

## **PGY1 Learning activities-EBCP Scripts**

Interns will meet in small groups, once per month, to discuss EBCP scripts designed to promote understanding of basic EBCP concepts.

- EBCP scripts (see example below) will be based on clinical scenarios and provide a framework for discussion within the groups.
- EBCP scripts will include tables and other pieces of data from the literature, without requiring that the residents review the entire study/literature on the topic. This is designed to reflect real clinical settings where time to review evidence may be limited.
- Based on the clinical scenario and literature provided, residents will engage in a discussion of clinically relevant concepts or dilemmas and also work together on small exercises practicing EBCP concepts.

Topics to be covered with EBCP scripts:

- 1. Principles of EBCP and the EBCP cycle**
- 2. Literature search strategies**
- 3. Dealing with poor or conflicting evidence and the absence of evidence altogether**
- 4. Understanding Levels of evidence and Strength of recommendations**
- 5. Applicability of clinical evidence, Efficacy vs Effectiveness**
- 6. Bias, Spin and other limitations of clinical evidence**
- 7. Introduction to RCTs and Systematic reviews**
- 8. Introduction to risk assessment: Relative Risk-RR, Relative Risk Reduction-RRR, Absolute Risk Reduction-ARR, Number Needed to Treat-NNT.**
- 9. Introduction to Evidence based diagnosis: Test and Treatment thresholds, Pre-test probability, Likelihood ratios, Test utility**
- 10. Presenting and discussing clinical evidence with patients**

# **EVIDENCE BASED CLINICAL PRACTICE**

## **PGY 1 EBCP Script**

### **Learning points**

Types of clinical questions

Literature search strategies

Quality of Evidence and Strength of Recommendations

### **Clinical scenario**

A 63 yo male patient returns to your office for further evaluation of bilateral carpal tunnel syndrome (CTS) diagnosed 6 months ago:

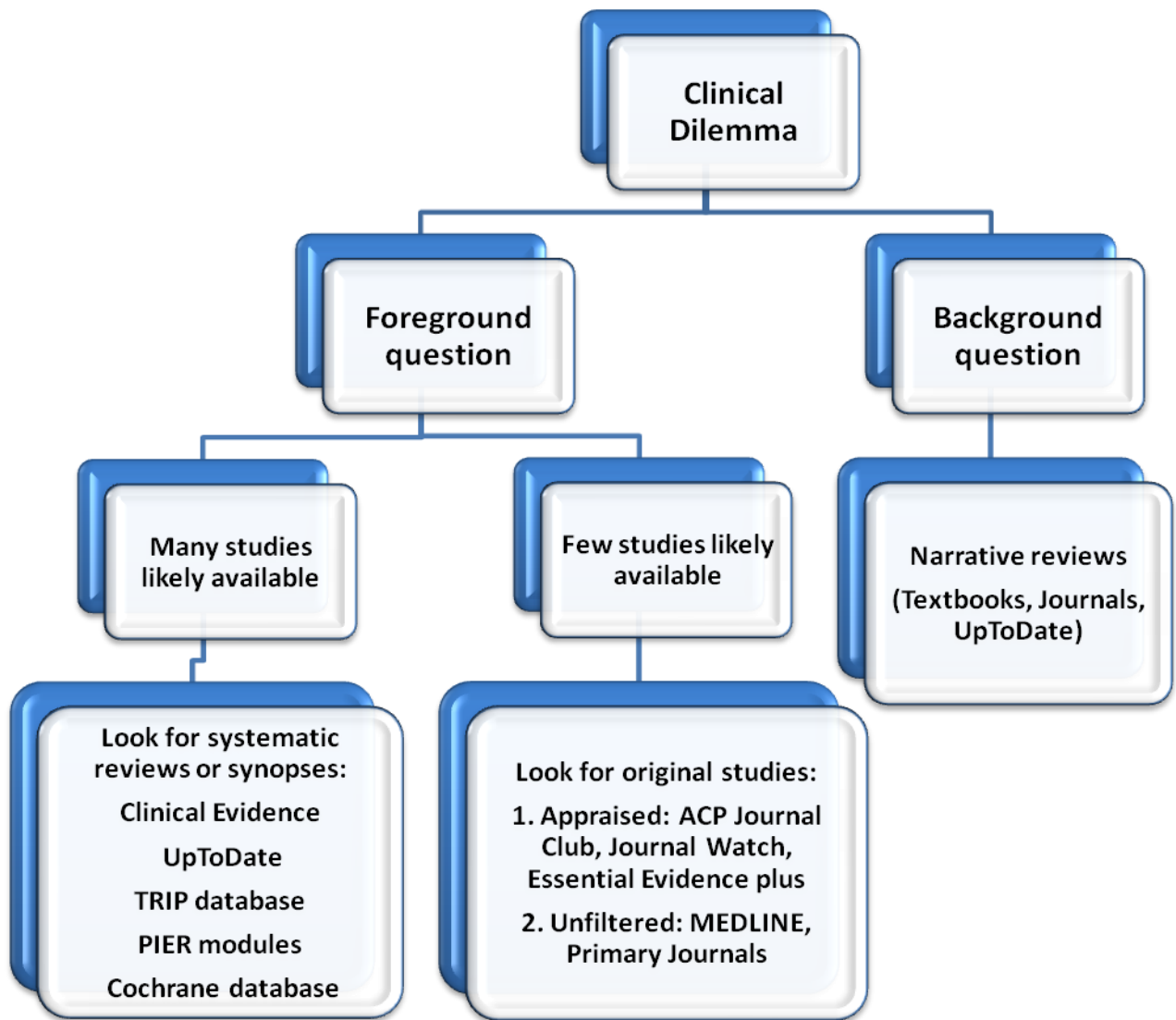
“Doctor, I’ve been doing everything you told me. I took the Naproxen and the vitamins you prescribed and I’m using the splints at night. Nothing has changed. My palms are aching and the pain sometimes goes all the way up my shoulders. I don’t feel weak, but my hands go numb at times. I’m not sure I want to have surgery. Is there anything else I can do?”

On physical examination you elicit positive Tinel’s and Phalen’s signs bilaterally but you find no sensory deficit over the upper extremities and no thenar atrophy or other muscle wasting. EMG/NCS completed a month ago, confirms the diagnosis of bilateral CTS.

Group should be asked to rate the effectiveness of the following interventions for carpal tunnel syndrome based on prior knowledge/experience:

| <b>Treatment for carpal tunnel syndrome</b>                  | <b>Beneficial</b> | <b>Not sure</b> | <b>Not beneficial or possibly harmful</b> |
|--|-------------------|-----------------|---|
| Wrist splints (at night)                                     |                   |                 |   |
| Wrist splints (continuous)                                   |                   |                 |   |
| Oral steroids  |                   |                 |   |
| Topical steroid injection                                    |                   |                 |   |
| NSAIDs   |                   |                 |   |
| B6 vitamin   |                   |                 |   |
| Surgical decompression (for failure of conservative therapy) |                   |                 |   |

Group should then discuss literature search strategies to identify sources of information to explore the issue



**Rating of available treatments for CTS by Clinical Evidence and UpToDate recommendations:**

|  | <b>Clinical Evidence Rating</b>     | <b>UpToDate Recommendation</b> |
|--|-------------------------------------|--------------------------------|
| Wrist splints (at night)                                   | Unknown effectiveness               | Grade 1B                       |
| Wrist splints (continuous)                                 | Unknown effectiveness               | No recommendation              |
| Oral steroids  | Likely to be beneficial             | Grade 2B                       |
| Topical steroid injections                                 | Likely to be beneficial             | Grade 2B                       |
| NSAIDs   | Unknown effectiveness               | Grade 1B <i>against using</i>  |
| B6 vitamin   | Unknown effectiveness               | No recommendation              |
| Surgical decompression (for failed conservative treatment) | Tradeoff between benefits and harms | Grade 2B                       |

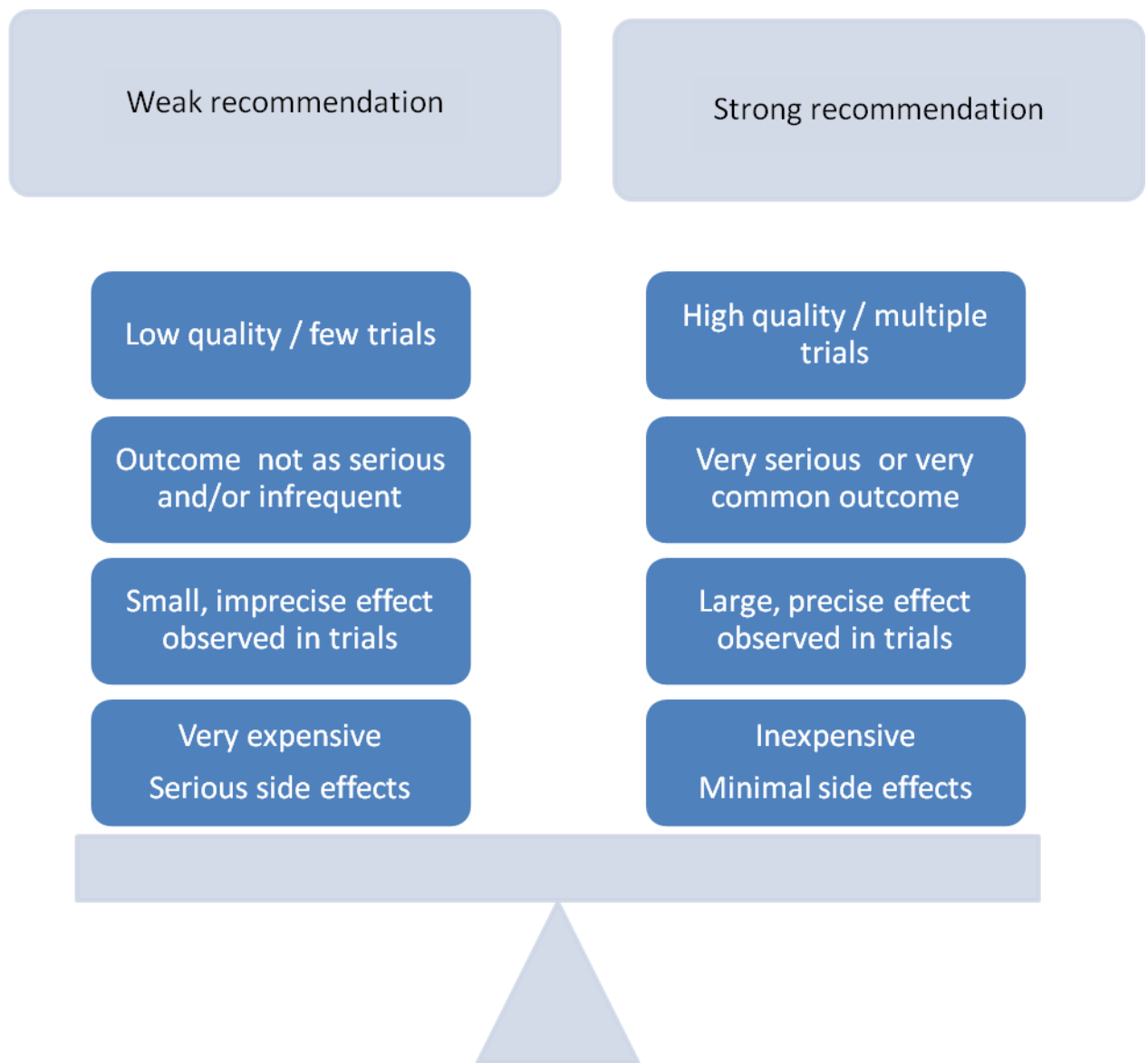
The GRADE system for quality of evidence and strength of recommendations:

| Recommendation  | Quality of Evidence   |
|---|---|
| Grade 1: Strong (most patients will benefit)                    | A: High-quality (multiple high quality RCTs or systematic reviews)                        |
| Grade 2: Weak (balance of benefits and harm close or uncertain) | B: Moderate-quality (RCTs with limitations or high quality observational studies)         |
|   | C: Low-quality (poor quality observational data, expert opinion or RCTs with major flaws) |

Group should discuss the evidence and recommendations for treatment of CTS:

1. It should be noted that all evidence is rated as moderate quality by UpToDate although Clinical Evidence rating favors oral and topical steroids
2. Discuss why using wrist splints for CTS, receives strong recommendation by UpToDate despite moderate quality evidence?
3. Why do you think UpToDate recommendation is weak for oral and topical steroids?
4. Would you ever consider NSAIDs and B6 vitamin for patients with CTS?

Group should discuss other factors (besides level of evidence) which may affect the strength of recommendation for a medical intervention



# LITERATURE SEARCH AND GRADING OF EVIDENCE

“Seventy-five trials and eleven systematic reviews a day: how will we ever keep up?”

Bastian H, Glasziou P, Chalmers I. PLoS Med 2010

1. **Background questions** are general questions, usually of etiology, pathophysiology and prognosis of disease. Example: “What causes carpal tunnel syndrome?”, “Why is there no edema in patients with SIADH?”
2. **Foreground questions** are more specific questions, usually of diagnosis, harm and therapy but also of etiology or prognosis. Example: “Does use of B-complex vitamins reduce pain and numbness in patients with carpal tunnel syndrome?”
3. Defining the **Patient**, **Intervention** in question and possible **Outcomes** may help in formulating a foreground clinical question: “Does use of B-complex vitamins (**intervention**) reduce pain and numbness (**outcomes**) in **patients** with carpal tunnel syndrome?”
4. When performing literature search for a foreground question it may be helpful to consider whether you anticipate to find few or multiple studies. If multiple studies are expected it will be more efficient to search for a systematic review (for one intervention) or evidence synthesis (for multiple interventions). If few studies are expected on the topic, one may have to search for the original studies in MEDLINE, primary journals or abstracts of those studies in secondary journals or pre-appraised sources.
5. The **GRADE system (1)** for rating the quality of evidence and providing strength of recommendation is currently the most widely accepted system in that regard and the one used by UpToDate.
6. GRADE rates evidence as high, moderate, low and very low quality. All RCTs start as high quality evidence but may be downgraded for poor study design and execution, lack of precision in effect size, inconsistency of results between different trials, indirectness of evidence and presence of reporting bias. On the contrary observational studies start as low quality evidence but may be upgraded to moderate depending on quality.
7. Recommendations can be strong or weak based on: Quality of available studies, Seriousness of the outcome, Magnitude and precision of effect, Risk of target event, Risk of adverse events, Cost of treatment, Patient values and preferences.

## REFERENCES

1. Gordon H Guyatt, Andrew D Oxman, Regina Kunz, Gunn E Vist, Yngve Falck-Ytter, Holger J Schünemann, for the GRADE Working Group. What is "quality of evidence" and why is it important to clinicians? BMJ 2008;336:995-998 (3 May),