

Self-Monitoring of Blood Glucose

According to the American Diabetes Association (ADA), health care expenditures for diabetic supplies in the United States totaled \$2.3 billion in 2012, and in 2017 that number jumped to approximately \$3.7 billion.^{1,2} Excessive use of self-monitoring of blood glucose (SMBG) supplies contributes to these increasing costs; on average, twice daily SMBG supplies cost \$550 per year.

Diabetic patients who are not using insulin are often prescribed SMBG to test multiple times a day when it may not be necessary.³ Per the 2019 ADA guidelines, type 2 diabetes mellitus (T2DM) patients using insulin should monitor their blood glucose multiple times a day; however, it is unclear how often those using non-insulin medications should test.⁴ As outlined in the table below, studies have shown that SMBG testing multiple times a day in the absence of insulin use increases health care expenditures without improving patient outcomes.

Study	Findings
2018 retrospective study in <i>JAMA</i> ³	Analyzed utilization and cost of SMBG supplies in T2DM patients not using insulin: <ul style="list-style-type: none"> Approximately 23% of patients filled three or more test strip prescriptions during the course of one year More than half of these individuals (14% of the study population) were potentially using testing supplies inappropriately*
2017 randomized trial in <i>JAMA</i> ⁵	Compared three approaches of SMBG in T2DM patients not using insulin: <ul style="list-style-type: none"> No significant differences in hemoglobin A1c levels No significant differences in health-related quality of life (HRQOL)

*Defined as patients with test strip claims with no antidiabetic medication or patients with test strip claims while using only non-hypoglycemic medication

According to the 2019 ADA guidelines, the drug classes listed below have the lowest risk of hypoglycemia, and frequent SMBG testing is not necessary for patients receiving these medications.⁴ Please reevaluate SMBG testing multiple times a day for your patients taking medications in the following drug classes:

Drug Class	Examples
Biguanides	<ul style="list-style-type: none"> metformin (Glucophage) metformin ER (Glucophage XR)
DPP-4 Inhibitors	<ul style="list-style-type: none"> alogliptin (Nesina) sitagliptin (Januvia) linagliptin (Tradjenta)
GLP-1 Agonists	<ul style="list-style-type: none"> exenatide (Byetta) exenatide ER (Bydureon) lixisenatide (Adlyxin) dulaglutide (Trulicity) liraglutide (Victoza) semaglutide (Ozempic)
SGLT-2 Inhibitors	<ul style="list-style-type: none"> empagliflozin (Jardiance) ertugliflozin (Steglatro) dapagliflozin (Farxiga) canagliflozin (Invokana)
Thiazolidinediones	<ul style="list-style-type: none"> pioglitazone (Actos) rosiglitazone (Avandia)

References

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- Young LA, Buse JB, Weaver MA, et al. Glucose Self-monitoring in Non-Insulin-Treated Patients with Type 2 Diabetes in Primary Care Settings: A Randomized Trial. *JAMA Intern Med*. 2017;177(7):920-929.

The CalOptima Approved Drug List is available on our website: www.caloptima.org
and for PDA download at www.epocrates.com