

## Pharmacy Specific Systems Part 1

1. Define the goal of medication administration systems including the “5 rights.”
  - [Goal of distribution systems: timely & accurate supply of medication for administration]
  - Goal of **administration systems**: help the 5 rights (right patient, drug, dose, route, time)
2. List and explain 2 examples of how medication distribution and administration can be controlled by healthcare providers in the outpatient setting.
  - Daily/weekly dispense
  - Daily witness
  - Community IV
3. Describe 3 pros/cons of medication distribution and administration for both the community and institutional setting that impacts the way technology is used.

Community	<ul style="list-style-type: none"> <li>• Leaves treatment ultimately up to patient (adherence)</li> <li>• Allows for other “dispensaries” or providers to add/remove therapy</li> <li>• Monitoring becomes a responsibility of pt</li> </ul>
Institution	<ul style="list-style-type: none"> <li>• Med administration is controlled and tracked</li> <li>• Compliance is expected but not necessarily enforced</li> <li>• If system fails in one area, it can affect entire circle of care</li> </ul>

4. Explain 3 reasons why an eMAR may be better than a traditional MAR.
  - Can sync for automatic updating
  - Can be linked electronically to the correct patient and drug (e.g. barcoding)
  - Traditional MAR: requires updating after every new order, not always easy to locate if being used by others
5. Provide up to 3 examples of requirements for PPMS as outlined by NAPRA.
  - Create a unique patient record
  - Have a comprehensive med profile
  - Allow for clinical records
  - Integration for lab tests
6. Provide examples of the processes and features of PPMS including patient information and drug module including inventory management.
  - WinRx: drug search field, drug file, patient file
  - Inventory management: track lot numbers; know which patients received certain drug
7. Explain 1 reason why having an accurate inventory system can improve pharmacy business.
  - Pharmacy vendors allow purchases of stocks with various delayed payment methods → pay for an item at cost and sell it before you need to pay for it

8. Compare and contrast wholesale vs. store monitored inventory systems.

<b>Wholesaler-monitored systems</b>	<b>Store-monitored systems</b>
Wholesaler will send you stock to maintain a “minimum quantity”	Requires vigilance and monitoring by staff to ensure stock levels are maintained
Can flag sales trends for you	Can be slow to respond to changes in sales
Requires wholesaler to have access to your stock numbers (accurate stock numbers required including damaged/stolen/expired items)	

9. Recall the 3 key guideline sections outlined by the 2013 Canadian Pharmaceutical Bar Coding Project.

- Bar code introduction on “primer”
- Value of barcoding medications
- Implementation considerations

10. Recall 3 examples of technology-related “workarounds” to barcoded systems.

- Omission of process steps (e.g. not reviewing eMARs to verify current medications prior to new orders)
- Steps performed out of sequence (e.g. scan medication as “administered” before actually administered to patient)
- Using unauthorized steps (e.g. patient barcode placed on another object instead of patient to make it easier to scan)

**Pharmacy Specific Systems Part 2**

1. List 3 enabling features of PharmaNet.

- Access to consolidated patient records
- Real-time drug dispensing information
- Online claims processing and adjudication

2. List 3 possible examples of how a medication provided in BC may not appear on PharmaNet.

- Drugs given in hospital or mental health centres
- Samples from a clinician
- BC Cancer Agency, BC Centre for Excellence in HIV/AIDS, BC Transplant Society, BC Renal Agency

3. Describe the pieces of information that are collected by PharmaNet and provide one example of a clinician that cannot gain access to PharmaNet and one example of how a patient can restrict access to their profile.

- Information collected includes Rx data, claims data, patient demographic info, allergies, other medical history (prosthetic/orthotic devices, non-Rx products)
- Not available to dentists, NDs, midwives, pharmacists outside a dispensary
- Patients can restrict access using keywords

4. List the 3 security features that limit and monitor PharmaNet use.
  - Access granted by the Ministry of Health
  - Signed confidentiality agreement
  - Unique identifier prior to access every time
  
5. Recall that PharmaNet is not an optional service for any prescriptions filled in BC.
  - Patients cannot “opt out” of PharmaNet
  - Even out-of-province/country patients who fill a Rx will receive a PHN and be updated on PharmaNet

6. Provide 3 examples of proposed updates for both pharmacists and physicians in PharmaNet 2.

Pharmacists	<ul style="list-style-type: none"> <li>• Dispense electronic prescriptions in addition to paper prescriptions (change Rx status)</li> <li>• Claim for resolving drug therapy problems</li> <li>• Capture adapted prescriptions</li> </ul>
Physicians	<ul style="list-style-type: none"> <li>• Add sample medications</li> <li>• Download data from PharmaNet</li> <li>• Send electronic prescriptions</li> <li>• Search for prescriptions by prescriber</li> <li>• Check for adapted prescriptions</li> </ul>

7. Define health information access layer (HIAL) and provide 2 examples of services that HIAL systems should be capable of doing.
  - An architecture system that allows multiple point-of-service systems to request & connect with others
    - Backbone of EHR systems
    - Not a repository of data (connects repositories of data together)
  - Should be able to:
    - Act as a central method for coordinating services across EHR systems in the HIAL
    - Provide a secure and organized method of queuing and sequencing requests
  
8. Compare and contrast HIAL with one-by-one service systems and provide 2 reasons why HIAL systems may be better.
  - Greater integration capability
  - Lower costs

**Point of Care Testing**

1. Define point of care testing (POCT) and list 3 examples of available tests.

POTC	A test that can be done at the point of care with the patient, with immediate results (or within reasonable amount of time) and the results are used to immediately make a decision		
Blood tests	<ul style="list-style-type: none"> <li>• Blood glucose</li> <li>• Hemoglobin A1C</li> <li>• Blood gases</li> <li>• CBC</li> <li>• Cholesterol</li> <li>• <i>H. pylori</i> antibodies</li> </ul>	<ul style="list-style-type: none"> <li>• Lytes, Scr</li> <li>• INR/PT</li> <li>• Troponin</li> <li>• Liver panel</li> <li>• Lactate</li> <li>• HIV antibodies</li> </ul>	
Urine Tests	<ul style="list-style-type: none"> <li>• Dipstick                             <ul style="list-style-type: none"> <li>○ Protein</li> <li>○ Glucose</li> <li>○ Ketones</li> <li>○ Hg</li> <li>○ Bilirubin</li> </ul> </li> <li>○ Acetone</li> <li>○ Nitrites</li> <li>○ WBCs</li> <li>○ pH</li> <li>○ Specific gravity</li> </ul>	<ul style="list-style-type: none"> <li>• Tox Screen</li> <li>• HCG (pregnancy)</li> </ul>	
Other	<ul style="list-style-type: none"> <li>• Spirometry</li> <li>• Bone mineral density</li> <li>• Influenza</li> </ul>	<ul style="list-style-type: none"> <li>• Pulse oximetry</li> <li>• Group A Strep</li> <li>• Fecal occult blood</li> </ul>	

2. Discuss 2 advantages and 2 disadvantages of POCT.

Advantages	Disadvantages
<ul style="list-style-type: none"> <li>• Rapid results</li> <li>• More accessible and possibly take away stigma</li> <li>• More consistent monitoring</li> <li>• Potential cost savings</li> <li>• Circumventing physician (get results on their own) – <i>can be disadvantage</i></li> </ul>	<ul style="list-style-type: none"> <li>• Cost of machine</li> <li>• Follow-up &amp; educating pts if abnormal result</li> <li>• Potential for user error and variability = false positive &amp; negatives</li> <li>• Certain tests may not lend themselves to be done POC</li> <li>• Paid for by pt if done in outpatient setting</li> <li>• Lack of comfort and support around the test</li> <li>• Cost (redundancy of tests)</li> </ul>

3. Compare and contrast POCT and conventional lab testing as reviewed by the 2012 CADTH Systematic Review.

- For anticoagulation & glycemic monitoring
  - Comparable accuracy
  - \$\$\$ savings
  - Favourable impact on QOL/patient satisfaction