Evidence Brief: The Comparative Effectiveness of Selected Complementary and Integrative Health (CIH) Interventions for Preventing or Reducing Opioid Use in Adults with Chronic Neck, Low Back, and Large Joint Pain

Supplemental Materials

April 2016

Prepared for:
Department of Veterans Affairs
Veterans Health Administration
Quality Enhancement Research Initiative
Health Services Research & Development Service
Washington, DC 20420

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## EXISTING GUIDELINES

<table>
<thead>
<tr>
<th>Guideline</th>
<th>Reference to non-pharmacological or alternative care?</th>
<th>Type of reference to CAM (nonspecific, general, or specific)</th>
<th>Recommended timing of use</th>
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<tbody>
<tr>
<td><strong>Opioid-specific guidelines</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>APS-AAPM ¹</td>
<td>Yes</td>
<td>Nonspecific - &quot;continuing discussion with the patient regarding alternatives to COT (strong recommendation, low-quality evidence)&quot;</td>
<td>Throughout--&quot;continuing discussion&quot;</td>
</tr>
<tr>
<td>Canadian National Use Guideline Group ²</td>
<td>Yes</td>
<td>Nonspecific - for adolescent patients, opioid therapy may be considered when &quot;non-opioid alternatives have failed&quot;</td>
<td>Alternative options must be tried prior to opioid treatment</td>
</tr>
<tr>
<td>CDC ³</td>
<td>Yes</td>
<td>Nonspecific – &quot;Nonpharmacologic therapy and nonopioid pharmacologic therapy are preferred for chronic pain.&quot;</td>
<td>Initiation – preferred therapy</td>
</tr>
<tr>
<td>ICSI ⁴</td>
<td>Yes</td>
<td>Nonspecific - &quot;Physical, psychological, interventional or other appropriate non-opioid therapies&quot;</td>
<td>During initiation</td>
</tr>
<tr>
<td>UMHS ⁵</td>
<td>Yes</td>
<td>Nonspecific - &quot;referral for individual behavioral and psychological intervention may be all that is required&quot;</td>
<td>Initiation (&quot;Begin with [non-pharmacologic therapies] (eg, exercise, heat, sleep hygiene))</td>
</tr>
<tr>
<td>VA/DoD ⁶</td>
<td>Yes</td>
<td>Nonspecific - mentions &quot;adjuvant therapies&quot; and &quot;non-pharmacologic modalities&quot;, but doesn't mention CAM in general or any specific types of CAM</td>
<td>During initiation, titration, and for exacerbations.</td>
</tr>
<tr>
<td>UDOH ⁷</td>
<td>Yes</td>
<td>Nonspecific - &quot;Alternatives to opioid treatment should be tried…before initiating opioid treatment&quot; Physical therapy provided as example of non-pharma alternatives</td>
<td>Recommended trying prior to use</td>
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<tr>
<td>Guideline</td>
<td>Reference to non-pharmacological or alternative care?</td>
<td>Type of reference to CAM (nonspecific, general, or specific)</td>
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<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>ASIPP ⁸</td>
<td>Yes</td>
<td>Nonspecific - “To establish medical necessity for OT, it is essential to have information of multiple modalities of treatments available including conservative, various other alternatives, and consultations (including physical and behavioral modalities, interventional pain management techniques, and others) if necessary”</td>
<td>When establishing medical necessity (Initiation?)</td>
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<tr>
<td>AGS ⁹</td>
<td>No</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>WA State AMDG¹⁰</td>
<td>Yes</td>
<td>Specific – Mindfulness, meditation, yoga, acupuncture “In addition to medication, therapies should include physical activation and behavioral health interventions”</td>
<td>Unclear – No reference to timing with opioids</td>
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</table>

**General chronic pain guidelines**

| APS/ACP ¹¹        | Yes                                                   | Specific - “For patients who do not improve with self-care options, clinicians should consider addition of non-pharmacologic therapy with proven benefits—acupuncture, massage therapy, spinal manipulation, yoga, cognitive-behavioral therapy, or progressive relaxation” | Unclear - No reference to timing with opioids                                                                                                                                                                                                                                   |
| AAPM ¹²           | Yes                                                   | Specific - Yoga, Mindfulness, Meditation, Relaxation, Acupuncture, Massage                                                                                                                                                                                                                                             | During - "Therapy for chronic pain ranges from single modality approaches for the straightforward patient to comprehensive interdisciplinary care for the more challenging patient. Therapeutic components such as pharmacologic, interventional, psychological and physical have been found to be most effective when performed in an integrated manner. Continuation or modification of pain management depends on the physician's evaluation of progress toward treatment objectives. If the patient's progress is unsatisfactory, the physician should assess the appropriateness of continued use of the current treatment plan and consider the use of other therapeutic modalities." |

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Evidence Brief: The Comparative Effectiveness of CIH Interventions Evidence-based Synthesis Program

Evidence-based Synthesis Program

for Preventing or Reducing Opioid Use in Adults with Chronic Pain
<table>
<thead>
<tr>
<th>Guideline</th>
<th>Reference to non-pharmacological or alternative care?</th>
<th>Type of reference to CAM (nonspecific, general, or specific)</th>
<th>Recommended timing of use</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICSI 13</td>
<td>Yes</td>
<td>Specific - Acupuncture Nonspecific - Complementary therapies, complementary medicine management, non-pharmacologic management, Exercise therapy</td>
<td>During: &quot;Medications are not the sole focus of treatment in managing pain. They should be used when needed to meet overall goals of therapy in conjunction with other treatment modalities: psychosocial and spiritual management, rehab and functional management, non-pharmacologic and complementary medicine, and intervention management.&quot;</td>
</tr>
<tr>
<td>Colorado DWC 14</td>
<td>Yes</td>
<td>Specific - Acupuncture, Nonspecific - &quot;Interdisciplinary rehabilitation programs&quot; (programs that evaluate and treat multiple conditions including neurological and psychological issues example)</td>
<td>Unclear - Non-operative therapeutic procedures listed first in the guidelines, however no indication as to the order recommended</td>
</tr>
<tr>
<td>VA/DoD 15</td>
<td>Yes</td>
<td>Specific - Massage, Acupuncture, Yoga</td>
<td>Unclear - No reference to timing with opioids; Algorithm lists discussing pharmacologic and non-pharmacologic treatment options in the same step</td>
</tr>
<tr>
<td>AGS 16</td>
<td>Yes</td>
<td>Specific - Mindfulness, Acupuncture</td>
<td>During: &quot;used as adjunctive therapies&quot;</td>
</tr>
<tr>
<td>ASIPP 17</td>
<td>No</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>NICE 18</td>
<td>Yes</td>
<td>Specific - Manual therapy including spinal therapy and massage; Also recommend &quot;movement instruction&quot; and &quot;stretching&quot;</td>
<td>Unclear - &quot;Provide people with advice and information to promote self-management of LBP; Take into account the person's expectations and preferences when considering recommended treatments&quot;</td>
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</table>

SEARCH STRATEGIES

SYSTEMATIC REVIEWS

Acupuncture

Ovid MEDLINE

Search Strategy:

-------------------------------------------------------------------------------
1 exp Acupuncture/ or acupuncture.mp. (15370)
2 Cochrane database of systematic reviews.jn. or search.tw. or meta-analysis.pt. or Medline.tw. or systematic review.tw. (267064)
3 (pain or knee pain or ankle pain or hip pain or chronic pain or elbow pain or shoulder pain or neck pain or back pain or low back pain).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (403904)
4 1 and 2 and 3 (467)
5 limit 4 to yr="2013 -Current" (41)

Cochrane Database of Systematic Reviews

Search Strategy:

-------------------------------------------------------------------------------
1 acupuncture.mp. [mp=title, abstract, full text, keywords, caption text] (448)
2 (pain or knee pain or ankle pain or hip pain or chronic pain or elbow pain or shoulder pain or neck pain or back pain or low back pain).mp. [mp=title, short title, abstract, full text, keywords, caption text] (3966)
3 1 and 2 (316)
4 limit 3 to last 3 years (124)

PubMed


-168 articles on 12/21/2015
Massage

Ovid MEDLINE

Database: Ovid MEDLINE(R) without Revisions <1996 to January Week 1 2016>, Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations <January 18, 2016>

Search Strategy:

1  Massage/ (2977)
2  massage therapy.mp. (793)
3  massage.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (6868)
4  1 or 3 (6868)
5  2 or 3 (6868)
6  reflexology.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (319)
7  3 or 6 (6960)
8  effleurage.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (33)
9  3 or 8 (6872)
10 3 or 6 or 8 (6964)
11 petrissage.mp. (14)
12 10 or 11 (6964)
13 tapotement.mp. (4)
14 anma.mp. (11)
15 3 or 14 (6875)
16 6 or 8 or 15 (6971)
17 aquatic bodywork.mp. (1)
Evidence Brief: The Comparative Effectiveness of CIH Evidence-based Synthesis Program Interventions for Preventing or Reducing Opioid Use in Adults with Chronic Pain

18 3 or 17 (6869)

19 ashiatsu.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (0)

20 ayurvedic massage.mp. (4)

21 3 or 20 (6868)

22 balinese massage.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (0)

23 bowen technique.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (8)

24 3 or 23 (6873)

25 Breema.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (0)

26 biodynamic massage.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (2)

27 3 or 26 (6868)

28 champissage.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (0)

29 craniosacral therapy.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (40)

30 3 or 29 (6893)

31 esalen massage.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (0)

32 foot massage.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (44)

33 3 or 32 (6868)
Evidence Brief: The Comparative Effectiveness of CIH Evidence-based Synthesis Program Interventions for Preventing or Reducing Opioid Use in Adults with Chronic Pain

34 Hilol massage.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (0)

35 Kum Nye.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (0)

36 lomilomi.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (5)

37 3 or 36 (6869)

38 lymphatic drainage.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (1751)

39 manual lymphatic drainage.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (133)

40 3 or 39 (6972)

41 medical massage.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (11)

42 3 or 41 (6868)

43 metamorphic technique.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (0)

44 myofascial release.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (121)

45 3 or 44 (6957)

46 postural integration.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (1)

47 3 or 46 (6869)

48 namaste massage.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (0)
Evidence Brief: The Comparative Effectiveness of CIH Evidence-based Synthesis Program Interventions for Preventing or Reducing Opioid Use in Adults with Chronic Pain

49 prostate massage.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (43)

50 3 or 49 (6868)

51 shiatsu.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (64)

52 3 or 51 (6905)

53 sports massage.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (23)

54 3 or 53 (6868)

55 stone massage.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (1)

56 structural integration.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (119)

57 3 or 56 (6982)

58 swedish massage.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (52)

59 3 or 58 (6868)

60 tantric massage.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (0)

61 thai massage.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (27)

62 3 or 61 (6868)

63 Chinese massage.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (19)
Evidence Brief: The Comparative Effectiveness of CIH Evidence-based Synthesis Program Interventions for Preventing or Reducing Opioid Use in Adults with Chronic Pain

64 traditional chinese massage.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (5)

65 63 or 64 (19)

66 3 or 63 (6868)

67 Trager approach.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (1)

68 trigger point massage.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (5)

69 3 or 68 (6868)

70 tui na.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (13)

71 3 or 70 (6871)

72 Watsu.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (5)

73 3 or 72 (6872)

74 (effleurage or anma or aquatic bodywork or bowen technique or craniosacral therapy or lomilomi or manual lymphatic drainage or myofascial release or postural integration or reflexology or shiatsu or structural integration or tui na or watsu).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, unique identifier] (827)

75 massage.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (6868)

76 74 or 75 (7349)

77 (pain or knee pain or ankle pain or hip pain or chronic pain or elbow pain or shoulder pain or neck pain or back pain or low back pain).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (398856)

78 76 and 77 (1751)
Evidence Brief: The Comparative Effectiveness of CIH Evidence-based Synthesis Program Interventions for Preventing or Reducing Opioid Use in Adults with Chronic Pain

79  Cochrane database of systematic reviews.jn. or search.tw. or meta-analysis.pt. or Medline.tw. or systematic review.tw. (262068)

80  78 and 79 (212)

81  (pregnancy or cancer or child or newborn or infant).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (2363442)

82  80 not 81 (154)

Cochrane Database of Systematic Reviews

Database: EBM Reviews - Cochrane Database of Systematic Reviews <2005 to January 13, 2016>

Search Strategy:

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1  (effluerauge or anma or aquatic bodywork or bowen technique or craniosacral therapy or lomilomi or manual lymphatic drainage or myofascial release or postural integration or reflexology or shiatsu or structural integration or tui na or watsu).mp. [mp=title, abstract, full text, keywords, caption text] (82)

2  massage.mp. [mp=title, abstract, full text, keywords, caption text] (316)

3  1 or 2 (341)

4  (pain or chronic pain or knee pain or ankle pain or hip pain or elbow pain or shoulder pain or back pain or low back pain or neck pain).mp. [mp=title, abstract, full text, keywords, caption text] (3940)

5  3 and 4 (268)

6  (cancer or pregnancy).mp. [mp=title, abstract, full text, keywords, caption text] (3454)

7  5 not 6 (135)

8  (child or infant or newborn).mp. [mp=title, abstract, full text, keywords, caption text] (3069)

9  7 not 8 (107)

CINAHL

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<td>S3 AND S4</td>
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</table>
Evidence Brief: The Comparative Effectiveness of CIH Evidence-based Synthesis Program Interventions for Preventing or Reducing Opioid Use in Adults with Chronic Pain

**Meditation**

Conducted the week of 1/4/2016-1/8/2016

**Ovid MEDLINE**

Search Strategy:

--------------------------------------------------------------------------------

1 exp Meditation/ (1775)

2 meditation.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (3117)

3 exp Mindfulness/ (689)

4 mindfulness.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (2861)

5 (pain or chronic pain or knee pain or ankle pain or hip pain or elbow pain or shoulder pain or back pain or low back pain or neck pain).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (403904)

6 2 or 4 (4943)

7 5 and 6 (521)

8 Cochrane database of systematic reviews.jn. or search.tw. or meta-analysis.pt. or Medline.tw. or systematic review.tw. (267064)

9 7 and 8 (50)

10 limit 9 to yr="2014 -Current" (20)

11 cancer.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (950774)

12 10 not 11 (14)

**Cochrane Database of Systematic Reviews**

Search Strategy:

--------------------------------------------------------------------------------

1 meditation.mp. [mp=title, abstract, full text, keywords, caption text] (124)
Evidence Brief: The Comparative Effectiveness of CIH Evidence-based Synthesis Program Interventions for Preventing or Reducing Opioid Use in Adults with Chronic Pain

2 mindfulness.mp. [mp=title, abstract, full text, keywords, caption text] (90)

3 (pain or chronic pain or knee pain or ankle pain or hip pain or elbow pain or shoulder pain or back pain or low back pain or neck pain).mp. [mp=title, abstract, full text, keywords, caption text] (3966)

4 1 and 2 and 3 (27)

5 limit 4 to last 2 years (15)

6 cancer.mp. [mp=title, abstract, full text, keywords, caption text] (2112)

7 5 not 6 (7)

CINAHL

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PsycINFO

Search Strategy:

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1 exp Meditation/ (3530)

2 meditation.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures] (6180)

3 exp Mindfulness/ (5275)
Evidence Brief: The Comparative Effectiveness of CIH Evidence-based Synthesis Program

Interventions for Preventing or Reducing Opioid Use in Adults with Chronic Pain

4 mindfulness.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures] (7347)

5 1 or 2 (6180)

6 3 or 4 (7347)

7 (pain or knee pain or ankle pain or hip pain or chronic pain or elbow pain or shoulder pain or neck pain or back pain or low back pain).mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures] (79675)

8 meta-analysis/ or systematic review/ or meta-analysis as topic/ or "meta analysis (topic)"/ or "systematic review (topic)"/ or exp technology assessment, biomedical/ (3789)

9 ((systematic* adj3 (review* or overview*)) or (methodologic* adj3 (review* or overview*)\)).ti,ab. (19049)

10 ((quantitative adj3 (review* or overview* or synthesize*)) or (research adj3 (integrative* or overview*)\)).ti,ab. (7218)

11 ((integrative adj3 (review* or overview*)) or (collaborative adj3 (review* or overview*)) or (pool* adj3 analy*)).ti,ab. (3019)

12 (data synthesize* or data extraction* or data abstraction*).ti,ab. (1458)

13 (handsearch* or hand search*).ti,ab. (842)

14 (mantel haenszel or peto or der simonian or dersimonian or fixed effect* or latin square*).ti,ab. (3244)

15 (met analyzes* or metanalyzer* or technology assessment* or HTA or HTAs or technology overview* or technology appraisal*).ti,ab. (659)

16 (meta regression* or metaregression*).ti,ab. (770)

17 (meta-analysis* or metaanaly* or systematic review* or biomedical technology assessment* or bio-medical technology assessment*).mp, hw. (35317)

18 (medline or cochrane or pubmed or medlars or embase or cinahl).ti,ab, hw. (14326)

19 (meta-analysis or systematic review).md. (25796)

20 (comparative adj3 (efficacy or effectiveness)).ti,ab. (1514)

21 (outcomes research or relative effectiveness).ti,ab. (2934)

22 ((indirect or indirect treatment or mixed-treatment) adj comparison*).ti,ab. (145)

23 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 (64496)
Evidence Brief: The Comparative Effectiveness of CIH Evidence-based Synthesis Program Interventions for Preventing or Reducing Opioid Use in Adults with Chronic Pain

24 2 or 4 (11661)

25 7 and 23 and 24 (36)

26 limit 25 to yr="2014 -Current" (11)

PubMed

Search ((meditation OR mindfulness)) AND (pain OR "chronic pain" OR "knee pain" OR "ankle pain" OR "hip pain" OR "elbow pain" OR "shoulder pain" OR "back pain" OR "low back pain" OR "neck pain") Filters: Systematic Reviews; Publication date from 2014/01/01 to 2016/01/06

Results: 22
Tai Chi

Ovid MEDLINE

Database: Ovid MEDLINE(R) without Revisions <1996 to December Week 5 2015>, Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations <January 11, 2016>

Search Strategy:

-------------------------------------------------------------------------------------------------
1 Tai Ji/ (708)
2 tai chi.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (1010)
3 1 or 2 (1090)
4 Pain/ (70617)
5 exp Pain/ (204677)
6 (pain or knee pain or ankle pain or hip pain or chronic pain or elbow pain or shoulder pain or neck pain or back pain or low back pain).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (398419)
7 5 or 6 (428674)
8 3 and 7 (146)
9 Cochrane database of systematic reviews.jn. or search.tw. or meta-analysis.pt. or Medline.tw. or systematic review.tw. (261616)
10 8 and 9 (35)
11 limit 10 to yr="2014 -Current" (10)
12 (tai chi or taichi or tai ji or taiji or taijiquan or shadow boxing).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (1142)
13 1 or 2 or 12 (1142)
14 7 and 9 and 13 (35)

Cochrane Database of Systematic Reviews

Database: EBM Reviews - Cochrane Database of Systematic Reviews <2005 to January 08, 2016>
Search Strategy:

1. (tai chi or taichi or tai ji or taiji or taijiquan or shadow boxing).mp. [mp=title, abstract, full text, keywords, caption text] (84)

2. (pain or knee pain or ankle pain or hip pain or chronic pain or elbow pain or shoulder pain or neck pain or back pain or low back pain).mp. [mp=title, abstract, full text, keywords, caption text] (3938)

3. 1 and 2 (59)

4. limit 3 to last 2 years (35)

**CINAHL**

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 OR "taijiquan" OR "shadow boxing") Filters: Systematic Reviews; Publication date from 2014/02/01 to 2016/01/11 | 64      |
Yoga

Run: Week of 1/11/16-1/15/16

Ovid MEDLINE

Search Strategy:

1 exp Yoga/ (1342)

2 yoga.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (2521)

3 hatha.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (118)

4 vinyasa.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (8)

5 3 or 4 (123)

6 2 or 5 (2521)

7 astanga.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (6)

8 (pain or knee pain or ankle pain or hip pain or chronic pain or elbow pain or shoulder pain or neck pain or back pain or low back pain).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (398472)

9 1 or 2 (2521)

10 2 and 8 (391)

11 Cochrane database of systematic reviews.jn. or search.tw. or meta-analysis.pt. or Medline.tw. or systematic review.tw. (261673)

12 10 and 11 (51)

13 limit 12 to yr="2014 -Current" (15)

14 limit 13 to english language (13)
Search Strategy:

------------------------------------------------------------------------------------------------------------------
1     yoga.mp. [mp=title, abstract, full text, keywords, caption text] (162)
2     (astanga or ovinyasa or hatha).mp. [mp=title, abstract, full text, keywords, caption text] (16)
3     1 or 2 (162)
4     (pain or knee pain or ankle pain or hip pain or chronic pain or elbow pain or shoulder pain or neck pain or back pain or low back pain).mp. [mp=title, abstract, full text, keywords, caption text] (3938)
5     1 and 4 (113)
6     limit 5 to last 2 years (33)

CINAHL

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Evidence Brief: The Comparative Effectiveness of CIH Interventions for Preventing or Reducing Opioid Use in Adults with Chronic Pain

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Database - CINAHL Plus
with Full Text
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S2  yoga
Search modes -
Boolean/Phrase
Interface - EBSCOhost
Research Databases
Search Screen -
Advanced Search
Database - CINAHL Plus
with Full Text
5,407

S1  (MH "Yoga+)")
Search modes -
Boolean/Phrase
Interface - EBSCOhost
Research Databases
Search Screen -
Advanced Search
Database - CINAHL Plus
with Full Text
5,011

PubMed
PRIMARY STUDIES

Acupuncture

Database: Ovid MEDLINE(R) without Revisions <1996 to January Week 4 2016>, Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations <February 03, 2016>

Search Strategy:

--------------------------------------------------------------------------------
1 exp Acupuncture Therapy/ or exp Acupuncture/ or acupuncture.mp. (16323)
2 (chronic pain or non-cancer pain or neck pain or shoulder pain or back plain or low back pain or elbow pain or hip pain or knee pain or ankle pain).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (60940)
3 1 and 2 (1194)
4 limit 3 to yr="2015 -Current" (111)
5 limit 4 to english language (98)
6 (cancer or pregnancy or labor or infant$ or newborn$).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (1812077)
7 5 not 6 (93)
8 limit 3 to (english language and yr="2009 -Current") (552)
9 8 not 6 (521)
10 (comment or letter or case report or editorial).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (1251839)
11 9 not 10 (429)
12 (news or historical article or patient education).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (352160)
13 11 not 12 (418)
14 (surgery or postoperative or post-traumatic stress disorder or mental health or mental illness).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (955471)
15  13 not 14 (388)

16  (chronic pain or non-cancer pain or neck pain or shoulder pain or back pain or low back pain or elbow pain or hip pain or knee pain or ankle pain).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (72816)

17  1 and 16 (1312)

18  limit 17 to (english language and yr="2009 -Current") (597)

19  6 or 10 or 12 or 14 (3933781)

20  18 not 19 (414)
Search Strategy:

1. (chronic pain or non-cancer pain or neck pain or shoulder pain or back pain or low back pain or elbow pain or hip pain or knee pain or ankle pain).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (60940)

2. (cancer or pregnancy or labor or infant$ or newborn$).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (1812077)

3. (effluerage or anma or aquatic bodywork or Bowen technique or craniosacral therapy or lomilomi or manual lymphatic drainage or myofascial release or postural integration or reflexology or shiatsu or structural integration or tui na or watsu).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (832)

4. massage.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (6902)

5. 3 or 4 (7387)

6. 1 and 5 (522)

7. 6 not 2 (489)

8. limit 7 to (english language and yr="2014 -Current") (100)

9. (case report$ or comment or letter).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (1766260)

10. 8 not 9 (89)

11. (chronic pain or non-cancer pain or neck pain or shoulder pain or back pain or low back pain or elbow pain or hip pain or knee pain or ankle pain).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (72816)

12. 5 and 11 (594)
Evidence Brief: The Comparative Effectiveness of CIH Evidence-based Synthesis Program Interventions for Preventing or Reducing Opioid Use in Adults with Chronic Pain

13 12 not 2 (546)

14 limit 13 to (english language and yr="2014 -Current") (109)

15 14 not 9 (98)
**Meditation**

Database: Ovid MEDLINE(R) without Revisions <1996 to January Week 4 2016>, Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations <February 03, 2016>

Search Strategy:

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1  (chronic pain or non-cancer pain or neck pain or shoulder pain or back pain or low back pain or elbow pain or hip pain or knee pain or ankle pain).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (60940)

2  (cancer or pregnancy or labor or infant$ or newborn$).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (1812077)

3  exp Meditation/ (1758)

4  meditation.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (3069)

5  meditat$.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (3609)

6  3 or 4 or 5 (3609)

7  1 and 6 (126)

8  7 not 2 (116)

9  limit 8 to (english language and yr="2013 -Current") (47)

10  (case report$ or comment or letter).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (1766260)

11  9 not 10 (44)

12  (chronic pain or non-cancer pain or neck pain or shoulder pain or back pain or low back pain or elbow pain or hip pain or knee pain or ankle pain).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (72816)

13  6 and 12 (135)

14  2 or 10 (3355938)
```
15  13 not 14 (117)

16  limit 15 to (english language and yr="2013 -Current") (47)
Tai Chi

Database: Ovid MEDLINE(R) without Revisions <1996 to January Week 4 2016>, Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations <February 03, 2016>

Search Strategy:

1. (chronic pain or non-cancer pain or neck pain or shoulder pain or back pain or low back pain or elbow pain or hip pain or knee pain or ankle pain).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (60940)

2. (tai chi or taichi or tai ji or taiji or taijiquan or shadow boxing).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (1143)

3. 1 and 2 (38)

4. (cancer or pregnancy or labor or infant$ or newborn$).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (1812077)

5. limit 3 to yr="2010 -Current" (28)

6. limit 5 to english language (26)

7. 6 not 4 (22)

8. (chronic pain or non-cancer pain or neck pain or shoulder pain or back pain or low back pain or elbow pain or hip pain or knee pain or ankle pain).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (72816)

9. 2 and 8 (43)

10. limit 9 to (english language and yr="2010 -Current") (31)

11. 10 not 4 (27)
Yoga

Database: Ovid MEDLINE(R) without Revisions <1996 to January Week 4 2016>, Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations <February 03, 2016>

Search Strategy:

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1 (chronic pain or non-cancer pain or neck pain or shoulder pain or back plain or low back pain or elbow pain or hip pain or knee pain or ankle pain).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (60940)

2 (cancer or pregnancy or labor or infant$ or newborn$).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (1812077)

3 exp Yoga/ (1346)

4 yoga.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (2546)

5 hatha.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (121)

6 vinyasa.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (8)

7 5 or 6 (126)

8 4 or 7 (2546)

9 astanga.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (6)

10 3 or 4 (2546)

11 8 or 9 (2550)

12 1 and 11 (152)

13 limit 12 to (english language and yr="2010 -Current") (112)

14 13 not 2 (106)
Evidence Brief: The Comparative Effectiveness of CIH Evidence-based Synthesis Program Interventions for Preventing or Reducing Opioid Use in Adults with Chronic Pain

15     (case report$ or comment or letter).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (1766260)

16     14 not 15 (102)

17     (chronic pain or non-cancer pain or neck pain or shoulder pain or back pain or low back pain or elbow pain or hip pain or knee pain or ankle pain).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (72816)

18     11 and 17 (184)

19     limit 18 to (english language and yr="2010 -Current") (137)

20     2 or 15 (3355938)

21     19 not 20 (121)
GREY LITERATURE

Grey Literature Search – Opioids Rapid Review

“Opioid Epidemic”

A. Guidelines
   a. Guidelines.gov
   b. New CDC guideline currently being drafted- listed below under “CDC”
   c. Nuckols 2014 review of guidelines- already identified

B. Organizations’ websites
   a. RWJF
   b. **Samueli Institute**- “a nonprofit organization in Alexandria, Virginia, with a mission that includes applying academic rigor to research on healing, well-being and resilience; and translating evidence into action for the US military and large-scale health systems.
      i. President of the Samueli Institute is Wayne B. Jonas, MD, a retired US Army lieutenant colonel
      ii. Referenced in a few different articles; Dr. Jonas seems to partner with Eric Schoomaker
   c. **UCSF Osher Center for Integrative Medicine**
      i. This program is part of the UCSF Medical Center, but I’m not sure how integrated it is into other practices, like primary care. Given that it’s physically part of the space, I would think there would be higher rates of referral, but I don’t see anything that indicates that on their website.
      ii. According to their “Integrative Medicine Consultation” webpage, their providers are trained and board-certified in both traditional and alternative medicine, but do not serve as PCPs. They will work with PCPs, but in place of.
      iii. **They make no mention of opioids.**
      iv. This seems like something that the patient must seek out and initiate, but I’m wondering if other centers at UCSF mention the Osher Center as an option instead of medication.
         1. UCSF’s **Pain Medicine department** links to the Osher Center as a “related clinics and centers”.
            a. They list the Osher Center in resources both for patients and for providers, implying that both groups can request/should be aware of the Osher Center’s services.
   d. **PAINS Project: “Never Only Opioids: The imperative for early integration of non-pharmacological approaches and practitioners in the treatment of patients with pain” Fall 2014, policy brief**
      i. Article about the policy brief.
      ii. This organization focuses on alleviating chronic pain in many different modalities and recognizes the burden of medication-only solutions to pain. Their focus is on public health initiatives to reduce the individual and societal burden of pain, and if that happens to involve CAM, they are supportive. But they are not solely focused on CAM interventions, and it
looks like the bulk of their work in the area is focused in the policy brief listed above.

C. Government websites
   a. The White House: $1.1 billion towards opioids and heroin epidemic as of February 2, 2016
      i. [https://www.whitehouse.gov/the-press-office/2016/02/02/president-obama-proposes-11-billion-new-funding-address-prescription](https://www.whitehouse.gov/the-press-office/2016/02/02/president-obama-proposes-11-billion-new-funding-address-prescription)
      ii. Specifically discusses medication-assisted treatments, does not mention any other treatment or prevention strategy specifically anywhere (therapy, CAM, etc)
   b. CDC
      i. Draft CDC Guideline for Prescribing Opioids for Chronic Pain
         1. The comment period ended 1/13/2016 for public comments
         2. Not totally clear on the timeline- it still needs to go through a Federal Partner Review and Peer Review process
   c. NIH
      i. NIH’s National Center for Complementary and Alternative Medicine (NCCAM), the National Institute on Drug Abuse (NIDA) and the VA HSRD have provided $21.7 million over 5 years (article dated late 2014) to “explore nondrug approaches to managing pain and related health conditions such as post-traumatic stress disorder (PTSD), drug abuse, and sleep issues”.
         1. 13 projects throughout the country
            a. Several include CAM interventions that we are interested in- mostly meditation
         2. NIH and VA address pain and related conditions in U.S. military personnel, veterans and their families: Research will focus on nondrug approaches
         3. This link goes to the list of programs
   d. IOM
      i. Report: Relieving Pain in America: A Blueprint for Transforming Prevention, Care, Education and Research (June 2011)
         1. This report does discuss opioids and CAM modalities, however the interface for finding these references within the full text report is very difficult to use. It’s hard to tell (yet) how much the report discusses these two concepts together.
   e. VA HSRD
   f. DoD
   g. Clinicaltrials.gov

D. Known authors
   a. Amy S.B. Bohnert PhD
      i. Look at studies in progress
      ii. 84 documents in Scopus
         1. Many of her most highly cited articles are about suicide in veterans, with some link to substance abuse or pain
      iii. 991 “cited by” references
      iv. Look at her contributing authors
1. Scopus says:
   a. Mark Andrew Ilgen (42)
   b. Frederic C. Blow (22)
   c. Dana Ganoczy (12)
   d. Marcia M. Valenstein (11)
   e. Kara Zivin Zivin (10)

b. Karen Sherman
c. Lynn DeBar

E. Search for what individual states are doing
   a. The CDC gave $20 million to 16 states to study prevention strategies aimed at fostering safe prescribing practices
      i. Minnesota: Joint Statement on Pain Management
      ii. Oregon: From Pills to Pins: How Oregon is Changing How It Deals with Back Pain
         1. Refers to the Quest Center in Portland
      iii. Which states, what are they doing, has anything been assessed yet?

F. Conferences and meeting proceedings
   a. American Pain Society Complementary and Alternative Medicine Special Interest Group
      i. This year’s conference is in May
      ii. Database of previous abstracts: these are pretty searchable. I looked at the 2015 group and searched for each of the interventions. A number of abstracts came up, but none were spot-on. Looking at past years might be useful.
   b. COIN conference
c. IHI conference abstracts (Institute for Healthcare Improvement)

G. Findings from Google that could be related/useful
      i. John Weeks- An Open Letter to Barack Obama on Your $1.1 billion Opioid Initiative: The Imperative for Integrative Medicine
         1. Published 2/5/2016
      ii. This article has a wealth of references to useful websites/programs/information
   b. A Call to Action on Integrative Health and Medicine Policy: Advancing the Legacy of US Senator Tom Harkin
      i. Symposium at Georgetown University 9/29/2014
      ii. Eric Schoomaker gives the keynote speech again (article above says it’s an ‘expanded’ version of the speech we already saw)
         1. References opioids in his talk, but no research
      iii. “Non-discrimination in healthcare” - a phrase that seems to refer to equating insurance coverage of Western medicine and CAM; possibly refers specifically to language in the ACA
      iv. Josephine Briggs talk “Building the Capacity for Real World Effectiveness Research for Integrative Health” (she’s the director of the National Center for Complementary and Integrative Health) references opioids
c. Betty Ford high-level addiction programs

H. Programs that support/provide CAM interventions instead of/in concert with pharmaceutical pain relief
   a. **Las Vegas Recovery Center**
      i. Not associated with any medical center
      ii. Focused on getting people off opiates by using holistic approaches to pain relief, including “physical, emotional, psychological and spiritual” approaches
      iii. It’s an inpatient program
         1. Starts with a “medically managed withdrawal and detoxification” process
         2. Interventions we are interested in:
            a. Massage
            b. Meditation
            c. Acupuncture
            d. Yoga
      iv. There is some sort of assessment going on, but the graphs that are provided as the Pain Outcome Profile Reports don’t really give any context as to what is being analyzed. In my opinion, they are presented in a vacuum and look like pain levels are decreasing, but it’s hard to tell why, exactly.
      v. In an explanation of who gets admitted to the program, there is no reference to physician referrals.
   b. **RiverMend Health Centers- Georgia - Non-Opioid Pain Management Program**
      i. RiverMend Health Center is a behavioral health and addiction treatment program; does not explicitly talk about referrals from medical doctors or how patients can get into this program
      ii. Focuses on people who are addicted to pain medication or people who are seeking alternative treatments for their chronic pain
      iii. Includes:
         1. Acupuncture
         2. Meditation
         3. Yoga
         4. Massage
LIST OF EXCLUDED STUDIES

Primary studies reporting medication use but no opioid-specific outcomes

<table>
<thead>
<tr>
<th>#</th>
<th>Citation</th>
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<tbody>
<tr>
<td>19.</td>
<td>Hurley DA, McDonough SM, Dempster M, Moore AP, Baxter GD. A randomized clinical trial of</td>
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</table>
Interventions for Preventing or Reducing Opioid Use in Adults with Chronic Pain

<table>
<thead>
<tr>
<th>Evidence Brief: The Comparative Effectiveness of CIH Evidence-based Synthesis Program Interventions for Preventing or Reducing Opioid Use in Adults with Chronic Pain</th>
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<td>Evidence Brief: The Comparative Effectiveness of CIH Evidence-based Synthesis Program Interventions for Preventing or Reducing Opioid Use in Adults with Chronic Pain</td>
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### EVIDENCE TABLES

#### DATA ABSTRACTION OF INCLUDED PRIMARY STUDIES

**Data Abstraction of RCTs**

<table>
<thead>
<tr>
<th>Author Year N Setting</th>
<th>Pain type, duration</th>
<th>Patient Characteristics</th>
<th>Intervention(s)</th>
<th>Treatment regimen, duration, setting, follow-up</th>
<th>Opioid use outcomes</th>
<th>Other outcomes: pain, functional capacity, quality of life, adverse events</th>
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<tbody>
<tr>
<td>Cherkin 2011 1st N=401</td>
<td>Nonspecific chronic low back pain</td>
<td>35.67% male Age = 47y</td>
<td>Relaxation massage (RM) Structural massage (SM) Usual care (UC)</td>
<td>Once per week in office treatment for 10 wks for 50-60 min + recommended at-home exercises Follow-up at 10, 26, and 52 wks</td>
<td>% narcotic analgesic use in past week (95% CI): 10-wks: 4.6 (3.0 to 7.3) SM vs 5.0 (3.0 to 8.5) RM vs 5.8 (3.4 to 9.9) UC; P = .69 26-wks: 5.0 (3.4 to 7.5) SM vs 4.6 (2.7 to 8.1) RM vs 5.2 (3.1 to 8.7) UC; P = .93 52-wks: 4.8 (3.1 to 7.3) SM vs 4.9 (3.1 to 7.9) RM vs 4.9 (2.7 to 8.7) UC; P = .99</td>
<td>Pain: Change from baseline SB score (points out of 10): 10 wks: -1.8 SM vs -2.1 RM vs -0.6 UC; 26 wks: -1.4 SM vs -1.3 RM vs -1.2 UC; 52 wks: -1 SM vs -1.7 RM vs -1.6 UC Functional capacity: Change from baseline RDQ score (points out of 23): 10 wks: -3.6 SM vs -5.6 RM vs -1.5 UC; 26 wks: -3.4 SM vs -5.2 RM vs -2.3 UC; 52 wks: -2.9 SM vs -5.6 RM vs -3.1 UC Adverse events: 4% RM and 7% SM of patients reported adverse events</td>
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<tr>
<td>Author Year</td>
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<td>Setting</td>
<td>Pain type, duration</td>
<td>Patient Characteristics</td>
<td>Intervention(s)</td>
<td>Treatment regimen, duration, setting, follow-up</td>
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<tr>
<td>Esmer 2010</td>
<td>25</td>
<td>Spine and rehabilitation center</td>
<td>Failed back surgery syndrome: persistent leg and/or back pain despite history of surgery ≤ 2 y</td>
<td>56% male Age = 55.08 y 100% white</td>
<td>Mindfulness-based stress reduction (including meditation)</td>
<td>Once per week in classroom for 1.5-2.5h for 8 wks + one additional 6h session in sixth week; required homework assignments + encouraged daily meditation using guided audiotapes Follow-up at 12 and 40 wks</td>
</tr>
<tr>
<td>Saper 2013</td>
<td>95</td>
<td>Academic hospital and 5 affiliated community health centers</td>
<td>Nonspecific chronic low back pain ≥ 12 wks</td>
<td>28% male Age=47.5 y 17% white</td>
<td>Yoga</td>
<td>Once or twice weekly, 75 min yoga class in classroom for 12 wks + daily home practice for 30 min with audio CD and handbook Follow-up at 12 wks</td>
</tr>
<tr>
<td>Author Year</td>
<td>N Setting</td>
<td>Pain type, duration</td>
<td>Patient Characteristics</td>
<td>Intervention(s)</td>
<td>Treatment regimen, duration, setting, follow-up</td>
<td>Opioid use outcomes</td>
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<tr>
<td>Sator-Katzenschlager 2004</td>
<td>N= 61</td>
<td>Chronic low back pain ≥ 6 m</td>
<td>30% male Age=53.6 y Race NR</td>
<td>Auricular acupuncture with electrical stimulation with P-Stim™ device (EA) or without (CO)</td>
<td>Once per wk at home for 48h for 6 wks Follow-up at 3 m after series</td>
<td>Consumption of tramadol rescue medication during entire investigation (# tablets): EA = 6 vs CO = 150 (P &lt; .001)</td>
</tr>
<tr>
<td>Weiner 2013</td>
<td>N=190</td>
<td>Knee OA with moderate intensity pain ≥ 3 m</td>
<td>84.7% male 66.6 y 70.5 % white</td>
<td>Periosteal stimulation therapy w/ boosters (PST &amp; PST) vs PST w/ no boosters (PST &amp; control) vs control PST w/ no boosters (control)</td>
<td>PST or control PST for 30 min 1once/wk for 10 wk followed by 6 m of boosters or no boosters Follow-up at 3, 6, &amp; 9 m follow-up</td>
<td>Baseline adjusted differences compared w/ control: 10 wks: PST &amp; PST = 0.018 (-0.19 to 0.23) PST &amp; control = -.27 (-0.48 to -0.054)</td>
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<tr>
<td>Author</td>
<td>Year</td>
<td>N Setting</td>
<td>Pain type, duration</td>
<td>Patient Characteristics</td>
<td>Intervention(s)</td>
<td>Treatment regimen, duration, setting, follow-up</td>
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<tr>
<td>Zheng</td>
<td>2008</td>
<td>N=35</td>
<td>Non-malignant pain</td>
<td>51.5% male, 49.7 y</td>
<td>Electroacupuncture (REA) or sham electroacupuncture (SEA)</td>
<td>30 min. treatment &amp; 20 min stimulation time twice/wk for 6 wks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pain management center</td>
<td>&gt; 3 m</td>
<td>Race NR</td>
<td>Follow-up at 16 &amp; 20 wks</td>
<td>20 wks: 344.7 REA vs 239.0 SEA (P = .022)</td>
</tr>
</tbody>
</table>

SB: Symptom Bothersomeness Scale; RDQ: Roland Disability Questionnaire; VAS: Visual Analog Scale; RMRQ: Roland Morris Disability Questionnaire; CPAQ: Chronic Pain Acceptance Questionnaire; SF-36: Short Form-36 Health Survey; WOMAC: Western Ontario & McMaster Universities Osteoarthritis Index; OA: Osteoarthritis; NR: Not Reported
# QUALITY ASSESSMENT OF INCLUDED PRIMARY STUDIES

## Quality Assessment of RCTs

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Cherkin</td>
<td>2011</td>
<td>Low; Randomized to treatment/control, then statistician-generated randomization blocked on massage therapist</td>
<td>Low; Centralized</td>
<td>High; Therapist personnel unblinded, massage participants blinded as to type of massage received, usual care participants unblinded</td>
<td>High; Opioid use assessed weekly by unblinded patients; no sham group</td>
<td>Low; 5-9% lost to follow-up. Multiple imputation to account for missing values.</td>
<td>Low; Primary and secondary outcomes were stated in protocol and completed as stated.</td>
<td>Unclear; Patients in relaxation massage group had higher RDQ at baseline, although the difference (&gt;1) is not clinically relevant according to the definitions of the study (&gt;2).</td>
<td>High</td>
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<tr>
<td>Esmer 2010</td>
<td>Unclear; No description of how random assignments were generated</td>
<td>Unclear; Not described</td>
<td>High; Participants unblinded</td>
<td>Unclear; Statistical analysis of patient-completed questionnaires was performed by statistician blinded to patient intervention status.</td>
<td>High; High attrition rate between randomization and analysis (11/21 from control; 4/19 from intervention) with no explanation given of how that was incorporated in analysis. Numbers reported in flow diagram do not add up, and the text of the study seems to ignore the intervention-side attrition rate when reporting on intervention compliance rates.</td>
<td>Unclear</td>
<td>Low; No significant differences at baseline between analyzable intervention and control groups.</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>Saper 2013</td>
<td>Low; Computer created randomization schedule</td>
<td>Unclear; Not described</td>
<td>High; Participants and study staff who scheduled classes unblinded</td>
<td>High; All outcome data provided from participants through questionnaires; no sham</td>
<td>Low; 96% follow-up</td>
<td>Low</td>
<td>High; Low and differential adherence: once-weekly=65% vs twice-weekly=44%, P = 0.040; not adjusted for in analysis</td>
<td>High</td>
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<tr>
<td>Sator-Katzenschlager 2004(^{42})</td>
<td>Low; Computer-generated random number tables</td>
<td>Unclear; Not described</td>
<td>Low; Patients and investigators. Everyone wore the device, stimulator activated independent technician. Both groups believed they were receiving stimulation: 100% vs 97%</td>
<td>Low</td>
<td>Unclear; Early discontinuation: EA=6% for noncompliance and CO=13% for lack of efficacy. Stated that all 61 were analyzed but no info about how missing data imputed</td>
<td>Low</td>
<td>Low; Higher baseline pain in control group (8.0 vs 7.5; P = 0.021). But magnitude of difference small and in opposite direction of overestimating EA</td>
<td>Unclear</td>
<td></td>
</tr>
<tr>
<td>Weiner 2013(^{23})</td>
<td>Low; Computer generated stratified randomization</td>
<td>Low; Allocation determined for each participant once deemed eligible w/ next assignment concealed within electronic database until next participant was deemed eligible</td>
<td>Unclear; Research assistant doing scheduling masked; do not explicitly use the language that participants are “blinded or masked”, however they give in-depth explanation of 3 groups and how they tried to “control for treatment expectancy,” No detail on adequacy of the blind</td>
<td>Unclear; Research coordinator who collected outcome data was kept masked to treatment groups; however medication use was patient-reported, with no verification – and we are unclear about patient blinding</td>
<td>Low; Even though attrition was low (~7% overall, 2% to 10%), used multiple imputation in sensitivity analyses</td>
<td>Low; Clinical registration protocol made available and both primary and secondary outcomes clearly described and reported</td>
<td>Unclear; Characteristics similar in all 3 groups except scores on the catastrophizing scale of the Cognitive Strategies Questionnaire and WOMAC pain at baseline, with those in the PST and control PST boosters group having more catastrophizing and the control PST group having more knee pain.</td>
<td>Unclear</td>
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<tr>
<td>Zheng 2008</td>
<td>Low; Computer-generated block randomization</td>
<td>Unclear; Methods of concealment not described</td>
<td>Low; Participants and personnel blinded. Blinding assessed and no significant differences between groups.</td>
<td>Unclear; Blinding of outcome assessors not described</td>
<td>Unclear; 22-47% lost to follow-up. Used LOCF in intention to treat analysis</td>
<td>Unclear</td>
<td>Unclear; greater starting MED in intervention group? 461.6 MED/week versus 295.5 MED/week</td>
<td>Unclear</td>
<td></td>
</tr>
</tbody>
</table>

RDQ: Roland Disability Questionnaire WOMAC: Western Ontario & McMaster Universities Osteoarthritis Index; LOCF: Last observation carried forward; MED: morphine equivalent dose
### Strength of Evidence for Included Studies

<table>
<thead>
<tr>
<th>SOE Grade</th>
<th>Study Design: No. Studies (N)</th>
<th>Study Limitations</th>
<th>Directness</th>
<th>Consistency</th>
<th>Precision</th>
<th>Reporting Bias</th>
<th>Other Issues</th>
<th>Findings</th>
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<tbody>
<tr>
<td><strong>Acupuncture</strong></td>
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<tr>
<td>Auricular acupuncture with or without electrical stimulation for low back pain: Low</td>
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<tr>
<td>1 RCT; N=61&lt;sup&gt;22&lt;/sup&gt;</td>
<td>Unclear</td>
<td>Direct</td>
<td>Unknown</td>
<td>Imprecise</td>
<td>Undetected</td>
<td>None</td>
<td>ñ Opioid consumption (# tablets) throughout intervention: EA = 6 vs. CO = 150 (P &lt; .001)</td>
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<tr>
<td>Electroacupuncture vs sham for opioid tapering in patients with various types of pain: Low</td>
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<tr>
<td>1 RCT; N=35&lt;sup&gt;24&lt;/sup&gt;</td>
<td>Unclear</td>
<td>Direct</td>
<td>Unknown</td>
<td>Imprecise</td>
<td>Undetected</td>
<td>None</td>
<td>No difference; reduction in opioid MED 39% vs 26%; NSD</td>
<td></td>
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<tr>
<td>Periosteal stimulation therapy, with boosters (PST+PST) or without boosters (PST+control) or control PST without boosters (control) in Veterans with knee OA: Low</td>
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<td>1 RCT; N=190&lt;sup&gt;23&lt;/sup&gt;</td>
<td>Unclear</td>
<td>Direct</td>
<td>Unknown</td>
<td>Imprecise</td>
<td>Undetected</td>
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<td>Opioid consumption (baseline adjusted differences in # weekly doses compared to control) at 10 wks: Reduced for PST without boosters, but not with boosters = PST+PST: 0.018 (-0.19 to 0.23) \ñ PST+control: -0.27 (-0.48 to -0.054)</td>
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<td><strong>Massage</strong></td>
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<td>Structural massage relaxation massage, or usual care in low back pain: Insufficient</td>
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<td>1 RCT; N=401&lt;sup&gt;19&lt;/sup&gt;</td>
<td>High</td>
<td>Direct</td>
<td>Unknown</td>
<td>Imprecise</td>
<td>Undetected</td>
<td>None</td>
<td>ñ narcotic analgesic consumption (% narcotic analgesics in past week, change from baseline) at 10 wks: SM = -12.4 vs RM = -12.0 vs UC = -7.2 at 52-wks: SM = -12.2 vs RM = -12.1 vs UC = -8.1</td>
<td></td>
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<tr>
<td>SOE Grade</td>
<td>Study Design: No. Studies (N)</td>
<td>Study Limitations</td>
<td>Directness</td>
<td>Consistency</td>
<td>Precision</td>
<td>Reporting Bias</td>
<td>Other Issues</td>
<td>Findings</td>
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<tr>
<td>Meditation</td>
<td>Mindfulness-based stress reduction (MBSR) or usual care in patients with failed back surgery syndrome: Insufficient</td>
<td>1 RCT; N=25 (Esmer, 2010 #19)</td>
<td>High</td>
<td>Direct</td>
<td>Unknown</td>
<td>Imprecise</td>
<td>Undetected</td>
<td>Analgesic medication use at 12-wks (4-point scale: 0 no analgesic - 4 daily narcotics): MBSR = -1.5 vs. Control = 0.4 (P &lt; .001)</td>
</tr>
<tr>
<td>Yoga</td>
<td>Yoga once vs twice weekly in patients with low back pain: Insufficient</td>
<td>1 RCT; N=95²¹</td>
<td>High</td>
<td>Direct</td>
<td>Unknown</td>
<td>Imprecise</td>
<td>Undetected</td>
<td>Opiate (% change from baseline) at 12 wks: Yoga 1x/wk = 0 vs. Yoga 2x/wk = 2; NS</td>
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</table>

MED: morphine equivalent dose; OA: Osteoarthritis
### PEER REVIEW COMMENT TABLE

<table>
<thead>
<tr>
<th>Comment #</th>
<th>Reviewer #</th>
<th>Comment</th>
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<td>None</td>
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<td>20</td>
<td>4</td>
<td>Yes - No studies directly relating to CIH/opioids but perhaps some studies missed that relate to background and discussion information - I have attached what may be of interest or what may add to the accuracy or completeness of the document</td>
<td>We thank the reviewer for providing these very recent citations – we have added all suggested citations.</td>
</tr>
<tr>
<td>21</td>
<td>5</td>
<td>No</td>
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<td>23</td>
<td>7</td>
<td>Might look into work from the Cleveland Clinic on interdisciplinary rehab programs and reduced opioid dose, Same with Standford and work by Beth Darnall.</td>
<td>Added that we are aware of these programs, but that we were unable to identify clear descriptions of their approaches to using specific CIH interventions or data on their effectiveness</td>
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<tr>
<td>24</td>
<td>8</td>
<td>No</td>
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### Additional suggestions or comments can be provided below. If applicable, please indicate the page and line numbers from the draft report.

<table>
<thead>
<tr>
<th>Page</th>
<th>Line</th>
<th>Suggestion</th>
<th>Comment</th>
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<tbody>
<tr>
<td>25</td>
<td>1</td>
<td>On page 6 lines 35-36 reference is made to the National Center for Complementary and Integrative Health and to the National Center for Complementary and Alternative Medicine. The way it is written seems to imply that these are two different organizations rather than one organization that has undergone a recent name change.</td>
<td>Removed National Center for Complementary and Alternative Medicine.</td>
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<tr>
<td>26</td>
<td>2</td>
<td>ES line 7: Awkward lead in -- I would state that the increase in opioid prescribing over the past two decades has been accompanied by dramatic increase in problems related to opioid use, including overdose-related death, dependence, and misuse. As a result, there is intense interest in non-opioid alternatives for treating chronic pain.</td>
<td>Revised as suggested.</td>
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<tr>
<td>27</td>
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<td>ES line 26: Separate this into two sentences</td>
<td>Done.</td>
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<td>28</td>
<td>2</td>
<td>Table ES1: 2nd row: Confusing row in table -- not clear what comparisons are for down arrows, what do = sign mean?</td>
<td>Replaced symbols with words and made other improvements</td>
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<td>29</td>
<td>2</td>
<td>Page 13, line 29: Is one is looking at opioid use as an outcome, could one argue that sham controls are less necessary since we don't necessarily care if some of the effect is due to placebo if it reduces the use of opioids?</td>
<td>We appreciate this reviewer’s point. But, this section is referring only to the potential methodological limitations of these studies, which is only one of our considerations about the usefulness of the evidence. Regardless of how we view the importance of the sham controls, the bigger problem with this evidence is that it was generally comprised of single small studies with limited applicability.</td>
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<td>30</td>
<td>2</td>
<td>Page 16, line 22: what are shams for massage?</td>
<td>Light touch</td>
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<td>Page</td>
<td>Line</td>
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<td>31</td>
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<td>The target population and interventions are clearly defined. The outcome—opioid use—is not a clinical outcome, it's more of a treatment process variable. Also, opioid use isn’t clearly defined; it could mean physician prescribing, patient consumption, or both. The topic is somewhat odd in its focus on the ability of one category of clinical interventions (CIH therapies) to prevent use of another category of clinical interventions (opioid medications). The cause and effect relationship isn’t clear here as it is for most ESP reviews. Should we assume the mechanism is that CIH interventions would effectively treat pain so physicians would prescribe fewer or lower dose opioids or so patients would take fewer of their prescribed opioids? Are we interested in patient-level effects, prescriber-level effects, policy-level effects, or all three? Clarity on these issues would improve the relevance and utility of the report.</td>
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<td>32</td>
<td>3</td>
<td>The text related to opioid dosing is inaccurate and contradictory in places. On the last paragraph of page 4, “higher doses” are described in parentheses as 100-120 ME mg, although the data presented in the next sentence demonstrates increased risk of death starting at 20 ME mg. On page 5, guidelines’ “upper dosing thresholds” are described as “generally 90-120 mg MED, but some up to 200 MED.” On page 7, a link is described between overdose and an “80-120 MED threshold.” 80 mg is used subsequently in the text as a cutoff for high dose or threshold for risk. Studies examining dose-death associations have categorized dose in a variety of ways for a variety of reasons, but I am aware of no evidence that suggests an actual inflection point or “threshold” for overdose risk. Rather, evidence seems to suggest that risk increases as dose increases, starting with very low doses. The new CDC guidelines describe in detail the rationale for their recommendations of additional caution at 50 mg and avoidance of prescribing &gt;90 mg, while acknowledging that there is no threshold for risk. For the purposes of this review, it may be best to avoid choosing a dose cutoff. If one is selected, it should be much more clearly justified.</td>
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<td>33</td>
<td>3</td>
<td>Page 4, 4th paragraph, 1-2 sentences: The causes of increased opioid prescribing are a matter of hot debate, but I’m not aware of changes in laws and regulations that played a major role. The role of the Joint Commission’s pain standards in this prescribing practice change is controversial. More commonly stated causes are misleading and aggressive promotion of new opioid products (e.g., Oxycontin) and advocacy for more aggressive treatment of pain. Speculating on this matter is likely to detract from the purpose of the report.</td>
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<td>Page</td>
<td>Lines</td>
<td>Original Text</td>
<td>Revised Text</td>
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<tr>
<td>34</td>
<td>30-31</td>
<td>I don’t believe reliable estimates of chronic pain in male and female VHA patients have been published. The citation is not specific.</td>
<td>Changed to: Chronic pain may occur in up to 50% of Veterans treated in primary care. [Kerns 2013]</td>
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<td>35</td>
<td>3</td>
<td>The lack of evidence for opioids should not make it more difficult to develop “evidence-based guidance for chronic non-cancer pain management.” There are many studies that provide evidence on many different treatments for chronic pain. The difficulty is in developing guidance on when and how to use opioids.</td>
<td>Changed to: Developing evidence-based guidance on how and when to use opioids for chronic non-cancer pain management is difficult…</td>
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<td>36</td>
<td>3</td>
<td>It seems obvious that opioid-specific guidelines would focus on opioids; by definition, other therapies are outside their scope. “Chronic pain” is not one condition, but an umbrella term that covers an experience common to a number of conditions, such as chronic back pain, osteoarthritis pain, fibromyalgia, peripheral neuropathic pain, and headache. Guidelines addressing specific chronic pain conditions are the appropriate place to look for recommendations on use of CIH in chronic pain. (This comment also applies to key message #2)</td>
<td>We appreciate the reviewer’s point, but as clinicians are also obligated to discuss alternatives when consenting for opioid treatment, opioid-specific guidelines generally address considering alternatives. Our point is that CIH is not cited specifically as an alternative as other non-opioid treatments such as CBT are.</td>
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<td>37</td>
<td>3</td>
<td>These statements seem to lack any basis in the literature: “(1) CIH is under-utilized in opioid users and (2) compared to usual care, magnitude of pain reduction for CIH is comparable to opioids” What evidence suggests that CIH is under-utilized in opioid users? What is the magnitude of pain reduction for opioids vs. usual care and for CIH vs. usual care</td>
<td>Changed to: “Select CIH interventions may be reasonable non-opioid treatment options in general because (1) CIH is possibly under-utilized in opioid users and (2) compared to usual care, magnitude of pain reduction for CIH is potentially comparable to opioids, but without serious side effects.” The rest of this paragraph provides the supporting details and citations for these statements.</td>
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<td>39</td>
<td>3</td>
<td>Methods: Overall, the eligibility criteria, search strategies, and analysis methods are appropriate and well described.</td>
<td>No action needed.</td>
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<tr>
<td>40</td>
<td>3</td>
<td>Results: Overall, the results are clearly described and summarized. I am not aware of any studies that were overlooked or incorrectly included/excluded.</td>
<td>No action needed.</td>
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<tr>
<td>Comment</td>
<td>Recommendation</td>
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<td>41</td>
<td>The key messages are broader than seems appropriate for this narrowly focused evidence review and go well beyond the findings. For example, #6 seems to be opinion-based and is not supported by citations. I recommend keeping key recommendations more focused on the research findings and gaps identified.</td>
<td>Moved #6, potential barriers to implementation, to the Future Research section.</td>
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<td>42</td>
<td>Discussion: I found the future research section to be rather confusing overall. It seems to call for research with potentially limited clinical, practice, or policy relevance. Reducing opioid use is not a clinical outcome. Pain, pain related function, quality of life, overdose deaths, and opioid harm events are clinical outcomes. Do we really want clinical studies designed to determine CIH effectiveness for reducing opioids? Or do we want studies designed to determine CIH effectiveness for treatment of common clinical pain conditions to also assess possible secondary effects on opioid consumption or prescribing? Perhaps reducing opioid prescribing may be more appropriately considered a policy relevant outcome. In that case, studies of CIH access/coverage policies that can look effects on opioid prescribing practices and ultimately opioid harm outcomes may be indicated.</td>
<td>Agree that we want studies that evaluate a complete set of key outcomes. Revised to: “There is a need for more research assessing CIH interventions’ value in addressing the opioid epidemic by simultaneously evaluating a complete set of key outcomes, including their impact on pain, pain-related function, quality of life, harms, and on new or ongoing opioid use or stopping opioids entirely.”</td>
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<td>43</td>
<td>The future research section provides very specific recommendations for how opioid use (consumption in this case) should be assessed (i.e., daily patient reports), but does not provide any citations to support the recommendations.</td>
<td>Changed to: “Patient self-report methods for measuring measure opioid use varied substantially across studies, generally without providing a rationale for how methods were selected: recall periods ranging from multiple times daily up to monthly, proportion of patients with any use, daily, or less than daily use, and number of weekly doses. To determine how to select and strengthen patient self-report methods for measuring opioid use, we suggest considering use of well-validated processes, optimized question response formats and recall periods, taking steps to address social desirability concerns, avoiding interview-based assessments, and accounting for self-report challenges such as cognitive functioning, burden, and setting.[Stirratt 2015]”</td>
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</table>
45 4  I have rated the report as fair - not because of the quality of the evidence review, background, discussion, or other sections, but rather for the paucity of useful information it contains. Hardly any of the key questions could be addressed, so the reader is left with more questions than answers. Probably the most useful conclusion that can be made is that which was made on p 22 (**a lot** of research is needed about the effectiveness of CIH interventions as they relate to opioid use). I agree this is an important avenue for future work in pain management. Thank you for the opportunity to review.

No action needed.

46 4  ES: The text in lines 11-14 appears to be in conflict with text lines 19-42. If the evidence base regarding effectiveness of select CIH interventions is so limited, how can one come to any conclusion regarding their relative effectiveness to that of opioid

The sections noted relate to different outcomes. Lines 11-14 relate to CIH’s effects on pain; whereas, lines 19-42 relate to CIH’s effects on opioid use. Regardless, we tempered our statements about the comparative efficacy of opioids and CIH on pain to better reflect the indirectness of the evidence base.

47 4  Table ES1, row 1: Needs clarification - I do not understand what "up to 8 times 50mg daily means" Does it mean “up to 400mg daily”?

Table ES1, row 2, opioid type: I understand this to mean: that the opioid is unknown, and that the unknown opioid was only given at average of one-half dose per week? If I am correct I do not understand how a valid comparison or degree of influence could be made with such sketchy information.

Yes, changed. Agree this is a major deficiency and have called for future studies to report opioid type, dose, and frequency.

49 4  Table ES1, row 2: How was QOL measured

Added measurement method of SF-36 physical component

50 4  Table ES1, row 3: NMP could mean almost any type of acute or chronic pain

Dose is defined as mg/wk, then expressed below as mg/DAY (for REA and SEA) - should be consistent - which should it be?

Table ES1, row 3: NMP could mean almost any type of acute or chronic pain

Yes, study did not specify pain types. But added that it was chronic pain. Corrected mg/wk to mg/d

51 4  Page 4, line 37: While codeine is indeed a Sch II opioid it is rarely used in that manner - it is usually combined with acetaminophen (and is then no longer a CI). I would suggest substituting morphine here.

Changed to morphine

52 4  Page 4, line 54: On page 2, line 24, a range of 80-100 was stated - seems like the ranges used should be consistent, as they are all related to risk for opioid OD death. Later on page 7 line 17 another range of 80-120 is quoted.

Removed ranges. See response to comment #32.

53 4  Page 5, line 21: “importance”

Corrected

54 4  Page 5, line 34: Consider listing a few or these co-morbidities, especially those that might respond to CIH interventions

Added: patient demographics and comorbidities (e.g., alcohol or substance use and other mental health and medical disorders)
55 4 Page 5, line 39: Perhaps this sentence should read "Developing EB guidance for USE OF OPIOIDS for chronic non-cancer pain management is difficult..." Also bear in mind that consensus guidance often is about what is NOT recommended as well as what is recommended, so negative studies can be used as well as positive ones.

Revised as suggested.

56 4 Page 5, line 47: Was it Nuckols et al. who decided which of the guidelines were of "fair-to-good" quality? If so, may want to re-phrase. "According to Nuckols et al., nine fair to good-quality guidelines...."

Changed to "According to Nuckols et al., nine fair to good-quality guidelines...."

57 4 Page 5, line 57: The unintended consequence is actually increased incidence/rates of opioid use disorder - the increased rate of heroin use is a result of this

Changed to "the emergence of withdrawal symptoms that may lead to aberrant opioid-seeking behaviors that may result in use of illicit opioids;[Ballantyne 2012]"

58 4 Page 6, line 5: There is a lot of work done and in progress within VA to determine what are risk factors and who is at risk of opioid OD or serious opioid-related resp depression. There is more to it than dose of opioid - this is hinted at in the text with reference to SUD, psychiatric illness, etc.


Added: "In Veterans receiving opioids, receipt of benzodiazepines has been associated with an increased risk of overdose death[Park 2015] and mental health disorders, pharmacotherapy, impaired drug metabolism or excretion, pulmonary disorders, specific opioid characteristics, and recent hospital visits have been associated with serious opioid-induced respiratory depression.[Zedler 2015]"

Added PMID 26807540 (Bohnert 2016) to support statement that evidence has not yet identified a clear dose "threshold" for overdose risk

Added PMID 26761386 (Ilgen 2016) as citation for link between high opioid dose and suicide.

59 4 Page 6, line 39: The CDC Guidelines were published on March 15 and, as far as I can tell, only CDC recommendation #1 addressed non-pharmacological therapies, and then only mentioned PT, weight loss, and CBT. Based on this new information - this sentence should be re-worked. The 'non-mention' of CIH modalities in the CDC guidance reinforces what was said in the preceding paragraph, lines 23-33

Added CDC guideline.

60 4 Page 6, line 52-29: If direct comparisons between opioids and CIH are lacking, how can one conclude that CIH interventions are a reasonable alternative to opioid therapy OR that magnitude of pain reduction between CIH and opioids is comparable?

Yes, we tempered our statements about the comparative efficacy of opioids and CIH on pain to better reflect the indirectness of the evidence base.
Page 7, line 10: If a more rigorous analysis of the evidence for CIH in pain is to come, then possibly some of the statements earlier in this paragraph are premature?

Yes, we tempered our statements about the comparative efficacy of opioids and CIH on pain to better reflect the indirectness of the evidence base.

Page 7, line 16: I would say the main goal should be more patient centric: to achieve or maintain pain relief; to improve function, to reduce side effects/risk. If stopping opioid helps to achieve one or more of those goals, then OK

Changed to: “The goal of reducing opioid use is to reduce risk of overdose deaths, dependence, misuse and other serious complications. In some cases, this means stopping opioids entirely.”

Page 7, line 25: Again - the risk of reducing opioid dose/use is the emergence of OUD-behaviors - use of illegal narcotics is the end-result.

Changed to “the emergence of withdrawal symptoms that may lead to aberrant opioid-seeking behaviors that may result in use of illicit opioids.”

Page 21, line 9-11: with so little comparative data how can this statement be made?

Changed to: “Limited evidence suggests that select CIH interventions may be reasonable non-opioid treatment options in general because, compared to usual care, magnitude of pain reduction for CIH is potentially comparable to opioids, but without serious side effects.”

Page 21, line 9: “increase” or refine?

Changed to ‘clarify’

Page 21, line 9: “increase” or refine?

Changed to ‘clarify’

I found Table ES1 somewhat difficult to interpret, including information provided in the last three columns. Perhaps the authors could consider editing for improved clarity.

Yes, we edited to improve clarity.

Apparently this is the first of a number of planned reviews of alternatives to opioid therapy in preparation for a Nov conference sponsored by the VAHSR&D. The select things covered in this report will hopefully be supplemented by evidence on chiropractic, behavioral therapies like cognitive-behavioral therapy, and others. It would be useful in the background to briefly describe what all will be ultimately included. The terminology (CHI) throws you off a little since it does not include all of the alternatives that are promising.

Defining the scope of additional work is a key goal of the April 2016 SOTA planning meeting.

The three articles on acupuncture are actually not classic acupuncture but electrical stimulation through acupuncture needles, or electro-acupuncture, which is considered quite different from classic acupuncture. The report should call this out, and should make the point that what is being reported here is NOT the impact of classic acupuncture on opioid dose.

Added this clarification.

The 2015 WA opioid guideline includes a new section on non-pharmacological alternatives to opioids-this should perhaps be referenced since it is the only major guideline to date to address this:


Added.

Please make sure to define all abbreviations.

Done
please avoid the use of "opioid users" and use "patients prescribed opioids" throughout the text

Table ES1: what is REA and SEA? PST, EA and CO also need to be explained in the notes section. This is a term used by King 2014. It seems to mean that people with a substance use disorder may substitute prescription opioids for illicit drugs.

Page 5, line 10: what is drug substitution? do you mean medication assisted treatment? Yes, this is a summary of the King et al systematic review published in American Journal of Public Health in 2014 that identified these factors as potentially linked to increased risk of opioid-related mortality.

Page 5, line 13: define SES Done

Page 5, line 16: are you saying that these things caused more deaths? Usually we say that they mitigate death. Added.

Page 6, line 40: The CDC guideline is now published. This should be updated. Added.

Page 12, line 43: opioid use -or opioid dose? Our point here was to identify the studies that measured opioid use versus those that evaluated overall analgesic use. Done

Page 13, line 11: would look into the Cleveland Clinic's work (Ed Covington) or Seddon Savage at Dartmouth's Silver Hill Hospital. To my knowledge, they both use meditation to help with opioid dose reduction and reduced reliance on medication. Also, the Stanford program with Beth Darnall might have some data. Changed to: "We are also aware of programs that routinely use multidisciplinary approaches to help reduce reliance on pharmacological treatments for pain. [Silver Hill Hospital, the Cleveland Clinic and the Stanford Pain Management Center] But, we were unable to identify clear descriptions of their approaches to using specific CIH interventions or data on their effectiveness."

Page 14, line 43: would you translate this to daily dose? A weekly MED doesn't really have much meaning. Done

Page 15, line 40: again, better if this is translated to MED per day Done.
REFERENCES


