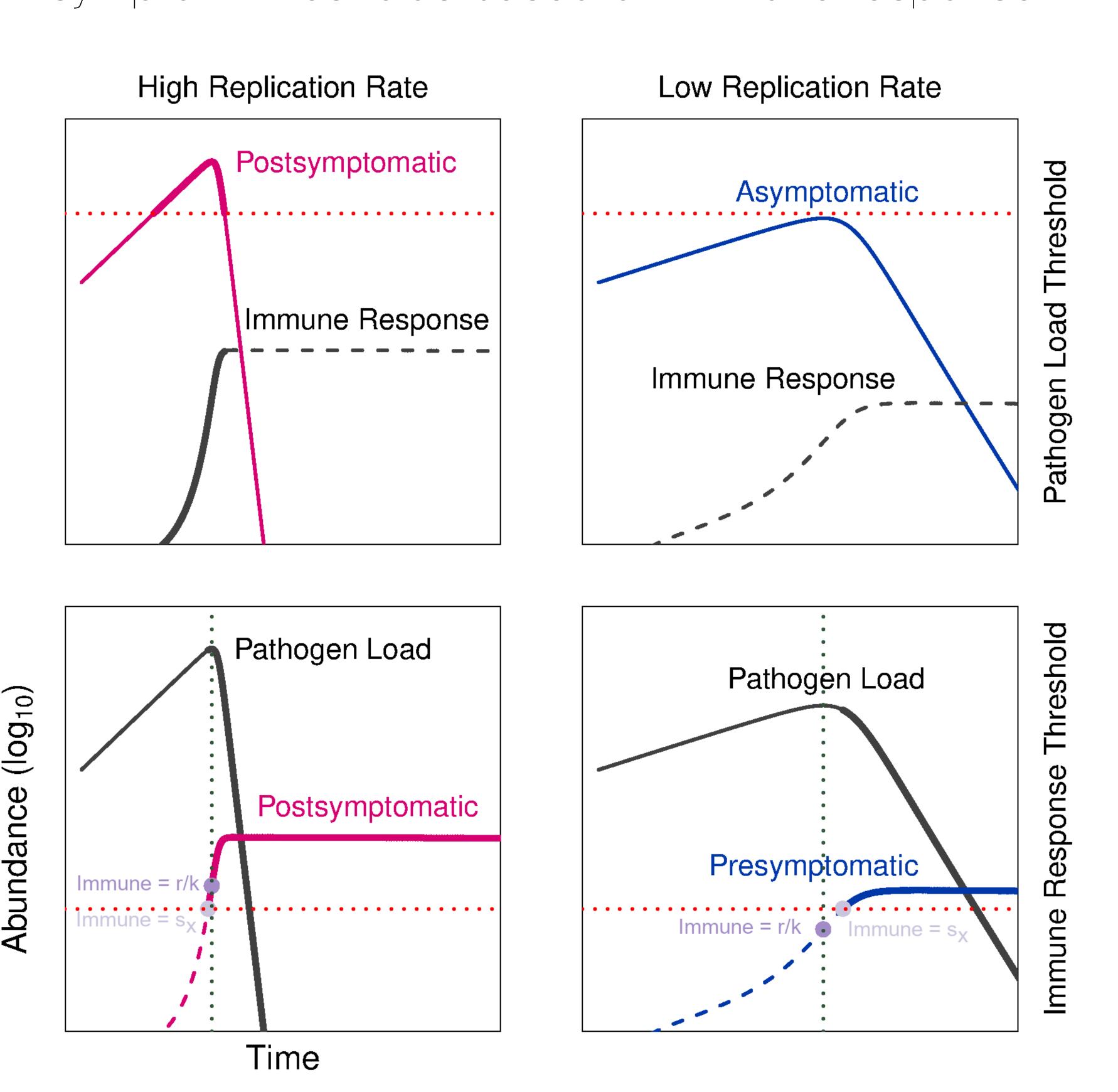
## What causes pre-symptomatic transmission?

Kayla Zhang, Damie Pak, Megan Greischar

Predicting when pre-symptomatic **Observed Data From Norovirus Study** transmission will occur allows us to Pre-symptomatic develop appropriate intervention east Squares Regression Line measures during disease outbreaks. Our definition: pre-symptomatic transmission occurs when peak viral load comes before symptom onset Viral Growth Rate (Atmar et al., 2008) Model There are 2 models of Pathogen Immune clearance (k) symptom onset: one Replication based on crossing a Immune recruitment pathogen load threshold and one based on crossing an immune response threshold Baseline Baseline death Immune production

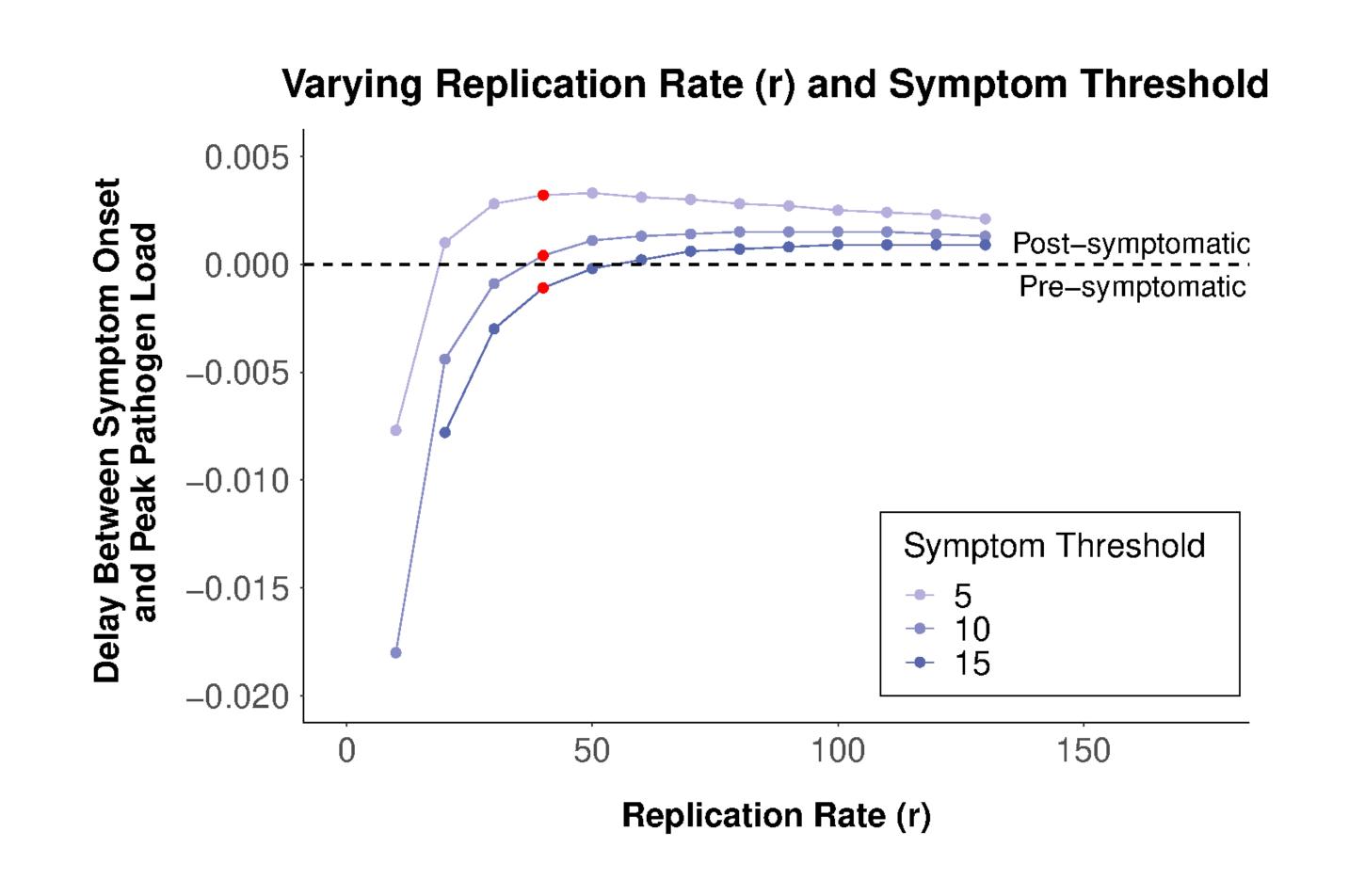
Pre-symptomatic transmission occurs only with symptom thresholds based on immune response

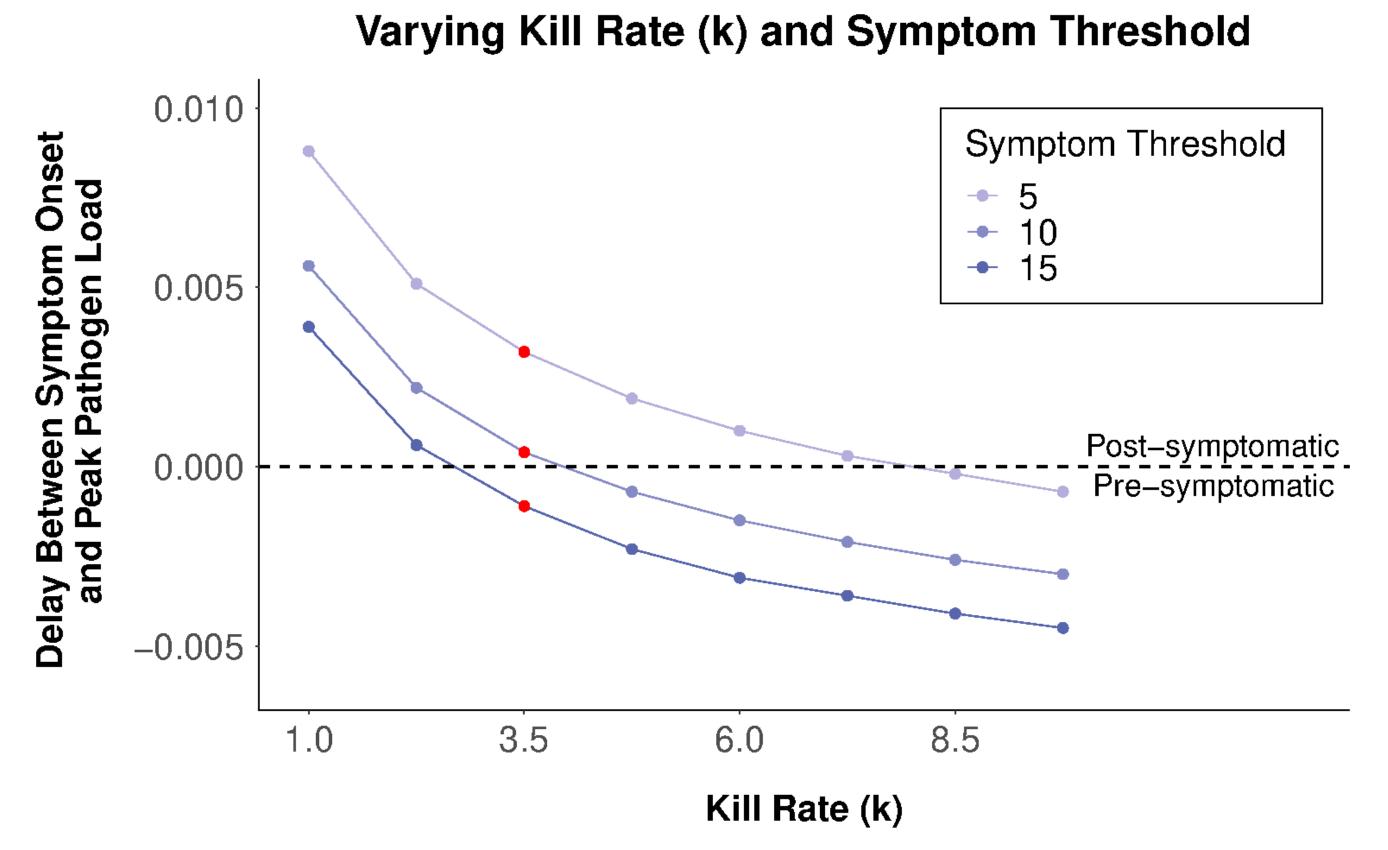


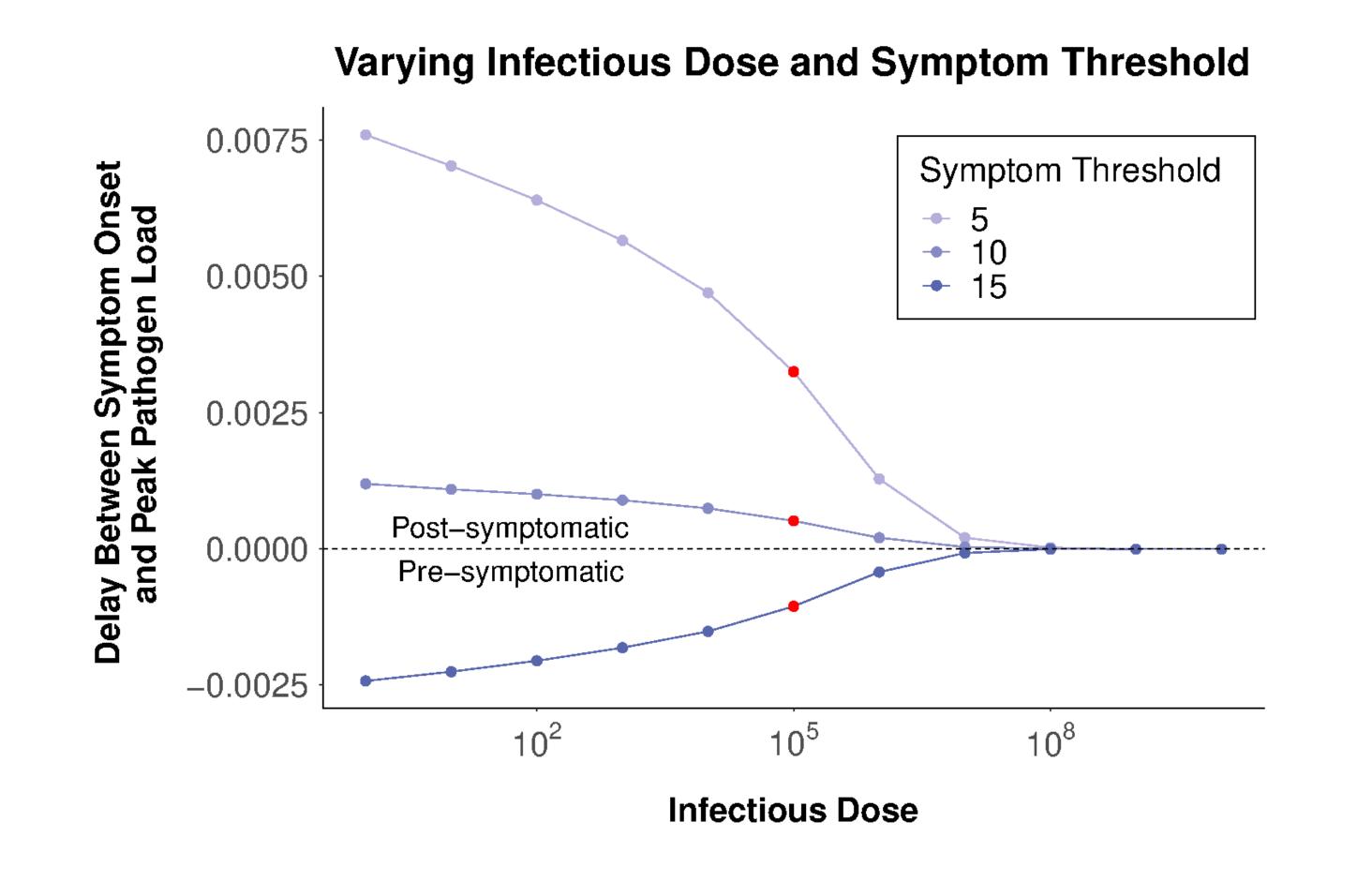
## Assuming an immune response threshold,

(King et al., 2009)

Response







Pre-symptomatic transmission increases with immune competency and decreases with pathogen replication rate