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The Use of Blood Glucose Test Strips in Select Public Drug Plans, 2008

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Purpose of the Study

This study focuses on the use of diabetes test strips in selected public drug plans for the purpose of providing

- (i) an overview of the cost and utilization,
- (ii) an international price comparison and
- (iii) a treatment group analysis that assessed the extent to which the actual utilization compares to the recognized Canadian recommendations.

PMPRB NPDUIS has developed a patient tracking methodology based on NPDUIS claim-level data that allowed an assessment of how the actual utilization compares to the recommendations.

Scope of the Study

- The analysis uses 2008 data from public drug plans in Saskatchewan, Manitoba and Nova Scotia.
 - ♦ Data source: National Prescription Drug Utilization Information System Database, Canadian Institute for Health Information
- **2008 Canadian Diabetes Association Guidelines**
 - ♦ Based on clinical evidence, recommend a minimum use of test strips
- **2009 COMPUS Recommendations**
 - ♦ Based on both clinical evidence and cost effectiveness, focus on the optimal test strip usage and suggest a maximum use of test strips
- **2011 CDA Briefing Document for Healthcare Providers**
 - ♦ Addressed the issue of cost-effectiveness and made suggestions of minimum government reimbursement.

Recommendations
Considered

(i) Overview of Cost and Utilization

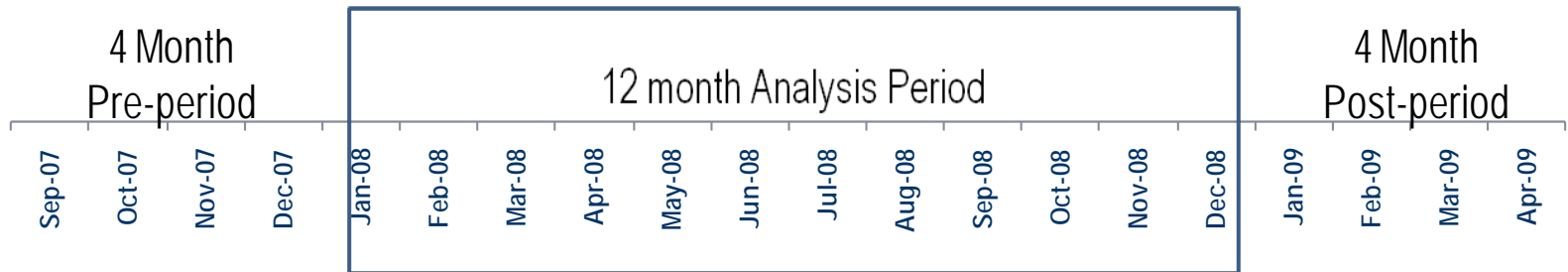
- Prescription costs for blood glucose test strips & drugs were:
 - ◆ \$29.4 million (6.4% of the total prescription cost) in SK
 - ◆ \$36.5 million (6.3%) in MB, and
 - ◆ \$16.0 million (8.3%) in NS
- Test strips alone accounted for between 38% and 45% of the total prescription costs for blood glucose test strips and drugs
- The plan paid amounts for test strips were \$8.3 million in SK, \$7.6 million in MB and \$5.9 million in NS
- The quantities of test strips dispensed were 15.4 million in SK, 16.3 million in MB and 8.4 million in NS.

(ii) International Price Comparison

- Results suggests that higher prices were reimbursed in 2008 in SK, MB and NS than in selected foreign markets:
 - ◆ The lowest average cost per test strip (excl. pharmacy markup) among the three Canadian jurisdictions was \$0.7273 in 2008
 - ◆ The average price of test strips in the 2010 United States Federal Supply Schedule was \$0.3934 in Canadian dollars
 - ◆ The average list price in the 2008 national formularies in the United Kingdom and France \$0.5611 and \$0.4850, respectively, in Canadian dollars
 - The international price sources were selected based on data availability
- **Limitations are discussed in terms of prices compared**
- **Recent price changes are acknowledged.**

(iii) Treatment Group Analysis Methodology

- A cohort of patients that continuously used diabetes drugs and/or blood glucose test strips in 2008 was analyzed



- The major groups of diabetes patients were identified based on their treatment type
 - ◆ Group 1 – Insulin-only Users: 12%+ of the cohort, 28%+ of test strips
 - ◆ Group 2 – Insulin and OAA Users: 13%+ of the cohort, 19%+ of test strips
 - ◆ Group 3 – Non-users of Insulin: 71%+ of the cohort, 45%+ of the test strip

Group 1 – Insulin-only Users

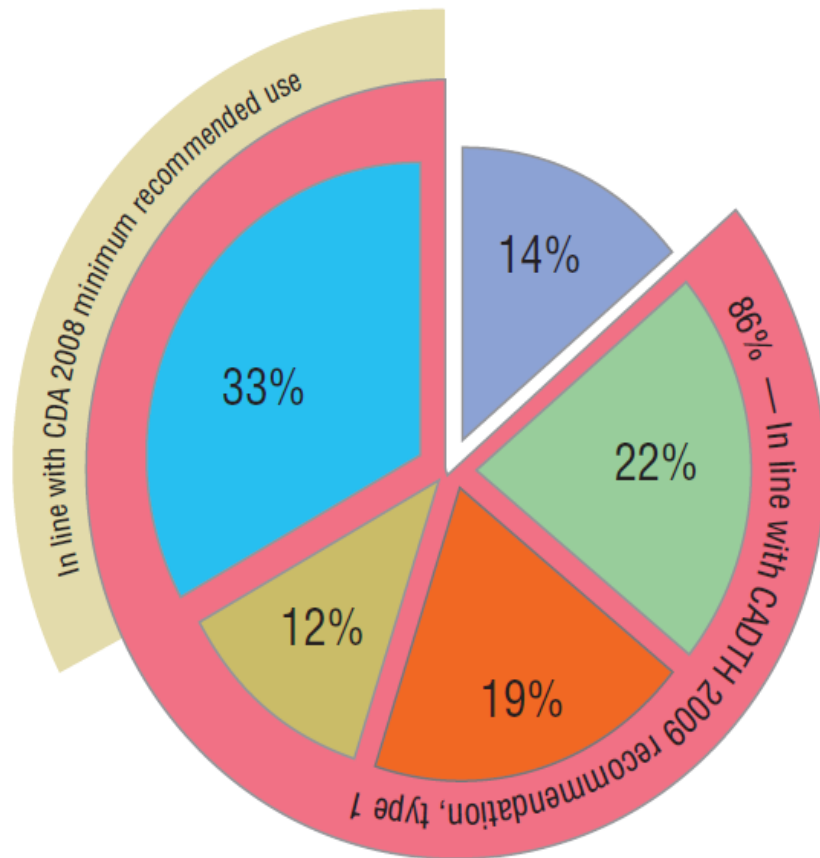
Assumed to be mostly type 1 diabetes patients

- CDA 2008 recommends that “[SMBG] should be undertaken at least 3 times per day”
 - ◆ Up to 36% of insulin-only users in 2008 were in line with this recommendation
- CADTH 2009 “recommends that the optimal daily frequency of SMBG be individualized” and states that “SMBG is an essential component of diabetes management”
 - ◆ Up to 91% of insulin-only users in 2008 were in line with this recommendation
- CDA 2011 makes no further recommendation.

Group 1 – Insulin-only Users

Sample results

Saskatchewan



Avg. Weekly Test Strip Use	Patients
0	707
0.01–6.99	1,100
7.00–13.99	925
14.00–20.99	597
21+	1,638
Total	4,967

Group 2 – Insulin and OAA Users

Assumed to be mostly adult type 2 diabetes patients

- CDA 2008 recommends that “[SMBG] should be undertaken at least 3 times per day. (...). In those with type 2 diabetes on once-daily insulin in addition to OAA, testing at least once a day at variable times is recommended”. In 2008:
 - ◆ Up to 19% of users used on average at least 3 test strips per day
 - ◆ The majority of users (56%–71%) used an average at least 1 test strip per day
- For type 2 adult patients, CADTH 2009 “...recommends that the optimal daily frequency of SMBG be individualized” and “...suggests that the maximum weekly frequency of SMBG is 14 tests per week for most of these patients”
 - ◆ The majority of users (56% to 61%) used test strips in line with this suggestion.

Group 2 – Insulin and OAA Users

Assumed to be mostly adult type 2 diabetes patients

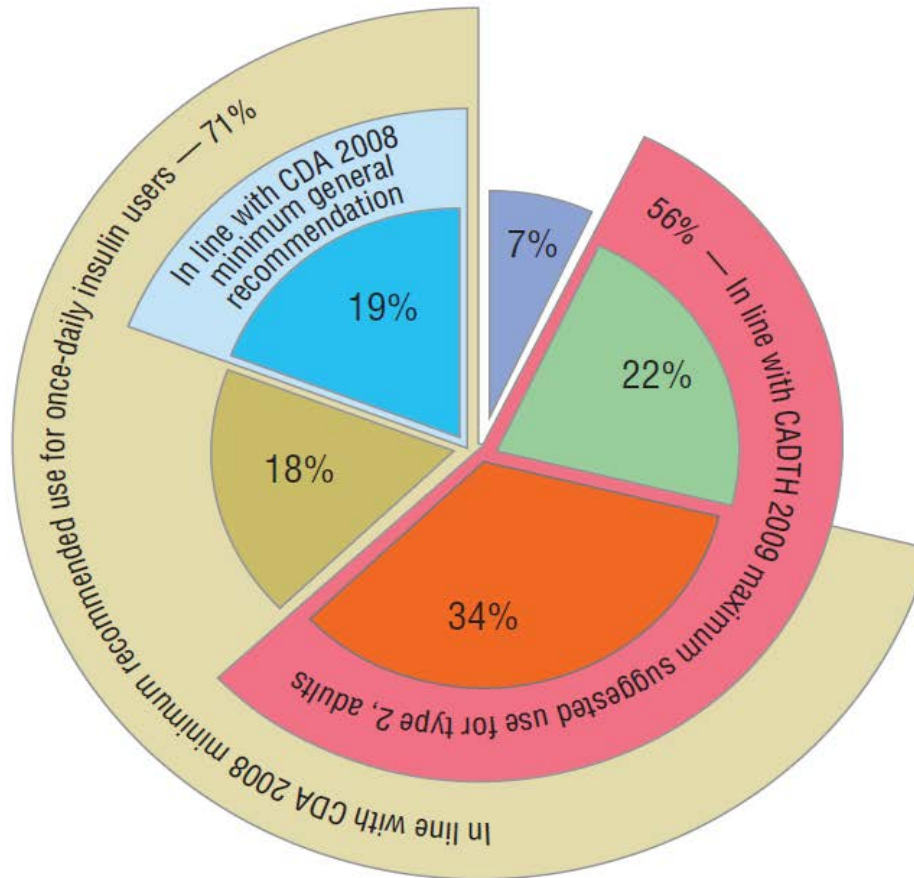
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- In 2011, the CDA comments that it “is in general agreement [with CADTH (...)], however, we recommend that the amount of SMBG be individualized for all people ...” and adds that “... we believe it is most practical and reasonable not to limit SMBG for adults with type 2 diabetes using insulin”.

Group 2 – Insulin and OAA Users

Sample results

Nova Scotia



Avg. Weekly Test Strip Use	Patients
0	168
0.01–6.99	545
7.00–13.99	821
14.00–20.99	442
21+	456
Total	2,432

Group 3 – Non-users of Insulin

Assumed to be mostly adult type 2 diabetes patients

- CDA 2008 recommends that “... the frequency of SMBG should be individualized ...”
- For most type 2 adult patients in this treatment group, CADTH indicates that “...routine use ... is not recommended”
 - ♦ Patients that did not use test strips accounted for 32%, 43% and 26% of the non-users of insulin in SK, MB and NS, respectively
 - ♦ Furthermore, lower-end users may not have used test strips routinely, although precise conclusions could not be drawn.

Group 3 – Non-users of Insulin

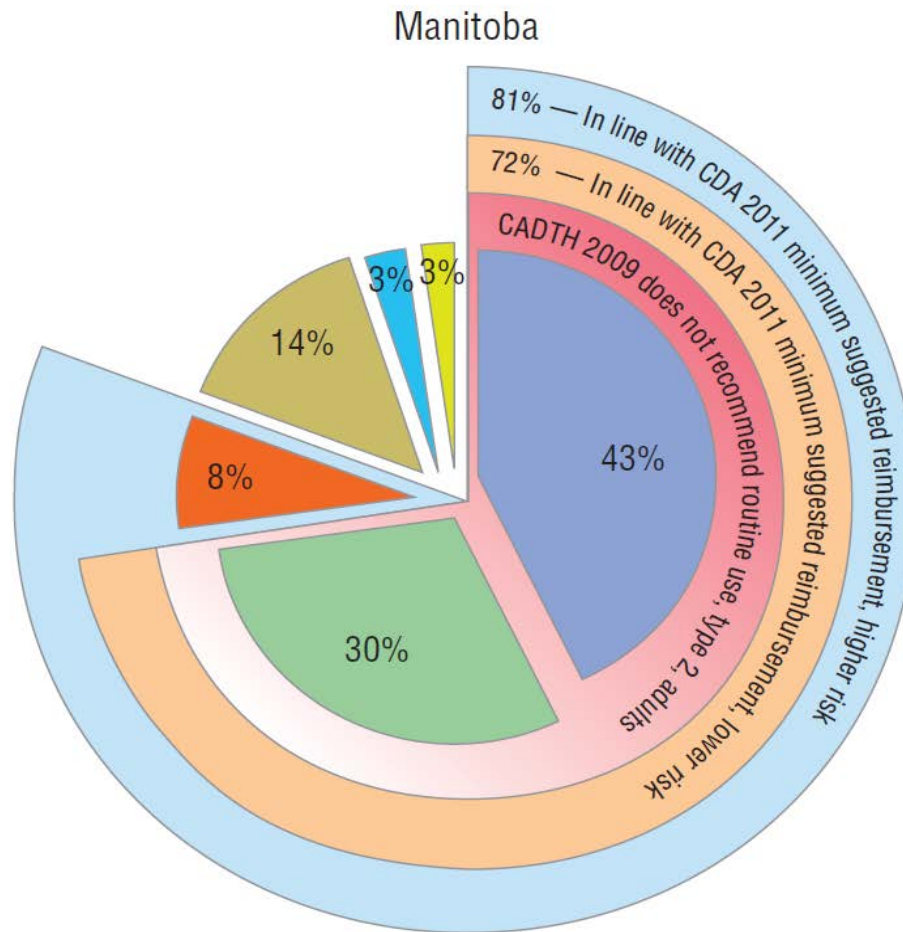
Assumed to be mostly adult type 2 diabetes patients

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- For type 2 adult patients, CDA 2011 “...suggest[s] a minimum government reimbursement of SMBG test strips of 15 test strips per month [for those using no pharmacotherapy or pharmacotherapy with a lower risk of hypoglycemia], and 30 test strips per month [for those using any pharmacotherapy with a higher risk of hypoglycemia]”
 - ♦ The majority of the non-users of insulin in 2008 (59% to 81%) used test strips in line with this suggestion of minimum government reimbursement.

Group 3 – Non-users of Insulin

Sample results



Avg. Weekly Test Strip Use	Patients
0	13,657
0.01–3.99	9,433
4.00–6.99	2,657
7.00–13.99	4,482
14.00–20.99	969
21+	701
Total	31,899

Limitations

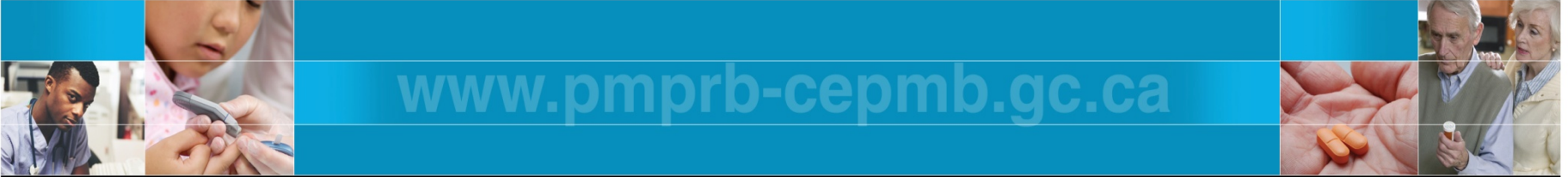
- The study limitations are discussed in detail in the report
- The analysis was conducted on a cohort of patients that continuously used diabetes drugs and/or test strips
 - ♦ The results may differ in the overall beneficiary population
- The public drug plan data analyzed represents only one component of the pharmaceutical market
 - ♦ The results should not be extrapolated to other population groups, as the findings may be different for test strip use reimbursed under other publicly or privately funded plans or paid for out-of-pocket.
- This analysis deals with broad recommendations and suggestions and does not capture individualized treatments.



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