

**GUIDELINES FOR
DYSLIPIDEMIA MANAGEMENT AND EDUCATION
THROUGH NOVA SCOTIA DIABETES CENTRES**

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INTRODUCTION

This paper presents guidelines for dyslipidemia management and education of individuals with diabetes in Nova Scotia (NS). Aimed at Diabetes Centres (DCs), the intent is to ensure a standardized approach reflective of best practice. Included are the Diabetes Care Program of Nova Scotia (DCPNS) recommendations for lipid measuring, recording, reporting, and educational initiatives for persons attending DCs. These recommendations reflect key components of chronic disease management including a strong focus on self-management and decision support as well as use of information systems and community supports.¹ These guidelines are based on evidence and consistent with national and international guidelines.

Individuals with diabetes are at markedly increased risk for cardiovascular disease (CVD). It is estimated that 75% of all deaths in people with diabetes are due to CVD. The majority of people with diabetes represent a high-risk subgroup for CVD.¹

Provincial data, from a proportion of the diabetes population attending DCs, provides added impetus for these guidelines. This data indicates that many individuals would benefit from more aggressive lipid-lowering strategies, including intensified lifestyle change therapy and intensification of lipid-lowering medication. Although more recent NS data (2005) shows improved management of dyslipidemia from that reported in 2001, there is still work to be done. With the release of the *2006 Canadian Diabetes Association (CDA) Clinical Practice Guidelines for Dyslipidemia in Adults with Diabetes*, even more aggressive management of lipids is being promoted with new target values for clinical indicators such as LDL-C.¹

There is great need for physicians, diabetes educators, and other health care professionals to identify people with diabetes who have additional predisposing risk factors for CVD. In addition, the DCPNS promotes the adoption of an aggressive risk-reduction approach emphasizing overall improvement in all metabolic abnormalities (blood pressure, blood lipids, and glycemia).

The DCPNS has an established infrastructure that supports and facilitates the collection and analysis of dyslipidemia data by DCs in Nova Scotia. Use of the DCPNS Registry will allow for the tracking of trends over time and comparison to current practice. The DCPNS will also assist in the uptake of these recommendations by providing an education module focused on lifestyle intervention for use by DCs and other community partners. This will additionally help to standardize educational approaches and reduce barriers to quality programming materials.

¹ Expanded CCM (add more)

LITERATURE REVIEW

Cardiovascular disease (CVD) is 2 to 4 times higher in people with diabetes than in the matched nondiabetes population.¹ CVD results in an enormous burden in people with diabetes as well as significant cost to the healthcare system and to society in general. Costing of diabetes complications indicates that CVD is the costliest of all diabetes complications in Canada--in excess of \$921 million US per year.⁴

Early identification of dyslipidemia and aggressive management strategies, in addition to glycemic control, are necessary to delay the onset and progression to more serious and debilitating cardiac events. It is the impact of diabetes on disorders of lipid metabolism that greatly contributes to the incidence and progression of CVD and leads to premature mortality and morbidity in people with diabetes. Hypertriglyceridemia, low HDL-C, and normal LDL-C, represent the most common dyslipidemia in people with diabetes. Small, dense LDL-C particles that are most atherogenic, often occur even when LDL-C is normal.¹

In 2000/01, the DCPNS reviewed data from randomly selected records in 13 Nova Scotia (NS) Diabetes Centres (DCs). This review revealed that 25% of people attending these DCs attained the recommended 2003 CDA target for LDL-C (≤ 2.5 mmol/L). Although more recent DCPNS data (2005) has shown marked improvement in these numbers with 55% of the individuals attaining the LDL-C target and 44% attaining the TC:HDL-C target of < 4 , the 2006 *CDA Clinical Practice Guidelines for Dyslipidemia in Adults with Diabetes* promotes even more aggressive management of lipids.¹ The new target for LDL-C is ≤ 2.0 mmol/L. NS's data indicates that a large proportion of people attending NS DCs would benefit from more aggressive lipid-lowering strategies, including intensified lifestyle change therapy and intensification of lipid-lowering medication.

Research has demonstrated that early identification and multifactorial/intensive management interventions to prevent or delay the onset and progression of CVD yield the best results. The Heart Protection Study demonstrated a significant reduction (27%) in the rate of major cardiovascular events and a 25% reduction in stroke in participants receiving 40 mg simvastatin daily therapy. These results occurred irrespective of participants' sex, vascular disease, or lipid level.⁵ The Collaborative Atorvastatin Diabetes Study (CARDS) demonstrated that 10 mg atorvastatin daily resulted in a mean LDL-C of 2.0 mmol/L, a 37% reduced risk for cardiovascular events, and a 48% reduced risk for stroke.⁶

The Diabetes Control and Complications Trial/Epidemiology of Diabetes Interventions and Complications Trial (DCCT/EDICT), a multicenter longitudinal prospective study, clearly demonstrated that intensive management earlier in the course of the disease process had a sustained effect on the risk of CVD. During the follow-up period, earlier intensive treatment reduced the risk of any cardiovascular event by 42 % and the risk of nonfatal myocardial infarction, stroke, death from cardiovascular disease by 57%. The decrease in A1C during the DCCT was significantly associated with most of the positive effects of intensive treatment on the risk of CVD.⁷

Lifestyle modification (weight loss, balanced eating pattern, increased physical activity, decreased alcohol intake, and smoking cessation) promotes reduction to many cardiovascular risk factors including dysglycemia, hypertension, abdominal obesity, and dyslipidemia. National and international guidelines for both diabetes and CVD promote lifestyle modification as an important component in intensive therapy of cardiac risk management.^{1,8,9} Lifestyle modification and risk reduction for CVD are also recognized by the Diabetes Educators Section of the CDA through specific statements found within *The Standards for Diabetes Education in Canada (2005)*³

The evidence supports the need to more aggressively manage dyslipidemia to reduce related macrovascular disease. NS diabetes educators have a significant role to play in further enhancing the health of the populations they serve. This concern becomes even greater as the rate of type 2 diabetes is projected to continue to rise dramatically. It is important for diabetes educators to continuously evaluate their practices to ensure that they are in keeping with evidence-based, effective management strategies. Very aggressive treatment of all cardiac risk factors is most cardioprotective.

RECOMMENDATIONS

The following are recommendations to assist with dyslipidemia management and education through Nova Scotia (NS) Diabetes Centers (DCs). Target lipid values should reflect the most current *Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada*.^{1*}

1. Upon referral to the DC and on behalf of the referring physician, the diabetes educators should order a fasting lipid profile (TC, HDL-C, TG, and calculated LDL-C) if baseline lipid levels are not available. A fasting lipid profile should be done at follow-up visits, by the primary care physician or the diabetes educator, every 1 to 3 years as clinically indicated. More frequent tests should be done (every 3 to 6 months) if treatment for dyslipidemia is initiated.
2. All DCs should incorporate a community-based dyslipidemia management module for identified at-risk patients. This module should focus on patient self-management and empowerment and emphasize appropriate lifestyle modifications and community supports. If a dyslipidemia management module already exists in the community, diabetes educators should collaborate with the health professionals involved in the existing module with a view to joint planning and delivery.
3. Diabetes educators should send a report of the lipid profile results to the referring physician who is responsible for the management of the individual's lipid profile. In cases where one lipid value is elevated, the report should include plans to implement intensified nutrition and other lifestyle therapies (an individualized treatment approach and inclusion of a dyslipidemia management module). Repeat the lipid profile in 3 to 6 months. The referring physician is responsible for initiating and intensifying dyslipidemia pharmacological therapy.
4. In the presence of persistent abnormal result--two successive values in a 12-month period and with evidence of appropriate lifestyle modifications in place--the diabetes educator should send a report to the referring physician. This report should indicate that nonpharmacological approaches to dyslipidemia management have been maximized. Repeat the lipid profile in 3 to 6 months.
5. If TG > 10.0 mmol/L, the diabetes educator should note this in the report to the referring physician. Nutrition guidelines should be initiated within 72 hours. Follow up should occur within 3 to 4 months.
6. All DCs should work towards establishing a case management** approach for patients with difficult to manage metabolic control (lipids, blood pressure, and glycemias).

*2006 Clinical Practice Guidelines: LDL-C: ≤ 2.0 mmol/L
 TC:HDL-C: 4.0
 TG: < 1.5 mmol/L (optimal)

**Case management is a system of coordination of care providing more attention, on a temporary basis, to individuals whose complex health care needs have prevented them from achieving improvement in their metabolic control. The individual responsible for managing the case would be appointed from within the interprofessional diabetes team.

7. If the diabetes educator is ordering a lipid profile for a patient on dyslipidemia pharmacological therapy, it is important to coordinate with the referring physician other blood tests that may be required to monitor side effects.

8. Diabetes educators should provide written and verbal lipid profile results to all persons with diabetes who are attending the DC. These results should be accompanied by recommended target values.
9. Diabetes educators should form partnerships with groups or services in the facility or community to introduce dyslipidemia management initiatives. Patients should be provided with information on available resources to assist them with their dyslipidemia management.
10. DC staff, including the manager and the medical advisor, will review aggregate lipid profile values from the DCPNS Registry data or other audit sources semiannually/ annually and implement additional program interventions as required to improve population lipid values.
11. Referring physicians should receive annual dyslipidemia data from the DCPNS Registry for their patients who have diabetes.

RATIONALE

The following are rationale for implementing guidelines for dyslipidemia management and education in Nova Scotia Diabetes Centres.

- These guidelines conform to the *2006 CDA Clinical Practice Guidelines for Dyslipidemia in Adults with Diabetes*,¹ as well as the *2006 Canadian Cardiovascular Society Position Statement—Recommendations for the diagnosis and treatment of dyslipidemia and prevention of cardiovascular disease*,⁸ and the *US National Cholesterol Education Program Adult Treatment Panel-III*.⁹
- Lifestyle modifications and pharmacological therapy will be started at an appropriate time when dyslipidemia is identified. Diabetes educators play a major role in educating the person about dyslipidemia management and encouraging him/her to maintain lifestyle modifications and adherence to medication requirements.
- If this aggressive risk-reduction approach to education and management of dyslipidemia is effective, there is potential for decreasing the risk of cardiovascular disease (CVD) and preventing or delaying the onset and progression of CVD, thus reducing the burden of CVD in individuals and the healthcare system.
- Increased awareness of dyslipidemia management enables the person with diabetes to become actively involved with self-care activities.
- Increased collaboration with diabetes educators and referring physicians can increase efficiency of care plans through reduction of duplication of laboratory testing.
- Dyslipidemia data can be captured and trends can be monitored to assess effectiveness and to target further dyslipidemia initiatives where necessary.

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