

1145-92-2741

Richard Schugart* (richard.schugart@wku.edu). *Using a Mathematical Model with Individual Patient Data to Quantify Differences Between Patients with Diabetic Foot Ulcers*. Preliminary report.

In this work, we quantify differences in healing responses between type-II diabetic patients with foot ulcers. This work builds off of our previous publication (Krishna et al., B Math Biol, 2015), where we formulate a mathematical model to describe healing responses using averaged time-course data from another study (Muller et al., Diabet Med, 2008). In Mullers work, they collect data from 16 patients with type-II diabetes. In addition to recording wound areas, Muller also measures levels of matrix metalloproteinases and their inhibitors at Weeks 0, 1, 2, 4, 8, and 12, collected from wound fluid. The patients are divided into two groups categorized as good healers and poor healers dependent upon the healing response at the four-week point. In our previous work, we use the average data to calibrate our mathematical model and quantify differences between the two groups. In our current work, we have calibrated our mathematical model for each individual patient and have quantified differences between these patients. In this presentation, we will discuss how our model has identified differences across patients using a variety of techniques. (Received September 25, 2018)