Diabetes Awareness Event
Participant Guide

Pharmacists are well-positioned to provide education and preventive health initiatives for the benefit of patients and the public.

This guide describes a Diabetes Awareness service that has been successfully prototyped by pharmacy students and pharmacists at the UBC Pharmacists Clinic. The clinical and procedural materials have been modified to enable any pharmacist to provide a similar service using equipment and materials routinely available in a community pharmacy.

The service includes the following components:

- Education about blood sugars, diabetes, and what it all means
- Measurement of weight, waist, blood pressure, and blood sugar levels (Hemoglobin A1c)
- Education about diabetes risk factors and a personalized risk assessment
- Interpretation of results and an individualized action plan to prevent or reduce diabetes risk

To ensure accountability and compliance with regulatory requirements, all health care services should be provided by licensed pharmacists, pharmacy students supervised by a licensed pharmacist or other regulated health care professionals.

NOTE - This guide does not cover logistic and business aspects of organizing a health event such as: advertising, where to hold the event, identifying participants, booking appointments, charging fees, liability issues, offering service to local businesses, etc.

Service Approach

Participants are typically scheduled at 15-minute intervals with the total appointment time being about 20 minutes, although this may vary.

Two options for service delivery are:

- Participants move from station to station and receive part of the service at each station
- Participants receive all services from one person
- If enough pharmacists/students are available, 2 or 3 participants can receive service at the same time in parallel service streams.

Participants receive a Diabetes Awareness Passport where information about their health is recorded and they will take home. NOTE – the pharmacy needs to also keep a record of service provided. This can be done using an excel spreadsheet, taking a copy of the completed passport or using an electronic record.

Preparatory Material

Clinical people (pharmacists/students) who will be providing service in the Diabetes Awareness event are encouraged to read the following materials so they are familiar with the elements of fracture risk being measured and discussed:

Patient friendly overview of diabetes and prediabetes

- Diabetes fact sheet
  - https://www.diabetes.ca/diabetescanadawebsite/media/managing-my-diabetes/tools%20and%20resources/diabetes-fact-sheet.pdf?ext=.pdf
- Prediabetes fact sheet
  - https://www.diabetes.ca/diabetescanadawebsite/media/managing-my-diabetes/tools%20and%20resources/prediabetes-fact-sheet.pdf?ext=.pdf
- Preventing diabetes
  - https://www.diabetes.ca/type-2-risks/preventing-diabetes

Role of insulin in glucose regulation

- https://www.cdc.gov/diabetes/basics/insulin-resistance.html

Diabetes statistics and complications in Canada

- https://www.diabetes.ca/DiabetesCanadaWebsite/media/Advocacy-and-Policy/Backgrounder/2022_Backgrounder_Canada_English_1.pdf

Diabetes risk factors and CANRISK screening tool

- https://www.pharmacists.ca/cpha-ca/assets/File/education-practice-resources/CanriskuserguideforpharmacistsEN.pdf

Overview of HbA1c

- https://www.healthlinkbc.ca/tests-treatments-medications/medical-tests/glycohemoglobin
- *https://www.youtube.com/watch?v=NFAbsMx-XXk*
  - (Optional comprehensive review) https://www.diabetes.ca/DiabetesCanadaWebsite/media/Health-care-providers/2018%20Clinical%20Practice%20Guidelines/Ch3-Definition-Classification-and-Diagnosis-of-Diabetes-Prediabetes-and-Metabolic-Syndrome.pdf

Service Approach

Station 1	Registration Participant demographics (name, pronouns, age, gender filled in passport)
Station 2	Measure HbA1c Blood sugar education Measure height/weight/BMI and assess lifestyle factors
Station 3	Measure blood pressure Assess signs/symptoms and risk factors for diabetes Calculation of CANRISK score
Station 4	Counseling and interpretation of results Recommendations and identification of next steps

Service Delivery: Step-by-Step

Station 1: Registration, About Me

"Welcome to our Diabetes Awareness event. You will be receiving information about diabetes and your health. This information will be recorded in a passport for you to take with you."

1. **Patient Demographic Information**
    - "*To start, we will record your name, preferred pronouns, and today's date*"
        - Ask Participant to fill out information on front cover of passport
    - *"Your age and gender will be used in station 3 to complete a diabetes risk scoring assessment"*
        - Ask participant to fill out age and gender in "1-About Me" section of passport

Please proceed to station 2.

—— End of Station 1 ——

Station 2:

"At this station we will start by taking a small blood sample to test your blood sugar level. I will then explain the role of blood sugar in the body and what diabetes is. We will then measure your weight, height, and body-mass index. Do you have any questions before we start?"

1. **Ask if participant has known diabetes or prediabetes and record in passport**
2. **Collect blood sample for HbA1c measurement**
   Supplies: Afinion 2; training will be provided
   - *"We will be taking a small blood sample to test your A1c. It is a simple blood test that measures your average blood sugar levels over the past 3 months. More information on the test and your result will be reviewed with you at Station 4"*
   - Record HbA1c result in passport
3. **Patient education**
   Supplies: Use printed image handouts
   a. **Glucose role/regulation –** use glucose regulation cycle image (https://theory.labster.com/regulation-blood-glucose/)
   Key Messages
      - Glucose is a sugar that travels through your blood to fuel your cells
      - The brain is completely dependent on glucose for energy, it cannot use any other fuel
      - Glucose comes from 2 places:
         - The gut: Carbohydrates in our diet are broken down into glucose
         - The liver: Made within the body, self-regulated based on blood glucose and insulin levels
      - Insulin is a hormone made by the pancreas that tells your cells either to take glucose from the blood for immediate energy or to store the glucose for later use
      - When blood sugar is low, a hormone called glucagon is released that tells your liver and muscles to release stored glucose into the blood
      - Insulin and glucagon work together to help closely regulate blood sugars

   b. **Result of unregulated blood sugars –** use lock and key image (https://www.growmedical.com.au/blog/type-2-diabetes-part-1-lets-not-sugarcoat-it)
   Key Messages
      - Diabetes occurs when your body's use or production of insulin and glucagon are off balance
      - Type 1 diabetes is thought to be due to an autoimmune process where your body attacks and destroys cells in the pancreas that make insulin. People with Type 1 diabetes are therefore dependent on insulin to survive
      - Approximately 10% of people living with diabetes have Type 1, usually starts during childhood or adolescence

- Type 2 diabetes results when your pancreas still produces insulin but your cells have difficulty or "resistance" to using insulin. This makes it more difficult for glucose to enter cells leading to elevated blood sugar levels
- The remaining 90% of people living with diabetes have Type 2, which is most commonly developed during adulthood
- We can use a lock and key example to describe insulin, with the cells acting as the locked door, and insulin acting as the key
    - In Type 2, think of the key no longer fitting the lock, resulting in glucose not being stored properly
- Prediabetes is a condition when your body begins to use insulin less efficiently and is a known risk factor for developing Type 2 Diabetes

c. Canadian diabetes statistics and complications – use DM complications image (https://feetfirstsault.com/2019/11/12/november-is-diabetes-awareness-month/)

Key Messages

- Diabetes is one of the most common chronic diseases affecting people in Canada
- Among Canadians, 30% live with diabetes or prediabetes (estimated to be over 11 million people); prevalence or rate continues to climb in Canada
- Diabetes complications are associated with premature death, and lifespan can be reduced by 5 to 15 years
- Diabetes is responsible for 30% of strokes, 40% of heart attacks, 50% of kidney failure requiring dialysis, and 70% of all non-traumatic leg and foot amputations
- Diabetic retinopathy is the leading cause of vision loss in people of working age

4. Measurements and lifestyle questions

Supplies: Digital scale/stadiometer, measuring tape

- "*While you can't change some risk factors (age, family history), other risk factors for diabetes may respond to lifestyle changes. For example, our weight and how we carry our weight can influence our risk for developing diabetes. We will be measuring your height/weight, waist circumference and calculating your BMI as part of the diabetes risk assessment in station 3. We will then wrap up this station by asking you some lifestyle questions*"
- Take the following measurements and record in passport
    - Weight (kg), height (cm); Note: may choose to leave footwear on or off when using scale
    - Leave BMI **blank**, will be calculated at station 3
    - Waist circumference (cm)
    - Lifestyle questions (tobacco use, exercise and diet)

"You are now ready to move on to station 3 where a pharmacy student will measure your blood pressure, ask you some additional questions and calculate your risk for developing diabetes"

—— End of Station 2 ——

Station 3:

"At this station, we will start by measuring your blood pressure, I will ask you questions related to risk for diabetes and we will calculate your overall risk of developing diabetes. Do you have any questions before we start?"

1. **Blood pressure measurement**

Supplies: Automated BP cuff

- "*Diabetes and high blood pressure are often clustered together. Good control of blood pressure can substantially reduce your risk of developing cardiovascular problems such as heart attack and stroke"*
- Ask whether participant has been previously diagnosed with high blood pressure and/or if they take medications for blood pressure. Record in passport
- While taking blood pressure:
    - Ask the participant if they are aware of what their normal blood pressure reading is
    - Confirm which arm to take reading on with participant
    - Ensure proper position – seated, back supported, feet flat on the floor, arm supported and at heart level
    - Ask participant not to talk while reading is being done
- Measure blood pressure and record reading in passport
    - 1 measurement in single arm is sufficient unless reading is abnormally high or significantly different than their usual readings
- May briefly discuss usual blood pressure targets which are noted in passport
    - SBP <140 mmHg – general population
    - SBP <130 mmHg – individuals with Diabetes
    - Note: some individuals at high risk of CV events may be advised to maintain tighter control, such as SBP <120 mmHg

**** Remember to record appropriate information in the "My blood pressure" section of passport**

2. **Symptom assessment**

- "*I am going to review a list of symptoms that can sometimes be caused by high blood sugars. Many people who have type 2 diabetes may display no symptoms at all"*
- Review the following list verbally and note any reported symptoms in passport
    - Excessive or intense thirst
    - Frequent urination
    - Change in weight (gain or loss)
    - Blurred vision

- Extreme fatigue or loss of energy
- Tingling/numbness in hands or feet
- Slow healing cuts or bruises

3. **Risk factor checklist/CANRISK score (simultaneously)**
   Supplies: CANRISK calculator on iPad
   (https://www.healthycanadians.gc.ca/en/canrisk#questionnaire)
   - *"I am going to ask you some additional questions to help us asses your overall risk of developing prediabetes or diabetes"*
   - Do not need to complete CANRISK if participant has already been diagnosed with diabetes. Can however continue with risk factor checklist in passport.
   - Compete interactive CANRISK questionnaire
     - Answers for steps 1 to 6 will be recorded in the passport
     - Step 3 will calculate BMI, **record result in passport**
     - Review remainder of steps (questions) with the participant
     - Check off all risk factors that apply in passport simultaneously as you complete the CANRISK questionnaire
     - Note the last risk factors in the passport checklist are not included in CANRISK and should be reviewed with the participant
       - Low HDL and/or high triglycerides
       - Heart disease (history of heart attack, stroke)
       - Diagnosed with certain medical conditions (depression, schizophrenia, bipolar disorder, HIV infection, obstructive sleep apnea, polycystic ovary syndrome, acanthosis nigricans)
       - Taking medications which may impact blood sugar.
   - List any medications which may impact blood sugars (eg steroids, antipsychotics, cyclosporine, diuretics, statin). If known diabetes, use this space to include any antihyperglycemic medications the participant is currently using
   - Circle appropriate CANRISK score range in passport

"You are ready to move on to Station 4 where another pharmacy student will go over all the information we have gathered, discuss your results, and answer your questions."

—— End of Station 3 ——

Station 4:

"At this station, we will review the results of your HbA1c test, risk factors for diabetes, make a follow-up plan, and answer any questions you may have."

Interpretation of results

- Tailor discussion based on participant "type" (see below)
- **For all participants:** Interpret HbA1C, and CANRISK score, review screening frequency, make plan for lifestyle modification
    - https://www.diabetes.ca/health-care-providers/clinical-practice-guidelines/chapter-4#panel-tab_FullText

1. **Explanations and key messages**

a. Hemoglobin A1c explanation: https://www.youtube.com/watch?v=NFAbsMx-XXk

- A1C is a blood test that checks the amount of sugar (glucose) found on hemoglobin in red blood cells; it does not require fasting
- When hemoglobin and glucose bond, a coat of sugar forms on hemoglobin and this coat gets thicker when there's more sugar in the blood
- A1C measures how thick that coat has been over the past 3 months, which is how long a red blood cell lives
- The HbA1c you had here today was used as a screening test, and if the test result shows an HbA1c reading that falls within the range of pre-diabetes/diabetes, you need to follow up with your doctor for repeat bloodwork at a lab for diagnosis
- (If applicable): A1C may be less accurate in: people of African, Mediterranean or Southeast Asian descent; sickle cell anemia or thalassemia, severe anemia, liver or kidney failure because the RBC regulation/production is different from other people

b. CANRISK score explanation https://www.pharmacists.ca/cpha-ca/assets/File/education-practice-resources/CanriskuserguideforpharmacistsEN.pdf

- The Canadian Diabetes Risk Questionnaire is a validated tool to assess risk of developing diabetes
- Knowing your risk can help you make healthy choices now that will reduce your risk or prevent you from developing diabetes
- While you can't change some factors such as age, gender, family history, and ethno-cultural background, other risk factors for diabetes may respond to lifestyle changes. These include weight, physical activity, diet, and smoking.

2. **Actions to consider based on patient risk categories**

- Low risk for diabetes, all measurements normal, no risk factors
    - Positive reinforcement of lifestyle measures, review screening frequency
- Moderate risk for diabetes or low risk with modifiable risk factors
    - Review risk factor modification, review screening frequency

- High risk for diabetes/prediabetes
  - Review risk factor modification, review screening frequency
- Known diabetes
  - Review blood sugar control/targets and medications
  - Assess for complications/hypoglycemia
  - Review lifestyle modification and check for uncontrolled CV risk factors
  - Refer as required

Screening Frequency

- If no risk factors or low-moderate risk on CANRISK and < 40 years age -> no regular screening indicated
- If no risk factors but ³ 40 years of age -> screen every 3 years
- If high risk using CANRISK and < 40 years of age -> screen every 3 years
- If high risk using CANRISK and ³ 40 years of age -> may require screening every 1-2 years; speak with primary care provider

General A1c targets (if known diabetes)

- A1c £ 6.5% for adults with T2DM to reduce the risk of CKD and retinopathy if at low risk of hypoglycemia
- A1c £7.0% for **MOST ADULTS** with T1DM or T2DM
- A1c 7.1-8.5% if functionally dependent, recurrent severe hypoglycemia or hypoglycemia unawareness, limited life expectancy, frail elderly

Examples of lifestyle modification and goal setting

- Physical activity
  - Try to engage in moderate physical activity (activity that makes you breathe faster and your heart beat faster than normal) such as walking at a brisk pace, skating or bicycle riding for at least 150 minutes per week. Activity can be bro- ken up into segments of 10 minutes at a time.
  - It's easier to keep active if you choose an activity, you enjoy and get someone to join you, or get involved in team sports. Make it social!
  - Share CDA Physical Activity handout: https://www.diabetes.ca/DiabetesCanadaWebsite/media/Managing-My-Diabetes/Tools%20and%20Resources/benefits-of-physical-activity.pdf?ext=.pdf
- Diet
  - Small changes can make a big difference and help you take those first few steps to reduce your risk
  - A good first step is to cut out highly processed foods, refined grains such as white bread, sugary food and sugary drinks. Plan your meals around vegetables, more plant-based proteins, whole grains, dairy, lean meats, oily fish, nuts and healthy oils such as olive oil

    - Following the Mediterranean diet can help you plan healthy meals and snacks to reduce your risk
    - Share Mediterranean Diet handout: https://www.healthlinkbc.ca/healthy-eating-physical-activity/food-and-nutrition/plant-based-foods/mediterranean-diet
    - Additional info: https://www.dietitians.ca/DietitiansOfCanada/media/Documents/Mediterranean%20Diet%20Toolkit/Mediterranean-Diet-Toolkit-A-Guide-to-Healthy-Eating-(handout).pdf
- Weight Management (if overweight and weight loss is a goal). Healthy living tips include:
    - Build exercise into your day. Aerobic exercises such as brisk walking, biking for at least 150 minutes each week, with gradual increases in intensity
    - Eat only when hungry, and avoid eating out of habit, boredom, or for emotional reasons
    - Create a healthy eating environment. Plate your food in the kitchen and bring it to the table. Keep extra servings in the kitchen to reduce temptation to overeat
    - Eat regular balanced meals, eating 3 meals a day reduces overeating
    - Eat fibre-rich foods: High-fibre foods may help to keep you feeling full longer (such as whole grains, vegetables, fruits and legumes)
    - Choose healthy beverages and snacks. Satisfy thirst with water. Small snacks can help control hunger, keep pre-cut vegetables and washed fruit handy for easy snacking
- Smoking Cessation
    - Individuals that smoke cigarettes are 30-40% more likely to develop type 2 diabetes than people who don't smoke
    - Share Smoking Cessation handout: https://www.healthlinkbc.ca/sites/default/files/documents/healthfiles/hfile30c.pdf
- Adequate control of comorbidities
    - Review any comorbidities such as high cholesterol and high BP and reinforce importance of proper management

—— End of Station 4 ——