



## Effective Health Care Interventions for Substance Use Disorders in Adolescents

### Results of Topic Selection Process & Next Steps

The nominator, American Academy of Child & Adolescent Psychiatry (AACAP), is interested in a new systematic review on the treatment of substance abuse disorders in children and adolescents to inform an update of their practice parameter.

The topic fulfills the Effective Health Care Program selection criteria. This topic, Substance Use Disorders in Adolescents, will go forward for refinement as a systematic review. The scope of this topic, including populations, interventions, comparators, and outcomes, will be further developed in the systematic review.

### Topic Brief

**Topic #:** 0676

**Nomination Date:** 06/02/2016

**Nominator:** American Academy of Child & Adolescent Psychiatry

**Date:** August 2016, January 2018

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**Conflict of Interest:** None of the investigators have any affiliations or financial involvement that conflicts with the material presented in this report

**Summary of Key Findings:**

- Appropriateness and importance: The nomination is both appropriate and important.
- Duplication: Three completed systematic reviews were identified related to KQ 1. All three pertain to interventions for substance use disorders. Two of the systematic reviews examine motivational interviewing as a treatment for substance use disorders, and the third included two trials of disulfiram for the treatment of alcohol dependency in adolescents. Our search did not find any evidence reviews which met inclusion criteria for KQ 2, examining subgroup variation in the treatment of substance use disorders.
  - Duplication, updated search: *The updated duplication search identified 14 additional systematic reviews. These reviews do not cover the scope of the nomination, such as types of substance abuse, interventions, and subgroups. In addition seven of the reviews have searches that are not sufficiently recent to likely be useful to the nominator. Depending on the results of the in-process systematic reviews on brief interventions the scope may be further narrowed.*

- Feasibility:
  - *Size/scope of review:* We estimate that the total size of the relevant literature (2011-present) may be approximately 64 studies across key questions (low confidence). The estimate is not firm because all titles and abstracts were not reviewed for this document. In addition during scoping of the review issues and concerns from other perspectives, including those of health systems may broaden the review scope.
  - *ClinicalTrials.gov:* We identified 7 relevant trials on ClinicalTrials.gov.
  - *Cochrane RCT filter results:* We identified 14 additional RCTs covering interventions for SUDs, as well as interventions for subgroups (including comorbidities and ethnic minorities).
- Impact: The nomination has high impact potential if a new systematic review provides new evidence where it was previously lacking from the AACAP's 2005 practice parameters.
- Value: The potential for value is high, given that AACAP will use a new AHRQ systematic review to update their clinical practice guideline on a topic that is of concern to their constituency. Given the prevalence and challenges in treating substance abuse disorders in adolescents, a review on this topic may be of value to other stakeholder groups such as health systems.

## Table of Contents

<b>Introduction</b> .....	4
<b>Methods</b> .....	5
Appropriateness and Importance.....	5
Desirability of New Review/Duplication .....	5
Impact of a New Evidence Review.....	5
Feasibility of New Evidence Review .....	5
Value .....	5
Compilation of Findings.....	5
<b>Results</b> .....	6
Appropriateness and Importance.....	6
Desirability of New Review/Duplication .....	6
Impact of a New Evidence Review.....	6
Feasibility of a New Evidence Review .....	6
Value .....	7
<b>Summary of Findings</b> .....	7
<b>References</b> .....	8
<b>Appendix A. Selection Criteria Summary</b> .....	A-1
<b>Appendix B. Search for Systematic Reviews (Duplication)</b> .....	B-1
<b>Appendix C. Search Strategy &amp; Results (Feasibility)</b> .....	C-1

## Introduction

There is a rich literature examining optimal treatment programs for adults with various substance use disorders, but the available evidence for adolescents and children is less clear. As adults and adolescents should be treated differently, there is a need for a comprehensive treatment guide for substance use disorders in adolescents. The National Institute on Drug Abuse (NIDA) assert that approximately 15.2% of children and adolescents who begin drinking alcohol by age 14 will eventually develop alcohol dependence, and 25% of those who begin abusing prescription drugs before or at the age of 13 will develop a substance use disorder at some time in their lives.<sup>1</sup> The NIDA report asserts that adolescent substance use needs to be identified as soon as possible and treatment should address larger life needs related to medical, social and psychological well-being, not just drug use. Treatment should also address co-occurring mental health conditions. A support system consisting of family, friends, community, and health providers is an important factor in treating substance use disorders. The NIDA report includes a section entitled “Evidence-based Approaches to Treating Adolescent Substance Use Disorders” that lists 5 behavioral treatments, 5 family-based approaches, various medications, and 4 recovery support services that have been “shown to be effective.”

This nomination was received on 06/02/2016. The nominator is interested in using a rigorous systematic review process to inform the update of 2005 American Academy of Child & Adolescent Psychiatry (AACAP) practice parameters<sup>2</sup> pertaining to the interventions for substance use disorders in adolescents. They have specifically requested that we exclude tobacco use from the scope. They are interested in the range of interventions, including brief interventions.

The questions for this nomination are:

Key Question 1. What are the benefits and harms and comparative benefits and harms of interventions for substance use disorders (generally and by substance specific) in adolescents?

Key Question 2. Do the benefits and harms vary by subpopulation (e.g., age, gender, race/ethnicity, comorbidity)?

To define the inclusion criteria for the key questions we specify the population, interventions, comparators, and outcomes (PICO) of interest. See Table 1.

**Table 1. Key Questions and PICOs**

<b>Key Questions</b>	1. What are the (a) benefits and harms and (b) comparative benefits and harms of interventions for substance use disorders (generally and by substance specific) in adolescents?	2. Do the benefits and harms vary by subpopulation (e.g., age, gender, race/ethnicity, comorbidity)?
<b>Population</b>	Adolescents with substance use disorder (e.g., alcohol use disorder, cannabis use disorder, opioid use disorder)	Adolescents with substance use disorder (e.g., alcohol use disorder, cannabis use disorder, opioid use disorder)
<b>Interventions</b>	Non-pharmacological and pharmacologic interventions	Non-pharmacological and pharmacologic interventions
<b>Comparators</b>	Combination of treatments, placebo, no treatment	Combination of treatments, placebo, no treatment
<b>Outcomes</b>	Lower rates of substance use, adverse events, quality of life	Lower rates of substance use, adverse events, quality of life

## Methods

To assess this topic nomination for priority for a systematic review or other AHRQ EHC report, we used a modified process based on established criteria. Our assessment is hierarchical in nature, with the findings of our assessment determining the need for further evaluation. Details related to our assessment are provided in Appendix A.

1. Determine the *appropriateness* of the nominated topic for inclusion in the EHC program.
2. Establish the overall *importance* of a potential topic as representing a health or healthcare issue in the United States.
3. Determine the *desirability of new evidence review* by examining whether a new systematic review or other AHRQ product would be duplicative.
4. Assess the *potential impact* a new systematic review or other AHRQ product.
5. Assess whether the *current state of the evidence* allows for a systematic review or other AHRQ product (feasibility).
6. Determine the *potential value* of a new systematic review or other AHRQ product.

### Appropriateness and Importance

We assessed the nomination for appropriateness and importance (see Appendix A).

### Desirability of New Review/Duplication

We searched for high-quality, completed or in-process evidence reviews pertaining to the key questions of the nomination. Table 2 includes the citations for the reviews that were determined to address the key questions. Appendix B includes the list of the sources searched and potentially relevant titles identified by our research librarian.

The search was updated on 1/29/2018. See Appendix B for sources searched.

### Impact of a New Evidence Review

The impact of a new evidence review was assessed by analyzing the current standard of care, the existence of potential knowledge gaps, and practice variation. We considered whether it was hypothetically possible for this review to influence the current state of practice through various dissemination pathways (practice recommendation, clinical guidelines, etc.).

### Feasibility of New Evidence Review

We conducted a literature search in PubMed and PsycInfo from June 2011 and June 2016.

Because a large number of articles were identified, we reviewed a random sample of 200 titles and abstracts for inclusion and classified identified studies by study design, to assess the size and scope of a potential evidence review. We then calculated the projected total number of included studies based on the proportion of studies included from the random sample. See Table 2, Feasibility Column, Size/Scope of Review Section for the citations of included studies. See Appendix C for the PubMed (and PsycInfo) search strategy and links to the ClinicalTrials.gov search.

### Value

We assessed the nomination for value (see Appendix A). We considered whether or not the topic would inform clinical policy in community and/or clinical settings, and if there was a partner organization that would use this evidence review to do disseminate this policy.

### Compilation of Findings

We constructed a table outlining the selection criteria as they pertain to this nomination (see Appendix A).

## Results

### Appropriateness and Importance

This is an appropriate and important topic. In a nationally representative samples of US youth the lifetime prevalence of alcohol use disorders is approximately 8% and illicit drug use disorders is 2-3%.

### Desirability of New Review/Duplication

A new evidence review would not be duplicative of an existing product. Three completed systematic reviews were identified related to KQ 1. All three pertain to interventions for substance use disorders. Two of the systematic reviews examine motivational interviewing as a treatment for substance use disorders, and the third included two trials of disulfiram for the treatment of alcohol dependency in adolescents. Our search did not find any evidence reviews which met inclusion criteria for KQ 2, examining subgroup variation in the treatment of substance use disorders. See Table 2, Duplication column for the systematic review citations that were determined to address the key questions.

The updated duplication search identified 14 additional completed and in-process systematic reviews. All but one pertain to KQ 1. Five focused on non-opioid treatment; one on alcohol and cannabis; one on cannabis; two on alcohol; and four on substance abuse treatment broadly. All focused on non-pharmacologic treatments, including CBT, motivational interviewing, types of family therapy, computerized interventions, and brief interventions.

Despite these reviews, a new evidence review would not be duplicative.

- End dates of searches for seven of the reviews were not sufficiently recent, ranging from 2011-2014.
- The remaining reviews do not cover the scope of the nomination including pharmacologic interventions, treatment of opioid abuse, and most subgroups of interest.
  - Three reviews cover single interventions: motivational interviewing, music therapy, and computerized brief interventions.
  - Three reviews are in-process and all focus on brief interventions. These could partly duplicate a part of this nomination.

See Appendix D for the references for the additional systematic reviews.

### Impact of a New Evidence Review

A new systematic review may have high impact, as it will inform a practice through a practice parameters and potentially fill gaps in evidence from the previous practice parameter.

### Feasibility of a New Evidence Review

A new evidence review examining is feasible. Our PubMed feasibility search identified 1,253 unique articles published between June 2011 and June 2016. See Table 2, Feasibility column for the citations that were determined to address the key questions. We estimate that the total size of the relevant literature (2011-present) may be approximately 64 studies across key questions. We identified 14 additional RCTs covering interventions for SUDs, as well as interventions for subgroups (including comorbidities and ethnic minorities) in the Cochrane RCT filter. We identified 7 relevant trials on ClinicalTrials.gov.

**Table 2.** Nomination key questions, with the identified evidence reviews and original research

Key Question	Duplication (Completed or In-Process Evidence Reviews)	Feasibility (Published and Ongoing Research)
KQ 1: Benefits and harms and comparative benefits and harms of interventions for SUD in adolescents	Total number of completed and in-progress systematic reviews: 16 <ul style="list-style-type: none"> <li>• SR-10</li> <li>• Other - 3<sup>3-5</sup></li> <li>• In progress-3</li> </ul>	<u>Size/scope of review</u> Relevant Studies Identified: 3 <ul style="list-style-type: none"> <li>• RCT – 2<sup>6,7</sup></li> <li>• Retrospective Cohort - 1<sup>8</sup></li> </ul> Projected Total: 24  <u>ClinicalTrials.gov</u> Relevant Trials: 7 <ul style="list-style-type: none"> <li>• Recruiting – 4<sup>9-12</sup></li> <li>• Active, not recruiting – 1<sup>13</sup></li> <li>• Completed - 2<sup>14,15</sup></li> </ul>
KQ 2: Variation by Subpopulation	Total number of completed and in-progress systematic reviews: 1	<u>Size/scope of review</u> Relevant Studies Identified: 1 <ul style="list-style-type: none"> <li>• Retrospective Cohort - 1<sup>8</sup></li> </ul> Projected Total: 8  <u>ClinicalTrials.gov</u> Relevant Trials: 3 <ul style="list-style-type: none"> <li>• Recruiting – 1<sup>12</sup></li> <li>• Completed – 2<sup>14,15</sup></li> </ul>

*Abbreviations:* KQ=Key Question; RCT=Randomized Controlled Trial; SUD=Substance Use Disorder

## Value

The potential for value is high given the given that AACAP will use a new AHRQ systematic review to update their clinical practice guideline. This organization has previously produced high quality, evidence based guidelines, and are transparent about their methodology.

## Summary of Findings

- Appropriateness and importance: The nomination is both appropriate and important.
- Duplication: We identified 17 completed and in-process reviews. However these did not cover the breadth of types of substance abuse, interventions and subgroups of interest. In addition the searches for seven of the reviews were not sufficiently recent to likely be useful to the nominator. Depending on the results of the in-process systematic reviews on brief interventions the scope may be further narrowed.
- Feasibility:
  - *Size/scope of review:* We estimate that the total size of the relevant literature (2011-present) may be approximately 64 studies across key questions (low confidence). The estimate is not firm because all titles and abstracts were not reviewed for this document. In addition during scoping of the review issues and concerns from other perspectives, including those of health systems may broaden the review scope.
  - *ClinicalTrials.gov:* We identified 7 relevant trials on ClinicalTrials.gov.
  - *Cochrane RCT filter results:* We identified 14 additional RCTs covering interventions for SUDs, as well as interventions for subgroups (including comorbidities and ethnic minorities).
- Impact: The nomination has high impact potential if a new systematic review provides new evidence where it was previously lacking from the AACAP’s 2005 practice parameters.

- Value: The potential for value is high, given that AACAP will use a new AHRQ systematic review to update their clinical practice guideline on a topic of concern to their constituency. Given the prevalence of substance abuse disorders in adolescents, a review on this topic may be of value to other stakeholder groups such as health systems.

## References

1. National Institute on Drug Abuse. Principles of Adolescent Substance Use Disorder Treatment: A Research-Based Guide. In: Abuse NIOB, ed: National Institutes of Health; 2014.
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5. Skinner MD, Lahmek P, Pham H, Aubin HJ. Disulfiram efficacy in the treatment of alcohol dependence: a meta-analysis. *PLoS One*. 2014;9(2):e87366.
6. Brown PC, Budney AJ, Thostenson JD, Stanger C. Initiation of abstinence in adolescents treated for marijuana use disorders. *J Subst Abuse Treat*. 2013;44(4):384-390.
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8. Becker SJ, Stein GL, Curry JF, Hersh J. Ethnic differences among substance-abusing adolescents in a treatment dissemination project. *J Subst Abuse Treat*. 2012;42(3):328-336.
9. Medical University of South Carolina. Integrative Risk Reduction and Treatment for Teen Substance Use Problems and PTSD (RRFT). *ClinicalTrials.gov*. 2015;NCT01751035.
10. Dartmouth-Hitchcock Medical Center. Behavioral Treatment of Adolescent Substance Use (SMART). *ClinicalTrials.gov*. 2015;NCT02063984.
11. Oregon Research Institute. Family and Adolescent Motivational Incentives for Leveraging Youth (FAMILY). *ClinicalTrials.gov*. 2016;NCT01736995.
12. Oregon Research Institute. Family Therapy Via Video Teleconference for Substance-Abusing Rural Adolescents (RAFT). *ClinicalTrials.gov*. 2016;NCT01751217.
13. University of Connecticut Health Center. Adaptive Treatment for Adolescent Cannabis Use Disorders. *ClinicalTrials.gov*. 2016;NCT01656707.
14. University of New Mexico. Assessing the Fit of Motivational Interviewing by Cultures With Adolescents (AMICA). *ClinicalTrials.gov*. 2015;NCT01948700.
15. University of Miami. Culturally Informed Family Based Treatment of Adolescents: A Randomized Trial (CIFFTA). *ClinicalTrials.gov*. 2015;NCT01823250.



## Appendix A. Selection Criteria Summary

Selection Criteria	Supporting Data
1. Appropriateness	
1a. Does the nomination represent a health care drug, intervention, device, technology, or health care system/setting available (or soon to be available) in the U.S.?	Yes, this topic represents a health care drug and intervention available in the U.S.
1b. Is the nomination a request for a systematic review?	Yes, this topic is a request for a systematic review.
1c. Is the focus on effectiveness or comparative effectiveness?	The focus of this review is on both effectiveness and comparative effectiveness.
1d. Is the nomination focus supported by a logic model or biologic plausibility? Is it consistent or coherent with what is known about the topic?	Yes, it is biologically plausible. Yes, it is consistent with what is known about the topic.
2. Importance	
2a. Represents a significant disease burden; large proportion of the population	Yes, this topic represents a significant burden. AACAP states nationally representative samples of US youth reveal that the lifetime prevalence of alcohol use disorders is approximately 8% and illicit drug use disorders is 2-3%.
2b. Is of high public interest; affects health care decision making, outcomes, or costs for a large proportion of the US population or for a vulnerable population	Yes, this topic affects health care decisions for a large, vulnerable population.
2c. Represents important uncertainty for decision makers	Yes, this topic represents important uncertainty for decision makers.
2d. Incorporates issues around both clinical benefits and potential clinical	Yes, this nomination addresses both benefits and potential harms of prevention interventions, pharmacological interventions, and non-pharmacological treatments for substance abuse disorders.
2e. Represents high costs due to common use, high unit costs, or high associated costs to consumers, to patients, to health care systems, or to payers	Yes this mental health diagnosis represents high cost due to the high rate of prevalence, and the increasing costs of treatment options.
3. Desirability of a New Evidence Review/Duplication	
3. Would not be redundant (i.e., the proposed topic is not already covered by available or soon-to-be available high-quality systematic review by AHRQ or others)	Three systematic reviews <sup>3-5</sup> were identified related to the key questions of the nomination—all three are complete and all three pertain to interventions for substance use disorders. Two of the systematic reviews <sup>3,4</sup> examine motivational interviewing as a treatment for substance use disorders. The third <sup>5</sup> examined disulfiram for the treatment of alcohol dependency; it included 2 trials in adolescents, one published in 2008 and the other in 2003. Our search did not find any evidence reviews examining subgroup variation in the treatment of substance use disorders (Key Question 2).

Selection Criteria	Supporting Data
4. Impact of a New Evidence Review	
4a. Is the standard of care unclear (guidelines not available or guidelines inconsistent, indicating an information gap that may be addressed by a new evidence review)?	Yes, the standard of care is unclear due to conflicting data and recommendations among authors and experts.
4b. Is there practice variation (guideline inconsistent with current practice, indicating a potential implementation gap and not best addressed by a new evidence review)?	Yes, there is practice variation due to conflicting data and existing recommendations.
5. Primary Research	
5. Effectively utilizes existing research and knowledge by considering: - Adequacy (type and volume) of research for conducting a systematic review - Newly available evidence (particularly for updates or new technologies)	<p><i>Size/scope of review:</i> We estimate that the total size of the relevant literature (2011-present) may be approximately 64 studies across key questions (low confidence).</p> <p><i>ClinicalTrials.gov:</i> We identified 7 relevant trials on ClinicalTrials.gov.</p> <p><i>Cochrane RCT filter results:</i> We identified 14 additional RCTs covering interventions for SUDs, as well as interventions for subgroups (including comorbidities and ethnic minorities).</p>
6. Value	
6a. The proposed topic exists within a clinical, consumer, or policy-making context that is amenable to evidence-based change	Yes, this topic will inform clinical decision-making on treating substance abuse disorders among children and adolescents across community and clinical settings.
6b. Identified partner who will use the systematic review to influence practice (such as a guideline or recommendation)	Yes, AACAP will use a systematic review to update their 2005 clinical practice guidelines on the assessment and treatment of bipolar disorder among children and adolescents.

*Abbreviations:* AACAP= American Academy of Child & Adolescent Psychiatry; AHRQ=Agency for Healthcare and Research Quality; RCT=Randomized Controlled Trial

## Appendix B. Search for Systematic Reviews (Duplication), June 2016 and January 2018

Listed below are the sources searched and results of our search for existing guidance. A research librarian conducted the search and selected potentially relevant evidence based on the key question in the nomination and the associated PICOTS. An investigator reviewed each of the links to evidence below for inclusion. The links below do not represent the evidence selected for inclusion (see main topic brief).

Substance Use Disorders in Adolescents	Search for Duplication: June 7, 2016
Source	Evidence
<b>AHRQ and Other Federal Products</b>	
AHRQ: Evidence reports and technology assessments, USPSTF recommendations, and related DEcIDE projects, and Horizon Scan	<p><i>Technical Brief: Medication-Assisted Treatment Models of Care for Opioid Use Disorder in Primary Care Settings</i>  <a href="https://www.effectivehealthcare.ahrq.gov/ehc/products/636/2225/opioid-use-disorder-draft-report-160513.pdf">https://www.effectivehealthcare.ahrq.gov/ehc/products/636/2225/opioid-use-disorder-draft-report-160513.pdf</a>  <a href="https://www.effectivehealthcare.ahrq.gov/ehc/products/636/2225/opioid-use-disorder-draft-appendixes-160513.pdf">https://www.effectivehealthcare.ahrq.gov/ehc/products/636/2225/opioid-use-disorder-draft-appendixes-160513.pdf</a></p> <p><i>Primary Care Behavioral Interventions to Prevent or Reduce Illicit Drug and Nonmedical Pharmaceutical Use in Children and Adolescents</i>  <a href="http://www.ncbi.nlm.nih.gov/books/NBK195068/">http://www.ncbi.nlm.nih.gov/books/NBK195068/</a></p> <p><i>Alcohol Misuse: Screening and Behavioral Counseling Interventions in Primary Care, May 2013</i>  <a href="http://www.uspreventiveservicestaskforce.org/Page/Document/RecommendationStatementFinal/alcohol-misuse-screening-and-behavioral-counseling-interventions-in-primary-care">http://www.uspreventiveservicestaskforce.org/Page/Document/RecommendationStatementFinal/alcohol-misuse-screening-and-behavioral-counseling-interventions-in-primary-care</a></p> <p><i>Drug Use, Illicit: Primary Care Interventions for Children and Adolescents, March 2014</i>  <a href="http://www.uspreventiveservicestaskforce.org/Page/Document/RecommendationStatementFinal/drug-use-illicit-primary-care-interventions-for-children-and-adolescents">http://www.uspreventiveservicestaskforce.org/Page/Document/RecommendationStatementFinal/drug-use-illicit-primary-care-interventions-for-children-and-adolescents</a></p> <p><i>Drug Use, Illicit: Screening, January 2008</i>  <a href="http://www.uspreventiveservicestaskforce.org/Page/Document/RecommendationStatementFinal/drug-use-illicit-screening">http://www.uspreventiveservicestaskforce.org/Page/Document/RecommendationStatementFinal/drug-use-illicit-screening</a></p> <p>From the Horizon Scanning Update:  <a href="https://effectivehealthcare.ahrq.gov/ehc/products/393/880/AHRQ-Healthcare-Horizon-Scanning-Status-Update-150930.pdf">https://effectivehealthcare.ahrq.gov/ehc/products/393/880/AHRQ-Healthcare-Horizon-Scanning-Status-Update-150930.pdf</a>  <i>Interactive text messaging program for prevention of hazardous alcohol use.</i></p>
VA Products: PBM, and HSR&D (ESP) publications, and VA/DoD EBCPG Program	Nothing with adolescents
<b>Cochrane Database and Others</b>	
Cochrane Systematic Reviews and Protocols <a href="http://www.cochranelibrary.com/">http://www.cochranelibrary.com/</a>	<p><i>Multisystemic Therapy for social, emotional, and behavioral problems in youth aged 10-17</i>  <a href="http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD004797.pub4/full">http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD004797.pub4/full</a></p> <p><i>Primary prevention for alcohol misuse in young people</i>  <a href="http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD003024.pub2/full">http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD003024.pub2/full</a>            [Withdrawn from publication]</p>

Substance Use Disorders in Adolescents	Search for Duplication: June 7, 2016
PubMed Health <a href="http://www.ncbi.nlm.nih.gov/pubmedhealth/">http://www.ncbi.nlm.nih.gov/pubmedhealth/</a>	<p><i>It is premature to draw conclusions about the effectiveness of MST compared with other services</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0013029/">http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0013029/</a></p> <p><i>Mentoring adolescents to prevent drug or alcohol use</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0016418/">http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0016418/</a></p> <p><i>Treatments for co-occurring depression and substance use in young people: a systematic review</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0076229/">http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0076229/</a></p> <p><i>A review of 25 long-term adolescent tobacco and other drug use prevention program evaluations</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0020282/">http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0020282/</a></p> <p><i>A systematic review of the effectiveness of brief interventions with substance using adolescents by type of drug</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0020268/">http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0020268/</a></p> <p><i>The effects of interventions to prevent substance use among adolescents: a systematic review</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0052718/">http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0052718/</a></p> <p><i>A systematic review of school-based alcohol and other drug prevention programs facilitated by computers or the Internet</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0058877/">http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0058877/</a></p> <p><i>Effective family-based interventions for adolescents with substance use problems: a systematic review</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0022609/">http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0022609/</a></p> <p><i>Drug prevention with vulnerable young people: a review</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0022417/">http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0022417/</a></p> <p><i>Psychosocial and Developmental Alcohol Misuse Prevention in Schools can be effective</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0014879/">http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0014879/</a></p> <p><i>Interventions delivered to young people in non-school settings for the prevention of drug use</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0013190/">http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0013190/</a></p> <p><i>School-based prevention for illicit drug use</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0011759/">http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0011759/</a></p> <p><i>Prevention of substance use in children/adolescents with mental disorders: a systematic review</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0052509/">http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0052509/</a></p> <p><i>Alcohol-Use Disorders</i>  <i>Diagnosis, Assessment and Management of Harmful Drinking and Alcohol Dependence</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0042164/">http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0042164/</a></p> <p><i>Motivational interviewing for adolescent substance use: a review of the literature</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0050602/">http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0050602/</a></p> <p><i>Adolescent substance abuse treatment: a synthesis of controlled evaluations</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0020812/">http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0020812/</a></p> <p><i>Effectiveness of motivational interviewing interventions for adolescent substance use behavior change: a meta-analytic review</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0033193/">http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0033193/</a></p> <p><i>A critical review of adolescent substance abuse group treatments</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0029002/">http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0029002/</a></p>

Substance Use Disorders in Adolescents	Search for Duplication: June 7, 2016
<p>HTA (CRD database): Health Technology Assessments  <a href="http://www.crd.york.ac.uk/crdweb/">http://www.crd.york.ac.uk/crdweb/</a></p>	<p><i>The effects of Positive Youth Development interventions on substance use, violence and inequalities: systematic review of theories of change, processes and outcomes</i>  <a href="http://www.crd.york.ac.uk/CRDWeb/ShowRecord.asp?AccessionNumber=32016000690&amp;UserID=0">http://www.crd.york.ac.uk/CRDWeb/ShowRecord.asp?AccessionNumber=32016000690&amp;UserID=0</a></p> <p><i>A systematic review of computerised serious educational games about alcohol and other drugs for adolescents</i>  <a href="http://www.crd.york.ac.uk/CRDWeb/ShowRecord.asp?AccessionNumber=12014000596&amp;UserID=0">http://www.crd.york.ac.uk/CRDWeb/ShowRecord.asp?AccessionNumber=12014000596&amp;UserID=0</a></p> <p><i>A systematic review of effective interventions for reducing multiple health risk behaviors in adolescence</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmed?term=24625172">http://www.ncbi.nlm.nih.gov/pubmed?term=24625172</a></p> <p><i>Disulfiram efficacy in the treatment of alcohol dependence: a meta-analysis</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmed?term=24520330">http://www.ncbi.nlm.nih.gov/pubmed?term=24520330</a></p> <p><i>Effectiveness of brief interventions as part of the Screening, Brief Intervention and Referral to Treatment (SBIRT) model for reducing the nonmedical use of psychoactive substances: a systematic review</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmed?term=24887418">http://www.ncbi.nlm.nih.gov/pubmed?term=24887418</a></p> <p><i>Prævention des alkoholmissbrauchs von kindern, jugendlichen und jungen erwachsenen [Prevention of alcohol misuse among children, youths and young adults]</i>  <a href="http://www.crd.york.ac.uk/CRDWeb/ShowRecord.asp?AccessionNumber=32011001381&amp;UserID=0">http://www.crd.york.ac.uk/CRDWeb/ShowRecord.asp?AccessionNumber=32011001381&amp;UserID=0</a></p> <p><i>Adolescent outpatient treatment and continuing care: main findings from a randomized clinical trial</i>  <a href="http://www.crd.york.ac.uk/CRDWeb/ShowRecord.asp?AccessionNumber=22010001299&amp;UserID=0">http://www.crd.york.ac.uk/CRDWeb/ShowRecord.asp?AccessionNumber=22010001299&amp;UserID=0</a></p> <p><i>Community-based interventions to reduce substance misuse among vulnerable and disadvantaged children and young people</i>  <a href="http://www.crd.york.ac.uk/CRDWeb/ShowRecord.asp?AccessionNumber=32011000437&amp;UserID=0">http://www.crd.york.ac.uk/CRDWeb/ShowRecord.asp?AccessionNumber=32011000437&amp;UserID=0</a></p>
<p>PROSPERO Database (international prospective register of systematic reviews and protocols)  <a href="http://www.crd.york.ac.uk/prospero/">http://www.crd.york.ac.uk/prospero/</a></p>	<p><i>A systematic review of interventions to reduce youth substance use through parent training: applications in the adolescent health arena</i>  <a href="http://www.crd.york.ac.uk/prospero/display_record.asp?ID=CRD42014013069">http://www.crd.york.ac.uk/prospero/display_record.asp?ID=CRD42014013069</a></p> <p><i>Systematic review of universal school-based resilience interventions targeting adolescent tobacco, alcohol or illicit drug use: review protocol</i>  <a href="http://www.crd.york.ac.uk/prospero/display_record.asp?ID=CRD42014004906">http://www.crd.york.ac.uk/prospero/display_record.asp?ID=CRD42014004906</a></p> <p><i>Modifiable parenting factors for reducing adolescent alcohol use: a systematic review and meta-analysis of longitudinal studies</i>  Based on the literature, what parenting factors can be modified in order to delay adolescents' alcohol initiation and prevent their subsequent alcohol misuse?  <a href="http://www.crd.york.ac.uk/prospero/display_record.asp?ID=CRD42015016723">http://www.crd.york.ac.uk/prospero/display_record.asp?ID=CRD42015016723</a></p>
<p>CADTH (Canadian Agency for Drugs and Technologies in Health)  <a href="https://www.cadth.ca/">https://www.cadth.ca/</a></p>	<p><i>Prevention Strategies for Substance Misuse Harm Reduction A Review of Clinical Evidence</i>  <a href="https://www.cadth.ca/prevention-strategies-substance-misuse-harm-reduction-review-clinical-evidence">https://www.cadth.ca/prevention-strategies-substance-misuse-harm-reduction-review-clinical-evidence</a></p> <p><i>Team-Based Behavioural Support for Youth Experiencing Mental Health or Addiction Issues: Clinical Effectiveness and Guidelines</i>  <a href="https://www.cadth.ca/team-based-behavioural-support-youth-experiencing-mental-health-or-addiction-issues-clinical">https://www.cadth.ca/team-based-behavioural-support-youth-experiencing-mental-health-or-addiction-issues-clinical</a></p>

Substance Use Disorders in Adolescents	Search for Duplication: June 7, 2016
<p>DoPHER (Database of promoting health effectiveness reviews)  <a href="http://eppi.ioe.ac.uk/webdatabases4/Intro.aspx?ID=9">http://eppi.ioe.ac.uk/webdatabases4/Intro.aspx?ID=9</a></p>	<p><i>Adolescent substance abuse: a review of the past 10 years.</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmed/9519629">http://www.ncbi.nlm.nih.gov/pubmed/9519629</a></p> <p><i>Adolescent substance abuse prevention programs: Theories, models, and research in the encouraging 80's.</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmed/24258623">http://www.ncbi.nlm.nih.gov/pubmed/24258623</a></p> <p><i>Adolescent substance use: reviewing the effectiveness of prevention strategies.</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmed/15281689">http://www.ncbi.nlm.nih.gov/pubmed/15281689</a></p> <p><i>Brief school-based interventions and behavioural outcomes for substance-using adolescents.</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmed/26787125">http://www.ncbi.nlm.nih.gov/pubmed/26787125</a></p> <p><i>A comparison of family interventions to address adolescent risky behaviors: a literature review.</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmed/23166186">http://www.ncbi.nlm.nih.gov/pubmed/23166186</a></p> <p><i>Etiology and prevention of substance use among Asian American youth.</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmed/11519375">http://www.ncbi.nlm.nih.gov/pubmed/11519375</a></p> <p><i>Family-based preventive intervention: an approach to preventing substance use and antisocial behavior.</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmed/10439843">http://www.ncbi.nlm.nih.gov/pubmed/10439843</a></p> <p><i>Family-strengthening approaches for the prevention of youth problem behaviors.</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmed/12971192">http://www.ncbi.nlm.nih.gov/pubmed/12971192</a></p> <p><i>Independent Evaluation of Middle School-Based Drug Prevention Curricula: A Systematic Review.</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmed/26367105">http://www.ncbi.nlm.nih.gov/pubmed/26367105</a></p> <p><i>Interventions for reducing adolescent alcohol abuse: a meta-analytic review.</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmed/20048247">http://www.ncbi.nlm.nih.gov/pubmed/20048247</a></p> <p><i>Meta-analysis of motivational interviewing for adolescent health behavior: efficacy beyond substance use.</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmed/24841861">http://www.ncbi.nlm.nih.gov/pubmed/24841861</a></p> <p><i>A meta-analysis of motivational interviewing interventions for pediatric health behavior change.</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmed/24547922">http://www.ncbi.nlm.nih.gov/pubmed/24547922</a></p> <p><i>Preventing adolescent substance abuse through drug education.</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmed/6419117">http://www.ncbi.nlm.nih.gov/pubmed/6419117</a></p> <p><i>Psychosocial approaches to substance abuse prevention: theoretical foundations and empirical findings.</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmed/2661151">http://www.ncbi.nlm.nih.gov/pubmed/2661151</a></p> <p><i>The role of mass media in preventing adolescent substance abuse.</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmed/6419119">http://www.ncbi.nlm.nih.gov/pubmed/6419119</a></p> <p><i>SBIRT for adolescent drug and alcohol use: current status and future directions.</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmed/23352110">http://www.ncbi.nlm.nih.gov/pubmed/23352110</a></p> <p><i>Screening instruments for substance use and brief interventions targeting adolescents in primary care: a literature review.</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmed/23454877">http://www.ncbi.nlm.nih.gov/pubmed/23454877</a></p> <p><i>Strengthening the role of two key institutions in the prevention of adolescent substance abuse.</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmed/11755797">http://www.ncbi.nlm.nih.gov/pubmed/11755797</a></p> <p><i>Substance dependency treatment for adolescents: practice and research.</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmed/11138716">http://www.ncbi.nlm.nih.gov/pubmed/11138716</a></p> <p><i>Systematic review of interventions focusing on Indigenous adolescent mental health and substance use.</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmed/26425865">http://www.ncbi.nlm.nih.gov/pubmed/26425865</a></p> <p><i>A systematic review of the effectiveness of brief interventions with substance using adolescents by type of drug.</i>  <a href="http://www.ncbi.nlm.nih.gov/pubmed/15385228">http://www.ncbi.nlm.nih.gov/pubmed/15385228</a></p>
<p>ECRI institute  <a href="https://www.ecri.org/Pages/default.aspx">https://www.ecri.org/Pages/default.aspx</a></p>	<p>None identified.</p>

Substance Use Disorders in Adolescents	Search for Duplication: June 7, 2016
Secondary Sources checked on an as needed basis	
BlueCross BlueShield Foundation Massachusetts <a href="http://bluecrossfoundation.org/">http://bluecrossfoundation.org/</a>	None identified.
Campbell Collaboration <a href="http://www.campbellcollaboration.org/">http://www.campbellcollaboration.org/</a>	None identified.
CMS Policies <a href="https://www.cms.gov/">https://www.cms.gov/</a>	None identified.
Hayes, inc. <a href="http://www.hayesinc.com/hayes/">http://www.hayesinc.com/hayes/</a>	None identified.
IOM (Institute of Medicine) <a href="http://iom.nationalacademies.org/">http://iom.nationalacademies.org/</a>	None identified.
McMaster Health System Evidence <a href="https://www.healthsystemsevidence.org/">https://www.healthsystemsevidence.org/</a>	None identified.
Robert Wood Johnson <a href="http://www.rwjf.org/">http://www.rwjf.org/</a>	None identified.
Systematic Reviews (Journal) : protocols and reviews <a href="http://systematicreviewsjournal.biomedcentral.com/">http://systematicreviewsjournal.biomedcentral.com/</a>	None identified.
UBC Centre for Health Services and Policy Research <a href="http://chspr.ubc.ca/">http://chspr.ubc.ca/</a>	None identified.
WHO Health Evidence Network <a href="http://www.euro.who.int/en/data-and-evidence/evidence-informed-policy-making/health-evidence-network-hen">http://www.euro.who.int/en/data-and-evidence/evidence-informed-policy-making/health-evidence-network-hen</a>	None identified.
National Heart, Lung, and Blood Institute <a href="http://www.nhlbi.nih.gov/">http://www.nhlbi.nih.gov/</a>	None identified.
National Cancer Institute <a href="http://www.cancer.gov/">http://www.cancer.gov/</a>	None identified.
CINAHL (EBSCO)	None identified.
PsycINFO (Ovid)	None identified.

## Sources searched for updated duplication search, January 2018

### Substance Use Disorders in Adolescents Source

#### Search for Duplication: January 29, 2018

AHRQ: Evidence reports and technology assessments, USPSTF recommendations

Cochrane Systematic Reviews and Protocols

<http://www.cochranelibrary.com/>

PubMed Health

<http://www.ncbi.nlm.nih.gov/pubmedhealth/>

PROSPERO Database (international prospective register of systematic reviews and protocols) <http://www.crd.york.ac.uk/prospero/>

CADTH (Canadian Agency for Drugs and Technologies in Health)

<https://www.cadth.ca/>

DoPHER (Database of promoting health effectiveness reviews)

<http://eppi.ioe.ac.uk/webdatabases4/Intro.aspx?ID=9>

Campbell Collaboration

<http://www.campbellcollaboration.org/>

Systematic Reviews (Journal) : protocols and reviews

<http://systematicreviewsjournal.biomedcentral.com/>



## Appendix C. Search Strategy & Results (Feasibility)

Topic: Substance Use Disorders in Children and Adolescents

Date: June 9, 2016

Database Searched: PubMed

Concept	Search String
Substance Use Disorder Treatment	(((((treatment[Title] OR intervention[Title] OR therapy[Title] OR recovery[Title])) AND (dependence[Title] OR addiction[Title] OR habituation[Title] OR withdrawal[Title])) AND (substance[Title] OR drug[Title] OR drugs[Title] OR alcohol[Title] OR amphetamine[Title] OR cocaine[Title] OR inhalant[Title] OR marijuana[Title] OR opioid[Title] OR heroin[Title] OR morphine[Title]))) OR "Substance-Related Disorders/therapy"[Mesh])
Not Editorials, etc.	(((((("Letter"[Publication Type]) OR "News"[Publication Type]) OR "Patient Education Handout"[Publication Type]) OR "Comment"[Publication Type]) OR "Editorial"[Publication Type]) OR "Newspaper Article"[Publication Type])
Limit to Children, last 5 years, Human, English	Filters activated: published in the last 5 years, Humans, English, Child: birth-18 years.
<b>N=2514</b>	
Systematic Review <b>N=166</b>	PubMed subsection "Systematic [sb]"
Randomized Controlled Trials <b>N=1095</b>	Cochrane Sensitive Search Strategy for RCT's "(((((((groups[tiab]) OR (trial[tiab]) OR (randomly[tiab]) OR (drug therapy[sh]) OR (placebo[tiab]) OR (randomized[tiab]) OR (controlled clinical trial[pt]) OR (randomized controlled trial[pt])"
Other <b>N=1253</b>	

### ClinicalTrials.gov

96 studies found for: Substance-Related Disorders | Child | received on or after 06/01/2011

[https://clinicaltrials.gov/ct2/results?term=&recr=&rslt=&type=&cond=Substance-Related+Disorders&intr=&titles=&outc=&spons=&lead=&id=&state1=&cntry1=&state2=&cntry2=&state3=&cntry3=&locn=&gndr=&age=0&rcv\\_s=06%2F01%2F2011&rcv\\_e=&lup\\_s=&lup\\_e=](https://clinicaltrials.gov/ct2/results?term=&recr=&rslt=&type=&cond=Substance-Related+Disorders&intr=&titles=&outc=&spons=&lead=&id=&state1=&cntry1=&state2=&cntry2=&state3=&cntry3=&locn=&gndr=&age=0&rcv_s=06%2F01%2F2011&rcv_e=&lup_s=&lup_e=)

## Appendix D. Additional Systematic Reviews identified in January 2018 search

### KQ 1: Completed systematic reviews

- Filges T, Knudsen ASD, Svendsen MM, Kowalski K, Benjaminsen L, Jørgensen AMK. Cognitive-Behavioural Therapies for Young People in Outpatient Treatment for Non-Opioid Drug Use: A Systematic Review. *Campbell Systematic Reviews* 2015:3. 10.4073/csr.2015.3
- Filges T, Andersen D, Jørgensen, AMK. Functional Family Therapy (FFT) for Young People in Treatment for Non-opioid Drug Use: A Systematic Review. *Campbell Systematic Reviews* 2015:14 DOI: 10.4073/csr.2015.14
- Filges T, Rasmussen P, Andersen, D. Multidimensional Family Therapy (MDFT) for Young People in Treatment for Non-opioid Drug Abuse: A Systematic Review. *Campbell Systematic Reviews* 2015:8 10.4073/csr.2015.8
- Smedslund G, Wollcheid S, Fang L, Nilsen W, Steiro A, Larun L. Effects of early, computerized brief interventions on risky alcohol use and risky cannabis use among young people. *Campbell Systematic Reviews* 2017:6 DOI: 10.4073/csr.2017.6
- European Monitoring Centre for Drugs and Drug Addiction (2014), *Multidimensional family therapy for adolescent drug users: a systematic review*, EMCDDA Papers, Publications Office of the European Union, Luxembourg.
- Hohmann L, Bradt J, Stegemann T, Koelsch S (2017) Effects of music therapy and music-based interventions in the treatment of substance use disorders: A systematic review. *PLoS ONE* 12(11): e0187363. <https://doi.org/10.1371/journal.pone.0187363>
- Lindstrøm M, Saidj M, Kowalski K, Filges T, Rasmussen PS, Jørgensen A-MK. Brief Strategic Family Therapy (BSFT) for Young People in Treatment for Non-Opioid Drug Use: A Systematic Review. *Campbell Systematic Reviews* 2013:07 10.4073/csr.2013.07
- Lindstrøm M, Saidj M, Kowalski K, Filges T, Rasmussen P. S., Jørgensen A.K. Family Behavior Therapy (FBT) for young people in treatment for non-opioid drug use. *Campbell Systematic Reviews* 2015:9 10.4073/csr.2011.09
- Li, L., Zhu, S., Tse, N., Tse, S., and Wong, P. (2016) Effectiveness of motivational interviewing to reduce illicit drug use in adolescents: a systematic review and meta-analysis. *Addiction*, 111: 795–805. doi: 10.1111/add.13285.
- Tanner-Smith EE, Lipsey MW. Brief Alcohol Interventions for Adolescents and Young Adults: A Systematic Review and Meta-analysis. *J Subst Abuse Treat.* 2015 April ; 51: 1–18. doi:10.1016/j.jsat.2014.09.001.

### KQ 1: In-process systematic reviews

- *Final Research Plan: Drug Use in Adolescents and Adults, Including Pregnant Women: Screening.* U.S. Preventive Services Task Force. October 2016. <https://www.uspreventiveservicestaskforce.org/Page/Document/final-research-plan/drug-use-in-adolescents-and-adults-including-pregnant-women-screening>
- *Final Research Plan: Unhealthy Alcohol Use in Adolescents and Adults, Including Pregnant Women: Screening and Behavioral Counseling Interventions.* U.S. Preventive Services Task Force. August 2017. <https://www.uspreventiveservicestaskforce.org/Page/Document/final-research-plan/unhealthy-alcohol-use-in-adolescents-and-adults-including-pregnant-women-screening-and-behavioral-counseling-interventions>
- Halladay J, Petker T, Fein A, Munn C, MacKillop J. Brief interventions for cannabis use in emerging adults. PROSPERO 2018 CRD42018085412 Available from: [http://www.crd.york.ac.uk/PROSPERO/display\\_record.php?ID=CRD42018085412](http://www.crd.york.ac.uk/PROSPERO/display_record.php?ID=CRD42018085412)

KQ 2, Completed Systematic Review:

- Steinka-Fry, Katarzyna T. et al. Culturally sensitive substance use treatment for racial/ethnic minority youth: A meta-analytic review. *Journal of Substance Abuse Treatment* , Volume 75 , 22 - 37