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Kowan T O’Keefe* (kowanokeefe@gmail.com) and **Narayan Thapa** (narayan.thapa@minotstateu.edu), Minot, ND 58707. *Identification Problem in Pharmacokinetic-Pharmacodynamic Model for Treatment of Type II Diabetes Mellitus Using Metformin.*

Type II diabetes mellitus is a metabolic disorder in which a person has highly elevated blood glucose levels resulting from islet cells in the pancreas not producing enough insulin or from bodily tissues being resistant to the insulin that is produced. Metformin is a hypoglycemic drug that is widely used for treating Type II diabetes mellitus. Metformin works to reduce glucose levels in the blood by decreasing hepatic glucose output, increasing the rate of intestinal glucose consumption and increasing glucose uptake by muscle cells and fat tissue. In this work, an identification problem is investigated using an existing compartmental model for type II diabetes mellitus that is modified for this study. The effects of both oral and intravenous administration of metformin on this model are investigated. The parameters of the model are estimated by optimization using data from previously published works. (Received September 12, 2013)