

# *Self Monitoring of Blood Glucose (SMBG)*

DCPNS Provincial Workshop  
April 28, 2011

Presenter: Pam McLean-Veysey  
Team Leader, Drug Evaluation Unit,  
Capital Health

## **Disclosure**


---

Pam McLean-Veysey provides drug evaluation support to programs at the Nova Scotia DoH & W and has received honoraria for talks on behalf of CADTH.

# Outline

---

- Why SMBG is an important issue
  - National and Provincial perspective
- Review of Key Evidence
  - CADTH, Academic Detailing
- Recommendations for SMBG
  - CDA, CADTH

A photograph showing two hikers from behind, sitting on a grassy hillside. They are wearing backpacks and looking out over a scenic coastal landscape. The landscape features a bay with a pebbly beach, surrounded by forested hills and rocky outcrops. The sky is bright and slightly hazy. The text 'Nova Scotia Perspective on SMBG' is overlaid on the right side of the image.

# **Nova Scotia Perspective on SMBG**

# Why is SMBG an important issue?

Nova Scotia Pharmacare program, 2008:

- Diabetes medications **\$8,532,000**
- Glucose test strips **\$8,522,200**
- > \$4,000,000 (oral antidiabetes drugs or no drugs)
- \$870,000 no diabetes drugs on file

Canada public and private drug plans, 2006

- BG test strips **>\$330 Million**
- BG test strips in top 5 classes of total expenditures
- Costs exceed all oral antidiabetes drugs combined

# Self-Monitoring of Blood Glucose: What are Healthcare Professionals Recommending?\*

Faculty of Medicine, Dalhousie University – Family Medicine

## Key findings: Diabetes controlled by diet alone

N= 21, 7 per group	SMBG Range	Times
<b>Diabetes Educators</b>	< 1/day to 1/day	varying (before meals and at bedtime); before and after meal; before or after a meal
<b>Pharmacists</b>	< 1/day to 4X day	varying; fasting + random; post prandial
<b>Physicians</b>	< 1/day	fasting and post-prandial

- Similar recommendations in patients **on oral agents**
- When asked specifically about secretagogues:
  - more cautious approach with more frequent monitoring.

\*Latter C., McLean-Veysey P, Dunbar P, Frail D, Sketris I, Putnam W. Self-Monitoring of Blood Glucose: What Are Healthcare Professionals Recommending? *Can J Diabetes* 2011;35(1):31-38.

## **Key findings: Use of SMBG and Resources**

---

- **Reasons for recommending SMBG**
  - Empowering and fostering self-management skills
  - Preparing for progression
  - Opportunity to provide/receive positive reinforcement
  - Assists with management decisions
  
- **Trusted sources of information**
  - Guidelines – most frequently cited source
  - Other health professionals (colleagues, DECs)
  - On-line resources (such as CDA website)
  - Print materials (texts, journals)
  - Continuing education
  - Industry

# Conclusions

---

## 1. There is variability within and between HCP recommendations

- Guidelines cite lack of evidence in non-insulin users
- Latitude within the guidelines leaves them open to interpretation

## 2. There are opportunities to improve care

- Interprofessional health care provider education
- Incorporation of a broader approach to patient care is required to improve consistency
- Make recommendations in light of available evidence and cost considerations
- Reallocation of resources to interventions with proven benefit

## The National Perspective...





OPTIMAL THERAPY REPORT

**COMPUS**

20<sup>th</sup>

Volume 3, Issue 6  
July 2009

Optimal Therapy Recommendations  
for the Prescribing and Use of Blood  
Glucose Test Strips



*Supporting Informed Decisions*

*À l'appui des décisions éclairées*

*Optimal Therapy Recommendations for the Prescribing and  
Use of Blood Glucose Test Strips Vol3, Issue 6 July 2009*

## Based on

- Systematic review
- Meta-analyses
- Expert opinion
- Usual care
- Cost effectiveness

## Question 1

### Outcomes with SMBG vs. no SMBG

#### Type 2 DM NOT using insulin

---

Compared with not monitoring BG, performing self monitoring can result in a difference in A1C of

- a. 1%
- b. 0.75%
- c. 0.25%
- d. 0.15%

## Type 2 diabetes not using insulin

---

- **A1C** (7 RCTs, n= 2270 patients, moderate

Statistically but not clinically significant (0.7% to 1.0%)

- Reduction 0.25% (95% CI: 0.15 to 0.36)
  - Similar in patients using sulfonylureas
  - With or without instruction on interpreting results

*Open Medicine 2010, Vol 4, No 2*

## **Type 2 diabetes** **Controlled by diet alone**

---

Mean difference in A1C

- • 0.05% (95% CI -0.33 to 0.23)
- Not statistically significant or clinically relevant
  - 1 RCT (n=124) – moderate quality

## Question 2

### Outcomes with SMBG vs. no SMBG

Type 2 DM NOT using insulin

---

Is there evidence that SMBG has an effect on severe or nocturnal hypoglycemia?

a. Yes

b. No

# Hypoglycemia

---

## Overall hypoglycemia SMBG vs. no SMBG

### Increase in at least one event

- Risk 15% with SMBG vs. 7.6% no SMBG
- 3 RCTs, N=1752, moderate quality studies

**No effect** on severe or nocturnal hypoglycemia

# Does SMBG improve well-being?

---

Non-Insulin treated patients:

- SMBG not associated with statistically significant improvements in well-being or satisfaction with treatment.
- Potential for increased levels of depression and poorer quality of life.
- Limited and contradictory evidence

## **CADTH Key Message**

### **Type 2 DM, Oral agents and diet alone**

**Routine** use of SMBG is **not recommended** for **most adults** with type 2 diabetes using oral antihyperglycemic drugs.

Strong recommendation; low to moderate level of evidence

**Periodic testing to determine a course of action by the patient:**

- Unstable glucose levels
- Acute illness, unplanned physical activity

**Most adults with type 2 diabetes controlled by diet alone should not require routine SMBG**

- Pregnant or planning pregnancy

# CDA and CADTH Recommendations

## Similarities and differences

Type 2 DM – Controlled by diet alone or oral agents	
CDA SMBG Recommendations 2008	CADTH SMBG Recommendations 2009
<p>Frequency of SMBG should be <b>individualized</b> depending on glycemic control and type of therapy.</p> <p>Should include both <b>pre- and postprandial</b> measurements</p> <p><b>Grade D, Consensus.</b></p>	<p><u>Routine use</u> of SMBG is <b>not recommended</b> for <u>most adults</u> with type 2 diabetes using oral antidiabetes drugs or diet alone.</p> <p><b>Strong recommendation, low / moderate quality evidence</b></p>

# Nova Scotia Response Policy Change?

---

- February 26 2010
  - 100 strips per year for non-insulin users
    - Effective April 1
- Early March 2010
  - Communications made in error
  - Final decisions to be made after consultations with stakeholders
- March 2010
  - Not adopting policy now or any time in future

# Nova Scotia Response Educational Programs

---

- DCPNS workshops/ annual meetings
- Academic detailing
  - physicians, NP, diabetes educators etc.
- Academic Detailing Rx
  - pharmacists (community and hospital)
- CADTH Symposium, Vancouver, April 2011
  - policy makers, health care professionals, manufacturers
- Interprofessional workshops

# Summary messages

---

- Most adults not using insulin don't have to test as much as they currently do
  - Lack of high quality evidence for SMBG in Type 2 DM not using insulin
  - Evidence does not support a clinically relevant improvement in BG control or patient well-being
- Substantial spending
- Inconsistency among health care providers
- Collaborative efforts and educational initiatives to modify approach to SMBG in Nova Scotia