



Interventions in Out-of-Home Care: An Updated Evidence and Gap Map

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Contents

Acronyms	4
Executive summary	5
Introduction	8
Evidence and gap maps.....	8
Method	10
Inclusion criteria.....	10
Population	10
Interventions	10
Study designs.....	15
Comparisons	16
Outcomes.....	16
Search strategy.....	19
Data extraction	20
Evidence grading.....	20
AMSTAR	20
Jadad scale.....	21
Findings.....	22
Outcomes	22
Interventions	24
Therapeutic foster care	25
Carer training and support	34
Restoration support.....	40
Attachment-based interventions.....	45
School readiness and support.....	51
Youth behavioural change	56
Child-centred therapy.....	61
Leaving care and after care support.....	64
Other interventions.....	69
Overarching reviews	73
Appendix A: Primary studies in CEI OOHC evidence and gap map – recategorised	78

Appendix B: Systematic reviews in CEI OOHC evidence and gap map – recategorised	89
Appendix C: Electronic Database Search Strategy (Primary search).....	92
Medline (Ovid)	92
Embase (Ovid).....	93
Cochrane Central Register of Controlled Trials (Ovid).....	95
CINAHL (EBSCO).....	96
ERIC (EBSCO)	97
International Bibliography of the Social Sciences (IBSS) (ProQuest)	98
Web of Science (including Science Citation Index, Social Science Citation Index, Conferences Citation Index)	99
Australian Family and Society Abstracts Database (FAMILY) (Informit).....	100
Families and Society Collection (Informit).....	100
Attorney-General’s Information Service (AGIS plus Text) (Informit)	101
Campbell Collaboration	102
Appendix D: Database search results	103
Appendix E: Electronic Database Search Strategy (Restoration only)	104
Ovid: Medline, Embase, Psych Info, Cochrane Central Register of Controlled Trials.....	104
EBSCO: CINAHL and ERIC	104
Proquest: International Bibliography of the Social Sciences (IBSS)	104
Informit: Family and Society Collection, Australian Family and Society Abstract, Attorney-General’s Information Service (AGIS plus Text) (Informit)	105
Campbell collaboration	105
Appendix F: Excluded primary studies	106
Appendix G: Excluded systematic reviews	108
Appendix H: AMSTAR Criteria	111
Appendix I: AMSTAR ratings.....	114
Appendix J: Jadad Criteria	115
Appendix K: Jadad Ratings	116

Acronyms

ABC – Attachment and Bio-behavioural Catch-Up

CCP – Child Parent Psychotherapy

ESTEP – Early Start to Emancipation Program

DCJ – Department of Communities and Justice

FTDC – Family Treatment Drug Courts

FACSIAR – Family and Communities Services Insights, Analysis and Research

KEEP – Keeping Foster Parents Trained and Supported

KITS - Kids in Transition to School

OOHC – Out-of-Home Care

MST – Multi-systemic Treatment

PCIT – Parent Child Interaction Therapy

PMTO – Parent Management Training Oregon

RCT – Randomised Control Trial

TFC – Therapeutic foster care

TFCO – Treatment Foster Care Oregon

TF-CBT – Trauma Focused Cognitive Behavioural Therapy

Executive summary

This report summarises the findings from an updated systematic search for high-quality evidence of the impact that different out-of-home care (OOHC) interventions have on particular child and youth outcomes. These have been mapped to create an evidence and gap map. You can access the interactive [OOHC evidence and gap map](#) and all the studies included in the systematic search on the Department of Communities and Justice (DCJ) website.

Evidence and gap maps are interactive tools designed to help policy makers and research commissioners identify relevant evidence and gaps for interventions that achieve specific outcomes. Evidence and gap maps do not provide full reviews, but rather offer a visual overview of the quantity, quality and type of evidence available. By consolidating and mapping out what we know about the effectiveness of different programs and where the gaps are, they provide a starting point for strategic evidence use and production. However, to remain useful, they need to be updated regularly.

The original search was commissioned by Family and Community Services Insights, Analysis and Research (FACSIAR) and published by the Centre for Evidence and Implementation (CEI) in the report, [Out-of-Home Care: An Evidence and Gap Map Report](#) in 2017.

In 2019, Family and Community Services Insights, Analysis and Research (FACSIAR) repeated the original CEI search to ensure our OOHC evidence and gap map contains the most up-to-date evidence. This report details the process of this update, which led to the inclusion of an additional 53 primary studies and 12 systematic reviews in the OOHC evidence and gap map. Along with the studies from the original search, this brought the total number of studies in the OOHC evidence and gap map to 128 primary studies and 31 systematic reviews. We have also updated the axes of the OOHC evidence and gap map, to ensure these articles are mapped in a user-friendly way that reflects our organisational priorities.

Reviewing the articles captured in both the 2016 and 2019 search, we identified the following eight OOHC intervention categories:

- Carer training and support
- Child-centred therapy
- Therapeutic foster care
- Attachment-based interventions
- School readiness and support
- Youth behavioural change
- Leaving care and aftercare support
- Restoration support

The updated report also included an 'other' intervention category, to cover interventions that do not fit into any of the above categories.

In terms of primary studies, the largest category in the updated OOHC evidence and gap map is therapeutic foster care (37 articles). However, many of these are follow up articles on a relatively small number of Randomised Control Trials (RCTs) run by the Social Learning Centre Oregon. In contrast, the articles in the next biggest categories – restoration support (18 articles), carer training and support (16 article articles) and attachment-based interventions (16 articles) – have a more diverse evidence base.

Looking at systematic reviews, carer training and support programs is the most widely studied intervention. Three systematic reviews focus specifically on this type of intervention, and eight overarching reviews. This is followed by attachment-based interventions (eight systematic reviews), leaving care and aftercare support (six systematic reviews) and therapeutic foster care (six systematic reviews). The large number of systematic reviews that focus on leaving care and aftercare support, compared to the relatively small number of primary studies (four articles) suggests that most of the research in this area is not experimental (meaning it is not captured in our map).

Studies in these nine categories were mapped to eleven outcomes, which were developed from DCJs recently developed Core Client Outcomes set. These outcomes are:

- Parenting capacity
- Safety
- Permanency
- Cultural belonging
- Supportive relationships
- Self-determination
- Healthy lifestyles
- Physical health
- Mental health
- School readiness and success
- Employment and training

These core client outcomes sit under the seven domains of the NSW Human Services Outcomes Framework: safety, home, economic, health, education and skills, social and community, and empowerment. This cross-agency framework was designed by agencies and non-government organisations (NGOs) and informed by a review of national and international research on what determines a person's wellbeing.

The most common core client outcome measured in the studies included in the updated OOHC evidence and gap map was 'mental health', which falls in the Health domain of the Human Services Outcomes Framework. No studies were found that measured 'cultural

belonging' in the Social and Community domain of the Human Services Outcomes Framework. This highlights a gap in the existing outcome research, which is particularly concerning given the over-representation of Aboriginal and Torres Strait Islander children in OOHC in Australia, and the imperative that these children and youth develop, maintain and strengthen their cultural and spiritual identity.

This report and accompanying interactive map can help policy makers and commissioners of research access high-quality evidence of 'what works' in OOHC, and understand where there are gaps in the evidence base.

Introduction

More than 2000 children and young people entered out-of-home care (OOHC) in New South Wales in 2018. Most of these children have come from homes where they were abused or neglected. The combination of these damaging early experiences, and the trauma of being removed, often leads to severe emotional, behavioural or developmental problems. People who have lived in long term OOHC are more likely to have mental health issues, substance abuse problems, chronic health conditions, experiences of housing instability, involvement with the criminal justice system and poorer education and employment outcomes (Walsh 2018).

The Department of Communities and Justice (DCJ) aims to improve these long-term trajectories by addressing the complex needs of children and young people who are unable to live with their biological parents and supporting them to flourish. We are working with NGO partners to ensure our OOHC services are supported by the best available evidence and focused on key child and family outcomes.

To support this aim, we commissioned the Centre for Evidence and Implementation (CEI) to systematically search for high-quality evidence of the impact that different OOHC interventions have on particular child and youth outcomes. The results of this search were published in the [Out-of-Home Care: An Evidence and Gap Map Report](#) in 2017. This report describes the process of updating and adapting this original search, and summarises the synthesised research findings.

Evidence and gap maps

Evidence and gap maps are interactive tools designed to help policy makers and program areas that commission research to easily identify evidence of 'what works' in a particular area, as well as gaps in the evidence base.

Evidence and gap maps are similar to systematic reviews, in that they are based on comprehensive, repeatable literature searches. But evidence and gap map authors do not try to synthesise this evidence to answer a focused question, such as: 'do foster carer parenting training improve child behaviour problems?' Instead, evidence and gap maps capture and plot all the high-quality evidence for a particular area on a dynamic graph. The vertical axis typically captures the types of interventions, and the horizontal axis typically captures the outcomes these sought to achieve.

Evidence and gap maps provide a broader, more comprehensive visual overview of the evidence base than a systematic review, enabling research, program and policy staff to easily 'deep dive' into a relevant area (e.g. foster carer parenting training). People who commission research can also identify areas where primary research or research synthesis is required, making more strategic use of limited research funding.

Because evidence and gap maps capture, rather than synthesise, high quality evidence, they can also be updated and maintained by secondary parties more easily than systematic reviews. This is important, because evidence searches go out of date after a few years. To ensure our OOHC evidence and gap map is useful and continues to capture the most up-to-

date findings, in 2019 DCJ decided to repeat the search that the CEI conducted in September 2016.

We also conducted a secondary search for studies of interventions designed to support children in OOHC reunite with their birth parents. These restoration studies are of increasing importance to DCJ, following the changes made to OOHC under the Permanency Support Program since October 2017. The material from both of these searches is briefly summarised, and captured in the Tableau version of the evidence and gap map. The axes of the evidence and gap map have also been updated to make them more current and user friendly.

Method

Inclusion criteria

Population

The original CEI OOHC evidence and gap map included studies focused on children aged 0-18 years, who were in OOHC. Studies including persons over 18 years were included only if the majority of the population was within this age limit. CEI also included studies on carers of children in OOHC living arrangements, if the main objective of the study was to assess outcomes for the children.

We applied these criteria when updating the OOHC evidence and gap map in 2019, but also introduced the following criteria and qualifications. Firstly, we limited the search to studies conducted in socio-economic contexts that are similar to Australia. We introduced this criterion because the map was crowded with studies from Bucharest Early Intervention Project (BEIP); a large longitudinal Randomised Control Trial (RCT) comparing the outcomes of children placed in foster homes to those who remained in institutional care (including orphanages) in Romania.

The original CEI OOHC evidence and gap map included seven studies from the BEIP (Nelson et al. 2007; Fox et al. 2011; Humphreys et al. 2015a; Humphreys et al. 2015b; Almas et al. 2015; Bick et al. 2015; Gavita et al. 2012). It also included a systematic review about improving care in institutional settings, which focused largely on studies from developing countries. In the update, we found another ten publications from the BEIP (Almas et al. 2016; Troller-Renfree et al. 2016; Humphreys et al. 2017; Guyon-Harris et al. 2018; Tang et al. 2018; Lamm et al. 2018; Johnson et al. 2018; Slopen et al. 2019; Debnath et al. 2019; Wade et al. 2019) and a systematic review of children's experiences of violence in institutional settings (Sherr et al. 2017).

This research is valuable, as it highlights the long-term psychological and physiological benefits of family care over institutional care. However, it is not entirely relevant to DCJs work, because – unlike in Romania – children in Australia are not raised in large institutions. Based on this new criterion, we also removed the seven studies listed in the CEI OOHC evidence and gap map from our map.

Secondly, we clarified that studies focused on young people in juvenile justice *and* foster care group homes (Schuurmans et al. 2017; Oman et al. 2018; Green et al. 2017) would be included.

Interventions

Along the 'interventions' axis of the original OOHC evidence and gap map, the CEI focused on nine different types of placement drawn from the 2007 OOHC Contracted Care Guidelines (see Table 1).

Table 1: Intervention categories in the 2017 OOHC evidence and gap map

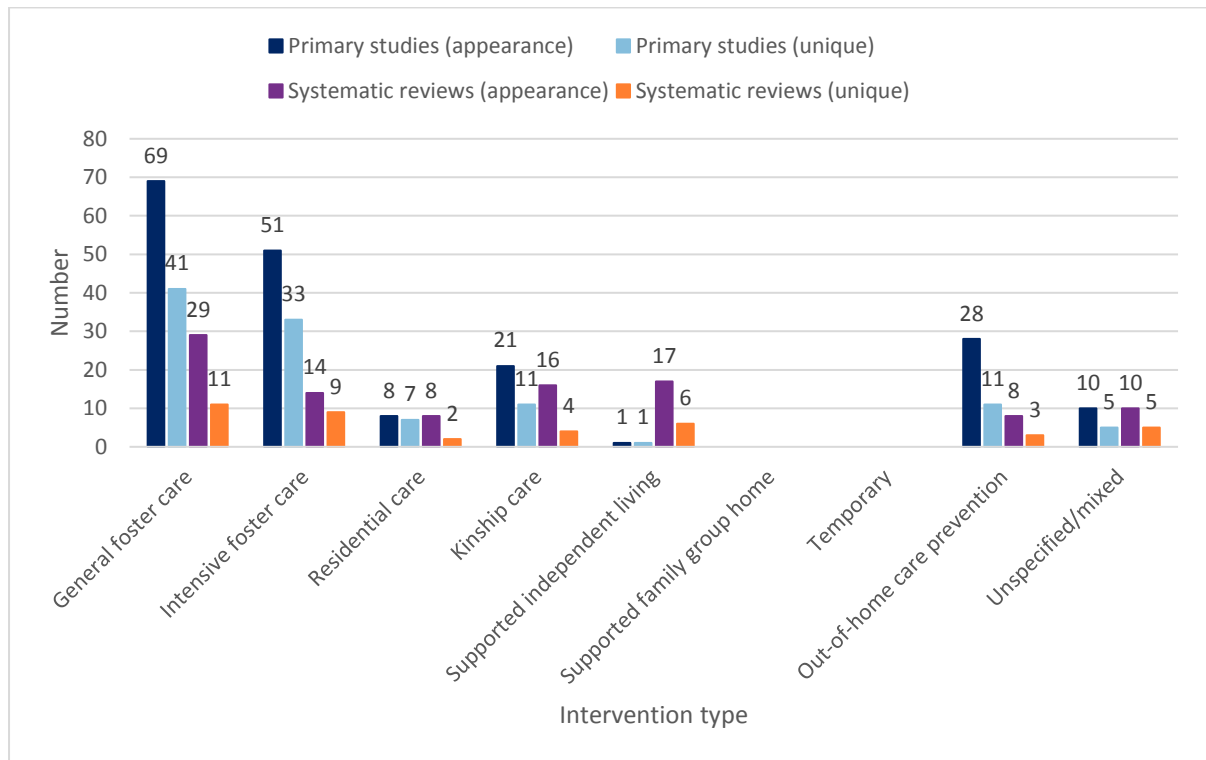
General Foster Care	All situations where placement is in the home of a carer, who is receiving a payment and supervision from a state or territory for caring for a child.
Intensive/ Treatment Foster Care	An advanced version of general foster care where the child and their carers receive an intensive intervention that is aimed at managing and improving the child’s behaviour and wellbeing.
Residential Care*	A placement in a residential building with paid staff, who live offsite and are rostered on to look after children.
Kinship Care	A placement where the caregiver is a family member or a person with a pre-existing relationship to the child.
Supported Independent Living	A placement for young people aged 16-18 years with low to moderate support needs living independently in the community.
Supported Family Group Home	A placement for a specific group of children or young people (e.g. large sibling groups) aged 0-17 years who have low to moderate support needs but cannot be placed in relative, kinship or foster care
Temporary care**	Temporary care includes a range of short-term living arrangements focused on providing acute support to children and youth, e.g. respite care, crisis accommodation and some forms of youth shelter.
Unspecified care type	All types of OOHC living arrangements without differentiation
Out-of-Home Care prevention	Interventions aiming to prevent out-of-home care placements for children imminently at risk of being placed

*also Group/ Congregate/ Voluntary Care; Guardianship

** also Respite/ Shelter/ Short term care

The following figure shows the number of studies captured in each of these categories in the 2016 report.

Figure 1: Number of studies in the 2016 OOHC evidence and gap map report, by intervention type



In consultation with the CEI authors, we decided to make a number of changes to these categories as part of the 2019 OOHC evidence and gap map update.

Firstly, we removed the category of ‘prevention’. The CEI authors noted that prevention precedes OOHC, however they included eight primary studies that fell into this category based on the interest in the area. All eight focused on the effectiveness of multi-systemic therapy (MST), an intensive family-and community-based treatment program for chronic and potentially violent juvenile offenders (Butler et al. 2011; Henggeler et al. 1999; Henggeler et al. 2003; Letourneau et al. 2009; Ogden and Hagen 2006; Painter 2009; Rowland et al. 2005; Sundell et al. 2008). The 2016 map also included two systematic reviews focused on MST (Littel et al. 2005; Van der Stouwe et al. 2014), and a third systematic review of in-home preservation more broadly (Al et al. 2012).

In the update, we identified a further three studies on MST (Liddle et al. 2018; Pasalich et al. 2016; Oxford 2016). However, we excluded these studies, and the existing studies in the prevention category from the OOHC evidence and gap map. As the CEI authors note, their search did not include a specific prevention terminology, and therefore did not capture the “entire range of evidence for interventions aiming to prevent care placement of children and youth” (2017, p. 11). The inclusion of this small number of prevention studies could therefore lead to confusion about the scope of the review and the amount of available prevention

research. In the future, DCJ aims to create a second evidence and gap map or evidence table focused specifically on universal and targeted prevention programs.

Secondly, we changed the remaining categories from types of OOHC placement (e.g. general foster care, kinship care) to types of interventions *within* these OOHC placements (e.g. carer training and support, leaving care and aftercare support). We believe this change will make the map more useful and user-friendly for those seeking evidence for a particular area. In particular, it will break down the large category of 'general foster care' into small categories highlighting the types of interventions that might help children and young people in general foster, kinship care and other arrangements to flourish.

Finally, we decided to include additional research on restoration support. The original search included one evaluation of an intervention designed to reunify children in OOHC with their biological parents (Stein and Gambrill 1977). However, the CEI search terms did not include the term 'reunification' or 'restoration', and therefore most of the research in the area was missed. In light of the recent emphasis on permanency, with the introduction of the Permanency Support Program (PSP) in 2018, we decided to conduct a smaller, secondary search for restoration studies to supplement the original search. This category includes interventions designed to support children being returned to their birth families, as well as those designed to improve contact with children in care and their biological families.

Given the changes with the introduction of the PSP, we also considered adding 'guardianship' and 'open adoption' as intervention categories. However, we found that the studies in the evidence and gap map reported on these as outcomes rather than interventions, so have captured this data under the 'permanency' outcome.

We searched eleven databases, using the search terms included in Appendix B. In addition to these systematic searches, we also reviewed the studies included in the recent systematic reviews of restoration support programs found through this process. Only interventions conducted while the children were still in OOHC were included for this purpose.

Reviewing the articles captured in both the 2016 and 2019 search as well as our additional searches, we decided on the types of interventions below (Table 2). While these intervention categories reflect the experimental studies conducted with children and young people in OOHC, they do not cover some important OOHC policies – such as guardianship, alternative care arrangement and emergency care. Best practice in these areas cannot easily be captured through RCTs and quasi-experimental trials, because of the absence of control groups.

Table 2: Intervention categories in the 2020 OOHC evidence and gap map

Carer training and support	Training interventions for foster and kinship carers, targeting improvements in the mental health and behaviour of children in their care.
Child-centred therapy	Interventions targeting the child, supporting them to recover from trauma in early life (e.g. trauma-focused cognitive behavioural therapy).
Therapeutic foster care	Intensive interventions with specialised training for foster carers to care for children and young people with significant emotional, behavioural or social issues or medical needs, offered as an alternative to residential care (e.g. Treatment Foster Care Oregon).
Attachment-based interventions	Interventions aimed at improving the relationship and attachment between the carer and children in their care (e.g. attachment and bio-behavioural catch-up, parent-child interaction therapy).
School readiness and support	Interventions aimed at improving the child's readiness to start school, or supporting them to succeed in school (e.g. book gifting programs and tutoring).
Youth behavioural change	Interventions aimed at reducing risk-taking behaviours among adolescents in care (e.g. sexual health interventions, drug abuse intervention).
Leaving care and aftercare support	Interventions aimed at supporting teenagers in foster care make the transition to independence (e.g. mentoring, independent living programs).
Restoration support	Interventions aimed at reunifying children with their biological parents, or supporting contact with birth parents and their families.
Other	Interventions which do not fit into any of the above categories (e.g. family finding services, placement matching).

The re-categorisation of the studies in the original OOHC evidence and gap map is documented in Appendix A.

Some of the broad systematic reviews and meta-analyses included in this report cover a range of different interventions. The first section of this report, titled 'overarching reviews', briefly describes these studies and identifies which interventions and outcomes they are mapped to in the evidence and gap map.

Study designs

Applying the original CEI inclusion criteria, we included only randomised controlled trials (RCTs) and trials with quasi-experimental designs in the update. RCTs are considered the 'gold standard' for intervention studies. They involve randomly allocating participants into two or more groups, treating them differently, and then comparing particular outcomes before and after the intervention for each group. Quasi-experimental trials are similar, but without the randomisation.

Both RCTs and quasi-experimental trials can play a role in building knowledge about 'what works'. However they are not always feasible for practical, political and ethical reasons, and should be combined with other research methods to understand 'why things work'.

We also included systematic reviews published in peer-reviewed journals or by the Campbell Collaboration. As in the original OOHC evidence and gap map report, we only included systematic reviews that could be replicated (i.e. that explicitly stated the search strategy and the inclusion and exclusion criteria). To maintain the focus on best practice, we also excluded systematic reviews that did not focus on interventions involving children and young people in care (i.e. they focused on correlations or on care leavers, or compared OOHC to in-home care).

This clarification led us to remove a number of systematic reviews from the original evidence and gap map. This excluded reviews which compared OOHC with in-home care (Maclean et al. 2015; Goemans et al. 2016), residential care (Knorth et al. 2008; Li. 2017), or kinship care (Winokur 2009, 2014), or provided over-arching reviews of children's development in care (Goemans et al. 2015). We also excluded reviews that summarised young people's experiences of support when leaving care (Hiles 2013) and on placement instability (Rock et al. 2015). However, we included systematic reviews that included both intervention and non-intervention studies (Washington et al. 2018).

We only selected English language articles published in peer-reviewed journals for inclusion. We did not search for grey literature and excluded conference abstracts, dissertations, reports, book chapters, editorials and opinion pieces.

Comparisons

Following the approach taken in the CEI OOHC evidence and gap map, we included any OOHC interventions reported above compared with:

The same intervention expanded with an additional component

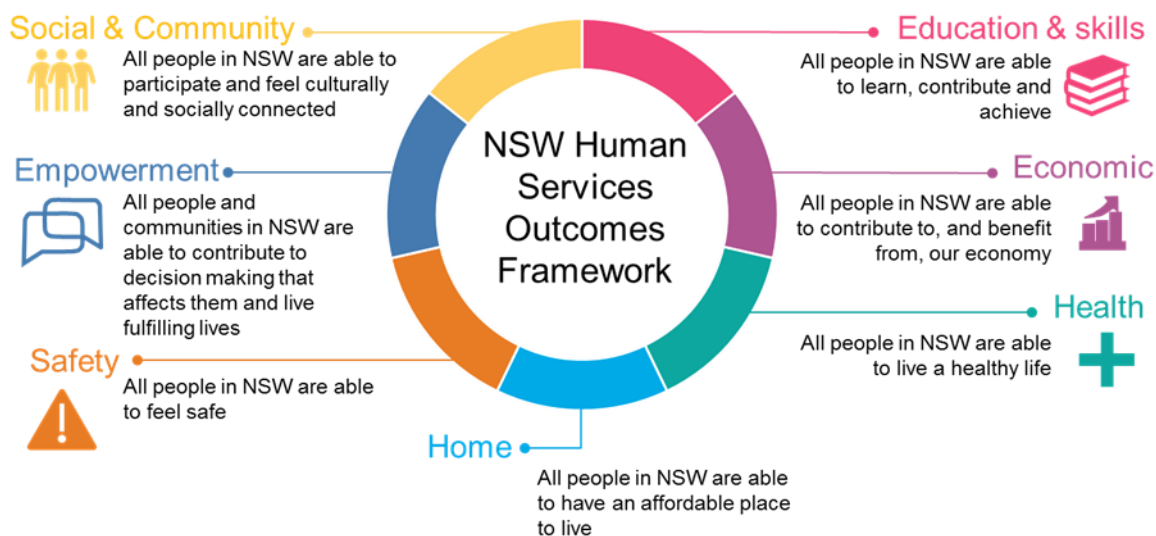
- An alternative intervention (e.g. other type of OOHC or placement alternative that involves a program or service)
- No intervention (e.g. children/youth living at home)

Outcomes

In developing the outcome categories for this evidence and gap map, the CEI utilised two different pre-defined outcome frameworks: the NSW Human Services Outcomes Framework and the NSW Quality Assurance Framework (QAF).

The NSW Human Services Outcomes Framework outlines population-level wellbeing outcomes for everyone in the state across seven domains: home, health, education and skills, economic, safety, social and community and empowerment. It helps NSW Government agencies and their partners to focus on shared outcomes that are priorities for their clients.







Figure 2: The NSW Human Services Outcomes Framework



The QAF was particularly developed for out-of-home care settings as a tool to support outcomes-focused service delivery through measurement of individual outcomes. It focuses on seven measurable, developmentally sensitive outcomes that contribute to the overarching goals of child safety, permanency and wellbeing: safety, permanency, cognitive functioning, physical health and development, mental health, social functioning and cultural and spiritual identity.

When creating the original OOHC evidence and gap map, the CEI authors mapped the QAF to the NSW Human Services Outcomes Framework (Table 3). They added ‘family functioning’ to the QAF outcomes, because this emerged from relevant studies.

Table 3: The outcomes listed in the 2016 OOHC evidence and gap map





Human Services Outcomes Framework domains	QAF domains	
 Safety	Safety	Children and young people have the opportunity and support needed to ensure that they are physically and psychologically safe and free from maltreatment.
	 Home	Family Functioning*
Permanency		Children and young people live in an environment in which carers predominantly use positive parenting skills and encourage cohesion among family members.
 Education & Skills	Cognitive functioning	Children and young people have the opportunity and support needed to maximise their intellectual ability and functioning and to achieve educational success to their fullest potential.
 Health	Physical health and development	Children and young people have the opportunity and support needed to maximise their physical health, strength, and functioning.
	Mental health	Children and young people have the opportunity and support needed to manage their mental health and wellness.
 Empowerment	Social functioning	Children and young people have the opportunity and support needed to cultivate a strong and resilient self-identity, to develop supportive and nurturing relationships and feel hopeful about life and future.
	 Social & Community	Cultural and spiritual identity




During the consultation process, it became clear that there was some confusion surrounding this alteration of the QAF and synthesis with the NSW Human Services Outcomes Framework. We decided to create a new set of outcomes in the update of the OOHC evidence and gap map, based on DCJs recently developed core client outcomes set.

The core client outcome set (see below) includes 37 outcomes organised into the seven outcomes framework domains. The set represents outcomes that are critical to ensuring children, young people, families and other community members serviced by DCJ are safe and thrive. The core client outcomes are relevant (but not exclusive) to all users of our services. This set will be tested and refined over time. By mapping these upwards to

outcome groupings in the OOHC evidence and gap map we are able to identify studies which measure outcomes relevant to our core set. The most relevant outcomes have been identified (bolded) and summarised in the following table.

Table 4: Outcomes in the 2019 OOHC evidence and gap map

NSW Human Services Outcomes Framework	DCJ Core Client Outcomes	Evidence and gap map outcome area
 <p>Safety</p>	<p>People are safe from abuse and neglect</p> <hr/> <p>Parents, carers, and kin have the skills and capacity to keep children and young people safe at home</p> <hr/> <p>Children and young people grow up in families and communities that are stable and supportive with strong relationships</p> <hr/> <p>People feel that the importance of their family and culture is recognised, respected and understood</p> <hr/> <p>People are safe from domestic and family violence</p> <hr/> <p>People are physically and emotionally safe in their communities</p>	<p>Parenting capacity Safety</p>
 <p>Home</p>	<p>People have stability in their home</p> <hr/> <p>Housing is appropriate to occupants' needs</p> <hr/> <p>People live in housing with good conditions and with good access to local facilities and services</p> <hr/> <p>People are able to live independent from housing support</p> <hr/> <p>Housing is affordable for people</p>	<p>Permanency</p>
 <p>Social & Community</p>	<p>Aboriginal people are able to live on Country or in a community of belonging</p> <hr/> <p>Aboriginal people know who their families are and are able to feel a connection to them</p> <hr/> <p>People live in communities with good conditions and with good access to local facilities and services</p> <hr/> <p>People are connected to supportive relationships</p> <hr/> <p>People feel a sense of connection and belonging to their communities</p> <hr/> <p>People feel a sense of connection and belonging to their culture and identities</p>	<p>Cultural belonging</p>
 <p>Empowerment</p>	<p>Aboriginal people have a voice in community decision-making</p> <hr/> <p>People are in charge of their own lives and feel a sense of choice and control (self-determination)</p> <hr/> <p>People have a belief in self</p> <hr/> <p>People have hope for the future</p> <hr/> <p>People are resilient and are able to tackle major life challenges</p> <hr/> <p>People have cultural empowerment</p>	<p>Self-determination</p>

	<p>People have a healthy lifestyle and avoid risk taking behaviours that negatively impact their health</p> <hr/> <p>Mothers have healthy pregnancies and babies have good birth outcomes</p> <hr/> <p>Aboriginal people heal from inter-generational trauma and loss</p> <hr/> <p>People have good physical health</p> <hr/> <p>People have good mental health and social and emotional wellbeing</p>	<p>Healthy lifestyles Physical health Mental health</p>
	<p>Children and young people participate in education or skills training</p> <hr/> <p>People are engaged in their learning and strive for excellence in their education</p> <hr/> <p>People are ready at each point of educational transition (e.g. have education and skills required to be work or school ready)</p> <hr/> <p>People achieve their educational aspirations</p>	<p>School readiness and success</p>
	<p>Adults and young people are able to participate in education, training or the labour force</p> <hr/> <p>People have financial literacy and financial management skills</p> <hr/> <p>Adults and young people who are able to work are employed</p> <hr/> <p>Adults and young people who are able to work are in continuous employment</p> <hr/> <p>People have financial security and autonomy</p>	<p>Employment and training</p>

Search strategy

For the original OOH evidence and gap map report, the CEI searched 15 electronic databases in September 2016. We were unable to access two of these 15 databases directly: the Applied Social Science Index and Abstracts (ASSIA) and Sociological Abstracts. The first author (EW) searched the following 13 databases between May 30th and June 29th 2019:

1. Medline (Ovid)
2. Embase (Ovid)
3. PsycInfo (Ovid)
4. Cochrane Central Register of Controlled Trials (CENTRAL) (Ovid)
5. CINAHL (Ebsco)
6. Education Resources Information Center (ERIC) (Ebsco)
7. International Bibliography of the Social Sciences (IBSS) (ProQuest)
8. Applied Social Science Index and Abstracts (ASSIA) (ProQuest)
9. Sociological Abstracts (ProQuest)

10. Web of Science
11. Australian Family and Society Abstracts Database (FAMILY) (Informit)
12. Families and Society Collection (Informit)
13. Attorney-General's Information Service (AGIS plus Text) (Informit)
14. Australian Criminology Database (CINCH) (Informit)
15. Campbell Collaboration

We based our search terms on those reported in the original OOHC evidence and gap map report, which can be found in Appendix A. Following the CEI approach, we did not restrict our search by publication status to reduce publication bias. The only change introduced was the date range, as we limited our search to articles published since 2016.

Following this search, we did a secondary scan of Google and Google Scholar. We also reviewed the included studies of the systematic reviews, looking for studies published since September 2016 and studies that might have been missed in the original search.

Data extraction

Two review authors (EW and LJ) independently screened titles and abstracts, first excluding those that were obviously irrelevant. Relevant citations were retrieved in full text and their inclusion discussed by the two authors. Appendix C contains a full list of the studies excluded at this stage.

Following the CEI approach, we extracted the following data from these studies and added them to the accompanying excel spreadsheet:

- **RCTs and quasi-experimental studies:** The year of publication; country the trial was conducted; trial / study design; population; sample size; information about the intervention(s); information about the comparison condition; outcomes reported; and a brief description of the results.
- **Systematic reviews:** The year of publication; whether a meta-analysis was conducted; objectives; population; intervention; comparison population or intervention (when available); outcomes; number of included studies; country of origin of included studies; study designs of included studies; results (brief description on both qualitative and quantitative).

Evidence grading

We rated the primary studies and systematic reviews that met the inclusion criteria according to the Jadad and AMSTAR scales respectively.

AMSTAR

The AMSTAR ('A Measurement Tool to Assess Systematic Reviews') is an 11-item checklist used to assess the methodological quality of systematic reviews. In using the AMSTAR, specific questions (e.g. the search strategy used, criteria defined to include or exclude studies, procedures with which the quality of included studies was assessed) are answered

with 'yes', 'no', 'can't answer' or 'not applicable'. The number of 'yes'- answers a systematic review receives is added up to an AMSTAR score between 0 and 11.

Jadad scale

The Jadad scale is a simple five-point, three-question scale that is widely used to rapidly assess the quality of research trials. The three questions are directed at the process of randomising study participants, blinding participants and investigators, and at the number of dropouts from the trial. Points for each question are added or deducted based on the appropriateness of the processes. A study can get a maximum score of 5 points. If only the first publication of trial outcomes reported randomisation or blinding procedures, while later follow-up studies did not, these follow-up studies still received points for these procedures.

These scales, and a breakdown of the included studies, are in Appendix F and Appendix G (AMSTAR) and Appendix H and J (Jadad).

Findings

The 2016 OOHC evidence and gap map report listed 93 primary studies and 31 systematic reviews. After screening out 16 primary studies and four systematic reviews on the grounds outlined above, we included 77 primary studies and 12 systematic reviews from the original search in the updated map. To this, we added 51 primary studies and 12 systematic reviews. This brought the total number of studies in the updated evidence and gap map to 128 primary studies and 31 systematic reviews.

Outcomes

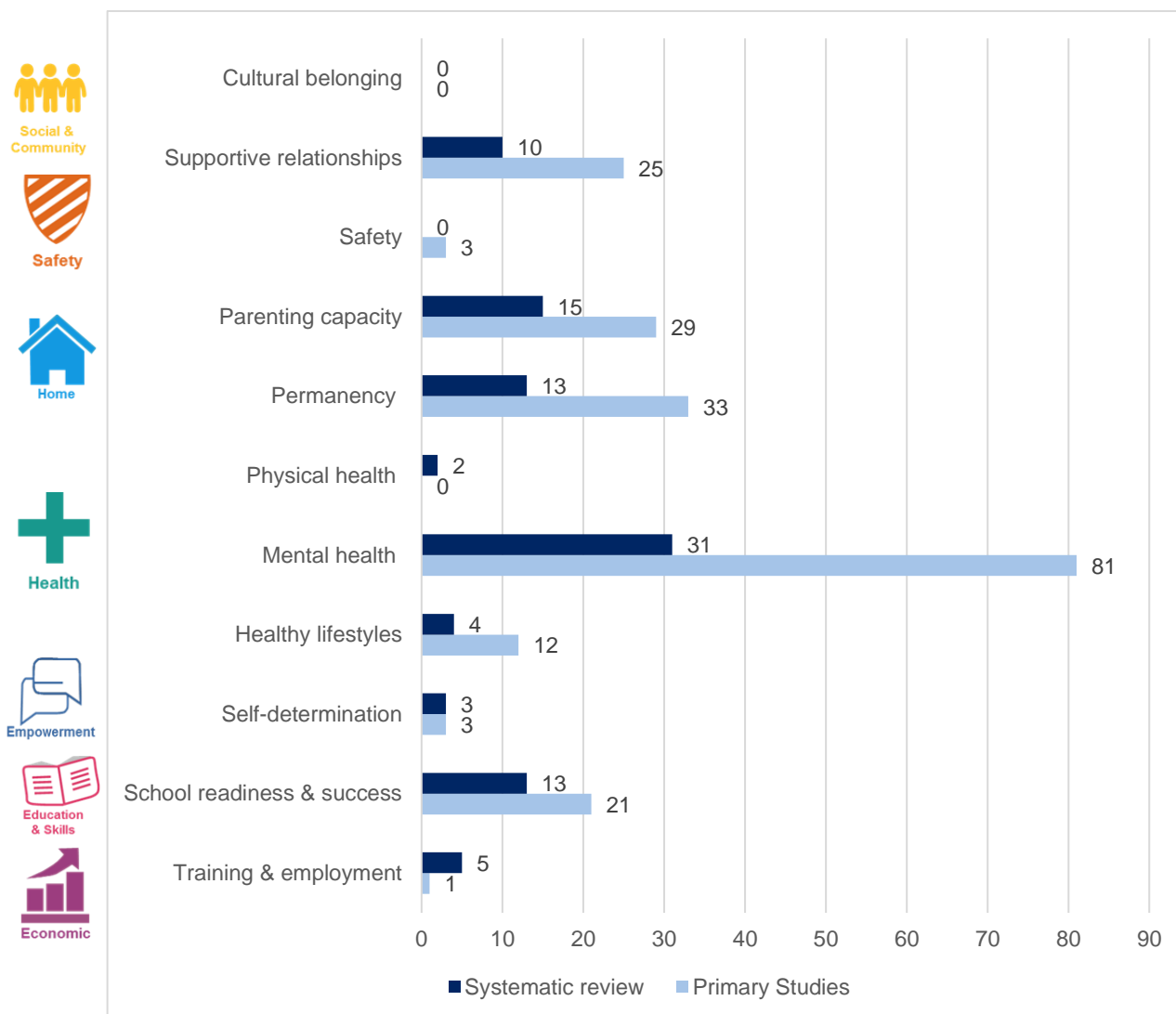
Figure 3 provides an overview of the outcomes measured in these primary studies and systematic reviews, broken down according to the NSW Human Services Outcomes Framework domains and the core client outcomes.

As this figure indicates, the most common core client outcome measured in the studies included in the updated OOHC evidence and gap map was ‘mental health’, which is in the Health domain of the NSW Human Services Outcomes Framework. Of the 128 primary studies in the map, 81 measured the impact of particular interventions on the psychological wellbeing of both children in OOHC and their carers (among other things). All 31 of the systematic reviews in the map reported on mental health outcomes. The core client outcome of ‘permanency’, which is in the Home domain of the NSW Human Services Outcomes Framework, was the second most common, followed by ‘parenting capacity’ in the Safety domain.

The core client outcome reported on by the smallest number of studies is ‘cultural belonging’ in the Social and Community domain of the NSW Human Services Outcomes Framework. The 2016 CEI search uncovered no studies reporting on this outcome, and no new studies were discovered through the update. This gap in the existing outcome research is concerning, given the overrepresentation of Aboriginal and Torres Strait Islander children in OOHC in Australia, and the imperative that these children and youth develop, maintain and strengthen their cultural and spiritual identity. As the authors of the original OOHC report note:

The role of cultural identity for child wellbeing has been documented in the literature...and the integration of indigenous culture through Aboriginal and Torres Strait Islander child-rearing practices and community-led services and solutions should therefore be a natural element of service design in Australia. However, policy developers and service providers will not find any guidance in the scientific literature on what works best, and how indigenous culture can be integrated into the design and delivery of services most effectively. This is particularly concerning when considering that – if recent conditions for the growth of OOHC populations remain the same – the number of Aboriginal and Torres Strait Islander children is expected to triple over the next twenty years (SNAICC et al., 2016). The examination of the effectiveness of culturally sensitive, competent, and sustainable services and interventions is therefore more pertinent than ever (p.30).

Figure 3: Studies in the OOHC evidence and gap map by NSW Human Services Outcomes Framework domains and DCJ Core Client outcomes



Interventions

The following table provides a breakdown of the types of studies in the OOHC evidence and gap map by intervention.

Table 5: Number of studies included in the OOHC evidence and gap map, by intervention

Type of Intervention	Primary studies	Systematic reviews - unique (focussing on one single intervention)	Systematic reviews - multiple (focussing on multiple interventions)
Therapeutic foster care	37	2	4
Carer training and support	16	3	8
Restoration support	18	2	0
Attachment-based interventions	16	2	6
School readiness and support	12	3	0
Youth behavioural change	15	2	2
Child-centred therapy	5	0	2
Leaving care and after care support	4	6	0
Other interventions	5	3	1

A brief summary of the articles contained within each of these intervention categories is provided in the following section.

Therapeutic foster care

The original search in 2016 produced 33 studies focused on therapeutic foster care (TFC), and two systematic reviews. Through the update we identified a further four primary studies: one published since September 2016 (Jonkman et al. 2017), and three that were not captured in the first search (Fisher et al. 2000; Fisher et al. 2011; Graham et al. 2012).

The vast majority of these studies focused on Treatment Foster Care Oregon (TFCO), formerly known as Multidimensional Treatment Foster Care (MTFC). TFCO is a multicomponent program for children and young people with severe behavioural problems, developed by the Oregon Social Learning Centre. Specially trained and highly supervised foster parents deliver the program with ongoing support from program staff. These foster parents follow a manualised approach to improving behaviour and wellbeing, by establishing clear limits, reinforcing pro-social behaviour, closely supervising the child and diverting them from associations with delinquent peers and towards adult mentors and positive peers.

One of the reasons for the high volume of evidence for the TFCO model is that Oregon Social Learning Centre has published a number of follow-up studies to their RCTs. For instance, eight articles focused on the same cohort of 166 girls from Oregon (Harold 2013; Kerr 2009, 2014; Level et al. 2013; Poulton 2014; Rhoades 2014; Van Ryzin 2012) and another three focused on a subset of 81 girls from this larger cohort (Chamberlain 2007; Leve et al. 2007,2013). Nine publications reported various follow-up and outcome results of the same 117 foster pre-schoolers in Oregon (Fisher, Burraston and Pears 2005; Fisher and Kim 2007; Fisher et al. 2007; Fisher and Stoolmiller 2008; Fisher, Kim and Pears 2009; Fisher et al. 2011; Graham et al. 2012; Laurent et al. 2014; Pears 2010), and reported on the cost-effectiveness of this intervention (Lynch 2014). Another two publications report on the same study cohort of 79 boys in Oregon (Chamberlain and Reid 1998; Eddy et al. 2004). Outside of the US, MTFC has also been trialled in Sweden (Bergström et al. 2015; Hansson and Olsson 2012; Westermark et al. 2011) and the UK (Green et al. 2014; Sinclair et al. 2016). Another model, "Together Facing the Challenge" is based on the MTFC model (Farmer et al. 2010).

Other intensive treatment programs include the Fostering Individualized Assistance Program (Clark et al. 1994) and family-centred intensive case management (Evans et al. 1996). The most recent systematic review concluded that, while "the results of individual studies generally indicate that TFC is a promising intervention for children and youth experiencing mental health problems, behavioral problems, or problems of delinquency, the evidence base is not robust and more research is needed due to the limited number of studies in this area" (Turner and Macdonald 2011, 501).

Table 6: Therapeutic foster care – Primary studies

Citation	Jadad score	Country	Population	Participants	Outcomes			
					Domains	Instruments	Human Services Outcomes Framework	Core client outcomes
Multidimensional treatment foster care (MTFC)								
1 Hansson, K and Olsson, M 2012, 'Effects of multidimensional treatment foster care (MTFC): Results from a RCT study in Sweden', <i>Children and Youth Services Review</i> , vol. 34, no. 9, pp. 1929-1936.	2	Sweden	Young people aged 12-17 years with emotional and behavioural issues	Intervention group = 19	Placement Stability	No. of placements	Home	Permanency
					Psychosocial symptom	Child behavioral checklist, Youth self-report	Health	Mental health
					Mother's symptoms	The symptom checklist-90		
2 Bergström, M and Højman, L 2015, 'Is multidimensional treatment foster care (MTFC) more effective than treatment as usual in a three-year follow-up? Results from MTFC in a Swedish setting', <i>European Journal Social Work</i> , vol. 19, no. 2, pp. 219-235	2			Treatment as usual = 27	Placement Stability	No. of placements	Home	Permanency
					Treatment exits	Whether the juvenile moved to more/ less secure alternatives	Health	Mental health
3 Chamberlain, P, Leve, L and Degarmo, D 2007, 'Multidimensional treatment foster care for girls in the juvenile justice system: 2-year follow-up of a randomized clinical trial', <i>Journal of Consulting and Clinical Psychology</i> , vol. 75, no. 1, pp. 187-193.	2	US	Girls aged 13-17 years old in foster	Intervention group = 37	Delinquency	Elliott General Delinquency Scale (self-report)	Health	Mental health
						Days in locked settings		
						Criminal referrals		
4 Leve, L, Chamberlain, P and Reid, J 2005a, 'Intervention outcomes for girls referred from juvenile justice: effects on delinquency', <i>Journal of Consulting and Clinical Psychology</i> , vol. 73, no. 6, pp. 1181-1185.	2			Control group = 44	Delinquency	Elliott General Delinquency Scale (self-report)	Health	Mental health
						Days in locked settings		

	care: randomised trial and observational cohort evaluation”, The British Journal of Psychiatry, vol. 204, no. 3, pp. 214-221.		placements/ at risk of custody/ showing complex or severe emotional difficulties	Care as usual = 14	Mental health	Youth Self Report			
					Behavioural problems	Child Behavioral Checklist	Health	Mental health	
					Delinquency	Offending data			
11	Harold, G, Kerr, D, Van Ryzin, M, DeGarmo, D, Rhoades, K and Leve, L 2013, 'Depressive symptom trajectories among girls in the juvenile justice system: 24-month outcomes of an RCT of Multidimensional Treatment Foster Care', <i>Prevention Science</i> , vol. 14, no. 5, pp. 437-446.	3			Depression	Brief Symptom Inventory	Health	Mental health	
12	Kerr, D, Leve, L and Chamberlain, P 2009, 'Pregnancy rates among juvenile justice girls in two randomized controlled trials of multidimensional treatment foster care', <i>Journal of Consulting Clinical Psychology</i> , vol. 77, no. 3, pp. 588-593.	3			Pregnancies	n/a	Health	Healthy lifestyles	
					Delinquency	Criminal		Mental health	
13	Kerr, D, DeGarmo, D, Leve, L and Chamberlain, P 2014, 'Juvenile justice girls' depressive symptoms and suicidal ideation 9 years after Multidimensional Treatment Foster Care', <i>Journal of Consulting and Clinical Psychology</i> , vol. 82, no. 4, pp. 684-693.	3	US	Young girls aged 13-17 years in out-of-home care with at least one criminal reference during last 12 months	Intervention group = 81	Depression	Center for Epidemiologic Studies– Depression instrument	Health	Mental health
					Group care = 85	Suicidal ideation	Brief Symptom Inventory		
14	Leve, L, Kerr, D and Harold, G 2013, 'Young Adult Outcomes Associated with Teen Pregnancy Among High-Risk Girls in an RCT of Multidimensional Treatment Foster Care', <i>Journal of Child and Adolescent Substance Abuse</i> , vol. 22, no. 5, pp. 421-434.	1				Pregnancies	n/a	Health	Healthy lifestyles
						Substance use	Interviews		
15	Poulton, R, Van Ryzin, M, Harold, G, Chamberlain, P, Fowler, D, Cannon, M, Arseneault, L and Leve, L 2014, 'Effects of multidimensional treatment foster care on psychotic symptoms in girls. Journal of the American Academy of Child and Adolescent Psychiatry, vol. 53, no. 12, pp. 1279-1287.	3				Psychotic symptoms	Brief Symptom Inventory: Psychotic Subscale	Health	Mental health
16	Rhoades, K, Leve, L, Harold, G, Kim, H, and Chamberlain P 2014, 'Drug Use Trajectories After a Randomized Controlled Trial of MTFC:	1				Substance use	Interviews	Health	Healthy lifestyles

	Associations with Partner Drug Use', <i>Journal of Adolescent Research</i> , vol. 24, no. 1, pp. 40-54.						Partner illicit drug use			
17	Van Ryzin, M and Leve, L 2012, 'Affiliation with delinquent peers as a mediator of the effects of multidimensional treatment foster care for delinquent girls' <i>Journal of Consulting and Clinical Psychology</i> , vol. 80, no. 4, pp. 588-596. (Jadad 2)	3					Delinquency	Elliott General Delinquency Scale (self-report) Criminal referrals Days in locked setting	Health Mental health	
18	McMillen, J, Narendorf, S, Robinson, D, Havlicek, J, Fedoravicius, N, Bertram, J and McNelly 2015, 'Development and piloting of a treatment foster care program for older youth with psychiatric problems', <i>Child and Adolescent Psychiatry and Mental Health</i> , vol. 9, no. 23.	2	US	Youth aged 16-18 with complex emotional difficulties residing in a residential facility	Intervention group = 7 Control group = 14		Maltreatment Reading level Mental health	Child Trauma Questionnaire Woodcock Johnson Passage Comprehension Brief Symptom Inventory	Safety Education and skills Health	Safety School readiness and success Mental health
19	Sinclair, I, Parry, E, Biehal, N, Fresen, J, Kay, C, Scott, S and Green, J 2016, 'Multi-dimensional Treatment Foster Care in England: differential effects by level of initial antisocial behaviour', <i>European Child and Adolescent Psychiatry</i> , vol. 25, no. 8, pp. 843-852.	0	UK	Youth aged 10-16 in foster care with complex emotional difficulties	Intervention =81 Treatment as Usual = 85		Emotional functioning Social functioning	Health of the Nation Outcome Scales for Children and Adolescents Children's Global Assessment Scale	Health Social and community	Mental health Supportive relationship
20	Westermarck, P, Hansson, K and Olsson, M 2011, 'Multidimensional treatment foster care (MTFC): Results from an independent replication', <i>Journal of Family Therapy</i> , vol. 33, no. 1, pp. 20-41.	3	Sweden	Young people who meet the clinical diagnosis of conduct disorder	Intervention group = 30 Treatment as usual = 15		Behaviour	Child behaviour checklist, Youth self-report	Health	Mental health
Multidimensional treatment foster care (MTFC) for Pre-Schoolers										
21	Bruce, J, McDermott, J, Fisher, P, Fox, N 2009, 'Using behavioral and electrophysiological measures to assess the effects of a preventive	1	US	Pre-school aged foster	Intervention group = 10		Cognitive development	Flanker inference effect	Education and skills	

	intervention: a preliminary study with preschool-aged foster children', <i>Prevention Science</i> , vol. 10, no. 2, pp. 129-140.			children and their carers	11 Treatment as Usual		Response monitory		School readiness and success
					11 =Low income no treatment		Electrophysiology measures		
22	Jonkman, C, Schuengel, C, Oosterman, M, Lindeboom, Boer, R, Ramon, L 2017, 'Effects of Multidimensional Treatment Foster Care for Preschoolers (MTFC-P) for Young Foster Children with Severe Behavioral Disturbances', <i>Journal of Child and Family Study</i> , vol. 26, pp. 1491–150	5	Holland	Children aged 3-7 in permanent foster care with behavioural and emotional disturbances, and their carers	Intervention group = 55	Behavioural problems	Child Behavioral Checklist, Parent Daily Report	Health	Mental health
					Control group = 23	Caregiver stress	Nijmeegse Ouderlijke Stress Index-kort		
						Trauma symptoms	Trauma Symptom Checklist for Young Children		
						Parent-child attachment	Disturbances of Attachment Interview	Social and community	Supportive relationship
23	Fisher, P, Gunnar, M, Chamberlain, P and Reid, J 2000, 'Preventive Intervention for Maltreated Preschool Children: Impact on Children's Behaviour, Neuroendocrine Activity, and Foster Parent Functioning', <i>The Journal of the American Academy of Child and Adolescent Psychiatry</i> , vol. 39, no. 11, pp. 1356–1364.	0	US	Youths referred for to treatment care because of placement disruptions /highly disruptive /aggressive behaviour	Intervention group = 10	Parenting Strategies	Child Caregiver Interviewer Impressions Form	Safety	Parenting capacity
					Regular foster care group= 10	Caregiver Stress Related to the Child's Behaviour	Parent Daily Report		
					Community comparison group = 10	Child Behaviour Problems	Early Childhood Inventory	Health	Mental health
						Child stress	Salivary cortisol		
24	Fisher, P, Burraston, B and Pears K 2005, 'The early intervention foster care program: permanent placement outcomes from a randomized trial', <i>Child Maltreatment</i> , vol. 10, no. 1, pp. 61-71	2				Child stress	Serum cortisol levels	Health	Mental health

25	Fisher, P and Kim, H 2007a, 'Intervention effects on foster preschoolers' attachment-related behaviors from a randomized trial', <i>Prevention Science</i> , vol. 8, no. 2, pp. 161-170	1				Parent-child attachment	Parent Attachment Diary	Social and community	Supportive relationship
26	Fisher, P, Stoolmiller, M, Gunnar, M and Burraston, B 2007b, 'Effects of a therapeutic intervention for foster preschoolers on diurnal cortisol activity', <i>Psychoneuroendocrinology</i> , vol. 32, no. 8-10, pp. 892-905.	2				Child Stress	Serum cortisol levels	Health	Mental health
27	Fisher, P and Stoolmiller, M 2008, 'Intervention effects on foster parent stress: associations with child cortisol levels', <i>Development and Psychopathology</i> , vol. 20, no. 3, pp. 1003-1021	2			Intervention group = 57	Parenting stress	Parent Daily Report	Safety	Parenting capacity
							Cortisol level	Health	Mental health
28	Fisher, P, Kim, H and Pears, K 2009, 'Effects of Multidimensional Treatment Foster Care for Pre-schoolers (MTFC-P) on reducing permanent placement failures among children with placement instability', <i>Children and Youth Services Review</i> , vol. 31, no. 5, pp. 541-546.	1	US	Children aged 3-5 years in foster carer and their carers	Regular foster care = 60	Permanency outcomes	Successful permanency attempts	Home	Permanency
29	Fisher, P, Stoolmiller, M, Mannering, A, Takahashi, A and Chamberlain, P 2011, 'Foster placement disruptions associated with problem behavior: mitigating a threshold effect', <i>Journal of Consulting and Clinical Psychology</i> , vol. 79, no. 4, pp. 481-487.	2				Permanency outcomes	Placement disruptions	Home	Permanency
						Child behaviour	Parent Daily Report	Health	Mental health
30	Fisher, P, Van Ryzin, M, Gunnar, M 2011, 'Mitigating HPA axis dysregulation associated with placement changes in foster care', <i>Psychoneuroendocrinology</i> , vol. 36, pp. 531-539.	4				Permanency outcomes	Placement changes	Home	Permanency
						Child stress	Salivary cortisol	Health	Mental health
31	Graham, A, Yockelson, M, Hyoun, K, Jacqueline, B, Pears and Fisher, P 2012, 'Effects of maltreatment and early intervention on diurnal cortisol slope across the start of school: A pilot study', <i>Child Abuse and Neglect</i> , vol. 36, pp. 666-670.	3				Child stress	Salivary cortisol	Health	Mental health
32	Laurent, H, Gilliam, K, Bruce, J and Fisher, P 2014, 'HPA stability for children in foster care: mental health implications and moderation by early intervention', <i>Developmental Psychobiology</i> , vol. 56, no. 6, pp. 1406-1415	2				Child behaviour	Diagnostic Interview Schedule for Children	Health	Mental health
						Child stress	Salivary Cortisol Collection and Assay		

33	Lynch, F, Dickerson, J, Saldana, L, and Fisher, P 2014, 'Incremental net benefit of early intervention for preschool-aged children with emotional and behavioral problems in foster care', <i>Children and Youth Services Review</i> , vol. 36, pp. 213-219.	1				Permanency outcomes	Permanent placements achieved	Home	Permanency
						Academic competence	Teacher report and school data	Education and skills	School readiness and success
34	Pears, K, Fisher, P, Bruce, J, Kim, H and Yoerger, K 2010, 'Early elementary school adjustment of maltreated children in foster care: The roles of inhibitory control and caregiver involvement', <i>Child Development</i> , vol. 81, no. 5, pp. 1550-1564.	0				Social-Emotional competence	Teacher Social Competence and Loneliness and Social Dissatisfaction	Health	Mental health
								Social and community	Supportive relationships
Together Facing the Challenge									
35	Farmer, E, Burns, B, Wagner, H, Murray, M and Southerland, D 2010, 'Enhancing "usual practice" treatment foster care: findings from a randomized trial on improving youths' outcomes', <i>Psychiatric Services</i> , vol. 61, no. 6, pp. 555-561.	1	US	Adolescents living in Therapeutic foster care homes	Intervention group = 137 SAU in Therapeutic foster care homes =110	Emotional problems/ Attention hyperactivity	Strengths and Difficulties Questionnaire/ Behavioral and Emotional Rating Scale	Health	Mental health
						Conduct problems	Parent Daily Report		
Family-Centered Intensive Case Management									
36	Evans, M, Armstrong, M and Kuppinger, A 1996, 'Family-centred intensive case management: a step toward understanding individualized care', <i>Journal of Child and Family Studies</i> , vol. 5, no. 1, pp. 55-65.	2	US	Children aged 5–12 referred to therapeutic foster care	Intervention group = 27 Family-Based Treatment =15	Child behaviour	Child Behavioural, Client Description Form	Health	Mental health
						Family functioning	Family Adaptability and Cohesion Evaluation Scale	Social and community	Supportive relationship
Fostering Individualized Assistance Program									
37	Clark, H, Prange, M, Lee, B, Boyd, L, McDonald, B and Stewart, E 1994, 'Improving adjustment outcomes for foster children with	3	US	Children aged 7-15	Intervention group = 46	Externalising and	Child Behavior Checklist	Health	Mental health

emotional and behavioral disorders: Early findings from a controlled study on individualized services', <i>Journal of Emotional and Behavioural Disorders</i> , vol. 2, no. 4, pp. 207-218.	ysr old in foster care with behavioural and emotional disturbances, and their carers	SAU = 61	internalising behaviour	Youth Self-Report Placement Changes Runaways, Detention
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Table 7: Therapeutic foster care – Systematic reviews

#	Citation	AMSTAR	Studies included		Outcomes	Human Services Outcomes Framework	Core Client outcomes
			Type	Country			
1	Hahn, R Bilukha, O, Lowy, J, Crosby, A, Fullilove, M, Liberman, A, Moscicki, E, Snyder, S, Tuma, F, Corso, P and Schofield, A 2005, 'The Effectiveness of Therapeutic Foster Care for the Prevention of Violence: A Systematic Review', <i>American Journal of Preventive Medicine</i> , vol. 28, suppl. 1, pp. 72-90.	6	1 RCT, 2 controlled trials, 2 other studies	Not recorded	Violent/ criminal outcomes Psychiatric diagnosis of conduct disorder Externalizing behaviour	Health	Mental health
2	Macdonald, G and Turner, W 2008, 'Treatment foster care for improving outcomes in children and young people', <i>The Cochrane Database of Systematic Review</i> , vol 1. CD005649.	2	5 RCTs	All US	Placement stability Educational achievements, school attendance Risk behavior/ drug use Behaviour and psychological functioning Social/ interpersonal functioning	Home Education and skills Health Social and community	Permanency School readiness and success Healthy behaviours Mental health Supportive relationships

Carer training and support

The 2016 OOHC evidence and gap map included seven studies focused on improving foster carers' parenting skills and one systematic review. While updating the evidence and gap map we identified another eight primary studies published since 2016 (Akin et al. 2017a; Akin et al. 2017b; Akin and McDonald 2018; Conn et al. 2018; Maaskant et al. 2017; Van Andel et al. 2016; Van Holen et al. 2016), and one missed in the original search (Pithouse, Hill-Tout and Lowe 2002). We also identified two new systematic reviews and meta-analyses (Solomon, Niec and Schoonover 2017; Uretsky and Hoffman 2017).

Interventions in this category generally use a cognitive-behavioural, skills-based approach to increase positive parenting. Two articles studied the effect of Parent Management Training Oregon (PMTO) on foster carers for 86 children aged 4 to 12 years in Holland (Maaskant et al. 2016; Maaskant et al. 2017). A further four studies looked at the implementation of another parenting program informed by the Oregon Social Learning Center; the 'Keeping Foster Parents Trained and Supported' program (Leathers et al. 2014; Price et al. 2008; Price et al. 2012; Price et al. 2015).

Another four articles focused on the implementation of 'The Incredible Years' program in the United States (Linares et al. 2006; Linares et al. 2012, Conn et al. 2018) and United Kingdom (Bywater et al. 2011). 'The Incredible Years' program is a mainstream positive parenting program, which focuses on building warm and nurturing parent-child and teacher-child relationships through child-directed play, social and emotion coaching, praise and incentives. Two more articles looked at the development of a broadly-based cognitive behavioural parenting program developed by researchers in the United Kingdom, the 'Child Wise Program', on 117 foster children of all ages (Macdonald and Turner 2005; Herbert and Wookey 2007).

One of the recent systematic reviews and meta-analyses focused on group-based parenting programs and concluded: "all studies reported a significant decrease in at least one measure of child behavior problems for treatment-group participants" (Uretsky and Hoffman 2016, 464). Another, which looked at the effect of these programs on children's disruptive behaviour, concluded that, on average, foster parents who were involved in the training reported higher levels of knowledge and fewer child behaviour problems (Solomon, Niec and Schoonover 2016).

Table 8: Carer training and support – Primary studies

#	Citation	Jadad Score	Country	Population	Participants	Outcomes			
						Domain	Instrument	Human Services Outcomes Framework	Core client outcomes
Incredible Years									
1	Bywater, T, Hutchings, J, Linck, P, Whitaker, C, Daley, D, Yeo, S and Edwards, R 2011, 'Incredible Years parent training support for foster carers in Wales: a multi-centre feasibility study', <i>Child: Care, Health and Development</i> , vol. 37, no. 2, pp. 233-243	3	UK	Foster carers looking after children aged 2 to 17 years	Intervention group = 46	Parenting competency	Parenting competency scale	Safety	Parenting capacity
						Foster carer depression levels	Beck Depression Inventory (BDI)]		
					Control group = 17	Child behaviour and emotional problems	Eyberg Child Behaviour Inventory/ Strengths and Difficulties Questionnaire	Health	Mental health
2	Conn et al. 2018, 'Pilot randomized controlled trial of foster parent training: A mixed-methods evaluation of parent and child outcomes', <i>Children and Youth Services Review</i> , vol. 89, pp. 188-197.	1	US	Children aged 2–7 year in foster care and their carers	Intervention group =16	Child behaviour	Child Behavioural Checklist-CBCL	Health	Mental health
3	Linares, L, Montalto, D, Li, M and Oza, V 2006, 'A promising parenting intervention in foster care', <i>Journal of Consulting and Clinical Psychology</i> , vol. 74, no. 1, pp. 32-41.	1	US	Biological and foster parents of children, aged 3-10 years, with the goal of family restoration	Intervention group =40 parent pairs	Parenting practices	Parenting Practices Interview (PPI)	Safety	Parenting capacity
						Co-parenting	Functioning Style Scale		
						Usual care = 24 parent pairs	Externalising behaviours	Child Behavior Checklist	Health
4	Linares, L, Li, M and Shrout, P 2012, 'Child training for physical aggression? Lessons from foster care', <i>Children and Youth Services Review</i> , vol. 34, no. 12, pp. 2416-2422.	2	US	Children aged 5-8 in foster care and their carers	Intervention group = 47	Aggression	Eyberg Student Behavior Inventory	Health	Mental health
						Self-control	51-item measure by Wills et al 2007		
						Usual care = 44	Psychiatric disorders	Computer-based Diagnostic Interview	

							Schedule for Children		
Parent Management Training Oregon									
5	Maaskant, A, van Rooij F, Overbeek, G, Oort, F and Hermanns, J 2016, 'Parent training in foster families with children with behavior problems: Follow-up results from a randomized controlled trial', <i>Children and Youth Services Review</i> , vol. 70, pp. 84-94	3		Foster parents of children aged 4- 12 with severe behavioral problems, placed within long-term care	Intervention group = 46	Foster parent stress	Parenting Stress Index	Safety	Parenting capacity
						Parenting behaviour	Parenting Behavior Questionnaire		
6	Maaskant, A, van Rooij F, Overbeek, G, Oort, Arntz, M and Hermanns, J 2017, 'Effects of PMTO in Foster Families with Children with Behavior Problems: A Randomized Controlled Trial', <i>Journal of Child and Family Studies</i> , vol. 26, no. 2, pp. 523-539.	5	Holland	Foster parents of children aged 4- 12 with severe behavioral problems, placed within long-term care	Control group = 40	Parent motivation	Parent Motivation Inventory	Safety	Parenting capacity
						Foster parent stress	Parenting Stress Index		
						Parenting behaviour	Parenting Behavior Questionnaire		
						Child behaviour	Child Behavioural Checklist and Teacher report	Health	Mental health
						Child behaviour	Child Behavioural Checklist and Teacher report	Health	Mental health
Foster Family Intervention									
7	Van Andel, H, Post, W, Jansen, L, Van der Gaag R, Knorth, E, Grietens, H 2016, 'Optimizing foster family placement for infants and toddlers: A randomized controlled trial on the effect of the foster family intervention', <i>American Journal of Orthopsychiatry</i> , vol. 86, no. 3, pp. 332-344.	3	Holland	Children in foster care under the age of 5 and their carers	Intervention group = 56	Parenting stress	Nijmeegse Ouderlijke Stress Index Revised	Safety	Parenting capacity
						Child stress	Salivary cortisol	Health	Mental health
Foster carer training									
8	Van Holen F, Vanschoonlandt, F, Vanderfaeillie, J 2016, 'Evaluation of a foster parent intervention for foster children with externalizing problem behaviour', <i>Child and Family Social Work</i> , vol. 22, no. 3, pp. 1216-1226.	3	Belgium	Foster parents who take care of a child aged 3–12 with externalizing problems	Intervention group = 33	Child behaviour	Child Behavioural Checklist	Health	Mental health
						Parenting stress	Nijmegen Questionnaire on Child-rearing	Safety	Parenting capacity

The Child Wise Programme									
9	Macdonald, G and Turner, W 2005, 'An Experiment in Helping Foster-Carers Manage Challenging Behaviour', <i>The British Journal of Social Work</i> , vol. 35, no. 8, pp. 1265-1282.	2	UK	Children in foster care of all ages and their carers	Intervention group = 67	Child behaviour	Child Behavioural Checklist	Health	Mental health
						Placement breakdown	n/a	Home	Permanency
10	Herbert, M and Wookey, J 2007, 'The Child Wise Programme: a course to enhance the self-confidence and behaviour management skills of foster carers with challenging children', <i>Adoption and Fostering</i> , vol. 31, no. 4, pp. 27-37.	2	UK	Children in foster care of all ages and their carers	Waitlist control = 50	Caregiver knowledge	Knowledge of Behavioural Principles as Applied to Children	Safety	Parenting capacity
						Child behaviour	Child Behavioural Checklist	Health	Mental health
						Foster carer knowledge	Knowledge of Behavioural Principles as Applied to Children	Safety	Parenting capacity
						Foster carer satisfaction	Foster Carer Satisfaction Questionnaire		
Keeping Foster Parents Trained and Supports (KEEP): group foster parent program, focused on how to increase cooperation, effective encouragement, incentive charts and discipline strategies									
11	Leathers, S, Spielfogel, J, Gleeson, J and Rolock, N 2012, 'Behavior problems, foster home integration, and evidence-based behavioral interventions: What predicts adoption of foster children?' <i>Children and Youth Services Review</i> , vol. 34, no. 5, pp. 891-899.	0	US	Children aged 4-12 in a foster home that received a specialized foster care rate for the selected child	Intervention group = 15	Permanency	Likelihood of adoption or restoration	Home	Permanency
						Externalising, internalising behaviour	Child Behaviour Checklist	Health	Mental health
						Mental health	Psychotropic medication use		
12	Price, J, Chamberlain, P, Landsverk, J, Reid, J, Leve, L and Laurent, H 2008, 'Effects of a foster parent training intervention on placement changes of children in foster care', <i>Child Maltreatment</i> , vol. 13, no. 1, pp. 64-75.	2	US	Children in foster or kinship care aged 5-12 and their carers	Intervention group = 359	Placement stability	Stability in living conditions	Home	Permanency
13	Price, J, Roesch, S and Walsh, N 2012, 'Effectiveness of the KEEP Foster Parent	1			Control group = 341	Child behaviour problems	Parent Daily report Checklist	Health	Mental health

Intervention during an Implementation Trial', <i>Child Youth Services Review</i> , vol. 34, no. 12, pp.2487-2494.									
14	Price J, Roesch, S, Walsh, N, Landsverk, J 2015, 'Effects of the KEEP Foster Parent Intervention on Child and Sibling Behavior Problems and Parental Stress During a Randomized Implementation Trial', <i>Prevention Science</i> , vol. 16, no. 5, pp. 685-695.	1	US	Children in foster or kinship care aged 5-12 and their carers	Intervention group = 161 Control group = 171	Parenting stress	Parent Daily report Checklist	Safety Health	Parenting capacity Mental health
Other									
15	Pithouse, A, Hill-Tout and Lowe, K 2002, 'Training foster carers in challenging behaviour: a case study in disappointment?', <i>Child and Family Social Work</i> vol. 7, pp. 203–214.	2	UK	Children in foster care aged 4-18 with challenging behaviours and their carers	Intervention group = 49 Control group = 54	Challenging behaviour Carer stress	Challenging Behaviour Attributions Scale Challenging Behaviour Attributions Scale	Health Safety	Mental health Parenting capacity
Communicating with Children: helping children in distress									
16	Minnis, H, Pelosi, A, Knapp, M and Dunn, J 2001, 'Mental health and foster carer training', <i>Archives of Disease in Childhood</i> , vol. 84, no. 4, pp. 302-306.	2	UK	Children aged 5 to 16 years and their foster carers	Intervention group = 182 Control group = 106	Parent-child attachment Stress Child psychopathology	Strengths and Difficulties Questionnaire (SDQ) Modified Rosenberg Self-esteem Scale Reactive Attachment Disorder Scale	Social and community Health	Supportive relationships Mental health

Table 9: Carer training and support – Systematic reviews

#	Citation	AMSTAR Score	Studies included		Outcomes measured	Human Services Outcomes Framework	Core Client outcomes
			Type	Country			
1	Everson-Hock, E, Jones, R, Guillaume, L, Clapton, J, Goyder, E, Chilcott, J, Payne, N, Duenas, A, Sheppard, L and Swann, C 2012, 'The effectiveness of training and support for carers and other professionals on the physical and emotional health and well-being of looked-after children and young people: a systematic review', <i>Child: Health, Care and Development</i> , vol. 38, no.2 pp. 162-174.	7	5 RCTs, 1 other	UK: 3, USA: 3	Placement stability	Home	Permanency
					Emotional health and wellbeing	Health	Mental health
					Behavioural problems		
2	Uretsky, M and Hoffman, J 2017, 'Evidence for Group-Based Foster Parent Training Programs in Reducing Externalizing Child Behaviors: A Systematic Review and Meta-Analysis', <i>Journal of Public Child Welfare</i> , vol. 11, no. 4-5, pp. 464-486.	6	11 RCTs, quasi-randomised trials and single group studies	Britain: 3, US: 7, Romania:1	Child externalising and internalizing behavior, hyperactivity	Health	Mental health
					Caregiving depression, stress, knowledge and practice of positive parenting	Safety	Parenting capacity
3	Solomon, D, Niec, L and Schoonover, C 2017, 'The Impact of Foster Parent Training on Parenting Skills and Child Disruptive Behavior: A Meta-Analysis', <i>Child Maltreatment</i> , vol. 22, no. 1, pp. 3-13.	5	16 RCTs and quasi-experimental studies	Countries not listed	Child externalising and internalizing behavior, hyperactivity	Health	Mental health
					Parent skills and knowledge	Safety	Parenting capacity

Restoration support

One primary study in the original OOHC evidence and gap map looked at the effect that involving birth parents in planning and decision-making has on the restoration rate (Stein and Gambrell 1977). By repeating the original search and supplementing it with a limited secondary search focused on restoration, we identified another 17 primary studies in this category and two systematic reviews and meta-analyses.

Nine studies focused specifically on parents with substance abuse problems. Five of these looked at the impact of Family Treatment Drug Courts (FTDC). These programs involve regular court hearings in a non-adversarial setting, designed to remind parents of the changes they need to make to be reunified with their children and to encourage them to complete substance abuse treatment (Burrus, Mackin, and Finigan 2011; Green et al. 2007; Worcel et al. 2008). We also identified a meta-analysis of these studies, which concluded that “FTDCs have substantially promoted family restoration without increasing children’s risks of foster care re-entry or maltreatment report” (Zhang et al. 2019, 13).

Another two studies looked at the impact of using recovery coaches to help substance abusing parents deal with their addictions (Ryan et al. 2006, Ryan et al. 2007). In three other studies, substance-abusing families received comprehensive services matched to their particular problems (Natale et al. 2013; Choi and Ryan 2007, Brook and McDonald 2007). A systematic review which encompassed all restoration interventions for substance abusing families concluded that comprehensive service and matching was the key to program success, “regardless of the chosen treatment model” (Murphy et al. 2017, 426).

Another five interventions delivered training to all parents with children in care. Three studies looked at the impact of the Parent Management Training Oregon (PMTO) program on 918 biological parents of children in foster care aged three to 16 (Akin et al. 2017; Akin et al. 2018; Akin and McDonald 2018; Dakof, Cohen, and Duarte 2000; Boles et al. 2007). This program, developed by the same researchers who created TFCO at the Oregon Social Learning Center, targets children whose behavioural issues are not so severe that they require treatment care. Other studies looked at the impact of the Intensive Reunification Program (Berry, McCauley and Lansing 2007) and the Strengthening Families Program (Brook, McDonald and Yan 2012), which both provide behavioural parent training.

One recent meta-analysis looked specifically at interventions that focused on family engagement and reunification. The authors concluded that parents exposed to “goal-oriented engagement interventions showed greater engagement and likelihood of reunification than parents who received standard services” (Maltais et al 2019, pp.362)

Table 10: Restoration support – Primary studies

Recovery coaches									
1	Ryan, J, Victory, B, Moore, Andrew, A, Wombray, O and Perron, B 2016, 'Recovery coaches and the stability of reunification for substance abusing families in child welfare', <i>Children and Youth Services Review</i> , vol. 70, pp. 357–363.	1	US	Children in foster care and their substance abusing parents	Intervention group = 1112	Stability of restoration	Rate of re-entry into care	Home	Permanency
					Control group = 511			Safety	Safety
2	Ryan, J, Perron, B, Moore, A, Victor, B and Keunhye, P 2017 'Timing matters: A randomized control trial of recovery coaches in foster care', <i>Journal of Substance Abuse Treatment</i> , vol. 77, pp. 178–184.	1	US	Children in foster care and their substance abusing parents	Intervention group = 1078	Restoration rates	Child protection records	Home	Permanency
					Service us usual =				
Family Drug Court									
3	Green, B, Furrer, C, Worcel, S, Burrus, S, and Finigan, M. 2007, 'How effective are family treatment drug courts? Outcomes from a four-site national study', <i>Child Maltreatment</i> , vol. 12, no. 1, pp. 43–59.	0	US	Children in foster care and their substance abusing parents	Intervention group = 250	Restoration rates	Child protection records	Home	Permanency
					Treatment as Usual = 201	Substance abuse treatment outcomes	Treatment entry and completion rates and speed	Safety	Parenting capacity
4	Burrus, S, Mackin, J and Finigan, M 2011, 'Show me the money: Child welfare cost savings of a family drug court', <i>Juvenile and Family Court Journal</i> , vol. 62, no. 3, pp. 1–14.	0	US	Children in foster care and their substance abusing parents	Intervention group = 200	Restoration rates	Child protection records	Home	Permanency
					Treatment as usual = 200	Substance abuse treatment outcomes	Treatment entry and completion rates and speed	Safety	Parenting capacity
5	Worcel, S, Furrer, C, Green, B, Burrus, S and Finigan, M 2008, 'Effects of family treatment drug courts on substance abuse and child welfare outcomes', <i>Child Abuse Review</i> , vol. 17, no. 6, pp. 427–443.	0	US	Children in foster care and their substance mothers	Intervention group = 300	Restoration rates	Child protection records	Home	Permanency
					Treatment as usual = 915	Substance abuse treatment outcomes	Treatment entry and completion rates and speed	Safety	Parenting capacity
6	Boles, S, Young, N, Moore, T and Di-Pirro-Beard, S 2007, 'The Sacramento dependency drug court: Development and outcomes', <i>Child Maltreatment</i> , vol. 12, no. 2, pp. 161–171.	0	US	Children in foster care and their substance abusing parents	Intervention group = 573	Restoration rates	Child protection records	Home	Permanency
					Treatment as usual = 111	Substance abuse treatment outcomes	Treatment entry and completion rates and speed	Safety	Parenting capacity

7	Dakof, G, Cohen, J, and Duarte, E 2000, 'Increasing family reunification for substance abusing mothers and their children: Comparing two drug court interventions in Miami', <i>Juvenile and Family Court Journal</i> , vol. 60, no. 4, pp. 11–23.	0	US	Children in foster care and their parents with substance abuse issues	Intervention group = 43	Restoration rates	Child protection records	Home	Permanency
					Treatment as usual = 37	Substance abuse treatment outcomes	Treatment entry and completion rates and speed	Safety	Parenting capacity
Alameda project									
8	Stein, T and Gambrill, E 1977, 'Facilitating Decision Making in Foster Care: The Alameda Project', <i>Social Service Review</i> , vol. 51, no. 3, pp. 502-513	1	US	Children who entered foster care through neglect petitions	Intervention group = 227	Parenting problems	Problems identified by workers	Safety	Parenting capacity
					Care as usual = 201	Restoration rates	n/a	Home	Permanency
Parent Management Training Oregon									
9	Akin, B and McDonald, T 2018 'Parenting intervention effects on reunification: A randomized trial of PMTO in foster care', <i>Child Abuse and Neglect</i> , vol. 83, pp. 94-105.	3			Intervention group = 461	Restoration rates	Child protection data	Home	Permanency
10	Akin, B, Lang, K, McDonald, T, Yueqi, Y and Little, T 2017, 'Randomized Study of PMTO in Foster Care: Six-Month Parent Outcomes', <i>Research on Social Work Practice</i> , vol. 28, no. 7, pp. 810-826.	3	US	Children aged of 3- 16, entering or re-entering foster care, and identified as having emotional and/or behavioural problems, and their biological parents		Effective parenting	Family Interaction Task	Safety	Parenting capacity
						Caregiver functioning	Carolina Family Assessment Scale	Health	Mental health
11	Akin, B, Lang, K, Yueqi, Y McDonald T 2018, 'Randomized trial of PMTO in foster care: 12-month child well-being, parenting, and caregiver functioning outcomes', <i>Child and Youth Services Review</i> , vol. 95, pp. 49-63.	3			Service as Usual = 457	Effective parenting	Family Interaction Task	Safety	Parenting capacity
						Child social skills	Social Skills Improvement System-Rating Scale	Social and community	Supportive relationship
Intensive Reunification Program									
12	Berry, M, McCauley, K and Lansing, T 2007, 'Permanency through Group Work: A Pilot	1	US	Children in foster care of all ages and their biological parents	Intervention group = 12	Parenting skills	Adult Adolescent Parenting Inventory	Safety	Parenting capacity

					Control group = 16	Social support, life skills, relational skills	Strengths and Stressors Tracking Device, Interviews	Social and community	Supportive relationships
						Restoration rates	Child protection data	Home	Permanency
First Level: Comprehensive Service-Delivery Model									
13	0	US	Substance abusing families with children in foster care		Intervention group = 60	Restoration rates	Child protection data	Home	Permanency
					Control group = 79	Re-entry into care			
Strengthening Families Program									
14	0	US	Substance abusing families with children in foster care aged 3 to 11.		Intervention group = 214	Restoration rates	Child protection data	Home	Permanency
					Control group = 423				
Matching services for co-occurring problems									
15	0	US	Substance abusing families with children in foster care		Intervention group = 953	Restoration rates	Child protection data	Home	Permanency
					Control group = 366				
Cherish the Family									
16	0	US	Substance abusing mothers of children aged 0-3 in care, who are at risk abandoning their children		Intervention group = 45	Parental capabilities	Parenting Stress Index	Safety	Parenting capacity
						Parent-child interactions	Mahoney Maternal Behavior Rating Scale	Social and community	Supportive relationships
					Comparison group = 30	Readiness for restoration, child well-being	North Carolina Family Assessment Scale-Re-unification (NCFAS-R).	Home	Permanency
Intensive casework									

17	Pine, B, Spath, R, Werrbach, G, Jenson, C, Kerman, B 2009, 'A better path to permanency for children in out-of-home care', <i>Children and Youth Services Review</i> , vol. 31, pp. 1135–1143.	0	US	Children in foster care of all ages and their biological parents	Intervention group = 254 children and their families Control group = 221 children and their families	Restoration rates Adoption rate Legal guardianship rates	Child welfare records	Home	Permanency
Casey Family Services									
18	Walton, E, Fraser, M, Lewis, R, Pecora, P and Walton, W 1993, 'In-Home Family-Focused Reunification: An Experimental Study', <i>Child Welfare</i> , vol. 72, no. 5, pp. 473-87.	0	US	Children who'd been in foster care more than 30 days and had restoration as a goal	Intervention group = 57 families Control group = 53 families	Restoration	Child welfare records	Home	Permanency

Table 11: Restoration support – Systematic reviews

	Citation	AMSTAR	Studies included		Outcomes	Human Services Outcomes Framework	Core Client outcomes
			Design	Country			
1	Zhang, S, Huang, H, Qu, Q, Li, Y and Liu, M 2019, 'The impacts of family treatment drug court on child welfare core outcomes: A meta-analysis', <i>Child Abuse and Neglect</i> , vol. 88, pp. 1–14.		17 quasi-experimental studies	16: US, 1: UK	Restoration rates Maltreatment re-report/foster care reentry	Home Safety	Permanency Parenting capacity
2	Murphy, A, Harper, W, Griffiths, A and Joffrion, C, 'Family Reunification: A Systematic Review of Interventions Designed to Address Co-Occurring Issues of Child Maltreatment and Substance Use', <i>Journal of Public Child Welfare</i> , vol. 11, no. 4-5, pp. 413-432.		11 quasi-experiment studies	Not listed	Restoration rates Parenting skills	Home Safety	Permanency Parenting capacity

Attachment-based interventions

The 2016 OOH evidence and gap map included eleven studies and two systematic reviews focused on improving attachments between foster carers and children in their care. During the update we discovered four primary studies published since 2016 (Bernard, Lee and Dozier 2017; Lind et al. 2017; Raby et al. 2017; Messer et al. 2018) and one missed in the original search (Bick and Dozier 2013). All of these interventions are based on attachment theory, which posits that infants require a relationship with an emotionally sensitive caregiver who provides consistent and predictable care. Such interventions are particularly important for fostered or adopted children, who most likely experienced damaging disruptions in their early relationships.

Eight of the interventions looked at the implementation of Attachments and Bio-behavioural Catch-up (ABC): a 10-week, in-home intervention primarily for early childhood aged children who have experienced early maltreatment and/or disruptions in care (Bernard, Lee and Dozier 2017; Dozier et al. 2006; Dozier et al. 2008; Dozier et al. 2009; Lewis-Morrarty et al. 2012; Lind et al. 2017; Raby et al. 2019; Sprang 2009). The ABC intervention seeks to teach care givers how to provide nurturing care and create a responsive, predictable, warm environment that enhances young children's behavioural and regulatory capabilities.

Another four studies look at Parent-Child Interaction Therapy (PCIT) for foster parents (Mersky et al. 2015; Mersky et al. 2016; Sprang 2009; N'zi et al. 2016). The PCIT intervention is based on attachment and social learning theory, and includes live coaching through a 'bug-in-ear' device. PCIT consists of two treatment phases: Child-Directed Interaction (CDI) and Parent-Directed Interaction (PDI). One of the studies (N'Zi et al. 2016) focused on the CDI, while the others focused on the whole treatment. A fifth study (Messer et al. 2018) focused on another skills-based intervention to enhance the adult-child relationship based on a modification of PCIT: Child adult relationship enhancement (CARE). A final three studies focused on the Promoting First Relationships (PFR) program (Nelson et al. 2013; Spieker et al. 2012; Spieker et al. 2014). PFR is similar to PCIT, in that it's a home-based, manualised attachment-based intervention, which uses video feedback for reflective practice.

Many of these studies have been published since the relevant systematic review (Kerr et al. 2014). This review concluded that there is evidence that attachment-based interventions may have a positive impact on the behavioural, emotional and relational functioning of children in foster care, but suggests that these results should be treated with caution due to the poor methodological strength of the majority of the included studies. A recent, high-quality, overarching review and meta-analysis also included attachment interventions and concluded there was strong evidence that Attachment and Bio-behavioural Catch Up therapy improves attachment (Bergstorm et al. 2018).

Table 12: Attachment-based interventions – Primary studies

Citation	Jadad score	Country	Population	Participants	Domain	Outcomes		
						Instrument	Human Services Outcomes Framework	Core client outcomes
Attachment and Bio-behavioural Catch-up								
1	3	US	Pre-school age children in foster care and their carers	Intervention group = 24 Control group = 28 Development Education for families (DEF)	Child's receptive vocabulary skills	Peabody Picture Vocabulary Test	Social and community	Supportive relationships
2	2	US	Children in foster care under the age of 22 months	Intervention group = 44 DEF = 52	Maternal Sensitivity	5-point Likert scale	Social and community	Supportive relationships
3	2	US	Children in foster care (age range from 3.6 to 39.4 months)	Intervention group = 60 Intact low-risk families =29	Child behaviour Child stress	Parent's Daily Report Saliva sampling Cortisol assay	Health	Mental health
4	2	US	Children in foster care aged 15 to 24 months	Intervention group = 141 DEF =104 Never-been in foster care comparison group n=48	Child-parent attachment Child's stress	Strange Situation test Saliva sampling Cortisol assay	Social and community Health	Supportive relationships Mental health

5	Dozier, M, Lindhiem, O, Lewis, E, Bick, J, Bernard, K and Peloso, E 2009, 'Effects of a Foster Parent Training Program on Young Children's Attachment Behaviors: Preliminary Evidence from a Randomized Clinical Trial', <i>Child Adolescent Social Work</i> , vol. 26, no. 4, pp. 321-332	2	US	Children (age ranged from 3.6 to 39.4 months) in foster families	Intervention group = 46 DEF = 24	Child-parent attachment	Parent Attachment Diary Validation of Parent Attachment Diary	Community	Supportive relationship
6	Lind, T, Raby, L, Caron, E, Roben, C and Dozier, M 2017, 'Enhancing executive functioning among toddlers in foster care with an attachment-based intervention', <i>Development and Psychopathology</i> , vol. 29, no. 2, pp. 575-586.	1	US	Pre-school age children in foster/ low-risk families and their carers	Intervention group = 63 DEF	Attention regulation problems	Child Behaviour Checklist	Health	Mental health
					Intact low-risk families = 52	Cognitive functioning	Dimensional Change Card Sort	Education and skills	School readiness and success
7	Lewis-Morrarty, E, Dozier, M, Bernard, K, Terracciano, S and Moore S 2012, 'Cognitive flexibility and theory of mind outcomes among foster children: preschool follow-up results of a randomized clinical trial', <i>Journal Adolescent Health</i> , vol. 51, no. 2, pp. 17-22	0	US	Children aged 4-6 years who are in foster care	Intervention group = 20 Non-foster care = 24	Cognitive functioning	Dimensional Change Card Sort	Education and skills	School readiness and success
8	Raby, K, Freedman, E, Yarger, H, Lind, T, Dozier, M 2019, 'Enhancing the language development of toddlers in foster care by promoting foster parents' sensitivity: results from a randomized controlled trial', <i>Development science</i> , vol. 22, no. 2, pp. e12753	5	US	Children in foster care between 36 - 60 months old and their carers	Intervention group = 45 Control group = 28	Child's receptive vocabulary skill Foster carers sensitivity	Peabody Picture Vocabulary Test Video recording	Social and community	Supportive relationships
9	Sprang, G 2009, 'The Efficacy of a Relational Treatment for Maltreated Children and their Families', <i>Child and Adolescent Mental Health</i> , vol. 14, no. 2, pp. 81-88.	1	US	Children aged 0 - 5 who had experienced severe maltreatment resulting in termination of parental rights and their adoptive families	Intervention group = 26	Parenting stress	Parenting Stress Index-Short Form	Health	Mental health
					Control group = 27	Internalising and externalising behaviours Child safety	Child Behaviour Checklist The Child Abuse Potential Inventory	Safety	Safety

Parent Child Interaction Therapy									
10	Mersky, J, Topitzes, J, Janczewski, C and McNeil, C 2015, 'Enhancing foster parent training with parent-child interaction therapy: Evidence from a randomized field experiment', <i>Journal of the Society for Social Work and Research</i> , vol. 6, no. 4, pp. 591-616	2	US	Children in foster care aged between 3 - 6 years old in the clinical range for externalizing problems	Intervention group = 129	Parenting stress	Parenting Stress Index Short Form	Safety	Parenting capacity
					Waitlist control = 46	Parent-child interaction	Dyadic Parent-Child Interaction Coding System	Social and community	Supportive relationships
11	Mersky, J, Topitzes, J, Grant-Savela, S, Brondino, M and McNeil, C 2016, 'Adapting Parent-Child Interaction Therapy to Foster Care: Outcomes from a Randomized Trial', <i>Research on Social Work Practice</i> , vol. 26, no. 2, pp. 157-167.	2	US	Children in foster care aged between 3 - 6 years old in the clinical range for externalizing problems	Intervention group = 19	Internalising and externalising symptoms	Eyberg Child Behaviour Inventory, Child Behaviour Checklist	Health	Mental health
					Wait list control = 33				
12	N'Zi, A, Stevens, M and Eyberg, S 2016, 'Child Directed Interaction Training for young children in kinship care: A pilot study', <i>Child Abuse and Neglect</i> , vol. 55, pp. 81-91	2	US	Children aged 2- 7 years old in kinship care presenting behaviour problems	Intervention group = 7	Parent mental health	Beck Depression Inventory, Parenting Stress Index-Short Form	Health	Mental health
						Child Behaviour	Child Behaviour Checklist		
						Parent child interaction/relationship	Child-Parent Relationship Scale		
Child adult relationship enhancement									
13	Messer, E, Greiner, M, Beal, S, Eismann, E, Cassidy, A, Gurwitch, Boat, B, Bensman, H, Bemerer, J, Hennigan, M, Greenwell, Eiler-Sims, P 2018, 'Child adult relationship enhancement (CARE): A brief, skills-building training for foster caregivers to increase positive parenting practices', <i>Children and Youth Services Review</i> , vol. 90, pp. 74-82.	5	US	Foster parents who take care of children aged 3-12	Intervention group = 16	Parenting behaviour	Dyadic Parent-Child Interaction Coding	Safety	Parenting capacity
					Control group = 15	Child mental health	Trauma Symptom Checklist for Young children	Health	Mental health
Promoting First Relationship									

14	Spieker, S, Oxford, M, Kelly, J, Nelson, E and Fleming, C 2012, 'Promoting First Relationships: Randomized Trial of a Relationship-Based Intervention for Toddlers in Child Welfare', <i>Child Maltreatment</i> , vol. 17, no. 4, pp. 271-286	2	US	Toddlers aged 10 – 24 months) with a recent placement disruption	Intervention group = 105	Caregiver sensitivity	Nursing Child Assessment Teaching Scale	Social and community	Supportive relationships
					Parent-child attachment	Indicator of Parent-Child Interaction	Supportive relationships		
					Early Education Support = 105	Social engagement and competence	Brief Infant Toddler Social and Emotional Assessment		Supportive relationships
15	Spieker, S, Oxford, M and Fleming, C 2014, 'Permanency Outcomes for Toddlers in Child Welfare Two Years After a Randomized Trial of a Parenting Intervention', <i>Child Youth Service Review</i> , vol. 44, pp. 201-206.	1	US	Toddlers aged 10 – 24 months) with a recent placement disruption	Child behavior	Child Behavior Checklist	Health	Mental health	
					Placement stability	No. of moves, caregiver commitment	Home	Permanency	
16	Nelson, E, and Speiker, S 2013, 'Intervention Effects on Morning and Stimulated Cortisol Responses Among Toddlers in Foster Care', <i>Infant Mental Health Journal</i> , vol. 34, no. 3, pp. 211-221	1	US	Toddlers aged 10 – 24 months) with a recent placement disruption	Intervention group = 21	Stress	Serum cortisol levels	Health	Mental health
					Early Education support = 25				

Table 13: Attachment-based interventions – Systematic reviews

#	Citation	AMSTAR	Studies included		Outcomes	Human Services Outcomes Framework	Core Client outcomes
			Types	Countries			
1	Kerr L, Cossar J 2014, 'Attachment interventions with foster and adoptive parents: A systematic review', <i>Child Abuse Review</i> , vol. 23, no. 6, pp.426-439.	5	13 RCTs, quasi-experimental and other studies	USA: 5, UK: 5, Holland: 3	Emotional functioning Behavioural functioning Relational functioning	Health Social and community	Mental health Supportive relationships
2	Downes, M, Lakhani, A, Maujean, A, Macfarlane, K and Kendall, E 2016, 'Evidence for Using Farm Care Practices to Improve Attachment Outcomes in Foster Children: A Systematic Review', <i>British Journal of Social Work</i> , vol. 46, vol. 5, pp. 1421-1248.	2	n/a	n/a	n/a	Social and community	Supportive relationships

School readiness and support

The 2016 search identified five primary studies and one systematic review of interventions designed to improve school readiness and provide support to children in OOHC at school. During the update we identified another seven primary studies: one published since September 2016 (Lynch et al. 2017) and six missed in the original search (Harper and Schmidt 2012; Mooney et al. 2016; Lee and Lee 2016; Zetlin et al. 2004; Zinn and Courtney 2014; Flynn et al. 2012). We also found another two systematic reviews (Evans et al. 2017; Männistö and Pirttimaa 2018).

Research from the Oregon Social Learning Centre informed four of these articles. One looked at therapeutic playgroups (Pears et al. 2007), and another two looked at a school-readiness playgroup program that developed from this earlier trial – the Kids in Transition to School program (KITS) (Pears et al. 2012, Pears et al. 2013). Another study analysed the cost-effectiveness of this program (Lynch et al. 2017). A further three articles from the US drew on data about foster children from the larger Head Start Impact study (Lee 2016; Pears et al. 2012; Pratt et al. 2015). Head Start is an early childhood education program that had been delivered to low-income children and families across the United States.

Two studies from Canada looked at the effects of Direct Instruction – a remedial literacy and maths program with a systematic curriculum based on explicit instruction methods. The first of these studies examined the impact of a model in which volunteer foster parents delivered tutoring to children in their care (Flynn et al. 2012). The second used a small-group tutoring model with volunteer university students as tutors (Harper and Schmidt 2012). Another US study looked at Early Start to Emancipation Program (ESTEP), an individualised, home-based tutoring program delivered by undergraduate and graduate students (Zinn and Courtney 2014). A US study also looked at the effect of assigning young people in foster care with liaison officers from the local education agency, co-located in the child welfare agency office (Zetlin, Weinberg, and Kimm 2004). A final primary study from Northern Ireland looked at the impact of a book-gifting program on education outcomes (Mooney, Winter and Connolly 2016).

In the 2017 review, Evans et al. note that the Kids in Transition, Headstart and Teach Your Children Well interventions improved academic skills, but the Letterbox Club and ESTEP program did not. However, they concluded, “no definitive statements should be made with regards to effect”, because of the “extensive variation in conduct and reporting” (p.87). In another recent review, Männistö and Pirttimaa concluded that “tutoring as an academic support and mentoring as a socio-emotional one appeared to have potential. However, implementation characteristics, such as length, context or whether tutoring/mentoring was one-on-one or a group design, affected the results. What is more certain is that to be effective, mentoring has to be consistent, long lasting and substantial” (2018, 276)

Table 14: School readiness and support – Primary studies

Citation	Jadad score	Country	Population	Participants	Domain	Outcomes		
						Instrument	Human Services Outcomes Framework	Core Client outcomes
Therapeutic playgroups								
1 Pears, K, Fisher, P and Bronz K 2007, 'An Intervention to Promote Social Emotional School Readiness in Foster Children: Preliminary Outcomes From a Pilot Study', <i>School Psychology Review</i> , vo. 36, no. 4, pp. 665-673.	1	US	Children in foster care entering kindergarten	Intervention group = 11	Behaviour	Child Behaviour Checklist	Health	Mental health
				Services as usual = 13	Emotional regulation	Emotion Regulation Checklist	Education and skills	School readiness and success
					Social problems	Teacher Report Form		
Kids in Transition to School								
2 Pears, K, Fisher, P, Kim, H, Bruce, J, Healey, C and Yoerger, K 2013, 'Immediate Effects of a School Readiness Intervention for Children in Foster Care', <i>Early Educational Development</i> , vol. 24, no. 6, pp. 771-791.	1	US	Pre-school aged children in foster and kinship care care	Intervention group =102	Literacy skills	Dynamic Indicators of Basic Early Literacy Skills	Education and skills	School readiness and success
				Care as usual = 90	Self - regulation	Children's Behaviour Questionnaire	Health	Mental health
					Prosocial skills	Preschool Penn Interactive Peer Play Scale	Social and community	Supportive relationships
3 Pears, K, Kim, H and Fisher, P 2012, 'Effects of a school readiness intervention for children in foster care on oppositional and aggressive behaviors in kindergarten', <i>Children and Youth Services Review</i> , vol. 34, no. 12, pp.2361-2366.	1	US	Children in foster and kinship care entering kindergarten	Intervention group =102	Parent involvement	Home visits/ interviews	Safety	Parenting capacity
	Spanking (discipline)							
4 Lynch et al. 2017, 'Cost effectiveness of a school readiness intervention for foster children', <i>Children and Youth Services Review</i> , vol. 81, pp. 63–71.	1			Control group = 102	Internalising and		Education and skills	School readiness and success

						externalising behaviour	Health	Mental health
Head Start								
5	Lee, K 2016, 'Head Start's Impact on Cognitive Outcomes for Children in Foster Care', <i>Child Abuse Review</i> , vol. 25, no. 2, pp. 128-141.	1				Maths and reading scores	Woodcock-Johnson III Tests of Achievement, Math Reasoning	Education and skills School readiness and success
6	Lee, K and Lee, K 2016. 'Parental Book Reading and Social-Emotional Outcomes for Head Start Children in Foster Care', <i>Social Work in Public Health</i> , vol. 31, no. 5, pp. 408-418.	1	US	Children in foster care aged 5- 6 years	Intervention group = 65 Control group = 97	Hyperactive and aggressive scores	Adjustment Scales for Preschool Intervention	Health Mental health
						Relationship with parents/ teachers	Robert Pianta scales	Education and skills School readiness and success
7	Pratt, M, Lipscomb, S and Schmitt S 2015, 'The effect of head start on parenting outcomes for children living in non-parental care', <i>Journal of Child and Family Studies</i> , vol. 24, no. 10. Pp. 2944-2956.	1	US	Pre-school age children in foster and kinship care	N= 181	Parent involvement in education	Interviews	Education and skills School readiness and success
						Spanking (discipline)	Parent/primary caregiver reports	Safety Parenting capacity
Direct Instruction								
8	Harper, J and Schmidt, F 2012, 'Preliminary effects of a group-based tutoring program for children in long-term foster care', <i>Children and Youth Services Review</i> , vol. 34, pp. 1176-1182.	2	Canada	Children in long-term foster care between grades 2 and 8 inclusive	Intervention group = 35 Control group = 30	Reading, spelling, and mathematic skills	Wide Range Achievement Test Fourth Edition	Education and skills School readiness and success

9	Flynn, R, Marquis, R, Paquent, M, Peeke, M and Aubry, T 2012, 'Effects of individual direct-instruction tutoring on foster children's academic skills: A randomized trial', <i>Children and Youth Services Review</i> , vol. 34, no. 6, pp. 1183-1189		Canada	Children in foster care aged 6 - 13 years	Intervention group = 42 Waitlist control = 35	Reading, spelling and mathematics skills	Wide Range Achievement Test Fourth Edition	Education and skills	School readiness and success
Education liaison support									
10	Zetlin, A, Weinberg, L and Kimm, C 2004, 'Improving Education Outcomes for Children in Foster Care: Intervention by an Education Liaison', <i>Journal of Education for Students Placed At Risk</i> , vol. 9, no. 4, pp. 421-429.	1	US	Elementary, middle and high-school aged youth in foster care	Intervention group = 60 Control group = 60	Academic achievement School stability School attendance	Grade point average, math and reading scores No. of schools attended during the 2-year period. No. of days attended	Education and skills	School readiness and success
The Letterbox Club									
11	Mooney, J, Winter, K and Connolly, P 2016, 'Effects of a book gifting programme on literacy outcomes for foster children: A randomised controlled trial evaluation of the Letterbox Club in Northern Ireland', <i>Children and Youth Services Review</i> ; vol. 65, pp. 1-8.	4	Northern Ireland	Youth in foster care aged 7-11 years	Intervention group = 60 Control group = 56	Reading ability Enjoyment of reading	Neale Analysis of Reading Ability Survey	Education and skills	School readiness and success
ESTEP-Tutoring program									
12	Zinn, A and Courtney, M 2014, 'Context matters: Experimental evaluation of home-based tutoring for youth in foster care', <i>Children and Youth Services Review</i> , vol. 47, no. 3, pp. 198-204.	2	US	Youth in foster care aged 14- 15, who were behind grade level in reading or math	Intervention group = 277 control group= 252	Academic achievement Psycho-social wellbeing	Woodcock-Johnson Test, GPA Achenbach Youth Self-Report, The Self-Report Delinquency Scale	Education and skills Health Social and community	School readiness and success Mental health Supportive relationships

Table 15: School readiness and support – Systematic reviews

Citation	AMSTAR score	Included studies		Outcomes	Human Services Outcomes Framework	Core client outcomes
		Design	Countries			
1 Evans, R, Brown, R, Rees, G and Smith, P 2017, 'Systematic review of educational interventions for looked-after children and young people: Recommendations for intervention development and evaluation', <i>British Educational Research Journal</i> , vol. 43, no. 1, pp. 68-94.	6	12 RCTs	US: 7, Canada: 3, UK: 2	Academic skills, grade completion, special education status, homework completion, school attendance, suspension and drop out, number of school placements, teacher-student relationships, school behavior and academic attitudes	Education and skills	School readiness and success
2 Männistö, I and Pirttimaa, R 2018, 'A review of interventions to support the educational attainments of children and adolescents in foster care', <i>Adoption and Fostering</i> , vol. 42, no. 3, pp. 266–281.	7	4 RCTs, 11 quasi-experimental, 4 other studies	USA: 11, Canada: 2, UK: 2, Sweden: 3, Finland: 1	Grades and school attendance	Education and skills	School readiness and success
				Mental health and socio-emotional well-being	Health	Mental health
				Social relationships and behavior	Social and community	Supportive relationships
3 Liabo, K, Gray, K, Mulcahy, D 2012, 'A systematic review of interventions to support looked-after children in school', <i>Child and Family Social Work</i> , vol. 18, no. 3, pp. 341-353.	7	11 non-experimental studies	USA: 4, UK: 6, Scotland: 1	Final year exams School exclusion numbers School attendance numbers Literacy and numeracy	Education and skills	School readiness and success

Youth behavioural change

The 2016 search revealed five studies that focused on preventing anti-social and risky behaviours among youths in foster care. Through the update we identified eight additional primary studies: published since September 2016 (Braciszewski et al. 2018; Cepukiene et al. 2018; Green et al. 2017; Haggerty et al. 2019; Kim et al. 2017; Oman et al. 2018; Schuurmans et al. 2017; Van Leishout et al. 2019) and two missed in the original search (Taussig et al. 2012; Johnson, Pryce and Martinovich 2010). We also identified one systematic review (Hammarström, Stenqvist and Lindroth 2018).

Five studies focused on programs to reduce substance abuse. Four studies looked at the implementation of the KEEP SAFE program developed by the Oregon Social Learning Center (Kim and Leve 2011; Kim et al. 2013; Smith, Leve, and Chamberlain; Kim 2011, Buchanan and Price 2017). KEEP SAFE aims to prevent substance use by teaching foster/kin parents methods for creating a safe environment and encouraging safe behaviour and positive peer relationships, and providing the youth directly with skills through weekly coaching sessions. Another study focused on a self-directed substance abuse prevention program, Staying Connected with Your Teen, which supports foster families as they work through videos and workbooks at home (Haggerty et al. 2019).

Another three studies looked at sexual health and related behaviour. Two looked at the implementations of the Power through Choices, an adolescent pregnancy and sexually-transmitted infection prevention program, delivered to girls living in group homes (Oman et al. 2018; Green et al. 2017). Another study looked at the implementation of a sexual harassment prevention program delivered to boys in group homes in Holland (Van Lieshout et al. 2019).

Three studies looked at the Fostering Healthy Futures program, which provides manualised skills groups and one on-one mentoring with social workers to youth in out-of-home care (Taussig and Culhane 2010; Taussig et al. 2012a; Taussig et al. 2012b). This program takes a positive youth development approach. It focuses on fostering the development of skills and competencies rather than reducing undesirable behaviours (such as drug abuse). Another study from the US looked at the effects of therapeutic mentoring for youth (Johnson, Pryce and Martinovich 2010). A final study looked at the impact of a biofeedback videogame, Dojo, designed to reduce externalising and internalising behaviour (Schuurmans et al. 2017).

The included systematic review focused specifically on sexual health interventions. The authors concluded, “group-based educational interventions in general increase knowledge, attitudes and behaviour compared with standard care”. However, they cautioned that “these findings need to be further investigated, with a special emphasis on cultural context and the involvement of young people” (Hammarström, Stenqvist and Lindroth 2018, 830).

Table 16: Youth behavioural change – Primary studies

Citation	Jadad score	Country	Population	Participants	Outcomes			
					Domains	Instrument	Human Services Outcomes Framework	Core Client Outcomes
Power through Choices								
1 Oman, R, Vesely, S, Green, J, Clements-Nolle, K and Lu, M 2018, 'Adolescent Pregnancy Prevention Among Youths Living in Group Care Homes: A Cluster Randomized Controlled Trial', <i>American Journal of Public Health</i> , vol. 108, no. 1, pp. S38-S44.	3	US	Youth aged 13-18 living in groups homes	Intervention group = 517	Contraceptive use	Surveys	Health	Healthy lifestyles
				Care as usual = 519	Pregnancy rates	Surveys		
2 Green, J, Oman, R, Lu, M, Clements- Nolle, K. 2017, 'Long-Term Improvements in Knowledge and Psychosocial Factors of a Teen Pregnancy Prevention Intervention Implemented in Group Homes', <i>Journal of Adolescent Health</i> , vol. 60, no. 6, pp. 698-705.	1	US	Youth aged 13-18 living in groups homes	Intervention group = 519	Sexual behaviours and attitudes	Survey	Health	Healthy lifestyles
				Care as usual = 519	Sexual health and fertility knowledge	Test		
					Behavioural intentions	Survey		
Technology based interventions								
3 Schuurmans, A, Nijhof, K, Engels, R, Granic, I 2018 'Using a Videogame Intervention to Reduce Anxiety and Externalizing Problems among Youths in Residential Care: an Initial Randomized Controlled Trial', <i>Journal of Psychopathology and Behavioral Assessment</i> , vol. 40 no. 2, pp. 344-354.	3	US	Youths living in residential care	Intervention group = 18	Anxiety	Spence Children's Anxiety Scale	Health	Mental health
				Care as usual = 19	Externalizing Problems	Strengths and Difficulties Questionnaire		
4 Braciszewski, J Wernette, G, Moore R, Bock, B, Stout, R and Chamberlain, P 2018, 'A pilot randomized controlled trial of a technology-based substance use intervention for youth exiting foster care', <i>Children and Youth Services Review</i> , vol. 94, pp.466-476.	3	US	Youths existing foster care	Intervention group = 14	Substance abuse	Study enrolment, retention and engagement	Health	Healthy lifestyles
				Care as usual = 19		Study satisfaction		

Staying Connected with Your Teen									
5	Haggerty, K, Barkan, S, Skinner, M, Packard, B and Cole, J 2019, 'Feasibility of Connecting, a Substance-Abuse Prevention Program for Foster Teens and their Caregivers', <i>Journal of the Society for Social Work and Research</i> , vol. 7, no. 4, pp. 639-659.	2	US	Teens between 11-15 years of age and their carers	Intervention group = 28	Family conflict and attachment	Moos Family Environment Scale, Inventory of Parent and Peer Attachment	Social and Community	Supportive relationships
					Control group = 32	Deviant attitudes and problem solving skills	Self-reported survey, caregiver reports	Health	Healthy lifestyles
KEEP SAFE (formerly the Middle School Success intervention)									
6	Kim, H and Leve L 2011, 'Substance use and delinquency among middle school girls in foster care: a three-year follow-up of a randomized controlled trial', <i>Journal of Consulting Clinical Psychology</i> , vol. 79, no. 6, pp.740-750.	3			Intervention group = 48	Substance abuse	Interviews	Health	Healthy lifestyles
						Delinquency	Self-Report Delinquency Scale		
						Prosocial behaviour	Parent Daily Report Checklist	Health	Mental health
7	Kim, H, Pears, K, Leve, L, Chamberlain, P and Smith, D 2013. 'Intervention Effects on Health-Risking Sexual Behavior Among Girls in Foster Care: The Role of Placement Disruption and Tobacco and Marijuana Use', <i>Journal of Child and Adolescent Substance Abuse</i> , vol. 22, no. 5, pp. 370-387.	3	US	Girls in their final year of elementary school who are in foster care	Regular foster care = 52	Placement changes	Child welfare system records	Home	Permanency
						Substance abuse	Interviews	Health	Healthy lifestyles
						Risky sexual behaviour	Interviews		
8	Smith, D, Leve, L and Chamberlain, P 2011, 'Preventing Internalizing and Externalizing Problems in Girls in Foster Care as they Enter Middle School: Immediate Impact of an Intervention', <i>Prevention science</i> , vol. 12, no. 3, pp. 269-277.	3				Internalising and externalising behaviours	Parent Daily Report Checklist	Health	Mental health
9	Kim, H, Buchanan, R and Price, J 2017, 'Pathways to Preventing Substance Use Among Youth in Foster Care', <i>Prevention Science</i> , vol. 18, no. 5, pp. 567-576.	3	US	Youths in foster care aged 11-17 years	Intervention group = 117	Association with Deviant Peers	Self-Reported Delinquency Scale	Health	Healthy lifestyles
						Substance Use	Interviews		
					Control group= 142	Relationships	Interviews	Placement stability	Placement changes

Fostering Healthy Futures									
10	Taussig H and Culhane S 2010, 'Impact of a mentoring and skills group program on mental health outcomes for maltreated children in foster care', <i>Archives of Pediatrics and Adolescent Medicine</i> , vol. 164, no. 8, pp. 739-746.	2				Mental health	Trauma Symptom Checklist for Children, Child Behavior Checklist, Teacher Report Form	Health	Mental health
11	Taussig, H, Culhane, S, Garrido, E and Knudtson, M 2012a, 'RCT of a mentoring and skills group program: placement and permanency outcomes for foster youth', <i>Pediatrics</i> , vol. 130, no. 1, pp. 33-39.	1	US	Children 9 to 11 year old in foster care	Intervention group = 76	Placement changes and permanency	No. of placement changes	Home	Permanency
12	Taussig, H, Culhane, S, Garrido, E, Knudtson, M and Petrenko, L 2012b, 'Does Severity of Physical Neglect Moderate the Impact of an Efficacious Preventive Intervention for Maltreated Children in Foster Care?', <i>Child Maltreatment</i> , vol. 18, no. 1, pp. 56-64.	2			Assessment only = 68	Mental Health Functioning	Trauma Symptom Checklist for Children, Child Behavior Checklist, Teacher Report Form	Health	Mental health
						Coping Skills	The Coping Inventory		
						Social Acceptance and self-worth	Self-Perception Profile for Children	Social and community	Supportive relationships
Therapeutic mentoring									
13	Johnson, S, Pryce, J and Martinovich 2010, 'The Role of Therapeutic Mentoring in Enhancing Outcomes for Youth in Foster Care', <i>Child Welfare</i> . vol. 90, no. 5, pp. 51- 69.	0	US	Youth living in foster care who were assessed as being at-risk of placement disruption	Intervention group = 175 Limited mentoring = 40 Substantial mentoring = 38	Traumatic stress, Behavioural and emotional needs Risk behaviours	Child and Adolescent Needs and Strengths	Health	Mental health Healthy lifestyles
Make a move									
14		1	Netherlands			Self-esteem	Questionnaire	Health	Mental health

Van Lieshout, S, Mevissen, F, van Breukelen, G, Jonker, M and Ruiter, R 2019, 'Make a Move: A Comprehensive Effect Evaluation of a Sexual Harassment Prevention Program in Dutch Residential Youth Care', <i>Journal of Interpersonal Violence</i> , vol. 34, no. 9, pp. 1772-1800.			Boys in residential care aged 12 to 18	Intervention group = 15	Empathy			
				Control group =14	Attitudes towards dating violence and rape		Social and community	Supportive relationships
Solution focused interventions								
15	Cepukiene, V, Pakrošnis, R, Ulinskaite R 2018, 'Outcome of the solution-focused self-efficacy enhancement group intervention for adolescents in foster care setting', <i>Children and Youth Services Review</i> , vol.88, pp.871-87.	1	Lithuania	Adolescents in foster care	Intervention group = 29	Self-efficacy	Self-Efficacy Scale and	Health
					Control group = 29	Psychological Functioning	Adolescent Psychological Functioning Questionnaire	Mental health

Table 17: Youth behaviour change – Systematic reviews

Citation	AMSTAR	Type of studies	Country	Outcomes	Human Services Outcomes Framework	Core client outcomes
1 Hammarström, S, Stenqvist, K and Lindroth, M 2018, 'Sexual health interventions for young people in state care: a systematic review', <i>Scandinavian Journal of Public Health</i> , vol. 46, no. 8, pp. 817-834.	8	12 RCTS and quasi-experimental trials	(US: 11, Canada: 1)	Sexual or reproductive health Knowledge, attitudes and behaviours related to sexual or reproductive health	Health	Healthy lifestyles

Child-centred therapy

The 2016 search identified four primary studies that reported on the impact of therapy for children and young people in foster care. During the update we identified one study that was missed in the original search (Wiener et al. 2009).

Two of these studies focused on Trauma-Focused Cognitive Behavioural Therapy (TF-CBT): a modification of Cognitive Behavioural Therapy designed for children and young people who have suffered from abuse or other traumatic events and their non-offending parents, which focuses on psychoeducation and skill building (Weiner, Schneider, and Lyons 2009; Dorsey et al. 2014). One study compared the impact of TF-CBT and two other evidence-based practices; Child-Parent Psychotherapy and Structured Psychotherapy for Adolescents Responding to Chronic Stress, on foster children from different ethnic groups (Weiner, Schneider, and Lyons 2009). The other compared the impact of TF-CBT to an enhanced version of TF-CBT, which included an extra component designed to engage foster carers (Dorsey et al. 2014).

A third study looked at the impact of the Cognitive-Based Compassion Training: a Buddhist-influenced therapy that teaches loving-kindness, empathy and compassion (Reddy et al. 2013). Another looked at Life Story Interventions: a narrative and relationship based intervention administered in and around the children's homes by community-based, masters degree level professionals, experienced in working with children, e.g., teachers, child welfare professionals, counsellors (Haight et al. 2010). A final study looked at the impact of using community mental health practitioners to work directly with children in foster care (Love et al. 2008).

No systematic review looked specifically at child-directed therapy, but two overarching reviews assessed the relative effectiveness of these programs (Hambrick et al. 2016; Van Andel et al. 2012).

Table 18: Child-centred therapy

Citation	Jadad score	Country	Population	Participants	Domains	Instrument	Outcomes	
							Human Services Outcomes Framework	Core client outcomes
Trauma-focused cognitive behavioural therapy								
1 Dorsey, S, Pullmann, M, Berliner, L, Koschmann, E, McKay, M and Deblinger, E 2014, 'Engaging foster parents in treatment: a randomized trial of supplementing trauma-focused cognitive behavioral therapy with evidence-based engagement strategies', <i>Child Abuse and Neglect</i> , vol. 38, no. 9, pp. 1508-1520	US	Children and adolescents between 6-15 years of age and their foster parents	TBC-CBT = 28	Post-traumatic stress symptoms	UCLA Posttraumatic Stress Disorder-Reaction Index	Health	Mental health	
			TBC-CBT + evidence-based engagement studies = 25	Depression	Children's Depression Inventory			
				Emotional and behavioural difficulties	Child Behaviour Checklist,			
2 Weiner, D, Schneider, A and Lyons 2009, 'Evidence-based treatments for trauma among culturally diverse foster care youth: Treatment retention and outcomes', <i>Children and Youth Services Review</i> , vol. 31, pp. 1199-1205.	US	Children over age of 12 in foster care	Trauma- Focused Cognitive Behavioral Therapy = 53	Risk Behaviours	Child and Adolescent Needs and Strengths, Brief Infant Toddler Social Emotional Assessment, Youth Outcomes Questionnaire	Health	Mental health	
			Child-Parent Psychotherapy = 65	Psychological functioning				
			Structured Psychotherapy for Adolescents Responding to Chronic Stress = 33	Traumatic Stress Symptoms				
Life stories intervention: 7 months of weekly individual sessions of narrative and relationship-based therapy with children in care								
3 Haight, W, Black, J and Sheridan, K 2010, 'A Mental Health Intervention for Rural, Foster Children from Methamphetamine-involved Families: Experimental Assessment with Qualitative Elaboration', <i>Child Youth</i>	1	US	Rural children aged 7-15 in foster care whose parents misuse methamphetamine	Intervention group = 8	Mental health	Child Behaviour Checklist	Health	Mental health
				Waitlist = 8	Verbal and cognitive abilities	Peabody Picture Vocabulary Test	Education and skills	School readiness and success

<p><i>Service Review</i>, vol. 32, no. 10, pp. 1146-1457.</p>					Caregivers' Perspectives	Open ended questionnaire			
<p>Cognitive-based Compassion Training</p>									
4	<p>Reddy, S, Negi, L, Dodson-Lavelle, B, Ozawa-de Silva, B, Pace, T, Cole, S and Raison, C 2013, 'Cognitive-Based Compassion Training: A Promising Prevention Strategy for At-Risk Adolescents', <i>Journal of Child and Family Studies</i>, vol. 22, no. 2, pp. 219-230.</p>	1	US	<p>Children aged 13–17 in the foster care</p>	<p>Intervention group = 37</p> <hr/> <p>Waitlist group = 34</p>	<p>Behaviour</p> <hr/> <p>Depression</p> <hr/> <p>Anxiety</p> <hr/> <p>self-mutilation</p> <hr/> <p>Compassion, joy, self-acceptance, loving kindness</p>	<p>Child Behaviour Checklist</p> <hr/> <p>Quick Inventory of Depressive Symptomatology</p> <hr/> <p>State-Trait Anxiety Inventory</p> <hr/> <p>Functional Assessment of Self-Mutilation</p> <hr/> <p>Self-Other Four Immeasurables Scale</p>	Health	Mental health
<p>Community mental health practitioners</p>									
5	<p>Love, S, Koob, J and Hill, L 2008, 'The effects of using community mental health practitioners to treat foster children: Implications for child welfare planners', <i>The Scientific Review of Mental Health Practice</i>, vol. 6, no. 1, pp. 31-39.</p>	2	US	<p>Children between ages 6-17 years in OOHC for the first time</p>	<p>Intervention group = 23</p> <hr/> <p>Care as usual = 23</p>	<p>Placement disruption</p> <hr/> <p>Mental health</p> <hr/> <p>Behaviour</p>	<p>Placement changes</p> <hr/> <p>Beck Anxiety Inventory-Youth Version (BAI-Y), Children's Depression Inventory (CDI), Rosenberg Self Esteem Scale (RSE),</p> <hr/> <p>Achenbach Child Behaviour Checklist, Externalizing Scale.</p>	Home	Permanency

Leaving care and after care support

The 2016 search uncovered four primary studies and five systematic reviews of support programs for young people leaving OOHC. During the update, we discovered an additional two systematic reviews (Woodgate, Morakinyo and Martin 2017; Liu et al. 2019).

Two studies looked at the implementation of the TAKE CHARGE program, developed by researchers from Research and Training Center for Pathways to Positive Futures (Geenen et al. 2013; Power et al. 2012). This program uses a combination of coaching, parent support program and group mentoring with care leavers who have completed high school and are working or who are in college. Another study (Geenen et al. 2015) focused on the Better Futures intervention, which was adapted from the TAKE CHARGE model and includes participation in a summer institute. A fourth study looked at the Youth Villages Transitional Living programs, now known as YVLifeSet, which provides intensive, clinically focused case management, support and counselling to young people leaving care or juvenile justice (Valentine et al. 2012).

Relative to the number of primary studies of leaving care and aftercare support included in the evidence and gap map, there is a large number of systematic reviews of this subject. This suggests that, while there is a limited number of peer-reviewed randomised or quasi-randomised control trials, there is a much greater number of other empirical research in this area.

Three of the systematic reviews focused on Independent Living Programs. One review from 2006 limited the selection criteria to randomised control trials and did not identify any (Donkoh, Underhill and Montgomery 2006). The same authors summarised the results of eight non-randomised control trials and concluded, “ILPs may have protective effects for youth leaving the public care system” (Montgomery, Donkoh, Underhill 2006, 1435). Another systematic review looked at the effect of natural mentoring for young people leaving care, and concluded that it was a “promising practice” (Thompson, Greenson and Brunsink 2016, 40).

Two overarching reviews also indicated that there is promising evidence for leaving care and aftercare support programs generally. A 2011 review notes that young people who received these services were “more likely to complete compulsory education with formal qualifications, be in current employment, be living independently and less likely to be young parents” (Everson-Hock et al. 2011, 767). A more recent study concludes that studies “generally reported positive outcomes on youth’s ability to complete their education and attain part- or full-time employment”, but warned of the methodological weakness of these studies (Woodgate, Morakinyo and Martin 2017, 280).

Table 19: Leaving care and aftercare support – Primary studies

Citation	Jadad score	Country	Population	Participants	Outcomes			
					Domains	Instrument	Human Services Outcomes Framework	Core client outcomes
TAKE CHARGE								
1 Geenen, S, Powers, L, Powers, J, Cunningham, M, McMahon, L, Nelson, M, Dalton, L, Swank, P and Fullerton, A 2013, 'Experimental Study of a Self-Determination Intervention for Youth in Foster Care', <i>Career Development and Transition for Exceptional Individuals</i> , vol. 36, no. 2, pp. 84-95	2	US	Young people aged 14-18 years in foster care, receiving public special education services	Intervention group = 60	Readiness for adulthood	ARC Self-determination Scale	Empowerment	Self-determination
				Typical education services = 63	School success	Grades, homework and career development	Education and skills	School readiness and success
					Emotional and behavioural problems	Teacher Report Form and Child Behavior Checklist	Health	Mental health
2 Powers, L, Geenen, S, Powers J, Pommier-Satya, S, Turner, A, Dalton, L, Drummond, D and Swank, P 2012, 'My life: Effects of a longitudinal, randomized study of self-determination enhancement on the transition outcomes of youth in foster care and special education', <i>Children and Youth Services Review</i> , vol. 34, no. 11, pp. 2179–2187.	1	US	Young people aged 16-18 years of age in foster care, receiving special education services	Intervention group = 36	Self-determination	ARC Self Determination Scale, Hopelessness Scale for Children	Empowerment	Self-determination
				Typical education services= 31	Post-secondary planning	Career Decision Self-Efficacy Scale		
					School performance	High-school completion	Education and skills	School readiness and success

						Emotional and behavioural problems	Youth Self-Report, Quality of life questionnaire	Health	Mental health
Better futures									
3	Geenen, S, Powers, L, Phillips, L, Nelson, M, McKenna, J, Wings-Yanez, N, Blanchette, L, Croskey, A, Dalton, L, Salazar, A and Swank, P 2015, 'Better futures: a randomized field test of a model for supporting young people in foster care with mental health challenges to participate in higher education', <i>Journal Behavioural Health Service and Research</i> , vol. 42, no. 2, pp. 150-171.	2	US	Young people aged 16-18 who in the foster care system experiencing significant mental health issues	Intervention group = 36	Readiness for adulthood	ARC Self-determination Scale, Youth Empowerment Scale	Empowerment	Self-determination
						Mental health	Mental Health Recovery Measure, Youth Self-Report	Health	Mental health
						Hope	Hopelessness Scale for Children		
						Career planning	Career Decision Self-Efficacy Scale	Economic	Training and employment
Youth Villages Transitional Living									
4	Valentine, Skemer and Courtney 2015, <i>Becoming Adults; One year impact findings from the youth villages transition living evaluation</i> . New York, Manpower Demonstration Research Corporation	3	US	Young people who have spent time in foster care or juvenile justice custody	1322 young people	Depression and anxiety	Depression Anxiety Stress Scale		Mental health
						Criminal involvement	Legal record	Health	
						Risk avoidance behaviour	Reported substance use/ condom use		Healthy lifestyles

Table 20: Leaving and aftercare support – Systematic reviews

	Citation	AMSTAR rating	Studies included		Outcomes measure	Human Services Outcomes Framework	Core client outcomes
			Design	Country			
Independent living programs							
1	Donkoh, C, Underhill, K and Montgomery, P 2006 'Independent living programmes for improving outcomes for young people leaving the care system', <i>Cochrane Database of Systematic Reviews</i> , Issue 3. Art. No: CD005558.	6	RCTs or non-randomised control trials	N/A (not studies found)	N/A	N/A	N/A
2	Liu, C, Vazquez, C, Jones, K and Fong, R 2019, 'The impact of independent living programs on foster youths' educational outcomes: A scoping review', <i>Children and Youth Services Review</i> , vol. 98, pp. 213-220.	5	11 quasi-experimental and other studies	United States: 11	Educational outcomes	Education and skills	School readiness and success
3	Montgomery, P, Donkoh, C and Underhill, K 2006, 'Independent living programs for young people leaving the care system: The state of the evidence', <i>Children and Youth Services Review</i> , vol. 28, no. 12, pp. 1435-1448.	7	8 other studies	USA: 7, UK: 1	Educational attainment	Education and skills	School readiness and success
					Employment	Economic	Training and employment
					Health	Health	Mental health
					Housing	Home	Permanency
					Life skills	Empowerment	Self-determination
Natural mentoring							
4	Thompson, A, Greeson, J, Brunsink, A 2016, 'Natural mentoring among older youth in and aging out of foster care: A systematic review', <i>Children and Youth Services Review</i> , vol. 61, pp. 40-50.	4	38 other studies	Not answered	Academic achievement	Education and skills	School readiness and success
					Social Functioning	Social and community	Supportive relationships
					Psychosocial and behavioural wellbeing	Health	Mental health

5	Heerde, J, Hemphill, S and Scholes- Balog, K 2016, 'The impact of transitional programmes on post-transition outcomes for youth leaving out-of-home care: a meta-analysis', <i>Health and Social Care in the Community</i> , vol. 26, no.1, pp. 15-30.	6	19 other studies	USA: 19	Housing	Home	Permanency
					Education	Education and skills	School readiness and success
					Employment	Economic	Training and employment
Overarching							
6	Woodgate, R, Morakinyo, O and Martin, K 2017, 'Interventions for youth aging out of care: A scoping review', <i>Children and Youth Services Review</i> , vol. 82, pp. 280-300.	5	68 other studies	UK: 4, France: 1, CAN: 1, Hungary: 1, Finland: 2, US: 59	Education	Education and skills	School readiness and success
					Employment	Economic	Training and employment
					Housing	Home	Permanency
7	Everson-Hock, E, Jones, R, Guillaume, L, Clapton, J, Duenas, A, Goyder, E, Chilcott, J, Cooke, J, Payne, N, Sheppard, L and Swann, C 2011, 'Supporting the transition of looked-after young people to independent living: a systematic review of interventions and adult outcomes', <i>Child: Care, Health and Development</i> , vol. 37, no. 6, pp.767-779.	7	7 retrospective and prospective cohort studies	USA: 6, UK: 1	Housing and homelessness	Home	Permanency
					Educational attainment	Education and skills	School readiness and success
					Employment	Economic	Training and employment
					Young parenthood		Healthy lifestyles
					Life satisfaction	Health	
Criminal and offending behavior		Mental health					

Other interventions

The 2016 search identified three primary studies and one systematic review that did not fit into any of the categories described above. One of the primary studies looked at the effect of providing tangible support and stipends to foster carers (Chamberlain, Moreland and Reid 1992). The other looked at the effect of providing case rate payments to community agencies to provide continuum of care services to children and young people in residential care, with the aim of improving their wellbeing and decreasing restrictive placements (Holden et al. 2007). A third primary study looked at a program designed to find and engage the relatives of children in foster care in order to provide options for legal and emotional permanency (Vandivere et al. 2017).

Through the update, we identified another two primary studies and two systematic reviews. One of the primary studies looked at an intervention designed to improve sibling relationships, problem-solving skills and self-determination (Kothari et al. 2017). The second study looked at a program which provided greater discretion to front-line workers to meet the unique service needs of foster families they served, and gave foster families a greater say in service delivery (Unrau, Well and Hartnett 2004).

Of the four systematic reviews in the new map, one – on speech therapy for foster children – includes no studies (Byrne 2017). Another Australian systematic review includes a broad range of evidence for interventions designed to improve contact between children in foster care and their biological families (Bullen et al. 2017). The final review looked at the impact of introducing organisation-wide therapeutic care models to OOHHC organisations, which ensure that all employees - from senior leadership to administration staff – have received training in trauma-informed practices (Bailey et al. 2019).

Table 21: Other – Primary studies

#	Citation	JADAD	Country	Population	Participants	Outcomes	Instrument	Human Services Outcomes Framework	Core Client outcomes
Enhanced services and stipends									
1	Chamberlain, P, Moreland, S and Reid, K 1992, 'Enhanced services and stipends for foster parents: effects on retention rates and outcomes for children', <i>Child Welfare</i> , vol. 71, no. 5, pp. 387-401.	0	US	Carers of children	72	Parenting Drop out and retention rates of foster families Placement stability	Parent daily report, Staff Impression Measure No. of drop-outs of carers No. of placement changes	Safety Home	Parenting capacity Permanency
Supporting siblings in foster care									
2	Kothari et al. 2017, 'An intervention to improve sibling relationship quality among youth in foster care: results of a randomized clinical trial', <i>Child Abuse and Neglect</i> , vol. 63, pp. 19–29.	3	US	Sibling dyads in foster care aged 7–15 years	Intervention group = 168 (84 sibling dyads) Control group = 160 (80 sibling dyads)	Sibling relationship quality	Sibling Interaction Quality and Sibling Relationship Questionnaire, Multi-Agent Construct of Sibling Relationship Quality	Social and community	Supportive relationships
Continuum of care services									
3	Holden, E, O'Connell, S, Liao Q, Krivelyova, A, Connor, T, Blau, G and Long, D 2007, 'Outcomes of a randomized trial of continuum of care services for children in a child welfare	1	US	Children between ages 7-15 years authorised from placement in residential care or group homes	Intervention group = 78 State services = 79	Restrictiveness of placement Mental health	Restrictiveness of Living Environment Scale Behavioural and Emotional Rating Scale	Health	Mental health

system', <i>Child welfare</i> , vol. 86, no. 6, pp. 89-114.				Behaviour	Child Behaviour Checklist				
Promise foster care									
4	Unrau, Y, Wells, M, Hartnett, M 2004, 'Removing Barriers to Service Delivery: An Outcome Evaluation of a 'Remodelled' Foster Care Programme', <i>Adoption and Fostering</i> , vol. 28, no. 2, pp. 20-30.	0	US	Children in foster care aged 0 -17 years and their carers	Intervention group = 380	Caseworker stability	No. of caseworker changes	Social and community	Supportive relationships
					Conventional foster care = 436	Permanency	No. of placement changes	Home	Permanency
					Child behavior	Restrictiveness of placement setting	Health	Mental health	
Family finding									
5	Vandivere, S, Malm, K, Allen, T, Williams, S and McKlindon, Z 2017, 'A randomised controlled trial of family finding: A relative search and engagement intervention for youth lingering in foster care', <i>Evaluation Review</i> . 1-26.	3	US	Children aged 10- 17 years in foster care with no identified permanent placement resource or plan for restoration	Intervention group = 291	Positive foster care placement change	Discharge to permanency	Home	Permanency
					Traditional family welfare services =277	Stability in living conditions			

Table 22: Other – Systematic reviews

	Citation	AMSTAR	Studies included		Outcomes	Human Services Outcomes Framework	Core Client outcomes
			Design	Country			
1	Bryne, N 2017, 'Systematic review of speech and language therapy outcomes for children who are in Out of Home Care (OOHC)', <i>Speech, Language and Hearing</i> , vol. 20, no. 1, pp. 57-61.	1	n/a	n/a	n/a	n/a	n/a
2	Bullen, T, Taplin, S, McArthur, M, Humphreys, C, Kertesz, M 2017, 'Interventions to improve supervised contact visits between children in out of home care and their parents: a systematic review', <i>Child and Family Social Work</i> , vol. 22, no. 2, pp. 822-833.	6	12 empirical studies (mostly qualitative)	US: 6, Australia: 4, Canada: 2	Child resilience	Health	Mental health
					Permanency outcomes	Home	Permanency
					Maternal affect and social support	Social and Community	Supportive relationships
					Parental competence		
					Shame and guilt interaction with child	Safety	Parenting capacity
Parent/ foster care satisfaction							
3	Bailey, C, Klas, A, Cox, R, Bergmeier, H, Avery, J and Skouteris, H 2019, 'Systematic review of organisation-wide, trauma-informed care models in out-of-home care (OOHC) settings', <i>Health and Social Care in the Community</i> , vol. 27, no. 3, pp. 10-22.	5	7 quasi-experimental and qualitative	US: 7	Child behavior and mental health	Health	Mental
					Delinquent behavior		
					Care-giver stress	Safety	Parenting capacity

Overarching reviews

The original OOHC evidence and gap map included four overarching systematic reviews and meta-analyses, which covered different types of interventions and a range of outcomes. Through the update, we identified another four broad reviews (Bergström et al. 2018; Hambrick et al. 2016; Kemmis-Riggs, Dickes and McAloon 2017; Washington et al. 2018).

The most recent and all-encompassing systematic review of intervention types with the highest AMSTAR rating, comes from Bergström et al. (2018). This review included only RCTs and quasi-randomised trials that included at least 40 children in family foster care only. The author applied the GRADE rating system to the studies that met their criteria, including attachment-based interventions, carer training and support, youth behavioural change and school readiness programs. Based on this grading, the authors concluded that three interventions had sufficient confidence of evidence:

- ABC may enhance the parent-child attachment.
- Incredible Years may increase foster parents' parenting competencies as well as the child's externalising and conduct problems.
- Take Charge probably improves the youth's self-determination and employment status in late adolescence and may increase high school completion rates.

Another overarching review of foster care interventions from 2009 concluded that there was good support for therapeutic foster care and attachment-based interventions, but less support for other, widely used programs (Kinsey and Schlösser 2012). Other recent reviews looked at the components of psychosocial interventions in foster and kinship care (Kemmis-Riggs et al. 2017). The authors of this review suggested that effective interventions “provide opportunities for parent skill development via in-session practice with role play and/or direct coaching” (p.36).

Other over-arching reviews focused on interventions aimed at specific groups of children in foster care. One review looked at interventions designed specifically to improve mental health of children aged 0 to 12 years in foster care and identified ten possible efficacious interventions: ABC, Child Parent Psychotherapy, Fostering Healthy Futures, Incredible Years, KEEP, KITS, PCIT, Short Enhanced Cognitive-Behavioral Parent Training, Trauma-Focused CBT and TFCO for Pre-schoolers. Other reviews looked specifically at interventions for foster children with challenging behaviours, related to or secondary to disability (Ziziani et al. 2012), and those suffering from stress and behavioural problems (Van Andel et al. 2012). Both these systematic reviews reported on the outcomes of attachment-based interventions, carer training and support programs and therapeutic foster care programs. A final third looked specifically at interventions and services to kinship care and at the impact of tangible and monetary support as well as psychosocial interventions (Lin 2014).

Table 23: Overarching reviews

Citation	AMSTAR	Type	Country	Interventions	Outcomes	Human Services Outcomes Framework	Core Client Outcomes
1 Bergström, M, Cederblad, M, Håkansson, K, Jonsson, K, Munthe, C, Vinnerljung, B, Wirtberg, I, Östlund and P, Sundell, K 2018, 'Interventions in Foster Family Care: A Systematic Review', <i>Research on Social Work Practice</i> , vol. 20, no. 10, pp. 1-16.	10	N = 22 RCTs and quasi-experimental trials	US: 20, Netherlands: 2, US: 1	Attachment-based interventions	Internalizing and externalizing symptoms	Health	Mental health
					Health		
					Placement stability	Home	Permanency
				Therapeutic foster care	Internalizing and externalizing symptoms	Health	Mental health
					Education and skills		
					Employment	Economic	Training and employment
				Youth behavioural change	Self-determination	Empowerment	Self-determination
					Internalizing and externalizing symptoms	Health	Mental health
					Internalizing and externalizing symptoms		
				Carer training and support	Foster parent competence	Safety	Parenting capacity
Foster carer internalizing symptoms							

2	Hambrick, E, Oppenheim-Weller, S, N'zi, A and Taussig, H 2016, 'Mental Health Interventions for Children in Foster Care: A Systematic Review', <i>Children and Youth Services Review</i> , vol. 70, pp. 65-77.	6	N= 39 RCTs only	Countries not listed	Child-centred therapy	Post-traumatic stress symptoms, internalizing	Health	Mental health
					Carer training and support	Caregiver quality of life	Safety	Parenting capacity
						Post-traumatic stress symptoms, internalizing, parent-child attachment	Health	Mental health
						Attachment-based interventions	Post-traumatic stress symptoms, internalizing, parent-child attachment	Health
3	Kemmis-Riggs, J, Dickes, A and McAloon, J 2017, 'Program Components of Psychosocial Interventions in Foster and Kinship Care: A Systematic Review', <i>Clinical Child and Family Psychology Review</i> , vol. 21, no. 1, pp. 13-40.	7	N = 17 RCTS and quasi-randomised trials	US: 11, UK: 3, Romania: 1, Netherlands: 2	Attachment-based interventions	Child mental health, biomarkers and behaviour problems	Health	Mental health
						Child interpersonal skills	Social and community	Supportive relationship
					Foster carer-child relationship	Parenting skills and parent stress.		
					Carer training and support	Child mental health, biomarkers and behaviour problems	Health	Mental health
						Child interpersonal skills	Social and community	Supportive relationship
						Foster carer-child relationship		

				Child direct therapy	Child mental health, biomarkers and behaviour problems	Health	Mental health	
4	Kinsey, D and Schlösser, A 2013, 'Interventions in foster and kinship care: a systematic review', <i>Clinical Child Psychology and Psychiatry</i> , vol. 18, no. 3, pp. 429-63.	2	RCT: 17, controlled trials: 2, other: 11	USA: 25, UK: 5	Attachment-based interventions	Mental health and behavior	Health	Mental health
						Parent-child attachment	Social and community	Supportive relationship
					Therapeutic foster care	Mental health and behavior	Health	Mental health
					Carer training and support	Parental efficacy	Safety	Parenting capacity
						Mental health and behavior	Health	Mental health
						Placement permanency	Home	Permanency
5	Lin, C 2014, 'Evaluating Services for Kinships Care Families: A Systematic Review', <i>Children and Youth Services Review</i> , vol.36, pp.32-41.	4	1 RCT, 2 Controlled trials, 10 other	Not listed	Carer training and support	Child wellbeing	Health	Mental health
						Restoration/ adoption	Home	Permanency
						Nutrition	Health	Physical health
					Other (support groups, stipend, respite care etc)	Parenting stress	Safety	Parenting capacity
	Parenting practices							
6	Washington, T, Wrenn, A, Kaye, H, Priester, M, Colombo, G, Carter, K, Shadreck, I, Hargett, B, Williams, J and Coakley, T 2018, 'Psychosocial factors and behavioral health outcomes among children in Foster and Kinship care: A systematic	7	40 interventions studies and cross-sectional/ longitudinal design	US: 40	Carer training and support	Parenting practices	Safety	Parenting capacity
						Placement type	Home	Permanency
						Healthy family functioning	Social and community	Supportive relationships

				review', <i>Children and Youth Services Review</i> , vol. 90, pp. 118-133.	Youth behavioural change	Problem behaviour	Health	Mental health
7		4	19 RCTs and other	Not listed	Therapeutic foster care	Problem behaviour	Health	Mental health
	Van Andel, H, Grietens, H, Strijker, J, Van der Gaag, R and Knorth, E 2012 'Searching for effective interventions for foster children under stress: a meta-analysis', <i>Child and Family Social Work</i> , vol. 19, no. 2, pp. 149-155				Carer training and support	Parenting skills	Safety	Parenting capacity
						Problem behaviour	Health	Mental health
					Attachment – based interventions	Problem behaviour	Health	Mental health
8		8	RCT: 2 studies Controlled trials: 2 studies	Not listed		Placement stability	Home	Permanency
	Ziviani, J, Feeney, R, Cuskelly, M, Meredith, P and Hunt, K 2012, 'Effectiveness of support services for children and young people with challenging behaviours related to or secondary to disability, who are in out-of-home care: A systematic review', <i>Children and Youth Services Review</i> , vol. 34, no. 4, pp. 758-770.				Therapeutic foster care	Educational success	Education and skills	School readiness and success
						Behaviour/ delinquency	Health	Mental health
					Carer training and support	Child behavior	Health	Mental health
						Caregiver functioning	Safety	Parenting capacity
					Attachment – based interventions	Child behavior	Health	Mental health

Appendix A: Primary studies in CEI OOHC evidence and gap map – recategorised

#	Primary studies	Intervention	2016: Type of OOHC	2019: Type of intervention
1	Almas, A, Degnan, K, Walker, Radulescu, A, Nelson, C, Seanah, C and Fox, N 2015, 'The Effects of Early Institutionalization and Foster Care Intervention on Children's Social Behaviors at Age 8', <i>Social Development</i> , vol. 24, no. 2, pp. 225-239.	Bucharest Early Intervention Project (BEIP)	General foster care/ residential care	Excluded
2	Bergström, M and Højman, L 2015, 'Is multidimensional treatment foster care (MTFC) more effective than treatment as usual in a three-year follow-up? Results from MTFC in a Swedish setting', <i>European Journal Social Work</i> , vol. 19, no. 2, pp. 219-235	Multi-dimensional treatment foster care (MTFC)	Treatment foster care	Therapeutic foster care
3	Bick, J, Zhu, T, Stamoulis, C, Fox, N, Zeanah, C and Nelson C 2015, 'Effect of early institutionalization and foster care on long-term white matter development: a randomized clinical trial', <i>JAMA Pediatrics</i> , vol. 165, no. 3, pp. 211-219.	BEIP	General foster care/ residential care	Excluded
4	Bruce, J, McDermott, J, Fisher, P, Fox, N 2009, 'Using behavioral and electrophysiological measures to assess the effects of a preventive intervention: a preliminary study with preschool-aged foster children', <i>Prevention Science</i> , vol. 10, no. 2, pp. 129-140.	MTFC	Treatment foster care	Therapeutic foster care
5	Butler et al. 2011, 'A randomized controlled trial of multisystemic therapy and a statutory therapeutic intervention for young offenders', <i>Journal American Academy Child Adolescent Psychiatry</i> , vol. 50, no. 12, pp. 1220-1235 e1222.	Multi-systemic therapy (MST)	OOHC Prevention	Excluded
6	Bywater, T, Hutchings, J, Linck, P, Whitaker, C, Daley, D, Yeo, S and Edwards, R 2011, 'Incredible Years parent training support for foster carers in Wales: a multi-centre feasibility study', <i>Child: Care, Health and Development</i> , vol. 37, no. 2, pp. 233-243	Incredible Years	General foster care	Carer training and support
7	Chamberlain, P, Leve, L and Degarmo, D 2007, 'Multidimensional treatment foster care for girls in the juvenile justice system: 2-year follow-up of a randomized clinical trial', <i>Journal of Consulting and Clinical Psychology</i> , vol. 75, no. 1, pp. 187-193.	MTFC	Treatment foster care	Therapeutic foster care

8	Chamberlain, P, Moreland, S and Reid, K 1992, 'Enhanced services and stipends for foster parents: effects on retention rates and outcomes for children', <i>Child Welfare</i> , vol. 71, no. 5, pp. 387-401.	Services and stipends	General foster care	Other
9	Chamberlain, P, Price, J, Leve, L, Laurent, H, Landsverk, J and Reid, J 2008, 'Prevention of behavior problems for children in foster care: outcomes and mediation effects', <i>Prevention Science</i> , vol. 9, no. 1, pp. 17-27.	MTFC	Treatment foster care	Therapeutic foster care
10	Chamberlain, P and Reid, J 1998, 'Comparison of two community alternatives to incarceration for chronic juvenile offenders', <i>Journal of Consulting and Clinical Psychology</i> , vol. 66, no. 4, pp. 624-633.	MTFC	Treatment foster care	Therapeutic foster care
11	Clark, H, Prange, M, Lee, B, Boyd, L, McDonald, B and Stewart, E 1994, 'Improving adjustment outcomes for foster children with emotional and behavioral disorders: Early findings from a controlled study on individualized services', <i>Journal of Emotional and Behavioral Disorders</i> , vol. 2, no. 4, pp. 207-218.	MTFC	Treatment foster care	Therapeutic foster care
12	Dorsey, S, Pullmann, M, Berliner, L, Koschmann, E, McKay, M and Deblinger, E 2014, 'Engaging foster parents in treatment: a randomized trial of supplementing trauma-focused cognitive behavioral therapy with evidence-based engagement strategies', <i>Child Abuse and Neglect</i> , vol. 38, no. 9, pp. 1508-1520	Trauma-focused Cognitive Behavioural Therapy	General foster care/ kinship	Child-centred therapy
13	Dozier, M, Lindhiem, O, Lewis, E, Bick, J, Bernard, K and Peloso, E 2009, 'Effects of a Foster Parent Training Program on Young Children's Attachment Behaviors: Preliminary Evidence from a Randomized Clinical Trial', <i>Child Adolescent Social Work</i> , vol. 26, no. 4, pp. 321-332.	Attachment and Bio-behavioural Catch-up (ABC)	General foster care	Attachment-based interventions
14	Dozier, M, Peloso, E, Lewis, E, Laurenceau, J and Levine, S 2008, 'Effects of an attachment-based intervention on the cortisol production of infants and toddlers in foster care', <i>Development and Psychopathology</i> , vol. 20, no. 3, pp. 845-859	ABC	General foster care	Attachment-based interventions
15	Dozier, M, Peloso, E, Lindhiem, O, et al 2006, 'Developing Evidence-Based Interventions for Foster Children: An Example of a Randomized Clinical Trial with Infants and Toddlers', <i>Journal of Social Issues</i> , vol. 62, no. 4, pp. 767-785	ABC	General foster care	Attachment-based interventions
16	Eddy, J, Whaley, R, Chamberlain, P 2004, 'The Prevention of Violent Behavior by Chronic and Serious Male Juvenile Offenders: A 2-Year Follow-up of a Randomized Clinical Trial', <i>Journal of Emotional and Behavioral Disorders</i> , vol. 12, no. 1, pp. :2-8.	MTFC	Treatment foster care	Therapeutic foster care

17	Evans, M, Armstrong, M and Kuppinger, A 1996, 'Family-centred intensive case management: a step toward understanding individualized care', <i>Journal of Child and Family Studies</i> , vol. 5, no. 1, pp. 55-65.	MTFC	Treatment foster care	Therapeutic foster care
18	Farmer, E, Burns, B, Wagner, H, Murray, M and Southerland, D 2010, 'Enhancing "usual practice" treatment foster care: findings from a randomized trial on improving youths' outcomes', <i>Psychiatric Services</i> , vol. 61, no. 6, pp. 555-561.	Together Facing the Challenge	Treatment foster care	Therapeutic foster care
19	Fisher, P, Burraston, B and Pears K 2005, 'The early intervention foster care program: permanent placement outcomes from a randomized trial', <i>Child Maltreatment</i> , vol. 10, no. 1, pp. 61-71.	Early intervention foster care program	Treatment foster care/ General foster care	Therapeutic foster care
20	Fisher, P and Kim, H 2007, 'Intervention effects on foster preschoolers' attachment-related behaviors from a randomized trial', <i>Prevention Science</i> , vol. 8, no. 2, pp. 161-170	Multi-dimensional treatment foster care for preschoolers (MTFC- P)	Treatment foster care	Therapeutic foster care
21	Fisher, P, Burraston, B and Pears, K 2005, 'The early intervention foster care program: permanent placement outcomes from a randomized trial', <i>Child Maltreatment</i> , vol. 10, no. 1, pp. 61-71.	MTFC- P	Treatment foster care	Therapeutic foster care
22	Fisher, P and Stoolmiller, M 2008, 'Intervention effects on foster parent stress: associations with child cortisol levels', <i>Development and Psychopathology</i> , vol. 20, no. 3, pp. 1003-1021	MTFC- P	Treatment foster care	Therapeutic foster care
23	Fisher, P, Stoolmiller, M, Gunnar, M and Burraston, B 2007, 'Effects of a therapeutic intervention for foster preschoolers on diurnal cortisol activity', <i>Psychoneuroendocrinology</i> , vol. 32, no. 8-10, pp. 892-905.	MTFC- P	Treatment foster care	Therapeutic foster care
24	Fisher, P, Stoolmiller, M, Mannering, A, Takahashi, A and Chamberlain, P 2011, 'Foster placement disruptions associated with problem behavior: mitigating a threshold effect', <i>Journal of Consulting and Clinical Psychology</i> , vol. 79, no. 4, pp. 481-487.	MTFC- P	Treatment foster care	Therapeutic foster care
25	Fox, N, Almas, A, Degnan, K, Nelson, C and Zeanah, C 2011, 'The effects of severe psychosocial deprivation and foster care intervention on cognitive development at 8 years of age: findings from the Bucharest Early Intervention Project', <i>Journal of Child Psychology and Psychiatry</i> , vol. 52, no. 9, pp. 919-928.	BEIP	General foster care/ residential care	Excluded

26	Gavița, O, David, D, Bujoreanu, S, Tiba, A and Ionuțiu, D 2012, 'The efficacy of a short cognitive-behavioral parent program in the treatment of externalizing behavior disorders in Romanian foster care children: Building parental emotion-regulation through unconditional self- and child-acceptance strategies', <i>Children and Youth Services Review</i> , vol. 34, no. 7, pp. 1290-1297.	BEIP	General foster care/ residential care	Excluded
27	Geenen, S, Powers, L, Powers, J, Cunningham, M, McMahon, L, Nelson, M, Dalton, L, Swank, P and Fullerton, A 2013, 'Experimental Study of a Self-Determination Intervention for Youth in Foster Care. Career Development and Transition for Exceptional Individuals', vol. 36, no. 2, pp. 84-95	Take charge	General foster care	Leaving care and aftercare support
28	Geenen, S, Powers, L, Phillips, L, Nelson, M, McKenna, J, Wings-Yanez, N, Blanchette, L, Croskey, A, Dalton, L, Salazar, A and Swank, P 2015, 'Better futures: a randomized field test of a model for supporting young people in foster care with mental health challenges to participate in higher education', <i>Journal Behavioural Health Service and Research</i> , vol. 42, no. 2, pp. 150-171.	Better futures	General foster care	Leaving care and aftercare support
29	Green, J, Biehal, N, Roberts, C, Dixon, J, Kay, C, Parry, E, Rothwell, J, Roby, A, Kapadia, D, Scott, S and Sinclair, I 2014, 'Multidimensional Treatment Foster Care for Adolescents in English care: randomised trial and observational cohort evaluation", <i>The British Journal of Psychiatry</i> , vol. 204, no. 3, pp. 214-221.	MTFC	Treatment foster care	Therapeutic foster care
30	Haight, W, Black, J and Sheridan, K 2010, 'A Mental Health Intervention for Rural, Foster Children from Methamphetamine-involved Families: Experimental Assessment with Qualitative Elaboration', <i>Child Youth Service Review</i> . vol. 32, no. 10, pp. 1146-1457.	Life story interventions	General foster care/ Kinship care	Child-directed therapy
31	Hansson, K and Olsson, M 2012, 'Effects of multidimensional treatment foster care (MTFC): Results from a RCT study in Sweden', <i>Children and Youth Services Review</i> , vol. 34, no. 9, pp. 1929-1936.	MTFC	Treatment foster care	Therapeutic foster care
32	Harold, G, Kerr, D, Van Ryzin, M, DeGarmo, D, Rhoades, K and Leve, L 2013, 'Depressive symptom trajectories among girls in the juvenile justice system: 24-month outcomes of an RCT of Multidimensional Treatment Foster Care', <i>Prevention Science</i> , vol. 14, no. 5, pp. 437-446.	MTFC	Treatment foster care	Therapeutic foster care

33	Henggeler et al. 1999, 'Multi-systemic treatment of substance-abusing and dependent delinquents: outcomes, treatment fidelity, and transportability', <i>Mental Health Services Research</i> , vol. 1, no. 3, pp. 171-184.	MST	OOHC Prevention	Excluded
34	Henggeler et al. 2003, 'One-year follow-up of multi-systemic therapy as an alternative to the hospitalization of youths in psychiatric crisis', <i>Journal of the American Academy of Child and Adolescent Psychiatry</i> , vol. 42, no. pp. 543-551.	MST	OOHC Prevention	Excluded
35	Herbert, M and Wookey, J 2007, 'The Child Wise Programme: a course to enhance the self-confidence and behaviour management skills of foster carers with challenging children', <i>Adoption and Fostering</i> , vol. 31, no. 4, pp. 27-37.	Child Wise Programme	General foster care	Carer training and support
36	Holden, E, O'Connell, S, Liao Q, Krivelyova, A, Connor, T, Blau, G and Long, D 2007, 'Outcomes of a randomized trial of continuum of care services for children in a child welfare system', <i>Child welfare</i> , vol. 86, no. 6, pp. 89-114.	Connecticut Title IV – E Waiver Programme	Residential care	Other
37	Humphreys, K, Gleason, M, Drury, S, et al 2015, 'Effects of institutional rearing and foster care on psychopathology at age 12 years in Romania: follow-up of an open, randomised controlled trial', <i>Lancet Psychiatry</i> , vol. 2, no. 7, pp. 625-634.	BEIP	General foster care/ residential care	Excluded
38	Humphreys, K, McGoron, L, Sheridan, M, et al. 2015, 'High-Quality Foster Care Mitigates Callous-Unemotional Traits Following Early Deprivation in Boys: A Randomized Controlled Trial', <i>Journal of the American Academy of Child and Adolescent Psychiatry</i> , vol. 54, no. 12, pp. 977-983.	BEIP	General foster care/ residential care	Excluded
39	Kerr, D, Leve, L and Chamberlain, P 2009, 'Pregnancy rates among juvenile justice girls in two randomized controlled trials of multidimensional treatment foster care', <i>Journal of Consulting Clinical Psychology</i> , vol. 77, no. 3, pp. 588-593.	MTFC	Treatment foster care	Therapeutic foster care
40	Kerr, D, DeGarmo, D, Leve, L and Chamberlain, P 2014, 'Juvenile justice girls' depressive symptoms and suicidal ideation 9 years after Multidimensional Treatment Foster Care', <i>Journal of Consulting and Clinical Psychology</i> , vol. 82, no. 4, pp. 684-693.	MTFC	Treatment foster care	Therapeutic foster care
41	Kim, H and Leve L 2011, 'Substance use and delinquency among middle school girls in foster care: a three-year follow-up of a randomized controlled trial', <i>Journal of Consulting Clinical Psychology</i> , vol. 79, no. 6, pp.740-750.	Middle School Success intervention	General foster care	Youth behavioural change

42	Kim, H, Pears, K, Leve, L, Chamberlain, P and Smith, D 2013. 'Intervention Effects on Health-Risking Sexual Behavior Among Girls in Foster Care: The Role of Placement Disruption and Tobacco and Marijuana Use', <i>Journal of Child and Adolescent Substance Abuse</i> , vol. 22, no. 5, pp. 370-387.	Middle School Success intervention	General foster care	Youth behavioural change
43	Laurent, H, Gilliam, K, Bruce, J and Fisher, P 2014, 'HPA stability for children in foster care: mental health implications and moderation by early intervention', <i>Developmental Psychobiology</i> , vol. 56, no. 6, pp. 1406-1415	MTFC	Treatment foster care	Therapeutic foster care
44	Leathers, S, Spielfogel, J, Gleeson, J and Rolock, N 2012, 'Behavior problems, foster home integration, and evidence-based behavioral interventions: What predicts adoption of foster children?' <i>Children and Youth Services Review</i> , vol. 34, no. 5, pp. 891-899.	Keeping Foster Parents Trained and Supports (KEEP)	Treatment foster care	Carer training and support
45	Lee, K 2016, 'Head Start's Impact on Cognitive Outcomes for Children in Foster Care', <i>Child Abuse Review</i> , vol. 25, no. 2, pp. 128-141.	Head Start	General foster care/ kinship care	School readiness and support
46	Letourneau et al. 2009, 'Multisystemic therapy for juvenile sexual offenders: 1-year results from a randomized effectiveness trial', <i>Journal of Family Psychology</i> , vol. 23, no. 1, pp. 89-102.	MST	OOHC Prevention	Excluded
47	Leve, L and Chamberlain P 2007, 'A randomized evaluation of multidimensional treatment foster care: effects on school attendance and homework completion in juvenile justice girls', <i>Research on Social Work Practice</i> , vol. 17, no. 6, pp. 657-663.	MTFC	Treatment foster care	Therapeutic foster care
48	Leve, L, Chamberlain, P and Reid, J 2005b, 'Intervention outcomes for girls referred from juvenile justice: effects on delinquency', <i>Journal of Consulting and Clinical Psychology</i> , vol. 73, no. 6, pp. 1181-1185.	MTFC	Treatment foster care	Therapeutic foster care
49	Leve, L, Kerr, D and Harold, G 2013, 'Young Adult Outcomes Associated with Teen Pregnancy Among High-Risk Girls in an RCT of Multidimensional Treatment Foster Care', <i>Journal of Child and Adolescent Substance Abuse</i> , vol. 22, no. 5, pp. 421-434.	MTFC	Treatment foster care	Therapeutic foster care
50	Leve, L and Chamberlain, P 2005a, 'Association with delinquent peers: intervention effects for youth in the juvenile justice system', <i>Journal of Abnormal Child Psychology</i> , vol. 33, no. 3, pp. 339-347.	MTFC	Treatment foster care	Therapeutic foster care

51	Lewis-Morrarty, E, Dozier, M, Bernard, K, Terracciano, S and Moore S 2012, 'Cognitive flexibility and theory of mind outcomes among foster children: preschool follow-up results of a randomized clinical trial', <i>Journal Adolescent Health</i> , vol. 51, no. 2, pp. 17-22	ABC	General foster care/ kinship care	Attachment-based interventions
52	Linares, L, Li, M and Shrout, P, 'Child training for physical aggression? Lessons from foster care', <i>Children and Youth Services Review</i> , vol. 34, no. 12, pp. 2416-2422.	Incredible Years	General foster care	Carer training and support
53	Linares, L, Montalto, D, Li, M and Oza, V 2006, 'A promising parenting intervention in foster care', <i>Journal of Consulting and Clinical Psychology</i> , vol. 74, no. 1, pp. 32-41	Incredible Years	General foster care	Carer training and support
54	Love, S, Koob, J and Hill, L 2008, 'The effects of using community mental health practitioners to treat foster children: Implications for child welfare planners', <i>The Scientific Review of Mental Health Practice</i> , vol. 6, no. 1, pp. 31-39.	Community mental health	General foster care/ kinship care	Child-directed therapy
55	Lynch, F, Dickerson, J, Saldana, L, and Fisher, P 2014, 'Incremental net benefit of early intervention for preschool-aged children with emotional and behavioral problems in foster care', <i>Children and Youth Services Review</i> , vol. 36, pp. 213-219.	MTFC	Treatment foster care	Therapeutic foster care
56	Maaskant, A, van Rooij F, Overbeek, G, Oort, F, Hermanns, J, 'Parent training in foster families with children with behavior problems: Follow-up results from a randomized controlled trial', <i>Children and Youth Services Review</i> , vol. 70, pp. 84-94	Parent management training Oregon (PMTO)	General foster care	Carer training and support
57	Macdonald, G and Turner, W, 'An Experiment in Helping Foster-Carers Manage Challenging Behaviour', <i>The British Journal of Social Work</i> , vol. 35, no. 8, pp. 1265-1282.	Behavioural management training	General foster care	Carer training and support
58	McMillen, J, Narendorf, S, Robinson, D, Havlicek, J, Fedoravicius, N, Bertram, J and McNelly 2015, 'Development and piloting of a treatment foster care program for older youth with psychiatric problems', <i>Child and Adolescent Psychiatry and Mental Health</i> , vol. 9, no. 23.	MTFC for older youth	Treatment foster care	Therapeutic foster care
59	Mersky, J, Topitzes, J, Grant-Savelle, S, Brondino, M and McNeil, C 2016, 'Adapting Parent-Child Interaction Therapy to Foster Care: Outcomes from a Randomized Trial', <i>Research on Social Work Practice</i> , vol. 26, no. 2, pp. 157-167.	Parent-child interaction therapy (PCIT)	General foster care	Attachment-based interventions

60	Mersky, J, Topitzes, J, Janczewski, C and McNeil, C 2015, 'Enhancing foster parent training with parent-child interaction therapy: Evidence from a randomized field experiment', <i>Journal of the Society for Social Work and Research</i> , vol. 6, no. 4, pp. 591-616.	PCIT	General foster care	Attachment-based interventions
61	Minnis, H, Pelosi, A, Knapp, M and Dunn, J 2001, 'Mental health and foster carer training', <i>Archives of Disease in Childhood</i> , vol. 84, no. 4, pp. 302-306.	Foster carer training	General foster care	Carer training and support
62	N'Zi, A, Stevens, M and Eyberg, S 2016, 'Child Directed Interaction Training for young children in kinship care: A pilot study', <i>Child Abuse and Neglect</i> , vol. 55, pp. 81-91.	PCIT	General foster care	Attachment-based interventions
63	Nelson, C, Zeanah, C, Fox, N, Marshall, P, Smyke, A and Guthrie, D 2007, 'Cognitive recovery in socially deprived young children: the Bucharest Early Intervention Project', <i>Science</i> , vol. 318, no. 5858, pp. 1937-1940.	BEIP	General foster care/ residential care	Excluded
64	Nelson, E and Spieker, S 2013, 'Intervention Effects on Morning and Stimulated Cortisol Responses Among Toddlers in Foster Care', <i>Journal of Infant Mental Health</i> , vol. 34, no. 3	Promoting First Relationship	Mixed	Attachment-based intervention
65	Ogden, T and Hagen, K 2006, 'Multisystemic Treatment of Serious Behaviour Problems in Youth: Sustainability of Effectiveness Two Years after Intake', <i>Child-and-Adolescent-Mental-Health</i> , vol. 11, no. 3, pp.142-149.	MST	OOHC Prevention	Excluded
66	Painter K. 2009, 'Multisystemic Therapy as Community-Based Treatment for Youth With Severe Emotional Disturbance', <i>Research Social Work Practice</i> , vol. 19, no. 3, pp. 314-324.	MST	OOHC Prevention	Excluded
67	Pears, K, Fisher, P and Bronz K 2007, 'An Intervention to Promote Social Emotional School Readiness in Foster Children: Preliminary Outcomes From a Pilot Study', <i>School Psychology Review</i> , vo. 36, no. 4, pp. 665-673.	Therapeutic playgrounds	General foster care	School readiness and support
68	Pears, K, Fisher, P, Bruce, J, Kim, H and Yoerger, K 2010, 'Early elementary school adjustment of maltreated children in foster care: The roles of inhibitory control and caregiver involvement', <i>Child Development</i> , vol. 81, no. 5, pp. 1550-1564.	MTFC	General foster care	School readiness and support

69	Pears, K, Fisher, P, Kim, H, Bruce, J, Healey, C and Yoerger, K 2013, 'Immediate Effects of a School Readiness Intervention for Children in Foster Care', <i>Early Educational Development</i> , vol. 24, no. 6, pp. 771-791.	Kids in Transition to School (KITS)	General foster care/ kinship care	School readiness and support
70	Pears, K, Kim, H and Fisher, P 2012, 'Effects of a school readiness intervention for children in foster care on oppositional and aggressive behaviors in kindergarten', <i>Children and Youth Services Review</i> , vol. 34, no. 12, pp.2361-2366.	KITS	General foster care/ kinship care	School readiness and support
71	Poulton, R, Van Ryzin, M, Harold, G, Chamberlain, P, Fowler, D, Cannon, M, Arseneault, L and Leve, L 2014, 'Effects of multidimensional treatment foster care on psychotic symptoms in girls. <i>Journal of the American Academy of Child and Adolescent Psychiatry</i> , vol. 53, no. 12, pp. 1279-1287.	MTFC	Treatment foster care	Therapeutic foster care
72	Powers, L, Geenen, S, Powers J, Pommier-Satya, S, Turner, A, Dalton, L, Drummond, D and Swank, P, 'My life: Effects of a longitudinal, randomized study of self-determination enhancement on the transition outcomes of youth in foster care and special education', <i>Children and Youth Services Review</i> , vol. 34, no. 11, pp. 2179–2187.	Take Charge	Supported Independent living	Leaving and aftercare support
73	Pratt, M, Lipscomb, S and Schmitt S 2015, 'The effect of head start on parenting outcomes for children living in non-parental care', <i>Journal of Child and Family Studies</i> , vol. 24, no. 10. Pp. 2944-2956.	Head start	Mixed	School readiness and support
74	Price, J, Chamberlain, P, Landsverk, J, Reid, J, Leve, L and Laurent, H 2008, 'Effects of a foster parent training intervention on placement changes of children in foster care', <i>Child Maltreatment</i> , vol. 13, no. 1, pp. 64-75.	KEEP	Treatment foster care	Carer training and support
75	Price, J, Roesch, S and Walsh, N 2012, 'Effectiveness of the KEEP Foster Parent Intervention during an Implementation Trial', <i>Child Youth Services Review</i> , vol. 34, no. 12, pp.2487-2494.	KEEP	Treatment foster care	Carer training and support
76	Price J, Roesch, S, Walsh, N, Landsverk, J 2015, 'Effects of the KEEP Foster Parent Intervention on Child and Sibling Behavior Problems and Parental Stress During a Randomized Implementation Trial', <i>Prevention Science</i> , vol. 16, no. 5, pp. 685-695.	KEEP	Treatment foster care	Carer training and support
77	Reddy, S, Negi, L, Dodson-Lavelle, B, Ozawa-de Silva, B, Pace, T, Cole, S and Raison, C 2013, 'Cognitive-Based Compassion Training: A Promising Prevention	Cognitive-based compassion training	General foster care	Child-directed therapy

	Strategy for At-Risk Adolescents', <i>Journal of Child and Family Studies</i> , vol. 22, no. 2, pp. 219-230.			
78	Rhoades, K, Leve, L, Harold, G, Kim, H, and Chamberlain P 2014, 'Drug Use Trajectories After a Randomized Controlled Trial of MTFC: Associations with Partner Drug Use', <i>Journal of Adolescent Research</i> , vol. 24, no. 1, pp. 40-54.	MTFC	Treatment foster care	Therapeutic foster care
79	Rowland et al. 2005, 'A randomized trial of multisystemic therapy with Hawaii's Felix class youths', <i>Journal of Emotional and Behavioral Disorders</i> , vol. 13, no.1, pp. 13-23.	MST	OOHC Prevention	Excluded
80	Sinclair, I, Parry, E, Biehal, N, Fresen, J, Kay, C, Scott, S and Green, J 2016, 'Multi-dimensional Treatment Foster Care in England: differential effects by level of initial antisocial behaviour', <i>European Child and Adolescent Psychiatry</i> , vol. 25, no. 8, pp. 843-852.	MTFC	Treatment foster care	Therapeutic foster care
81	Smith, D, Leve, L and Chamberlain, P 2011, 'Preventing Internalizing and Externalizing Problems in Girls in Foster Care as they Enter Middle School: Immediate Impact of an Intervention', <i>Prevention science</i> , vol. 12, no. 3, pp. 269-277.		General foster care/ Kinship care	Youth behavioral change
82	Spieker, S, Oxford, M and Fleming, C 2014, 'Permanency Outcomes for Toddlers in Child Welfare Two Years After a Randomized Trial of a Parenting Intervention', <i>Child Youth Service Review</i> , vol. 44, pp. 201-206.	Promoting First Relationships	Mixed	Attachment-based intervention
83	Spieker, S, Oxford, M, Kelly, J, Nelson, E and Fleming, C 2012, 'Promoting First Relationships: Randomized Trial of a Relationship-Based Intervention for Toddlers in Child Welfare', <i>Child Maltreatment</i> , vol. 17, no. 4, pp. 271-286.	Promoting First Relationships	Mixed	Attachment-based intervention
84	Sprang, G 2009, 'The Efficacy of a Relational Treatment for Maltreated Children and their Families', <i>Child and Adolescent Mental Health</i> , vol. 14, no. 2, pp. 81-88.	ABC	General foster care	Attachment-based intervention
85	Stein, T and Gambrill, E 1977, 'Facilitating Decision Making in Foster Care: The Alameda Project', <i>Social Service Review</i> , vol. 51, no. 3, pp. 502-513	Alameda Project	General foster care	Other
86	Sundell et al. 2008, 'The Transportability of Multi-systemic Therapy to Sweden: Short-Term Results From a Randomized Trial of Conduct-Disordered Youths', <i>Journal of Family Psychology</i> , vol. 22, no. 4, pp. 550-560.	MST	OOHC Prevention	Excluded

87	Taussig H and Culhane S 2010, 'Impact of a mentoring and skills group program on mental health outcomes for maltreated children in foster care', <i>Archives of Pediatrics and Adolescent Medicine</i> , vol. 164, no. 8, pp. 739-746.	Fostering Healthy Futures	General foster care	Youth behavioural change
88	Taussig, H, Culhane, S, Garrido, E and Knudtson, M 2012, 'RCT of a mentoring and skills group program: placement and permanency outcomes for foster youth', <i>Pediatrics</i> , vol. 130, no. 1, pp. 33-39.	Fostering Health Futures	General foster care	Youth behavioural change
89	Tibu F, Humphreys KL, Fox NA, Nelson CA, Zeanah CH. Psychopathology in young children in two types of foster care following institutional rearing. <i>Infant Ment Health J.</i> 2014; 35(2):123-131.	BEIP	General foster care/ residential care	Excluded
90	Van Ryzin, M and Leve, L 2012, 'Affiliation with delinquent peers as a mediator of the effects of multidimensional treatment foster care for delinquent girls' <i>Journal of Consulting and Clinical Psychology</i> , vol. 80, no. 4, pp. 588-596.	MTFC	Treatment foster care	Therapeutic foster care
91	Westermarck, P, Hansson, K and Olsson, M 2011, 'Multidimensional treatment foster care (MTFC): Results from an independent replication', <i>Journal of Family Therapy</i> , vol. 33, no. 1, pp. 20-41.	MTFC	Treatment foster care	Therapeutic foster care
92	Valentine, E, Skemer, M and Courtney, M 2015, <i>Becoming Adults; One year impact findings from the youth villages transition living evaluation</i> . New York, Manpower Demonstration Research Corporation.	Youth Villages	General foster care	Leaving care and aftercare support
93	Vandivere, S, Malm, K, Allen, T, Williams, S and McKlindon, Z 2007, 'A randomised controlled trial of family finding: A relative search and engagement intervention for youth lingering in foster care', <i>Evaluation Review</i> . 1-26.	Family finding	Mixed	Other

Appendix B: Systematic reviews in CEI OOHC evidence and gap map – recategorised

Systematic reviews			
1	Al, C, Stams, G, Bek, M, Damen E, Asscher, J, van der Laan, P 2012, 'A meta-analysis of intensive family preservation programs: Placement prevention and improvement of family functioning', <i>Children and Youth Services Review</i> , vol. 34, no. 8, pp.1472-1479.	OOHC prevention	Exclude
2	Donkoh, C, Underhill, K and Montgomery, P 2006 'Independent living programmes for improving outcomes for young people leaving the care system', <i>Cochrane Database of Systematic Reviews</i> , Issue 3. Art. No: CD005558.	Mixed/ unspecified	Leaving and after care support
3	Downes, M, Lakhani, A, Maujean, A, Macfarlane, K and Kendall, E 2016, 'Evidence for Using Farm Care Practices to Improve Attachment Outcomes in Foster Children: A Systematic Review', <i>British Journal of Social Work</i> , vol. 46, vol. 5, pp. 1421-1248.	General foster care	Attachment-based interventions
4	Everson-Hock, E, Jones, R, Guillaume, L, Clapton, J, Goyder, E, Chilcott, J, Payne, N, Duenas, A, Sheppard, L and Swann, C 2012, 'The effectiveness of training and support for carers and other professionals on the physical and emotional health and well-being of looked-after children and young people: a systematic review', <i>Child: Health, Care and Development</i> , vol. 38, no.2 pp. 162-174.	Mixed/ unspecified	Carer training and support
5	Everson-Hock, E, Jones, R, Guillaume, L, Clapton, J, Duenas, A, Goyder, E, Chilcott, J, Cooke, J, Payne, N, Sheppard, L and Swann, C 2011, 'Supporting the transition of looked-after young people to independent living: a systematic review of interventions and adult outcomes', <i>Child: Care, Health and Development</i> , vol. 37, no. 6, pp.767-779.	Mixed/ unspecified	Leaving and after care support
6	Goemans, A, van Geel, M and Vedder, P 2015, 'Over three decades of longitudinal research on the development of foster children: a meta-analysis', <i>Child Abuse and Neglect</i> , vol. 42, pp. 121-134.	General foster care	Excluded
7	Goemans et al. 2016, 'Developmental outcomes of foster children: A meta-analytic comparison with children from the general population and children at risk who remained at home', <i>Child Maltreatment</i> , vol. 21, no. 3, pp. 198-217.	General foster care/ kinship care	Excluded
8	Hahn, R Bilukha, O, Lowy, J, Crosby, A, Fullilove, M, Liberman, A, Moscicki, E, Snyder, S, Tuma, F, Corso, P and Schofield, A 2005, 'The Effectiveness of Therapeutic Foster Care for the Prevention of Violence: A Systematic Review', <i>American Journal of Preventive Medicine</i> , vol. 28, suppl. 1, pp. 72-90.	Intensive/ Treatment foster care	Therapeutic foster care
9	Heerde, J, Hemphill, S, Broderick, D and Florent, A 2012, 'Associations between leaving out-of-home care and post-transition youth homelessness: A review', <i>Developing Practice</i> , vol. 32, pp. 36-52	Mixed/ unspecified	Excluded

10	Heerde, J, Hemphill, S and Scholes- Balog, K 2016, 'The impact of transitional programmes on post-transition outcomes for youth leaving out-of-home care: a meta-analysis', <i>Health and Social Care in the Community</i> , vol. 26, no.1, pp. 15-30.	Residential care	Leaving and after care support
11	Hermenau K, Goessmann K, Rygaard NP, Landolt MA, Hecker T 2016, 'Fostering Child Development by Improving Care Quality: A Systematic Review of the Effectiveness of Structural Interventions and Caregiver Trainings in Institutional Care', <i>Trauma, Violence and Abuse</i> , vol. 12, no. 12, pp. 2016	Residential care	Leaving and after care support
12	Hiles, D, Moss, D, Wright, J and Dallos R 2013, 'Young people's experience of social support during the process of leaving care: A review of the literature', <i>Children and Youth Services Review</i> , vol. 35, no. 12, pp. 2059-2071.	Mixed/ unspecified	Excluded
13	Hermenau et al. 2017 'Fostering Child Development by Improving Care Quality: A Systematic Review of the Effectiveness of Structural Interventions and Caregiver Trainings in Institutional Care', <i>Trauma Violence and Abuse</i> , vol. 18, no. 5, pp. 544-561.	Mixed/ unspecified	Excluded
14	Kerr L, Cossar J 2014, 'Attachment interventions with foster and adoptive parents: A systematic review', <i>Child Abuse Review</i> , vol. 23, no. 6, pp.426-439.	General/ Intensive treatment foster care	Attachment-based interventions
15	Kinsey, D and Schlösser, A 2013, 'Interventions in foster and kinship care: a systematic review', <i>Clinical Child Psychology and Psychiatry</i> , vol. 18, no. 3, pp. 429-63.	General/ Intensive treatment foster care	Overarching reviews
16	Knorth, E, Annemiek, H, Zandberg, T, Kendrick A 2008, 'Under one roof: A review and selective meta-analysis on the outcomes of residential child and youth care', <i>Children and Youth Services Review</i> , vol. 30, no. 2, pp.123-140.	Residential care	Excluded
17	Liabo, K, Gray, K, Mulcahy, D 2012, 'A systematic review of interventions to support looked-after children in school', <i>Child and Family Social Work</i> , vol. 18, no. 3, pp. 341-353.	Kinship care	Overarching reviews
18	Littell, J, Popa, M & Forsythe, B 2005, 'Multisystemic Therapy for Social, Emotional, and Behavioral Problems in Youth Aged 10-17', <i>Campbell Systematic Reviews</i> , 2005:1	OOHC prevention	Excluded
19	Macdonald, G and Turner, W 2008, 'Treatment foster care for improving outcomes in children and young people', <i>The Cochrane Database of Systematic Review</i> , vol 1. CD005649.	Treatment foster care	Therapeutic foster care
20	Macleane, M, Sims, S, O'Donnell, M, Gilbert, R 2016, 'Out-of-Home Care versus In-home Care for Children Who Have Been Maltreated: A Systematic Review of Health and Wellbeing Outcomes', <i>Child Abuse Review</i> , vol. 25, no. 4, pp. 251-272. No intervention	Mixed/ Unspecified	Excluded
21	Montgomery, P, Donkoh, C and Underhill, K 2006, 'Independent living programs for young people leaving the care system: The state of the evidence', <i>Children and Youth Services Review</i> , vol. 28, no. 12, pp. 1435-1448.	Support/ independent living	Leaving and after-care support

22	Rock, S, Michelson, D, Thomson, S and Day, C 2015, 'Understanding foster placement instability for looked after children: A systematic review and narrative synthesis of quantitative and qualitative evidence', <i>The British Journal of Social Work</i> , vol. 45, no. 1, pp. 177–203. No intervention	General foster care	Excluded
23	Thompson, A, Greeson, J, Brunsink, A 2016, 'Natural mentoring among older youth in and aging out of foster care: A systematic review', <i>Children and Youth Services Review</i> , vol. 61, pp. 40-50.	General foster care	Leaving and after-care support
24	Van Andel, H, Grietens, H, Strijker, J, Van der Gaag, R and Knorth, E 2012 'Searching for effective interventions for foster children under stress: a meta-analysis', <i>Child and Family Social Work</i> , vol. 19, no. 2, pp. 149-155	General foster care	Overarching reviews
25	der Stouwe, T, Asscher, J, Stams, G, Deković, M & van der Laan, P 2014, 'The effectiveness of Multisystemic Therapy (MST): a meta-analysis', <i>Clinical psychology review</i> , vol. 34, no. 6, pp. 468-481	OOHC Prevention	Excluded
26	Winokur M, Holtan A, Valentine D. Kinship care for the safety, permanency, and well-being of children removed from the home for maltreatment. <i>Cochrane Database Syst Rev</i> . 2009(1):CD006546.	Kinship care	Excluded
27	Winokur M, Holtan A, Batchelder KE. Kinship care for the safety, permanency, and well-being of children removed from the home for maltreatment. <i>Cochrane Database Syst Rev</i> . 2014;1:CD006546.	Kinship care	Excluded
28	Ziviani J, Feeney R, Cuskelly M, Meredith P, Hunt K. Effectiveness of support services for children and young people with challenging behaviours related to or secondary to disability, who are in out-of-home care: A systematic review. <i>Children and Youth Services Review</i> . 2012; 34(4):758-770.	Mixed/ unspecified	Overarching reviews

Appendix C: Electronic Database Search Strategy (Primary search)

Medline (Ovid)

Date run: 30th May 2019

1. child*.mp.
2. adolescen*.mp.
3. (boy or boys).mp.
4. (girl or girls).mp.
5. teen*.mp.
6. schoolchild*.mp.
7. (preschool* or "pre school*").mp.
8. infant*.mp.
9. toddler*.mp.
10. baby.mp.
11. babies.mp.
12. young person*.mp.
13. young people*.mp.
14. youth.mp.
15. youths.mp.
16. or/ 1-15
17. (residential adj3 care).mp.
18. (foster* adj3 (care or carer or carers or parent or parents)).mp.
19. (home based adj3 care).mp.
20. relative care.mp.
21. social care.mp.
22. (out of home adj3 care).mp.
23. group care.mp.
24. congregate care.mp.
25. voluntary care.mp.
26. volunteer* care.mp.
27. (shared family adj3 care).mp.
28. (temporary adj3 care).mp.
29. (shelter adj3 care).mp.
30. (support* adj3 living).mp.
31. group home*.mp.
32. fictive kin.mp.
33. looked after children.mp.
34. looking after children.mp.
35. ward of the state.mp.
36. guardianship.mp.
37. adoption.ti,kw,hw.
38. supported accommodation.mp.
39. family based residential treatment.mp.
40. (foster* adj6 (treatment or special* or therapeutic or medical or family or families)).mp.
41. ((kin or kinship) adj3 (care* or caring or foster* or placement*)).mp.

42. ((family or families or relative) adj3 (placement* or substitute*)).mp.
43. (relative adj3 foster*).mp.
44. (custodial grandparent* or custodial grand parent*).mp.
45. (foster* adj3 child*).mp.
46. permanency plan*.mp.
47. institutional care.mp.
48. state care.mp.
49. ((support* or social or community or independent) adj1 (home* or housing or house or houses or accommodation or facility or facilities or living)).mp.
50. or/ 17-49
51. 16 and 50
52. randomized controlled trial.pt.
53. controlled clinical trial.pt.
54. (randomized or randomised or randomly).tw.
55. clinical trials as topic/
56. (trial or trials).ti.
57. or/52-56
58. 57 and 51
59. limit 51 to systematic reviews
60. ((systematic adj1 review*) or metaanalysis or meta analysis).mp.
61. 60 and 51
62. 61 or 59
63. 62 or 58
64. Limit 63 to yr="2016"

Embase (Ovid)

Date run: 30th May 2019

1. child*.mp.
2. adolescen*.mp.
3. (boy or boys).mp.
4. (girl or girls).mp.
5. teen*.mp.
6. schoolchild*.mp.
7. (preschool* or "pre school*").mp.
8. infant*.mp.
9. toddler*.mp.
10. baby.mp.
11. babies.mp.
12. young person*.mp.
13. young people*.mp.
14. youth.mp.
15. youths.mp.
16. or/ 1-15 [POPULATION]
17. (residential adj3 care).mp.
18. (foster* adj3 (care or carer or carers or parent or parents)).mp.
19. (home based adj3 care).mp.
20. relative care.mp.
21. social care.mp.
22. (out of home adj3 care).mp.

23. group care.mp.
24. congregate care.mp.
25. voluntary care.mp.
26. volunteer* care.mp.
27. (shared family adj3 care).mp.
28. (temporary adj3 care).mp.
29. (shelter adj3 care).mp.
30. (support* adj3 living).mp.
31. group home*.mp.
32. fictive kin.mp.
33. looked after children.mp.
34. looking after children.mp.
35. ward of the state.mp.
36. guardianship.mp.
37. adoption.ti,kw,hw.
38. supported accommodation.mp.
39. family based residential treatment.mp.
40. (foster* adj6 (treatment or special* or therapeutic or medical or family or families)).mp.
41. ((kin or kinship) adj3 (care* or caring or foster* or placement*)).mp.
42. ((family or families or relative) adj3 (placement* or substitute*)).mp.
43. (relative adj3 foster*).mp.
44. (custodial grandparent* or custodial grand parent*).mp.
45. (foster* adj3 child*).mp.
46. permanency plan*.mp.
47. institutional care.mp.
48. state care.mp.
49. ((support* or social or community or independent) adj1 (home* or housing or house or houses or accommodation or facility or facilities or living)).mp.
50. or/ 17-49 [16 and 50
51. randomized controlled trial.pt.
52. controlled clinical trial.pt.
53. (randomized or randomised or randomly).tw.
54. clinical trials as topic/
55. (trial or trials).ti.
56. ((systematic adj1 review*) or metaanalysis or meta analysis).mp
57. 57 and 53
58. limit 53 to (randomized controlled trial or controlled clinical trial)
59. 54 or 55 or 56
60. 60 and 53
61. 61 or 59
62. limit 53 to (meta analysis or "systematic review")
63. 58 or 63
64. 64 or 62
65. limit 65 to conference abstract
66. 65 not 66
67. Limit 68 to yr="2016- current"

Cochrane Central Register of Controlled Trials (Ovid)

Date run: 30th May 2019

1. child*.mp.
2. adolescen*.mp.
3. (boy or boys).mp.
4. (girl or girls).mp.
5. teen*.mp.
6. schoolchild*.mp.
7. (preschool* or "pre school*").mp.
8. infant*.mp.
9. toddler*.mp.
10. baby.mp.
11. babies.mp.
12. young person*.mp.
13. young people*.mp.
14. youth.mp.
15. youths.mp.
16. or/ 1-15 [POPULATION]
17. (residential adj3 care).mp.
18. (foster* adj3 (care or carer or carers or parent or parents)).mp.
19. (home based adj3 care).mp.
20. relative care.mp.
21. social care.mp.
22. group care.mp.
23. congregate care.mp.
24. voluntary care.mp.
25. volunteer* care.mp.
26. (shared family adj3 care).mp.
27. (temporary adj3 care).mp.
28. (shelter adj3 care).mp.
29. (support* adj3 living).mp.
30. group home*.mp.
31. fictive kin.mp.
32. looked after children.mp.
33. looking after children.mp.
34. ward of the state.mp.
35. guardianship.mp.
36. adoption.ti,kw,hw.
37. supported accommodation.mp.
38. family based residential treatment.mp.
39. (foster* adj6 (treatment or special* or therapeutic or medical or family or families)).mp.
40. ((kin or kinship) adj3 (care* or caring or foster* or placement*)).mp.
41. ((family or families or relative) adj3 (placement* or substitute*)).mp.
42. (relative adj3 foster*).mp.
43. (custodial grandparent* or custodial grand parent*).mp.
44. (foster* adj3 child*).mp.
45. permanency plan*.mp.
46. institutional care.mp.

- 47. state care.mp.
- 48. ((support* or social or community or independent) adj1 (home* or housing or house or houses or accommodation or facility or facilities or living)).mp.
- 49. or/ 17-48 [INTERVENTION]
- 50. 16 and 49

CINAHL (EBSCO)

Date: June 3rd 2019

- S52. s51 and s17
- S51. S18 OR S19 OR S20 OR S21 OR S22 OR S23 OR S24 OR S25 OR S26 OR S27 OR S28 OR S29. OR S30 OR S31 OR S32 OR S33 OR S34 OR S35 OR S36 OR S37 OR S38 OR S39 OR S40 OR S41. OR S42 OR S43 OR S44 OR S45 OR S46 OR S47 OR S48 OR S49 OR S50
- S50. (support* or social or community or independent) n1 (home* or housing or house or houses or accommodation or facility or facilities or living)
- S49. "state care"
- S48. "institutional care"
- S47. "permanency plan*"
- S46. foster* n3 child*
- S45. custodial grandparent* or custodial grand parent*
- S44. relative n3 foster*
- S43. (family or families or relative) n3 (placement* or substitute*)
- S42. (kin or kinship) n3 (care* or caring or foster* or placement*)
- S41. foster* n6 (treatment or special* or therapeutic or medical or family or families)
- S40. "family based residential treatment"
- S39. "supported accommodation"
- S38. TI adoption OR SU adoption
- S37. Guardianship
- S36. "ward of the state"
- S35. "looking after children"
- S34. "looked after children"
- S33. "fictive kin"
- S32. "group home*"
- S31. support* n3 living
- S30. shelter n3 care
- S29. temporary n3 care
- S28. "shared family" n3 care
- S27. "volunteer* care"
- S26. "voluntary care"
- S25. "congregate care"
- S24. "group care"
- S23. "out of home" n3 care
- S22. "social care"
- S21. "relative care"
- S20. "home based" n3 care
- S19. foster* n3 (care or carer or carers or parent or parents)
- S18. residential n3 care
- S17. s12 and s16
- S16. s13 or s14 or s15

- S15. systematic n1 review* or metaanalysis or "meta analysis"
- S14. TI trial*
- S13. randomised or randomized or randomly
- S12. s1 or s2 or s3 or s4 or s5 or s6 or s8 or s9 or s10 or s11
- S11. "young person*" or "young people*" or youth or youths
- S10. baby or babies
- S9. toddler*
- S8. infant*
- S7. preschool* or "pre school*"
- S6. schoolchild*
- S5. teen*
- S4. girl or girls
- S3. (boy or boys)
- S2. adolescen*
- S1. child*

ERIC (EBSCO)

Date run: June 3rd 2019

- S52. s51 and s17
- S51. S18 OR S19 OR S20 OR S21 OR S22 OR S23 OR S24 OR S25 OR S26 OR S27 OR S28 OR S29. OR S30 OR S31 OR S32 OR S33 OR S34 OR S35 OR S36 OR S37 OR S38 OR S39 OR S40 OR S41. OR S42 OR S43 OR S44 OR S45 OR S46 OR S47 OR S48 OR S49 OR S50
- S50. (support* or social or community or independent) n1 (home* or housing or house or houses or accommodation or facility or facilities or living)
- S49. "state care"
- S48. "institutional care"
- S47. "permanency plan*"
- S46. foster* n3 child*
- S45. custodial grandparent* or custodial grand parent*
- S44. relative n3 foster* S43. (family or families or relative) n3 (placement* or substitute*)
- S42. (kin or kinship) n3 (care* or caring or foster* or placement*)
- S41. foster* n6 (treatment or special* or therapeutic or medical or family or families)
- S40. "family based residential treatment"
- S39. "supported accommodation"
- S38. TI adoption OR SU adoption
- S37. guardianship
- S36. "ward of the state"
- S35. "looking after children"
- S34. "looked after children"
- S33. "fictive kin"
- S32. "group home*"
- S31. support* n3 living
- S30. shelter n3 care
- S29. temporary n3 care
- S28. "shared family" n3 care
- S27. "volunteer* care"
- S26. "voluntary care"
- S25. "congregate care"

- S24. "group care"
- S23. "out of home" n3 care
- S22. "social care"
- S21. "relative care"
- S20. "home based" n3 care
- S19. foster* n3 (care or carer or carers or parent or parents)
- S18. residential n3 care
- S17. s12 and s16
- S16. s13 or s14 or s15
- S15. systematic n1 review* or metaanalysis or "meta analysis"
- S14. TI trial*
- S13. randomised or randomized or randomly
- S12. s1 or s2 or s3 or s4 or s5 or s6 or s8 or s9 or s10 or s11
- S11. "young person*" or "young people*" or youth or youths
- S10. baby or babies
- S9. toddler*
- S8. infant*
- S7. preschool* or "pre-school**"
- S6. schoolchild*
- S5. teen*
- S4. girl or girls
- S3. (boy or boys)
- S2. adolescen*
- S1. child*

International Bibliography of the Social Sciences (IBSS) (ProQuest)

Run Date: June 20th 2019

- S1. Child* or adolescen* or infant* or youth* or teen* or young or preschool* or "pre school**"
- S2. randomized or randomised or randomly or trial* or systematic n/1 review* or "meta analysis" or metaanalysis
- S3. S1 AND S2
- S4. (residential or foster* or "out of home" or "home based" or temporary or shelter) n/3 care
- S5. "institutional care" or "state care" or "permanency plan**"
- S6. (kin or kinship) n/3 (care* or caring or placement*)
- S7. (family or families or relative) n/3 (placement* or substitute*)
- S8. foster* n/3 (relative or child*)
- S9. foster* N/6 (treatment OR special* OR therapeutic OR medical OR family OR families)
- S10. (support* or social or community or independent) n/1 (home* or housing or house or houses or accommodation or facility or facilities or living)
- S11. "social care" or "group care" or "group home*" or "fictive kin" OR guardianship or "custodial grandparent*" or "custodial grand parent**"
- S12. S4 or S5 or S6 or S7 or S8 or S9 or S10 or S11
- S 13. S12 and S3 and S18

Web of Science (including Science Citation Index, Social Science Citation Index, Conferences Citation Index)

Run Date: June 20th 2019

37 #1 AND #35 AND #36
 # 36 TS=("randomized controlled trial") OR TS=("randomised controlled trial") OR TS=(randomised OR randomized OR randomly) OR TI=(trial or trials) OR TS=(systematic near/1 review*) OR TS=(metaanalysis or "meta analysis")
 # 35 #30 OR #31 OR #32 OR #33 OR #34
 # 34 TS=(support* near/1 home*) OR TS=(support* near/1 housing) OR TS=(support* near/1 house) OR TS=(support* near/1 houses) OR TS=(support* near/1 accommodation) OR TS=(support* near/1 facility) OR TS=(support* near/1 facilities) OR TS=(support* near/1 living)
 # 33 TS=(social near/1 home*) OR TS=(social near/1 housing) OR TS=(social near/1 house) OR TS=(social near/1 houses) OR TS=(social near/1 accommodation) OR TS=(social near/1 facility) OR TS=(social near/1 facilities) OR TS=(social near/1 living)
 # 32 TS=(community near/1 home*) OR TS=(community near/1 housing) OR TS=(community near/1 house) OR TS=(community near/1 houses) OR TS=(community near/1 accommodation) OR TS=(community near/1 facility) OR TS=(community near/1 facilities) OR TS=(community near/1 living)
 # 31 TS=(independent near/1 home*) OR TS=(independent near/1 housing) OR TS=(independent near/1 house) OR TS=(independent near/1 houses) OR TS=(independent near/1 accommodation) OR TS=(independent near/1 facility) OR TS=(independent near/1 facilities) OR TS=(independent near/1 living)
 # 30 #29 OR #28 OR #27 OR #26 OR #25 OR #24 OR #23 OR #22 OR #21 OR #20 OR #19 OR #18 OR #17 OR #16 OR #15 OR #14 OR #13 OR #12 OR #11 OR #10 OR #9 OR #8 OR #7 OR #6 OR #5 OR #4 OR #3 OR #2
 # 29 TS= ("state care")
 # 28 TS= ("institutional care")
 # 27 TS= ("permanency plan*")
 # 26 TS= (foster* near/3 child*)
 # 25 TS= ("custodial grandparent*" or "custodial grand parent*")
 # 24 TS= (relative near/3 foster*)
 # 23 TS=(relative near/3 placement*) OR TS=(relative near/3 substitute*)
 # 22 TS=(families near/3 placement*) OR TS=(families near/3 substitute*)
 # 21 TS=(family near/3 placement*) OR TS=(family near/3 substitute*)
 # 20 TS= (kinship near/3 care*) OR TS= (kinship near/3 caring) OR TS= (kinship near/3 foster) OR TS= (kinship near/3 placement*)
 # 19 TS= (kin near/3 care*) OR TS= (kin near/3 caring) OR TS= (kin near/3 foster) OR TS= (kin near/3 placement*)
 # 18 TS=(foster* near/6 treatment) OR TS=(foster* near/6 special*) OR TS=(foster* near/6 therapeutic) OR TS=(foster* near/6 medical) OR TS=(foster* near/6 family) OR TS=(foster* near/6 families)
 # 17 TS= ("family based residential treatment")
 # 16 TITLE: (adoption)
 # 15 TS=("group home*") OR TS=("fictive kin") OR TS=("looked after children") OR TS=("looking after children") OR TS=("ward of the state") OR TS=(guardianship)
 # 14 TS= (shelter near/3 care)
 # 13 TS= (temporary near/3 care)

- # 12 TS= ("shared family"near/3 care)
- # 11 TS= ("volunteer* care")
- # 10 TS= ("voluntary care")
- # 9 TS= ("congregate care")
- # 8 TS= ("group care")
- # 7 TS= ("out of home" near/3 care)
- # 6 TS= ("social care")
- # 5 TS= ("relative care")
- # 4 TS= ("home based" near/3 care)
- # 3 TS=(foster* near/3 care) OR TS=(foster* near/3 carer) OR TS=(foster* near/3 carers) OR TS=(foster* near/3 parent) OR TS=(foster* near/3 parents)
- # 2 TS= (residential near/3 care)
- # 1 TS=(child*) OR TS=(adolescen*) OR TS=(boy or boys) OR TS=(girl or girls) OR TS=(teen*) OR TS=(schoolchild*) OR TS=(preschool* or "pre school*") OR TS=(infant*) OR TS=(toddler*) OR TS=(baby or babies) OR TS=("young person*" or "young people*") OR TS=(youth or youths)

Australian Family and Society Abstracts Database (FAMILY) (Informit)

Run Date: June 29th 2019

1. (child* OR adolescen* OR boy OR boys OR girl OR girls OR teen* OR schoolchild* OR preschool* OR (pre ! school*) OR infant* OR toddler* OR baby OR babies OR (young ! person*) OR (young ! people))
2. (Adopted OR Adoption OR adoptive OR Community ! accommodation OR Community ! facilit* OR Community ! home* OR Community ! hous* OR Community ! living OR Congregate ! care OR Custodial ! grandparent OR (Family % substitut*) OR Fictive ! kin OR OR Group !2 home OR Group !2 hous* OR Group !2 homes OR Guardian* OR Home ! based ! care OR (Home % support*) OR Independent %2 accommodation OR Independent %2 facilit* OR Independent %2 home OR Independent %2 homes OR Independent %2 hous* OR Independent %2 living OR Institutional ! care OR Kin ! care OR Kinship ! care OR Living ! support OR (Looked ! after ! children) OR (Looking ! after ! children) OR (Out ! of ! home ! care) OR Permanency ! plan OR Placement OR Relative ! care OR Residential ! care OR Residential ! treatment OR (Shared ! family ! care) OR Shelter ! care OR Social ! care OR Social ! hous* OR State ! care OR state %3 ward OR Substitute ! family OR Support* ! accommodation OR Support* ! facilit* OR Support* % home OR Support* % homes OR Support* % hous* OR Support* % living OR Temporary ! care OR voluntary ! care OR volunteer ! care)
3. ((Randomised ! controlled ! trial*) OR (Randomized ! controlled ! trial*) OR clinical !2 trial* OR (Random* AND control*) OR meta-analysis OR meta ! analysis OR metaanalysis OR systematic ! review*)

Families and Society Collection (Informit)

Run Date: June 29th 2019

1. (Adopted OR Adoption OR adoptive OR Community ! accommodation OR Community ! facilit* OR Community ! home* OR Community ! hous* OR Community ! living OR Congregate ! care OR Custodial ! grandparent OR (Family % substitut*) OR Fictive ! kin OR Foster* OR Group !2 care OR Group !2 home OR Group !2 hous* OR Group !2 homes OR Guardian* OR Home ! based ! care OR (Home % support*) OR Independent %2 accommodation OR Independent %2 facilit* OR Independent %2 home OR Independent %2 homes OR Independent %2 hous* OR Independent %2 living OR Institutional ! care OR Kin ! care OR Kinship ! care OR Living ! support OR (Looked ! after ! children) OR (Looking ! after ! children) OR (Out ! of ! home ! care) OR Permanency ! plan OR Placement OR Relative ! care OR Residential ! care OR Residential ! treatment OR (Shared ! family ! care) OR Shelter ! care OR Social ! care OR Social ! hous* OR State ! care OR state %3 ward OR Substitute ! family OR Support* ! accommodation OR Support* ! facilit* OR Support* % home OR Support* % homes OR Support* % hous* OR Support* % living OR Temporary ! care OR voluntary ! care OR volunteer ! care)
2. (child* OR adolescen* OR boy OR boys OR girl OR girls OR teen* OR schoolchild* OR preschool* OR (pre ! school*) OR infant* OR toddler* OR baby OR babies OR (young ! person*) OR (young ! people))
3. 1 AND 2 AND 3

Attorney-General's Information Service (AGIS plus Text) (Informit)

Run Date: 29th June 2019

(child* OR adolescen* OR boy OR boys OR girl OR girls OR teen* OR schoolchild* OR preschool* OR (pre ! school*) OR infant* OR toddler* OR baby OR babies OR (young ! person*) OR (young ! people))

(Adopted OR Adoption OR adoptive OR Community ! accommodation OR Community ! facilit* OR Community ! home* OR Community ! hous* OR Community ! living OR Congregate ! care OR Custodial ! grandparent OR (Family % substitut*) OR Fictive ! kin OR Foster* OR Group !2 care OR Group !2 home OR Group !2 hous* OR Group !2 homes OR Guardian* OR Home ! based ! care OR (Home % support*) OR Independent %2 accommodation OR Independent %2 facilit* OR Independent %2 home OR Independent %2 homes OR Independent %2 hous* OR Independent %2 living OR Institutional ! care OR Kin ! care OR Kinship ! care OR Living ! support OR (Looked ! after ! children) OR (Looking ! after ! children) OR (Out ! of ! home ! care) OR Permanency ! plan OR Placement OR Relative ! care OR Residential ! care OR Residential ! treatment OR (Shared ! family ! care) OR Shelter ! care OR Social ! care OR Social ! hous* OR State ! care OR state %3 ward OR Substitute ! family OR Support* ! accommodation OR Support* ! facilit* OR Support* % home OR Support* % homes OR Support* % hous* OR Support* % living OR Temporary ! care OR voluntary ! care OR volunteer ! care)

((Randomised ! controlled ! trial*) OR (Randomized ! controlled ! trial*) OR clinical !2 trial* OR (Random* AND control*) OR meta-analysis OR meta ! analysis OR meta-analysis OR systematic ! review*)

1 AND 2 AND 3

Campbell Collaboration

Full Text: "foster care" or "kinship" or "out of home"

Appendix D: Database search results

Medline (Ovid)	338
Embase (Ovid)	399
Psych Info (Ovid)	368
Cochrane Central Register of Controlled Trials (Ovid)	597
CINAHL (ESCO)	411
ERIC (EBSO)	47
International Bibliography of the Social Sciences (IBSS) Proquest	2146
Web of science	677
Australian Family and Society Abstract (Informit)	419
Family and Society Collection (Informit)	248
Attorney-General's Information Service (AGIS plus Text) (Informit)	139
Campbell Collaboration	0
Total	5789

Appendix E: Electronic Database Search Strategy (Restoration only)

Ovid: Medline, Embase, Psych Info, Cochrane Central Register of Controlled Trials

Date run: September 2nd 2019

1. (out of home adj3 care).mp.
2. (residential adj3 care).mp.
3. (foster* adj3 (care or carer or carers or parent or parents)).mp.
4. looked after children.mp.
5. ((kin or kinship) adj3 (care* or caring or foster* or placement*)).mp.
6. 1 or 2 or 3 or 4 or 5
7. reunification.mp.
8. 6 and 7
9. randomized controlled trial.pt.
10. controlled clinical trial.pt.
11. (randomized or randomised or randomly).tw.
12. ((systematic adj1 review*) or meta-analysis or meta-analysis).mp.
13. 9 or 10 or 11 or 12
14. 8 and 13

EBSCO: CINAHL and ERIC

Date run: September 2nd 2019

- S11. S5 OR S6 OR S11
S11. S7 OR S8 OR S9 OR S10
S10. randomized controlled trial
S9. (randomized or randomised or randomly)
S8. controlled clinical trial
S7. ((systematic adj1 review*) or meta-analysis or meta-analysis)
S6. reunification
S5. S1 OR S2 OR S3 OR S4
S4. looked after children
S3. (foster* adj3 (care or carer or carers or parent or parents))
S2. (residential adj3 care)
S1. (out of home adj3 care)

Proquest: International Bibliography of the Social Sciences (IBSS)

(randomized OR randomised OR randomly OR trial* OR systematic NEAR/1 review* OR "meta analysis" OR metaanalysis) AND ((residential OR foster* OR "out of home") NEAR/3 care) AND reunification OR restoration

Informit: Family and Society Collection, Australian Family and Society Abstract, Attorney-General’s Information Service (AGIS plus Text) (Informit)

Date run: September 2nd 2019

((Foster care*) OR (kinship care*) OR (Looked after children) OR (residential care*) OR ("out of home" care*)) AND ((Randomised ! controlled ! trial*) OR (Randomized ! controlled ! trial*) OR clinical !2 trial* OR (Random* AND control*) OR meta-analysis OR meta ! analysis OR metaanalysis OR systematic ! review*)) AND reunification OR restoration

Campbell collaboration

Date run: September 2nd 2019

Reunification AND (foster care OR out of home care OR residential care)

Citation	
Medline (Ovid)	46
Embase (Ovid)	
Psych Info (Ovid)	
Cochrane Central Register of Controlled Trials (Ovid)	
CINAHL (ESCO)	15
ERIC (EBSO)	
International Bibliography of the Social Sciences (IBSS) Proquest	237
Australian Family and Society Abstract (Informit)	6
Family and Society Collection (Informit)	
Attorney-General’s Information Service (AGIS plus Text) (Informit)	
Campbell Collaboration	0
Total	304

Appendix F: Excluded primary studies

Citation	Grounds
Guyon-Harris et al. 2018, 'A prospective longitudinal study of reactive attachment disorder following early institutional care: Considering variable- and person-centered approaches', <i>Attachment and Human Development</i> , pp. 95-100.	Population - too different to Australia
Tang et al. 2018, 'Caregiving Disruptions Affect Growth and Pubertal Development in Early Adolescence in Institutionalized and Fostered Romanian Children: A Randomized Clinical Trial', <i>Journal of Pediatrics</i> , vol. 203, pp. 345-353.	Population - too different to Australia
Troller-Renfree et al. 2016, 'Deficits in error monitoring are associated with externalizing but not internalizing behaviors among children with a history of institutionalization', <i>Journal of Child Psychology and Psychiatry and Allied Disciplines</i> , vol. 57, no. 10, pp. 1145-53.	Population - too different to Australia
Wade et al. 2018, 'Effect of Foster Care Intervention on Trajectories of General and Specific Psychopathology Among Children With Histories of Institutional Rearing: A Randomized Clinical Trial', <i>JAMA Psychiatry</i> , vol. 75, no. 11, pp. 1137-1145.	Population - too different to Australia
Humphreys et al. 2017, 'Foster care promotes adaptive functioning in early adolescence among children who experienced severe, early deprivation', <i>Journal of Child Psychology and Psychiatry</i> , vol. 59, no. 7, pp. 811-821.	Population - too different to Australia
Lamm et al. 2018, 'Impact of early institutionalization on attention mechanisms underlying the inhibition of a planned action', <i>Neuropsychologia</i> , vol. 217, pp. 339-346.	Population - too different to Australia
Slopen et al. 2019, 'The Consequences of Foster Care Versus Institutional Care in Early Childhood on Adolescent Cardiometabolic and Immune Markers: Results From a Randomized Controlled Trial', <i>Psychosomatic medicine</i> , vol. 81, no. 5, pp. 449-457.	Population - too different to Australia
Debnath et al. 2019, 'The Long-term effects of institutional rearing, foster care intervention and disruptions in care on brain electrical activity in adolescence', <i>Developmental Science</i> , e12872.	Population - too different to Australia
Johnson et al. 2018, 'Caregiving Disruptions Affect Growth and Pubertal Development in Early Adolescence in Institutionalized and Fostered Romanian Children: A Randomized Clinical Trial', <i>Journal of Pediatrics</i> , vol. 203, pp. 345-53.	Population - too different to Australia
Herrman et al. 2016 'A controlled trial of implementing a complex mental health intervention for carers of vulnerable young people living in out-of-home care: the ripple project', <i>BMC Psychiatry</i> , vol. 16, p. 436	Intervention - Protocol only
Vandivere et al. 2017, 'A Randomized Controlled Trial of Family Finding: A Relative Search and Engagement Intervention for Youth Lingered in Foster Care', <i>Evaluation Review</i> , vol. 41, no. 6, pp. 542-567.	Time frame – already in map
Cohen et al. 2016, 'A Randomized Implementation Study of Trauma-Focused Cognitive Behavioural Therapy for Adjudicated Teens in Residential Treatment Facilities', <i>Child Maltreatment</i> , vol. 21, no. 2, pp. 156-167.	Population – focus on juvenile justice
Mersky et al. 2016, 'Adapting Parent–Child Interaction Therapy to Foster Care: Outcomes From a Randomized Trial', <i>Research on Social Work Practice</i> , vol. 26, no. 2, pp. 157-167.	Time frame – already in map

Pasalich et al. 2016, 'Can Parenting Intervention Prevent Cascading Effects From Placement Instability to Insecure Attachment to Externalizing Problems in Maltreated Toddlers?', <i>Child Maltreatment</i> , vol. 21, no. 3, pp. 175-185.	Intervention – focus on prevention
Courtney, M and Hook, J 2017, 'The potential educational benefits of extending foster care to young adults: Findings from a natural experiment', <i>Children and Youth Services Review</i> , vol. 72, pp. 124–132.	Intervention – no comparison group
Moody et al. 2018, 'Evaluating the long-term impact of the Fostering Changes training programme for foster carers in Wales, the Confidence in Care trial: study protocol for a randomised controlled trial', <i>Trials</i> , vol. 19, p. 34.	Design – protocol only
Fowler et al 2018, ' Homelessness in the child welfare system: A randomized controlled trial to assess the impact of housing subsidies on foster care placements and costs', <i>Child Abuse and Neglect</i> , vol. 83, pp. 52–61.	Population – intact families
Almas et al. 2016, 'IQ at Age 12 Following a History of Institutional Care: Findings From the Bucharest Early Intervention Project', <i>Developmental Psychology</i> , vol. 52, no. 11, pp. 1858-1866.	Population – too different to Australia
Liddle et al. 2018, 'Multidimensional Family Therapy as a community-based alternative to residential treatment for adolescents with substance use and co-occurring mental health disorders', <i>Journal of Substance Abuse Treatment</i> , vol. 90, pp. 47-56.	Intervention – focus on prevention
Leathers et al. 2019, 'Placement disruption in foster care: Children's behaviour, foster parent support, and parenting experiences', <i>Child Abuse and Neglect</i> , vol. 91, pp. 147–159	Design – no intervention
Oxford, M 2016. 'Promoting First Relationships®: Randomized Trial of a 10-Week Home Visiting Program With Families Referred to Child Protective Services', <i>Child Maltreatment</i> , vol. 21, no. 4, pp. 267-277.	Intervention – focus on prevention
Alderson et al. 2019, 'The key therapeutic factors needed to deliver behavioural change interventions to decrease risky substance use (drug and alcohol) for looked after children and care leavers: a qualitative exploration with young people, carers and front line workers', <i>BMC Medical Research Methodology</i> , pp. 19-38.	Intervention – qualitative methods
Sim et al. 2016, 'The moderating effect between strengths and placement on children's needs in out-of-home care: A follow-up study', <i>Children and Youth Services Review</i> , vol. 60, pp. 101–108.	No intervention
Gavița, O, David, D, Bujoreanu, S, Tiba, A and Ionuțiu, D 2012, 'The efficacy of a short cognitive-behavioral parent program in the treatment of externalizing behavior disorders in Romanian foster care children: Building parental emotion-regulation through unconditional self- and child-acceptance strategies', <i>Children and Youth Services Review</i> , vol. 34, no. 7, pp. 1290-1297.	Population – too different to Australia

Appendix G: Excluded systematic reviews

Citation	Reason
Quiroga, M and Hamilton- Giachritsis, C 2016, 'Attachment Styles in Children Living in Alternative Care: A Systematic Review of the Literature', <i>Child Youth Care Forum</i> , vol. 45, pp. 625–653.	Design – no intervention focus
Vasileva, M and Petermann, F 2018, 'Attachment, Development, and Mental Health in Abused and Neglected Preschool Children in Foster Care: A Meta-Analysis'; <i>Trauma, Violence and Abuse</i> , vol. 19, no. 4, pp. 443-458.	Design – no intervention focus
Willis et al. 2017, 'Attention-Deficit/Hyperactivity Disorder in Looked-After Children: a Systematic Review of the Literature', <i>Current Developmental Disorders Reports</i> , vol. 4, no. 3, pp. 78–84.	Design – no intervention focus
Kääriälä, A and Heikki, H 2017, 'Children in out-of-home care as young adults: A systematic review of outcomes in the Nordic countries', <i>Children and Youth Services Review</i> , vol. 79, pp. 107–114.	Design – no intervention focus
Evans et al. 2017, 'Comparison of suicidal ideation, suicide attempt and suicide in children and young people in care and non-care populations: Systematic review and meta-analysis of prevalence', <i>Children and Youth Services Review</i> , vol. 82, pp. 122–129.	Design – no intervention focus
Osei, K and Gorey, K 2015, 'Delinquency and Crime Prevention: Overview of Research Comparing Treatment Foster Care and Group Care', <i>Child Youth Care Forum</i> , vol. 45, pp. 33–46.	Design – no intervention focus
Leipoldt et al. 2019, 'Determinants and outcomes of social climate in therapeutic residential youth care: A systematic review', <i>Children and Youth Services Review</i> , vol. 99, pp. 429–440.	Design – no intervention focus
Maltais et al. 2019, 'Identifying effective interventions for promoting parent engagement and family reunification for children in out-of-home care: A series of meta-analyses', <i>Child Abuse and Neglect</i> , vol. 88, pp. 362-375.	Intervention – reunification
Leleoux-Opmeer et al. 2016, 'Characteristics of Children in Foster Care, Family-Style Group Care, and Residential Care: A Scoping Review', <i>Journal of Child and Family Studies</i> , vol. 25, pp. 2357–2371.	No intervention
Xu, Y and Bright, C 2018, 'Children's mental health and its predictors in kinship and non-kinship foster care: A systematic review', <i>Children and Youth Services Review</i> , vol. 89, pp. 243–262.	No intervention
Lou et al. 2018, 'Resilience and resilience factors in children in residential care: A systematic review', <i>Children and Youth Services Review</i> , vol. 89, pp. 83–92.	No intervention
O'Higgins et al. 2017, 'What are the factors associated with educational achievement for children in kinship or foster care: A systematic review', <i>Children and Youth Services Review</i> , vol. 79, pp. 198–220.	No intervention
Goemans, A, van Geel, M, van Beem, M and Vedder, P 2016, 'Developmental Outcomes of Foster Children: A Meta-Analytic Comparison With Children From the General Population and Children at Risk Who Remained at Home', <i>Child Maltreatment</i> , vol. 21, no. 3, pp. 198-217.	No intervention
Li, D, Chng, G and Meng and Chu, C 2017, 'Comparing Long-Term Placement Outcomes of Residential and Family Foster Care: A Meta-Analysis', <i>Trauma, Violence, and Abuse</i> , vol. 20, no. 10, pp. 1-12	No intervention

<p>Hermenau, K, Goessmann, K, Rygaard, N, Landolt, M and Hecker, T 2016, 'Fostering Child Development by Improving Care Quality: A Systematic Review of the Effectiveness of Structural Interventions and Caregiver Trainings in Institutional Care', <i>Trauma, Violence and Abuse</i>, vol. 18, no. 5, pp. 544-561.</p>	<p>Context - not similar to Australia</p>
<p>Winokur, M, Holtan, A, Valentine, D 2009, 'Kinship care for the safety, permanency, and well-being of children removed from the home for maltreatment', <i>Cochrane Database of Systematic Reviews</i>, vol. 1: CD006546.</p>	<p>No intervention</p>
<p>Winkur, M, Holtan, A, Batchelder, K 2014, "Kinship care for the safety, permanency, and well-being of children removed from the home for maltreatment", <i>Cochrane Database of Systematic Reviews</i>, vol. 3: CD006546</p>	<p>No intervention</p>

Appendix H: AMSTAR Criteria

AMSTAR = A measurement tool to assess the methodological quality of systematic reviews

	Criteria	Rating
1	<p>Was an 'a priori' design provided?</p> <p>The research question and inclusion criteria should be established before the conduct of the review.</p> <p><i>Note: Need to refer to a protocol, ethics approval, or pre-determined/a priori published research objectives to score a "yes."</i></p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Can't answer <input type="checkbox"/> Not applicable
2	<p>Was there duplicate study selection and data extraction?</p> <p>There should be at least two independent data extractors and a consensus procedure for disagreements should be in place.</p> <p><i>Note: 2 people do study selection, 2 people do data extraction, consensus process or one person checks the other's work.</i></p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Can't answer <input type="checkbox"/> Not applicable
3	<p>Was a comprehensive literature search performed?</p> <p>At least two electronic sources should be searched. The report must include years and databases used (e.g., Central, EMBASE, and MEDLINE). Key words and/or MESH terms must be stated and where feasible the search strategy should be provided. All searches should be supplemented by consulting current contents, reviews, textbooks, specialized registers, or experts in the particular field of study, and by reviewing the references in the studies found.</p> <p><i>Note: If at least 2 sources + one supplementary strategy used, select "yes" (Cochrane register/Central counts as 2 sources; a grey literature search counts as supplementary).</i></p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Can't answer <input type="checkbox"/> Not applicable
4	<p>Was the status of publication (i.e. grey literature) used as an inclusion criterion?</p> <p>The authors should state that they searched for reports regardless of their publication type. The authors should state whether or not they excluded any reports (from the systematic review), based on their publication status, language etc.</p> <p><i>Note: If review indicates that there was a search for "grey literature" or "unpublished literature," indicate "yes." SIGLE database, dissertations, conference proceedings, and trial registries are all considered grey for this purpose. If searching a source that contains both grey and non-grey, must specify that they were searching for grey/unpublished lit.</i></p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Can't answer <input type="checkbox"/> Not applicable
5	<p>Was a list of studies (included and excluded) provided?</p> <p>A list of included and excluded studies should be provided.</p> <p><i>Note: Acceptable if the excluded studies are referenced. If there is an electronic link to the list but the link is dead, select "no."</i></p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Can't answer <input type="checkbox"/> Not applicable

6	<p>Were the characteristics of the included studies provided?</p> <p>In an aggregated form such as a table, data from the original studies should be provided on the participants, interventions and outcomes. The ranges of characteristics in all the studies analyzed e.g., age, race, sex, relevant socioeconomic data, disease status, duration, severity, or other diseases should be reported.</p> <p><i>Note: Acceptable if not in table format as long as they are described as above.</i></p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Can't answer <input type="checkbox"/> Not applicable
7	<p>Was the scientific quality of the included studies assessed and documented?</p> <p>'A priori' methods of assessment should be provided (e.g., for effectiveness studies if the author(s) chose to include only randomized, double-blind, placebo controlled studies, or allocation concealment as inclusion criteria); for other types of studies alternative items will be relevant.</p> <p><i>Note: Can include use of a quality scoring tool or checklist, e.g. Jadad scale, risk of bias, sensitivity analysis, etc., or a description of quality items, with some kind of result for EACH study ("low" or "high" is fine, as long as it is clear which studies scored "low" and which scored "high"; a summary score/range for all studies is not acceptable).</i></p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Can't answer <input type="checkbox"/> Not applicable
8	<p>Was the scientific quality of the included studies used appropriately in formulating conclusions?</p> <p>The results of the methodological rigor and scientific quality should be considered in the analysis and the conclusions of the review, and explicitly stated in formulating recommendations.</p> <p><i>Note: Might say something such as "the results should be interpreted with caution due to poor quality of included studies." Cannot score "yes" for this question if scored "no" for question 7.</i></p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Can't answer <input type="checkbox"/> Not applicable
9	<p>Were the methods used to combine the findings of studies appropriate?</p> <p>For the pooled results, a test should be done to ensure the studies were combinable, to assess their homogeneity (i.e., Chi-squared test for homogeneity, I²). If heterogeneity exists a random effects model should be used and/or the clinical appropriateness of combining should be taken into consideration (i.e., is it sensible to combine?).</p> <p><i>Note: Indicate "yes" if they mention or describe heterogeneity, i.e., if they explain that they cannot pool because of heterogeneity/variability between interventions.</i></p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Can't answer <input type="checkbox"/> Not applicable
10	<p>Was the likelihood of publication bias assessed?</p> <p>An assessment of publication bias should include a combination of graphical aids (e.g., funnel plot, other available tests) and/or statistical tests (e.g., Egger regression test, Hedges-Olken).</p> <p><i>Note: If no test values or funnel plot included, score "no". Score "yes" if mentions that publication bias could not be assessed because there were fewer than 10 included studies.</i></p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Can't answer <input type="checkbox"/> Not applicable

11	<p>Was the conflict of interest included?</p> <p>Potential sources of support should be clearly acknowledged in both the systematic review and the included studies.</p> <p>Note: To get a “yes,” must indicate source of funding or support for the systematic review AND for each of the included studies.</p>	<ul style="list-style-type: none"><input type="checkbox"/> Yes<input type="checkbox"/> No<input type="checkbox"/> Can't answer<input type="checkbox"/> Not applicable
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Appendix I: AMSTAR ratings

	1	2	3	4	5	6	7	8	9	10	11	Valid 'yes' responses	
Li et al. 2017	N	N	N	N	N	Y	N	N	Y	Y	Y	4	36%
Bergström et al. 2018	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	10	91%
Kemmis-Riggs et al. 2017	Y	Y	N	N	N	Y	Y	Y	Y	N	Y	7	64%
Bryne 2017	N	N	N	N	N	N/A	N/A	N/A	N/A	N/A	Y	1	17%
Steenbakkens et al. 2017	N	Y	N	N	N	N	N	N	N	N	N	1	9%
Hambrick et al. 2016	Y	Y	Y	N	N	Y	Y	Y	N	N	N	6	56%
Uretsky and Hoffman 2017	N	N	N	N	Y	Y	Y	Y	Y	Y	N	6	56%
Bullen et al. 2017	N	N	Y	Y	N	Y	Y	Y	Y	N	N	6	56%
Hammarstrom et al. 2018	N	Y	Y	N	Y	Y	Y	Y	Y	N	Y	8	72%
Woodgate et al. 2017	N	Y	N	N	N	Y	N	Y	Y	N	Y	5	45%
Evans et al. 2017	N	Y	Y	N	N	Y	Y	Y	Y	N	N	6	56%
Bailey et al. 2018	N	N	N	N	Y	Y	Y	Y	Y	N	N	5	45%
Solomon et al. 2017	N	N	N	Y	N	Y	N	Y	Y	N	Y	5	45%
Liu et al. 2019	N	N	Y	Y	N	Y	N	N	Y	N	Y	5	45%
Männistö and Pirttimaa 2018	Y	N	N	N	N	N	Y	Y	Y	N	N	4	36%
Washington et al. 2018	Y	Y	Y	N	N	Y	Y	Y	Y	N	N	7	64%
Zhang et al. 2019	N	Y	N										
Murphy et al.													

Appendix J: Jadad Criteria

Item	No.	Description	Examples
Randomisation	1	1 point if randomization is mentioned	“The patients were randomly assigned into two groups”.
	2	1 additional point if the method of randomization is appropriate	The randomization was accomplished using a computer generated random number list, coin toss or well-shuffled envelopes.
	3	Deduct 1 point if the method of randomization is inappropriate (minimum 0)	The group assignment was accomplished by alternate assignment, by birthday, hospital number or day of the week.
Blinding	4	1 point if blinding is mentioned	“The trial was conducted in a double-blind fashion”
	5	1 additional point if the method of blinding is appropriate	Use of identical tablets or injectables, identical vials Use of tablets with similar looks but different taste
	6	Deduct 1 point if the method of blinding is inappropriate (minimum 0)	Incomplete masking
An account of all patients	7	The fate of all patients in the trial is known. If there are no data the reason is stated.	“There were 40 patients randomized but the data from 1 patient in the treatment group and 2 in the control were eliminated because of a break in protocol”

Appendix K: Jadad Ratings

Article	Randomisation		Blinding		Accounts of all patients	Total
	Mentioned	Appropriate	Mentioned	Appropriate		
Messer et al. 2016	+1	+1	+1	+1	+1	5
Van Holen et al. 2016	+1	+1	+1	-1	+1	3
Van Lieshout et al. 2016	+1	0	0	0	+1	2
Akin and McDonald. 2018	+1	+1	+1	0	+1	4
Akin et al. 2017	+1	+1	+1	0	+1	4
Akin et al. 2018	+1	+1	+1	0	+1	4
Conn et al. 2018	+1	0	+1	0	+1	3
Maaskant et al. 2017	+1	+1	+1	+1	+1	5
Bernard et al. 2017	+1	+1	0	0	+1	3
Raby et al. 2017	+1	+1	+1	+1	+1	5
Lind et al. 2017	+1	0	0	0	0	1
Van Andel et al. 2016	+1	+1	0	0	+1	3
Kim et al. 2017	+1	+1	0	0	+1	3
Schuermans et al. 2017	+1	+1	0	0	+1	3
Cepukiene et al. 2018	0	0	0	0	+1	1
Green et al. 2017	+1	0	0	0	0	1
Braciszewski et al. 2018	+1	+1	0	0	+1	3
Castel et al. 2016	+1	+1	+1	0	+1	4
Lynch et al. 2017	+1	0	0	0	0	1
Jonkman et al. 2017	+1	+1	+1	+1	+1	5

Kothari et al. 2017	+1	+1	0	0	+1	3
Feldman et al. 2016	+1	+1	0	0	0	2
Ryan et al. 2017	+1	0	0	0	0	1
Fisher et al. 2000	0 (not a RCT)	0	0	0	0	0
Fisher et al. 2011	+1	0	+1	+1	+1	4
Graham et al. 2011	+1	0	+1	+1	0	3
Harper and Schmidt 2012	+1	0	0	0	+1	2
Johnson et al. 2010	0 (not a RCT)	0	0	0	0	0
Rast and Rast 2014	0	0	0	0	0	0
Taussig et al. 2012	+1	0	0	0	+1	2
Unrau, Wells and Hartnett 2004	0 (not a RCT)	0	0	0	0	0
Weiner et al. 2009	0 (not a RCT)	0	0	0	0	0
Zetlin et al. 2004	1	0	0	0	0	1
Lee and Lee 2016	+1	0	0	0	0	1
Oman et al. 2018	+1	+1	0	0	+1	3
Haggerty et al. 2019	+1	0	0	0	+1	2
Ryan et al. 2016	+1	0	0	0	0	1
Bick and Dozier	+1	0	+1	0	0	2
Pithouse, Hill-Tout and Lowe 2002	0	0	+1	0	+1	2
Berry, McCauley and Lansing 2007	0	0	0	0	+1	1
Brook and McDonald 2007	0	0	0	0	0	0
Brook, McDonald and Yan 2012	0	0	0	0	0	0
Choi and Ryan 2007	0	0	0	0	0	0