

Real-world Digital Health Data Demonstrate the Utility of the Glycemia Risk Index (GRI) as a Composite CGM Metric

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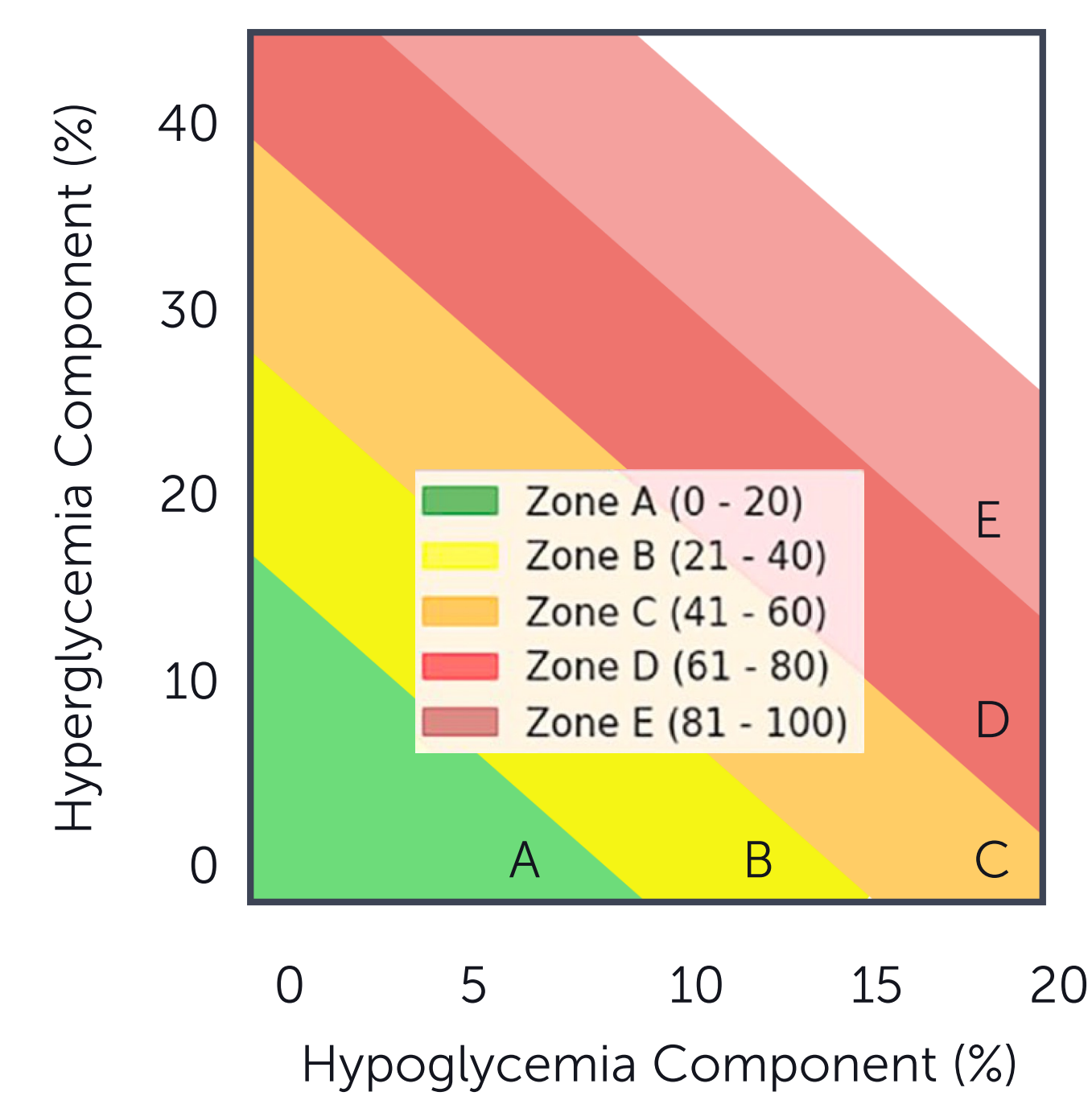
OBJECTIVES

- Optimizing glucose management for people with type 2 diabetes requires them to know their glucose data and understand what to do with it
- Continuous glucose monitoring (CGM) solves the problem of providing critical real time glucose data to individuals with diabetes
- Welldoc® continues researching how regulated, AI-driven personalized digital health solutions combined with CGM data can be effective at helping people with diabetes improve lifestyle factors that affect their diabetes
- The Glycemia Risk Index (GRI)¹ was developed as a composite metric from continuous glucose monitor tracings, to assist with basic clinical interpretation of CGM data
- We applied the GRI to a large data set of digital health tool² users in order to further quantify and understand the potential benefit of CGM

METHODS

- A real-world data set of 499 CGM-digital health tool users was created (BlueStar®* by Welldoc)
- The data were de-identified according to standard procedures
- The GRI was calculated for the first 3 days and last 3 days of a 14-day observation period for those with at least 80% sensor wear time (n=381)
- People with diabetes can be mapped to GRI zones A (best) to E (worst) as seen below in Figure 1
- The F-test was used to assess significance

Figure 1: The Five GRI Zones¹



RESULTS

Figure 2: Demographic Data

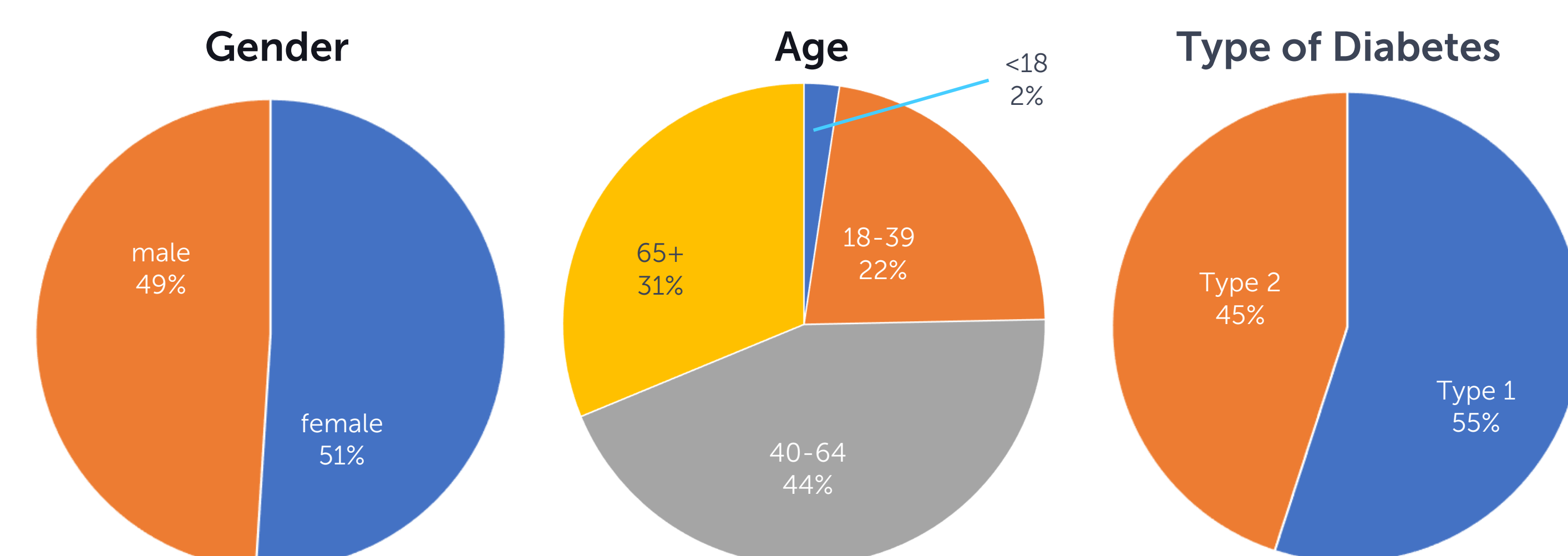
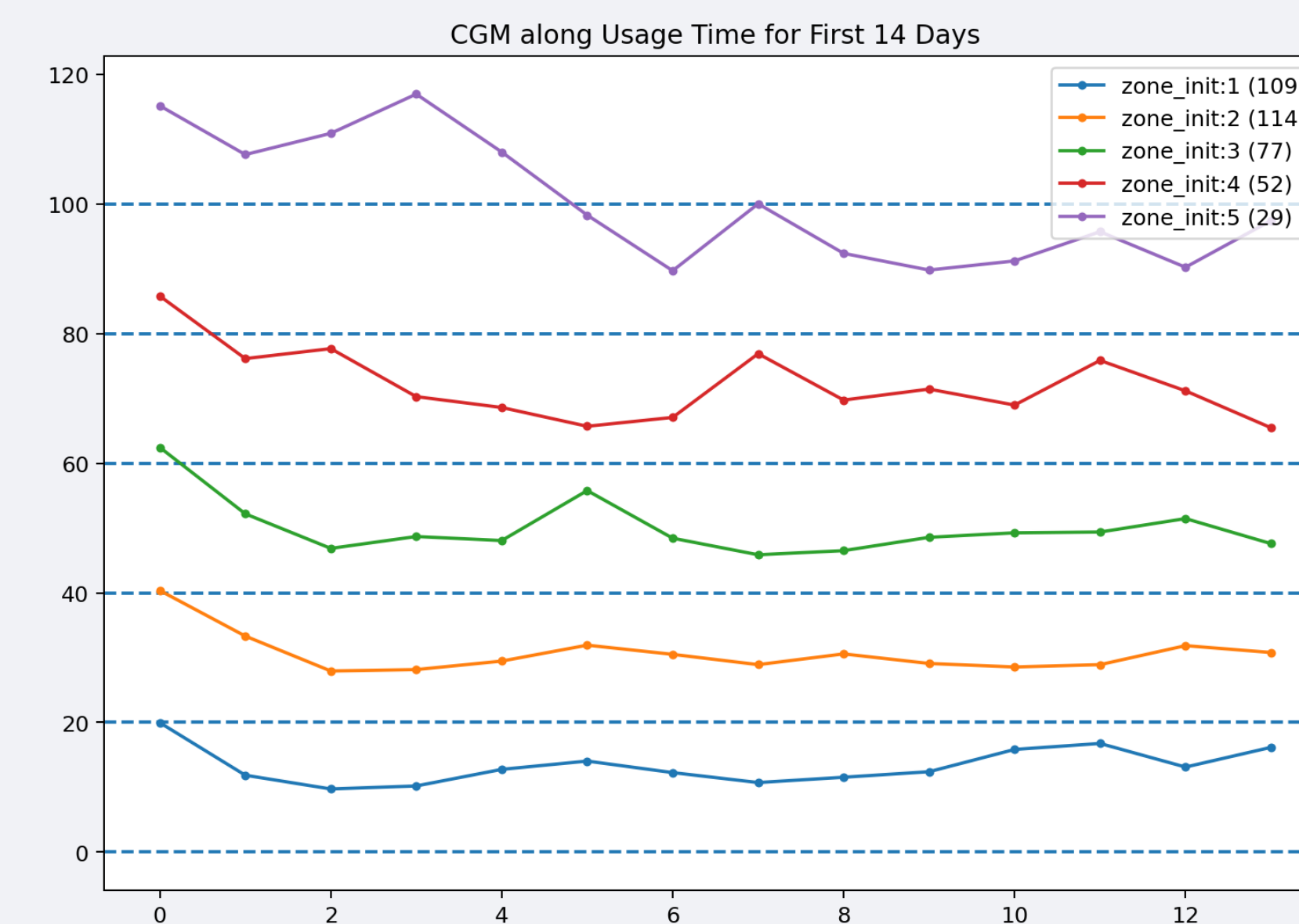
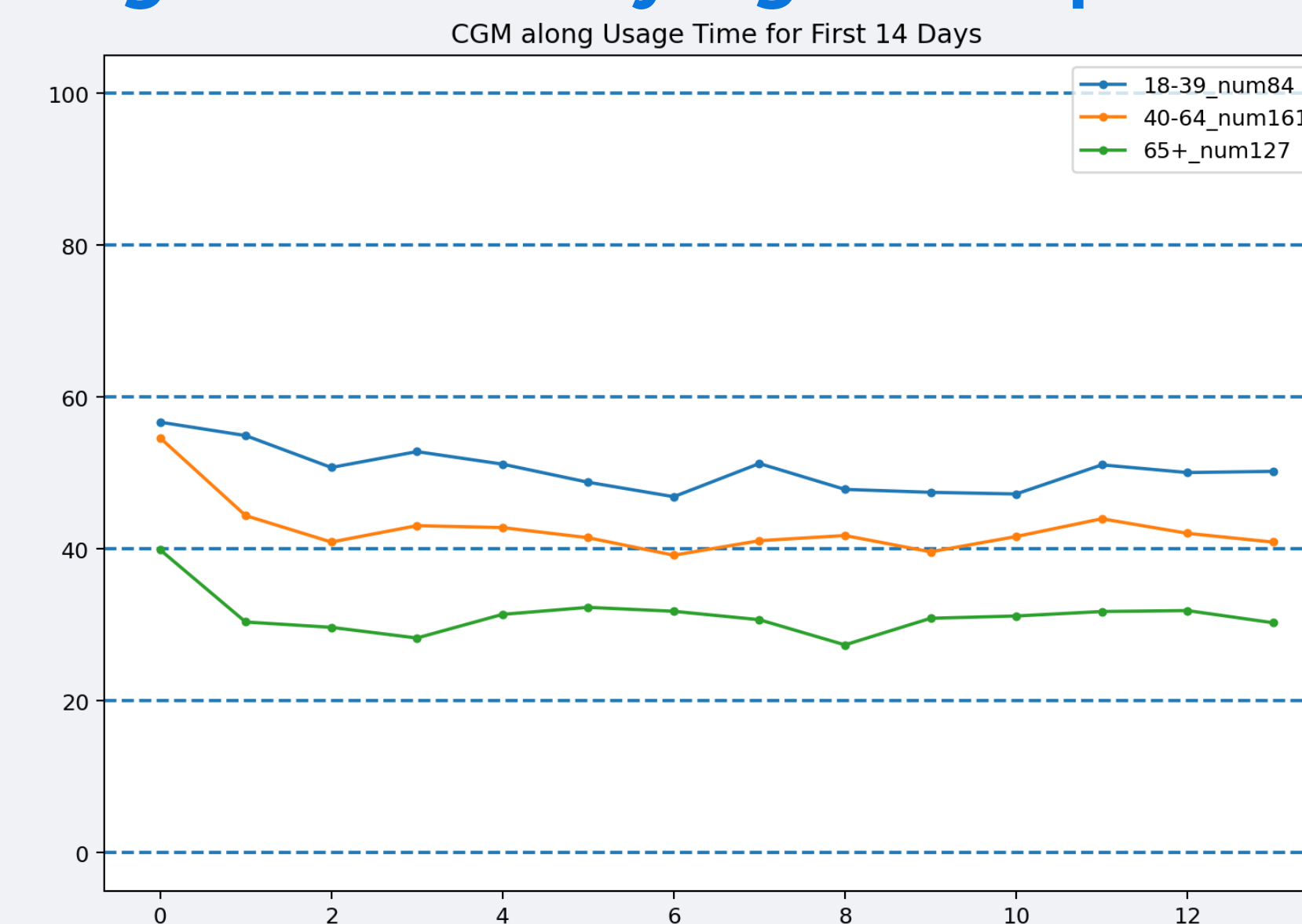


Figure 3: GRI Over a 14-day Period by Initial GRI Zone



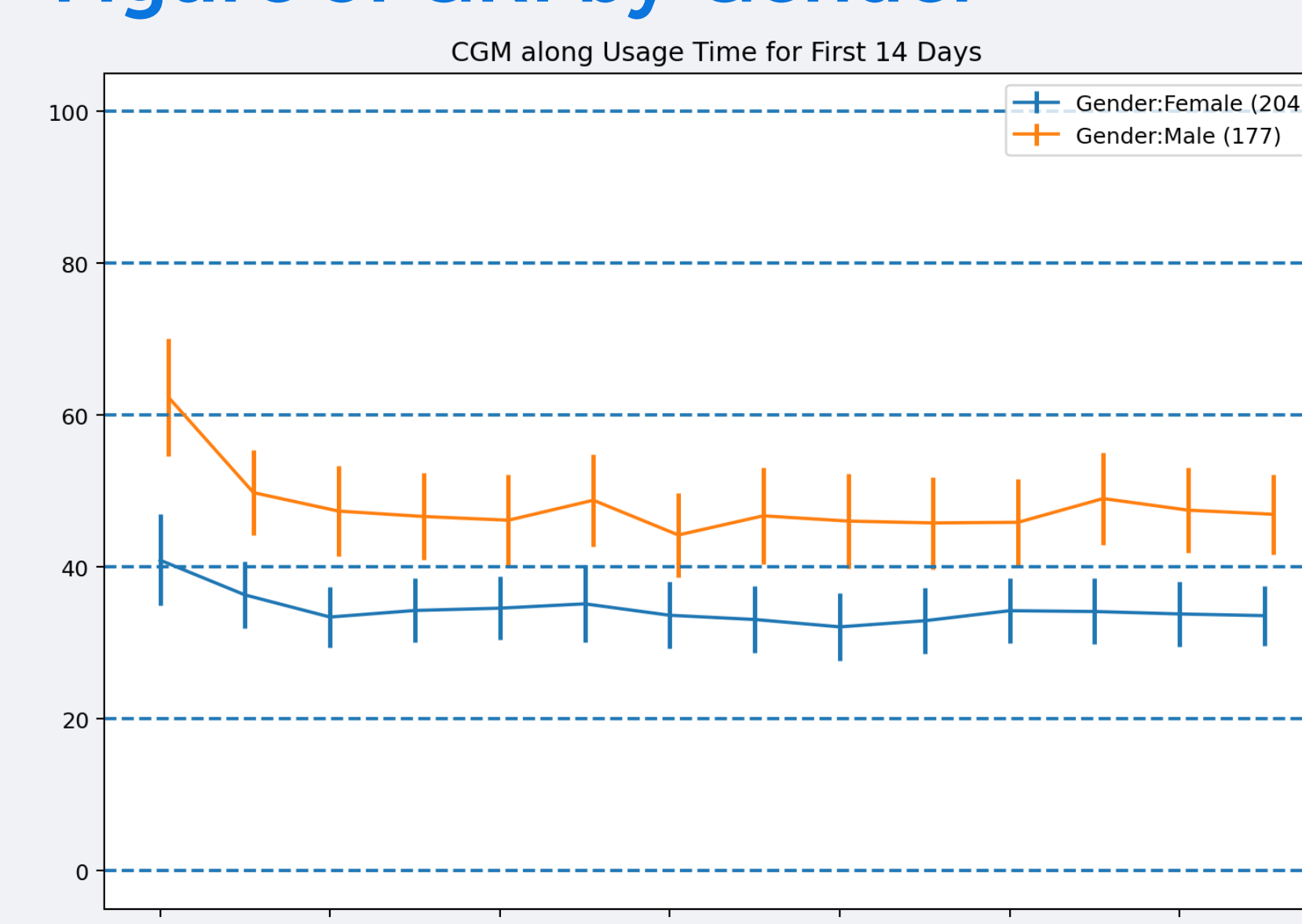
- Individuals whose baseline GRI started in zones A and B ended with GRI in Zones A and B
- Individuals whose baseline GRI started in higher zones (C,D,E) were the ones for which GRI improved by at least 1 zone

Figure 4: GRI by Age Group



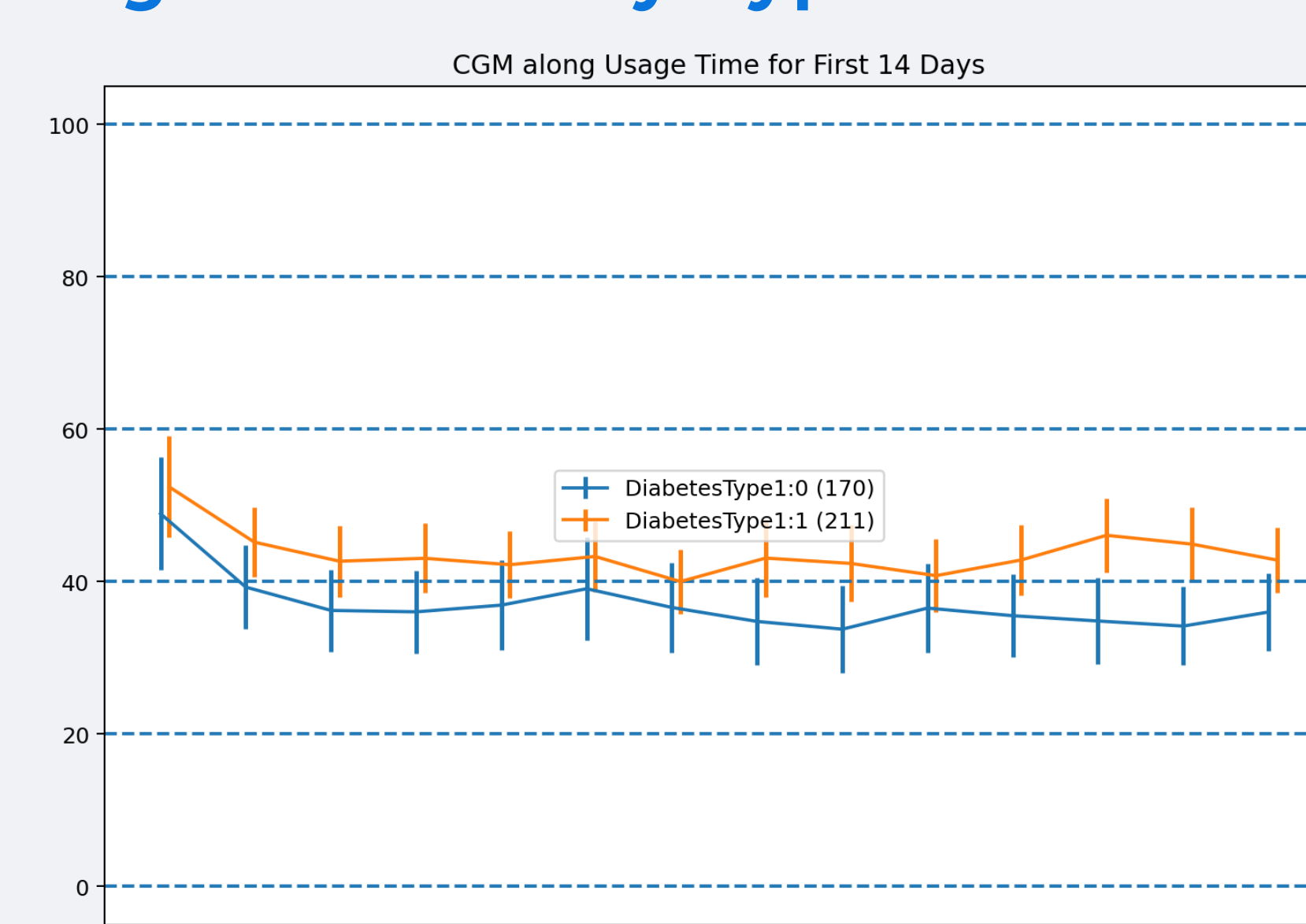
- The mean GRI of older individuals (>=65 years) remained in zone B
- The mean GRI of younger individuals (18-39 years) remained in zone C
- Using the F-test, GRI was significantly lower in older individuals

Figure 5: GRI by Gender



- Using the F-test, GRI was significantly lower in women

Figure 6: GRI by Type of Diabetes



- Using the F-test, GRI did not differ significantly by type of diabetes

CONCLUSIONS

- In this population, GRI revealed insights regarding differences by age and gender, but surprisingly, not by type of diabetes
- These data demonstrate the potential utility of GRI in uncovering both individual and population level insights for people with diabetes using a digital health tool
- GRI, in conjunction with a digital health tool, may be used as a variable against which the effects of different parameters such as food, activity and medications can be measured
- In addition, GRI's simplicity may be useful in the clinical management of patients and populations of patients by health care professionals
- Further research should focus on the clinical utility of GRI as a CGM metric

REFERENCES

- ¹Klonoff DC, Wang J, Rodbard D et al. A glycemia risk index (GRI) of hypoglycemia and hyperglycemia for continuous glucose monitoring validated by clinician ratings. J Diabetes Sci Technol. 2022 Mar 29.
- ²Quinn CC, Shardell MD, Terrin ML, et al. Cluster-randomized trial of a mobile phone personalized behavioral intervention for blood glucose control. Diabetes Care. 2011 Sep;34(9):1934-42.

*Welldoc® Diabetes and Welldoc Diabetes Rx is an FDA-cleared medical device ("BlueStar"), intended for use by healthcare providers and their adult patients with type 1 or type 2 diabetes. For full labeling information, visit www.welldoc.com.

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