The Symbiosis of Internal and External Evidence: When Preparation Meets Opportunity

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“One approach in a new situation is to take stock in what we know and what we do not know. Assessing what we know can be tricky, but taking an organized approach using the clinical research domains can guide our internal evidence assessment. The five primary clinical research domains are epidemiology, etiology, diagnosis, prognosis, and therapy.

- **Epidemiology** is the study of injury/illness distribution and trends within specific populations.

A new clinician might first seek out research evidence regarding the most common conditions in a specific athletic population. This will help to better gauge the probability of encountering them in clinical practice.

By identifying the most common conditions, clinicians can then start asking relevant questions from the other clinical research domains.

- **Etiology** is the study of causes of injury/illness. In particular, once the most common injury trends are known, the clinician can use the research evidence to determine most relevant risk factors for developing those conditions.

- **Diagnosis** studies report on the best methods, techniques, or tools for determining the presence or absence of a condition. Once the most common conditions are known, the best methods for recognizing them should be readily sought out.

- **Prognosis** studies report on the natural history (the likely outcome with no treatment) or the **clinical course** (the likely outcome with treatment). These can be event-based (what will happen?) or time-event-based (what and when will that happen?).

- **Therapy** studies are used to determine the best interventions for given conditions. These can also be prevention studies to determine the best intervention to reduce the risk of an injury/illness occurring.

In the Table 1, we provide example questions from the five clinical research domains to guide the assessment of a clinician’s internal evidence and help identify what is needed from relevant sources of external evidence both from research and patient evidence. These are just examples; there are many more questions that could be asked. Additionally, there is purposeful redundancy between the questions we ask of ourselves as we assess our internal evidence, and those we ask as we search the external evidence. The symbiotic relationship between internal and external evidence feed each other. They both help us to better prepare for meaningful patient encounters. By developing an external/internal evidence framework, we can better gauge the generalizability of the external evidence when we consume it. We can also reflect and update our internal evidence. Do we have the most appropriate understanding of foundational knowledge (anatomy, physiology, kinesiology,
Figure 1 — Old vs. new model of internal/external evidence and Sackett’s evidence-based practice Venn diagram.

Table 1 Integrated Approach of Asking Questions Related to Internal and External Evidence Through the Five Clinical Research Domains*

<table>
<thead>
<tr>
<th>Evidence Domain</th>
<th>Internal Evidence Questions</th>
<th>Research Evidence Questions</th>
<th>Patient Evidence Questions</th>
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<tbody>
<tr>
<td>Epidemiology</td>
<td>What are the most common conditions I’ve encountered? What were my knowledge gaps in my clinical understanding about them?</td>
<td>What are the key demographics for a specific population of interest? What are the most common clinical conditions reported? Are there red flag conditions?</td>
<td>What are the key characteristics of my patient that will help me identify them as a member of population of interest?</td>
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<td>Etiology</td>
<td>What do I think are the most common contributing factors for these conditions? Do I have the relevant background to understand the external evidence (anatomy, physiology, kinesiology, psychology, sociology, pathology, etc.)?</td>
<td>What are the most relevant and consistent risk factors for these conditions?</td>
<td>Does my patient have any risk factors that may lead to the development of these conditions?</td>
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<tr>
<td>Diagnosis</td>
<td>Am I proficient in performing the most important clinical tests/rules? Am I capable of linking the information I gather in my evaluation to see the pattern associated with these conditions?</td>
<td>What are key diagnostic features to identify these conditions? Are there established clinical prediction rules with high diagnostic accuracy?</td>
<td>What are my patient’s chief problems/complaints? Do I recognize a pattern in their history or my clinical evaluation that fits one of these conditions?</td>
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<tr>
<td>Prognosis</td>
<td>What are the typical timelines for return to play/work for my patients? What factors altered those timelines?</td>
<td>What are the established timelines (time to return to play/work) for these conditions? Are there common comorbidities or complications? What other factors alter typical timelines?</td>
<td>What are my patient’s goals? What time endpoints are most important to my patient? Has my patient experienced the condition before?</td>
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<tr>
<td>Therapy</td>
<td>What intervention strategies have I found to be effective? Do I have the proficiency, time, equipment, and/or support staff to implement these strategies? Do I know how to assess the outcomes for detecting improvements in my patient?</td>
<td>What strategies appear to best impact this condition and/or prevent its development? What are the most important outcomes to capture improvements? Are there established measures of responsiveness for these outcomes?</td>
<td>What has worked in the past for my patient? What is my patient willing to do? Will my patient be compliant and adherent my therapeutic recommendations?</td>
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*These questions are just examples in helping us better prepare for future patient encounters.
etc.) to appreciate the external evidence and how it can inform our clinical decisions? Are our documentation strategies appropriate so that we can compare our clinical encounters with the research evidence? We cannot predict every clinical opportunity that will come our way, but we can better prepare ourselves for what we will most likely encounter.

When reading the current issue of *IJATT* (or any other *IJATT* issue or health care journal), consider screening the table of contents and labeling the articles based on these five clinical research domains. Then, screen for what is most relevant to you as a clinician right now in your clinical practice. In doing so, take time to reflect on your own internal evidence about the topics. Is the content relevant to you? Does the external evidence presented in the articles align with your own internal evidence? If so, how might this new external evidence inform your future clinical decisions? If not, does your internal evidence need to be updated?

Clinical practice centers on the public expectation that we are all capable clinicians and life-long learners. Essential to this process is a spirit of inquiry about the best available research evidence for guiding clinical decisions. Meaningful clinical encounters that afford clinicians the opportunity to hone their internal evidence are also essential and are opportunities to also use patient evidence to inform their clinical decisions. We cannot predict what patient encounters we will have, but we can control how prepared we need to be. A balanced use of internal and external evidence is a key component to clinical preparation. A planned approach to assess this balance can help build a framework for mapping new information in regard to patient care. Our clinical outcomes depend on how well prepared we are to meet the demands of our patient encounters and our readiness to make sound clinical decisions.

### References


