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"Using a Mathematical Model to Compare Infection Parameters in Cotton Rats by Age SHAHEER KHAN, HANA DOBROVOLNY, Texas Christian Univ — Respiratory syncytial virus (RSV) is an extremely common viral respiratory infection that currently has no vaccine or treatment. One of the issues in developing a treatment has been that immune system responses in both humans and rats vary in their susceptibility to RSV across different age groups. In this study, we use a mathematical model to quantify the viral kinetics of RSV and analyze its relationship to age. After fitting the model to experimental data, six parameter values were determined and used to calculate the eclipse phase length, infection phase length, basic reproductive number, and infecting time. These values were compared by age and collection site. After running several statistical tests, there was no major trend with the parameter values in relation to either age or collection site. This result provides the foundations for further studies to explore how viral models can better represent RSV and understand the immune response in general.

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