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Rising to the Surface: Re-designing Curriculum to Accentuate Research Skills
Rising to the surface: Re-designing curriculum to accentuate research skills in second year pathology and clinical science

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Endeavour College of Natural health
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The outline
Pathology and Clinical Science MELT: The Development

Clinical Management Skills
- Observe and ask
- Find and Generate
- Analyse and Interpret
- Investigate and Reflect
- Synthesize and apply
- Organise, Manage and Communicate

Facets of RSD
- Embark and clarify
- Find and generate
- Analyse and synthesize
- Evaluate and reflect
- Organise and manage
- Communicate and apply
Clinical Management Pentagon (CMP)

Organise, Manage & Communicate
Organise, manage and communicate the information collected and knowledge gained to your patient/other health professionals to your lecturer in assignments/assessments.

Synthesise & Apply
Synthesise and apply the knowledge gained to establish appropriate clinical management plans.

Find & Generate
Collect information on clinical features and pathophysiology to generate differential diagnoses.

Observe & Ask
Observe key clinical features in a given case history and frame further questions in the history-taking process to clarify the given presentation and to think of likely differential diagnosis.

Investigate & Reflect
Identify the investigation tests to confirm the definitive diagnosis by reflecting on the test results to confirm the definitive diagnosis.

Analyse & Interpret
Analyse the pathological mechanism to interpret its impact on patient’s clinical presentation.

‘When in doubt, return to the centre’
Clinical Management Pentagon (CMP): The Implementation

“Curriculum redesign” - A three step approach:

• Reframing the marking of an existing assessment
• Developing a diagnostic assessment
• Modifying and revising the emphasis of other existing resources
Marking rubrics in Pathology and clinical science

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>MARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appropriate differential diagnoses</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>Illustrate and analyse the role of symptomatology in process of differential diagnosis</td>
<td>0 1 2 3 4 5 6</td>
</tr>
<tr>
<td>Conceptualise how mechanism of disease pathology contributes to the loss of normal functions and the clinical presentations.</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>Demonstrate the selection, application and interpretation of correct diagnostic testing.</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>Discuss appropriate management for the patient</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>Appropriate referencing and bibliography</td>
<td>0 1 2</td>
</tr>
<tr>
<td>Presentation and word count</td>
<td>0 1 2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>MARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students provide evidence using appropriate methodology</td>
<td></td>
</tr>
<tr>
<td>Students provide a rationale for one correct differential diagnosis</td>
<td></td>
</tr>
<tr>
<td>Students provide a rationale for two correct differential diagnoses</td>
<td></td>
</tr>
<tr>
<td>Students provide a rationale for three correct differential diagnoses</td>
<td></td>
</tr>
<tr>
<td>Students provide a rationale for all correct differential diagnoses</td>
<td></td>
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<tr>
<td>Students provide an exceptional rationale for up to three correct differential diagnoses</td>
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</tbody>
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Clinical Management Pentagon (CMP): The Evaluation

**Outcome measure**

- Improvement in students’ research and analytical skills

**Tools**

- Pre and Post exposure Student survey
  - 14 Likert scale questions, 2 open response questions
  - Self assessment of research skills
## Data analysis: Student survey

<table>
<thead>
<tr>
<th>Questions</th>
<th>Mean Likert Score Pre-Post (n=40)</th>
<th>Diff(^1) (Post-pre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>My general research skills are good</td>
<td>3.83-4.08</td>
<td>0.25</td>
</tr>
<tr>
<td>My Research Skills in pathology and clinical science are good</td>
<td>3.60-4.05</td>
<td>0.45</td>
</tr>
<tr>
<td>I am able to ask clear, researchable questions in pathology and clinical science</td>
<td>3.78-4.05</td>
<td>0.28</td>
</tr>
<tr>
<td>I can devise procedures in pathology and clinical science to generate relevant and high quality information</td>
<td>3.45-3.90</td>
<td>0.45</td>
</tr>
<tr>
<td>I can effectively evaluate the credibility of sources of information in pathology and clinical science</td>
<td>3.95-4.18</td>
<td>0.23</td>
</tr>
<tr>
<td>I can organise information from multiple sources effectively in pathology and clinical science</td>
<td>3.75-4.13</td>
<td>0.38</td>
</tr>
<tr>
<td>I am able to analyse information from different sources effectively in pathology and clinical science</td>
<td>3.85-4.10</td>
<td>0.25</td>
</tr>
<tr>
<td>I can clearly communicate in writing what I understand from my research in pathology and clinical science</td>
<td>3.675-3.975</td>
<td>0.3</td>
</tr>
</tbody>
</table>
Data analysis: Student survey

Open response questions:

- Facets of research: Shift observed in students’ understanding or attitude to research.
- Facilitating factors for research skills development: Repeated use of research based assessments and study materials, practice and support/feedback from academics.
- Obstacles in research skills development: Access to credible information and lack of time, Lack of clear criteria/direction.
Conclusion & Recommendations

Conclusion

• Improvement observed in student’s perception of subject specific research skills.
• No substantial change was observed in students’ perception of research skills applicability to their future studies or career.
• Research skills development may be explicitly supported by repetitions, practice and clear directions.

Recommendations

• Incorporate RSD/MELT based curriculum in all courses from the foundational years through to the whole degree programme
Questions and Answers
Thank you!