Clinical EBP Example Application

1. **Title:** Treating the Thoracic Spine: An Evidence-Based Approach

2. **NATA PracticeDomains:** Domain II Clinical Evaluation and Diagnosis; Domain IV Treatment and Rehabilitation

3. **Difficulty Level:** Essential, Advanced or Mastery
   Advanced

4. **Learning Objectives:** *(Must be written with Bloom’s Taxonomy)*
   In this learning lab, attendees will:
   1) Outline the importance of thoracic spine mobility and relate how a lack of motion can affect function throughout the spine and upper kinetic chain.
   2) Analyze thoracic spine mobility and classify differences in spinal versus segmental motion loss to determine a therapeutic intervention.
   3) Apply static and dynamic thoracic spine joint mobilizations to improve range of motion.
   4) Build a therapeutic exercise program to maximize the manual therapy intervention.

5. **Primary Clinical Question(s):**

   **Clinical Question #1:** Is gross spinal motion analysis or segmental spinal motion analysis a more accurate measure to identify mobility deficits in active adults with pain?

<table>
<thead>
<tr>
<th>P</th>
<th>Active adults</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Gross Spinal Motion OR Spine Goniometry</td>
</tr>
<tr>
<td>C</td>
<td>Segmental Spinal Motion OR PIVM</td>
</tr>
<tr>
<td>O</td>
<td>Loss of motion OR Decreased mobility</td>
</tr>
</tbody>
</table>

   **Clinical Question #2:** In patients who lack thoracic spine mobility, are manual therapy mobilizations, alone, as effective as manual therapy mobilizations in combination with soft tissue stretching for improving patient function?

<table>
<thead>
<tr>
<th>P</th>
<th>Active adults</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Joint Mobilization</td>
</tr>
<tr>
<td>C</td>
<td>Joint Mobilization with Stretching</td>
</tr>
<tr>
<td>O</td>
<td>Improved function OR Improved mobility</td>
</tr>
</tbody>
</table>
6. Identify the Educational Need and Practice Gap: Explain the overall educational need for this program and identify one specific practice gap. What is the gap between available evidence and current clinical practice? There may be gaps in knowledge, competency and/or performance. Why is it important to close this gap? Use citations where appropriate to support your position.

Lack of thoracic spine motion has been identified as a risk factor for injury locally\textsuperscript{1-3} and regionally\textsuperscript{1,4,5} in the body. Unfortunately, many athletic trainers report being uncomfortable assessing or treating the thoracic spine, possibly due to the low prevalence of acute injury to the thoracic spine.\textsuperscript{6,7} While the risk of acute injury in the thoracic spine region is low, authors have started to build a case for regional interdependence in the thoracic spine. According to the regional interdependence theory, one body segment influences the function of other body segments periphery. Lack of mobility in the thoracic spine has been demonstrated to have an influence specifically lumbar spine,\textsuperscript{1-3,8} cervical spine,\textsuperscript{1,4,5,8} and shoulder\textsuperscript{1,4,8,9} As evidence builds on the role and implications thoracic spine mobility plays on area body regions, it is becoming more important for athletic trainers to be able to correctly assess and treat this impairment.

Currently, clinicians are trained to measure thoracic spine range of motion (ROM) globally using direct measures such as a goniometer\textsuperscript{10-12} or tape measure\textsuperscript{10} and/or indirect measures such as posture\textsuperscript{12,13} and movement analysis.\textsuperscript{14} It has been found that these measures do not accurately reflect true spinal mobility.\textsuperscript{15,16} Other methods of assessment, including skilled passive intervertebral movement (PIVM) assessment may be able to give a more complete assessment of true thoracic spinal motion.\textsuperscript{17-20} Typically athletic trainers are not taught how to perform PIVM assessments and may be missing some critical data points in their mobility evaluation of the thoracic spinal region.

To treat mobility limitations in the thoracic spine, clinicians need to have multiple rehabilitation techniques available to use. Traditionally, soft tissue stretching has been a treatment focus and while little attention has been paid to restoration of joint segmental mobility.\textsuperscript{1,8,9,14,20} To best address limitations in spine mobility, a combination of soft tissue stretching and segmental joint mobilization should be used. Evidence has demonstrated that the addition of segmental mobilizations can help improve thoracic spine mobility and overall function restoring normal regional interdependence.\textsuperscript{21-27}

In this educational session, athletic trainers will learn different spinal mobility assessment methods and treatment techniques along with the evidence that supports or refute each. Participants will have the opportunity to practice and refine these techniques during the learning lab format.
7. List of at least 3 peer reviewed references with current evidence addressing your primary question(s).


Additional References used above:

8. **Clinical Bottom Line:** With the understanding that this program is still in development, it is anticipated that the author is well versed on this topic. Please provide a clinical bottom line that succinctly answers the primary clinical question. This likely includes recommendation(s) for clinical practice. The focus should be on improving patient outcomes or decreasing patient burden. This is not a summary of the program, but rather a summary of the evidence or the final take-away. It should provide a recommendation as to what ATs could be doing to improve patient outcomes. This could include potential barriers to implementing the clinical recommendation.

The use of traditional goniometric measurements to assess thoracic spine range of motion provides an incomplete picture of spinal mobility. Athletic trainers should also add passive intervertebral motion assessments to assess segmental mobility to identify local areas of mobility loss. The addition of focused joint mobilizations to the thoracic spine, in combination with a therapeutic exercise program, have proven to be superior to exercise alone. These treatment techniques can easily be learned and integrated into clinical practice once refined by the clinician.

9. Please provide the learning methods utilized in this program. *Educational methods should be appropriate for the program's objectives, pedagogy and facilities as well as the intended audience's skill level.*

The program will consist of a 1-hour lecture and 1-hour lab that will incorporate a wide variety of real-life cases, research and clinical findings related to thoracic spine mobility. Each mobility assessment and mobilization technique will be covered in-depth with a summary of published evidence. Assessments and techniques supported in the literature will be practiced by the audience during the lab portion of the session. The audience will have the opportunity to interact and pose questions throughout the presentation following the assessment section and treatment section.

10. List all known instructors and their credentials:
    Dr. Scott Lawrance, DHSc, LAT, ATC