Development of a Benchmarking Tool for Pharmacy Students Using Threshold Learning Outcomes

Leanne Chalmers¹, Rose Nash¹, Sandra Holmes¹, Luke Bereznički¹, Rohan Rasiah², Joyce Cooper², Michelle Bellingan³, Ian Heslop³.

¹Pharmacy, School of Medicine, University of Tasmania, Hobart, Tasmania; ²School of Biomedical Sciences and Pharmacy, The University of Newcastle, Newcastle, New South Wales; ³School of Pharmacy and Molecular Sciences, James Cook University, Townsville, Queensland
Introduction

– **Australian Pharmacy Council Accreditation Standards for Pharmacy Programs in Australia and New Zealand**¹
  – Pharmacy programs must have a “demonstrable and continuous quality improvement program…”
  – “… a focus on the quality improvement cycle (including benchmarking activities) is essential for sustaining a quality program”

– Challenges to benchmarking:
  – Points of difference between different pharmacy programs
  – 4-year BPharm vs. 2-year MPharm programs

– Development of pharmacy Threshold Learning Outcomes (TLOs) has created new opportunities

¹ Australian Pharmacy Council Ltd. Accreditation Standards for Pharmacy Programs in Australia and New Zealand. Canberra: Australian Pharmacy Council Ltd; December 2012.
Pharmacy Threshold Learning Outcomes

1. Demonstrate professional behaviour and accountability in the commitment to care for and about people

2. Retrieve, critically evaluate and apply evidence in professional practice

3. Demonstrate team and leadership skills to deliver safe and effective practice

4. Make, act on and take responsibility for clinically, ethically and scientifically sound decisions

5. Communicate in lay and professional language, choosing strategies appropriate for the context and diverse audiences

6. Reflect on current skills, knowledge, attitudes and practice; planning and implementing for ongoing personal and professional development

7. Apply pharmaceutical, medication and health knowledge and skills

8. Formulate, prepare and also supply medications and therapeutic products

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Aim

– To develop, refine and validate a tool based on the pharmacy TLOs to facilitate benchmarking of students’ performances in verbal ‘capstone’ assessments in Australian pharmacy programs
Methods

1. Pilot tool developed in collaboration between UTAS, UoN and JCU

2. Pilot tool trialled by internal and external examiners during UTAS final verbal exams in October 2013

3. Examiner usability and acceptability assessed using a survey

4. Tool evaluated for validity and inter- and intra-rater reliability using Pearson correlation coefficients (R)

5. Tool refined using these results

6. Late 2014/early 2015 - validation exercise
Methods – Pilot Tool Draft 1

CSA430 Verb:

Student:

Threshold Learning Outcomes
Upon completion of their program:

<table>
<thead>
<tr>
<th>0</th>
<th>Not demonstrated at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Attempts made however significant deficiency for the expected level of a pharmacy graduate</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PHARMACY THRESHOLD LEARNING OUTCOME (and Exemplars)</th>
<th>SCALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. Apply pharmaceutical, medication and health knowledge and skills</td>
<td></td>
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<tr>
<td>• Within their scope of practice, in the assessment of individual health status and medication needs, and where necessary, develop, implement and monitor management plans in consultation with patients/clients and other health professionals to improve patient outcomes</td>
<td></td>
</tr>
<tr>
<td>• To promote and optimise the health and welfare of communities and/or populations</td>
<td></td>
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<tr>
<td>• Demonstrate evidence-based clinical practice by locating, evaluating, synthesising and applying evidence, and evaluating outcomes</td>
<td></td>
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<tr>
<td>• Collaborate with patients, the public and other healthcare professionals to provide patient-centred, collaborative care and improve patient outcomes</td>
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<tr>
<td>• Communicate effectively (verbally, non-verbally and in writing) about medication management and other health care needs within a practice environment</td>
<td></td>
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<tr>
<td>• Develop accurate, efficient patient therapeutic and monitoring plans that incorporate best practice and respect the autonomy of the patient</td>
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<tr>
<td>• Interpret, access and respond in a prompt and effective/timely manner to medication related requests</td>
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<tr>
<td>8. Formulate, prepare and also supply medications and therapeutic products</td>
<td></td>
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<tr>
<td>• Clarify medication orders, assess appropriateness of prescribed medicines, use pharmaceutical calculations to verify the safety of doses and administration rates and follow systematic dispensing procedures</td>
<td></td>
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<tr>
<td>• Use a safe and consistent approach to medication provision with review and regular quality checks in place</td>
<td></td>
</tr>
</tbody>
</table>

Overall this student was:

- Satisfactory
- Borderline
- Unsatisfactory
Results

– 44 of UTAS 60 students (73.3%) provided informed consent (verbal exams, October 2013)

– ≥1 UTAS examiner completed a benchmarking tool for 39 students; 2 were completed for 29 students

– Correlations generally good or very good

<table>
<thead>
<tr>
<th>Variables</th>
<th>n</th>
<th>Pearson Correlation Coefficient (R)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>UTAS Examiners</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TLO1</td>
<td>29</td>
<td>0.878</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>TLO2</td>
<td>29</td>
<td>0.809</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>TLO4</td>
<td>29</td>
<td>0.844</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>TLO5</td>
<td>29</td>
<td>0.855</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>TLO7</td>
<td>29</td>
<td>0.728</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>TLO8</td>
<td>29</td>
<td>0.773</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td><strong>UTAS Examiners (average) vs. Observer</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TLO1</td>
<td>12</td>
<td>0.593</td>
<td>0.042</td>
</tr>
<tr>
<td>TLO2</td>
<td>12</td>
<td>0.481</td>
<td>0.113</td>
</tr>
<tr>
<td>TLO4</td>
<td>12</td>
<td>0.735</td>
<td>0.006</td>
</tr>
<tr>
<td>TLO5</td>
<td>12</td>
<td>0.685</td>
<td>0.014</td>
</tr>
<tr>
<td>TLO7</td>
<td>12</td>
<td>0.624</td>
<td>0.030</td>
</tr>
<tr>
<td>TLO8</td>
<td>12</td>
<td>0.694</td>
<td>0.012</td>
</tr>
<tr>
<td><strong>UTAS Examiners’ Mark vs. TLO</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TLO1</td>
<td>29</td>
<td>0.619</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>TLO2</td>
<td>29</td>
<td>0.751</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>TLO4</td>
<td>29</td>
<td>0.738</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>TLO5</td>
<td>29</td>
<td>0.776</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>TLO7</td>
<td>29</td>
<td>0.830</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>TLO8</td>
<td>29</td>
<td>0.848</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

**Table 1:** Correlations between student marks and TLO scores for the draft benchmarking tool.
Results cont’d...

– Survey feedback received from 11 of 14 examiners (response rate 78.6%)

– Recommendations:
  1. Educate academics in the use of tool.
  2. Ensure alignment of the TLOs with assessment questions.
  3. Shorten the description of TLOs, and highlight only one or two highly relevant exemplars – aim for a one-page tool.
  4. Review the scales.
  5. Ensure adequate time for completion.
Revised Benchmarking Tool

Verbal Examination Benchmarking Study Tool v8 – July

Threshold Learning Outcomes
Upon completion of their program of study, pharmacy graduates (attend of degree, prior able to:

<table>
<thead>
<tr>
<th>Fail (F) - No attempt made</th>
<th>Not Competent (NC) - Attempt made however not clearly at the level expected of a pharmacy graduate</th>
<th>Competent (C) - demonstrates performance at the expected level of a pharmacy graduate</th>
</tr>
</thead>
</table>

PHARMACY THRESHOLD LEARNING OUTCOME (and Exemplars)

1. Demonstrate professional behaviour and accountability in the commitment to care for and about people
   - Display appropriate personal presentation in all situations
   - Recognize own professional limitations and seek support if necessary

2. Retrieve, critically evaluate and apply evidence in professional practice
   - Apply multiple approaches for solving problems that apply within a specific context
   - Preparation of non-pharmacological management suggestions and lifestyle advice as well as regard medical management; suggests multiple suitable treatment options (e.g., antibiotics, antihypertensives) where appropriate

3. Demonstrate team and leadership skills to deliver safe and effective practice
   - Demonstrate clinical leadership (takes the lead/makes decisions/directs activities) in a mediation-related issue (does not ‘pass back’)

4. Make, act on and take responsibility for clinically, ethically and scientifically sound decisions
   - Make sound scientific principles to support decision-making
   - Determine and facilitate patient preferences for treatment

5. Communicate in lay and professional language, choosing strategies appropriate for the context and diverse audiences
   - Apply key principles of communication
   - Use clear and unambiguous oral and written language targeted to the audience
   - Listen actively
   - Present information in a timely, professional and effective manner

6. Collaborate with other healthcare professionals to provide patient-centered, collaborative care and improve patient outcomes
   - Develop accurate, efficient patient therapeutic and monitoring plans that incorporate best practice and respect the autonomy of the patient
   - Support individual and community access to health and associated resources required to prevent disease and promote health and wellbeing
   - Interpret, access and respond to requests for patient medications

7. Apply pharmaceutical, medication and health knowledge and skills
   - Effective history taking and patient-centred response
   - Select correct product
   - Advise on correct dosage/administration instructions
   - Advise about adverse effects
   - Advise about interactions/contraindications to use
   - Provide pharmaceutical and non-pharmaceutical health-related advice - including CMI and referral to other healthcare professionals
   - Appropriate identification and prioritizing ADEs, and provide suitable evidence-based resolutions to these problems, with monitoring where necessary

Overall this student was:

- Competent (‘Competent’ or ‘Outstanding’ in all criteria)
- Not competent

Comments:
Conclusions

– Progress is underway towards the development of a relatively simple, flexible and validated benchmarking tool to facilitate high quality student outcomes across Australian pharmacy programs

– Academic feedback has resulted in significant amendments to the original draft tool

– Training in the use of the tool has been identified as a major enabler of its successful and consistent application

– One tool may not fit all purposes!!
Where To From Here?

– Validation exercise late 2014/early 2015
– Electronic format?
– National implementation?
  – ISG or OLT grant?? Application across other disciplines?
– Ongoing benchmarking relationships

*don't tell me the sky's the limit
when there are footprints on the moon*
Acknowledgments and Thanks

– Thank you to the:
  – Students who provided consent
  – Academic staff who trialled and provided feedback on the pilot tool
  – University of Tasmania for providing the Teaching Development Grant that supported this work