**Systematic review of glucometric reporting within hospital-based diabetes studies, 2006-2023**

**Background:**

Suboptimal inpatient glycemic control is associated with adverse inpatient events, including healthcare-associated infection and longer length of stay, ultimately increasing hospitalisation costs.1-6 Inpatient glycemia may be improved through standardisation of in-hospital glycaemic measuring and reporting.

“Glucometrics”, as coined by Goldberg et al. (2006), proposes models (population, patient-stay, and patient-day) that allow quantitative inpatient glycemic data analysis. We conducted a systematic review to investigate the actual use of “glucometric” terminology and its derivations over the nearly two decades since conception.

**Methods:**

Original research articles on “glucometrics” and its derivations in inpatient contexts published between January 1, 2006 and August 15, 2023 were searched in PubMed, OVID, Medline, Web of Science, and Cochrane Library. Studies were screened and extracted through PRISMA compliant review software (Covidence®) and systematically reviewed.

**Results:**

Of 767 studies identified, 44 were included in the final review. Study settings included non-critical care wards (n=19), critical care (n=6), and both (n=13). Of the Goldberg models, patient-day was most used (n=33 studies), followed by patient-stay (n=18), and population (n=7). While most studies (n=30) referred to “glucometrics” per the original description,7 some (n=11) used it to generally refer to glycaemic measurement/reporting, while four studies used it as a proper noun. Three studies proposed new models: time-weighted average glucose, adverse glycemic days, and glucose excursions.

Significant variation in thresholds defining hyper- and hypoglycemia existed between studies. Defined hyperglycemia ranged between 7.8-22.2 mg/dL (most commonly 16.7 mg/dL), while the hypoglycemia ranged between 2.2-3.9 mg/dL (most commonly 3.9 mg/dL).

**Conclusion:**

This systematic review provides useful insight into current use of glucometric terminology, highlighting the lack of consensus on a standardised approach towards analysing inpatient glycemia. This review increases awareness and prompts actions to facilitate glucometric harmonisation, which will contribute to future improvements in inpatient glycemia and diabetes care.