Slide 1

CRITICAL APPRAISAL TO CLINICAL RECOMMENDATION:
Implementing Evidence Based Practice Skills into Athletic Training Practice

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"I expect you all to be independent, innovative, critical thinkers who will do exactly as I say!"

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Learning Outcomes...

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- At the completion of this series, participants should be able to...

  - (1) Successfully implement a teaching strategy which facilitates the learning of the critical appraisal process.

  - (2) Evaluate a non-randomized control trial.

  - (3) Determine level of evidence, strength of recommendation, and a clinical bottom line that can be used to inform clinical practice by students of Athletic Training.

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Primary References

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1. Steves R, Hootman JM. Evidence-based medicine: What is it and how does it apply to athletic training. *J Athl Train*. 2004;39:83-87.
2. Theroux R. How to bring evidence into your practice. AWONN Lifelines. 2006;10(3):244-249.
3. Hurley WL, Denegar CR, Hertel J. Research methods: A framework for evidence-based clinical practice.
4. Centre for Evidence Based Medicine: http://www.cebm.net/
5. Enhancing the QUAlity and Transparency Of health Research: http://www.equator-network.org/

(Big picture reading – IOM (To Err Is Human, Crossing the Quality Chasm, Health Profession Education: A Bridge to Quality, Redefining Continuing Education in Health Professions)

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EBP Across the Curriculum

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First Semester	Second Semester

• 6 weeks: Introduction to EBP Principles
  ○ AT 462/562: Interventions I
 	
• Sensitivity, specificity, odds ratios, prevalence, prediction values
  ○ AT 454/554: Lower Extremity
	• 2 Critically Appraised Papers
	  ○ AT 464/564: Interventions II
	• Sensitivity, specificity, odds ratios, prevalence, prediction values
	  ○ AT 454/554: Lower Extremity
	• Incidence, prevalence, frequency related to prevention
	  ○ AT 442/542: AT Techniques II

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EBP Across the Curriculum

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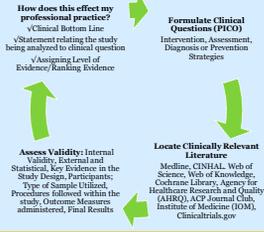| Third Semester	Fourth Semester

• Critically Appraised Topic
• Abstract Submission to District Meeting
  ○ AT 474/574: Interventions III
 	
• Grand Rounds
  ○ AT 443/543: AT Techniques III
	• Oral or poster presentation at District Meeting
	  ○ AT 490/790: Seminar

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Basics of EBP Outcomes... (as consumers)

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- (1) Develop and/or refine a clinical question in the "PICO" format.
- (2) Locate and access evidence-based literature from traditional databases (i.e. Medline, Web of Science, CINHAHL, etc.) and contemporary sources (National Guideline Clearinghouse, AHRQ, Cochrane Libraries, etc.)
- (3) Critically Appraising the Evidence: In terms of reliability, rank level of evidence and strength of recommendation.
- (4) Applying the Evidence - Draw conclusions related to the clinical bottom-line
- (5) Evaluating the Performance of EBAT
- (6) Articulate and disseminate findings in an acceptable technical format, inclusive of sound style and grammar.

Quality and Levels of Evidence...

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- Some key issues with methodology...
  - How is Population or Sample Size described?
    - If sample size, what are the qualities of the cohort? Homogeneous or heterogeneous? Lot of variability, little variability? Are these well reported?
    - Maximum Effective Size? Is the sample size large enough to support results, conclusions and/or discussion?
    - Does this sample match the patients we might see?
  - Are methods themselves sound? Control variable where-ever possible?
  - What are the statistical procedures? Is it the correct procedure?
  - What is the p value?
    - (p value = probability that a particular result would happen by chance?)

Synthesize

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Synthesize what you read:	
Write out the clinical findings you think are important from this article as they relate to the clinical question. (reflect on results and discussion)	
On a scale of 1-10, how would you rate the quality of this study? Why: In your discussion, please include how the following areas of the study affected your rating (internal validity and reliability)	
Context of the clinical discussion (external validity and reliability)	After reading the clinical question, what recommendations can you make from the information in the article?

Levels of Evidence...

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- Centre for Evidence Based Medicine (CEBM)
  - Oxford University
  - http://www.cebm.net/index.aspx?o=1025

PART 3: Complete your evaluation by:	
Assign a LEVEL OF EVIDENCE according to the CEBM Scale.	Clinical Question: What area of clinical practice does this clinical question address? _____ Diagnosis _____ Prognosis _____ Treatment Benefits _____ Treatment Harms (Common) _____ Treatment Harms (RARE) _____ Screening What type of study is this? What level of evidence would you apply?
Relative to your CLINICAL QUESTION, what is the clinical bottom line?	1-3 key points you could take home from this article to use in your practice...
IMPLICATIONS FOR PRACTICE	
What is the STRENGTH OF RECOMMENDATION you would assign to the clinical recommendation(s)? Why?	

Clinical Bottom Line...

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- Questions to ask...
  - Can we apply evidence about this intervention in caring for our patient population/condition described in our PICO?
    - Is the study sample or population similar or different?
  - Will the results of the study affect our management decisions and help our patient? If so, how might they be applied.
    - Parameters of treatment?

CEBM
Levels of Evidence (March 2009)   www.cebm.net

Grades of Recommendation

A	consistent level 1 studies
B	consistent level 2 or 3 studies or extrapolations from level 1 studies
C	level 4 studies or extrapolations from level 2 or 3 studies
D	level 5 evidence or troublingly inconsistent or inconclusive studies of any level

"Extrapolations" are where data is used in a situation that has potentially clinically important differences than the original study situation.

Oxford Centre for Evidence-based Medicine Levels of Evidence (March 2009) (for definitions of terms used see glossary at http://www.cebm.net/?o=1116)

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So what do I do now...

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- Implement clinical recommendation...

- Consider some way to build in an assessment mechanism to help determine if I have made the right decision...

- Should I disseminate my findings...
  - Critically Appraised Paper (CAP)
  - Critically Appraised Topic (CAT)

- Keep thinking of new questions...
  - Begin developing outcomes research!!!!!

QUESTIONS...

"Mary Beth, may I be excused? My brain is full."