



CANADIAN HEALTH CARE AGENCY
EXPERIENCE THE NORTH

Chronic Disease Case Management



Artist: Moses Amik Beaver

Module 13

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1 of 38

1

Chronic Disease Screening and Management

- General Wellness – nutrition and exercise
- Diabetes
- Hypertension
- Chronic Kidney Disease

Chronic Disease Topics

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2 of 38

2



- Canada's overall Dietary Guidelines were revised in 2019.
- A food guide tailored to reflect traditions and food choices of First Nations, Inuit and Métis.
- This tailored food guide from 2007 has recommendations for healthy eating based on science.
- It recognizes the importance of traditional and store-bought foods for First Nations, Inuit and Métis today.

VIDEO – 23 ½ Hours

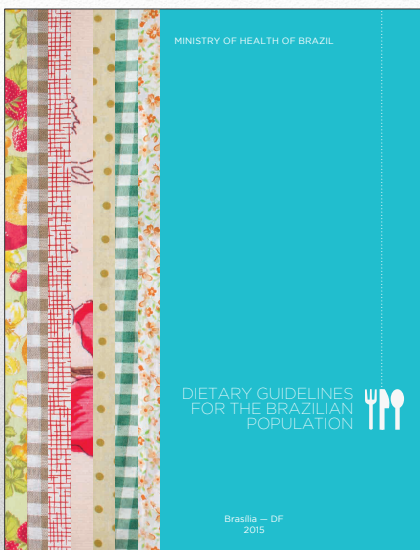
Canada's Food Guide for First Nations, Inuit and Métis

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3 of 38

3

Ten Steps to Healthy Diets:

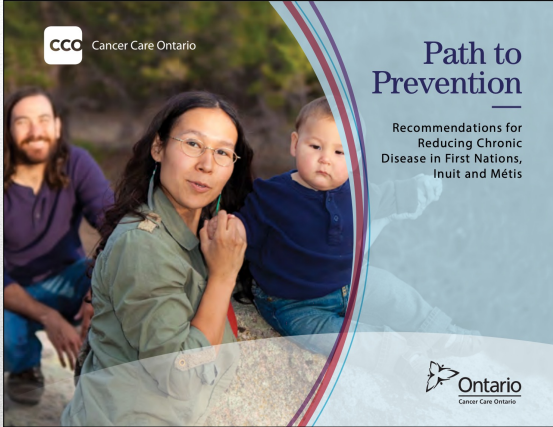
1. Make natural or minimally processed foods the basis of your diet.
2. Use oils, fats, salt, and sugar in small amounts when seasoning and cooking natural or minimally processed foods and to create culinary preparations
3. Limit consumption of processed foods
4. Avoid consumption of ultra-processed foods
5. Eat regularly and carefully in appropriate environments and, whenever possible, in company
6. Shop in places that offer a variety of natural or minimally processed foods
7. Develop, exercise and share cooking skills
8. Plan your time to make food and eating important in your life
9. Out of home, prefer places that serve freshly made meals
10. Be wary of food advertising and marketing



Brazilian Food Guide – FAO (United Nations)

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4 of 38

4



A report which provides 22 recommended policies and interventions to:

- reduce population-level exposure to four key risk factors;
- build capacity for chronic disease prevention; and
- work towards health equity.

Discusses:

- Commercial Tobacco Use
- Alcohol Consumption
- Physical Activity
- Healthy Eating

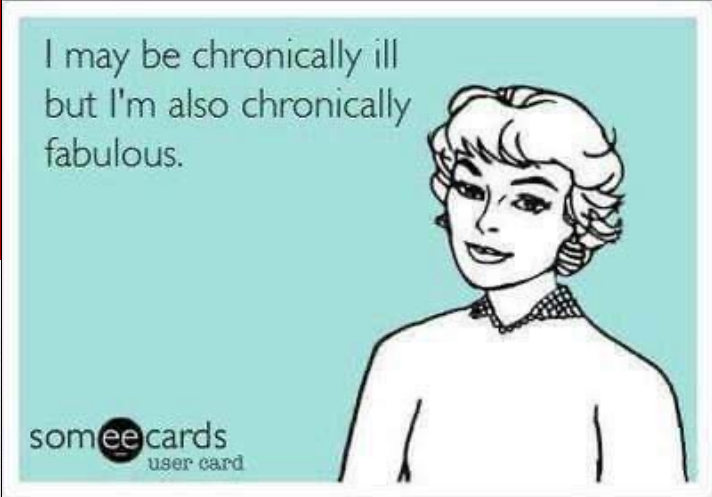
And

- Equity
- Collaboration

CCO – Path to Prevention

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5



CHRONIC DISEASE MANAGEMENT

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6

Diabetes

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Video: Diabetes

7

Definition: A metabolic disorder characterized by hyperglycemia, which is due to defective insulin secretion, defective insulin action or both.

Type 1

- Caused by autoimmune or idiopathic destruction of pancreatic b-cells, which leads to absolute insulin deficiency and tendency to ketoacidosis.
- Onset is usually at younger age (< 30 years).
- Type 1 diabetes is rare among Indigenous people.

Type 2

- Results from defective insulin secretion and/or an insulin resistance.
- Age at onset is more commonly middle age or older people, but it has been diagnosed in Indigenous children younger than age 10.
- People with type 2 diabetes are much less prone to ketoacidosis.

Diabetes

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8 of 38

8

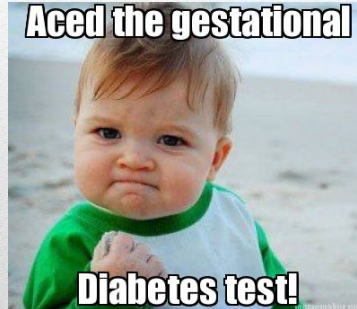
Definition: A metabolic disorder characterized by hyperglycemia, which is due to defective insulin secretion, defective insulin action or both.

Gestational Diabetes

- GDM is hyperglycemia with onset or first recognition during pregnancy.
- The prevalence of gestational diabetes in non-Indigenous women is 3.7% compared to its prevalence in Indigenous women of 11.5%.
- Offspring of mothers with GDM are at increased risk of obesity and type 2 diabetes mellitus.

Prediabetes

- Refers to impaired fasting glucose (IFG) and impaired glucose tolerance (IGT), both of which predispose individuals to diabetes and its complications.
- IFG is diagnosed based on an elevated fasting blood glucose levels. IGT is diagnosed based on an elevated 2-hour-post 75 gram oral glucose tolerance test (GTT).



Diabetes

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9 of 38

9

Risk Factors for Type 2 Diabetes

- Age $\geq$ 40 years
- Family history (1st degree relative with type 2 diabetes)
- Member of high-risk population (for example, Indigenous)
- History of IFG or IGT*
- Metabolic syndrome
- History of gestational diabetes
- History of delivery of a macrosomic infant (large babies [$>$ 4.5 kg at delivery])
- Hypertension*
- Dyslipidemia*
- Abdominal obesity*
- Overweight*
- Vascular disease (coronary, cerebrovascular or peripheral)*
- Presence of complications of diabetes
- Polycystic ovarian syndrome*
- Schizophrenia†
- Acanthosis nigricans (darkened patches on the skin)*

* Associated with insulin resistance

† The incidence of type 2 diabetes is at least 3 times higher in people with schizophrenia

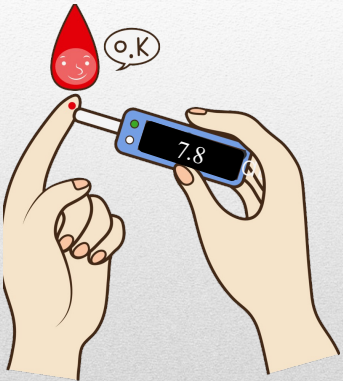
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10 of 38

10

History

- Gradual onset and slow progression of symptoms. Often people are asymptomatic for several years and present with complications of diabetes when they are diagnosed.
- Polyuria, polydipsia, polyphagia
- Nocturia
- Weight loss
- Fatigue, irritability, lack of energy
- Blurred vision, changes in vision, frequent changes in optical prescription
- Nausea and vomiting
- Cuts, wounds or bruises that are slow to heal
- Frequent or recurring infections (for example, vaginal [yeast] infections, urinary tract infections, skin infections of feet)
- Paresthesia of hands/fingers or feet/toes
- Erectile dysfunction



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11 of 38

11

For all patients, review/discuss the following:

- Risk factors for diabetes (see above)
- Eating habits (food choices, meal patterns, cultural influences concerning food)
- Physical activity level (frequency and intensity of activity), factors limiting physical activity
- Medications
- Allergies
- Smoking habits
- Alcohol use (quantity, frequency)
- Contraceptive, reproductive and sexual history
- Weight history
- Social factors (family dynamics, education, employment, lifestyle, coping skills, economic factors)

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12 of 38

12

When considering a diagnosis of diabetes, include the following in your history:

- Symptoms (as above) and complications associated with diabetes
- For adult females: gestational history (including weight of baby, delivery details and history of Gestational Diabetes)

For patients already diagnosed with diabetes, include the following in your history:

- Frequency, severity and cause of episodes of hypoglycemia or episodes of ketoacidosis
- Symptoms and management of complications: eye, kidney, genitourinary (including sexual), bladder, gastrointestinal, heart, cerebrovascular, peripheral vascular and foot
- Previous and current diabetes management (for example, medications)
- Patterns and results of glycemic control (for example, home blood glucose monitoring, laboratory tests, eye exams)

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13 of 38

13

A complete review and examination of all body systems must be done at diagnosis of diabetes then at least annually to detect the presence of complications secondary to the diabetes. Follow-up visits may not include a thorough respiratory, thyroid or musculoskeletal assessment.

General appearance

- Measure Ht, wt, waist circ, calculate (BMI)
- Vital signs: pulse, respiration rate, BP (incl orthostatic BP)
- Integumentary: inspect skin for infection (esp. feet & nails), colour, temperature, bruising, wounds, hyperpigmented patches of acanthosis nigricans, sites of insulin injection

Head and Neck:

Oral cavity: perform a thorough oral health exam
(poor dental health = risk for infection)

Neck: perform a thyroid assessment

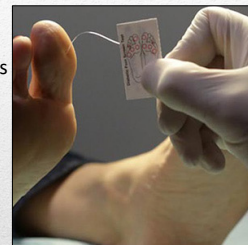
Respiratory: perform a routine respiratory exam

Cardiovascular: complete cardiac exam (including signs of heart failure, bruits), palpate and auscultate peripheral pulses, ECG

Gastrointestinal: abdominal exam; check for organomegaly (for example, liver)

Musculoskeletal: assess for signs of limited joint mobility, arthropathy, peripheral edema

Neurologic: complete neurologic exam; assess feet for changes in vibrational sense, proprioception, response to light touch (with 10 g monofilament), reflexes



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14 of 38

14

Diabetes Flow Sheet

- BP, Wt. BMI
 - A1C
 - Blood Glucose (home)
 - Foot Check
 - Self-Mgmt Goals
 - Nutrition
 - Physical Activity
 - Smoking Cessation
 - Psychosocial
 - Medications – review
-
- Lab Results:
 - ACR, eGFR
 - LDL, HDL, TG
-
- Annual Eye Exam
 - Vaccinations

Diabetes

Indigenous Services Canada Autismes Canadiens		DIABETES CLIENT CARE FLOW SHEET FOR ADULTS		
Name:	Type 1	Type 2	Type 1	Type 2
Date of birth:	☐ Male	☐ Female	Medical history:	
Band #:				
Healthcare Card #:	Allergies:			
Risk Factors & Comorbidities (check all if applicable)				
☐ Hypertension ☐ Chronic kidney disease ☐ Coronary artery disease ☐ Peripheral artery disease ☐ Dyslipidemia ☐ Polycystic ovarian syndrome ☐ Erectile dysfunction ☐ Mental illness - dx _____ ☐ Retinopathy ☐ Substance misuse ☐ Tobacco use (current amount _____) or quit-date _____				
Routine Diabetes Assessment (every 3 to 6 months)				
BP	DATE			
Wt (kg) / BMI / Waist / WC (cm)	<100mm Hg BMI 18.5-24.9 WC <102cm [men] <88cm [women]			
A1C	≤ 7.0% for most, or Blood Glucose (self-monitoring) Inquire about A1c frequency for most, premeal 4.5-7.0 mmol/L, fast postmeal 5.0-8.0 mmol/L.			
Foot check (frequency based on screening)	Any redness, open area, blister, sign of infection, etc			
Self-management goal(s) set by client				
Nutrition	(note referrals) Participate control/diet consistency Healthy dietary patterns			
Physical Activity	Aerobic ≥150min/week Resistance 3 sessions/week			
Smoking Cessation	(if applicable)			
Psychosocial	Assess for diabetes-related distress, depression, anxiety, substance use, etc.			
Medications - review	Note any changes Inquire about traditional medicine(s)			
See progress notes	(if applicable)	☐ No change	☐ No change	☐ No change ☐ No change ☐ No change ☐ No change
Signature				
Screening for Diabetes Complications (annually or as indicated, but labwork must be ordered by NP or MD)				
Nephropathy	Neuropathy	Retinopathy	Vaccinations	
Date	ACR	eGFR	Annual eye exam	Flu (annual):
			Date:	Date:
			Date:	Date:
			Date:	Pneumococcal:
			Date:	Date:
For vascular protection: ☐ Statins if CVD, or ≥40 years, or >30 years past <15 years duration, or microvascular disease. ☐ ACEI/AH if CVD, or ≥55 years with end organ damage, or microvascular disease CVD Assessment Eyes/EEG Sexual Other:		Lipid Targets: If indicated to treat LDL-C <2.6 mmol/L, or >50% reduction (if on statin therapy). Note: Medication LDC HDLC TG ApoB Non-HDL-C B) Self-monitoring of Blood Glucose Annual meter-to-lab comparison Review client technique Thank client demonstrate with own meter): Date: _____		

Updated May 2018

See reverse for care objectives and targets

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15 of 38

HOW TO USE

IW's 60-second Diabetes Foot Screen

FOR THE ASSESSMENT AND MANAGEMENT OF THE DIABETIC FOOT

Patient Name: _____ Clinician Signature: _____

ID number: _____ Date: _____

To use as a tool efficiently and for best patient outcomes, complete the following three steps:

► Step 1: Complete an Assessment of the Left and Right Feet

Instructions: Assess both feet using the four parameters identified within the 60-second Diabetes Foot Screen¹ to identify clinical indicators and/or care deficits. Once each parameter has been assessed move on to Steps 2 and 3.

IW's 60-second Diabetes Foot Screen

LEFT FOOT		RIGHT FOOT	
1. Assess for Skin and Nail Changes	Recommendations and Referals*	1. Assess for Skin and Nail Changes	Recommendations and Referals*
Skin Insult and healthy Dry with fissures or blisters Callus build up Poor circulation to extremities Swelling, redness and erythema	Insult and healthy Dry with fissures or blisters Callus build up Poor circulation to extremities Swelling, redness and erythema	Skin Insult and healthy Dry with fissures or blisters Callus build up Poor circulation to extremities Swelling, redness and erythema	Insult and healthy Dry with fissures or blisters Callus build up Poor circulation to extremities Swelling, redness and erythema
Nails Well groomed and appropriate length Unkempt and irregular Thick, damaged, or infected	Well groomed and appropriate length Unkempt and irregular Thick, damaged, or infected	Nails Well groomed and appropriate length Unkempt and irregular Thick, damaged, or infected	Well groomed and appropriate length Unkempt and irregular Thick, damaged, or infected
2. Assess for Peripheral Neuropathy/ Loss of Protective Sensation (LOPS) Sensation – normal/adequate feeling No peripheral neuropathy was not detected Sensation was present at all sites Yes peripheral neuropathy detected Sensation was missing at one or more sites	Sensation – normal/adequate feeling No peripheral neuropathy was not detected Sensation was present at all sites Yes peripheral neuropathy detected Sensation was missing at one or more sites	2. Assess for Peripheral Neuropathy/ Loss of Protective Sensation (LOPS) Sensation – normal/adequate feeling No peripheral neuropathy was not detected Sensation was present at all sites Yes peripheral neuropathy detected Sensation was missing at one or more sites	Sensation – normal/adequate feeling No peripheral neuropathy was not detected Sensation was present at all sites Yes peripheral neuropathy detected Sensation was missing at one or more sites
Sensation – ask 4 questions Are your feet ever numb? Do they ever tingle? Do they ever burn? Do they ever feel like insects are crawling on them? No to all 4 questions Yes to 1 or more questions	Sensation – ask 4 questions Are your feet ever numb? Do they ever tingle? Do they ever burn? Do they ever feel like insects are crawling on them? No to all 4 questions Yes to 1 or more questions	Sensation – ask 4 questions Are your feet ever numb? Do they ever tingle? Do they ever burn? Do they ever feel like insects are crawling on them? No to all 4 questions Yes to 1 or more questions	Sensation – ask 4 questions Are your feet ever numb? Do they ever tingle? Do they ever burn? Do they ever feel like insects are crawling on them? No to all 4 questions Yes to 1 or more questions
3. Assess for Peripheral Arterial Disease (PAD) Present for claudication and/or foot pain Absent Cool foot: No Yes	Present for claudication and/or foot pain Absent Cool foot: No Yes	3. Assess for Peripheral Arterial Disease (PAD) Present for claudication and/or foot pain Absent Cool foot: No Yes	Present for claudication and/or foot pain Absent Cool foot: No Yes
4. Assess for Bony Deformity (and Footwear) No deformity Deformity (e.g. dropped MPJ or bunion, chronic Charcot changes) Asymmetrical Asymmetrical (1 warmth and erythema) Full range in hallux Limited range of motion in hallux Heel pain Heel pain Heel pain Heel pain Heel pain	No deformity Deformity (e.g. dropped MPJ or bunion, chronic Charcot changes) Asymmetrical Asymmetrical (1 warmth and erythema) Full range in hallux Limited range of motion in hallux Heel pain Heel pain Heel pain Heel pain Heel pain	4. Assess for Bony Deformity (and Footwear) No deformity Deformity (e.g. dropped MPJ or bunion, chronic Charcot changes) Asymmetrical Asymmetrical (1 warmth and erythema) Full range in hallux Limited range of motion in hallux Heel pain Heel pain Heel pain Heel pain Heel pain	No deformity Deformity (e.g. dropped MPJ or bunion, chronic Charcot changes) Asymmetrical Asymmetrical (1 warmth and erythema) Full range in hallux Limited range of motion in hallux Heel pain Heel pain Heel pain Heel pain Heel pain

*Refer to Steps 2 and 3 before completing this area.

► Step 2: Determine the Risk for Ulceration and Amputation

Instructions: Review the results from the 60-second Diabetes Foot Screen to identify parameters that put the patient at risk. Align the identified parameters with the International Working Group of the Diabetic Foot (IWGDF) Risk Classification System² plus Urgent Risk to identify which category your patient falls into.

LOW RISK
Category 1
 Presence of diabetes, No LOPS, PAD or deformity

MODERATE RISK
Category 2
 LOPS

HIGH RISK
Category 3
 LOPS + PAD (deformity)/evidence of pressure/ anophymosis

VERY HIGH RISK
Category 3
 LOPS + PAD (deformity) + evidence of pressure/ anophymosis

URGENT RISK
 Active ulcer/infection/ active Charcot/ critical ischemia

AMPUTATION

► **Step 3: Create a Plan of Care with Your Patient Based on Identified Risks**

Instructions: Based on the risk classification and clinical indicators develop a plan of care with your patient that best meets their needs.

Classification	Clinical Indicators	Frequency	Recommendations and Actions**
Low Risk Category 1	Presence of diabetes, No LOPS, PAD or deformity	Screen every 12 months	Education on healthy foot habits and risk factors? Only self-inspection of feet Appropriate foot and nail care Well-fitting shoes, exercise as able
Moderate Risk Category 2	LOPS	Screen every 6 months	Education on LOPS? Only self-inspection of feet Professional foot care, fitted shoes, custom full-contact orthotics and diabetic socks Refer to a wound specialist to provide a plan for fitness (exercise prescription) based on risk factors
High Risk Category 2	LOPS + PAD (deformity)/evidence of pressure/ anophymosis	Screen every 3-6 months	Education on LOPS, deformity, pressure and/or anophymosis? Only self-inspection of feet Professional foot care, fitted shoes, custom full-contact orthotics and diabetic socks Refer to a wound specialist to provide a plan for fitness (exercise prescription) based on risk factors Pain management for achilles pain, if present Deformity addressed if present with orthotic shoes Orthopedic referral if required Refer to a wound specialist to provide a plan for fitness (exercise prescription) based on risk factors
Very High Risk Category 3	Presence of diabetes, LOPS, PAD or deformity/ ulceration/ amputation	Screen every 1-3 months	Education on risk of recurrence? Only self-inspection of feet Professional foot care, fitted shoes, custom full-contact orthotics and diabetic socks Refer to a wound specialist to provide a plan for fitness (exercise prescription) based on risk factors Modified footwear and/or prescription based on level of amputation
Urgent Risk	Active ulcer, infection, active Charcot, PAD (critical ischemia)	Urgent care required	Refer to services such as a wound or limb salvage clinic.

** These recommendations and actions are not all-inclusive. Patients need to be customized to meet each patient's needs. Encourage patients to manage their glycemic levels, hydrogels, wear, hypertension, and lifestyle choices such as smoking. Encourage the patient known factors to access the patient's history and/or other relevant information.

1. Tools and educational materials are available online from Wounds Canada.
 For patients:

1. Assess for Skin and Nail Changes
 - Callus, corns, athlete's foot, ingrown toenails, involuted toenails, fungal nails, ram's horn
2. Assess for Peripheral Neuropathy, Loss of Protective Sensation
 - Test with a 10-gram monofilament in 4 sites (1st 3rd, 5th toes, same metatarsal heads, also heel and midfoot)
 - Do not use a bent monofilament (inaccurate)
3. Assess for Peripheral Arterial Disease (PAD)
 - Check posterior tibial and dorsalis pedis pulses on both feet
 - Dependant rubor (intermittent claudication – lay down, raise leg 60°, look for pallor, lower leg, look for redness.
4. Assess for Bone deformity and footwear
 - Bunion; mallet, hammer and claw toes, Charcot foot (collapse of inner foot, pressure point at arch)
5. Client Education
 - Can the client see and reach the bottom of their feet, or have someone to help?
 - Know risk factors, good footwear, and no bare feet. Proper footcare. Wash feet daily.
 - No Blades (for cutting corns/ callouses)

Diabetic Foot Assessment

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17 of 38

17

Complications

- Diabetic ketoacidosis (DKA) (common in type 1 diabetes)
- Hyperosmolar hyperglycemic state (HHS)
- Macrovascular complications
 - Coronary artery disease
 - Stroke
 - Peripheral vascular disease
- Microvascular complications:
 - Nephropathy, end-stage renal disease
 - Retinopathy, cataracts (early onset), blindness
- Peripheral neuropathy
- Recurrent infections (for example, urinary, vaginal [yeast], skin)
- Premature death from complications

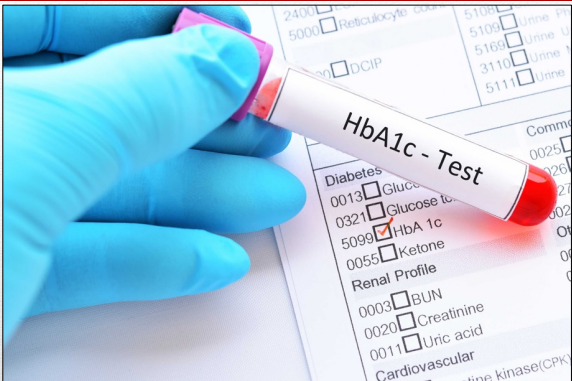


"Diabetes has increased dramatically over the past 20 years. That proves that diabetes is caused by global warming!"

Diabetes

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18 of 38

18



Diabetes should be diagnosed by any of the following criteria:

- FPG ≥ 7.0 mmol/L
- HbA1C $\geq 6.5\%$ (for use in adults in the absence of factors that affect the accuracy of HbA1C and not for use in those with suspected type 1 diabetes)
- 2hPG in a 75 g OGTT ≥ 11.1 mmol/L
- Random PG ≥ 11.1 mmol/L

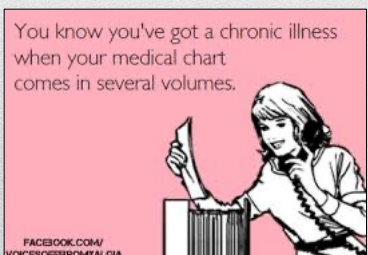
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19 of 38

19

Other Tests at Diagnosis

- Hemoglobin A1C (Hb_{A1C})
- Fasting lipid levels (total cholesterol [TC], high-density lipoprotein cholesterol [HDL-C], triglycerides [TG] and calculated low-density lipoprotein cholesterol [LDL-C])
- Serum creatinine for estimating glomerular filtration rate (EGFR)
- Thyroid stimulating hormone (TSH)
- Obtain random urine sample for:
 - Albumin to creatinine ratio (micro albumin)
 - Dipstick test for glucose, ketones, protein, blood
 - Microscopy if dipstick abnormal for blood
 - Electrocardiogram (ECG) (for a baseline measurement)



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20 of 38

20

Monitoring and Follow-Up

Note that follow-up testing may be required more frequently than the guidelines stated below, depending on the client, their medications, their diagnostic test results and their other medical conditions. Consult with a physician for guidance about a specific client.

Initial follow-up after diagnosis:

- There are many self-management education topics to be covered following diagnosis (diet, physical activity, HBGM, foot care, medications).
- Therefore, follow-up should focus on enabling the client to be able to self-manage their diabetes and may occur every 4-6 weeks initially or more often as needed.
- Be careful not to overload the client with too much information
- All clients (and their families) should be screened for symptoms of psychological distress
- All clients should be considered for a pneumococcal immunization and annual influenza vaccine

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21 of 38

21

Every 3 months:

- Measure BP, weight (calculate BMI), waist circumference
- Measure Hb_{A1C}
- Review compliance with drug therapy
- Review HBGM diary
- Review compliance with non-pharmacologic interventions (for example, diet and nutrition, physical activity, weight reduction) (may be done every 6 months or every year when patient is stable)
- Discuss incidents of hypoglycemia and hyperglycemia
- Review smoking status and encourage smoking cessation
- Perform foot examination

Every 6 months:

- If chronic kidney disease present (EGFR < 60 mL/min) at diagnosis in person with type 2 diabetes, perform random urine for albumin: creatinine ratio (ACR) and serum creatinine for estimated glomerular filtration rate (EGFR)

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22 of 38

22

Every 1 year:

- Perform quality control of HBGM device; compare venous fasting blood glucose with HBGM device reading (should both be done < 15 minutes apart)
- Measure fasting lipid levels (TC, HDL-C, TG and LDL-C)
- If the type 2 diabetic does not have chronic kidney disease, perform random urine for albumin: creatinine ratio (ACR) and serum creatinine for estimated glomerular filtration rate (EGFR);
- Provide influenza vaccine annually
- Perform screening for peripheral neuropathy using 10 g monofilament
- Screen men for erectile dysfunction with a sexual function history
- Schedule client to see a physician and an optometrist or ophthalmologist for screening and evaluation for diabetic retinopathy

Every 2 years:

- Perform an electrocardiogram (ECG)

As needed:

- Measure fasting blood glucose
- Perform urine dipstick

Referral

- Refer all newly diagnosed clients to a physician as soon as possible for complete evaluation
- Refer client to a dietitian for initial assessment and dietary counselling if possible
- Arrange follow-up with a physician or nurse practitioner every 6-12 months if stable or more frequently as necessary

Diabetes

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23 of 38

23

- The management and prevention of diabetes mellitus and associated complications should be a high priority in health planning and healthcare delivery in Indigenous communities.
- Many studies have noted that culturally appropriate care for diabetes is essential and requires a focus on the geographical, linguistic, educational and social differences among Indigenous peoples.
- There is no evidence at present that therapeutic strategies should differ from those used in the general population.

Goals of Treatment

- Attain optimum glycemic control for type 1 or type 2.
 - Target FPG 4-7 mmol/L;
 - 2-hour postprandial 5-10 mmol/L;
 - Hb_{A1C} ≤ 7%
- Educate the client for self-care
- Prevent complications
- Attain optimum control of concomitant hypertension, dyslipidemia and other cardiovascular risk factors
- Stop smoking

Diabetes

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24 of 38

24



A cartoon illustration of a doctor in a white coat and stethoscope standing next to a very obese patient lying on a hospital bed. The doctor is holding a clipboard and looking at the patient. The patient is holding a blue book or tablet. The doctor is saying, "You've got the blood pressure of a teenager – who lives on junk food, TV and the computer."

Hypertension

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25 of 38

25

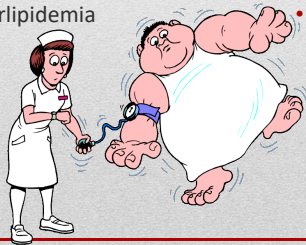
Definition: Persistently elevated blood pressure from increased peripheral arterial resistance related to salt or water retention or endogenous pressure activity.

Risk Factors:

- Heredity
- Obesity
- High salt intake
- Smoking
- High alcohol consumption
- Chronic stress
- Age
- Hyperlipidemia

Diagnosis

- Systolic BP is ≥ 140 mm Hg and/or the diastolic BP is ≥ 90 mm Hg take 2 more readings during the same visit. Discard the first reading and average the last two.
- Hypertension can be diagnosed immediately if there is evidence of urgency or emergency: - Asymptomatic diastolic BP ≥ 130 mm Hg
- Hypertension can be diagnosed in 2 visits within 1 month if the BP is $\geq 180/110$ mm Hg or BP is 140-179/90-109 mm Hg with target organ damage, diabetes or chronic kidney disease.



A cartoon illustration of a nurse in a white uniform and cap measuring the blood pressure of a very obese patient sitting on a chair. The patient is looking at the nurse with a slightly annoyed expression.

Hypertension

Video: Hypertension

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26 of 38

26

Target BP levels are:

< 140/90 mm Hg in the general population

< 130/80 mm Hg in clients with diabetes or renal dysfunction

Non-Pharmacological Treatments:

- Lifestyle Modifications are the first line of treatment.
- Encourage client to lose weight if appropriate (aim for 10%)
- Recommend dietary modifications:
 - Avoid high-salt foods,
 - Avoid adding salt in cooking or at table;
 - Adhere to diet high in fresh fruits and vegetables, high in soluble fibre and low fat dairy products, low in saturated fats
- Recommend:
 - smoking cessation
 - restriction of alcohol consumption
 - regular exercise

Pharmacological Treatments:

- **All pharmacotherapy must be initiated only after consultation with a MD/NP.**
- Consider Pharmacotherapy:
 - Diastolic BP $\geq$ 100 mm Hg or systolic BP $\geq$ 160 mm Hg in the client who does not have cardiovascular disease, cardiovascular risk factors or target organ damage
- The following classes of drugs are used in the treatment of hypertension:
 - Diuretics
 - Angiotensin-converting enzyme (ACE) inhibitors
 - Angiotensin receptor blockers (ARBs)
 - Beta-blockers
 - Calcium channel blockers (CCBs)

Hypertension

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27 of 38

27



Monitoring and Follow-Up

- For clients on non-pharmacologic therapy, follow up every 3-4 months.
- For clients on antihypertensive drug therapy, follow up every month until 2 successive blood pressure readings are at target level.
 - Once blood pressure has reached target level, follow up every 3-6 months.
 - Routine Laboratory Bloodwork as per CPGs
- **Annual Follow up with the MD/NP**
- More frequent follow-up is recommended for clients with symptomatic hypertension, severe hypertension, antihypertensive drug intolerance or target organ damage.

Hypertension

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28 of 38

28

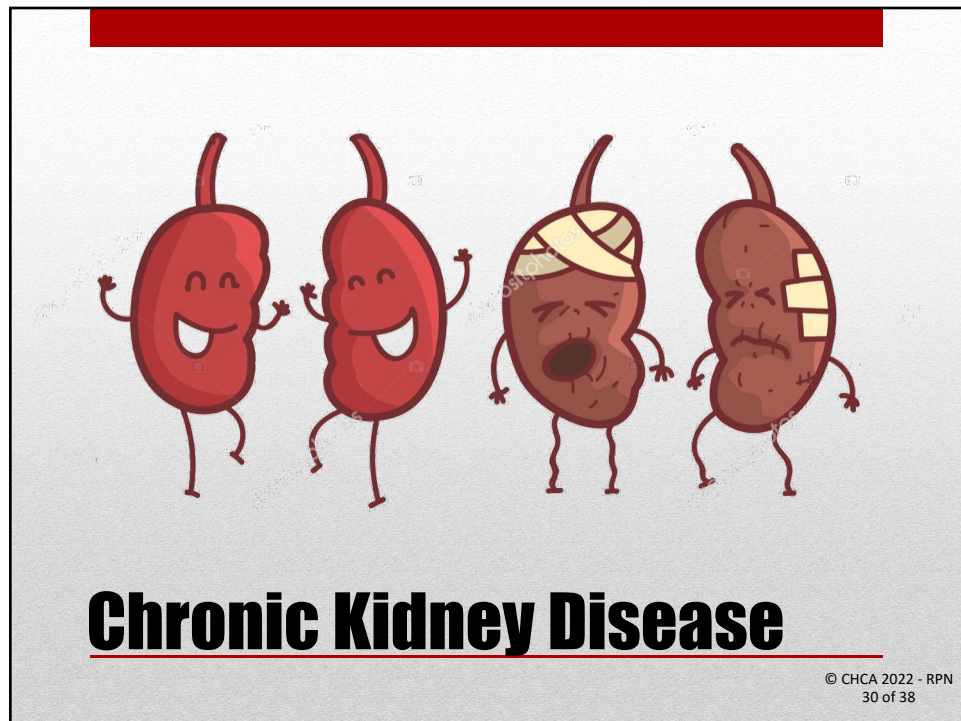
Hypertension Flowsheet

- Routine Assessment
- BP
- Wt/ BMI
- Waist Circumference
- Self-Management Goal
- Nutrition
- Physical Activity
- Smoking Cessation
- Psychosocial
- Medications Review
- Labwork:
 - Urine ACR
 - Creatinine
 - eGFR
 - Glucose (FPG/A1C)
 - Electrolytes (Na, K)

Government of Canada / Gouvernement du Canada		HYPERTENSION FLOW SHEET FOR ADULTS					
Name: _____		Medical History: _____					
Date of birth: _____		☐ Male ☐ Female					
Band #: _____		Allergies: _____					
Healthcare Card #: _____		RISK FACTORS & CO-MORBIDITIES (check off all applicable)					
☐ Chronic kidney disease ☐ Dyslipidemia ☐ Tobacco use (current-amount: _____ or quit-date: _____)		☐ Heart Failure ☐ Coronary artery disease ☐ Stroke or TIA ☐ Diabetes ☐ ** If client has diabetes, use diabetes care flowsheet					
ROUTINE ASSESSMENT							
DATE							
BP							
Wt (kg) / BMI							
BMI: 18.5-24.9							
Waist Circumference							
Men: <102cm, Women: <88cm							
Self-management goal set by client							
Nutrition							
Physical Activity							
Aerobic: ≥150min/week Resistance: ≥1 session/week							
Smoking Cessation (if applicable)							
Psychosocial							
Assess for depression, coping and stress							
Medications – review							
Assess adherence (note any changes)							
Inquire about traditional medicine(s)							
See progress notes (if applicable)	☐ No change	☐ No change	☐ No change				
Signature							
LABWORK RESULTS (Note: Labwork, including frequency, must be ordered by an NP or MD)							
DATE	Urine ACR	Creatinine	eGFR	Glucose Status FPG and/or A1C	Electrolytes Na ⁺ , K ⁺	Other	
							Baseline ECG - Date done: _____
Global cardiovascular risk: - Assess global CV risk using model or tool - Model/tool used: _____ - Risk Score or "heart age": _____ For NPI/MD: - Status for those with ≥3 CV risk factors - Consider low-dose ASA in those ≥50 years of age (caution if BP not controlled)							Vaccinations (in accordance with publicly funded schedules) Flu (annual): Date: _____ Date: _____ Pneumococcal (≥65 years and/or eligible conditions): Date: _____
Jan 2018							See reverse for care objectives and targets

Hypertension – Flow Sheet

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29 of 38

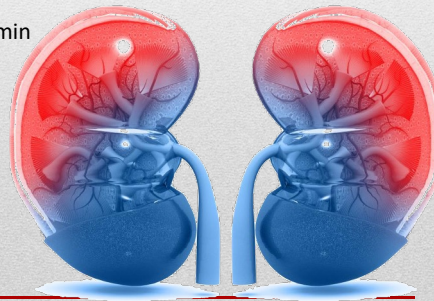


Normal Kidney Function:

- There are approximately 1 million nephrons in each kidney

Function:

- Removal of wastes from the blood including drugs and toxins
- Regulation of Fluids, Electrolytes, Acid/ Base Balance
- Controls blood pressure
- Makes 3 important hormones:
 - Erythropoietin (stimulates Bone marrow to make RBC's)
 - Renin – Regulation of BP
 - Calcitriol – active form of Vitamin D to maintain calcium for bones.



Video – Chronic Kidney Disease

Chronic Kidney Disease

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31 of 38

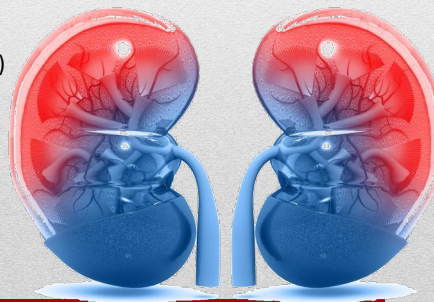
31

What is Chronic Kidney Disease?

- Presence of kidney damage for a period of 3 months or more
 - eGFR <60 mL/min and/or
 - ACR ≥ 3 mg/mmol
- Progressive condition
- Requires a continuum of care
- CKD is common
- Various causes

Causes of CKD:

- Diabetic nephropathy (most common)
- Hypertension
- Glomerulonephritis
- Hereditary or cystic disease
- *Unknown causes*



Chronic Kidney Disease

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32 of 38

32

Kidney Wise Toolkit

- Identify and Evaluate
- Detect
 - eGFR
 - Urine ACR
- Confirm CKD Dx
 - Referral to nephrology

Video: Moving Forward

KidneyWise

Identification, Detection, and Management of CKD in Primary Care

IDENTIFY & EVALUATE

Identify and evaluate people in your practice with elevated risk of CKD with any one of the following:

- ☐ Hypertension (HTN)
- ☐ Diabetes mellitus (DM)

- ☐ Age 60-75 with cardiovascular disease (CVD)
- ☐ First Nations, Inuit, or Métis people (≥ 18 years of age)

CKD detection should be done in the absence of acute intercurrent illness. Low estimated glomerular filtration rate (eGFR) in such scenarios may reflect acute kidney injury (AKI) and require more rapid evaluation.

If a previous abnormal eGFR and/or urine Albumin to Creatinine Ratio (ACR) result is available within the previous year of identifying a person with risk factors for CKD, then repeat the 2 tests to confirm diagnosis (the two sets of tests must be at least 3 months apart).

DETECT

Measure eGFR and urine ACR

Note: eGFR calculation needs to be adjusted for black people (multiply eGFR by 1.16)

→ If eGFR < 60 repeat measurement in 3 months, or sooner if clinical concern dictates (e.g. rapid decline from previous eGFR result or very low eGFR)

→ If urine ACR ≥ 3 repeat measurement 1 or 2 more times over the next 3 months (at least 2 out of 3 random urine ACRs must be elevated [≥ 3] in order to be considered abnormal)

Always consider reversible causes prior to re-measuring (e.g. recent treatments with non-steroidal anti-inflammatory drugs [NSAIDs], recent use of contrast dye for diagnostic imaging, benign prostatic hyperplasia [BPH]/urinary retention)

Confirm CKD diagnosis after 3 months

Box A: eGFR < 30 and/or ACR > 60

Person has CKD

-Based on above parameters, consider seeking consultation from nephrology

Work-Up

-Urine BUN, electrolytes
-Plus: CRP, Calcium, Phosphate, Albumin

Box B: eGFR 30-59 and/or ACR 3-60

Person has CKD

-Monitor in Primary Care (see MANAGE box below)

-Check urine BUN, electrolytes

-Follow eGFR & urine ACR every 6 months

If eGFR remains stable for ≥ 2 years, follow eGFR and urine ACR every 12 months

If any of the following occur, consider referral to nephrology:

- eGFR < 30 or ACR > 60, or
- Rapid deterioration in kidney function: eGFR < 45 and decline of > 5 ml/min within 6 months in absence of self-limited illness; eGFR must be repeated in 2-4 weeks to confirm persistent decline, or
- 5-year Kidney Failure Risk Equation (KFRE) ≥ 1% (please refer to evidence summary for details on KFRE criteria), or
- ability to achieve blood pressure (BP) targets, or
- Significant electrolyte disorder, or
- HbC casts or hematuria
- > 20 RBC/hpf suggestive of glomerulonephritis/renal vasculitis

Box C: eGFR ≥ 60 and ACR < 3

Person does not have CKD

-Re-measure annually for people with DM, less frequently otherwise, unless clinical circumstances dictate more frequent measuring

Kidney Wise Toolkit – Ontario Renal Network

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33 of 38

33

Who should be screened?

- Those at increased risk:
 - Hypertension
 - Diabetes
 - Age 60-75 with CVD
 - ? Younger/ earlier for FN

Detection of CKD

- Assess kidney function/ injury
- GFR – used as an indicator
- eGFR – various methods to calculate
- For most healthy people an eGFR of 90mL/min or higher is normal (declines with age)

Chronic Kidney Disease

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34 of 38

34

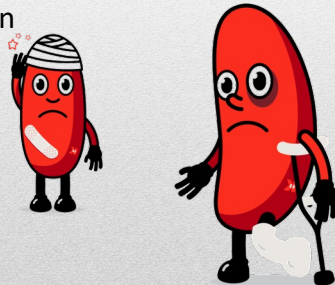
Assessment of Kidney Injury:

- Random urine test for micro albumin (ACR)
- Healthy kidneys filter out wastes from blood, but leave protein
- Impaired kidneys may fail to separate albumin from waste, an earlier sign of deteriorating kidney function

Urine Protein:
Normally kidneys filter protein. If it shows up on a uDip, there is a problem.

Factors that May affect results

- Medications
 - NSAIDs
- Volume depletion
- Obstruction (calculi)



Assessing Kidney Injury

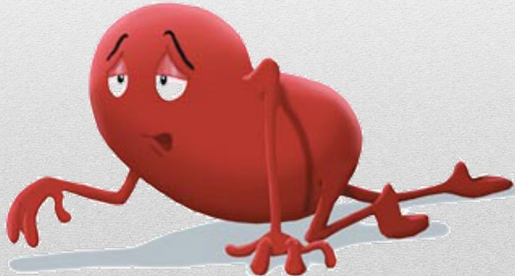
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35 of 38

35

Repeat Testing

- IF eGFR <60, repeat the test in 3 months (or sooner if concerned clinically)
- If ACR is ≥ 3 , repeat 1 or 2 more times within 3 mos.

Once isn't enough. Decreased kidney function could be temporary.



Assessing Kidney Injury

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36 of 38

36

Management of CKD

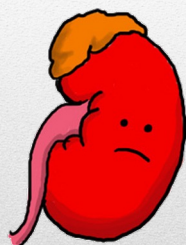
- CV risk very high for those with CKD.
- Most people with CKD die from a CV related event

What to do?

- Lipid Management
- BG Management (target A1C)
- Health Behaviour Modification
 - Smoking cessation

Nutrition

- Important components:
 - Limiting Sodium, Protein, Phosphorus, and Potassium.



I make pee...

MH

Assessing Kidney Injury

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37 of 38

37



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38 of 38

38