A Guide to Optimal Diabetes Chronic Disease Management – to assist with use of the Saskatchewan CDM-QIP Diabetes Flow Sheets (paper and EMR)

– based on the Canadian Diabetes Association 2013 Clinical Practice Guidelines and Information from the American Diabetes Association

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Type of Diabetes - differentiating between type 1 and type 2 diabetes (DM) is important for optimal long-term management:
Type 1 Diabetes (T1DM) patients tend to be more insulin sensitive; have higher risk of hypoglycemia and DKA.
Type 2 Diabetes (T2DM) patients tend to be more insulin resistant and have lower risk of hypoglycemia. However, hypoglycemia incidence increases in advanced/longer duration T2DM. People with T2DM will always benefit from metformin therapy even when they require insulin (provided no absolute contraindications to this); metformin will lessen weight gain from insulin and may reduce insulin dosage by up to 20%.
"Other" types of diabetes include: medication-induced diabetes (e.g. due to transplant medications); MODY [maturity onset diabetes of the young - autosomal dominant inherited type of diabetes with pancreatic beta cell defect], others.

Duration of diabetes - important for the following reasons:
Type 1 DM - the longer the duration of diabetes, the greater the likelihood of microvascular disease, and increased risk/frequency of hypoglycemia.
Type 2 DM - this is a progressive condition with pancreatic beta cell destruction over time; this will occur more rapidly in patients with persistently high blood sugar levels. For this reason the majority of patients with T2DM will require insulin therapy 10 to 15 years after diagnosis (shorter duration if chronic poor glycemic control and prolonged/marked hyperglycemia prior to diagnosis).

Co-morbidities - need to be considered to determine cardiovascular risk, dosage of medications (if CKD), glycemic control targets and overall planning of diabetes care including ability to manage medications/insulin (mental health conditions, frailty, etc.).

ER/hospital since last visit - may signal that patient had an event resulting in changes to medications and/or onset of new medical conditions or diabetic complications.

Nutrition/diet review – important to ask about this and offer resources.
Every person with diabetes should be offered the opportunity to see a registered dietitian. Dietary/nutrition changes are frequently an integral part of treatment and self-management; consider repeat formal dietary review if there is worsening glycemic control and/or introduction of insulin therapy. Basic dietary information including portion sizes and carbohydrate counting can be obtained from the CDA websites: www.guidelines.diabetes.ca → Patient resources; www.diabetesgps.ca (available in number of languages). Another good resource is from the Ottawa Cardiovascular institute (dietary information for hypertension, hyperlipidemia, diabetes) - http://www.cvtoolbox.com/downloads/diets/type2_diabetes_eating_plan_2010.pdf
Different dietary interventions will impact A1C, weight, lipids differently – see CDA CPG for table summarizing these: http://guidelines.diabetes.ca/executivesummary/ch11

Physical activity - both aerobic and resistance exercise should be encouraged for everyone with diabetes. Targets are aerobic exercise for >150 minutes per week and resistance exercise >2 sessions per week. Moderate to high levels of aerobic physical activity are associated with reductions in morbidity and mortality in both men and women with type 1 and type 2 diabetes. In type 2 diabetes regular exercise has beneficial effect on glycemic control. Resistance exercise also improves glycemic control and reduces insulin resistance in people with type 2 diabetes. Consider promoting resistance training in people who have mobility issues and cannot perform aerobic exercise. Useful resources/handouts from the CDA website: www.guidelines.diabetes.ca → Patient resources.

Smoking - smoking increases the risk of cardiovascular disease, diabetic neuropathy and erectile dysfunction.

Glycemic control

A1C – measure A1C every 3 to 4 months in most adults to access glycemic control; may test less frequently (every 6 months) in adults when there is lifestyle stability and stable glycemic targets have been consistently achieved.

Tight glycemic control (A1C ≤7%) is important in reducing microvascular complications, and if achieved soon after diagnosis of DM may be associated with long-term reduction in macrovascular complications.

Glycemic targets should be individualized based on patient's age, duration of DM, risk for severe hypoglycemia, presence or absence of cardiovascular disease (CVD) and life expectancy.

- **A1C ≤ 7%** is recommended that for most adults with diabetes, but this should be individualized.
- **A1C ≤ 6.5%** should be encouraged only if it can be achieved safely without increased hypoglycemia. Consider in individuals with short duration of DM, long life expectancy, and no significant CVD.
- Less stringent control with **A1C of < 8-8.5%** is acceptable in some patients such as those with limited life expectancy, the frail elderly and others with functional dependency, extensive CAD at high risk of ischemia, multiple co-morbidities, recurrent severe hypoglycemia and hypoglycemia unawareness.

Important to be aware of **factors that can affect the A1C test results**

Factor	Causes Increased A1C	Causes Decreased A1C	Variable change in A1C
Erythropoiesis	Iron deficiency B12 deficiency Decreased erythropoiesis	Use of erythropoietin, iron or B12 Reticulocytosis Chronic liver disease	
Altered hemoglobin			Fetal hemoglobin Hemoglobinopathies Methemoglobin Genetic determinants
Altered glycation	Alcoholism Chronic renal failure Decreased erythrocyte pH	Ingestion of aspirin, vitamin C or vitamin E Hemoglobinopathies Increased erythrocyte pH	
Assays	Hyperbilirubinemia Carbamylated hemoglobin Alcoholism Large doses of aspirin Chronic opiate use	Hypertriglceridemia	Hemoglobinopathies
Erythrocyte destruction	Increased erythrocyte lifespan: - Splenectomy	Decreased erythrocyte lifespan: - Chronic renal failure - Hemoglobinopathies - Splenomegaly - Rheumatoid arthritis - Drugs such as Antiretrovirals, Riboviran, Dapsone	

From CDA 2013 CPG

Glycemic Therapy –

T1DM – patients should be on basal-bolus insulin therapy (multiple daily insulin injections or continuous subcutaneous insulin infusion) to achieve optimal glycemic control.

T2DM – patients should be treated with antihyperglycemic drugs if glycemic targets are not achieved with lifestyle management (diet, exercise). Unless contraindicated, metformin should be the initial drug of choice, with additional antihyperglycemic agents selected on the basis of clinically relevant issues, such as contraindication to drug, glucose lowering effectiveness, risk of hypoglycemia, effect on body weight, and cost. Unless contraindicated metformin should be continued when a patient is treated with insulin therapy (decreases weight gain from insulin, decreases insulin resistance). If a patient with T2DM is not using metformin ask "why not?" – for example patient may have had GI side effects because started on high dose initially; consider restarting at low dose (250mg bid) and slowly titrate dose. Decrease metformin dosing in renal impairment if CrCl <60ml/min: CrCl 45-60ml/min – 850mg to 1700mg/day; CrCl 30-45ml/min – ≤500mg/day; CrCl <30ml/min – avoid.

For more details on dosing and all diabetic medications: www.RxFiles.ca ; www.guidelines.diabetes.ca

"Other" types of DM – these may require therapies specific for condition.

Tools/resources for individualization of therapy: http://guidelines.diabetes.ca/BloodGlucoseLowering.aspx

Therapy adherence – with many chronic diseases non-adherence to medical therapy is as high as 50%; if a healthcare provider does not enquire, patients are not likely to reveal this. Ask about any difficulties taking medications and if experiencing any side effects. Try to dose all medications (other than insulin) once or twice daily to optimize adherence.

Blood Glucose record review – self monitoring of blood glucose (SMBG) is an important part of diabetes care. Most people with diabetes should receive instruction on SMBG and how to interpret the results. However, the frequency of testing BG should be individualized depending on type of diabetes, the nature of and changes to pharmacotherapy, level and stability of glycemic control, risk of hypoglycemia and acute illness.
See useful tool at http://www.diabetes.ca/documents/about-diabetes/SMBG_HCP_Tool_lc_final.pdf
Ask patients if and when they are testing their BG, as routinely doing this q.i.d. before meals is seldom indicated in patients who are not using multiple daily insulin injections.

Hypoglycemia – there is increasing evidence that hypoglycemia (BG < 4.0mmol/L) is associated with increased morbidity and mortality in both type 1 and type 2 diabetes. (Hypoglycemia-related outcomes include: increased risk of falls; CNS consequences including cognitive effects/decline; autonomic failure; cardiac effects – rhythm disturbances, ischemia; and accelerated atherosclerosis with recurrent hypoglycemia in T1DM.)
For this reason patients should be asked about frequency and severity of hypoglycemia at every CDM visit, with appropriate changes made to medical therapy if necessary. Recurrent hypoglycemia may result in hypoglycemia unawareness and more severe hypoglycemia. People with frequent hypoglycemia (consider if A1C < 6.5% and patient on insulin) should have medical therapy adjusted to raise glucose levels in an attempt to restore the autonomic responses to hypoglycemia. Frequent or severe hypoglycemia may also impact fitness to drive.
See www.guidelines.diabetes.ca →Patient resources for more on management of hypoglycemia and on driving.

Glucose meter/lab comparison – blood glucose meter accuracy should be checked at least annually, and when indicators of glycemic control do not correlate with meter readings. This is done by having patient check blood glucose on meter at the same time that a laboratory plasma glucose test is done; values should be within 20%.

Monitoring weight, height, BMI

Measurements of weight and height should be done at most visits. Target is normal BMI: 18.5 – 24.5. While BMI is traditionally the best measure for overweight/obesity screening it has the limitation of requiring calculation. It will be calculated if using EMR flow sheets and in the eHealth EHR Viewer. Following an individual's weight gain trend provides meaningful clinical information once a diagnosis of diabetes is made, and is easy to do at CDM visits. In an adult, weight gain of > 4.5kg or 10lbs per year is not normal, and should prompt enquiry, adjustment of management, etc. It is important to consider role of medications in weight gain; many of the antihyperglycemic medications cause weight gain, and patients may be snacking (causing weight gain) to avoid hypoglycemia. A modest weight loss of 5% to 10% of initial body weight can substantially improve glycemic control and reduce CVD risk.
(Waist circumference is a predictor of abdominal fat; it is useful as a predictor of metabolic syndrome and if elevated is a risk factor for CVD and type 2 diabetes. However, it has limited role in clinical decision making in ongoing diabetes CDM. For this reason and because of space limitations it is not used in the Saskatchewan CDM-QIP flow sheets.)

Blood Pressure (BP)

High BP is a common comorbidity of diabetes, affecting >50% of adults with DM; it is a major risk factor for both microvascular complications and CVD. Coexisting diabetes and hypertension doubles risk of CVA and CAD, and increases risk of kidney disease (CKD), peripheral arterial disease (PAD), and retinopathy.
BP should be measured at every routine CDM visit. If BP elevated, measurement should be repeated on a separate day to confirm diagnosis of hypertension.

BP of >130/80 mmHg is used for making diagnosis of hypertension in people with diabetes.
Goal of treatment is BP <130/80.
Generally blood pressure control is more important than which specific drug therapy is used. Lifestyle therapy for high BP should be offered – weight loss if overweight, DASH-style diet (reduced sodium, increased potassium and fibre intake), moderation of alcohol intake, increased physical activity.
For patients with CVD, kidney disease, or with additional CVD risk factors an ACE inhibitor (ACEi) or ARB is recommended for initial therapy (Grade A, Level 1A recommendation).

Cardiovascular Risk Management

CAD / CVD risk assessment – Diabetes promotes both the development and adverse impact of cardiovascular disease (CVD) risk factors (e.g. hypertension, dyslipidemia, renal dysfunction) and, as a consequence, accelerates cardiovascular age. Persons with diabetes generally have a cardiovascular event/complication 10 to 15 years earlier than people without diabetes. This advanced cardiovascular age substantially increases both the proximate and lifetime risk for CVD events, resulting in a reduced life expectancy of approximately 12 years. In young adults (aged 20 to 39 years), T1DM is an independent risk factor for premature CVD and mortality. The presence of CVD in people with T1DM is related to age, duration of diabetes, poor glycemic control and presence of microvascular complications, as well as traditional CVD risk factors, such as elevated LDL-C, smoking, obesity and family history of premature CVD.
CAD - People with diabetes have a high prevalence of silent myocardial ischemia, and almost one-third of myocardial infarctions (MIs) occur without recognized or typical symptoms (silent MIs). This is particularly true in people with T1DM (may be related to cardiac autonomic neuropathy).

The goals of CVD risk assessment and CAD screening are to improve life expectancy and quality of life by preventing CAD and heart failure through the early detection of coronary artery disease, and implementation of vascular protection therapies to prevent or limit CVD.

Diabetic individuals with any of the following are considered to be at increased risk for CVD:

- Any macrovascular disease
- Any microvascular complications
- Age > 40 years
- Duration of DM > 15 years and age > 30 years (will include many with T1DM)
- Traditional CVD risk factors such as family history of premature CVD, hypertension, smoking, obesity, hyperlipidemia.

In these individuals an annual CAD risk assessment is indicated to screen for silent ischemia/heart disease. This involves performing a resting ECG periodically and asking about symptoms suggestive of heart disease (see below).

There is no single CVD risk scoring tool that applies to people with diabetes. Therefore clinicians should assess CAD/CVD event risk based on the factors given above – age, duration of DM, presence of macro- or micro-vascular disease, and CV risk factors, and consider the 2013 CDA CPG recommendations for vascular protection. http://guidelines.diabetes.ca/VascularProtection.aspx website provides tools to assist with risk stratification and choice of drug therapies for vascular protection.
Note – these are guideline recommendations; the level of evidence and grade of recommendations (see below) may influence individualizing drug therapy for CVD prevention.

CVD Symptoms – People with DM may not present with the traditional cardiac symptoms; therefore screening using risk factors as noted above is important. “Silent MI” is common in older adults with diabetes. DM is also associated with heart failure (HF) both systolic and diastolic dysfunction; this may occur without any other risk factors for HF.
A change/decrease in exercise tolerance may be the only new symptom of cardiac disease in a person with DM.

ECG – baseline ECG should be considered if individual is "high risk" for CVD, and for all patients >40 years age; repeat every 2 years and more frequently if patient develops any cardiac symptoms. The reason for this recommendation is the high prevalence of silent CAD in older people with DM.

Interventions for CVD risk management and vascular protection
All individuals with DM should be encouraged to follow a multi-faceted approach to reduce/modify CVD risk, including lifestyle and pharmacotherapy interventions.
FOR ALL PATIENTS WITH DIABETES:

- ☐ A – A1C – optimal glycemic control (usually ≤ 7%)
- ☐ B – BP – optimal blood pressure control (< 130/80 mmHg)
- ☐ C – Cholesterol – primary target LDL ≤ 2.0 mmol/L or 50% reduction in LDL if decision made to treat;
- ☐ D – Drugs to protect the heart
  - A – ACEi or ARB
  - S – Statin
  - A – ASA if indicated
- ☐ E – Exercise – Regular physical activity, healthy diet, achievement and maintenance of healthy body weight
- ☐ S – Smoking cessation

Recommendations and Indications for Drug Therapy for Vascular Protection
(levels of evidence and grades of recommendations from 2013 CDA CPG)

When to use ACEi / ARB in people with DM:

1. Clinical Macrovascular disease *[grade A, level A]* *or*
2. Age ≥55 years *[grade A, level A for those with additional CVD risk factors or end organ damage; grade D, consensus for all others]* *or*
3. Microvascular disease *[grade D, consensus]*

When to use Statin in people with DM:

1. Clinical Macrovascular disease *[grade A, level A]* *or*
2. Age ≥40 years *[grade A, level A for T2DM; grade D, consensus for T1DM]* *or*
3. Microvascular disease *[grade D, consensus]* *or*
4. DM >15 yrs duration and age >30 years *[grade D, consensus]* *or*
5. Warrants therapy based on the 2012 Canadian Cardiovascular Society Lipid Guidelines *[grade D, consensus]*

When to use Anti-platelet therapy (ASA or Clopidogrel) in people with DM:

1. Only patients with established cardiovascular disease – secondary prevention *[grade D, consensus]*
2. No longer recommended for primary prevention in people with diabetes *[grade A, level 1]*

Lipids – fasting lipid profile should be measured at time of diagnosis of DM. Repeat testing annually if lipid therapy not indicated. If statin therapy is indicated and implemented, repeat testing every 3-6 months.
Lipid targets for those who need therapy (as noted in vascular protection section): Primary target: LDL < 2.0 mmol/L or >50% reduction in LDL from baseline. Alternate Primary target: apo B < 0.8 g/L or non-HDL-C < 2.6 mmol/L. (non-HDL-C is calculated by subtracting HDL-C from Total Cholesterol; it is the "bad" cholesterol in diabetes and includes LDL plus smaller lipid particles associated with atherosclerosis).
For people with hypertriglyceridemia, therapy with a fibrate is recommended if triglyceride level is > 10.0 mmol/L to prevent pancreatitis; also recommend lifestyle changes such as reduced alcohol intake, weight loss. Treating lower levels of hypertriglyceridemia in people with diabetes has not been shown to prevent CVD or reduce CV mortality.

Diabetic Nephropathy / Chronic Kidney Disease (CKD)

Diabetic Nephropathy is the progressive increase in proteinuria in people with longstanding diabetes, followed by declining function which can eventually lead to End-Stage Renal Disease (ESRD). Identification requires **testing for proteinuria** (using urine ACR) and **assessment of renal function** using serum creatinine value to estimate eGFR or calculate creatinine clearance.

SCREEN - annually with random urine albumin creatinine ratio (ACR) and serum creatinine for estimated glomerular filtration rate (eGFR). In type 1 diabetes – start screening 5 years after onset. In type 2 diabetes start screening at time of diagnosis.

DIAGNOSIS - made when urine ACR is ≥ 2.0 mg/mmol (for males and females) and/or eGFR is < 60 mL/min on two or more tests over a 3 month period. (An abnormal screening test should be confirmed by repeat testing of the eGFR within 3 months, and 2 more random urine ACRs ordered during that interval. If either the eGFR remains low or at least 2 of the 3 random urine ACRs are abnormal, then a diagnosis of CKD is confirmed.)

http://guidelines.diabetes.ca/executivesummary/ch29 - executive summary of CDA 2013 CPG has simple figures and algorithms providing clarity on this topic.

Why measure urine ACR? The random urine for albumin (urine microalbumin test) is insufficient, as the urinary albumin concentration can vary due to urine concentration; random urine ACR predicts 24-hour urinary albumin excretion sufficiently well and is the test of choice for screening for albuminuria.

There is substantial day-to-day variability in albuminuria; in addition, transient increases in albuminuria can be provoked by factors such as acute febrile illness, menstruation, UTI, recent major exercise, decompensated heart failure, acute increase in BP or blood glucose.

The urine ACR and eGFR tests are used for both screening for diabetic nephropathy, and for monitoring once a diagnosis of CKD is made. Once CKD is diagnosed a patient should have urine ACR checked every 6 months in order to monitor progression of kidney disease and to assess response to therapy with ACEi/ARB which is used to slow progression of the kidney disease. (May test more frequently than 6 months after initiating or adjusting dose of renal protective therapy.) Urine ACR should decrease in response to ACEi/ARB therapy, and in response to improved glycemic and BP control. As the kidney impairment becomes more severe both albuminuria (assessed by urine ACR) and kidney function (assessed by eGFR) will become more abnormal.

Referral to a nephrologist or internist with an expertise in chronic kidney disease is recommended in the following situations:

- Chronic, progressive loss of kidney function
- Urine ACR persistently >60 mg/mmol
- eGFR<30 mL/min
- Unable to remain on renal-protective therapies due to adverse effects such as hyperkalemia or a >30% increase in serum creatinine within 3 months of starting an ACE-inhibitor or ARB
- Unable to achieve target BP (could be referred to any specialist in hypertension).

Management of CKD also involves monitoring of potassium and creatinine – these should be tested at baseline and initiation or dose adjustment of ACEi/ARB therapy, and during times of acute illness. Therapy should be reviewed if serum potassium or creatinine become elevated.

Patients with diabetic CKD are at increased risk for CVD; consider all aspects of vascular protection including statin and ACEi/ARB therapy. Risk of CV events increases as albuminuria increases and eGFR declines.

New recommendation in the 2013 CDA CPG – Adults with diabetes and CKD should be given a "sick day" medication list that outlines which medications should be held during times of acute illness in order to minimize further damage to kidneys. http://guidelines.diabetes.ca/Browse/Appendices/Appendix7

Diabetic Retinopathy

Tight glycemic control reduces onset and progression of retinopathy.

Screening is important for early detection of treatable disease. Screening intervals vary according to type of diabetes and age of individual. Type 1 DM – annual screening starting 5 years after onset of DM. Type 2 DM –

start screening at diagnosis; then every 1-2 years if no retinopathy. Consider annual screening in people with T2DM if long duration of disease or other signs of microvascular disease (e.g. albuminuria). Screening should be performed by a trained eye professional (Ophthalmologist or Optometrist) with a dilated eye exam and/or interpretation of digital fundal photographs.

Diabetic Neuropathy

The following are risk factors for the development of neuropathy: hyperglycemia, hypertriglyceridemia, hypertension, smoking, high BMI, duration of DM, peripheral arterial disease. Neuropathy involves more than the peripheral nerves in feet and hands.

Types of diabetic neuropathy:

Diabetic neuropathies are heterogeneous with diverse clinical manifestations; they may be focal or diffuse. Most common are chronic sensorimotor diabetic peripheral neuropathy (DPN) and autonomic neuropathy. However, other neuropathies should be considered when screening for this diabetic complication.

1 - Peripheral neuropathy (DPN) – may affect both large and/or small fibre nerves:
large fibre nerves– sensory and motor nerves; deep-seated pain; sensory loss - touch and vibration; motor deficit; decreased tendon reflexes;
small fibre nerves - mostly sensory nerves; superficial burning pain; sensory loss – thermal, allodynia.

2 - Autonomic neuropathy – common, but often difficult to diagnose; may result in cardiovascular, gastro-intestinal and genitourinary symptoms. Increased risk of autonomic neuropathy if patient has peripheral neuropathy.

3 - Proximal motor neuropathy – less common – motor deficit in proximal thigh/upper arm, decreased tendon reflexes, pain.

4 - Acute mononeuropathies/mononeuritis – acute onset; usually resolve spontaneously in 6 weeks; motor deficit; commonly cranial nerves.

5 - Entrapment neuropathy – sensory and motor deficit in nerve distribution; e.g. ulnar, median (carpal tunnel syndrome), lateral popliteal nerves.

Diabetic peripheral neuropathy (DPN) affects distal arms and legs, but will usually occur first in the feet. This is why screening is done in this location.

Screening for peripheral sensory neuropathy – involves testing for loss of sensitivity to 10gram monofilament or loss of sensitivity to vibration (128Hz tuning fork) at the dorsum of the first toe.

Screen annually. In type 1 diabetes – start screening 5 years after onset. In type 2 diabetes start screening at time of diagnosis.

Practical tip – 25 lb fishing line cut into 4 cm lengths may be used for the 10gram monofilament test

Screening for peripheral motor neuropathy – may be done by asking the patient to do the one foot stand test. This is a sensitive test for peripheral motor neuropathy in people with DM (increases risk of falls).

Early recognition and appropriate management of neuropathy in people with diabetes are important for a number of reasons: non-diabetic neuropathies may be present and may be treatable; treatment options exist for symptomatic diabetic neuropathy http://guidelines.diabetes.ca/Browse/Chapter31 ; many people with DPN may be asymptomatic and at risk of insensate injury to their feet; autonomic neuropathy and particularly cardiovascular autonomic neuropathy is associated with increased morbidity and mortality.

Diabetic Foot

Diabetic foot complications are a consequence of peripheral sensory, motor and autonomic neuropathy (DPN) and peripheral arterial disease. DPN causes loss of protective sensation in feet, changes in skin blood circulation and skin growth, and motor weakness in foot muscles resulting in deformities. Therefore, a diabetic foot examination involves checking for all of the following – sensation (loss of sensitivity to 10gram monofilament or 128Hz tuning fork is associated with loss of protective sensation on the foot); blood circulation; skin changes; structural deformities and muscle weakness.

If a person has diabetic foot complications a foot examination should be done at each routine diabetic visit.

People with peripheral neuropathy and/or other features of diabetic foot should receive foot care education:
http://www.diabetes.ca/diabetes-and-you/living/complications/diabetic-peripheral-neuropathy-dpn/
http://www.diabetes.ca/diabetes-and-you/healthy-guidelines/foot-care-a-step-toward-good-health/
People at high risk for ulceration and amputation should be referred to a healthcare professional trained in diabetic foot complications, such as podiatrist, vascular surgeon.

Peripheral arterial disease (PAD) – many adults with DM will have PAD but may be relatively asymptomatic. Therefore, consider screening for PAD when doing a diabetic foot exam – check pedal pulses and ask about claudication. Patients with features of PAD should be referred for formal vascular assessment, and treated with vascular protection medications.

Psychosocial / Diabetes and Mental Health

Mental health conditions, particularly depression, anxiety and eating disorders, are more prevalent in people with diabetes than in the general population. In addition, people with major depression and schizophrenia are at higher risk of developing type 2 diabetes; this is due to both the psychiatric illness and some medications used for therapy. People with diabetes and mental health conditions generally have decreased medication adherence, decreased diabetes self-management, and increased risk of diabetic complications.
Individuals with diabetes should be regularly screened for subclinical psychological distress and psychiatric disorders (e.g. depressive and anxiety disorders) by interview [Grade D, Consensus] or with a standardized questionnaire [Grade B, Level 2 (1)] http://guidelines.diabetes.ca/executivesummary/ch18

Vaccines

Influenza - people with diabetes should receive an annual influenza immunization to reduce the risk of complications associated with influenza [Grade D, Consensus].
Pneumococcal immunization - should be offered to people with diabetes. A single dose is recommended for those >18 years of age. A one-time revaccination is recommended for those >65 years of age (if the original vaccine was given when they were <65 years of age) with at least 5 years between administrations [Grade D, Consensus]. http://guidelines.diabetes.ca/executivesummary/ch19

Management Plans

This final section of the CDM flow sheets is different for paper and EMR users.
The intent is to provide a space for documentation of specific aspects of management implemented or discussed at the CDM visit. This may include: aspects of patient self-management; setting new goals by the patient such as exercise or weight loss; initiating discussion about an end of life or advanced care directive; specific resources given to patient (e.g. CDA exercise handouts); referral to a formal diabetes education program, to a specialist, or allied healthcare provider such as a counsellor.
Studies have demonstrated that patients with chronic diseases who are actively involved in their medical care and encouraged to collaborate in healthcare decision making tend to be more adherent with chronic medications and overall management.

Other Management

For female patients of child-bearing age consider contraception or preconception counselling at every diabetic CDM visit.
Preconception advice and care should include: optimal glycemic control with goal of A1C ≤ 7% at time of conception; use of high dose Folic acid 5mg daily for at least 3 months prior to conception and continuing for the first trimester of pregnancy; discontinuation of ACEi or ARB prior to conception or early in first trimester; discontinuation of Statin prior to conception; screening for diabetic retinopathy and CKD; switching from oral antihyperglycemic drugs to insulin in woman with type 2 diabetes.

Final Steps

Optimal CDM involves regular, structured visits for each chronic disease. Both patients and healthcare providers can benefit from these visits if:

1 – patient is given adequate medication prescriptions to last until the next CDM visit

2 – patient is given a laboratory requisition for tests to be done prior to next CDM visit. (Reminder that fasting blood tests are not required for every diabetic visit, and it is often more stressful for a person with diabetes to fast for lab tests.)

3 – patient is aware of what is involved with diabetic CDM visits – see resource on CDA website:
http://guidelines.diabetes.ca/CDACPG_resources/Prepare_For_Your_Diabetes_Care_FINAL.pdf