

# GUIDELINES & PROTOCOLS

## ADVISORY COMMITTEE

### Diabetes Care

Effective Date: September, 2005

#### Scope

This guideline describes the care objectives for the prevention, diagnosis and management of diabetes in non-pregnant adults. It is intended primarily for family practitioners, and focuses on approaches and systems that should be in place to improve care for the majority of patients the majority of the time.

#### RECOMMENDATION 1

#### Patient self-management

The management of diabetes hinges on the commitment of the person with diabetes to self-management, balancing appropriate lifestyle choices, self-monitoring of blood glucose levels, and pharmacologic or insulin therapy. To support patient self-management, the physician should:

- Encourage the patient to accept responsibility for the care of their diabetes
- Reinforce the importance of lifestyle modifications including healthy eating, active living/exercise, weight management, social support and smoking cessation
- Encourage the use of diaries or logbooks
- Help the patient identify a support team
- Refer the patient to the local Diabetes Education Centre
- Define, with the patient, the best possible goals such as blood glucose concentration, A1C, blood pressure, lipids, lifestyle modifications and appropriate follow-up
- Provide the patient with appropriate, individualized education (culturally sensitive information, skills and support)

Note: Resources to support patient self-management are listed in the attached *Resources for People with Diabetes* and are available at [www.health.gov.bc.ca/cdm/](http://www.health.gov.bc.ca/cdm/). Other resources are available at <http://www.diabetes.ca/>

#### RECOMMENDATION 2

#### Meeting care objectives

Evidence indicates that organizational interventions such as registration, recall, and regular review can improve the care of diabetes. Physicians are encouraged to:

- Routinely prescribe regular exercise and moderate weight loss for over-weight adults, as evidence shows many cases of adult onset diabetes can be prevented
- Identify all patients with diabetes in their practice – test all patients over age 40 every three years with a fasting blood sugar
- Maintain patient registries for patients with diabetes and cooperate with regional and provincial registries whenever possible
- Use a flow sheet\* for each patient with diabetes
- Use recall systems to ensure that patients with diabetes are seen at appropriate intervals
- Review patient records to ensure care objectives are met
- Consider pre-arranging for tests that need to be repeated on a regular basis, e.g. A1C q 3 months.

- \* A flow sheet is a one to two page form that gathers all important data regarding a patient's diabetes. Attached to a patient's chart, the flow sheet serves as a reminder and a record of whether care objectives have been met. See attached flow sheet.

Physicians interested in knowing how their practices compare to others may wish to use performance measures. For further information, see [www.health.gov.bc.ca/cdm/](http://www.health.gov.bc.ca/cdm/).

### RECOMMENDATION 3

### Care objectives

Depending on the type of diabetes and therapy required, these care objectives may be more or less difficult to achieve without adverse effects. Also, there will be circumstances where the patient's condition (dementia, terminal illnesses) means that end of life care will take priority over the diabetes care objectives. Therefore, treatment goals must be tailored to the individual. (See table next page).

#### Practice Points

When setting goals with the patient, consider the following:

1. Minimization of symptomatic hyperglycemia or hypoglycemia may override target A1C levels.
2. More frequent lipid measurement is required for patients receiving treatment for dyslipidemia.
3. Reduction of hypertension has been shown to reduce the risk of complications and mortality rates. (See Hypertension – Detection, Diagnosis and Management).
4. Several clinical trials have been published in recent years that identify patients who are most likely to benefit from statin therapy. Adverse events are more common in elderly patients (70+).
5. Co-existing depression and other psychiatric conditions are common in patients with diabetes. Treatment of these conditions may improve diabetes outcomes.

### RECOMMENDATION 4

### Prevention

A large proportion of type 2 diabetes can be prevented using lifestyle modification and/or pharmacologic intervention. All individuals should be encouraged to pursue a program of lifestyle modification that includes regular physical activity (at least 150 minutes of moderate intensity aerobic exercise each week spread over 3 non-consecutive days and resistance exercise 3 times a week) and moderate weight loss (5-10% of initial body weight). Lifestyle modification is particularly important for persons considered at high-risk for diabetes. Pharmacologic therapy with metformin or acarbose should also be considered for those at high risk.

---

#### Risk Factors for Type 2 Diabetes

---

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• Dyslipidemia</li> <li>• Overweight</li> <li>• Abdominal obesity</li> <li>• Polycystic ovary syndrome</li> <li>• Hypertension</li> <li>• Schizophrenia</li> <li>• Age 40 to 70 years</li> <li>• First-degree relative with diabetes</li> <li>• Corticosteroid and second generation antipsychotic use e.g. olanzapine, risperidone, clozapine, quetiapine</li> </ul> | <ul style="list-style-type: none"> <li>• Member of high-risk population (e.g. Aboriginal, Asian, South Asian, Hispanic or African descent)</li> <li>• History of IGT or IFG</li> <li>• Vascular disease</li> <li>• History of gestational diabetes</li> <li>• History of delivery of macrosomic infant</li> <li>• Presence of complications associated with diabetes</li> <li>• Acanthosis</li> </ul> |
|--|---|
-

Care	Objective	Target & Goals									
Self-management	<ul style="list-style-type: none"> <li>Assess &amp; discuss self-management goals, challenges &amp; progress.</li> <li>Offer diabetes/risk management education.</li> </ul>	<ul style="list-style-type: none"> <li>Informed patient who is actively involved in care decisions.</li> <li>Development of mutually acceptable management plans.</li> </ul>									
Blood glucose control over time	Measure A1C every three months. (Note that results are now reported as percent, e.g., 7.0% formerly expressed as 0.070).	Target for most patients including those with cardiovascular disease (CVD): A1C $\leq$ 7.0%. For patients with no CVD and in whom it can safely be achieved: A1C $\leq$ 6.0%									
Blood glucose monitoring	<ul style="list-style-type: none"> <li>Reinforce patient's responsibility for regular monitoring as appropriate.</li> <li>Ensure patients can use glucose meter, interpret results &amp; modify treatment as needed.</li> <li>Develop a blood glucose-monitoring schedule with patient &amp; review records.</li> </ul>	Target for most patients: <u>Premeal:</u> 4.0 – 7.0 mmol/L <u>2h Postmeal:</u> 5.0 – 10.0 mmol/L  For patients in whom it can safely be achieved: <u>Premeal:</u> 4.0 – 6.0 mmol/L <u>2h Postmeal:</u> 5.0 – 8.0 mmol/L									
Hypoglycemia	Review episodes of hypoglycemia at every visit	Eliminate or minimize hypoglycemia									
Blood glucose meter accuracy	Verify accuracy of glucose meter annually.	Simultaneous fasting glucose meter/lab comparison within 20%.									
Blood pressure	Measure and record at diagnosis and regularly thereafter. (Refer to <i>Detection &amp; Diagnosis of Hypertension</i> )	Less than 130/80 Blood pressure control is a priority									
Lipid profile	<ul style="list-style-type: none"> <li>Measure fasting lipid profile (total cholesterol, HDL-C, LDL-C, triglycerides) every one to three years as clinically indicated.</li> </ul> <b>CHD ten year risk:</b> Use UK prospective diabetes (UKPDS) risk calculator or table provided to calculate/estimate 10-y risk of CHD available at: <a href="http://www.dtu.ox.ac.uk/riskengine/">www.dtu.ox.ac.uk/riskengine/</a>	Targets and goals must relate to calculated risk <table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>LDL-C(mmol/L)</th> <th>TC:HDL-C</th> </tr> </thead> <tbody> <tr> <td><b>High risk</b> (<math>\geq</math>20% 10 y risk)</td> <td>&lt; 2.5</td> <td>&lt; 4.0</td> </tr> <tr> <td><b>Moderate risk</b> (&lt;20% 10 y risk)</td> <td>&lt; 3.5</td> <td>&lt; 5.0</td> </tr> </tbody> </table>		LDL-C(mmol/L)	TC:HDL-C	<b>High risk</b> ( $\geq$ 20% 10 y risk)	< 2.5	< 4.0	<b>Moderate risk</b> (<20% 10 y risk)	< 3.5	< 5.0
	LDL-C(mmol/L)	TC:HDL-C									
<b>High risk</b> ( $\geq$ 20% 10 y risk)	< 2.5	< 4.0									
<b>Moderate risk</b> (<20% 10 y risk)	< 3.5	< 5.0									
Body mass index & waist circumference	Calculate BMI (mass in kilograms/height in metres <sup>2</sup> ). (See table on back of flow sheet.)	Healthy body weight (target BMI 18.5-24.9 kg/m <sup>2</sup> ) Waist F $\leq$ 88 cm; M $\leq$ 102 cm									
Further vascular protection	<ul style="list-style-type: none"> <li>Promote lifestyle modifications (exercise, stress reduction).</li> <li>Consider low dose ASA &amp; ACEI/ARB as clinically indicated</li> </ul>	Reduction of risk									
Exercise	Discuss & encourage aerobic resistance exercise	Aerobic: 2.5 hrs/week (50 min 3 x /wk) Resistance: 3 sessions/week									
Smoking	Encourage patient to stop at each visit; provide support as needed.	Smoking cessation <b>Helpline: 1 877 455-2233</b>									
Foot examination	Examine feet at least annually, more frequently for those at high risk. Reinforce patient's responsibility for regular self-examination.	Prevention of ulceration, infection, gangrene and amputation.									
Nephropathy	<ul style="list-style-type: none"> <li>Screen for macroscopic proteinuria &amp; non-renal disease with dipstick.</li> <li>For protein-negative dipstick patients measure albumin/creatinine ratio (ACR).</li> <li>If ACR is equivocal, repeat collection.</li> <li>Treat ACR if persistently above normal threshold</li> <li>Measure SCr (lab will report eGFR) at least annually. See <i>Identification, Evaluation and Management of Patients with Chronic Kidney Disease</i></li> </ul> Treatment may not normalize subsequent ACRs or eGFR	To detect macroscopic proteinuria & non-diabetic renal disease  ACR testing thresholds: mg/mmol Normal: < 2.0 males; < 2.8 females Equivocal: 2-20 males; 2.8-28 females Abnormal: > 20 males; > 28 females  Measure SCr at least annually. Normal eGFR $\geq$ 90									
Neuropathy check	Check annually for symptoms or findings such as peripheral anesthesia or pain, erectile dysfunction or gastrointestinal disturbance.	Early detection and treatment									
Retinopathy – eye exam	Ensure patient receives dilated pupil retinal examination at diagnosis, then every one to two years or as indicated.	Early detection and treatment									
Influenza vaccination	Annual vaccination	Prevention of influenza									
Pneumococcal vaccination	Vaccination. A single repeat vaccination is recommended if: <ul style="list-style-type: none"> <li>patient &gt; 65 <u>and</u></li> <li>previous vaccination more than 5 yrs ago</li> </ul>	Prevention of pneumococcal disease									

## RECOMMENDATION 5

### Diagnosis of diabetes, impaired fasting glucose and impaired glucose tolerance

Classic symptoms of polyuria, polydipsia, and unexplained weight loss with a casual PG  $\geq 11.1$  mmol/L are diagnostic. Casual means any time of day, without regard to the interval since the last meal.

In the absence of classic symptoms or metabolic decompensation, a fasting plasma glucose is recommended as the initial diagnostic test for diabetes. In the absence of classical symptoms a FPG  $\geq 7.0$  mmol/L is considered diagnostic, **but a confirmatory test must be done on another day**. Fasting means no caloric intake for at least 8 hours.

Testing for diabetes using a fasting plasma glucose should be performed every 3 years for individuals over 40 years of age. More frequent or earlier testing should be considered in people with additional risk factors for diabetes. See Algorithm 1.

Neither the A1C nor the 2-hour post 75 g OGTT are recommended as the initial test for diagnosis of diabetes. However, the 2-hour post 75 g OGTT should be considered in individuals with a fasting plasma glucose between 5.7 and 6.9 mmol/L and risk factors.

*Note: The term prediabetes refers to impaired fasting glucose (IFG) and/or impaired glucose tolerance (IGT). Individuals with prediabetes are at risk of developing diabetes and its complications. They should be monitored regularly and benefit from CVD risk factor modification.*

## RECOMMENDATION 6

### Treatment

#### 1. Vascular Protection

The first priority in prevention of complications should be reduction of cardiovascular risk by vascular protection through a comprehensive, multifaceted approach including:

- Lifestyle modification
  - Engaging in regular physical activity
  - Healthy eating habits
  - Achieving and maintaining a healthy weight
  - Stopping smoking
- Anti-platelet therapy – low dose ASA
- ACE inhibitors are indicated for any of:
  - Age 55 or over
  - Hypertension
  - Confirmed albuminuria
- Optimize BP to less than or equal to 130/80. If lifestyle modification is not sufficient, choose from the following first-line agents: a thiazide diuretic, ACEI/ARB, cardioselective B-blockers. See *Hypertension – Detection, Diagnosis and Management*.
- Optimize glycemic control – see below
- Calculate 10 year coronary heart disease (CHD) risk using UKPDS risk calculator or table and treat dyslipidemia per Table 1.

<b>Table 1. Initial Treatment of Dyslipidemia</b>	
<b>Lipid Status</b>	<b>Therapy *</b>
LDL-C above target	High risk: Lifestyle modifications + statin Moderate to Low risk: Lifestyle
High-risk patients with: TG level =1.5-4.4 mmol/L and HDL-C < 1.0 mmol/L and LDL-C at target	Lifestyle modifications + statin or fibrate
TG level > 4.5 mmol/L	Lifestyle modifications + fibrate
* When monotherapy plus lifestyle modification fail to achieve lipid targets, the addition of a second drug from another class should be considered.	

## 2. Glycemic Control –see Algorithm 2

The first step in management of hyperglycemia should be a complete clinical assessment and initiation of nutrition therapy and physical activity.

Patients with type 1 diabetes should see an experienced diabetes care team at diagnosis and at least annually.

To achieve glycemic targets in people with type 1 diabetes, multiple daily injections (3 or 4 per day) or the use of continuous subcutaneous insulin infusions (CSII) should be considered as part of an intensive diabetes management program. See Table 2.

<b>Table 2. Types of Insulin</b>	
<b>Insulin type/action</b>	<b>Trade names</b>
Rapid-acting analogue (clear) Onset: 10–15 min Peak: 60–90 min Duration: 4–5 h	Humalog® (insulin lispro) ‡ NovoRapid® (insulin aspart) ‡
Fast-acting (clear) Onset: 0.5–1 h Peak: 2–4 h Duration: 5–8 h	Humulin®-R † Novolin®ge Toronto †
Intermediate-acting (cloudy) Onset: 1–3 h Peak: 5–8 h Duration: up to 18 h	Humulin®-N † Humulin®-L † Novolin®ge NPH †
Long-acting (cloudy) Onset: 3–4 h Peak: 8–15 h Duration: 22–26 h	Humulin®-U †
Extended long-acting analogue Onset: 90 min Duration: 24 h	Lantus®* (insulin glargine) ‡
Premixed (cloudy) A single vial contains a fixed ratio of insulin (% rapid- or fast-acting to % intermediate-acting insulin)	Humalog® Mix25™ ‡ Humulin® (20/80, 30/70) † Novolin®ge (10/90, 20/80, 30/70, 40/60, 50/50) † NovoMix® 30 ‡

## Table 2. Types of Insulin

Pharmacare coverage – valid at date of printing:

- † Regular Pharmacare coverage
- ‡ Partial Pharmacare coverage
- Δ Approved by Health Canada, but not yet reviewed by Pharmacare.

## Hypoglycemia - prevention

Risk factors for severe hypoglycemia should be identified in people with type 1 diabetes so that appropriate strategies can be used to minimize hypoglycemia. All individuals on insulin should be counseled about the risk and prevention of insulin-induced hypoglycemia.

### Risk Factors for Severe Hypoglycemia

- Prior episode of severe hypoglycemia
- Current low A1C (< 6.0%)
- Hypoglycemia unawareness
- Long duration of diabetes
- Autonomic neuropathy

Severe hypoglycemia is less common in persons with type 2 diabetes, but the elderly and those on insulin or secretagogues are more vulnerable.

Strategies to reduce the risk of hypoglycemia include:

- Increased frequency of SMBG, including episodic assessment during sleeping hours
- Less stringent glycemetic targets
- Multiple insulin injections.

## Hypoglycemia – treatment

See Table 4.

### RECOMMENDATION 7

### Additional practice points

- Otherwise healthy elderly people with diabetes should be treated to achieve the same glycemetic, blood pressure and lipid targets as younger people. In people with multiple comorbidities, high level of functional dependency or limited life expectancy, the goals should be more conservative.
- Aerobic exercise and/or resistance training may benefit elderly people with type 2 diabetes and should be recommended if not contraindicated.
- Consider an ECG stress test for previously sedentary people with risk factors for CVD who wish to undertake exercise more vigorous than brisk walking.
- Early recognition and treatment of retinopathy can prevent blindness.
- Tricyclic antidepressants and/or anticonvulsants should be considered for relief of painful peripheral neuropathy.
- Patients with anaesthetic neuropathy are at very high risk of foot problems.
- Discuss alcohol use with the healthcare team.
- Those on intensive insulin treatment regimen should receive education on matching insulin to carbohydrate content (carb counting).
- Ask about erectile dysfunction

## In elderly people with type 2 diabetes:

- Polypharmacy-review the medication list of an older adult with DM who presents with depression, falls, cognitive impairment or urinary incontinence

- Alpha-glucosidase inhibitors are modestly effective
- Thiazolidinedione insulin sensitizers are effective, but should be used with caution in those at risk for fluid retention.
- Sulfonylureas should be used with caution because the risk of hypoglycemia increases exponentially with age. In general initial doses should be half of those for younger people and increased more slowly.
- In elderly people, the use of premixed insulins and prefilled insulin pens should be considered to reduce dosage errors and potentially improve glycemic control.
- People with clinically significant autonomic dysfunction should be appropriately assessed and referred to a specialist experienced in managing the affected body system.

Commonly overlooked comorbid conditions include: cataracts, entrapment neuropathy (carpal tunnel), tendon problems and dental problems.

## Rationale

Diabetes is a serious health problem with significant impacts on individuals, families, communities and health services. It is one of the most common chronic diseases, affecting approximately five per cent of Canadians.<sup>1</sup> Because many cases are undiagnosed, the true prevalence of diabetes is substantially underestimated. Moreover, diabetes prevalence is expected to increase dramatically due to an ageing population and increased rates of obesity. In B.C., approximately 200,000 people have been diagnosed with diabetes; this number is expected to grow to 325,000 by 2010. Diabetes poses a significant financial burden for both patients and society; this burden will increase with the rise in prevalence.

Although diabetes is associated with many serious complications, these are largely preventable through proper diabetes management. Diabetes is a significant cause of death in Canada and the most common cause of end-stage renal disease, new cases of blindness in the working age population and non-traumatic lower limb amputations.<sup>2</sup> It is also a major risk factor for cardiovascular disease, the leading cause of death in Canada.<sup>1</sup> Diabetes often disables people in their most productive years, and people with diabetes die younger than those not affected by it.

Evidence clearly indicates that efforts to control hyperglycemia, hypertension and dyslipidemia can prevent or postpone the development of complications in persons with diabetes.<sup>3,4</sup> *The Canadian Diabetes Association's 2003 Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada*<sup>1</sup> are based on such evidence and have been widely disseminated. However, levels of care for persons with diabetes remain suboptimal and practitioners often are challenged to organize care in accordance with published guidelines.<sup>5</sup> In recent years, a wide range of interventions targeting professional behavior or the structure of care have been designed to improve care delivered to persons with diabetes.<sup>6-9</sup> A recent Cochrane review showed that multifaceted interventions to improve the performance of practitioners and organizational interventions to improve recall and review can enhance the care of diabetes.<sup>10</sup> Several clinical trials have been published in recent years that identify patients who are most likely to benefit from statin therapy. Adverse events are more common in elderly patients (70+)<sup>11-16</sup>. A multifactorial intervention in patients with type 2 diabetes and microalbuminuria has shown a significant reduction in cardiovascular disease, nephropathy, retinopathy and autonomic neuropathy<sup>17</sup>.

This guideline outlines strategies which may help the primary care practitioner meet the complex needs of persons with diabetes.

## References

Grateful recognition is given to the Canadian Diabetes Association for permission to use tables and wording from their 2003 Diabetes Care guideline.

1. Canadian Diabetes Association Expert Committee. Canadian Diabetes Association 2003 clinical practice guidelines for the prevention and management of diabetes in Canada. *Can J Diabetes* 2003; 27 (suppl 2): S1-S152. (Available on-line at [www.diabetes.ca/cpg/cpg2003/](http://www.diabetes.ca/cpg/cpg2003/))
2. Diabetes in British Columbia Synthesis Report, Ministry of Health Working Group on Diabetes, August 2000. [www.healthservices.gov.bc.ca/prevent/pdf/Diabetes-Synthesis.pdf](http://www.healthservices.gov.bc.ca/prevent/pdf/Diabetes-Synthesis.pdf)
3. Diabetes Control and Complication Trial Research Group (DCCT). The effect of intensive treatment of diabetes on the development and progression of long-term complications in insulin-dependent diabetes mellitus. *N Engl J Med* 1993; 329:977-986.
4. United Kingdom Prospective Diabetes Study Group (UKPDS). Intensive blood glucose control with sulphonylureas or insulin compared with conventional treatment and risk of complications in patients with Type 2 diabetes. *Lancet* 1998;352:837-853.
5. Larne AC, Pugh JA. Evidence-based guidelines meet the real world. The case of diabetes care. *Diabetes Care* 2001;24(10):1728-33.
6. Diabetes Care Program of Nova Scotia. (1997) Surveying and Preventing the Complications of Diabetes in Nova Scotia. Nova Scotia Department of Health.
7. Olivarius NF, Beck-Nielsen H, Andreasen AH, et al. Randomized controlled trial of structured personal care of type 2 diabetes mellitus. *BMJ* 2001;323(7319):970-5.
8. Task Force on Community Preventive Services. Strategies for reducing morbidity and mortality from diabetes through health-care system interventions and diabetes self-management education in community settings. *MMWR* 2001;50(RR16):1-15.
9. Miller D. Use of a chronic care model to direct the care of persons with diabetes in the Capital Health Region of BC. *Annals of the Royal College of Physicians and Surgeons of Canada* 2002;35:495-9.
10. Renders CM, Valk GD, Griffin SJ, et al. Interventions to improve the management of diabetes in primary care, outpatient and community settings. A systematic review. *Diabetes Care* 2001;(10):1821-1833.
11. MRC/BHF investigators. MRC/BHF Heart Protection Study of cholesterol-lowering with simvastatin in 5963 people with diabetes: a randomised controlled trial. *Lancet* 361;2003:2005-16.
12. ALLHAT investigators. Major outcomes in moderately hypercholesterolemic, hypertensive patients randomised to pravastatin vs usual care. The antihypertensive and lipid lowering treatment to prevent heart attack trial (ALLHAT-LLT). *JAMA* 2002;288:2998-3007.
13. Sever PS, Dahlof B, Poulter NR et al. Prevention of coronary and stroke events with atorvastatin in hypertensive patients who have an average or lower-than-average cholesterol concentrations, in the Anglo-Scandinavian Cardiac Outcomes Trial-Lipid Lowering Arm (ASCOT-LLA): a multicentre randomised controlled trial. *Lancet* 2003;361:1149-58.
14. Calhoun HM, Betteridge TD, Durrington PN et al. Primary prevention of cardiovascular disease with atorvastatin in type 2 diabetes in the Collaborative Atorvastatin Diabetes Study (CARDS): multicentre randomised placebo-controlled trial. *Lancet* 2004;364:685-696.
15. Walsh JME and Pignone M . Drug treatment of hyperlipidemia in women. *JAMA* 2004; 291:2243-52.
16. Shepherd J, Blauw GJ, Murphy MB et al. Pravastatin in elderly individuals at risk of vascular disease (PROSPER): a randomised controlled trial. *Lancet* 2002;360:1623-30.
17. Gaede P, Vedel, P, Larsen N, et al. Multifactorial Intervention and cardiovascular disease in patients with type 2 diabetes. *N Engl J Med* 2003;348:383-93.
18. Meier C Kraenzlin ME and Bodmer M et al. Use of thiazolidinediones and fracture risk. *Arch Intern Med* 2008;168(8):820-825.
19. Nissen SE and K Wolski. Effect of rosiglitazone on the risk of myocardial infarction and death from cardiovascular causes. *N Engl J Med*. 2007 Jun 14;356(24):2457-71.

## Sponsors

This guideline was developed by the Guidelines and Protocols Advisory Committee, tested in the BC Diabetes Collaborative, approved by the British Columbia Medical Association and adopted by the Medical Services Commission.

Funding for this guideline was provided in full or part through the Primary Health Care Transition Fund.

**Revised Date:** June 4, 2008

This guideline is based on scientific evidence current as of the effective date.

Guidelines and Protocols Advisory Committee  
PO Box 9642 STN PROV GOVT  
Victoria BC V8W 9P1

Phone: (250) 952-1347  
Fax: (250) 952-1417

E-mail: [hlth.guidelines@gov.bc.ca](mailto:hlth.guidelines@gov.bc.ca)  
Web site: [BCGuidelines.ca](http://BCGuidelines.ca)

The principles of the Guidelines and Protocols Advisory Committee are:

- to encourage appropriate responses to common medical situations
- to recommend actions that are sufficient and efficient, neither excessive nor deficient
- to permit exceptions when justified by clinical circumstances.

### List of Abbreviations and Terms:

A1C	glycosylated hemoglobin, formerly known as HbA1C	eGFR	estimated glomerular filtration rate
ACEI	angiotensin-converting enzyme inhibitors	FPG	fasting plasma glucose
ACR	albumin/creatinine ratio	HDL-C	high-density lipoprotein cholesterol
ARB	angiotensin II receptor blockers	IFG	impaired fasting glucose
ASA	acetylsalicylic acid	IGT	impaired glucose tolerance
BID	to be taken twice a day	LDL-C	low-density lipoprotein cholesterol
BMI	body mass index	OD	to be taken once a day
BP	blood pressure	OGTT	oral glucose tolerance test
CPS	Compendium of Pharmaceuticals and Specialties	PG	plasma glucose
CVD	cardiovascular disease	SCr	serum creatinine
DM	diabetes mellitus	SMBG	self-monitoring of blood glucose
ECG	electrocardiogram	TC	total cholesterol
		TG	triglycerides
		TID	to be taken three times a day
		2hPG	2-hour plasma glucose

**Table 3. Antihyperglycemic Agents for Use in Type 2 Diabetes**

Class	Usual dosage ranges*	Therapeutic considerations
<b>Alpha-glucosidase inhibitor</b> acarbose (Prandase®) †	<ul style="list-style-type: none"> <li>• 50 mg OD slowly titrating up to 100 mg TID</li> <li>• Always before meals</li> <li>• Cost: \$1.05/day (3 x 100 mg)</li> </ul>	<ul style="list-style-type: none"> <li>• Not recommended as initial therapy in people with severe hyperglycemia (A1C ≥ 9.0%)</li> <li>• Mostly used in combination with other oral antihyperglycemic agents</li> <li>• Gastrointestinal side effects</li> <li>• Treat hypoglycemia with dextrose tablets, milk or honey</li> </ul>
<b>Biguanide</b> metformin (Glucophage®, generic) †	<ul style="list-style-type: none"> <li>• 250 or 500 mg BID to max 2.55 g/day (850 mg TID or 5X 500 mg in divided doses)</li> <li>• Always with food to decrease GI side effects</li> <li>• Cost: \$0.64/day (3 x 850mg)</li> </ul>	<ul style="list-style-type: none"> <li>• Contraindicated in patients with renal or hepatic dysfunction, or cardiac failure</li> <li>• Use eGFR (see <a href="#">Nephropathy</a>) to estimate creatinine clearance (&lt; 60 mL/min indicates caution or contraindicates the use of metformin)</li> <li>• Associated with less weight gain than sulfonylureas and does not cause hypoglycemia</li> <li>• Gastrointestinal side effects</li> </ul>
<b>Insulin</b> See Table 2	<ul style="list-style-type: none"> <li>• Individualized</li> <li>• Novolin and Humulin R and NPH insulin</li> <li>• Cost \$20 per 10 ml vial</li> <li>• 1 ml =100 units</li> <li>• Cartridge 5X3 ml \$40</li> <li>• Lantus® 10 ml \$60</li> </ul>	<ul style="list-style-type: none"> <li>• When initiating insulin, consider adding bedtime intermediate-acting insulin, long-acting insulin or extended long-acting insulin analogue to daytime oral antihyperglycemic agents (although other regimens can be used)</li> <li>• Intensive insulin therapy regimen recommended if above fails to attain glycemic targets</li> <li>• Causes greatest reduction in A1C and has no maximum dose</li> <li>• Increased risk of weight gain relative to sulfonylureas &amp; metformin</li> </ul>
<b>Insulin secretagogues</b> <b>sulfonylureas:</b> <ul style="list-style-type: none"> <li>• gliclazide (Diamicon®, Diamicon® MR, generic) □</li> <li>• glimepiride (Amaryl™) ◇</li> <li>• glyburide (Diabeta®, Euglucon®, generic) † (note: chlorpropamide and tolbutamide are still available in Canada, but rarely used)</li> </ul> <b>nonsulfonylureas:</b> <ul style="list-style-type: none"> <li>• nateglinide (Starlix®) ◇</li> <li>• repaglinide (GlucosNorm®) ◇</li> </ul>	<ul style="list-style-type: none"> <li>• gliclazide - 80 mg OD to 160 mg BID ) \$0.30/80 mg</li> <li>• gliclazide MR (modified release): 30 mg OD to 120 mg OD \$0.30/ 30 mg</li> <li>• glimepiride - 1 mg OD to 8 mg OD (not covered)</li> <li>• glyburide - 5 mg OD (or 2.5 mg BID) to 10 mg BID \$0.07/ 5 mg</li> <li>• nateglinide - 60 mg TID to 180 mg TID (always before meals) (not covered)</li> <li>• repaglinide - 0.5 mg TID to 4 mg QID (always before meals) \$2.16/ 4 mg</li> </ul>	<ul style="list-style-type: none"> <li>• All insulin secretagogues reduce overall glycemia similarly (except nateglinide)</li> <li>• Postprandial glycemia is especially reduced by nateglinide and repaglinide</li> <li>• Hypoglycemia and weight gain are especially common with glyburide</li> <li>• Consider using other class(es) of antihyperglycemic agents first in patients at high risk of hypoglycemia (e.g. the elderly)</li> <li>• If a sulfonylurea must be used in such individuals, gliclazide and glimepiride are associated with less hypoglycemia than glyburide</li> <li>• Nateglinide and repaglinide are associated with less hypoglycemia in the context of missed meals</li> </ul>
<b>Insulin sensitizers (TZDs)</b> <ul style="list-style-type: none"> <li>• pioglitazone (Actos®) □</li> <li>• rosiglitazone (Avandia®) □</li> </ul>	<ul style="list-style-type: none"> <li>• pioglitazone - 15 mg OD to 45 mg OD Cost \$3.06/day (30 mg)</li> <li>• rosiglitazone - 2 mg OD to 8 mg OD (or 4 mg BID) Cost \$2.16/day (4 mg)</li> </ul>	<ul style="list-style-type: none"> <li>• Contraindicated in patients with hepatic dysfunction (ALT &gt; 2.5 times ULN) or significant cardiac failure</li> <li>• Between 6 and 12 weeks required to achieve full BG-lowering effect</li> <li>• Triple therapy: addition of TZD to metformin plus sulfonylurea is acceptable</li> <li>• May induce mild edema, fluid retention</li> <li>• When used in combination with insulin, may increase risk of edema and CHF. The combination of a TZD plus insulin is currently not an approved indication in Canada</li> </ul>
Combined formulation of rosiglitazone and metformin (Avandamet™) ◇	<ul style="list-style-type: none"> <li>• 2 mg/500 mg BID to start, not to exceed 8 mg/day of rosiglitazone or 2500 mg/d metformin</li> </ul>	<ul style="list-style-type: none"> <li>• See rosiglitazone and metformin</li> </ul>
Antiobesity agent orlistat (Xenical®) ◇	<ul style="list-style-type: none"> <li>• 120 TID Always before meals</li> </ul>	<ul style="list-style-type: none"> <li>• Associated with weight loss</li> <li>• Gastrointestinal side effects</li> </ul>

\* Dosage ranges based on expert opinion and CPS.

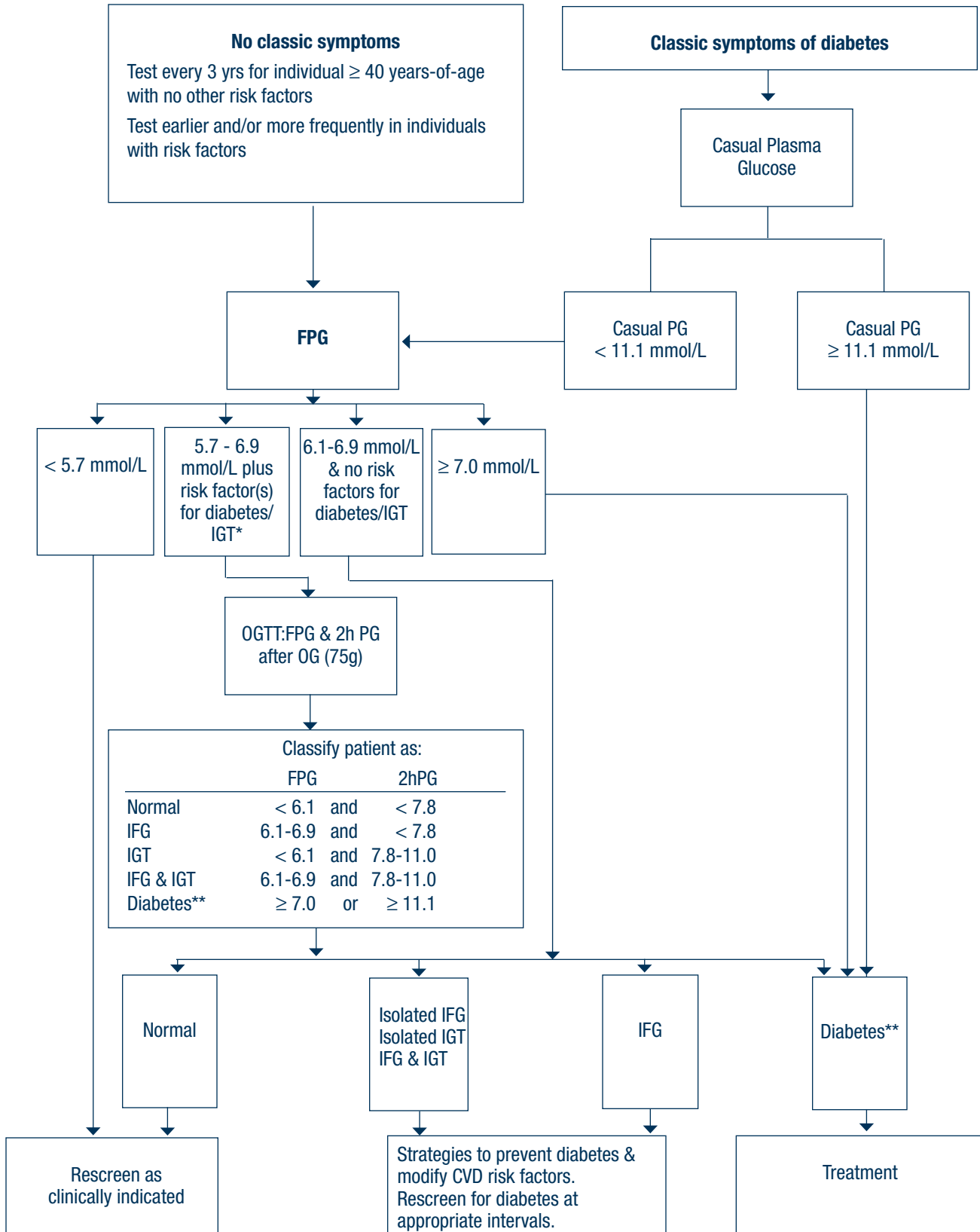
Pharmacare coverage – valid at date of printing:

† Regular Pharmacare coverage □ Pharmacare Special Authority ◇ No Pharmacare coverage

**Table 4. Treatment of Hypoglycemia**

Severity	Definition	How to treat
<b>MILD</b>	Autonomic symptoms present. Individual able to self-treat.	Oral ingestion of 15g of carbohydrate, preferably as glucose or sucrose tablets or solution.
<b>MODERATE</b>	Autonomic & neuroglycopenic symptoms present. Individual able to self-treat.	<ul style="list-style-type: none"> <li>• 15 g glucose as tablets</li> <li>• 3 teaspoons or 3 packets of sugar dissolved in water</li> <li>• 175 ml of juice or regular soft drink</li> <li>• 6 life savers</li> <li>• 1 tablespoon honey</li> <li>• A snack of 15g carbohydrate can be used to prevent repeat hypoglycemia if a meal is &gt; 1 hour away</li> </ul>
<b>SEVERE</b>	Individual requires assistance. Unconsciousness may occur. PG typically < 2.8 mmol/L.	<p>Conscious: Oral ingestion of 20g carbohydrate, preferably glucose tablets.</p> <p>Unconscious:</p> <ul style="list-style-type: none"> <li>• Seek emergency assistance</li> <li>• In the home situation, support persons should be taught how to administer glucagon by injection</li> <li>• 1 mg glucagon subcutaneously or intramuscularly</li> </ul>

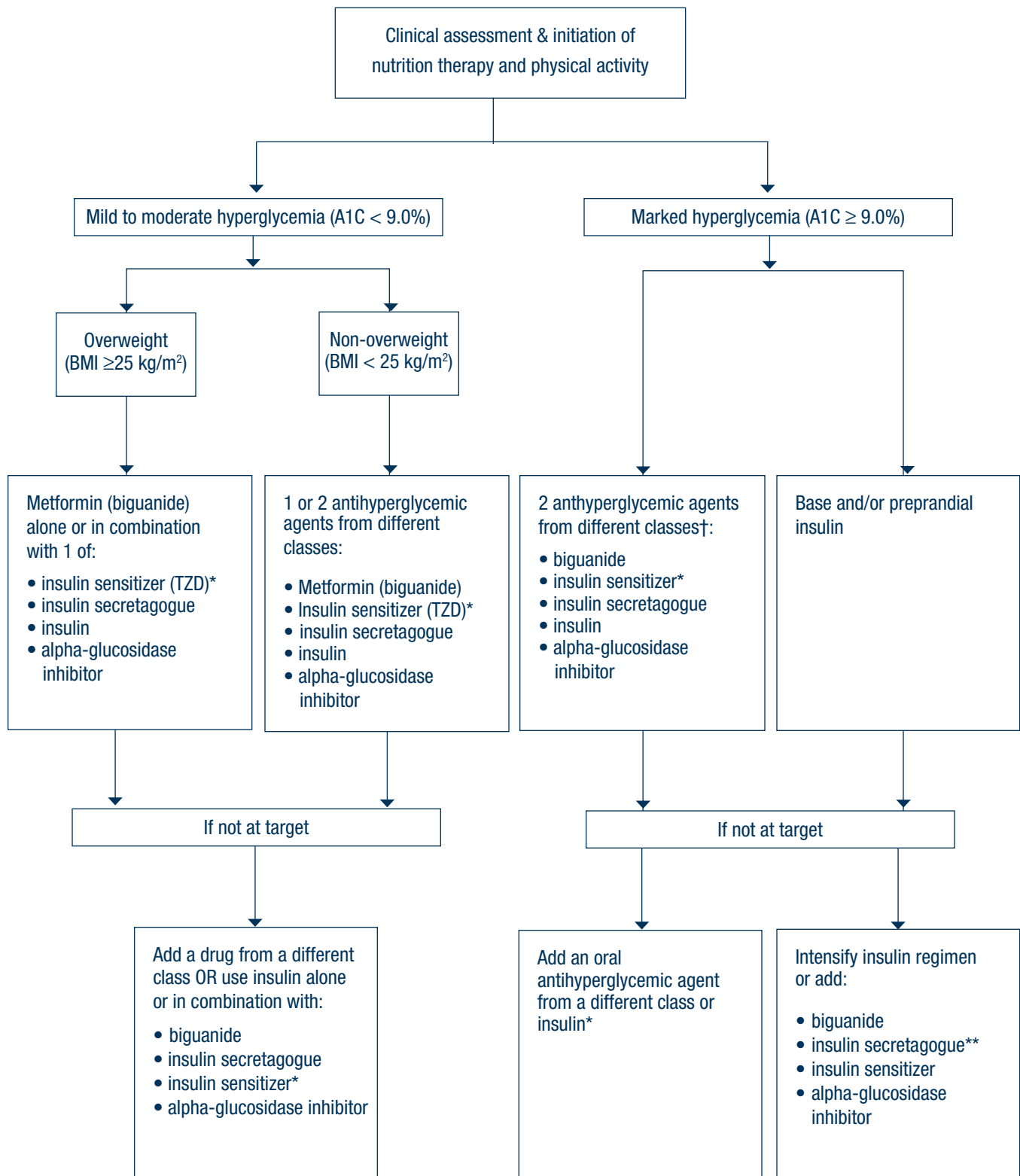
# Algorithm 1. Diagnosis of diabetes, IFG and IGT



\* In the absence of other risk factors, an FPG of 5.7-6.0 does not require further investigation, except routine screening at appropriate intervals.

\*\* A confirmatory lab test must be done on another day in all cases in the absence of classic symptoms or unequivocal metabolic decompensation.

## Algorithm 2. Management of hyperglycemia in type 2 diabetes



Note: Timely adjustments to and/or addition of oral antihyperglycemic agents and/or insulin should be made to attain target A1C within 6-12 months.

\* The combination of an insulin sensitizer and insulin is currently not an approved indication in Canada. TZDs have been associated with increased risk of heart disease, hip and wrist fracture<sup>18,19</sup>

\*\* If using preprandial insulin, do not add an insulin secretagogue.

† May be given as a combined formulation: rosiglitazone and metformin.

# Body Mass Index

Height (metres)	1.47	1.5	1.53	1.56	1.59	1.62	1.65	1.68	1.71	1.74	1.77	1.8	1.83	1.86	1.89	1.92	1.95		
136	63	60	58	56	54	52	50	48	47	45	43	42	41	39	38	37	36	300	OBESSE ≥ 30 (includes Class I, II, III)
134	62	60	57	55	53	51	49	47	46	44	43	41	40	39	38	36	35	295	
132	61	59	56	54	52	50	48	47	45	44	42	41	39	38	37	36	35	291	
130	60	58	56	53	51	50	48	46	44	43	41	40	39	38	36	35	34	287	
128	59	57	55	53	51	49	47	45	44	42	41	40	38	37	36	35	34	282	
126	58	56	54	52	50	48	46	45	43	42	40	39	38	36	35	34	33	278	
124	57	55	53	51	49	47	46	44	42	41	40	38	37	36	35	34	33	273	
122	56	54	52	50	48	46	45	43	42	40	39	38	36	35	34	33	32	269	
120	56	53	51	49	47	46	44	43	41	40	38	37	36	35	34	33	32	265	
118	55	52	50	48	47	45	43	42	40	39	38	36	35	34	33	32	31	260	
116	54	52	50	48	46	44	43	41	40	38	37	36	35	34	32	31	31	256	
114	53	51	49	47	45	43	42	40	39	38	36	35	34	33	32	31	30	251	
112	52	50	48	46	44	43	41	40	38	37	36	35	33	32	31	30	29	247	OVERWEIGHT 25.0 - 29.9
110	51	49	47	45	44	42	40	39	38	36	35	34	33	32	31	30	29	243	
108	50	48	46	44	43	41	40	38	37	36	34	33	32	31	30	29	28	238	
106	49	47	45	44	42	40	39	38	36	35	34	33	32	31	30	29	28	234	
104	48	46	44	43	41	40	38	37	36	34	33	32	31	30	29	28	27	229	
102	47	45	44	42	40	39	37	36	35	34	33	31	30	29	29	28	27	225	
100	46	44	43	41	40	38	37	35	34	33	32	31	30	29	28	27	26	220	
98	45	44	42	40	39	37	36	35	34	32	31	30	29	28	27	27	26	216	
96	44	43	41	39	38	37	35	34	33	32	31	30	29	28	27	26	25	212	
94	44	42	40	39	37	36	35	33	32	31	30	29	28	27	26	25	25	207	
92	43	41	39	38	36	35	34	33	31	30	29	28	27	27	26	25	24	203	NORMAL 18.5 - 24.9
90	42	40	38	37	36	34	33	32	31	30	29	28	27	26	25	24	24	198	
88	41	39	38	36	35	34	32	31	30	29	28	27	26	25	25	24	23	194	
86	40	38	37	35	34	33	32	30	29	28	27	27	26	25	24	23	23	190	
84	39	37	36	35	33	32	31	30	29	28	27	26	25	24	24	23	22	185	
82	38	36	35	34	32	31	30	29	28	27	26	25	24	24	23	22	22	181	
80	37	36	34	33	32	30	29	28	27	26	26	25	24	23	22	22	21	176	
78	36	35	33	32	31	30	29	28	27	26	25	24	23	23	22	21	21	172	
76	35	34	32	31	30	29	28	27	26	25	24	23	23	22	21	21	20	168	
74	34	33	32	30	29	28	27	26	25	24	24	23	22	21	21	20	19	163	
72	33	32	31	30	28	27	26	26	25	24	23	22	21	21	20	20	19	159	
70	32	31	30	29	28	27	26	25	24	23	22	22	21	20	20	19	18	154	UNDERWEIGHT < 18.5
68	31	30	29	28	27	26	25	24	23	22	22	21	20	20	19	18	18	150	
66	31	29	28	27	26	25	24	23	23	22	21	20	20	19	18	18	17	146	
64	30	28	27	26	25	24	24	23	22	21	20	20	19	18	18	17	17	141	
62	29	28	26	25	25	24	23	22	21	20	20	19	19	18	17	17	16	137	
60	28	27	26	25	24	23	22	21	21	20	19	19	18	17	17	16	16	132	
58	27	26	25	24	23	22	21	21	20	19	19	18	17	17	16	16	15	128	
56	26	25	24	23	22	21	21	20	19	18	18	17	17	16	16	15	15	123	
54	25	24	23	22	21	21	20	19	18	18	17	17	16	16	15	15	14	119	
52	24	23	22	21	21	20	19	18	18	17	17	16	16	15	15	14	14	115	
50	23	22	21	21	20	19	18	18	17	17	16	15	15	14	14	14	13	110	
48	22	21	21	20	19	18	18	17	16	16	15	15	14	14	13	13	13	106	
46	21	20	20	19	18	18	17	16	16	15	15	14	14	13	13	12	12	101	

Height (inches) 58 59 60 61 63 64 65 66 67 69 70 71 72 73 74 76 77

# DIABETES PATIENT CARE FLOW SHEET

This Flow Sheet is based on the Guideline, *Diabetes Care*  
Web site: <http://www.bcguidelines.ca>

NAME OF PATIENT	SEX <input type="checkbox"/> M <input type="checkbox"/> F	DIABETES <input type="checkbox"/> T1 <input type="checkbox"/> T2	DATE OF BIRTH	AGE AT DIAGNOSIS
-----------------	--	---	---------------	------------------

## CARE OBJECTIVES

## SELF MANAGEMENT (Discuss with patient)

### RISK FACTORS AND CO-MORBID CONDITIONS

Obesity (Measure BMI and waist circumference annually)

HEIGHT (cm)

DATE	BMI	TARGET (kg/m <sup>2</sup> )	DATE	WAIST CIRC.	Male (cm) Caucasian ≤ 102 Asian ≤ 90
		Normal: 18.5-24.9 Overwt: 25-30 Obese: ≥30			Female (cm) Caucasian ≤ 88 Asian ≤ 80

- Hypertension (Target: ≤130/80)
- Dyslipidemia (risk, see back)
- CVD
- Renal (microalbuminuria)  
• ACR (Target: M: <2.0; F: <2.8)
- Smoker
- Alcohol (assess/discuss)

- Refer to diabetic team/educator
- Weight management
  - diet/nutrition
  - Exercise: 2.5 hrs wk
- Smoking cessation: *Quit Now*  
Phone toll free in BC: 1 877 455-2233
- Glucose meter lab comparison
  - within 20%
- Patient care plan and resource sheet

## VISITS (3 TO 6 MONTHS)

DATE	BP	WEIGHT Lbs Kg	RECENT A,C TARGET: <7	NOTES (E.G. HYPOGLYCEMIA, GOALS, CLINICAL STATUS)	DM MEDICATION NOTES
					BASELINE (Note allergies, side effects & contraindications) *Consider low dose ASA and ACEI/ARB as indicated
					<input type="checkbox"/> NO CHANGE
					<input type="checkbox"/> NO CHANGE
					<input type="checkbox"/> NO CHANGE
					<input type="checkbox"/> NO CHANGE
					<input type="checkbox"/> NO CHANGE
					<input type="checkbox"/> NO CHANGE
					<input type="checkbox"/> NO CHANGE
					<input type="checkbox"/> NO CHANGE
					<input type="checkbox"/> NO CHANGE

**REMINDERS: REVIEW BLOOD GLUCOSE RECORDS** Target premeal 4-7 mmol/L; 2 h postmeal 5-10 mmol/L

### LABORATORY

### ANNUALLY (OR AS INDICATED)

### SCREEN FOR DIABETIC COMPLICATIONS

**NEPHROPATHY** (yearly if high risk, q2y if mod. risk)

RENAL		
DATE	ACR	eGFR
TARGETS	M: < 2.0 F: < 2.8	> 60


**LIPIDS** (See risk chart on reverse)

LIPIDS				UKPDS 10-YR RISK
DATE	TC	LDL	TC/HDL	%
DESIRABLE	< 3.5	< 5.0	MOD 10-19%	
	< 2.5	< 4.0	HIGH ≥ 20%	

**NEUROPATHY**

- Check feet for lesions & sensation (128 Hz tuning fork/10g monofilament)
- Check for pain, erectile dysfunction and GI symptoms

DATE  DATE



### VACCINATIONS

Annual Flu: DATE  DATE

Pneumovax: DATE

**RETINOPATHY**

Annual Eye Exam: DATE  DATE

NAME OF OPHTHALMOLOGIST/OPTOMETRIST

OTHER NOTES

Commonly overlooked conditions:

- cataracts
- carpal tunnel/tendon problems
- dental problems

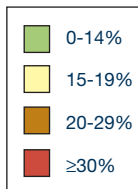
# GUIDELINES & PROTOCOLS

## ADVISORY COMMITTEE

### UKPDS Risk Calculator for Coronary Heart Disease Risk for Patients with Type 2 Diabetes

10-year risk (%) of CHD for patients with five-year history of diabetes compared to baseline risk\*

These Risk Charts are adapted from the UKPDS Risk Engine version 2.0. It should be used in preference to the Framingham Calculator. It does not include calculations based on non-white populations nor for those with atrial fibrillation. For patients with additional risk factors, download the full version at [www.dtu.ox.ac.uk](http://www.dtu.ox.ac.uk)



Derived from: The UKPDS risk engine: a model for the risk of coronary heart disease in Type 2 diabetes (UKPDS 56) Stevens RJ et al. Clinical Science 2001; 101:671-679.

BP: Systolic Blood Pressure  
 TC/HDL: Ratio of Total Cholesterol (TC)/High Density Lipoprotein Cholesterol (HDL-C)  
 HbA1C: Glycosylated Hemoglobin (Hemoglobin A1c)  
 N= normal HbA1C

To estimate CHD risk for 10-year history of diabetes, add 10% (multiply x 1.1).

\*Baseline risk = HbA1C <6%



♂ MALE			AGE 55				AGE 60				AGE 65			
Smoking	BP	TC/HDL	HbA1c(%)				HbA1c(%)				HbA1c(%)			
			N	6	7	8	N	6	7	8	N	6	7	8
⊘	120	4	10	11	13	14	13	15	16	19	17	19	21	24
		5	12	14	16	18	15	18	21	23	21	24	27	30
		6	15	17	19	22	18	22	25	28	25	28	32	35
	140	4	11	12	14	16	14	16	18	20	18	20	23	26
		5	14	15	17	20	16	20	22	25	23	25	28	32
		6	16	18	21	23	20	24	27	30	27	30	34	38
	160	4	12	13	15	17	15	17	19	22	19	22	25	28
		5	15	17	19	21	19	21	24	27	24	27	31	34
		6	18	20	22	25	23	26	29	32	29	32	36	40
Ⓢ	120	4	13	15	17	19	17	19	22	24	22	25	28	31
		5	16	19	21	24	21	24	27	30	27	30	34	38
		6	20	22	25	28	25	29	32	36	32	36	40	44
	140	4	14	16	18	20	18	21	23	26	24	26	30	33
		5	18	20	23	25	23	26	29	32	27	33	37	40
		6	21	24	27	30	27	31	34	38	32	39	43	47
	160	4	15	17	19	22	20	22	25	28	25	28	32	35
		5	19	22	24	27	25	28	31	35	29	35	39	43
		6	23	26	29	32	29	33	37	41	35	41	45	50
♀ FEMALE			AGE 55				AGE 60				AGE 65			
Smoking	BP	TC/HDL	HbA1c(%)				HbA1c(%)				HbA1c(%)			
			N	6	7	8	N	6	7	8	N	6	7	8
⊘	120	4	5	6	7	8	7	8	9	10	9	10	12	13
		5	7	8	9	10	9	10	11	13	12	13	15	17
		6	8	9	11	12	11	12	14	16	14	16	18	20
	140	4	6	7	7	8	8	9	10	11	10	11	13	14
		5	7	8	9	11	10	11	12	14	13	14	16	18
		6	9	10	12	13	12	13	15	17	15	17	19	22
	160	4	6	7	8	9	8	9	11	12	11	12	14	16
		5	8	9	10	12	10	12	13	15	14	15	17	20
		6	10	11	12	14	13	14	16	18	16	19	21	24
Ⓢ	120	4	7	8	9	10	9	11	12	14	12	14	16	18
		5	9	10	12	13	12	13	15	17	15	17	20	22
		6	11	12	14	16	14	16	18	21	19	21	24	26
	140	4	8	9	10	11	10	11	13	15	13	15	17	19
		5	10	11	13	14	13	14	16	18	17	19	21	24
		6	12	13	15	17	15	17	20	22	20	23	25	28
	160	4	8	9	11	12	11	12	14	16	14	16	18	21
		5	11	12	14	15	14	16	18	20	18	20	23	26
		6	13	15	16	19	17	19	21	24	22	24	27	30

# Resources for People with Diabetes

A GUIDE FOR PATIENTS

Effective Date: September, 2005

## 1) Diabetes Education Centres (DECs)

Your family doctor should refer you to the local DEC as soon as possible following diagnosis. DECs have courses and information to help you manage your diabetes. Service availability at the DECs is variable. There is no charge to attend most DECs.

Location and phone number of your local DEC: \_\_\_\_\_  
\_\_\_\_\_

## 2) The Diabetes Team

In addition to your family physician, in some parts of the province there are a number of other professionals who may assist you in the management of diabetes. Your doctor will provide a referral if necessary. Members of your diabetes team may include:

- Diabetes nurse educators
- Nutritionists/dietitians
- Ophthalmologists/optometrists
- Endocrinologist/internist or other specialist
- Podiatrists
- Physiotherapists
- Dial-a-Dietitian\*
- Cardiac rehabilitation centres
- Healthy heart programs
- Community health nurses
- Laboratories
- Social workers
- Support groups
- Pharmacists

\* 604 732-9191 in Vancouver; 1 800 667-3438 toll free elsewhere in B.C. or [www.dialadietitian.org](http://www.dialadietitian.org)

## 3) Canadian Diabetes Association (CDA)

The Canadian Diabetes Association is the largest non-governmental supporter of diabetes research, education and advocacy, with 32 branches throughout British Columbia. The CDA branches do not provide direct health care, but rather offer information, community referrals, resources including free and charge literature, and a reference and lending library. Contact:

Canadian Diabetes Association  
B.C. Yukon Division Office  
1385 West 8th Avenue, Suite 360  
Vancouver, B.C. V6H 3V9

Bus: 604 732-1331  
Toll-Free: 1 800 665-6526  
Fax: 604 732-8444  
Web site: [www.diabetes.ca](http://www.diabetes.ca)

## 4) BC HealthGuide Program

Basic information on diabetes can be found in the *BC HealthGuide*. This guide can be found online at [www.bchealthguide.org](http://www.bchealthguide.org) or in the handbook that was delivered to households throughout the province. The online knowledge base also provides more detailed information about diabetes as well as health tools to help you manage your diabetes.

The 24-Hour BC HealthGuide NurseLine puts you in touch with a Registered Nurse any time of day or night just by calling one of the following numbers:

Local calling within Greater Vancouver	604 215-4700
Toll-free elsewhere within BC	1 866 215-4700
Deaf and hearing-impaired toll-free province wide	1 866 TTY-4700

## 5) Other Resources

A variety of other resources are available for people with diabetes. You may find helpful programs at your local community centre or listed in the yellow pages.

# Know who to turn to



CANADIAN  
DIABETES  
ASSOCIATION

ASSOCIATION  
CANADIENNE  
DU DIABÈTE

The Canadian Diabetes Association promotes the health of Canadians through diabetes research, education, service and advocacy. The Association provides people affected by diabetes – those living with the condition, their family, friends, caregivers, colleagues, employers and others – with information, education, community referrals and advocacy.

## **Canadian Diabetes Association**

Business: 604 732-1331

Pacific Area

Toll-free: 1 800 665-6526

360-1385 West 9<sup>th</sup> Avenue

Fax: 604 732-8444

Vancouver, B.C. V6H 3V9

Web site: [www.diabetes.ca](http://www.diabetes.ca)

## **Diabetes Information & Support Centre**

Access our information line and obtain free literature with current information on diabetes care and management. Individuals with diabetes can receive “starter” packages on diabetes management as well as customized packages that address specific information needs such as meal planning, physical activity, understanding complications and learning the importance of one’s role in diabetes self-management. We also provide referrals to other services in the community.

## **Diabetes Dialogue**

Published quarterly, Diabetes Dialogue is our health and wellness magazine dedicated to living life to the fullest while living with diabetes. Get the latest information on nutrition, research, exercise, medical updates, lifestyle management, advocacy and resources.

## **Forums & Information Sessions**

Diabetes forums and expos designed to meet the educational needs of people with or affected by diabetes are held throughout BC every year.

## **Cooking For Your Life!**

We offer a four-session hands-on cooking and nutrition education program. This nutrition self-management program is for anyone wanting to develop a healthier lifestyle, including those affected by diabetes or living with other chronic health conditions. The program has been adapted for youth and families, those who are deaf and blind, and the Cantonese-speaking populations. Offered in select locations throughout BC.

## **Advocacy Support**

People with diabetes often encounter barriers because others make incorrect or misinformed assumptions about the disease. We take action against discrimination with initiatives that address issues including insurance, driver’s licensing, employment and the financial costs associated with diabetes.

## **Insurance**

Because insurance can be very difficult to obtain for people with diabetes, the Association works with an insurance provider experienced in working with people with special needs. We’re able to provide access to a wide range of insurance products and information.

### **Diabetes Information & Support Centre**

Telephone: 604 732-4636 or 1 800 268-4656

**Chinese language service**

(Cantonese & Mandarin)

604 732-8187 or 1 888 666-8586

E-mail: [infobc@diabetes.ca](mailto:infobc@diabetes.ca)