

1125-VM-2921 **Zahava C Wilstein*** (zwilstein@berry.edu), Berry College, Mathematics Department, 2277 Martha Berry Highway, Mount Berry, GA 30149, and **Daniel Alligood, Valerie McLure** and **Austinn Miller**. *A Mathematical Model of Biomechanical and Chemical Influences on Hypertension*. Preliminary report.

Hypertension is a prevalent problem in the world, especially in the United States. According to the CDC, 1 in 3 Americans is classified as pre-hypertensive. Modeling hypertension may provide insights into critical aspects of its development. While typical mathematical models focus on the physical mechanics of hypertension, our model also incorporates prevailing cell signaling pathways thought to contribute to arterial remodeling. Building off of experimental work on hypertension in rats, we model the biological processes thought to be involved in the development of chronic hypertension with a system of algebraic and delay differential equations. Numerical simulations provide results that align well with available experimental data for normal and spontaneously-hypertensive rats. (Received September 20, 2016)