## Prescription for Cardiorenal Protection with diabetes

**Prescriber's Name:**
- Address:
- Tel:
- Fax:

**Patient's Name:**
- Address:
- Tel:

### Dosing:
- **CV Risk Factors indicating GLP-1ra:**
  - Smoking (Tobacco use)
  - Hypertension (Untreated SBP ≥ 140 mmHg or DBP ≥ 95 mmHg, or current antihypertensive therapy)
  - Dyslipidemia (Untreated LDL-C ≥ 3.4 mmol/L or HDL-C < 1.0 mmol/L (men) < 1.3 mmol/L (women) OR triglyceride ≥ 2.3 mmol/L, or current lipid-lowering therapy; Central obesity

### Is the patient...
- **Age > 40?**
  - **OR** Age > 30, and diabetes > 15 years?
  - **OR** Warranted for statin therapy

### Does the patient have...
- **ASCVD?**
  - Age > 55 with additional CV risk factors
  - Cardiac ischemia (silent or overt)
  - Left Ventricular Hypertrophy
  - Heart Failure with diabetes

- **Peripheral arterial disease**
- **Cerebrovascular disease**

### Does the patient have...
- **Age > 60 with ≥ 2 CV risk factors‡?**
- **Age > 30, and diabetes**
- **Age > 40?**

### Is the patient...
- **Age > 55 with additional CV risk factors‡?**
- **Left Ventricular Hypertrophy**
- **Neuropathy**
- **Retinopathy**

### Does the patient have...
- **ASCVD?**
  - Age > 60 with ≥ 2 CV risk factors‡?
  - **OR** **Age > 40?**

### Choosing Cardiovascular Protection Agent(s)

#### STEP 1:
- **Is the patient...**
  - **Age > 60 with ≥ 2 CV risk factors‡?**
  - **OR** **Age > 40?**

#### STEP 2:
- **Choose Cardiovascular protection agent(s) from the following list**

<table>
<thead>
<tr>
<th>STATIN</th>
<th>ACE INHIBITORS</th>
<th>ARB</th>
<th>GLP-1 RECEPTOR AGONIST</th>
<th>SGLT-2 INHIBITOR</th>
<th>ANTI-PLATELET</th>
</tr>
</thead>
</table>
| **Statin**
- Atorvastatin (Lipitor®)
  - 10 mg (start 10 mg OD)
  - 20 mg
  - 40 mg
  - 80 mg (max 80 mg OD)
- Pravastatin (Pravachol®)
  - 10 mg (start 10 mg OD)
  - 20 mg
  - 40 mg
  - 80 mg (max 80 mg OD)
- Rosuvastatin (Crestor®)
  - 5 mg
  - 10 mg (start 10 mg OD)
  - 20 mg
  - 40 mg (max 40 mg OD)
- Simvastatin (Zocor®)
  - 10 mg (start 10 mg OD)
  - 20 mg
  - 40 mg (max 80 mg OD)

| **ACE INHIBITORS**
- Perindopril (Aceon®, Coversyl®)
  - 2.5 mg
  - 4 mg (start 4 mg OD)
  - 8 mg* (max 16 mg OD)
- Ramipril (Altace®)
  - 1.25 mg
  - 2.5 mg (start 2.5 mg OD)
  - 5 mg
  - 10 mg* (max 20 mg OD)
- Telmisartan (Micardis®)
  - 20 mg
  - 40 mg (start 40 mg OD)
  - 80 mg* (max 80 mg OD)

| **ARB**
- Losartan (Cozaar®)
  - 5 mg
  - 10 mg (start 10 mg OD)
  - 20 mg
  - 40 mg (max 80 mg OD)

| **GLP-1 RECEPTOR AGONIST** (not indicated if type 1 diabetes)
- Dulaglutide (Trulicity®)
  - 0.75 mg s.c. once weekly
  - 1.5 mg* s.c. once weekly
- Liraglutide (Victoza®)
  - 0.6 mg s.c. OD
  - 1.2 mg s.c. OD
  - 1.8 mg s.c. OD

| **SGLT-2 INHIBITOR** (not indicated if type 1 diabetes)
- Canagliflozin (Invokana®)
  - 100 mg* OD
  - 300 mg* OD
- Dapagliflozin (Forxiga®)
  - 5 mg OD
  - 10 mg* OD

| **ANTI-PLATELET** (if CVD)
- ASA
  - 81 mg OD
  - 162 mg OD
- Clopidogrel (Plavix®)
  - for those unable to tolerate ASA
  - 75 mg OD

### Dosing/Additional Considerations
- **Dosing:** see start and maximum doses listed for each statin.
  - High-intensity statin therapy (lowers LDL-C by ≥50%)
    - Atorvastatin 40 - 80 mg
    - Rosuvastatin 20 - 40 mg
  - Moderate-intensity statin therapy (lowers LDL-C by 30 - 49%)
    - Atorvastatin 10 - 20 mg
    - Rosuvastatin 5 - 10 mg
    - Simvastatin 20 - 40mg
    - Pravastatin 40 - 80 mg
    - Lovastatin 40 mg
    - Fluvastatin 80 mg

### Guidelines:
- [guidelines.diabetes.ca](http://guidelines.diabetes.ca) | 1-800-BANTING (226-8464)

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† CV Risk Factors indicating ACEI or ARB: Hypertension; TC ≥ 5.2 mmol/L; HDL-C < 0.9 mmol/L; Albuminuria; smoking
‡ CV Risk Factors indicating GLP-1ra: Smoking (Tobacco use); Hypertension (Untreated SBP ≥ 140 mmHg or DBP ≥ 95 mmHg, or current antihypertensive therapy); Dyslipidemia (Untreated LDL-C ≥ 3.4 mmol/L or HDL-C < 1.0 mmol/L (men) < 1.3 mmol/L (women) OR triglyceride ≥ 2.3 mmol/L, or current lipid-lowering therapy; Central obesity

*Canadian Cardiovascular Society Lipid Guidelines*

Diabetes Canada will keep this tool updated and available at guidelines.diabetes.ca. Updated January 2023
### Cardiovascular protection targets & precautions for people with diabetes

**People with diabetes should be started on cardiovascular / renal protection agents.**
The following are suggestions for consideration in cardiovascular / renal protection. Clinical judgment must always be used when applying these recommendations in practice to support individualized care.

**Lipid targets:** LDL-cholesterol <2.0 mmol/L or >50% reduction from baseline; Non-HDL <2.6 mmol/L; Apolipoprotein B <0.8 g/L  
**BP targets:** <130/80 mmHg  
**BG targets:** A1C ≤ 7.0% implemented early in the course of diabetes. For type 2 diabetes, consider A1C ≤ 6.5% to reduce risk of CKD and retinopathy. If on insulin or insulin secretagogue, assess for hypoglycemia and ensure driving safety. If using continuous glucose monitoring (CGM), recommended glucose metrics may be individualized.

**Angiotensin Converting Enzyme Inhibitor (ACEi) & Angiotensin II Receptor Blocker (ARB) are used to reduce CV / renal risk in adults with type 1 or type 2 diabetes with any of the following:**
- a) Clinical cardiovascular disease (CVD);  
- b) Age >55 years with additional CV risk factors or  
- c) End organ damage (albuminuria, retinopathy, left ventricular hypertrophy), microvascular complications  
Precautions: hypersensitivity; previous angioedema associated with ACEi therapy; impaired renal function; hyperkalemia; renal artery stenosis (bilateral or unilateral with a solitary functioning kidney); concomitant NSAID hypovolemia or dehydration; primary hyperaldosteronism; pregnancy or breastfeeding.  
**NOTE:** among women with childbearing potential, ACEi, ARBs or statins should only be used if there is reliable contraception

**STATIN therapy** should be used to reduce CV / renal risk in adults with type 1 or type 2 diabetes with any of the following:  
- a) Clinical CVD;  
- b) age ≥40 years;  
- c) age <40 years and 1 of the following: (i) diabetes duration >15 years and age >30; (ii) microvascular complications  
Precautions: Impaired renal and hepatic function are risk factors for adverse effects with statins, e.g. rhabdomyolysis. Active liver disease or unexplained transaminase elevations are contraindications to all statins.  
**NOTE:** among women with childbearing potential, ACEi, ARBs or statins should only be used if there is reliable contraception

**ANTIPLATELET**
In people with established CVD, low dose ASA therapy (81 - 162 mg) should be used to prevent CV events  
ASA should not be used routinely for the primary prevention of CVD events  
Clopidrogrel 75 mg may be used in people unable to tolerate ASA  
Precautions: risk of stomach ulcers or bleeding

**SGLT-2 inhibitor or GLP-1 receptor agonist with demonstrated CV / renal benefit:**
**SGLT-2 Precautions:** See renal chart for use in renal impairment. Blood-glucose lowering decreases when GFR <45 mL/min/1.73m2. Monitor for DKA at lower-than-expected glucose levels. Hold SGLT2i if unable to stay hydrated. Encourage 1 - 1.5L of sugar-free fluid intake per day. Increased risk of UTI and yeast infections.  
**GLP-1 RA precautions:** GI adverse effects, i.e. nausea, diarrhea/constipation, vomiting, can often be mitigated with attention to food choices; consider decrease insulin secretagogues and/or insulin to minimize risk of hypoglycemia; Warning: pancreatitis, pancreatic cancer, can increase HR by 7-8 bpm & prolong PR interval by 10 ms; If history of diabetic retinopathy, monitor for progression. Contraindicated in personal or family history of medullary thyroid carcinoma (MTC), multiple endocrine neoplasia syndrome in type 2 (MEN 2), and pregnancy or breastfeeding.

**Physical Activity**
Physical activity is associated with improvement in CV outcomes and a reduction in CV and overall mortality in people with type 2 diabetes or Impaired Glucose Tolerance (IGT) and CVD. Habitual, prolonged sitting is associated with increased risk of death and major CV events. People with diabetes should ideally accumulate a minimum of 150 minutes of moderate- to vigorous-intensity aerobic exercise each week, spread over at least 3 days of the week, with no more than 2 consecutive days without exercise, to improve glycemic control and to reduce risk of CVD and overall mortality.

**Healthy Eating**
To reduce the risk of CVD, adults with diabetes should avoid trans fatty acids and consume less than 9% of total daily energy from saturated fatty acids replacing these fatty acids with polyunsaturated fatty acids, monounsaturated fatty acids, whole grains or low-Glycemic Index carbohydrates. The Mediterranean style diet and DASH diet have been shown to help manage diabetes and cardiovascular disease. **Lower carbohydrate diets** have been shown to reduce A1C and weight, amongst other benefits.