1160-92-245 **Megan A. Greischar***, megan.greischar@cornell.edu, and **Nicholas J. Savill**, **Sarah E. Reece** and **Nicole Mideo**. *New approach for quantifying synchrony in malaria infections.* Preliminary report.

Malaria infection is often characterized by periodic fevers, caused when the parasite population within a host proliferates in a synchronized burst. Not all infections exhibit such synchrony, however, and whether infections are synchronized (or not) could influence host symptoms, parasite transmission and the efficacy of antimalarial drug treatment. Yet the causes of synchrony remain unclear, including to what extent hosts versus parasites influence the timing of infection dynamics. A key challenge is quantifying the degree of synchrony within an infection, and I use a heuristic model (a Leslie matrix) to show that existing methods to quantify synchrony are inadequate. I then use a system of delayed differential equations to simulate time series and use these simulated data to validate an improved approach. This new approach can quantify wholesale differences in synchrony as well as changes in synchrony over the course of an infection. Simulating 'experiments' reveals best practices for designing experiments to minimize the impact of sampling noise and discern true patterns of synchrony. (Received August 10, 2020)