



CLEAR 2011 Annual Conference  September 8-10 Pittsburgh, Pennsylvania


**BIRTH OF A NEW PROFESSION:
DEVELOPING WRITTEN &
PERFORMANCE-BASED EXAMINATIONS**

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The Pharmacy Examining Board of Canada



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Goal: Share Experiences & Insights

- Developing *certification examinations* for an *emerging or new profession*

- What were the greatest challenges that you encountered & what did you do?
OR
- What challenges would you expect to encounter?

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The Pharmacy Examining Board of Canada (PEBC)

The national certification body for the pharmacy profession in Canada

Purpose or Mandate:

- assess the qualifications and competence of candidates seeking to become licensed by PRAs
- award certificates of qualification to pharmacists and pharmacy technicians who demonstrate that they have the necessary knowledge, skills and abilities (KSAs) to practise safely

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Canadian Pharmacy Regulatory Framework

The diagram illustrates the regulatory framework. NAPRA is shown in a box on the left. A line connects it to PRAs in a rounded rectangle above. A line connects PRAs to PEBC in a hexagon below. Below PEBC, it lists: PRAs (10), Educators (4), Professional Associations (3).

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Roles & Responsibilities


- NAPRA **Vision:** enhanced pharmacy services & scopes of practice for pharmacists & pharmacy technicians
Competency profiles & model practice standards
- PRAs
 - Regulate practitioners & practice settings
 - Provincial standards
- PEBC
 - National certification processes & exams

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Rationale for Pharmacy Technician Certification & Licensure

- Health care landscape
 - Costs mounting, shortage of primary care providers
 - Shifting and shared scopes of practice
- Pharmacy landscape
 - Changes in clinical practice
 - New roles for pharmacists and pharmacy technicians
- Pharmacy technicians assume new responsibilities & accountabilities
 - To support practice changes
 - To minimize errors in medication distribution


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Issue 1: Role Delineation, Competencies, Practice Standards

- Some PhTs already practising the expanded roles
 - under supervision, e.g. 'tech check'
- Varying standards of practice
 - province to province, workplace to workplace
- Competencies not fully elucidated
 - performance indicators?
 - knowledge specifications?
- Overlapping roles & responsibilities
 - same standard?


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Issue 2: Competency Development at Entry to Practice

- Diverse training programs and quality
 - Inconsistent education and training
 - Variable educational outcomes
- Learning needs of unregulated pharmacy technicians undefined
- 'Grand-parenting' question


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Issue 3: Adversity to Change

- Turf: fear of taking jobs away
- Trust: reluctance to delegate/let go
- Relationships: subordinate to peer
- Responsibilities: acceptance then pushback
- Liability


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Issue 4: Feasibility Considerations

- No incumbents (registered PhTs / reference group) - proxy group?
- No estimate of number of candidates
- Limited communication network
- Cost-benefit / value of certification and performance-based testing - not yet determined


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Aims & Challenges

Develop an examination blueprint and content for entry into a newly regulated profession with an expanded scope of practice


- Base exam on the national competency profile
- Develop 2-part exam:
 - MCQ
 - Performance-based OSPE

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Strategies


1. Form national Pilot Steering Committee to:
 - Oversee exam development
 - Determine eligibility criteria and policies
 - Guide communications with stakeholders
2. Coordinate these activities with other stakeholders' strategies and actions, e.g.
 - determining the required competencies through a national job analysis (NAPRA) and
 - development of the required competencies through
 - Training program accreditation
 - Bridging programs

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Steps to Develop & Pilot Entry-to-Practice Examination for Pharmacy Technicians


1. Develop the examination blueprint
2. Select **test format(s)** best used to test each part of the blueprint
 - MCQ: test breadth of knowledge
 - Objective Structured Performance Assessment (OSPE): communication and technical skills
3. Develop pilot research plan
4. Develop, pretest and revise test items/stations
5. Develop scoring protocol (OSPE)

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Steps

6. Construct test form(s)
7. Recruit participants and administer pilot
8. Determined pass-fail standard
9. Analyze results and conduct quality assurance
10. Report results



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Steps to Develop Examination Blueprint

1. Conduct Job analysis (NAPRA): *Professional Competencies for Canadian Pharmacy Technicians at Entry to Practice*
2. Weight competencies by importance
3. Identify best format to test competencies (MCQ and/or OSPE)
4. Determine competency weights for each part

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NAPRA Competencies


1. Legal, Ethical, & Professional Responsibilities
2. Professional Collaboration & Team Work
3. Drug Distribution: Prescription and Patient Information
4. Drug Distribution: Product Preparation
5. Drug Distribution: Product Release
6. Drug Distribution: System & Inventory Controls
7. Communication & Education
8. Management Knowledge & Skills
9. Quality Assurance



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Blueprint Methodology

- Focus group process
 - Representative group (16)
 - Selected systematically to represent key stakeholders and multiple perspectives
- Research supports small groups for new professions
 - Opportunity for fruitful discussion (Raymond, 2001)
 - Opportunity to discuss ratings

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Blueprint Methodology

1. Rate the competencies according to criticality and frequency
2. Analyze the ratings to determine the relative importance of the competencies
3. Assign weights of importance to the competencies
4. Determine which competencies will be tested in each examination format, i.e. multiple choice or performance examination

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Blueprint Rating Scales - Criticality

- How serious are the consequences if the pharmacy technician beginning-to-practice failed to perform the competency elements accurately?
 1. No harm to patient (*Not serious*)
 2. Causes inconvenience (*Minimally serious*)
 3. Hinders therapeutic progress (*Moderately serious*)
 4. Worsen condition (*Highly serious*)
 5. Life threatening (*Critically serious*)

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Blueprint Rating Scales - Frequency

- How often, on average, would the pharmacy technician beginning-to-practice be expected to perform this competency element?
 1. Once or less per month
 2. About once per week
 3. About once per day
 4. More than once per day
 5. At least once per hour

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Derive Competency Weights

- Combine average CRITICALITY and FREQUENCY > index of IMPORTANCE
 - Is a matter of judgment how or when to combine CRITICALITY and FREQUENCY
- Convert importance index values to WEIGHTS

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Summary of Competency Weights			
Comp 1	Legal, Ethical, & Prof. Responsibilities	8	
Comp 2	Prof. Collaboration & Team Work	8	
Comp 3	Rx: Prescription & Patient Information	18	
Comp 4	Rx: Product Preparation	16	
Comp 5	Rx: Product Release	16	
Comp 6	Rx: System & Inventory Controls	9	
Comp 7	Communication & Education	9	
Comp 8	Management Knowledge & Skills	7	
Comp 9	Quality Assurance	9	
		100	


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Conclusions			
<ul style="list-style-type: none"> • Focus group method - helped clarify competencies, competency elements and rating scales • No differences of importance between panelists • Consistency of ratings was very high • Most important - drug distribution competencies (3,4,5) • 18/72 competency elements deemed non-critical and/or unable to test in either format • MCQ and OSPE formats needed to test important competencies 			

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Examination Structure			
Part I - MCQ		Part II - OSPE	
<i>Written Multiple Choice Questions</i>		<i>Objective, Structured Performance Exam</i>	
<ul style="list-style-type: none"> • 4-choice, one-best-answer questions • tests <ul style="list-style-type: none"> ◦ breadth of knowledge ◦ understanding and application of knowledge ◦ ability to make judgments in situations relevant to practice 		<ul style="list-style-type: none"> • 7-minute 'stations' based on common/critical practice situations • tests <ul style="list-style-type: none"> ◦ ability to communicate ◦ ability to perform professional functions in simulated practice contexts ◦ technical and communication skills ◦ ability to problem-solve & make judgments 	

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What is an OSPE?

- Objective Structured Performance Examination
- Series of **stations** through which all candidates rotate
- **Interactions** with standardized clients (patients, care givers, health care professionals), e.g.
 - interview to gather information
 - refer to pharmacist or other health professional
 - teach client to use a device
- **Non-interactive tasks**
 - sterile compounding (video)
 - non-sterile compounding (technique)
 - 'tech check' (prescription, product or records)

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Part II (OSPE)- Station Types

Interactive	Non-interactive
<ul style="list-style-type: none">• standardized patient• trained examiner• standardized assessment criteria• communication, ethical and problem-solving skills	<ul style="list-style-type: none">• respond in writing• marked using standardized criteria• e.g., drug information request, checking prescriptions

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Scoring the OSPE

- **Station-specific checklist** - response record
 - Critical items (key features) reflect Station Objectives
 - Non-critical items - reflect good practice
- **Holistic rating scales** - used for scoring
 - Communication (generic)
 - Outcome (station specific)
 - Overall performance (global)
- **Misinformation, Risk and Unique Responses** documented / considered if pertinent
- **Comments** recorded (to support low ratings)

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Sample Video



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Developmental Steps

1. Create MCQ test questions and OSPE stations
2008 Item/Station Writing Workshops (10 participants, 2 days each)
2. Review & revise MCQ questions and OSPE stations
2008 Item/Station Writing Workshops (10 participants, 2 days each)

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Developmental Steps

3. Conduct a Pre-test of Performance Stations
Purpose:
 - to determine the functionality of the stations and appropriateness of scoring criteria
 - Pre-tested 51 stations using two tracks, with am and pm sessions
 - Utilized pharmacists (26) and pharmacy students (37) in the pretest in March 2009
 - Refined stations based on data and feedback collected

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Developmental Steps

4. Create Part I (1 form) and Part II (2 forms) for the pilot

5. Conduct Pilot: August 2009

Purpose:

- for certification purposes in Ontario
- to obtain research data on the pilot

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Pilot Examination Format

Part I - MCQ	Part II - OSPE
<ul style="list-style-type: none">• One form• Two 2.5 hour sittings, consecutive days• 150 scored questions + 50 pretest questions	<ul style="list-style-type: none">• Two forms• 3.5 hour sitting (AM or PM) plus 2 - 2.5 hrs pre- and post-exam processes• 12 stations (7 core* stations)<ul style="list-style-type: none">- 4 interactive (1 core)- 8 non-interactive (6 core) (1 technique, 2 video, 5 other)

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Developmental Steps

5. Set Criterion-referenced Minimum / Passing Standards - October 2009

- MCQ - modified Angoff methodology
- OSPE - 'Competence Standard Setting' methodology (adapted Angoff)


6. Report Candidate Results

- November 30, 2009

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Developmental Steps


7. Develop Research Report - Jan/Feb 2010
 - statistical data analysis and results
 - recommendations
 - revisions to assessment process for written and performance components
 - Shorter test length for both
8. Modify examinations for implementation

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Steering Committee Recommendations - based on research findings

- Require both Part I (MCQ) and Part II (OSPE)
- Part I (MCQ) format: 130 to 140 scored questions (plus 40 to 50 pretest questions), in one 4-hour sitting
- Part II (PT-OSPE) format: 8 stations, scored holistically
 - 4 interactive stations, 1 assessor per station
 - 5 non-interactive stations, machine-scored
 - 1 video, sterile compounding
 - 1 technique, non-sterile compounding
 - 2 non-interactive, tech check stations

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Current Examination Format

<p>Part I - MCQ</p> <ul style="list-style-type: none"> • 4-hour sitting • 120 scored questions • 30 pretest questions • Standard set by equating, Rasch model 	<p>Part II - OSPE</p> <ul style="list-style-type: none"> • 3.5 hour sitting • 9 scored stations <ul style="list-style-type: none"> - 4 interactive - 3 non-interactive (tech-check) - 1 nonsterile compound - 1 video, sterile compounding • 2-3 pretest stations • Standard set each form - <i>Competence Standard Setting Method</i>
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What Have We Learned?

- Partner and collaborate; identify and address/incorporate stakeholders' needs and interests
- Communicate clearly and uniformly, repeatedly; use all available networks
- Though uptake has been slow, pharmacy technicians are eager to be registered and take full professional responsibility

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What Did You Learn?

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