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**Scott Mansfield Sanders\*** (sanderssm@etsu.edu), Johnson City, TN, and **Abderrahim Elallam** and **Benjamin Williams**. *Mathematical Assessment of Ballad Health's Diabetes Management Program*. Preliminary report.

Ballad Health, the primary healthcare provider for Northeast TN, has been developing a comprehensive Diabetes Management Program since 2018. Participants receive individualized coaching from Pharmacists, Nutritionists, Wellness Coaches, and other experts with the goal of reducing healthcare spending and improving overall patient outcomes. Healthcare costs are covered by Ballad, and participants provide a range of data to Ballad on an annual basis including various biometrics, lab data, and health risk assessments. Data from more than 600 participants will be used to assess the effectiveness of Ballad's program in helping patients get their Diabetes under control. We determine whether the program has resulted in significant improvements in biometrics, lab readings, or overall healthcare spending. Furthermore, we seek patterns within age groups and urban versus rural settings. We develop a ratings system to evaluate the progress of participants and provide insights into how other factors like emotional health, chronic conditions, and modifiable behaviors affect outcomes. We accomplish these goals using statistical analysis, math modeling, and basic machine learning techniques and inform Ballad as to how their coaching program has been most and least effective. (Received September 14, 2020)