

Letter to the Editor

Cost and Minimal Effectiveness of SMBG

In their recent commentary regarding the use of self-monitoring of blood glucose (SMBG) test strips, Woo and colleagues (1) suggested our paper on this issue (2) concluded that SMBG does not improve glycemic control. This is not, in fact, what our study was about.

Our study used historical claims data to provide estimates of the current utilization of test strips among older Ontarians using various types of diabetes therapy. In a related publication, we projected the utilization and costs associated with test strip use from 2009 to 2013 (3). Our primary conclusion was that if reimbursement policies do not change, the Ontario public drug plan will spend roughly \$500 million dollars over the next 5 years on SMBG test strips for patients ≥ 65 years of age, despite the absence of evidence showing compelling benefits of such testing in the majority of patients with type 2 diabetes. We offered various scenarios in which substantial reductions in SMBG utilization and expenditures might be realized by placing reimbursement limits on strip use, depending on the nature of an individual's diabetes treatment. These monies could be reinvested in other therapies for diabetes that are better supported by evidence.

Woo and colleagues also criticized previous randomized controlled trials for recruiting study populations with relatively low glycated hemoglobin (A1C) levels of 7.5%, noting that it is unlikely that an intervention such as SMBG could improve this level significantly (1). While this is true, it is worth noting that the mean A1C of patients with type 2 diabetes in Canada is 7.3% (4). Among those treated with diet and exercise or metformin monotherapy, it would undoubtedly be lower still (5,6). By extension, Woo and colleagues have made a compelling argument in favour of reduced SMBG utilization among a large proportion of patients with type 2 diabetes in Canada.

They correctly point out some limitations of observational studies of SMBG. They note that patients with poor glycemic control may be more likely to be asked to perform SMBG, which would bias the results against SMBG. However, it is equally likely that patients who are more assiduous with all aspects of their diabetes care would be more likely to perform SMBG, thereby creating an opposing bias. The point we wish to make is that observational studies are unlikely to provide reliable information about the effectiveness of SMBG. Consequently, clinicians and policymakers should heed the findings of randomized trials, which consistently show that SMBG testing

offers little meaningful benefit to most patients with type 2 diabetes, with or without the addition of specific self-management education (7,8).

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The authors respond:

We thank the editors of *Canadian Journal of Diabetes* for the opportunity to respond to the letter above by Shah and colleagues.

Shah and colleagues point out that the randomized study by Harris and colleagues, in which baseline glycated hemoglobin (A1C) values were 7.5% (near the average of most Canadians with type 2 diabetes), did not show a statistically significant result regarding the utility of SMBG (2). When assessing the utility of oral antihyperglycemic agents and insulin in diabetes, baseline A1C is often $\geq 8.0\%$. Indeed, clinical studies are designed with inclusion criteria to capture individuals with a higher baseline A1C, which ensures proper assessment of therapy; furthermore, such studies are used by regulatory bodies to evaluate the efficacy of

therapies. Because of the low baseline A1C level in this study, its utility in assessing the use of SMBG to further lower A1C is limited. As an example, 2 recent medications approved in Canada for type 2 diabetes had registration studies with a baseline A1C >8% (3-6).

SMBG provides instant information about blood glucose levels and allows detection of hypoglycemia or hyperglycemia, which can enable individuals with diabetes to achieve glycemic targets by making safe and appropriate treatment, lifestyle and nutritional changes. We all agree that SMBG is costly and that it must be used effectively to limit wastage.

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