Understanding the events that occur following HIV exposure is critical to the development of interventions, but these events are difficult to study experimentally. Nonhuman primate (NHP) experiments with SIV from the Keele Lab shed light on the dynamics of early viral replication and development of systemic dissemination following vaginal exposure. Importantly, the infecting inoculum was a synthetic viral swarm permitting distinction between genotypically separate, but phenotypically identical variants. The data reveals that SIV form foci of local infection in the female genital tract (FGT), with viral variants from multiple viral lineages were found within each focus. We use data on viral variants in foci to validate our FGT viral dynamics model, relying on multitype continuous time branching processes. From this formulation we will derive time-dependent probabilities of extinction and viral variant proportion. Using resulting model predictions we will explore in particular the role of the infected cell burst size to examine the survival of viral lineages in the vaginal tissues preceding systemic dissemination. Early results suggest that the variability in the burst size can explain the variability in proportions of viral variants observed within foci of infection. (Received August 11, 2020)