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**Richard Schugart\***, richard.schugart@wku.edu, **Jennifer Flegg**, j.flegg@qut.edu.au, and **D.L. Sean McElwain**, s.mcelwain@qut.edu.au. *Using mathematical modeling to assess the efficacy of oxygen for problem wounds: use of hyperbaric or topical oxygen therapies.*

We extend a previously developed mathematical model (Schugart et al., PNAS 105 2628-33) for acute wound healing to investigate the application of hyperbaric and topical oxygen therapies to treat acute, delayed, and chronic wounds. In this talk, I will present the model, a sensitivity analysis of the model, and simulation results for treating the wound with hyperbaric and topical oxygen therapies. (Received August 02, 2011)