Feature Article

Vaccination Assessments in Patient Care

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According to the most recent Adult National Immunization Coverage Survey (2014), less than 10% of Canadian adults are up to date on their immunizations.1 In adults over age 65, immunization rates for tetanus, pneumococcal and pertussis were 38%, 36.5%, and 8.9% respectively.1 Pharmacists in British Columbia have had the authority to administer immunizations for nearly a decade with over 3,600 pharmacists now certified.2 A recent systematic review of 36 trials concluded that pharmacists playing an active role in immunization as educators, facilitators and/or administrators led to increased vaccination rates.3

In our practice, we routinely assess patients' overall immunization status and then administer vaccinations to align with Public Health recommendations as follows:

**At influenza immunization clinics**
During influenza season, we administer flu vaccines to patients on a walk-in or scheduled basis. For each patient, we also ask about other routine immunizations and then, when possible, administer them at the same time as the flu shot.

**During routine patient care encounters**
When a patient is seen at the clinic for comprehensive medication management, we ask about their immunization status as part of our assessment. If required, we confirm the patient’s immunization status with their family physician. Whenever possible, we then administer the needed vaccine(s), either at the current appointment or a follow-up appointment as part of their overall patient care. We use an algorithm to guide our assessments based on patient age, chronic illness and other risk factors. [A copy of our algorithm is available here.](#)

**In outbreak situations**
When an outbreak is reported in our area, we contact Public Health (or they contact us) to help immunize as many unprotected people as possible. Last year, several cases of mumps were reported at UBC so we had MMR vaccine on hand to immunize eligible individuals at risk.

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For temporary visitors or new citizens of Canada

UBC is a destination for international students, academics and new citizens to the country. Many of these individuals are unaware of their immunization status and are under-immunized by Canadian standards. When they make an appointment to see us at the clinic, we take the opportunity to provide patient education, assessment and immunization if appropriate based on Public Health Guidelines.

Following immunization, we provide the patient with documentation for their own records and to share with their primary care provider.

We find that integrating routine immunization assessments in our practice is straightforward and requires simple preparation:

Mindset - we assume every patient is under-immunized until we confirm otherwise.

Include all staff - any and all pharmacy staff can ask patients about their immunization status as an initial screening step, and the pharmacist can perform a more in-depth assessment.

Have vaccine on hand - we maintain a small quantity of the routine vaccines (Influenza, Td, Pneumococcal polysaccharide and MMR) at the clinic so we can immunize patients as needed.

Order more vaccine when necessary - we also order other publicly funded vaccines on a case-by-case basis when needed as per public health and Pharmacare policies.

Have a point person - assign a staff member to maintain vaccine supplies and track expiry dates so in-date product is available. During flu season, this person can order other routine vaccines at the same time.

The BC Centre for Disease Control and Immunize BC provide comprehensive resources to help pharmacists assess patients and determine appropriate candidates for specific vaccines, as well as practical information such as compatibility of administering multiple vaccines at one time.

Given the state of under-immunization in Canada, we encourage all pharmacists to help reduce the risk of vaccine-preventable diseases by integrating routine immunization assessments into their practice.

References

Case Study

SPRINTing to new Hypertension Canada treatment guidelines?

DARYL ALLEN BISARES, RRT BSC(BIO), 4TH YEAR ENTRY-TO-PRACTICE PHARMD STUDENT

A 43-year old, Caucasian male self-refers to the clinic for medication review with the goal of limiting the number of medications he takes. Current medical conditions and medications include hypertension (candesartan 32 mg daily x 5 years, hydrochlorothiazide 12.5 mg daily x 3 years, amlodipine 5 mg daily x 2 months; all taken together in the morning), gout (allopurinol 200 mg BID x 4 years), hypothyroid (levothyroxine 125 mcg PO once daily) and psoriatic arthritis (naproxen/esomeprazole 500-200 mg PO BID PRN – has not used x 2 years). He takes a fish oil supplement for general health. He does not use alcohol, tobacco, cannabis or other recreational drugs. Over the past year he has improved his lifestyle habits by increasing exercise, avoiding salt and high protein/fat which has resulted in a 5kg weight loss (current weight 82kg, BMI 24.8kg/m²). Family history is significant for myocardial infarction in his father at age 42.

Clinic blood pressure (BP) measures 109/71 mmHg, HR = 86, regular (Left arm, automated, unattended, sitting, averaged x 3 readings). He has not been able to measure home BP in 2 months due to a broken monitor but prior to this reports readings fluctuating between 110-180mmHg systolic. Since starting amlodipine he has been experiencing frequent episodes of dizziness.
Hypertension is one of the most common chronic diseases in Canada, affecting 25% of the adult population.\(^1\) It has significant effects on an individual’s overall health and is closely associated with obesity, chronic kidney disease (CKD), cardiovascular disease (CV) risk, and death.\(^1\) Hypertension management is achieved through a combination of behavioural changes and pharmacotherapy.\(^2,3\) Hypertension treatment regimens and targets should be individualized based on the presence of additional risk factors. Table 1 summarizes the most recent Hypertension Canada guidelines for treatment initiation and BP targets, categorized per individual’s risk factors. Of note, a new high-risk group has been added, based on the results of the SPRINT trial, which includes people with clinical or sub-clinical CV disease; OR CKD (non-diabetic nephropathy, proteinuria <1G/d, eGFR 20-59 mL/min/1.73m\(^2\)) OR Estimated 10-year global CV risk ≥15% OR Age≥75 years.\(^2,4\) For those meeting this criteria, the balance of more aggressive treatment (symptomatic hypotension, acute kidney injury, electrolyte disturbances, cost, pill-burden etc), must be weighed against an incremental reduction in CV events.

Taking into account his family history of premature CV disease, his 10 year risk of a CV event, using the Framingham Risk Score was calculated to be 7.4%. Given our patients age, low CV risk and lack of diabetes or CKD, a treatment threshold of <140/90mmHg is appropriate.

We recommended purchasing a new Hypertension Canada-validated at-home automated BP measurement device from his local pharmacy (approved devices: [https://hypertension.ca/managing-hypertension/measuring-blood-pressure/devices/](https://hypertension.ca/managing-hypertension/measuring-blood-pressure/devices/)). Proper BP measurement technique was reviewed and he was asked to check his BP once daily at varying times and bring this record to his next appointment with his family doctor and/or pharmacist. Additionally, it was suggested he could try taking his candesartan at bedtime to minimize risk of post-dose dizziness with simultaneous antihypertensive administration. If his BP remains well below target with subsequent measurements and/or dizziness persists, consideration could be given to stopping hydrochlorothiazide as there is no compelling reason to continue this drug over the others and it may increase risk of gout attacks.

Once on a stable regimen, if multiple antihypertensives are still required, a single-pill combination could be used to reduce pill burden and optimize adherence.\(^2\) Finally, he was recommended to stop his omega-3 supplement given lack of convincing evidence for benefit. Future consideration could be given to stopping allopurinol if he is able to sustain diet and lifestyle changes to avoid gout attacks. The patient was receptive to these recommendations and a follow-up at the clinic was arranged in 3 months.

### Table 1

<table>
<thead>
<tr>
<th>Patient population</th>
<th>BP threshold for starting drug therapy (mm Hg)</th>
<th>BP target (mm Hg)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High risk</strong>(^\star) (SPRINT Trial population)</td>
<td>SBP ≥ 130</td>
<td>SBP &lt; 120</td>
</tr>
<tr>
<td><strong>Low risk</strong>(^\star\star)</td>
<td>SBP ≥ 160</td>
<td>DBP ≥ 100</td>
</tr>
<tr>
<td><strong>Diabetes mellitus</strong></td>
<td>SBP ≥ 130</td>
<td>DBP ≥ 80</td>
</tr>
<tr>
<td><strong>All others</strong></td>
<td>SBP ≥ 140</td>
<td>DBP ≥ 90</td>
</tr>
</tbody>
</table>

\(^\star\) Readings based on automated office BP measurement

\(^\star\star\) Clinical or sub-clinical CV disease; OR CKD (non-diabetic nephropathy, proteinuria <1G/d, eGFR 20-59 mL/min/1.73m\(^2\)) OR Estimated 10-year global CV risk ≥15% OR Age≥75 years.

\(^\star\star\star\) No target organ damage of cardiovascular risk factors

### References


### Note

– Each case study has been peer reviewed and qualifies as a non-accredited learning activity (CE-Plus) within the annual professional development requirement for licensure by the College of Pharmacists of BC.

### Your Responsibility

The recommendations in this case are based on the views of our clinicians after careful consideration of the best available evidence and needs of a specific patient. As a health care professional, you will assess each of your cases based on the patient’s unique circumstances and in consultation with the patient and their care team.

If you would like to discuss one of your patients with us please contact the Clinic team.