Community Pharmacy-Based A1c Screening – A Canadian Model for Diabetes Care

- Welcome
- We will begin shortly.
- Please ensure your computer speakers are turned on.

Pharmacy Research Webinar Series Hosted by:

CPRG
CANADIAN PHARMACY PRACTICE RESEARCH GROUP
PHARMACY RESEARCH WEBINAR

WWW.PHARMACISTS.CA
Community Pharmacy-Based A1c Screening
A Canadian Model for Diabetes Care

Affiliations

• John Papastergiou BSc, BScPhm
  • Community Pharmacist/Owner
  • Adjunct Assistant Professor
  • School of Pharmacy
  • University of Waterloo
Disclosure

- Presenter’s Name: John Papastergiou

I have the Relationships with commercial interests:
- Advisory Board/Speakers Bureau: Pfizer, Merck, Bayer, Abbvie
- Funding (Grants/Honoraria): Pfizer
- Research/Clinical Trials: Pfizer, Geneyouin
- Speaker/Consulting Fees: Pfizer, Merck, Roche, Abbvie, Bayer, Valeant, J&J
Practice Site

- High volume, large format store in GTA
- Diverse, multiethnic patient population
- 200,000 prescriptions filled annually
- Cash/Gov/Third 18/47/35%
- Many local independent competitors
- Large community hospital nearby
Scope and Impact of Diabetes

- Estimated Canadian diabetes prevalence:¹
  - 3.4 million or 9.3% of the population
- 20% of diabetes cases remain undiagnosed²
- Projected 44% increase in prevalence from 2015-2025¹
- 70% of diabetics have not had an A1C test in the last year³

Cost of Diabetes in Canada: 2000 to 2020

Source: Canadian Diabetes Cost Model
Point-of-care testing (POCT)

What is point-of-care testing?

Testing performed on site, at the time of patient consultation

New opportunities with

- Enhancing clinical pharmacy services
- Facilitating expanded scope activities
- Improving patient health
HbA1c point-of-care test

5 minutes, 93.2% accurate

Original Pilot Program

HbA1c testing in the community pharmacy: A new strategy to improve care for patients with diabetes

John Papastergiou, BScPhm; Amy Rajan, BScPhm; Artemis Diamantouros, BScPhm, MEd; John Zervas, PharmD; Justin Chow; Peter Tolios
Conclusions

**Inadequate glycemic control**
- Almost half of patients (43.6%) had an A1C over 7%

**Potential opportunity for pharmacists**
- Providing accessible disease monitoring in the community
- Identifying opportunities for intervention in cases of poor glycemic control
- Assisting patients in taking steps to improve their glycemic control

**Availability of the point-of-care HbA1C screening device**
- Devices such as Bayer A1C Now meter can arm pharmacists with the tools required to monitor patients in the community
Community pharmacy-based A1c screening: a Canadian model for diabetes care

John Papastergiou\textsuperscript{a,b}, Chris Folkins\textsuperscript{b} and Wilson Li\textsuperscript{b}

• **Population**: Patients diagnosed with diabetes across Canada

• **Assessment**: POC A1C Test

• **Intervention**: Pharmacist recommendation

• **Outcome**:  
  – Level of \textbf{A1C control}  
  – Number and type of \textbf{pharmacist interventions} in diabetes

Method

1. **Recruited patients** with diabetes when picking up medications or during MedsCheck (Non-standardized recruitment approach)

2. **A1C Clinic Days**:
   - HbA1c testing by a pharmacist using Bayer A1C Now meters
   - Pharmacist conducted a medication review, assessed blood pressure, glycemic control, lifestyle and diabetes-related complications

3. **Pharmacist made recommendations** in accordance with 2008 CDA based on the results

- Voluntary provision of A1C screening services & data submission to the central web-based database

- Data was collected over a period of 8 months
Geographic Distribution of Participants
1,111 patients screened

224 Excluded (No formal Dx of diabetes)

871 patients included in analysis

16 Excluded (Incomplete Data)
Sex

| Male 55% | Female 45% |

Disease

| Type 2 Diabetes (89%) | Type 1 Diabetes (11%) |

Age (years)

| ≤ 20 yr (1%) | 21-59 yr (36%) | ≥ 60 yr (64%) |
40.9% optimal glycemic control (A1c ≤7.0%)
43.3% hyperglycemic
(A1c >7 and <9%)
Results

Over half (59.1%) of patients screened did not meet glycemic targets

15.8% marked hyperglycemia (A1c ≥9.0%)
Optimal Glycemic Control by Geographical Region

Glycemic Control by Regimen

Trend towards **worse** glycemic control with more **intense** antihyperglycemic regimen

Pharmacist Interventions

- Average number of interventions per patient: 2
- Total 1,711 interventions performed by pharmacists
  - Lifestyle counselling (29.0%)
  - Referral to physician (16.5%)
  - Discussion of the patient’s A1C (13.7%)
  - Communication with the physician
  - Device training
  - Referral to dietitian
  - Booking a follow-up appointment

Types of Intervention by A1C

Shift towards **decreased** prevalence of pharmacist-directed interventions and **increased** prevalence of physician-directed interventions with poorer glycemic control.
Geographical Distribution of Interventions

Possible Explanations

1. Disease Progression
2. Non-adherence & lack of time/personnel to educate patients
3. Psychological Insulin Resistance
   - Reluctance on the part of patients & physicians to initiate or intensify insulin therapy
4. Under-dosing of Medication

- Why are so many patients not meeting glycemic targets?
- Why is control worse in patients with more intense therapy?
- Immense opportunity for the pharmacist during medication reviews
- Fear of Hypoglycemia
Factors contributing to PIR…

<table>
<thead>
<tr>
<th>In health care providers</th>
<th>In patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Fear of hypoglycemia in elderly patients with serious co-morbidities</td>
<td>• Fear of needles/pain</td>
</tr>
<tr>
<td>• Lack of time or personnel to teach proper insulin usage</td>
<td>• Fear of hypoglycemia</td>
</tr>
<tr>
<td></td>
<td>• Fear of weight gain</td>
</tr>
<tr>
<td></td>
<td>• Fear of dependence</td>
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Conclusion

• Point-of-care screening devices offer a simple and efficient means for pharmacists to monitor patients with diabetes in the community

• Findings illustrate the prevalence of suboptimal glycaemic control among diabetic patients in the community

• Results highlight the readiness of Canadian pharmacists to assist patients in managing glycaemic control and making interventions as required
Population: Patients diagnosed with diabetes across Canada

Assessment: POC A1C Test

Intervention: Pharmacist recommendation

Outcome: Change in A1C control at follow-up

457 diabetic patients initially included in analysis

82 diabetic patients participated in a follow-up
Impact at Follow-up

Following pharmacist recommendations:

The number of patients at A1C target tripled

The number of patients at A1C target quadrupled after the pharmacist consulted with their physician

Half of all patients had a clinically significant reduction in A1C
## Patient Satisfaction

<table>
<thead>
<tr>
<th>Survey Question</th>
<th>Strongly Agree/Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>You were able to find a convenient appointment time.</td>
<td>95%</td>
</tr>
<tr>
<td>You found the assistance/consultation you had with the pharmacist very valuable in managing your diabetes.</td>
<td>90%</td>
</tr>
<tr>
<td>You received information that would help you better manage your condition.</td>
<td>89%</td>
</tr>
<tr>
<td>You will discuss the appointment results with your doctor or other health care provider</td>
<td>91%</td>
</tr>
</tbody>
</table>
Objectives: Multi-pharmacy pilot program where a standardized worksheet was used by pharmacists offering HbA1c clinics in order to standardize the structure of the patient interviews and improve detection of drug therapy problems.

Methods Thirteen community pharmacies from across Ontario interested in offering HbA1c screening as part of their professional programmes participated in the pilot program. Pharmacists received training on the use of the standardized worksheet and were provided with all the tools required to hold a clinic. HbA1c analysis was performed using the Roxon A1c Now®. Data collection took place over a period of 4 months beginning August 2015.
Method

1. INTERVENTION
   Eligible patients will be provided with a 20 minute pharmacist consultation and up to three point of care A1c assessments annually.

2. ELIGIBILITY
   1) Confirmed diagnosis of Type 1 or Type 2 diabetes
   2) Known meter status:
      a. currently use a competitor meter (primary)
      b. newly diagnosed and have yet to be provided a meter (primary)
      c. existing Roche meter (secondary)
   3) Willing to receive a new Roche meter
   4) Receive A1c testing within one month of obtaining their new meter

EXCLUSION CRITERIA:
Patients who have confirmed A1c by a pharmacist or a physician within the last three months and are aware of the results.

3. A1c KIT ACQUISITION

4. PATIENT RECRUITMENT
   1) Patients at the pharmacy for a new or refill prescription
   2) Patients calling the pharmacy for a refill prescription
   3) Patients receiving complimentary professional services including medication reviews, vaccination, or pharmaceutical opinions
   4) Pharmacy team to print a prescription transaction report identifying patients taking oral antihyperglycemic medication or insulin and proactively inviting them for A1c screening and assessment.

5. COUPON
   A1c

6. STANDARDIZED CONSULTATION

7. OUTCOME MEASURES

PROFESSIONAL SERVICES REVENUE
- Diabetes Medication Reviews: $75
- Follow-up Medication: $25
- Pharmaceutical Opinions: $15
### Re: A1c Diabetes Clinic

**Patient Name**

**Date of Birth**

**Patient Phone**

**Patient Address**

**Workforce**

**Salary**

**Education**

**Pharmacist Recommendation**

1. **A1c**
   - **Rampid**
   - **No**

2. **Medication**
   - **Statin**
   - **No**

3. **Review**
   - **No**

4. **Use attached**
   - **CVD Risk factors**
   - **No**

5. **Other**
   - **No**

**Diet**

- **Meats**
- **Fruits**
- **Vegetables**

**Exercise**

- **Cardio (30min/day)**
- **Weight/Resistance**

**Random glucose**

- **8 mmol/L**

**A1c**

- **Target**

---

**Pharmacist**

**License #**

**Date**

**Confirmed Received**

**Address**

**Telephone**

**Fax**

---

**Dear Dr,**

At the Pharmacy A1c Diabetes clinic, the following information was gathered. Please see Pharmacist Recommendations below.

---

**Workforce**

**Salary**

**Education**

---

**Pharmacist Recommendation**

- **A1c**
- **Rampid**
- **No**

**Medication**

- **Statin**
- **No**

**Review**

- **No**

**Use attached**

- **CVD Risk factors**
- **No**

**Other**

- **No**

**Diet**

- **Meats**
- **Fruits**
- **Vegetables**

**Exercise**

- **Cardio (30min/day)**
- **Weight/Resistance**

**Random glucose**

- **8 mmol/L**

**A1c**

- **Target**
# Results

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Number of pharmacies</td>
<td>13</td>
</tr>
<tr>
<td>Number of patients</td>
<td>87</td>
</tr>
<tr>
<td>Mean number of patients per site</td>
<td>5.08</td>
</tr>
<tr>
<td>Mean age (years)</td>
<td>62.3</td>
</tr>
<tr>
<td>Males</td>
<td>47 (54%)</td>
</tr>
<tr>
<td>Type 1 diabetics</td>
<td>11 (12%)</td>
</tr>
<tr>
<td>Type 2 diabetics</td>
<td>76 (87%)</td>
</tr>
<tr>
<td>Mean HbA1c</td>
<td>7.69%</td>
</tr>
<tr>
<td>Patients with HbA1c &lt;7</td>
<td>31 (38%)</td>
</tr>
<tr>
<td>Patients with HbA1c 7-9</td>
<td>41 (44%)</td>
</tr>
<tr>
<td>Patients with HbA1c &gt;9</td>
<td>15 (18%)</td>
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</table>
## Interventions

<table>
<thead>
<tr>
<th>Type of intervention</th>
<th>Avg # /patient if HbA1c &lt;7 (total)</th>
<th>Avg # /patient if HbA1c 7-9 (total)</th>
<th>Avg # /patient if HbA1c &gt;9 (total)</th>
<th>Total/patient (total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medication</td>
<td>1.26 (39)</td>
<td>0.93 (38)</td>
<td>1.87 (28)</td>
<td>1.21 (105)</td>
</tr>
<tr>
<td>Lifestyle</td>
<td>1.77 (55)</td>
<td>1.63 (65)</td>
<td>1.53 (23)</td>
<td>1.64 (143)</td>
</tr>
<tr>
<td>BG monitoring</td>
<td>2.13 (56)</td>
<td>1.93 (79)</td>
<td>2.13 (31)</td>
<td>2.03 (177)</td>
</tr>
<tr>
<td>All</td>
<td>5.16 (160)</td>
<td>4.39 (182)</td>
<td>5.53 (83)</td>
<td>4.87 (424)</td>
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<tr>
<td><strong>ACEi/ARB</strong></td>
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<td></td>
</tr>
<tr>
<td>Number of patients indicated</td>
<td>69 (79.3%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patients currently not receiving</td>
<td>12 (13.8%)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Recommended</td>
<td>2 (17%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean A1C of those recommended</td>
<td>6.80%</td>
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</table>

<table>
<thead>
<tr>
<th><strong>Statin</strong></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Number of patients indicated</td>
<td>83 (95.4%)</td>
</tr>
<tr>
<td>Patients currently not receiving</td>
<td>19 (21.8%)</td>
</tr>
<tr>
<td>Recommended</td>
<td>6 (31.6%)</td>
</tr>
<tr>
<td>Mean A1C of those recommended</td>
<td>9.35%</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>ASA</strong></th>
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<tbody>
<tr>
<td>Number of patients with CVD risk factors</td>
<td>54 (62.1%)</td>
</tr>
<tr>
<td>Recommended</td>
<td>23 (42.6%)</td>
</tr>
<tr>
<td>Mean A1C of those recommended</td>
<td>7.27%</td>
</tr>
</tbody>
</table>

**In summary, this study generated $31,724.06 in cost savings and avoided 4 hospital admissions.**
Conclusion

Significant opportunity for pharmacists to use point-of-care screening in combination with a standardized worksheet to more readily detect drug therapy problems and intervene to improve disease management when warranted.
Canadian Pharmacists Conference

The Canadian Pharmacists Conference 2016 will be jointly hosted by the Canadian Pharmacists Association (CPhA) and the Alberta Pharmacists Association (RxA).

Looking forward to seeing you in Calgary, June 24–27, 2016.
Next Pharmacy Research Webinar

There will be one more pharmacy practice research webinars presented during the spring 2016.

The topic and speaker of the next webinar will be announced soon. Please check pharmacists.ca/cpprg for topics and dates.
2016 Previously Recorded Pharmacy Research Webinars

- The Effect of a Care Transition Process to Intervention Pharmacies Versus Usual Care on Optimal Medication Management

- The UBC Pharmacists Clinic - A Catalyst for Pharmacists Practice Change
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