society, and to expand the base of knowledge through research and scholarship. As the major, comprehensive public university located in the center of San Jose and in the heart of Silicon Valley, SJSU’s mission complements SCVHHS mission of high-quality, cost-effective, medical care to all persons in Santa Clara County, regardless of ability to pay for such care. SCVHHS identifies that the needs of all are paramount, and ensures that patients and their families are treated in a compassionate, supportive, friendly, and dignified manner. Given the rate of premature births in Santa Clara County over the past 25 years, it is likely that many SJSU students are part of this population and have benefitted from earlier renditions of programs such as the one outlined in this proposal.

**Applicant’s ability to complete the project**

I have a proven track record at SJSU in leadership and scholarship in teaching and clinical practice. This is evidenced by ongoing clinical contributions and publications, and clinical research in child neurology. In the past 5 years I have published 10+ scholarly articles and three book chapters. Several manuscripts are in the pipeline related mentoring and advising Doctoral students. Additionally, I am deeply involved in other areas of scholarship at SJSU including Coordinating the Doctor of Nursing Practice Program, reinstating the Family Nurse Practitioner program through the Chancellor’s Office, Global Programs involvement with FLPs to Finland in 2015 and 2016, and advising Alpha Tau Delta, a professional nursing fraternity at SJSU, for which I was nominated and voted Student Organization Advisor of the Year at SJSU in 2015.

**Timeline Draft - See next page**