Point-of-care screening programs in community pharmacy practice:

An innovative approach to improving patient care

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

Jointly presented by the Canadian Pharmacists Association (CPhA) and the Ontario Pharmacists Association (OPA)
Disclosures

Speaker’s Bureau:

Bayer, Merck, Abbvie, Pfizer, Almirall, Valeant, Leo, OPA

Consultants:

Abbvie, La Roche-Posay, Galderma
Affiliations
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
Objectives

1. Review the current point-of-care technologies available for use by community pharmacists.

2. Showcase recent evidence that highlights the impact of pharmacist-directed point-of-care screening in the management of different disease states.

3. Discuss strategies to overcome barriers when attempting to integrate point-of-care screening into a busy community pharmacy practice.

4. Identify opportunities to utilize point-of-care screening to add value to other expanded scope activities.
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
POCT: Bridging healthcare access gaps

<table>
<thead>
<tr>
<th>Expanded Scope</th>
<th>Province/Territory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide emergency prescription refills</td>
<td>BC  AB  SK  MB  ON  QC  NB  NS  PEI  NL  NWT  YT  NU</td>
</tr>
<tr>
<td>Renew/extend prescriptions</td>
<td>BC  AB  SK  MB  ON  QC  NB  NS  PEI  NL  NWT  YT  NU</td>
</tr>
<tr>
<td>Change drug dosage/formulation</td>
<td>BC  AB  SK  MB  ON  QC  NB  NS  PEI  NL  NWT  YT  NU</td>
</tr>
<tr>
<td>Make therapeutic substitution</td>
<td>BC  AB  SK  MB  ON  QC  NB  NS  PEI  NL  NWT  YT  NU</td>
</tr>
<tr>
<td>Prescribe for minor ailments/conditions</td>
<td>BC  AB  SK  MB  ON  QC  NB  NS  PEI  NL  NWT  YT  NU</td>
</tr>
<tr>
<td>Initiate prescription drug therapy</td>
<td>BC  AB  SK  MB  ON  QC  NB  NS  PEI  NL  NWT  YT  NU</td>
</tr>
<tr>
<td>Order and interpret lab tests</td>
<td>BC  AB  SK  MB  ON  QC  NB  NS  PEI  NL  NWT  YT  NU</td>
</tr>
<tr>
<td>Administer a drug by injection</td>
<td>BC  AB  SK  MB  ON  QC  NB  NS  PEI  NL  NWT  YT  NU</td>
</tr>
<tr>
<td>Regulated Pharmacy Technicians</td>
<td>BC  AB  SK  MB  ON  QC  NB  NS  PEI  NL  NWT  YT  NU</td>
</tr>
</tbody>
</table>

- **Implemented in jurisdiction**
- **P** Pending legislation, regulation or policy for implementation
- **X** Not implemented

CPhA. Pharmacists' Expanded Scope of Practice in Canada. 2014.
CHRONIC CONDITIONS

- Diabetes
- Dyslipidemia
- Photo damage
- Hypothyroidism

STUDIED TESTS

- HbA1c
- Lipid Panel
- Influenza
- Strep A
- Thyroid
- H. Pylori

PILOT TESTS

ACUTE CONDITIONS

- Flu
- Strep throat
- PUD
HbA1c point-of-care test
2.4 MILLION CANADIANS LIVING WITH DIABETES

20% OF DIABETICS HAVE NOT YET BEEN DIAGNOSED.

50% OF DIABETES IS UNCONTROLLED.

70% OF DIABETICS HAVE NOT HAD AN A1C IN THE PAST YEAR.

HbA1c point-of-care test

5 minutes, 93.2% accurate
National A1C POCT study

Community Pharmacy-Based A1C Screening - A Canadian Model for Diabetes Care
John Papastergiou, BScPhm; Chris Folkins, BScPhm, PhD; Wilson Li, BScPhm, CDE

Population: patients diagnosed with diabetes across Canada

Assessment: POC A1C test

Intervention: pharmacist recommendation

Outcome:
✓ level of A1C control of diabetics
✓ number and type of pharmacist interventions in diabetes
1,111 patients screened

871 patients included in analysis

224 Excluded (No formal Dx of diabetes)

16 Excluded (Incomplete Data)
Geographic Distribution of Participants

Results

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%)
Trend towards worse glycemic control with more intense antihyperglycemic regimen
Results – 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
Results - Type of Interventions by A1C

Shift towards **decreased** prevalence of pharmacist-directed interventions and **increased** prevalence of physician-directed interventions with poorer glycemic control.
Possible Explanations

- Why are so many patients not meeting glycemic targets?
- Why is control worse in patients with more intense therapy?
- Huge opportunity for the pharmacist during medication reviews

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

Fear of Hypoglycemia
Diabetes Support Program study

**Diabetes Support Program - a Case Study**
Shoppers Drug Mart & Greenshield

**Population:** Diabetic patients across Canada
**Assessment:** POC A1C
**Intervention:** Pharmacist recommendation
**Outcome:** Change in level of A1C control at follow up

457 diabetic patients initially included in analysis
82 diabetic patients participated in a follow-up

Impact

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>
A1C POCT take home message

Pharmacists can use the A1C POCT:

- Promoting **adherence**
- Escalating **therapy** when appropriate
- **Interprofessional** collaboration
- Optimizing patient **outcomes**
- Improving patient **satisfaction**
Lipid point-of-care test
EVERY 7 MINUTES A CANADIAN DIES DUE TO HEART DISEASE OR A STROKE

40% OF CANADIANS HAVE HIGH CHOLESTEROL

50% OF PATIENTS WITH DYSLIPIDEMIA ARE UNAWARE OF IT

1. (Statistics Canada, 2012)
Lipid point-of-care test

2 minutes, accurate

Reference Lab LDL Value

CardioChek LDL Value

$y = 1.0106x + 1.4735$

$R^2 = 0.9633$
Cardiovascular risk assessment is key

**Framingham Risk Score (FRS):**
- Estimates risk of cardiovascular event in the next 10 years based on TC/HDL ratio, BP, age, gender, smoking status, presence of diabetes
- Benefits are maximized when results are communicated to the patient to engage patient and increase adherence

**Cardiovascular Age Assessment:**
- Estimates life expectancy based on factors similar to FRS
- Comparing patients’ chronological age with age of their vascular system improves their adherence

Due to time constraints, many patients visiting physician office have never had their cardiovascular risk assessed

**FRAMINGHAM RISK SCORE (FRS)**

Estimation of 10-year Cardiovascular Disease (CVD) Risk

### Step 1

In the "points" column enter the appropriate value according to the patient's age, HDL-C, total cholesterol, systolic blood pressure, and if they smoke or have diabetes. Calculate the total points.

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Men</th>
<th>Women</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30-34</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>35-39</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>40-44</td>
<td>5</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>45-49</td>
<td>7</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>50-54</td>
<td>8</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>55-59</td>
<td>8</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>60-64</td>
<td>11</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>65-69</td>
<td>13</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>70-74</td>
<td>14</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>75+</td>
<td>15</td>
<td>12</td>
<td>12</td>
</tr>
</tbody>
</table>

### HDL-C (mmol/L)

<table>
<thead>
<tr>
<th>HDL-C</th>
<th>Men</th>
<th>Women</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;1.6</td>
<td>-2</td>
<td>-2</td>
<td></td>
</tr>
<tr>
<td>1.3-1.6</td>
<td>-1</td>
<td>-1</td>
<td></td>
</tr>
<tr>
<td>1.2-1.3</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>0.9-1.2</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>&lt;0.9</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

### Total Cholesterol

<table>
<thead>
<tr>
<th>Total Cholesterol</th>
<th>Not Treated</th>
<th>Treated</th>
<th>Not Treated</th>
<th>Treated</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;4.1</td>
<td>0</td>
<td>0</td>
<td>-2</td>
<td>-2</td>
</tr>
<tr>
<td>4.1-5.2</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>5.2-6.2</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>&gt;6.2-7.2</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

### Systolic Blood Pressure (mmHg)

<table>
<thead>
<tr>
<th>Systolic Blood Pressure</th>
<th>Not Treated</th>
<th>Treated</th>
<th>Not Treated</th>
<th>Treated</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;120</td>
<td>-2</td>
<td>0</td>
<td>-3</td>
<td>-1</td>
</tr>
<tr>
<td>120-129</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>130-139</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>140-149</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>150-159</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>160+</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>7</td>
</tr>
</tbody>
</table>

### Diabetes

<table>
<thead>
<tr>
<th>Diabetes</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>3</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
</tr>
</tbody>
</table>

### Smoker

<table>
<thead>
<tr>
<th>Smoker</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>4</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
</tr>
</tbody>
</table>

Total Points

---

### Step 2

Using the total points from Step 1, determine the 10-year CVD risk (%).

<table>
<thead>
<tr>
<th>Total Points</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;3 or less</td>
<td>&lt;1</td>
<td>&lt;1</td>
</tr>
<tr>
<td>2-3</td>
<td>1.2</td>
<td>1.0</td>
</tr>
<tr>
<td>4-5</td>
<td>1.6</td>
<td>1.2</td>
</tr>
<tr>
<td>6-7</td>
<td>1.9</td>
<td>1.5</td>
</tr>
<tr>
<td>8-9</td>
<td>1.5</td>
<td>1.2</td>
</tr>
<tr>
<td>10-11</td>
<td>1.7</td>
<td>1.5</td>
</tr>
</tbody>
</table>

### Step 3

Using the total points from Step 1, determine heart age (in years).

<table>
<thead>
<tr>
<th>Heart Age, y</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;30</td>
<td>&lt;0</td>
<td>&lt;1</td>
</tr>
<tr>
<td>30-31</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>32-33</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>34-35</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>36-37</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>38-39</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>40-41</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>42-43</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>44+</td>
<td>8</td>
<td>8</td>
</tr>
</tbody>
</table>

### Step 4

Using 10-year CVD risk from Step 2, determine if patient is Low, Moderate or High risk.

Indicate Lipid and/or Apo B targets

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>Initiate Treatment If:</th>
<th>Primary Target (LDL-C)</th>
<th>Alternate Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>High FRS ≥20%</td>
<td>Consider treatment in all (Strong, High)</td>
<td>≤2 mmol/L or ≥50% decrease in LDL-C (Strong, Moderate)</td>
<td>Apo B ≤0.8 g/L or Non-HDL-C ≤2.6 mmol/L (Strong, High)</td>
</tr>
<tr>
<td>Intermediate FRS 10-19%</td>
<td>For LDL-C ≥3.5 mmol/L consider if</td>
<td>Apo B ≤1.2 g/L or OR Non-HDL-C ≤4.3 mmol/L (Strong, Moderate)</td>
<td>Apo B ≤0.8 g/L or Non-HDL-C ≤2.6 mmol/L (Strong, High)</td>
</tr>
<tr>
<td>Low FRS &lt;10%</td>
<td>Low LDL-C ≥5.0 mmol/L or Familial hypercholesterolemia</td>
<td>≥50% decrease in LDL-C (Strong, Moderate)</td>
<td>N/A</td>
</tr>
</tbody>
</table>

1. Consider moving some patients with metabolic syndrome up a risk level based on their "load" of metabolic risk factors or the "severity" of their metabolic syndrome.

2. Atherosclerosis in any vascular bed, including carotid arteries.

3. ApoB: apolipoprotein B; CAD: coronary artery disease; FRS: Framingham Risk Score; HDL-C: high-density lipoprotein cholesterol; hs-CRP: high-sensitivity C-reactive protein; PVD: peripheral vascular disease; RRR: Reynolds Risk Score; TC: total cholesterol.
Lipid POCT pilot study

Population: 56 patients of two retail pharmacies in Toronto

Assessment: Framingham Risk and Cardiovascular Age Assessment (measured POC LDL, HDL, Total Cholesterol, TG, Blood Pressure)

Intervention: pharmacist recommendations

Outcome:
✓ level of baseline cardiovascular risk
✓ change in measured parameters at follow up for moderate-high risk patients
Pharmacist interventions

- Initiate/add cholesterol medication: 6 (24%)
- Initiate/add BP medication: 4 (16%)
- Cholesterol: change drug or dose: 4 (16%)
- BP: change drug or dose: 9 (36%)
- Discontinued a drug: 1 (4%)
- Improved Adherence: 1 (4%)
Dear Dr. __________________

RE: PHARMACY CARDIOCHEK CLINIC – 10-YEAR CARDIOVASCULAR DISEASE (CVD) RISK ASSESSMENT USING THE FRAMINGHAM RISK SCORE (FRS)

Our mutual patient, _________________________, has undergone a 10-year cardiovascular disease (CVD) assessment at our pharmacy based on the Framingham Risk Score (FRS), adapted from the Canadian Cardiovascular Society guidelines.

Framingham 10-Year CVD Assessment Results

<table>
<thead>
<tr>
<th>CVD RISK FACTORS</th>
<th>Age (year)</th>
<th>HDL-C* (mmol/L)</th>
<th>Total Cholesterol* (mmol/L)</th>
<th>Systolic BP (mmHg)</th>
<th>Diabetes (Y/N)</th>
<th>Smoker (Y/N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk Points</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Lipid profile obtained using the CardioChek® meter.

Total Points = __________

FRS = ________%

Based on the FRS, the patient is at a ________________ risk of developing CVD in the next 10 years.

Additional service(s) that was provided to patient at the clinic:
[ ] Education on diet and exercise based on Canada’s Food Guide and the physical activity section
[ ] Reinforce adherence on medications for dyslipidemia, hypertension and diabetes (as applicable)
[ ] Counselling on medications for dyslipidemia, hypertension and diabetes (as applicable)
[ ] Other:

We would like to make the following recommendation(s) for the patient, if deemed appropriate:

[ ] Initiate medication(s): ________________________________ (PLEASE PROVIDE NEW RX)

[ ] Modify medication(s): ________________________________ (PLEASE PROVIDE NEW RX)

[ ] Referral to MD
[ ] Referral to dietitian
[ ] Other: ________________________________

### Moderate-High Patient Baseline Screening Results

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Mean; Range</th>
<th>n = 27</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time per consultation (minutes)</td>
<td>20.0; 10-30</td>
<td></td>
</tr>
<tr>
<td>LDL (mmol/L)</td>
<td>2.18; 0.92-4.94</td>
<td></td>
</tr>
<tr>
<td>HDL (mmol/L)</td>
<td>1.12; 0.51-2.39</td>
<td></td>
</tr>
<tr>
<td>TC (mmol/L)</td>
<td>4.05; 2.59-8.14</td>
<td></td>
</tr>
<tr>
<td>TC/HDL</td>
<td>3.88; 2.0-6.9</td>
<td></td>
</tr>
<tr>
<td>SBP (mmHg)</td>
<td>133; 101-167</td>
<td></td>
</tr>
<tr>
<td>10-year CVD risk (%)</td>
<td>19.85; 10-30</td>
<td></td>
</tr>
</tbody>
</table>

### Moderate-High Patient Follow-Up* Screening Results

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Mean; Range</th>
<th>n = 27</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time per consultation (minutes)</td>
<td>13.9; 12-25</td>
<td></td>
</tr>
<tr>
<td>LDL (mmol/L)</td>
<td>1.86; 0.72-3.9</td>
<td></td>
</tr>
<tr>
<td>HDL (mmol/L)</td>
<td>1.19; 0.58-2.51</td>
<td></td>
</tr>
<tr>
<td>TC (mmol/L)</td>
<td>3.78; 2.59-6.8</td>
<td></td>
</tr>
<tr>
<td>TC/HDL</td>
<td>3.53; 1.7-8.1</td>
<td></td>
</tr>
<tr>
<td>SBP (mmHg)</td>
<td>128.3; 101-159</td>
<td></td>
</tr>
<tr>
<td>10-year CVD risk (%)</td>
<td>17.42; 6.3-30</td>
<td></td>
</tr>
</tbody>
</table>
Pharmacists can use the lipid POCT:

- **Identification** of patients who may benefit from primary prevention pharmacotherapy
- Enhancing patient **understanding** of their cardiovascular risks
- Promoting patient **adherence**
- Improving cardiovascular **outcomes**
TSH point-of-care test

I'm not lazy, my thyroid is.
5-10% of adult women have subclinical hypothyroidism. Subclinical hypothyroidism may raise cholesterol. 26% progresses annually to overt hypothyroidism.

TSH point-of-care test

10 min, 97.7% precision

Our experience

**Target population:** Patients with symptoms of, or at risk for subclinical hypothyroidism, in our two community pharmacies

**Assessment:** Qualitative **TSH antibody detection** point of care test

**Intervention:**
- Supportive care for bothersome signs and symptoms
- For patients with positive results (**TSH > 5 uIU/L**), refer to physician to either:
  a) perform further testing
  b) perform thyroid surveillance annually
**Subclinical Hypothyroidism Screening Protocol**

**Patient Name:** ____________________________

**DOB:** ____________________________

**Age:** ______

**Female**

**Male**

Please check any of the following diseases/conditions which you may have:

- Type 1 Diabetes
- Autoimmune disorders
- 1st degree relative with thyroid disease
- Previous neck radiation or surgery

Please check any of the following symptoms which you may have:

- Fatigue
- Cold intolerance
- Muscle aches/pains (arthralgia)
- Constipation
- Depression
- Difficulty Concentrating
- Dry Skin
- Enlarged tongue (Macroglossia)
- Eyebrow thinning
- Irregular menstruation
- Hair thinning/hair loss
- Memory Impairment
- Weight gain
- Swelling around the eyes (periorbital edema)

**Subclinical Prevalence:** 4.3%
- **Women:** 5.9%
- **Men:** 2.3%
- **Women >60yo:** up to 20%

<table>
<thead>
<tr>
<th>Female</th>
<th>strong recommendation for screening</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>60yo&gt;</td>
</tr>
<tr>
<td></td>
<td>Strong recommendation for screening</td>
</tr>
<tr>
<td>Yes any</td>
<td></td>
</tr>
<tr>
<td>Yes both</td>
<td>strong recommendation for screening</td>
</tr>
<tr>
<td>Yes one</td>
<td>moderate recommendation for screening</td>
</tr>
<tr>
<td>Yes 3&gt;</td>
<td>moderate recommendation for screening</td>
</tr>
</tbody>
</table>

---

**Canadian Pharmacists Conference 2015**

Innovation and Collaboration

**Jointly presented by**

[Logos]
TSH POCT: Take home message

Based on our anecdotal experience:

- **Does not** warrant implementation
- Must test **large population** to identify patients with high TSH
- Large **time and resource** commitment for the pharmacy
Skin assessment point-of-care test
CHRONIC SUN EXPOSURE LINKED TO PHOTAGEING AND SKIN CANCERS

1/3 OF CANCER DIAGNOSES ARE SKIN CANCERS

35 000 ONTARIANS DIAGNOSED WITH SKIN CANCER ANNUALLY

$344 MILLION ECONOMIC BURDEN OF SKIN CANCER IN 2011

Scalar Video Microscope

Specialized tool which magnifies the skin’s surface 30X

- The non-polarized setting examines the skin surface
- The polarized setting examines the skin sub-surface
- The patented illumination technology displays any desquamation signifying dry skin

This tool can help identify:
- clogged pores
- dry or oily skin
- sun damage

Dry skin and sun exposure shows as dark and thick lines
Scalar Moisture Checker

Specialized tool to measure skin hydration. Water content contributes to skin’s suppleness and comfort.

- Less than 30 = Skin is very dehydrated
- 30 to 39 = Skin is dehydrated
- 40+ = Skin is hydrated

✓ UVB exposure is associated with wrinkling, elastosis, actinic keratoses, irregular pigmentation, telangiectasia (visible blood vessels), and skin cancer¹
✓ UVB exposure is associated with reduced skin water content²

Our experience

**Target population:** Patients on phototoxic medications or with skin concerns

- ✔ isotretinoin
- ✔ NSAIDs
- ✔ sulfonylureas
- ✔ diuretics

**Assessment:** Point of care skin assessment for hydration and signs of photo-aging

**Intervention:** Recommendation of appropriate OTC sun protection and moisturizers

- ✔ amiodarone
- ✔ nifedipine
- ✔ diltiazem
- ✔ quinidine
Skin Assessment Clinics: Our Experience

What does photo damage look like under **30X** magnification?

- 68 year old
  - female
  - moisture level: 16

- 40 year old
  - female
  - moisture level: 23.1

- 56 year old
  - female
  - moisture level: 35.4

Blood vessel dilation can be a sign of excess sun exposure.
Pilot Study Results

- **Mean Age of Patients**: 32 (17-68)
- **Pilot Study Participants**: 20
- **90%**
- **26.4%**

**Photodamage**
- Extensive: 15%
- Some: 40%
- Extensive: 45%

**Hydration Status**
- Dry: 75%
- Normal (30%): 25%
- Hydrated: 0%
Pharmacists can use the skin assessment tools for:

- Increasing **patient awareness** of the most preventable cancer
- Helping patients choose appropriate **sun protection and moisturizing** products
- Improving **awareness** of professional pharmacy services among front store customers
Group A strep pharyngitis point-of-care test
RHEUMATIC FEVER & COMPLICATIONS OF GLOMERULONEPHRITIS UNTREATED STREP THROAT

30% REDUCTION IN INAPPROPRIATE ABX PRESCRIBING WITH STREP A POCT

PROMPT TREATMENT OF STREP A WITH ABX LIMITS DURATION OF SYMPTOMS TO 24 HRS

1Am Fam Physician. 2004 Mar 15;69(6):1465-70
Rapid Response Strep A test

10 minutes, 97% accuracy¹

Positive strep test
Our experience

**Target Population:**
Patients with Centor criteria

**Assessment:** Strep A rapid antigen detection test

**Intervention:**
- Pharmacist recommendation of supportive care OTCs
- Pharmacist letter to MD with suggested antibiotic regimen

**Centor Criteria:**
- Absence of cough (1 point)
- History of fever >38°C (1 point)
- Presence of tonsillar exudates (1 point)
- Swollen and tender cervical nodes (1 point)
- Age 3-14 (1 point), Age ≥45 (-1 point)

Score:
- 0 - Strep test and antibiotic therapy are not indicated.
- >1 - Strep test indicated.

*Used to differentiate sore throat due to Group A Strep vs due to other pathogens*

Screening Form: Group A Streptococcal Pharyngitis

Send Form
Patient name: 
Fax number: Send

Previous Responses

Updated on 05/04/2015 8:28 PM
Physician’s Plan: Have patient return to clinic

Add Response
- [ ] Have patient return to clinic
- [ ] Initiate antibiotic therapy
- [ ] Do nothing, continue with supportive care
- [ ] Other

Initiate Antibiotic Therapy:

Strep positive Child
- [ ] Amoxicillin 50 mg/kg/day BID x 10 days  Dose: 
- [ ] Cephalexin 25-50 mg/kg/day BID x 10 days  Dose: 
- [ ] Clarithromycin 15 mg/kg/day BID x 10 days  Dose: 
- [ ] Azithromycin 12 mg/kg/day OD x 5 days  Dose: 
- [ ] Other  Dose: 

Strep positive Adult
- [ ] Penicillin V 600 mg BID x 10 days
- [ ] Cephalexin 500 mg BID x 10 days
- [ ] Clarithromycin 250 mg BID x 10 days
- [ ] Azithromycin 500 mg 1st day then 250 mg x 4 days
- [ ] Other  Dose: 

Canadian Pharmacists Conference 2015
Innovation and Collaboration
Jointly presented by Canadian Pharmacists Association, Association des Pharmaciens du Canada, Ontario Pharmacists Association, Association des Pharmaciens de l’Ontario
### Pilot Study: In Progress

<table>
<thead>
<tr>
<th>Result</th>
<th>MD Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>Penicillin</td>
</tr>
<tr>
<td>Positive</td>
<td>Return To Clinic, MD prescribed Penicillin</td>
</tr>
<tr>
<td>Positive</td>
<td>Return to Clinic, MD prescribed Amoxicillin</td>
</tr>
<tr>
<td>Positive</td>
<td>Return to Clinic, MD prescribed Amoxiclav</td>
</tr>
<tr>
<td>Negative</td>
<td>Return to Clinic, confirmed Strep A, MD prescribed Amoxiclav</td>
</tr>
</tbody>
</table>

Centor criteria is a **highly reliable** tool for strep throat screening.
Pharmacists can use the Strep A POCT for:

- Helping minimize **duration of symptoms** of strep throat
- Helping minimize **complications** of strep throat
- Reducing rate of **inappropriate antibiotics prescribing**
- Helping reduce **physician workload**
H. pylori POCT for uninvestigated dyspepsia
25% of Canadians experience dyspepsia over the course of one year.

25% of Canadians with uninvestigated dyspepsia have H. pylori infection.

According to the WHO, H. pylori is a class I carcinogen.
Our experience

Target Population: Patients in our community pharmacy in Toronto:
- age < 50
- evidence of dyspepsia
- no prior H. pylori test
- have not been treated for H. Pylori
- have no alarm symptoms for GI cancer

Assessment: H. pylori rapid antibody POCT

Intervention: Pharmacist letter to MD with recommendation
Positive H. pylori test
**History of Present Illness**

Have you been previously diagnosed with a gastrointestinal disorder? ____________________________

Have you recently experienced the following (select all that apply)?

- [ ] Unexplained weight loss
- [ ] Difficulty swallowing
- [ ] Bloody vomit or black vomit
- [ ] Anemia
- [ ] Nausea or vomiting
- [ ] Bloody stool or black stool

Have you ever had an endoscopy or a Urea Breath Test? ____________ If so, how long ago? ____________

Have you ever been treated for H. Pylori infection? ____________ If so, how long ago? ____________

*This assessment is for screening purposes and does not constitute a diagnosis. A negative test result is not a guarantee of good health, and participation in this program cannot substitute a consultation with a physician for any medical or health-related condition, or for a regular physical exam. A positive test result only indicates that H. Pylori may be present, and in the absence of symptoms, does not indicate any specific disease status. Further follow up with the physician may be necessary.*

**Signature**

**Date:**

**Assessment**

Qualifies for H. Pylori testing (dyspepsia symptoms, age < 50, absence of alarm symptoms, no prior H. Pylori test)? ____________

H. Pylori Serology Screening Result: ____________

<table>
<thead>
<tr>
<th>Test: Rapid Response™ H. Pylori Cassette</th>
<th>Lot #:</th>
<th>Exp. Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specificity: 89.2%  Sensitivity: 93%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Pharmacotherapy Plan - *Physician’s Response Required***

**H. Pylori Positive**

- [ ] Initiate HP-Pac (lansoprazole 30 mg, clarithromycin 500 mg, amoxicillin 500 mg) BID x 7 days
- [ ] Initiate H. Pylori eradication alternative regimen: ____________

**H. Pylori Negative** (select all that apply)

- [ ] Initiate Omeprazole 20 mg once daily x 1 month
- [ ] Initiate Ranitidine 150 mg once daily x 1 month
- [ ] Increase dose of ____________ to ____________

- [ ] Patient to visit clinic
- [ ] Other: ____________

____________________________  ____________________
**Physician’s signature**          **Date**
Pilot Study – In Progress

- **15** patients
- **39 (22-50)** years
- **47%** female
- **27%** OTC use

**Symptoms of Dyspepsia:**
- Stomach pain: **87%**
- Abdominal bloating: **67%**
- Heartburn: **60%**
- Nausea: **47%**
- Excessive burping: **47%**
- Sour taste: **33%**
- Satiety: **20%**

**Impact on Daily Life:**
- Sleep: **35%**
- Eating: **17%**
- Daily Activities: **17%**
Results – In Progress

Positive 6 (40%)

17%
Recommended ranitidine 150mg x 1 month

17%
Recommended omeprazole 20mg (OTC) daily x 1 month

100%
Referral to physician

Negative 9 (60%)

44%
Recommended ranitidine 150mg daily x 1 month

11%
Recommended omeprazole 20mg (OTC) daily x 1 month

11%
Recommended Gaviscon

33%
Continue with current prescription medication for stomach symptoms
Pharmacists can use the H. pylori POCT for:

- Helping to **reduce severity** of H. pylori-associated dyspepsia
- Addressing **gaps in access** to GI care
- **Rapid** assessment and referral
Influenza point-of-care test
5457 hospitalizations associated with influenza during the 2013-14 influenza season.

344 deaths

Early detection is key to management of patients at risk of influenza complications.

BD Veritor point-of-care

10 minutes, 93.8-94.2% accurate¹
Our experience

**Target Population:** Patients five years or older with symptoms suggestive of influenza

**Assessment:** Influenza A/B point of care rapid antigen detection test

**Intervention:**
- Pharmacist recommendation of **supportive care** OTCs
- For positive test result, pharmacist **letter to MD** with suggested antiviral regimen where indicated
Upon suspicion of Influenza virus infection, we have performed a preliminary screening. Please see results below.

**Patient Information**
- Date of Birth: 
- Age: 
- Phone Number: 
- Allergies: 

**Rapid Detection of Flu A+B Test**
- BD Veritor™ System Test Device Lot: 
- Expired: 
- Flu A: Sensitivity: 82.1-94.9% Specificity: 93.9-98.6% 
- Flu B: Sensitivity: 74.6-83.9% Specificity: 91.9-99.6%

**History of Current Illness**
- **Symptoms**
  - Fever (___°C)/chills
  - Cough
  - Myalgia
  - Headache
  - Sore throat
  - Running nose
  - Nausea/vomiting

- **Influenza Vaccination Status**
  - Unvaccinated
  - Vaccinated (vaccine type: __________ date: __________)

- *Symptom Onset within 48 hours*: __________
- Subjective Symptom Severity: Mild / Moderate / Severe
- Actions Taken to Date: 

**Factors for Influenza Complications**
- Nursing home/chronic care facility resident
- Pregnant
- <18 years of age on chronic aspirin therapy
- ≥65 years of age
- Obese (BMI ≥40)
- Aboriginal
- Chronic respiratory disease
- Cardiovascular disease
- Malignancy
- Chronic renal insufficiency
- Diabetes mellitus, other metabolic disease
- Hemoglobinopathy
- Immunosuppression, immunodeficiency
- Neurologic disease, neurodevelopmental disorder

**Pharmacotherapy Plan — *PHYSICIAN’S RESPONSE REQUIRED***
- Initiate Oseltamivir (Tamiflu™) antiviral therapy
- Clicr > 60 mL/min: Oseltamivir 75mg BID x 5 days
- Cric 30-60 mL/min: Oseltamivir 30 mg BID x 5 days
- Clicr 10-30 mL/min: Oseltamivir 30 mg QD x 5 days
- Supportive care recommended by Pharmacist
- Acetaminophen 500-1000mg QD
- Ibuprofen 200-400mg TID
- Antihistamine:
- Cough syrup:
- Lozenge:
Pilot Study Results

- **59**
- **45 (13-82)**
- **64%**
- **61%**
- **20 (34%)**

Patient Symptoms

- Cough: 75%
- Running Nose: 75%
- Onset within 48 hr: 73%
- Myalgia: 63%
- Sore Throat: 59%
- Headache: 56%
- Fever: 42%
- Nausea/Vomiting: 12%
Pilot Study Results

- 59
  + 34%
  - 66%
  40% Tamiflu
    63% Rx to Pharm
    37% Clinic
  60% No Tamiflu
    42% No Rx Clinic
    42% No MD
    16% Pt Declined

Supportive Therapy
Influenza POCT: Take home message

- Pharmacy influenza screening facilitates **prompt access** to treatment
- Pharmacy influenza screening may **reduce burden** of influenza illness
- Timely physician communication remains a **barrier to access** to treatment
- Pharmacy influenza screening may **decrease burden on the healthcare system**
What are the pharmacy POCT barriers?
Common barriers to pharmacy POCT

1. Lack of **time and resources**
2. Lack of **support** from stakeholders
3. Lack of pharmacist **confidence**
4. Lack of **patient awareness** or interest
Time and resources

Chronic condition POCTs ➔ patient clinics
Acute condition POCTs ➔ integrate in dispensing process

- Educate staff regarding: patient eligibility, purpose of clinic
- Master appropriate use of POCT, and its limitations
- Know red flags prompting immediate MD assessment
- Create advertisements
- Generate sign up sheet
- Formulate standardized letter to MD
- Adjust staffing hours for Clinic Day
Lack of stakeholder support

As pharmacists, we must build evidence base demonstrating that pharmacy POCT:

- Improves healthcare outcomes
- Enhances patient satisfaction
- Reduces healthcare costs
Performing POCT is associated with the **professional responsibility** of knowing what to do with the results!

- Become familiar with **red flags**
  - When to refer
  - Need for further assessment
  - Limitations of POCT device

- Continuing **education**
  - Workshops
  - Journals
  - Guidelines
FIRST STOP ON NACDS POINT-OF-CARE TESTING TOUR: UNIVERSITY OF NEBRASKA

04.20.2015

Arlington, Va. – The National Association of Chain Drug Stores (NACDS) Community Pharmacy-Based Point-of-Care Testing certificate program kicked off this weekend at the University of Nebraska Medical Center (UNMC) College of Pharmacy in Omaha, Nebraska. This is the first stop on a national multi-city tour that will continue at colleges and schools of pharmacy during 2015.

Point-of-care testing empowers clinicians to use effective, fast technology to aid their decision making at the “point-of-care” to improve patient health.

Last month, NACDS announced the acquisition and expansion of a certificate program designed to provide training for pharmacists to administer point-of-care testing and other health assessments in pharmacies.

Improving patient health through partnership in research, education and medication management

Detecting and Treating Illness More Quickly and Effectively

The NACDS Foundation is partnering with more than 70 pharmacies in various states to diagnosis and treat patients with influenza and strep throat.

LEARN MORE »
Lack of patient awareness

- Make the patient *aware* of service availability
- **Define** the service in patient-friendly language
- Describe the **need** your service will address
- Describe the value of the service (*benefits*) to the patient
- Outline the **investment** patient needs to make
Why do point-of-care screening in community pharmacy?
Patients
- Improved patient care
- Reduced DTPs & complications
- ↓ need for physician visits
- More frequent monitoring

Pharmacists
- Increased job satisfaction
- Expanded scope of practice
- Teamwork
- Best practice sharing
- Get out of the dispensary

Business
- Increased customer loyalty
- Physician & patient referrals to pharmacy
- Increased professional revenue
- Increased script count & compliance packs