

1106-VC-1795

Hannah M Pennington* (hannah.pennington412@topper.wku.edu), **Nitin A Krishna** and **Richard C Schugart**. *Latin hypercube sampling and Partial Rank Correlation Coefficient procedure as applied to a mathematical model for wound healing.*

Latin hypercube sampling and Partial Rank Correlation Coefficient procedure (LHS/PRCC) can be used in combination to perform a sensitivity analysis that assesses a model over a global parameter space. Through this analysis, the uncertainty of the parameters and therefore the variability of the model output in response to this uncertainty can be observed. Latin hypercube sampling divides the parameter space into equiprobable regions without replacement, producing a global, unbiased selection of parameter values. For monotonic, non-linear relationships, the correlation between the outputs and parameters can be understood by performing a Partial Rank Correlation Coefficient procedure. This sensitivity analysis is applied an ordinary differential equation model describing the interactions of four proteins and cells in the healing of a diabetic foot ulcer. The results of the LHS/PRCC sensitivity analysis are used to assess the biological significance of the parameters in relation to each compartment of the model to further understand its biological implications. (Received September 15, 2014)