

CADTH RAPID RESPONSE REPORT: SUMMARY OF ABSTRACTS

Pain Management Programs for Pediatric Patients with Chronic Pain Conditions: Clinical Effectiveness and Cost-Effectiveness

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Research Questions

1. What is the clinical effectiveness of outpatient or inpatient pain programs for children with chronic non-cancer pain?
2. What is the cost effectiveness of outpatient or inpatient pain programs for children with chronic non-cancer pain?

Key Findings

One randomized controlled trial was identified regarding the clinical effectiveness of outpatient or inpatient pain programs for children with chronic non-cancer pain. No relevant economic evaluations were identified regarding the cost effectiveness of outpatient or inpatient pain programs for children with chronic non-cancer pain.

Methods

A limited literature search was conducted by an information specialist on key resources including Medline, the Cochrane Library, the University of York Centre for Reviews and Dissemination (CRD) databases, the websites of Canadian and major international health technology agencies, as well as a focused internet search. The search strategy was comprised of both controlled vocabulary, such as the National Library of Medicine's MeSH (Medical Subject Headings), and keywords. The main search concepts were pediatric pain clinics and chronic non-cancer pain. No search filters were applied to limit retrieval by study type. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2015 and June 26, 2020. Internet links were provided, where available.

Selection Criteria

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

Table 1: Selection Criteria

Population	Children and adolescents (≤ 18 years of age) with chronic (≥ 3 months) non-cancer pain disorders, e.g.: <ul style="list-style-type: none"> • Chronic pain syndrome • Complex regional pain syndrome • Somatoform disorders (e.g., hypochondriasis, somatic symptom disorder, and body dysmorphic disorder) • Fibromyalgia • Chronic headaches (migraines, tension type) • Joint hypermobility disorder • Chronic abdominal pain syndrome
Interventions	Outpatient or inpatient pain clinics (i.e., interdisciplinary pain management program or pediatric pain rehabilitation programs which can include physical therapy/physiotherapy, occupational therapy, psychological counseling, and weekly pediatric rehabilitation medicine follow-up)
Comparators	Q1: No treatment; wait-list control, or standard of care (i.e., family practitioner referral to multiple care providers [e.g., physiotherapist, psychologist, social worker etc.]) Q2: Wait-list control, or standard of care (i.e., family practitioner referral to multiple care providers [e.g., physiotherapist, psychologist, social worker etc.])

Outcomes	Q1: Clinical effectiveness (e.g., pain symptoms, function [activities of daily living, back-to-school/work/physical activity], quality of life, sleep quality, psychological symptoms) Q2: Cost-effectiveness
Study Designs	Health technology assessments, systematic reviews, randomized controlled trials, non-randomized studies, economic evaluations

Results

One randomized controlled trial¹ was identified regarding the clinical effectiveness of outpatient or inpatient pain programs for children with chronic non-cancer pain. No relevant economic evaluations were identified regarding the cost effectiveness of outpatient or inpatient pain programs for children with chronic non-cancer pain. No relevant health technology assessments, systematic reviews, or non-randomized studies were identified.

References of potential interest that did not meet the inclusion criteria are provided in the appendix.

Overall Summary of Findings

One randomized controlled trial¹ was identified regarding the clinical effectiveness of outpatient pain programs for children with chronic non-cancer pain. The authors of the identified randomized controlled trial¹ found that adolescents with chronic pain were similarly satisfied (as measured by a global satisfaction score) with a 7-week hybrid outpatient interdisciplinary pain program (comprised of 11 hours of group therapy and 4 individual videoconference sessions) and with face-to-face standard care.

No relevant literature was found regarding cost-effectiveness of outpatient or inpatient pain programs for children with chronic non-cancer pain; therefore, no summary can be provided.

References Summarized

Health Technology Assessments

No literature identified.

Systematic Reviews and Meta-Analyses

No literature identified.

Randomized Controlled Trials

1. Hilyard A, Kingsley J, Sommerfield D, Taylor S, Bear N, Gibson N. Feasibility of a Randomized Controlled Trial of Paediatric Interdisciplinary Pain Management Using Home-Based Telehealth. *J Pain Res.* 2020;13:897-908.
[PM:32431538](#)

Non-Randomized Studies

No literature identified.

Economic Evaluations

No literature identified.

Appendix — Further Information

Previous CADTH Reports

2. Pain Management Programs for Pediatric Patients with Chronic Pain Conditions: Clinical Effectiveness, Cost Effectiveness, and Guidelines. (*CADTH Rapid response report: summary of abstracts*). Ottawa (ON): CADTH; 2020. <https://www.cadth.ca/pain-management-programs-pediatric-patients-chronic-pain-conditions-clinical-effectiveness-cost>
3. Multidisciplinary Treatment Programs for Patients with Chronic Non-Malignant Pain: A Review of Clinical Effectiveness, Cost-effectiveness, and Guidelines – An Update. (*CADTH Rapid response report: summary with critical appraisal*). Ottawa (ON): CADTH; 2019: <https://www.cadth.ca/multidisciplinary-treatment-programs-patients-chronic-non-malignant-pain-review-clinical-0>
4. Multidisciplinary Treatment Programs for Patients with Chronic Non-Malignant Pain: A Review of Clinical Effectiveness, Cost-Effectiveness, and Guidelines. (*CADTH Rapid response report: summary with critical appraisal*). Ottawa (ON): CADTH; 2017: <https://www.cadth.ca/multidisciplinary-treatment-programs-patients-chronic-non-malignant-pain-review-clinical>
5. Evidence on pain management. (*CADTH Evidence Bundles*). Ottawa (ON): CADTH; 2020: <https://www.cadth.ca/evidence-bundles/pain-evidence-bundle>

Systematic Reviews and Meta-Analyses – Mixed Age Population (Adults and Children)

6. Hechler T, Kanstrup M, Holley AL, et al. Systematic Review on Intensive Interdisciplinary Pain Treatment of Children With Chronic Pain. *Pediatrics*. 2015 Jul;136(1):115-127. [PM:26101358](https://pubmed.ncbi.nlm.nih.gov/26101358/)

Randomized Controlled Trials – Study Protocol

7. Dekker C, Goossens ME, Bastiaenen CH, Verbunt JA. Study protocol for a multicentre randomized controlled trial on effectiveness of an outpatient multimodal rehabilitation program for adolescents with chronic musculoskeletal pain (2B Active). *BMC Musculoskelet Disord*. 2016 07 28;17:317. [PM:27464953](https://pubmed.ncbi.nlm.nih.gov/27464953/)

Non-Randomized Studies – Pre-Post Intervention

8. Shulman J, Conroy C, Cybulski A, et al. Does intensive interdisciplinary pain treatment improve pediatric headache-related disability? *Disabil Rehabil*. 2020 May 14:1-8. [PM:32406759](https://pubmed.ncbi.nlm.nih.gov/32406759/)

9. Deacy AD, Friesen CA, Staggs VS, Schurman JV. Evaluation of clinical outcomes in an interdisciplinary abdominal pain clinic: A retrospective, exploratory review. *World J Gastroenterol*. 2019 Jun 28;25(24):3079-3090.
[PM:31293343](#)
10. Revivo G, Amstutz DK, Gagnon CM, McCormick ZL. Interdisciplinary Pain Management Improves Pain and Function in Pediatric Patients with Chronic Pain Associated with Joint Hypermobility Syndrome. *PM R*. 2019 02;11(2):150-157.
[PM:30010052](#)
11. Benore E, Webster EE, Wang L, Banez G. Longitudinal Analysis of Patient-Reported Outcomes From an Interdisciplinary Pediatric Pain Rehabilitation Program for Children With Chronic Migraine and Headache. *Headache*. 2018 11;58(10):1556-1567.
[PM:30137650](#)
12. Randall ET, Smith KR, Conroy C, Smith AM, Sethna N, Logan DE. Back to Living: Long-term Functional Status of Pediatric Patients Who Completed Intensive Interdisciplinary Pain Treatment. *Clin J Pain*. 2018 10;34(10):890-899.
[PM:29642235](#)
13. Vega E, Rivera G, Echevarria GC, Prylutsky Z, Perez J, Ingelmo P. Interventional procedures in children and adolescents with chronic non-cancer pain as part of a multidisciplinary pain treatment program. *Paediatr Anaesth*. 2018 11;28(11):999-1006.
[PM:30251303](#)
14. Bruce BK, Ale CM, Harrison TE, et al. Getting Back to Living: Further Evidence for the Efficacy of an Interdisciplinary Pediatric Pain Treatment Program. *Clin J Pain*. 2017 06;33(6):535-542.
[PM:27584815](#)
15. Bruce BK, Harrison TE, Bee SM, et al. Improvement in Functioning and Psychological Distress in Adolescents With Postural Orthostatic Tachycardia Syndrome Following Interdisciplinary Treatment. *Clin Pediatr (Phila)*. 2016 Dec;55(14):1300-1304.
[PM:26983448](#)
16. Logan DE, Sieberg CB, Conroy C, Smith K, Odell S, Sethna N. Changes in sleep habits in adolescents during intensive interdisciplinary pediatric pain rehabilitation. *J Youth Adolesc*. 2015 Feb;44(2):543-555.
[PM:25037910](#)

Time of Assessments Unclear

17. Zernikow B, Ruhe AK, Stahlschmidt L, et al. Clinical and Economic Long-Term Treatment Outcome of Children and Adolescents with Disabling Chronic Pain. *Pain Med*. 2018 01 01;19(1):16-28.
[PM:28486647](#)
18. Major J, Varga ZK, Gyimesi-Szikszai A, Adam S. A two-week inpatient programme with a booster improved long-term management of severe chronic paediatric pain. *J Child Health Care*. 2017 Jun;21(2):171-180.
[PM:29119827](#)

19. Westendorp T, Verbunt JA, de Groot IJM, Remerie SC, Ter Steeg A, Smeets R. Multidisciplinary Treatment for Adolescents with Chronic Pain and/or Fatigue: Who Will Benefit? *Pain Pract.* 2017 06;17(5):633-642.
[PM:27739178](#)
20. Ching CB, Hays SR, Luckett TR, et al. Interdisciplinary pain management is beneficial for refractory orchiopathy in children. *J Pediatr Urol.* 2015 Jun;11(3):123.e121-126.
[PM:26059527](#)

Economic Evaluations

Health Care Utilization

21. Torigoe-Lai TK, Mahrer NE, Klein MJ, Gold JI. A Secondary Analysis of Integrated Pediatric Chronic Pain Services Related to Cost Savings. *J Clin Psychol Med Settings.* 2020 May 19;19:19.
[PM:32430736](#)
22. Campbell F, Stinson J, Ouellette C, Ostapets V, Salisbury G. The association between pediatric chronic pain clinic attendance and health care utilization: A retrospective analysis. *Can J Pain.* 2018; 2(1):30-36.
<https://www.tandfonline.com/doi/pdf/10.1080/24740527.2017.1415701?needAccess=true>
23. Ruhe AK, Frosch M, Wager J, et al. Health Care Utilization and Cost in Children and Adolescents With Chronic Pain: Analysis of Health Care Claims Data 1 Year Before and After Intensive Interdisciplinary Pain Treatment. *Clin J Pain.* 2017 Sep;33(9):767-776.
[PM:27870657](#)

Budget Impact Analysis

24. Mahrer NE, Gold JI, Luu M, Herman PM. A Cost-Analysis of an Interdisciplinary Pediatric Chronic Pain Clinic. *J Pain.* 2018 02;19(2):158-165.
[PM:29054492](#)
25. Evans JR, Benore E, Banez GA. The Cost-Effectiveness of Intensive Interdisciplinary Pediatric Chronic Pain Rehabilitation. *J Pediatr Psychol.* 2016 Sep;41(8):849-856.
[PM:26514643](#)

Review Articles

26. Harrison LE, Pate JW, Richardson PA, Ickmans K, Wicksell RK, Simons LE. Best-Evidence for the Rehabilitation of Chronic Pain Part 1: Pediatric Pain. *J Clin Med.* 2019 Aug 21;8(9):21.
[PM:31438483](#)

27. Wren AA, Ross AC, D'Souza G, et al. Multidisciplinary Pain Management for Pediatric Patients with Acute and Chronic Pain: A Foundational Treatment Approach When Prescribing Opioids. *Children (Basil)*. 2019 Feb 21;6(2):21.
[PM:30795645](#)
28. Caes L, Fisher E, Clinch J, Eccleston C. Current Evidence-Based Interdisciplinary Treatment Options for Pediatric Musculoskeletal Pain. *Curr Treatm Opt Rheumatol*. 2018;4(3):223-234.
[PM:30148046](#)
29. Friedrichsdorf SJ. Multimodal pediatric pain management (part 2). *Pain Manag*. 2017;7(3):161–166.
[PM:28103764](#)