

## Diabetes Management Results from the Vancouver Island Patient Survey

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Conducted in the Summer 2002

A survey was conducted in the summer 2002 of patients living on Vancouver Island who had received services related to diabetes from their family doctors or in hospital. The questionnaire was designed by a team from the Ministry of Health Services, Canadian Diabetes Association, and Vancouver Island Health Authority. The survey included questions about accessing information and services, monitoring, self-management activities and complications (see attached).

### Profile of Respondents

The questionnaire was mailed to 2,057 people living on Vancouver Island on June 14, 2002. The names of these people were randomly selected from physician billing data where a minimum of two office visits for diabetes mellitus were recorded in the past year, or hospital separation due to a visit related to diabetes was billed to the Medical Services Plan (MSP). Reminder cards were sent on July 30, 2002. Of the 2,057 questionnaires mailed out, 165 questionnaires were undeliverable due to wrong address or death. A total of 985 completed questionnaires were returned - a 52% response rate.

If respondents answered "no" or "don't know" to having ever been told they have diabetes they were eliminated from the analysis. Similarly if respondents indicated they had only had gestational diabetes their questionnaires were not included in the analysis.

A total of 828 respondents indicated on their questionnaire that they currently have diabetes. Thirty-four questionnaires were not included in the analysis due to lack of information. The results are, therefore, based on a final sample size of 794 respondents. The reported percentages are accurate within 3 percentage points 95 times out of 100, including results by region (with an approximate sample size of 250 each).

Overall, 51% of respondents were male. Of the respondents indicating their type of diabetes, 14% had Type 1 diabetes, 78% had Type 2, and 9% were not sure. The majority (96%) had diabetes for over one year, with 37% indicating they had diabetes for 11 or more years. Approximately 57% said they used pills to help manage their diabetes, 18% used insulin injections, and 8% did not use either pills or injections (insulin).

About 66% of respondents were between 45-74 years of age, the majority of which had Type 2 diabetes. Only 6% of respondents were under 45 years of age, while 28% of respondents were 75+ years of age. Thirty percent of respondents had less than grade 11 education; 15% had university or above.

### Regional Differences

Regions varied significantly from each other with respect to distribution of age and education, but not gender. The South Island reported having the highest proportion of older and more educated respondents and the highest percentage of respondents with Type 1 diabetes (16%) compared to approximately 10% in the Central and North Island regions. In contrast, the proportion of respondents with Type 2 diabetes increased from south to north: 74%, 81% and 86%, respectively.

## Information and Services

The most common sources of information about diabetes were the family doctor, a diabetes education center (DEC) and the Canadian Diabetes Association. Over half (58%) of the respondents indicated they had been to a DEC within the past two years. The majority (78%) of respondents sought information on diabetes from two or more sources. Almost all (99%) respondents reported having a family physician, and were able to get an appointment when needed (97%). Only 10 respondents reported that they usually go to walk-in clinics because they do not have a family doctor. Many more respondents indicated they were very (58%) or somewhat (28%) satisfied with the health care services available in their community, compared to those who indicated they were very (2%) or somewhat (6%) dissatisfied.

- *“In my experience, my pharmacist is the most accessible health professional.”*
- *“Speaking with the dietician at the Education Centre helped me the most.”*
- *“Education and access to latest information and medications helps me manage.”*

## Regional Differences

Statistically significant differences were reported across the regions regarding use of Diabetes Education Centres (DEC). South Island respondents reported lower percentages of having ever visited a DEC. Overall, 92% of Central and North Islanders and 84% of South Islanders reported having at any time visited a DEC. This difference was significant even when controlling for age and education. Among those who had visited a DEC, there was a significant variation by region in time since last visit, with the Central and North Islanders more likely to have been to a DEC within the last year.

## Monitoring

Ongoing monitoring is an important aspect of managing diabetes. A number of lab tests should be done regularly to check blood sugar control, blood lipids and kidney function. A key test is the hemoglobin A1c (HbA1c), a blood test that indicates the average blood sugar levels over the previous three months. This test should be done two to four times a year.

Overall, 81% of respondents reported having this test done regularly. Two thirds (67%) reported that their doctor indicated their last HbA1c test was  $\leq 0.07$  (in the normal range), 31% reported their HbA1c was  $> 0.07$  (above normal). The most common reasons for not having this test done were that the doctor didn't order it, and time/inconvenience.

- *“More information should be circulated to diabetics regarding new products, systems and monitoring.”*
- *“My log book agrees with my quarterly HbA1c tests.”*
- *“Why don't GPs keep glucose testing equipment in their offices for a quick check before referring for lab tests?”*

## Self-Management

Eating healthy foods, exercising and monitoring blood sugars are important aspects of self-management for people with diabetes. Overall, 83% of respondents followed a healthful eating plan at least five days per week during the last month, while 70% ate five or more servings of fruits and vegetables at least five days a week. Only 6% ate high fat foods on five or more days a week.

- *“I have learned from my eating and exercise habits what I can expect my blood sugar to be.”*
- *“I can’t afford to eat right; I know what my [blood sugar] levels are.”*
- *“Once I realized what the problem was I put myself on regular exercise, small meals, and took up yoga.”*
- *“Sometimes if blood sugar is high I will exercise to bring it down.”*

At least 20 minutes of exercise three times a week is a level often recommended as a minimum target for achieving health benefits for the general population. About 75% of respondents participated in physical activity for at least 30 minutes at least 3 times per week. About half of respondents (56%) undertook specific exercise sessions (such as swimming, walking and biking) at least 3 times a week.

A self-management strategy specific to diabetes is the measurement of blood glucose. Using a finger prick to draw a drop of blood and a glucometer, each person can test their blood sugar at home. A high or low reading is an indicator for patients to alter their diet, exercise or medication. Almost half of island respondents (49%) reported testing their blood sugar daily by finger prick and glucometer. A total of 76% reported that their blood sugar test results gave them the necessary guidance to modify their behaviour– if they had a high reading they would exercise, change their diet or adjust their medication. Among the half of respondents who cited barriers, the cost of glucose monitoring strips was the most commonly reported (36%), followed by “not recommended by doctor/nurse” (31%).

Logbooks or diaries are a useful way to keep track of blood sugars, medications and appointments. About 76% of respondents said they use a logbook either regularly (56%) or sometimes (20%). Among the nearly quarter of the respondents who did not use a logbook or diary, only 23% reported that their doctor suggested using one. Only 10% of respondents had smoked in the previous week but 71% had a flu shot in the past year. About half of all respondents (51%) reported checking their feet daily, while 14% never check their feet. Only 22% check their shoes daily and almost half, 49% never inspect their shoes.

- *“Wish test strips didn’t cost so much.”*
- *“I have my blood sugar well under control and just check it periodically.”*
- *“Cost of strips is truly a challenge.”*

### Regional Differences

Geography did not seem to affect overall scores for the questions on patient self-management for exercise and eating plans. However, regions differed significantly in terms of doctors or nurses not recommending patients test their blood sugars, with more South Islanders not receiving this recommendation (19%) compared to North Islanders (10%). While regional differences were not significant, a higher percent of North Islanders (83%) reported using their blood sugar test results for guidance either daily or most of the time, followed by Central Islanders (79%) then South Islanders (72%).

Among the subset of respondents who reported not testing their blood sugar daily, the cost of strips was identified as the main reason - most frequently by North Islanders (50%), then by Central Islanders (42%) and South Islanders (30%). When age and education were controlled, the cost of strips by region was not statistically significant. There was, however, significant variation by region for respondents receiving support from family and friends (9% South; 11% Central; 4% North) before and after controlling for age and education.

- *“Find medication, insulin and test strips very expensive to keep my diabetes at a safe level so I won’t have to be more expense to the medical system.”*
- *“I don’t always manage it I prefer to pretend it is not there!”*
- *“Encouragement of family doctor as a joint partnership [helps me manage].”*

### **Complications**

Diabetes can lead to a number of complications such as foot ulcers, heart and kidney problems. A large number of respondents across the island had a number of complications in addition to diabetes, including high blood pressure (50%), high cholesterol (35%) and problems with eyesight (31%). People with chronic diseases are at higher risk when flu strikes, and flu vaccination programs annually target those at higher risk. While not statistically different, more South Islanders (73%) had a flu shot than Central (68%) and North Islanders (63%).

- *“I never had any symptoms of diabetes. It was a routine eye exam that alerted my doctor.”*
- *“Just plain sick all the time.”*

### **Summary**

Overall, respondents were quite motivated to monitor their diabetes. Three quarters of respondents used their blood sugar test results to alter their diet or exercise regime. The same proportion of respondents exercised three times per week and followed a healthful eating plan. About 76% of respondents indicated they use a diary or log book to keep track of blood sugars, medications, appointments and adverse reactions.

The biggest barriers identified by respondents were the cost of testing strips and lack of instruction/direction from their health care provider. Among respondents who did not test daily, one half of North Islanders said cost of testing strips was a barrier for daily testing. One third of South Islanders indicated their doctor did not recommend daily blood sugar testing; however about 50% of respondents indicated they do this test daily.

The Medical Services Plan, in partnership with the Vancouver Island Health Authority, is surveying people who have received medical services related to diabetes. We are asking you to fill out this short survey to help us identify ways to improve care and education for people with diabetes. Please take the time to answer these questions and return the form to us by mail or fax. If you would like help completing the form, please call 952-1319 and a staff member will help you.

1. Has a doctor ever told you, you have diabetes?  Yes  No  Yes, but only during pregnancy
2. Do you have diabetes now?
  - Yes → → →  Type 1? → Go to Question 3
  - Type 2? → Go to Question 3
  - I'm not sure what type of diabetes I have → Go to Question 3
  - Gestational diabetes (pregnancy-related only)
  - No
  - Don't know

**If you answered, No, Don't know, or Gestational diabetes, please return the questionnaire now, and thanks for your help!**

3. How many years have you had diabetes?  <1 yr  1-5 yrs  6-10 yrs  11 yrs or more
4. If you have received information about diabetes, where did you get the information? (Please check all that apply)
  - My family doctor
  - My diabetes specialist (e.g. internist, endocrinologist)
  - The Diabetes Education Centre (DEC) (includes diabetes nurse and dietician at DEC)
  - Internet/ website
  - Friends / family
  - TV/magazines/newspaper
  - Canadian Diabetes Association (CDA)
  - Other, please specify \_\_\_\_\_
5. What medications do you take to help manage your diabetes?  pills  injections  none

**Hemoglobin A<sub>1c</sub> (HbA<sub>1c</sub>) is a blood test** used to measure blood sugar levels over the previous three months. This test is done in a lab and isn't done at home.

6. The result of your last hemoglobin A<sub>1c</sub> blood test was: (Please check all that apply)
  - Less than 0.07 (or <7%)
  - 0.07 (or 7%)
  - 0.08 (8%) or higher
  - My doctor said it was normal or good
  - My doctor said it was high
  - Don't know, or I haven't had it tested
  - The actual value of my last HbA<sub>1c</sub> blood test was \_\_\_\_\_
7. What stops you from getting hemoglobin A<sub>1c</sub> (HbA<sub>1c</sub>) tests done regularly? (Check all that apply)
  - Nothing, I have these tests regularly
  - I don't have a regular doctor
  - My doctor doesn't order the tests
  - Time / Inconvenient to go to the lab
  - Pain
  - Other, please specify \_\_\_\_\_

The questions below ask you about your diabetes self-care activities during the past 7 days. If you were sick or injured during the past 7 days, please think back to the last 7 days when you were not sick or injured.

**Diet**

8. On how many of the last SEVEN DAYS have you followed a healthful eating plan?  
0 1 2 3 4 5 6 7
9. On average, over the past month, how many DAYS PER WEEK have you followed your eating plan?  
0 1 2 3 4 5 6 7
10. On how many of the last SEVEN DAYS did you eat five or more servings of fruits and vegetables?  
0 1 2 3 4 5 6 7
11. On how many of the last SEVEN DAYS did you eat high fat foods such as hamburgers or full-fat dairy products?  
0 1 2 3 4 5 6 7

**Exercise**

12. On how many of the last SEVEN DAYS did you participate in at least 30 minutes of physical activity? (Total minutes of continuous activity, including walking).  
0 1 2 3 4 5 6 7
13. On how many of the last SEVEN DAYS did you participate in a specific exercise session (such as swimming, walking, biking) other than what you do around the house or as part of your work?  
0 1 2 3 4 5 6 7

**Blood Sugar Testing**

14. On how many of the last SEVEN DAYS did you test your blood sugar (finger prick and glucometer)?  
0 1 2 3 4 5 6 7
15. On how many of the last SEVEN DAYS did you test your blood sugar the number of times recommended by your health care provider?  
0 1 2 3 4 5 6 7  Don't have a recommendation

**Foot Care**

16. On how many of the last SEVEN DAYS did you check your feet?  
0 1 2 3 4 5 6 7
17. On how many of the last SEVEN DAYS did you inspect the inside of your shoes?  
0 1 2 3 4 5 6 7

18. Have you smoked a cigarette—even one puff—during the past SEVEN DAYS?  
 Yes      *If yes, how many cigarettes did you smoke on an average day?*  
      Number of cigarettes: \_\_\_\_\_  
 No
19. Have you had a flu shot (influenza vaccination) in the last 12 months?  
 Yes       No       Don't know
20. Do you use a diary (log book) to keep track of blood sugars, medications, appointments, etc.?  
 Yes  
 Sometimes  
 No      If no, has your doctor ever suggested you start using a diary?  Yes  
 No
21. *Is there something that stops you from testing your blood sugar every day (finger prick & glucometer)?*  
 Nothing, I do it every day  
 Do not find the information useful  
 Not recommended by my doctor or nurse  
 Cost of strips  
 Time  
 Too much trouble  
 I didn't know I was supposed to test it daily  
 I don't want to  
 Other \_\_\_\_\_
22. Do you use the results of your blood sugar test (finger prick & glucometer) to change what you eat, how much you exercise, or to adjust your medication?  
 Don't test my blood sugar  
 Yes, every day  
 Yes, most times  
 No, it's too much trouble  
 No, I don't want to  
 Don't know  
 Other \_\_\_\_\_
23. What health complications do you have in addition to diabetes?  
 High cholesterol  
 Heart problems  
 Problems with eye sight  
 Kidney problems  
 Problems with blood circulation in my feet and/or hands  
 High blood pressure (My most recent blood pressure reading was \_\_\_\_\_ (i.e. 160/90)  
 Other, please specify \_\_\_\_\_
24. When did you last go to a Diabetes Education Center (DEC)?  
 Never  
 <1 yr ago  
 1-2 yrs ago  
 3-4 years ago  
 5 or more years ago

25. Do you have a family doctor?
- Yes
  - No      If no, why not? (check all that apply)
    - I usually go to Walk-in Clinics
    - I can't find a regular family doctor
    - Transportation is a problem
    - Other (please specify)\_\_\_\_\_
26. If you have a regular family doctor, can you generally get an appointment when you need it?
- Yes
  - No      If no, why not \_\_\_\_\_
27. Overall, how satisfied are you with the health care services available in your community that support you living with diabetes?
- Very satisfied
  - Somewhat satisfied
  - Somewhat dissatisfied
  - Very dissatisfied
  - Don't know / unsure
28. What helps you the most in managing your diabetes?
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
29. *Please choose your age group:*
- under 25 years old
  - 25-34 years old
  - 35-44 years old
  - 45-54 years old
  - 55-64 years old
  - 65-74 years old
  - 75-84 years old
  - 85 years old and over
30. Are you:
- Male
  - Female
31. What is the highest level of education you have **completed**? (Please check only one)
- Grade 8 or lower
  - Grade 9-10
  - Grade 11-13 (including GED—General Education Diploma)
  - Trades certificate, vocational school diploma, apprenticeship
  - Non-university certificate below Bachelor's level
  - Bachelor's degree
  - University degree, certificate or diploma above Bachelor's degree
32. Please feel free to attach any other comments.

**Thank you for taking the time to answer and return these questions!**

Please use the enclosed envelope to mail this questionnaire to:

Medical Services Plan  
 Ministry of Health Services  
 PO Box 9999 Stn Prov Govt  
 Victoria BC V8W 9W9