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**1. First Name**

Thiru

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**2. Last Name**

Annaswamy

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**3. Academic Degree(s)**

MD, MA

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**4. Department/Institution**

Physical Medicine and Rehabilitation

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**5. Email Address**

tannaswamy@pennstatehealth.psu.edu

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**6. Co-author(s) names (first and last) and degrees**

Daniel Tai, BS

Emma Kim, BS

Alejandro Rodriguez, MD

Timothy Olivier, MD

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None

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**8. Manuscript Title**

Low-Value Interventions to De-implement: Systematic Review of Low Back Pain Clinical Practice Guidelines

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**9. Abstract (500 words maximum)**

**Objective:** To analyze recommendations made in low back pain (LBP) clinical practice guidelines (CPG) that resulted from a systematic review (SR) and identify treatment modalities that were recommended against, and to synthesize and summarize these consolidated low-value recommendations as practices that may be appropriate for de-implementation.

**Literature Survey:** LBP (sub-acute or chronic) CPGs in English (symptom-based, governmental or professional society created, between January 1990 and May 2020) were previously identified using MEDLINE, EMBASE, CINAHL, Ortho Guidelines, CPG Infobase, ECRI, Guidelines International Network, NICE, and SIGN.

**Methodology:** CPGs used in this analysis met study criteria and resulted from an SR (previously published) and were quality appraised. Full-text review of all 21 CPGs were conducted and recommendations that were classified in three categories (recommend strongly against, recommend weakly against, inconclusive/insufficient evidence) were organized using the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) language & approach, and identified as low-value recommendations.

**Synthesis:** 135 low-value recommendations spanning 8 treatment categories were identified: orthotics/support, traction, physical modalities, pharmacological interventions, injections, surgery, bed rest, and miscellaneous. Traction, transcutaneous electrical nerve stimulation (TENS), therapeutic ultrasound (US), and selective serotonin reuptake inhibitors (SSRI) had the most CPGs recommend strongly against their usage. Four CPGs strongly recommended against opioids. No significant differences ( $p>0.05$ ) were found between the quality of CPG and a specific de-implementation recommendation and in the number of strongly against, weakly against, and inconclusive/insufficient evidence recommendations between higher-quality and lower-quality CPGs.

Conclusions: Clinicians managing patients with chronic LBP should consider de-implementing these low-value recommendations (in traction, TENS, US and SSRI).

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**10. Key Words (must list at least 1 up to 6 maximum)**

- 1 : Low back pain
  - 2 : Clinical practice guidelines
  - 3 : De-implementation
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**11. Key Implementation theories or frameworks used in this manuscript**

In this paper we have conducted a secondary analysis of low back pain clinical practice guidelines resulted from a systematic review and identified several low-value interventions (e.g. traction, TENS unit, SSRI etc.) that we believe need to be targeted for de-implementation.

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