1155-92-81 **Tyrus Hunter Berry*** (tberry@gmu.edu), 4400 University Dr., Fairfax, VA 22030, and **Steven Schiff** and **Timothy Sauer**. *Spatiotemporal modeling and control of neonatal sepsis and hydrocephalus in Africa.* Preliminary report.

Neonatal sepsis is a significant contributor to neonatal and infant mortality in sub-Saharan Africa. Of those that recover, a significant number of infants go on develop hydrocephalus as a long-term consequence of the infection. Our goal is to model the disease across all of Uganda and find optimal strategies for prevention and treatment using ideas from control theory. We start by extending the Susceptible-Infected-Recovered (SIR) model to a new SIRH model by adding a Hydrocephalic class. Using publicly available statistics, we obtain coarse estimates of parameters. We then extend the model spatially and develop a method to estimate spatial fields for infection rates and rates of developing hydrocephalus. Finally, we incorporate the spatiotemporal model into a control theory framework by considering prevention and treatment as competing for health care resources. (Received December 21, 2019)