

Rapid Synthesis

Examining the Impacts of Educational Interventions for Families Affected by Opioid Use

31 October 2018



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EVIDENCE >> INSIGHT >> ACTION

Rapid Synthesis:
Examining the Impacts of Educational Interventions for Families Affected by Opioid Use
10-day response

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McMaster Health Forum

The McMaster Health Forum's goal is to generate action on the pressing health-system issues of our time, based on the best available research evidence and systematically elicited citizen values and stakeholder insights. We aim to strengthen health systems – locally, nationally, and internationally – and get the right programs, services and drugs to the people who need them.

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Timeline

Rapid syntheses can be requested in a three-, 10-, 30-, 60- or 90-business-day timeframe. This synthesis was prepared over a 10-business-day timeframe. An overview of what can be provided and what cannot be provided in each of the different timelines is provided on McMaster Health Forum's Rapid Response program webpage (www.mcmasterforum.org/find-evidence/rapid-response).

Funding

The rapid-response program through which this synthesis was prepared is funded by Health Nexus. The McMaster Health Forum receives both financial and in-kind support from McMaster University. The views expressed in the rapid synthesis are the views of the authors and should not be taken to represent the views of Health Nexus or McMaster University.

Conflict of interest

The authors declare that they have no professional or commercial interests relevant to the rapid synthesis. The funder played no role in the identification, selection, assessment, synthesis or presentation of the research evidence profiled in the rapid synthesis.

Merit review

The rapid synthesis was reviewed by a small number of policymakers, stakeholders and researchers in order to ensure its scientific rigour and system relevance.

Acknowledgments

The authors wish to thank Chloe Gao for assistance with generating AMSTAR ratings. We are especially grateful to Karen Milligan and an anonymous reviewer for their insightful comments and suggestions.

Citation

Sharma K, Belesiotis P, Mattison CA, Wilson MG. Rapid synthesis: Examining the impacts of educational interventions for families affected by opioid use. Hamilton, Canada: McMaster Health Forum, 31 October 2018.

Product registration numbers

ISSN 2292-7999 (online)

KEY MESSAGES

Questions

- What harm reduction-based educational interventions have been found to be effective for improving maternal, neonatal and parenting outcomes in families affected by opioid addiction?
- What components of harm reduction-based educational interventions for families affected by opioid addiction are needed to ensure impact?

Why the issue is important

- Opioid addiction has emerged as a pressing public-health issue in recent years, with more than 8,000 opioid-related deaths recorded in Canada between January 2016 and March 2018.
- The national trends indicate that opioid-related deaths are increasing and are a serious concern for health and social systems in Canada.
- There are well-documented harms associated with maternal opioid use.
- Reducing harms associated with opioid addiction is an important component of addressing the epidemic, and educational interventions can complement other interventions to support families affected by opioid addiction, but there is no clear consensus on which programs and approaches are most effective.
- This rapid synthesis was requested to provide evidence to inform educational interventions for families affected by opioid addiction in areas such as improving maternal, neonatal and parenting outcomes.

What we found

- We found 18 relevant documents, including 14 systematic reviews and four primary studies that addressed the two questions.
- For the first question, the literature evaluated two harm reduction-based educational interventions (psycho-education and family harm-reduction education) and possible components of harm reduction-based educational interventions, with the most relevant components including behavioural therapy, counselling, family therapy, school-based interventions, multi-systemic therapy and motivational interviewing.
- Overall, the literature focused on interventions targeted at addressing drug use in general for both adolescents and adults, and there was limited evidence regarding interventions specifically targeted at addressing opioid addiction.
- For educational interventions:
 - psycho-education was found to be less effective than family-therapy interventions;
 - in an older low-quality review psycho-education, as well as other components of educational interventions (e.g., multi-systemic therapy and motivational interviewing) were found to be effective at reducing drug use among youth with conduct problems, but the evidence base for psycho-education was noted as being very limited;
 - combined substance-use treatment and parenting-skills programs are effective at reducing drug use and improving parenting skills;
 - a group-based psycho-educational program for patients with concurrent mental health challenges did not have an effect in a primary study on reducing heroin use (although it did have an effect for other drugs), and heroin users also had a lower retention rate in another primary study; and
 - an eight-session education intervention for spouses which was evaluated in Iran at a methadone maintenance clinic resulted in improved marital satisfaction when compared to a control group, but no effect on relapse rates was found for patients.
- In general, there was limited evidence regarding what impact harm reduction-based educational interventions had on neonatal outcomes and maternal outcomes beyond outcomes based on drug use.
- For the second question, the literature described how numerous factors have both enhanced and hindered the impact of harm reduction-based educational interventions for adolescent and adult patients.
- Mechanisms for enhancing the impact included a focus on improving relational aspects of care for patients as well as including complementary interventions, including various types of therapy, and factors identified as hindering the impact of interventions included situations where patients are forced into treatment and not given an active role to participate in the intervention.

QUESTIONS

Two questions are addressed in this rapid synthesis:

- 1) What harm reduction-based educational interventions have been found to be effective for improving maternal, neonatal and parenting outcomes in families affected by opioid addiction?
- 2) What components of harm reduction-based educational interventions for families affected by opioid addiction are needed to ensure impact?

WHY THE ISSUE IS IMPORTANT

Opioid addiction has emerged as a pressing public-health challenge in recent years. From January 2016 to March 2018 more than 8,000 opioid-related deaths were recorded.⁽¹⁾ In 2018, the number of apparent opioid-related deaths continues to rise, with more than 1,000 deaths in the first three months of the year.⁽¹⁾

Given the magnitude of the opioid crisis, programs that reduce the harms and risks associated with opioid use are needed. Reducing the harm associated with opioid addiction is an important component of addressing the epidemic, and educational interventions can complement other interventions to support families affected by opioid addiction, but there is no clear consensus on which programs and approaches are most effective. Numerous approaches currently exist to reduce the harms associated with opioid use, which can span from services that reduce harm when using drugs (e.g., providing access to sterile injecting equipment through needle exchange and supervised consumption sites) to broader structural interventions (e.g., housing that also provides support for people who use drugs).

Addressing opioid addiction in pregnancy is important given the potential harms for mother and fetus. Complications associated with maternal opioid use include preterm delivery, cardiac malformations, and impeded fetal growth.⁽²⁾ Furthermore, neonatal opioid withdrawal syndrome is a concern for infants exposed to opioids in utero, and the incidence of neonatal opioid withdrawal syndrome has increased in recent years, having doubled from 2009 to 2012 (and the incidence has likely increased even more since 2012 given the extent of the severity of the opioid epidemic).⁽³⁾ Mothers and their children are also put at risk by maternal opioid addiction due to the potentially dangerous behaviours associated with drug use, such as needle sharing.⁽²⁾

Harm reduction-based educational interventions can complement and/or be incorporated into this wide array of interventions, and can include skill-building, provision of information, and approaches to minimize harmful behaviours. Harm reduction-based educational interventions typically focus on factors that are under the control of patients. However, an understanding of how families are constituted and the ways in which addiction has an impact on various elements of family behaviour are often missing from existing interventions and evaluations of

Box 1: Background to the rapid synthesis

This rapid synthesis mobilizes both global and local research evidence about a question submitted to the McMaster Health Forum's Rapid Response program. Whenever possible, the rapid synthesis summarizes research evidence drawn from systematic reviews of the research literature and occasionally from single research studies. A systematic review is a summary of studies addressing a clearly formulated question that uses systematic and explicit methods to identify, select and appraise research studies, and to synthesize data from the included studies. The rapid synthesis does not contain recommendations, which would have required the authors to make judgments based on their personal values and preferences.

Rapid syntheses can be requested in a three-, 10-, 30-, 60- or 90-business-day timeframe. An overview of what can be provided and what cannot be provided in each of these timelines is provided on the McMaster Health Forum's Rapid Response program webpage (www.mcmasterforum.org/find-evidence/rapid-response).

This rapid synthesis was prepared over a 10-business-day timeframe and involved four steps:

- 1) submission of a question from a policymaker or stakeholder (in this case, Health Nexus);
- 2) identifying, selecting, appraising and synthesizing relevant research evidence about the question;
- 3) drafting the rapid synthesis in such a way as to present concisely and in accessible language the research evidence; and
- 4) finalizing the rapid synthesis based on the input of at least two merit reviewers.

interventions. These considerations are important for any harm reduction-based educational intervention because the behaviours of individual family members can often not be separated from the broader family system.(4)

The interventions outlined in this synthesis are based on harm-reduction principles, which have influenced many modern substance use policies and programs.(5) Harm-reduction principles stipulate that actions and interventions which can reduce the overall harm that substance use causes for individuals and society should be favoured, which contrasts with moralistic or disease-based views of addiction which usually focus on outcomes such as abstinence.(5)

Several systematic reviews and primary studies have shown that harm-reduction education and family-based interventions can reduce drug use and lead to more favourable health outcomes.(6-11) Given this potential, this rapid synthesis was requested to provide evidence to inform whether and how educational interventions can be used for families affected by opioid addiction in areas such as improving maternal, neonatal and parenting outcomes.

WHAT WE FOUND

We found 18 relevant documents, including 14 systematic reviews and four primary studies that addressed the two questions. We review our findings from these documents for each of the questions below.

Additional details for each of the systematic reviews and primary studies are provided in Appendix 1 and 2, respectively.

Therapeutic community and cognitive-behavioural therapy interventions were also identified.(7; 12) However, given that these interventions focus on abstinence rather than a harm-reduction framework, they were not included in the synthesis.

Question 1: What harm reduction-based educational interventions have been found to be effective for improving maternal, neonatal and parenting outcomes in families affected by opioid addiction?

We found 13 systematic reviews and three primary studies addressing this question.(6; 7; 9-16; 18-23) This literature described and evaluated two harm reduction-based educational interventions (psycho-educational interventions and family harm-reduction education) and several possible components of harm reduction-based educational interventions, with the most relevant components including behavioural therapy, counselling, family therapy, school-based interventions, multi-systemic therapy and motivational interviewing. We summarize the key findings about the educational interventions we identified and the possible components of such interventions in relation to three outcomes of interest for this review in Table 1.

Box 2: Identification, selection and synthesis of research evidence

We identified research evidence (systematic reviews and primary studies) by searching (in October 2018) Health Systems Evidence (www.healthsystemsevidence.org) and PubMed. In Health Systems Evidence we applied the following filters: delivery arrangements (how care is designed to meet consumers' needs); consumer-targeted implementation strategies; diseases (mental health and addictions); and document type (overviews of systematic reviews, systematic reviews of effects and systematic reviews addressing other questions). The PubMed search strategy used the following keywords: harm reduction AND education* AND (opioid OR methadone) (limited to the last 10 years).

The results from the searches were assessed by one reviewer for inclusion. A document was included if it fit within the scope of the questions posed for the rapid synthesis.

For each systematic review we included in the synthesis, we documented the focus of the review, key findings, last year the literature was searched (as an indicator of how recently it was conducted), methodological quality using the AMSTAR quality appraisal tool (see the Appendix for more detail), and the proportion of the included studies that were conducted in Canada. For primary research (if included), we documented the focus of the study, methods used, a description of the sample, the jurisdiction(s) studied, key features of the intervention, and key findings. We then used this extracted information to develop a synthesis of the key findings from the included reviews and primary studies.

Most of the evidence we found related to parental/family outcomes – particularly with respect to adolescent drug-use outcomes. There was a paucity of evidence regarding neonatal outcomes, with only one recent and one older, high-quality systematic review addressing neonatal outcomes. We found some evidence in two systematic reviews and two primary studies relating to maternal outcomes, but it is worth noting that most of the evidence we found regarding interventions was not specific to pregnant mothers, nor was it specific to opioid use. Therefore, caution should be taken when extrapolating results from general substance-use and general population interventions. Finally, given the relatively small evidence base addressing parenting, maternal, and neonatal outcomes, we adopted a wider view of these outcome categories and chose to include outcomes such as adolescent drug use and family outcomes.

Three systematic reviews (two medium and one low quality) and two primary studies evaluated harm reduction-based educational interventions. A medium-quality review found that psycho-education was not as effective as family-therapy interventions at reducing drug use.(18) A low-quality review found that psycho-education, as well as other components of educational interventions (e.g., multi-systemic therapy and motivational interviewing) are effective at reducing drug use among youth with conduct problems, but the review noted that the evidence base for psycho-education is very limited.(10) A recent, medium-quality review found that combined substance-use treatment and parenting-skills interventions are effective at reducing substance use and improving parents' confidence and competency.(21) The first primary study found that a group-based psycho-educational program for patients with concurrent mental health challenges did not have an effect on reducing heroin use (although it did have an effect for other drugs), and heroin users also had a lower retention rate in this study.(6) The second primary study evaluated maternal and family outcomes for a stand-alone harm reduction-based educational intervention for families.(16) This study, which was conducted in Iran, had a group of wives of patients enrolled at methadone maintenance clinics take part in an eight-session educational program designed to teach spouses about harm-reduction principles in the context of their partners' drug treatment.(16) The spouses who took part in the educational program reported improved marital satisfaction when compared to a control group, but the patients enrolled in methadone maintenance were not surveyed regarding marital satisfaction.(16) The intervention was not found to have an impact on relapse rates for patients.(16)

One systematic review addressed what impact various components of harm reduction-based educational interventions had on maternal outcomes.(12; 19) A recent, high-quality review found that motivational interviewing for pregnant women did not have an impact on maternal urine toxicology results nor their retention in drug treatment.(19)

One recent, high-quality systematic review addressed what impact various components of harm reduction-based educational interventions had on neonatal outcomes.(19) This review found that motivational interviewing for pregnant women enrolled in drug treatment did not have an impact on low birth weights.(19) An older, high-quality review found that in combination with a prenatal care and therapeutic childcare program, maternal group counselling led to improved neonatal outcomes, most significantly higher birth weights and longer length of gestation.(20)

Eight systematic reviews addressed what impact various components of harm reduction-based educational interventions had on family/parenting outcomes (specifically adolescent drug use).(7; 10; 11; 13-15; 22; 23) One older medium-quality review found evidence that behavioural therapy and family therapy are effective at reducing adolescent substance use.(7) This review also found limited evidence to suggest that counselling and school-based interventions can reduce adolescent substance use.(7) Two older high-quality reviews, one older medium-quality review and one older low-quality review also found that family therapy was effective at reducing adolescent substance use.(11; 13-15) As noted earlier with respect to the effects of psycho-education, one older low-quality review found that in addition to psycho-education (for which the review noted very limited evidence being available), multi-systemic therapy and motivational interviewing are effective at reducing drug use among youth with conduct problems.(10) One older low-quality review found some evidence that multi-systemic therapy has a short-term impact on reducing adolescent cannabis use.(13) An older high-quality review found limited evidence that motivational interviewing can help reduce adolescent drug use.(14) One older, high-quality

review determined that maternal group counselling led to improved maternal mental health.(23) Finally, an older, high-quality review found evidence that maternal relational psychotherapy was associated with improvements in affective interaction scores and parenting satisfaction, and concurrent decreases in maltreatment risk scores.(22)

Three systematic reviews addressed what impact various components of harm reduction-based educational interventions had on other family/parenting outcomes.(7; 10; 13) Two older reviews (one medium and one low quality) focused on treating adolescent substance use and found that behavioural therapy and family therapy are effective at improving general family relations/functioning as well as school attendance for children.(7; 13) In addition, one older low-quality review found that family therapy was effective at improving parent satisfaction with their child's behaviour.(13) The review also found that family therapy did not reduce legal contact and institutional placement, while multi-systemic therapy (targeted at adolescent substance users) reduced institutional placements, but did not have an effect on criminal activity.(13) One older low-quality review found that multi-systemic therapy (targeted at adolescents with concurrent conduct problems) is effective at improving general family functioning and reducing drug use among siblings.(10) Lastly, there was a noted need for more evidence regarding family harm-reduction education programs and implementation.(9)

Question 2: What components of harm reduction-based educational interventions for families affected by opioid addiction are needed to ensure impact?

Three systematic reviews (two medium and one low quality) and one primary study addressed features that help ensure the impact of harm reduction-based educational interventions in adult populations.(8; 17; 18; 21) A medium-quality review found that family therapy is useful as an adjunct intervention alongside individual therapy.(18) Moreover, the review also indicated that family therapy with immediate family members was more impactful than family therapy with distant relatives.(18) In addition, a low-quality review examined care-delivery models for perinatal substance use.(8) Positive effects were found for integrated multidisciplinary services aimed at harm reduction for women with perinatal substance-use disorder.(8) Many of the studies included in the review focused on models of care targeted at opioid use in pregnancy and found that models that involve multidisciplinary teams helped to build trust and reduced barriers to accessing care and needed supports.(8) The same review emphasized the importance of building relationships that do not stigmatize or shame women experiencing perinatal substance-use issues.(8) The last systematic review (recent and medium quality) found that the concurrent provision of substance-use treatment and a parenting intervention is most effective when issues of emotional regulation and psychological well-being are addressed prior to teaching parenting skills.(21) This review also found that home-based intervention have the highest retention, and inpatient interventions have the lowest retention.(21) Finally, the primary study found that methadone administration supplemented with optional group or individual counselling sessions improved attendance.(17)

Four systematic reviews addressed features that help ensure impact of harm reduction-based educational interventions specifically in youth or adolescent populations.(7; 10; 11; 15) An older medium-quality review determined that multidimensional family therapy was more effective for adolescents than most other types of family therapy, and was comparable in impact to functional family therapy.(11) One older medium-quality review concluded that behavioural therapy is particularly effective in treating substance use in youth.(7) The same review also found that family therapy may be more effective if delivered in conjunction with school-based interventions, which are more effective if they are interactive rather than didactic.(7) Finally, one older medium-quality review found that parental involvement in adolescent motivational interviewing improves the intervention's effectiveness.(15)

Table 1: Summary of findings from systematic reviews and primary studies on harm reduction-based educational interventions

Intervention	Maternal outcomes	Neonatal outcomes	Parenting/family outcomes	Features that help ensure impact
<i>Educational interventions</i>				
Psycho-education	<ul style="list-style-type: none"> • Heroin users had the highest attrition rate and did not reduce drug use in one study of a psycho-education program for patients with concurrent mental health diagnoses (6) • Worse drug-reduction outcomes than family therapy (18) • Combined substance-use treatment and parenting-skills training helps reduce substance use more than substance-use treatment alone (21) 	<ul style="list-style-type: none"> • No neonatal outcomes identified 	<ul style="list-style-type: none"> • Some evidence suggesting psycho-education may improve engagement with drug treatment and reduce substance use for adolescents with conduct problems (10) • Combined substance-use treatment and parenting-skills training is effective at improving parenting skills and reducing parental stress (21) <ul style="list-style-type: none"> ○ Combined treatment improved treatment retention (21) 	<ul style="list-style-type: none"> • Concurrent substance-use treatment and parenting interventions are most effective when issues with emotional regulation and psychological well-being are addressed prior to teaching parenting skills (21) • Given that parenting practices are culturally constituted, culturally aware treatment is important (21) • Interventions that reduce structural barriers to participation (transportation, child care, etc.) have higher retention rates (21)
Family harm-reduction education	<ul style="list-style-type: none"> • One study found no impact on relapse rates for patients (16) 	<ul style="list-style-type: none"> • No neonatal outcomes identified 	<ul style="list-style-type: none"> • One study found that spouses reported improvements in marital satisfaction (16) 	<ul style="list-style-type: none"> • Physicians desire more research evidence and institutional support for implementation, particularly in emergency-department settings (9)
<i>Components of educational interventions</i>				
Behavioural therapy	<ul style="list-style-type: none"> • No maternal outcomes identified 	<ul style="list-style-type: none"> • No neonatal outcomes identified 	<ul style="list-style-type: none"> • Improved family relations and school attendance (7) • Decreased adolescent drug use (7) • Maternal relational psychotherapy led to decreased maltreatment risk scores and improvements in affective interaction scores and parenting satisfaction (22) 	<ul style="list-style-type: none"> • Found to be more impactful for youth than adults who use drugs(7)
Family therapy	<ul style="list-style-type: none"> • Better drug-reduction outcomes than family psycho-education (18) 	<ul style="list-style-type: none"> • No neonatal outcomes identified 	<ul style="list-style-type: none"> • Improved family functioning (7; 15) 	<ul style="list-style-type: none"> • May be more impactful if delivered in conjunction with school interventions (7)

Intervention	Maternal outcomes	Neonatal outcomes	Parenting/family outcomes	Features that help ensure impact
			<ul style="list-style-type: none"> Family therapy had lower attrition than individual therapy and peer-group therapy (18) For adolescents, family behavioural therapy: <ul style="list-style-type: none"> improved school attendance and parental satisfaction with child behaviour;(13) decreased drug use;(7) resulted in no reduction in legal contacts or placement in an institution;(5) decreased behavioural issues and improved family functioning;(13) reduced drug use immediately post-treatment with a strong effect size, but there was a low effect size after three-month follow-up;(13) and may have succeeded in preventing/reducing drug use (14) For adolescents, multidimensional family therapy had a strong effect size on drug use both immediately after therapy and upon six- and 12-month follow up (13) Functional family therapy reduced drug consumption in adolescents (11) Ecological family-based treatments effectively reduced drug consumption in adolescents (15) 	<ul style="list-style-type: none"> Useful as an adjunct therapy in addition to individual treatment (18) Family therapy that focuses on immediate family members had better drug-reduction outcomes than family therapy with distant relatives (18) Multidimensional family therapy was more effective at reducing drug use in adolescents than other types of family therapy (except for functional family therapy, with which it was comparable) (11)
Multi-systemic therapy	<ul style="list-style-type: none"> No maternal outcomes identified 	<ul style="list-style-type: none"> No neonatal outcomes identified 	<ul style="list-style-type: none"> Associated with improved family outcomes, including decreased sibling drug use (10) Effective at reducing drug use in adolescents with conduct problems (10) For adolescents, there was a small decrease in cannabis use immediately 	<ul style="list-style-type: none"> More effective when combined with drug courts, rather than family or criminal courts (10)

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Intervention	Maternal outcomes	Neonatal outcomes	Parenting/family outcomes	Features that help ensure impact
			<p>after treatment, but not upon six-month follow-up (13)</p> <ul style="list-style-type: none"> For adolescents, there was a decreased number of days in out-of-home placements but no effect on decreasing criminal activity (13) 	
Counselling	<ul style="list-style-type: none"> No maternal outcomes identified 	<ul style="list-style-type: none"> In combination with prenatal care and therapeutic childcare, led to increased birth weight and longer mean length of gestation (20) 	<ul style="list-style-type: none"> Some evidence of decreased adolescent drug use (7) Effective at improving maternal mental health (23) 	<ul style="list-style-type: none"> Methadone administration following optional group or individual counselling sessions improves attendance (17)
Motivational interviewing	<ul style="list-style-type: none"> No impact on maternal toxicology screenings (19) No impact on maternal drug treatment retention (19) 	<ul style="list-style-type: none"> No difference in low birth weight births, when compared to control (19) 	<ul style="list-style-type: none"> Effective at reducing adolescent drug use (10) For adolescents, possibly beneficial for preventing/reducing drug use (14) 	<ul style="list-style-type: none"> Particularly effective when delivered prior to another form of drug treatment (10) Less effective when patients are forced into treatment (19) Frequent, “low-pressure” engagement led to increased participation by ambivalent patients (17) Adding parents to adolescent motivational interviewing improves effectiveness (15)
School-based interventions	<ul style="list-style-type: none"> No maternal outcomes identified 	<ul style="list-style-type: none"> No neonatal outcomes identified 	<ul style="list-style-type: none"> Mixed evidence regarding impact on adolescent drug use (7) 	<ul style="list-style-type: none"> Interactive interventions are more effective than non-interactive/didactic interventions (7)

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APPENDICES

The following tables provide detailed information about the systematic reviews and primary studies identified in the rapid synthesis. The ensuing information was extracted from the following sources:

- systematic reviews - the focus of the review, key findings, last year the literature was searched, and the proportion of studies conducted in Canada; and
- primary studies - the focus of the study, methods used, study sample, jurisdiction studied, key features of the intervention and the study findings (based on the outcomes reported in the study).

For the appendix table providing details about the systematic reviews, the fourth column presents a rating of the overall quality of each review. The quality of each review has been assessed using AMSTAR (A MeaSurement Tool to Assess Reviews), which rates overall quality on a scale of 0 to 11, where 11/11 represents a review of the highest quality. It is important to note that the AMSTAR tool was developed to assess reviews focused on clinical interventions, so not all criteria apply to systematic reviews pertaining to delivery, financial or governance arrangements within health systems. Where the denominator is not 11, an aspect of the tool was considered not relevant by the raters. In comparing ratings, it is therefore important to keep both parts of the score (i.e., the numerator and denominator) in mind. For example, a review that scores 8/8 is generally of comparable quality to a review scoring 11/11; both ratings are considered “high scores.” A high score signals that readers of the review can have a high level of confidence in its findings. A low score, on the other hand, does not mean that the review should be discarded, merely that less confidence can be placed in its findings and that the review needs to be examined closely to identify its limitations. (Lewin S, Oxman AD, Lavis JN, Fretheim A. SUPPORT Tools for evidence-informed health Policymaking (STP): 8. Deciding how much confidence to place in a systematic review. *Health Research Policy and Systems* 2009; 7 (Suppl1):S8).

All of the information provided in the appendix tables was taken into account by the authors in describing the findings in the rapid synthesis.

Appendix 1: Summary of findings from systematic reviews about harm reduction-based educational interventions for families affected by opioid addiction

Focus of systematic review	Key findings	Year of last search/ publication date	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada
Psychosocial interventions for substance-use disorder (12)	<p>The review included 34 studies with 2,340 participants. The studied interventions included contingency management, cognitive-behaviour therapy, cognitive-behaviour therapy plus contingency management, and relapse prevention. The substance-use disorders that were being treated included cocaine use, opiate use, cannabis use, and polysubstance use. The average age of participants was 34.9 and 67.7% were single or unmarried. Medication maintenance was also used in 43.6% of the included studies.</p> <p>Roughly a third of participants in the treatment groups dropped out prior to treatment completion, with opiate-using participants having a slightly higher dropout rate. Dropout rates for contingency management were lowest, followed by cognitive-behaviour therapy, then cognitive-behaviour therapy plus contingency management.</p> <p>The aggregate effect size for all substances and conditions was moderate. However, different outcomes demonstrated varying effect sizes; self-report had a high-moderate effect size while toxicology screens had a low-moderate effect size. The effect size for all psychosocial treatments targeting opiate use was small-to-medium, and the effect size for polysubstance use was even smaller.</p> <p>Only two studies looked at cognitive-behaviour therapy used in conjunction with contingency management, but this group of interventions demonstrated the greatest effect size. Fourteen studies of contingency management demonstrated a high-moderate effect size. Thirteen studies of cognitive-behaviour therapy and five studies of relapse prevention showed these interventions to have a low-moderate effect size.</p> <p>On aggregate, treatment did have a positive impact on abstinence with nearly a third of those in interventions achieving abstinence, and only 13% of those in control groups achieving abstinence. For opiate users, 36.2% achieved abstinence during the study period. The intervention with the greatest proportion of participants achieving abstinence was relapse prevention (39.0%). The other interventions had similar abstinence rates in the 26.5% to 31.0% range.</p> <p>Age and length of substance use were found to be significant moderators. Younger participants were more likely to have a larger effect size. Furthermore, a longer history of substance use was associated with a decreased likelihood of dropping out of treatment. Finally, a significant negative correlation was found between number of weeks of treatment and effect size.</p>	2005	4/11	Not reported
To review recent advances in behavioural treatments for adolescent substance use (15)	<p>Rates of adolescent substance use remain high, underscoring the need for evidence regarding the effectiveness of treatments for adolescent populations.</p> <p>The review sought to provide an update of a 2008 review on outpatient behavioural treatments for substance use in adolescents. The updated review included 19 studies. Eleven of these studies were efficacy studies, while eight were effectiveness studies. The authors used the findings from this review (and previously conducted reviews) to classify the studied interventions into varying degrees of empirical support: well established, probably efficacious, possibly efficacious, experimental, and treatments of questionable efficacy.</p>	2013	4/11	Not reported

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	<p>The three stand-alone interventions with the greatest level of support (well established) are ecological family-based treatment, group cognitive-behavioural therapy, and individual cognitive-behavioural therapy. Two interventions were classified as probably efficacious: behavioural family-based treatment and motivational interviewing. Drug counselling grounded in the 12-step approach was deemed to be possibly efficacious.</p> <p>Two integrated models were deemed well established: motivational enhancement therapy/cognitive-behavioural therapy and motivational enhancement therapy/cognitive-behavioural therapy plus behavioural family-based treatment. Two integrated models were found to be probably efficacious: ecological family-based treatment plus contingency management, and motivational enhancement therapy/cognitive-behavioural therapy plus behavioural family-based treatment plus contingency management.</p> <p>Ecological family-based treatments were found to be effective at reducing adolescent substance use, and modest improvements in family functioning were shown. Home-based ecological family-based treatment had higher rates of participant retention than office-based functional family therapy. Studies also showed that community therapists can be trained to effectively deliver ecological family-based treatment, and that these models tend to be well received by families.</p> <p>Motivation-based approaches also showed promise, generally resulting in greater reductions in adolescent substance use than controls. One study found that adding parents/guardians to the process of motivational interviewing led to greater and more consistent reduction in substance use than motivational interviewing with adolescents alone.</p>			
To synthesize the evidence regarding secondary prevention interventions targeted at young drug users as well as the factors that enhance the effect of interventions (7)	<p>The review included seven reviews and nine primary studies that examined interventions targeted at youth (younger than 16) who use drugs. Outcomes of interest included drug use, psychological functioning, and social/family functioning.</p> <p>One review and one primary study reported on the effect of behaviour therapy, an intervention focused on rehearsing and reviewing behaviour conducted with a therapist. Both included papers on behaviour therapy found it to be effective at reducing drug use, with the primary study finding that youth tend to respond more positively to behaviour therapy than adults. Behaviour therapy was also found to improve family relations and school attendance.</p> <p>Counselling interventions involve discussions around emotions and challenges, and health education, and they can be delivered on an individual or group basis. This review included two primary studies reporting on counselling. One primary study found counselling in a residential setting to be effective at reducing alcohol and drug use. In the other primary study, HIV/AIDS health education and counselling did not reduce drug use.</p> <p>Family therapy is an intervention that involves all family members to address family structures, functions and disfunctions. Other studies of family interventions (besides family therapy) include family counselling, family drug education, and parenting groups. Three reviews and one primary study reported on family-based interventions. The evidence from these sources shows that family therapy is effective at reducing drug use and may be more</p>	2001	7/10	2/16

Focus of systematic review	Key findings	Year of last search/ publication date	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada
	<p>effective than adolescent group therapy. There is also evidence to suggest that family therapy delivered in conjunction with school interventions is effective at reducing drug use. Family therapy, on its own and linked to schools, was also found to be effective at improving family functioning. Family therapy was more effective than parenting groups at improving family functioning. One primary study found that family problem-solving sessions are not effective at improving family functioning for youth with severe depression and a history of self-harm.</p> <p>School-based interventions are diverse in nature and often involve drug education, social skills and activities, and parent/peer engagement. The review included four systematic reviews and three primary studies focused on school-based programs. These interventions demonstrated mixed effects on drug use. An important finding is that interactive interventions are more effective than non-interactive interactions. Life-skill interventions were generally found to have no effect on drug use, although some reports suggest that they may be associated with increased drug use among high-risk youth.</p> <p>Therapeutic communities have been found to be effective at reducing drug use, improving drug-refusal skills, and improving pro-social behaviours in the short run. One review noted that effective therapeutic communities offer skill-building programming.</p> <p>Thirteen of the included papers elaborated on the factors contributing to the success of interventions. One recurring theme of effective interventions is the involvement of multiple parties; parent and peer engagement, as well as multi-agency initiatives are conducive to success. Furthermore, interventions tailored to the risk level of youths and with clear audiences and objectives are more successful. Finally, interventions that are well-funded for the long-run and staffed with experienced and motivated staff are more successful.</p>			
To review the evidence regarding psychosocial interventions for adolescents with concurrent substance use and conduct problems (10)	<p>Conduct problems and substance use can feed into one another and many adolescents with conduct problems also suffer from substance use. Therefore, effective interventions tailored to this group are important to identify.</p> <p>The review included studies of cognitive-behavioural therapy, 12-step facilitation, multi-systemic therapy, psycho-education, and motivational interviewing.</p> <p>Cognitive-behavioural therapy interventions take into account environmental factors that have an impact on the learned behaviours associated with substance use. This type of intervention involves skill-building to identify and avoid risky situations, as well as coping strategies that facilitate abstinence. The authors found the evidence on cognitive-behavioural therapy to support its efficacy. There is also evidence suggesting that cognitive-behavioural therapy is more effective in older male adolescents, and overall it is similar in effectiveness to multidimensional family therapy. Finally, the existing evidence has not shown racial difference in treatment outcomes; however, the existing effectiveness research has mostly involved white adults.</p> <p>Multi-systemic therapy is a model that identifies and treats the determinants of antisocial behaviour while maintaining a socio-ecological, family-preservation model. Multi-systemic therapy interventions work with parents to identify their role in adolescent substance use and conduct disorder, and provide training and supports to parents. The authors found that the strong evidence base surrounding multi-systemic therapy shows it to be effective at reducing drug use among youth with conduct disorder. Furthermore, multi-systemic therapy is</p>	2012	2/10	Not reported

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	<p>associated with improved family outcomes, including less drug use among siblings. Finally, multi-systemic therapy is more effective when combined with drug courts, rather than family or criminal courts.</p> <p>Psycho-education is less rigidly defined than the other studied interventions. It is defined as an educational program that highlights the multidimensional problems associated with drug use. Psycho-education frequently involves knowledge acquisition in residential or correctional environments. The authors noted that the evidence base for psycho-education is less developed than for other interventions due to the lack of a clear theoretical framework. The available literature does suggest that psycho-education is associated with engagement with substance-use treatment and reduced drug use for adolescents with conduct problems.</p> <p>Motivational interviewing is a brief intervention, usually in a clinical setting, that is meant to reduce resistance and promote behaviour change. The evidence on motivational interviewing shows that it is effective at reducing drug use, especially when it precedes another form of treatment. The mechanisms of change talk and commitment allow for brief interactions with clinicians to produce significant results.</p>			
To highlight the evidence surrounding the impact relational aspects of care have on the outcomes and experience of pregnant women who use drugs (8)	<p>Given the challenges associated with perinatal substance use, and the barriers women with substance-use disorders face in accessing maternal and drug-treatment care, interest has grown in examining what impacts the relationships of care between mothers and service providers have on outcomes.</p> <p>The review included six studies that outline the impact the provision of services may have on outcomes for pregnant mothers and their children. Many of these studies focused on models of care targeted at opioid use in pregnancy. The authors found that models of care involving multidisciplinary teams that can build trust with mothers are showing positive results. Furthermore, multidisciplinary service offerings are important for reducing barriers in accessing care. Finally, the authors reaffirmed the importance of harm-reduction principles, understanding the complex set of factors associated with drug use, and the need to build relationships that do not stigmatize or shame women experiencing perinatal substance use.</p>	2014	3/10	2/6
To review the evidence on psychosocial drug-treatment interventions for pregnant women (19)	<p>Pregnant women who use drugs are an important target for drug-treatment programs because of the potential dangers that drug use poses for their own health, as well as the health of their child. Therefore, it is important to determine whether and which psychosocial interventions work in pregnant women.</p> <p>The review included 14 randomized controlled trials involving 1,298 participants. The average age of participants was 28.8 years, and the duration of interventions ranged from 14 days to 24 weeks. Almost all the included studies involved women using opioids. All but one trial took place in the U.S., with the remaining trial coming from Australia. The two interventions studied in this review were contingency management and motivational interviewing-based interventions.</p> <p>Five of the included studies, with 594 participants in total, looked at motivational interviewing-based interventions. One study found no difference in low birth weight between women who had taken part in motivational interviewing-based interventions and those in control groups. Two trials assessed maternal drug use by urine toxicology; those taking part in motivational interviewing-based interventions and those in control</p>	2015	9/11	0/14

Examining the Impacts of Educational Interventions for Families Affected by Opioid Use

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	<p>groups showed no significant differences in positive screenings. Motivational interviewing-based interventions did not improve treatment retention.</p> <p>The authors noted that women forced into drug treatment before being ready to engage are less likely to be receptive to motivational interviewing-based interventions. Overall, the authors reported the quality of the evidence to be low.</p>			
To review the evidence on empirically supported family-based interventions to treat adolescent substance-use problems, with a particular focus on interventions that reduce dropout and post-treatment relapse (13)	<p>Though treatment for adolescent substance-use problems has been found to be effective in reducing substance use, treatment is hindered by high rates of post-treatment relapse and treatment dropout. Studies have shown roughly half of all adolescents who engage in substance-use treatment (via family-based interventions or otherwise) never complete their treatment program. Among adolescents who do complete substance-use treatment, almost two-thirds will relapse to substance use within three to six months of treatment-program completion.</p> <p>The review included five studies that each covered one modality or type of family-based interventions for adolescents with substance-use issues. The interventions were brief strategic family therapy, family behaviour therapy, functional-family therapy, multidimensional-family therapy, and multi-systemic therapy (MST).</p> <p>Brief strategic family therapy is a time-limited (four to 20 sessions, once per week) approach that is based on the assumption that family and familial interactions serve as the foundation of child development, and thus play a significant causative role in the development of substance use. Typically, brief strategic family therapy is delivered to the whole family (conjoint family therapy), however when the patient's family is not available, can be delivered with the youth and one of his or her caregivers (one-person family therapy). Questions have been raised regarding the generalizability of brief strategic family therapy, given it was developed to treat Hispanic youth and families, and this is the primary population in which it has been examined. In a sample of 126 patients, it was found to have a small effect size on drug (cannabis) use post-treatment, as well as decreased behavioural issues and improved family functioning.</p> <p>Family-behaviour therapy is based upon the behavioural conceptualization of substance use and the development of substance-use problems. A treatment course of family-behaviour therapy will typically last six months and will begin with two sessions per week. then decrease to once per week when appropriate. Family-behaviour therapy was found to have a large effect size on drug (cannabis) use post-treatment measured in days used per month and months used, and was associated with improved school attendance and parent satisfaction, and decreased depression and behaviour problems. Family-behaviour therapy did not have an effect on reducing legal contacts or placements in an institution.</p> <p>Functional-family therapy is a short-term family intervention that is based on family-systems theory, which assumes problem behaviours (including substance use) occur in the context of, and serve a core function within, family relationships. Functional-family therapy relies heavily on cognitive-behavioural therapy, and takes a multi-systemic approach to intervention given its focus on the systems and domains the adolescent lives in. The examined course of functional-family therapy included 36 sessions, varying between once and twice per week.</p>	2004	4/10	Not reported

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	<p>Functional-family therapy had a large effect size on drug (cannabis) use post-treatment, but a low effect size upon three-month follow-up.</p> <p>Multidimensional family therapy is an outpatient, family-based treatment developed for adolescents with substance-use problems and associated behavioural/emotional issues. It is based on aspects of family-systems theory, developmental psychology, ecosystems theory, and the risk/protective model of adolescent substance use. Multidimensional family therapy was delivered once per week for 16 sessions and was found to have a large effect size on drug use (alcohol and other drugs) immediately post-treatment, as well as upon six- and 12-month follow-up. It was also associated with increased family competence but had no effect on reducing problem behaviours.</p> <p>Multi-systemic therapy is a comprehensive approach to managing antisocial behaviour in adolescents and is based on the systems and social-ecological theories of human behaviour. The examined course of multi-systemic therapy was variable, ranging from 12 to 187 hours of treatment provided over three to six months depending on the patient (mean of 40 hours, mean of 40 days). It was associated with a small effect size on drug use (alcohol and cannabis) immediately post-treatment, but not upon six-month follow-up. It was also associated with decreased number of days in out-of-home placements, but did not decrease self-reported criminal activity or arrests.</p> <p>The treatment components associated with effective treatment of adolescents with substance-use problems was analyzed for each type of family-based intervention. Treatment was easily accessible only for multidimensional family therapy and multi-systemic therapy (as a result of services typically being delivered in the patient's home). All five intervention modalities were found to provide comprehensive services, employ empirically validated techniques, include a clear family-therapy component, offer parent support regarding non-use of substances commonly associated with use, focus on meeting the individual needs of the specific adolescent being treated, focus on key curative or protective factors, and address developmental issues that were specific to adolescents. Additionally, all five intervention types incorporated procedures aimed at minimizing dropout; however, only family-behaviour therapy and multi-systemic therapy were found to be effective at minimizing dropout. Family-behaviour therapy and functional-family therapy were the only intervention modalities that did not incorporate peer support into the treatment program. It is important to note that at the time of the review, none of the five intervention modalities were found to commonly incorporate the arrangement or provision of after-care services.</p>			
To analyze and review controlled, comparative studies on outcomes and attrition in family or couples treatment for substance use (18)	<p>The review included 15 studies that met inclusion criteria and focused on any kind of family and/or couples therapy for the management of substance use. Of the 15 included studies, 13 focused exclusively on adults, while two had adolescent populations. Between all included studies, a total of 1,571 cases with 3,500 patients and family members were accounted for. Conclusions were limited in some instances because certain analyses were restricted to only two or three studies due to the included studies' characteristics, however the majority of analyses were conducted between at least five studies.</p> <p>Analysis that compared family/couples therapy with non-family intervention modalities (such as peer-group therapy and individual counselling) as well as family psycho-education demonstrated that family/couples therapy had stronger positive outcomes (such as reduced substance use) and also a significantly lower attrition rate. This was also noted in the adolescent population based on the two studies focusing on adolescents included in the</p>	Not reported	7/11	0/15

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	<p>review. One study in particular showed that family therapy produced almost two times the increase in drug-free cases than individual education on substance use, and more than three times the amount as peer-group therapy. The authors noted that the effect size of family/couples therapy was also strong when used as an adjunct treatment to traditional individual or peer-group therapy for substance use.</p> <p>At the time of writing, the review authors were unable to conclusively compare different modalities of family/couples therapy for differences in outcomes or attrition. However, the meta-analysis did show that family therapy produced better outcomes than family psycho-education, and that family focused on the “nuclear” family or core family unit produced modestly better outcomes and had lower attrition than group-relatives therapy, which for the purposes of the systematic review was classified as couples/ family therapy.</p>			
To summarize the effectiveness of and evidence for interventions delivered in non-school settings intended to prevent or reduce drug use by young people (>25 years of age) (14)	<p>The review included 17 studies, eight individually randomized studies, and nine cluster randomized studies, with a total of 1,230 participants. There were four intervention modalities found amongst the included studies: motivational interviewing or brief intervention; skills/education training; family interventions; and multi-component community interventions.</p> <p>The relevant outcomes measured in the review included self-reported or biologically validated drug use or initiation of drug use (for primary prevention studies), self-reported or biologically validated reduction or cessation of drug use (for secondary prevention studies), substance dependence (as defined by criteria in DSM IV), death (all-cause and drug-related), hospitalization (all-cause), treatment for drug-related health problems, and criminal activity. The follow-up periods of included studies varied from immediately post-intervention to six years. Eight studies followed participants for at least one year following the cessation of treatment.</p> <p>Eight of the included studies focused on family-oriented interventions, defined as an intervention designed to improve family functioning or parenting skills, delivered to parents, children or families, either alone or in groups. The family-related interventions included, among others, parent support programs to reinforce parenting skills and promote parent-child communication, and family-communication modules. All interventions included contact with parents. This constituted engaging with parents separately from children in some cases, whereas in others the intervention was only conducted in a group setting with both parents and children present. In addition, two of the studies evaluated motivational interviewing.</p> <p>Authors note that many of the included studies had serious methodological shortcomings, including high levels of loss to follow-up and a lack of blinding. Due to these shortcomings, the review was not able to reach firm conclusions that the included interventions were successful at preventing or reducing drug use among those under 25 years of age. The family-oriented interventions included may have been successful in preventing/reducing self-reported cannabis use, and one of the two included studies on motivational interviewing suggested this intervention modality was beneficial in preventing/reducing self-reported cannabis use.</p>	2004	10/10	0/17

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To summarize the effectiveness of and evidence for psychosocial treatments for adolescent substance use (11)	<p>The review included 17 studies that were relevant to the outpatient management and treatment of adolescent substance use. In total, 46 different intervention conditions and 2,307 adolescents were examined. Included in the sample were seven individual cognitive-behavioural therapy studies (n = 367), 13 group cognitive-behavioural therapy studies (n = 771), 17 family-therapy studies (n = 850), and nine minimal treatment control conditions (n = 319). On aggregate, the sample was 75% male and 45% white, 25% Hispanic, 25% African-American, and 5% other groups.</p> <p>The family-therapy approaches the review analyzed included family therapy, brief strategic family therapy, functional-family therapy, strengths-oriented family therapy, transitional-family therapy, multi-family educational interventions, multidimensional family therapy, and integrated behavioural and family therapy. Multi-systemic therapy was also evaluated. Some of the studies employed family-based therapy approaches as comparative treatment to individual treatment modalities (such as individual cognitive-behavioural therapy).</p> <p>Most of the strategies examined in the study were found to be associated with positive drug-related outcomes, in particular a reduction in drug use (most frequently cannabis). Three treatment approaches in particular showed promise, two of which were family based: group cognitive-behavioural therapy, multidimensional family therapy, and functional-family therapy. However, firm conclusions regarding the superiority of one treatment modality versus another could not be reached by the review, and authors note it is likely that a number of the other models are likely efficacious in treating adolescent substance use in an outpatient setting.</p>	Not reported	8/11	Not reported
To describe how similar factors underpin substance use and parenting difficulties, and evaluate interventions that deal with both issues (21)	<p>There are numerous factors that connect substance use and parenting difficulties. Treating substance use and parenting deficiencies concurrently can increase the effectiveness of treating either factor alone, and improve outcomes. Helping parents develop parenting skills is important because skills are needed to effectively handle the misbehaviour of children in a healthy manner (without resorting to drug use as a coping mechanism). Furthermore, effective parenting requires intrinsic motivation and emotional regulation. These two components of effective parenting are difficult to achieve if parents are using drugs or experiencing withdrawal, therefore necessitating substance-use treatment.</p> <p>The review included 21 studies of concurrent substance use and parenting-skills treatment programs. All studies included substance-use treatment for intervention and control groups, but control groups were not exposed to a parenting intervention. The substances used included opiates, crack/cocaine, alcohol, cannabis, narcotics and polysubstance use.</p> <p>The 21 included studies looked at 17 different parenting interventions. Most of the parenting interventions targeted the psychosocial stressors that contribute to substance use and parenting difficulties. These types of programs helped parents obtain psychosocial resources such as employment, housing, or support that can improve functioning. The next most common component of interventions was parenting education to teach parents about child development and healthy parenting practices. Emotional regulation was targeted in nine interventions with the goal of improving responses to children's emotions as well as coping mechanisms for parents' own stress. Finally, five studies address how preoccupation with drug seeking can decrease parenting skills. It is worth noting that some interventions incorporated strategies from all four of the conceptual pathways that lead to substance use and parenting difficulties, while other interventions only focus on a single pathway.</p>	2014	4/10	Not reported

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	<p>Three studies assessed parental stress by self-report and found that concurrent substance use and parenting interventions lowered stress levels; however, it is unclear if reduced stress levels changes parents' use of effective parenting skills.</p> <p>Four studies only included participants in parenting interventions if they had already spent some time in drug treatment, but the issue with these studies is that those who take part in the parenting interventions are likely to be those with a greater willingness to change. Four studies employed a hybrid model where parents participated in substance-use and parenting treatment simultaneously. These interventions devoted the first half of the parenting intervention towards addressing parents' psychological well-being and emotional regulation, and only taught parenting skills in the second half of the intervention.</p> <p>Two studies described interventions that took cultural considerations into account. The authors suggested that more interventions ought to do so given that parenting and parental expectations are culturally constituted.</p> <p>The authors found that interventions which took place in participants' homes had the highest retention rates given that transportation and childcare did not have to be arranged. Treatment in inpatient facilities had the lowest retention rate.</p> <p>Based on these findings the authors recommended that substance-use and parenting interventions should be concurrent, but parenting interventions should begin by building fundamental psychological skills required to parent effectively. Furthermore, they recommended that treatment should incorporate family members and be considerate of cultural values. Finally, the need to reduce barriers to treatment such as transportation, childcare and stigma was emphasized.</p>			
To examine the impact of programs integrating substance-use treatment and pregnancy-, parenting-, or child-related services on maternal mental health (23)	<p>This review included 18 cohort studies, three randomized trials, and two quasi-experimental studies in an attempt to determine whether integrated treatment programs (which treat substance use while concurrently providing pregnancy-, parenting-, or child-related services to participants) were effective at improving maternal mental health outcomes. The review also included a meta-analysis of five of the 18 studies; these five studies compared integrated treatment programs to non-integrated treatment programs in regard to maternal mental health outcomes. The analysis suggested that integrated programs may be associated with a small advantage over non-integrated programs in improving mental health, though authors note that more research would be required to confirm this finding. The quality of the studies included in the review varied (from randomized controlled trials to less rigorous).</p> <p>The review notes that women who seek substance-use treatment often have mental health problems, and that substance use has been identified as a means for women to cope with distressing situations in their lives. These distressing situations were identified to include emotional pain, distress, violence, and trauma – it was found that women access substance-use treatment services frequently reported traumatic histories and were more likely to report childhood sexual and physical abuse. Additionally, the review found that many women accessing substance-use treatment grew up in families where one or both parents used substances. Authors suspect that the</p>	2007	8/10	Not provided

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	<p>high prevalence of past and current trauma explain the high rates of posttraumatic stress disorder, depression, and anxiety among women accessing addiction treatment.</p> <p>Some of the studies included in the review stated that clinicians have expressed concern that addressing the motherhood needs of women with substance-use issues provoke feelings of guilt, distress and fear, leading to negative mental health outcomes. However, another study included found that integrated treatment programs may improve women's psychological functioning through direct attention to their motherhood needs with the assumption that recognizing and supporting women's important role as mothers should improve outcomes, including maternal mental health. Further, integrated treatment programs may enhance the impact of standard addiction treatment on maternal mental health because integrated interventions may have a synergistic effect, and parenting and child-development services may increase maternal motivation.</p> <p>In the meta-analysis conducted, all 15 mental health outcome measures in the five studies that were analyzed indicated improvement in maternal mental health for women in both types of treatment (integrated and non-integrated). Authors note that this finding is consistent with other research that has shown substance-use treatment programs are generally effective in reducing mental health problems.</p>			
To examine the impact of integrated treatment programs (those that include on-site pregnancy-, parenting-, or child-related services with addiction services) on parenting outcomes (22)	<p>This review included 24 cohort studies, three quasi-experimental studies, and four randomized controlled trials (three of which compared integrated programs for addiction to treatment-as-usual). The three randomized trials that compared integrated to non-integrated programs found modest benefits to the integrated programs over the non-integrated programs in terms of improving parenting and capacity outcomes, though effect sizes were small, and authors note additional research is needed to confirm this finding.</p> <p>The review found that estimates suggest 50-80% of child-welfare cases involve a parent who uses alcohol or other drugs, and mothers make up the majority of parents who use substances in the child-welfare system. Further, in the United States up to 70% of women in substance-use treatment have children, and rates of substance use have been increasing.</p> <p>One study noted that substance use in women is associated with a unique constellation of risk factors and needs, including greater vulnerability to adverse physiological consequences than men, greater prevalence of mental health problems, histories of physical or sexual use, serious medical problems, poor nutrition, relationship problems including domestic violence, and deficits in social support. It was also found that women with substance-use issues are at risk for a wide range of parenting deficits. Parenting can be conceptualized as skills (e.g., interacting sensitively, facilitating sleeping and eating routines), attitudes (e.g., empathy, positive approaches to behaviour guidance), knowledge (understanding child development), and capacity (e.g., maternal custody, lack of need for child protection services involvement).</p> <p>Another study found that women who use substances may have difficulties providing stable, nurturing environments for their children, compounded by challenging life circumstances, including severe economic and social problems, such as a lack of affordable housing and homelessness. Additionally, the children of mothers</p>	2011	8/10	Not provided

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	<p>who use substances are at greater risk for impaired physical growth, development and health, poor cognitive functioning and school performance, emotional and behavioural problems, psychiatric disorders, and their own substance-use issues.</p> <p>Examination of parenting effect sizes suggested that residential programs appeared to have larger effects than outpatient programs, and programs with a maternal mental health service appeared to have larger effects than programs that did not offer a maternal mental health service. Findings indicated that reduction in depressive symptoms was significantly correlated with improvements in parenting competence, isolation, attachment and role restriction. One study found that when children resided in the treatment facility, mothers were five times more likely to have custody of their children at the end of treatment.</p> <p>In a trial comparing outpatient non-integrated substance-use treatment versus inpatient or outpatient substance-use treatment integrated with prenatal care, maternal health care, parenting education and support, and children's services, found no improvement in the number of participants involved with child protection services. To the contrary, the number of participants involved with child protection services increased for all groups, including those in the outpatient and inpatient integrated treatment programs.</p> <p>Another trial found that standard treatment plus a relational psychotherapy mothers' group led to improved affective interaction scores and decreased maltreatment risk scores compared to mothers in non-integrated treatment, however this trial was limited by a small sample size. With another sample, mothers received either methadone therapy plus recovery training alone or methadone therapy and recovery treatment with relational psychotherapy, and it was found that mothers in the integrated group had decreased maltreatment risk scores and larger improvements in affective interaction and parenting satisfaction, though differences were modest.</p>			
To examine birth outcomes for infants born to women participating in integrated substance-use treatment programs (20)	<p>This review included 10 studies with a total of 2,471 participants and concluded that compared to women with substance-use issues who were not in treatment, women in integrated substance-use treatment programs gave birth to infants with significantly higher birth weights, larger head circumferences, fewer medical birth complications, fewer positive toxicology screens, and fewer low birth weight classifications. Additionally, when comparing women who were in integrated programs versus non-integrated programs, women in integrated programs attended a statistically significant higher number of prenatal visits and had a statistically significant lower number of preterm births. Thus, the review concluded that integrated programs that incorporate substance-use treatment with pregnancy-, parenting-, or child-related services are advantageous in improving neonatal outcomes compared to non-integrated treatment.</p> <p>The review noted that women who use substances are more likely to experience adverse obstetrical and perinatal outcomes, as well as long-term developmental challenges for their child, including prematurity, low birth weight, placental abruption, neonatal abstinence syndrome, Fetal Alcohol Spectrum Disorder, sudden infant death syndrome, neurological impairment, and birth complications. In addition to the biological impact of alcohol and drugs on the physical health of the mother and fetus, there are numerous socio-demographic, psychosocial, behavioural, and biological risk factors associated with substance use that have an impact on birth outcomes, including poverty, lack of prenatal care, unwanted pregnancy, sexually transmitted infections, poor nutrition, abuse, stress, depression, and lack of social support.</p>	2009	8/11	Not provided

Focus of systematic review	Key findings	Year of last search/ publication date	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada
	<p>Of the 10 studies included in the review, six compared birth outcomes for women in integrated programs versus birth outcomes for women without any kind of treatment. Findings showed that 28 of the 36 measured neonatal outcomes were improved in women who were receiving treatment, with effect sizes ranging for large to small.</p> <p>Of the 10 studies included in the review, five compared birth outcomes for women in integrated programs versus birth outcomes for women in non-integrated substance-use treatment programs. Most effects (nine of 12) were improved in women who were in the integrated programs versus the non-integrated programs, however effect sizes again ranged from large to small.</p> <p>One study compared birth outcomes for pregnant women in an enhanced methadone treatment program (which included prenatal care, therapeutic childcare, and group counselling) to a methadone treatment program with group counselling but no prenatal care or therapeutic childcare, and found that at birth, infants born to women in the enhanced methadone treatment program had significantly better birth and prenatal outcomes, including longer gestations and higher birth weights, though the sample size of this study was very small. Findings of this study were further limited by selection bias: participants were able to choose whether or not to receive enhanced treatment. Another study which randomly assigned pregnant women to enhanced or standard methadone treatment found that women in the enhanced program attended significantly more prenatal appointments, but did not find any significant differences in gestational length, birth weight, or length of hospital stay for the infant after birth.</p> <p>One study randomly assigned pregnant women to short-term residential treatment, intensive outpatient treatment, or standard community treatment. Both the residential and outpatient treatment (integrated treatment programs) provided comprehensive, women-specific addiction treatment to pregnant women. Services included health services for women (initial health history and physical exam, HIV testing, family planning counselling, medical care) and children (medical care), parent education and parent support activities, therapeutic childcare, and mental health assessments for children. At birth, there were no significant differences in rates of prematurity between the integrated treatment groups and the standard community treatment group; however, the risk of prematurity was reduced for neonates born to women in the short-term residential treatment program.</p>			

Appendix 2: Summary of findings from primary studies about harm reduction-based educational interventions for families affected by opioid addiction

Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
To evaluate a group-based psycho-educational program for patients with concurrent substance use and mental health challenges (6)	<p><i>Publication date:</i> 2018</p> <p><i>Jurisdiction studied:</i> United Kingdom</p> <p><i>Methods used:</i> Patients were assessed for psychological well-being, psychiatric symptoms, and substance use before and after the intervention</p>	The participants were adults with diagnosed serious mental health illness and substance misuse. Eighty patients initially signed up to be part of the study, but 29 dropped out before completion. The 51 remaining participants had a mean age of 34.5 years, and the most common primary diagnosis was mental health disorder due to substance use.	<p>The psycho-educational group therapy program used in this study employed an integrated approach. Psycho-educational, harm reduction, motivational, and goal-setting principles were used to empower participants to make changes to their substance misuse. The training began with identifying potential barriers to recovery, and it supported skill-building through threshold learning processes.</p> <p>The program was 10 weeks long and involved a two-hour session in groups of up to 12 participants each week. The group participants collectively decided upon some rules to guide the group, such as the need to ensure confidentiality and respect for others. Four healthcare professionals trained in facilitating group therapy, with additional training in motivational enhancement, led the sessions.</p>	<p>The participants who completed the intervention and those who dropped out were similar in age and gender, however those who dropped out had a higher representation of schizophrenia and delusional disorders. Heroin was the third most commonly used substance for both the completers and dropouts, but there was a lower percentage of heroin users among the completing group.</p> <p>There were five patients in the intervention group who were taking prescribed opiates. They had no changes in their prescription opiate use at the end of the intervention. Seven participants in the study used heroin pre-intervention, and there were no changes in heroin use post-intervention. There was a slight decline in substance use for those using all other substances.</p> <p>There was a significant improvement in mental well-being and psychiatric symptomatology for all participants post-intervention.</p> <p>The authors noted that heroin use appears to have been resistant to psycho-educational intervention in this case. Furthermore, given that the dropout group had a higher percentage of heroin users, the authors suggested that the dependence liability of the drug may factor into why these participants withdrew from the study.</p>
To evaluate how educating the spouses of patients receiving methadone maintenance treatment on the principles can have an impact on family and drug treatment outcomes (16)	<p><i>Publication date:</i> 2017</p> <p><i>Jurisdiction studied:</i> Bojnurd, Iran</p> <p><i>Methods used:</i> Pretest-posttest study with a control group</p>	The participants in this study were the wives of patients enrolled in treatment at eight private methadone maintenance clinics for less than six months. The patients were required to have heroin dependence based on the DSM-5 criteria, have no previous divorces, and no history of psychiatric conditions.	<p>The education program delivered to the wives of patients enrolled in methadone maintenance involved eight sessions delivered twice weekly for one and a half hours. The researchers created their own educational program focused on educating spouses about harm-reduction principles in the context of drug treatment.</p> <p>The sessions involved a mix of group discussions and teaching.</p>	<p>Two patients whose wives were in the experimental group dropped out of the study, leaving the experimental group with 23 participants.</p> <p>The results of the marital satisfaction survey showed that the spouses in the intervention group had a higher level of marital satisfaction at two months post-intervention. There were no significant differences in relapse rates for patients in either group at six-month follow-up.</p> <p>The authors noted that harm-reduction education for families of patients in drug treatment has been shown to improve relations in other studies. The authors also noted that although their study</p>

Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
		<p>In total, 50 wives took part in this study. They were randomized into two groups of 25 for the intervention and control groups.</p> <p>All participants completed the Enrich Marital Inventory Questionnaire (Short Form) in Persian prior to the start of the study and at two months after training sessions. Demographic characteristics between the two groups were similar.</p>	<p>Topics covered included abstinence versus harm-reduction models of drug treatment, harm reduction for high-risk behaviours, relapse, and the impacts of methadone treatment.</p>	<p>found no impact on relapse rates, other studies of harm-reduction supports have found them to reduce relapse rates.</p> <p>This study was limited because it had a relatively small sample size, only the spouses (and not patients themselves) were evaluated for marital satisfaction, and the spouses were all wives (which is not reflective of the nature of relations and drug use).</p>
To assess the utility of introducing drug users to a transitional opioid program by using hospitalization for an opioid-related event as a “reachable moment” to link drug users to outpatient addiction treatment (17)	<p><i>Publication date:</i> March 17, 2018</p> <p><i>Jurisdiction studied:</i> Boston, MA</p> <p><i>Methods used:</i> The number of eligible patients who chose to enrol and remained compliant was recorded, and the initial three-year experience was described</p>	<p>At-risk, out-of-treatment opioid-dependent drug users were identified by a program nurse from the medical service at the Boston Medical Centre upon admission for an event related to opioid addiction. A total of 362 patients were screened, of whom 67% were male, 50% were white, and mean age was 40 years. Twenty per cent (N = 74) of the screened patients were ineligible due to reasons including benzodiazepine use, alcohol dependence, unstable psychiatric comorbidity, opioid use for less than one year, or non-daily opioid use. Thirty per cent (N = 85) of the 288 eligible patients declined enrolment.</p>	<p>The transitional opioid program’s conceptual framework incorporated multiple components: 1) interim opioid-replacement therapy; 2) individualized case management; 3) group public-health education; and 4) the principles of motivational interviewing and harm reduction.</p> <p>The transitional opioid program consisted of three treatment phases. Phase 1 was the inpatient phase and included medical/psychosocial assessment and methadone induction/stabilization. Phase 2 was outpatient days one through 30. During Phase 2, methadone doses were titrated, and patients were offered case management, risk reduction and health education, and addiction counselling, and group discussions focused on risk</p>	<p>The transitional opioid program employed as the intervention was successful at linking a substantial number of at-risk opioid-dependent drug users to a multi-faceted addiction treatment regimen, which included an emphasis on health and harm-reduction education both in individual and group settings. Of the 203 patients who were originally enrolled after meeting eligibility criteria and expressing interest in the transitional opioid program, 82% (N = 167) ultimately attended at least one outpatient appointment (i.e., reached Phase 2) after hospital discharge. However, compliance remained a challenge: of the 167 patients who reached Phase 2, 52 ultimately became noncompliant and were removed from the transitional opioid program. This enrolment and dropout rate must be examined in the context of the screened population; the transitional opioid program targeted non-treatment-seeking patients.</p> <p>The authors note the utility of using patient’s attendance for opioid agonist treatment (through methadone) to introduce them to a broad range of addiction services. In the transitional opioid program, opioid agonist therapy was an interim treatment that provided the opportunity to introduce patients to case management and health education focused on personal risk. In Phase 2 of the study, methadone was used explicitly as an incentive to encourage attendance at optional group education sessions: methadone was administered within 15 minutes of the sessions’ completion.</p>

Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
			management. Phase 3 was outpatient days 31 through 90. During Phase 3, patients were offered a 60-day methadone taper or a referral to another transitional opioid program. The transitional opioid program nurse guided patients in goal-setting related to their individual target health and social outcomes (e.g., obtaining stable housing, maintaining employment, establishing relationship with a family physician).	<p>The health education and risk reduction sessions were unstructured, but were built around key points including encouraging service utilization (e.g., medical follow-up, needle exchange programs), condom use, HIV and hepatitis C prevention and screening, needle-sharing avoidance, and overdose prevention.</p> <p>A crucial facet of the transitional opioid program was its flexible nature in presenting patients with a range of different treatment-intensity options. Few parts of the transitional opioid program were mandatory beyond a once-per-week “check-in” with the program nurse for roughly 15 minutes. Despite the optional nature of group education sessions, 54% (N = 90) of patients who reached Phase 2 went on to attend two or more sessions. The program nurse made frequent “check-in” visits during Phase 1 (inpatient hospitalization) as well. The authors claim that repeated “low-pressure” engagement used in combination with motivational interviewing methods increased enrolment and enhanced outcomes for ambivalent participants.</p>
To develop and internally validate a measurement tool to assess the emergency-department physician attitudes, clinical practice and willingness to perform opioid harm-reduction interventions, as well as barriers in creating action from willingness (9)	<p><i>Publication date:</i> October 20, 2015</p> <p><i>Jurisdiction studied:</i> New England</p> <p><i>Methods used:</i> A cross-sectional, anonymous online survey was administered and then validated using Cronbach’s alpha analyses. Stepwise linear regression was performed to determine impact of physician knowledge, attitudes, confidence, and self-efficacy.</p>	The online survey was sent to emergency-medicine resident and attending physicians at three New England medical centres. All three institutions were academic, tertiary care centres. The centres were in urban settings and cater to patient populations with a similar socio-economic composition. In total, 200 of 278 physicians responded to the survey, and of these responses 180 were fully completed. The survey was a mix of Likert scales and knowledge-testing questions pertaining to opioid addiction and its medical management.	No intervention.	<p>The tool developed by the authors, consisting of a mix of novel and adapted questions, was validated internally. The study found that emergency-department physicians are generally willing to engage in opioid harm-reduction interventions, including educating patients, and those who may accompany them to the emergency department, on harm-reduction strategies. However, despite the willingness of emergency-department physicians to engage in harm-reduction interventions, few actually do.</p> <p>Willingness to perform opioid harm-reduction interventions was correlated with positive attitude towards harm-reduction interventions, confidence in performing the interventions, and self-efficacy. Confidence was noted to be low among physicians, and lack of knowledge, time, training, and institutional support were identified as barriers to translating willingness to action.</p> <p>Respondents noted that stronger research evidence, professional organization recommendations, and emergency-department leader opinions would facilitate more frequent utilization of harm-reduction interventions for the opioid-dependent patients they encounter.</p>



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