Evidence linking adverse childhood experiences and long-term negative outcomes

- Adverse childhood experiences (ACEs) have been linked with long-term negative outcomes across a wide variety of domains, including mental health, physical health, and economic and employment outcomes.
- Looking at the negative effects of atypical childhood care on later life, the association between childhood adversity and psychopathology is strongest at 16, but the relationship is still present at 23 and 45 years old with little attenuation, indicating that experience of atypical care can have continuous negative consequences throughout the life span (Clark, Caldwell, Power, & Stansfeld, 2010).
- Similarly, a review of extant literature on sexual abuse highlights that victims are at significant risk of social impairment and interpersonal problems, among other difficulties, in later life (Maniglio, 2009).
- Although it is difficult to quantify the exact impact of multiple forms of trauma on adolescent development, one study of over 3,000 15-year-olds found that each additional traumatic event or loss in childhood significantly increased the likelihood of high-risk behaviour problems and/or functional impairment in adolescence by 6% to 22% (Layne et al., 2014).
- ACEs can also have negative physical health consequences. Evidence from the Wisconsin Longitudinal Study of 2,800 middle-aged men and women points to physical abuse leading to an elevated risk of allergies, arthritis/rheumatism, asthma, bronchitis/emphysema, circulation problems, high blood pressure, heart troubles, liver troubles and ulcers, with analysis of the dataset estimating that the increased odds of these diseases lies between 34% and 167% (Springer, Sheridan, Kuo, & Carnes, 2007).
- Additionally, there is particular evidence for an association between childhood maltreatment and obesity in adulthood (Danese & Tan, 2014).
- The economic burden of abuse is also well documented, with childhood victims typically having higher rates of unemployment, lower household incomes and greater productivity losses compared with their non-maltreated peers (Barrett, Kamiya, & O’Sullivan, 2014; Currie & Spatz Widom, 2010; Fang, Brown, Florence, & Mercy, 2012).
- Moreover, a prospective cohort study examining employment outcomes of maltreated children found that by middle age there was a 14% gap between individuals who had been physically or sexually abused and matched controls on the probability of being in work (Currie & Spatz Widom, 2010).
Gaps in the evidence base linking adverse childhood experiences with long-term negative outcomes

Assessment and measurement of adverse childhood experiences

- A number of literature reviews and overviews have highlighted the need for greater clarity regarding measurement and assessment of ACEs (Humphreys & Zeanah, 2015; Larkin, Shields, & Anda, 2012; McLaughlin, 2016; Su, Jimenez, Roberts, & Loucks, 2015).
- A 2017 review identified 14 different methods of measuring ACEs and advocated research into a single standardised method in order to accurately evaluate the link between ACEs and long-term outcomes (Bethell, Carle, et al., 2017).
- Related to this, it suggested that further research into screening measures is needed (Finkelhor, 2017), alongside an improved understanding of the accuracy of self-report measures of ACEs, which may frequently contain false-negative reports (Anda, Butchart, Felitti, & Brown, 2010; Hardt & Rutter, 2004).
- In addition, there have been proposals for further research into the value and accuracy of new diagnoses such as ‘developmental trauma disorder’ (DTD) (Bethell, Carle, et al., 2017), complex PTSD (Bransford & Blizard, 2017), and co-occurring trauma and psychosis (Dvir, Denietolis, & Frazier, 2013).

Mechanisms underlying the pathway between adverse childhood experiences and negative long-term outcomes

- Literature reviews often call for a better understanding of the mechanisms underlying the relationship between ACEs and negative long-term outcomes.
- There is a need for further research into the mechanisms behind the link between ACEs and poor physical health outcomes including cancer (Holman et al., 2016), diabetes (Huang et al., 2015; Huffhines, Noser, & Patton, 2016), chronic pain (Nelson, Cunningham, & Kashikar-Zuck, 2017) and post-traumatic growth phenomena (Sapienza & Masten, 2011).
- The mechanisms linking ACEs to a range of mental health and wellbeing outcomes also need further investigation, in particular substance abuse vulnerability (Somaini et al., 2011), suicide (Brodsky & Stanley, 2012; Sachs-Ericsson, Rushing, Stanley, & Sheffler, 2016), intimate partner violence (Montalvo-Liendo et al., 2015), psychosis (Dvir et al., 2013; Larkin & Read, 2008) and homelessness (Davies & Allen, 2017).
- Possible mechanisms that are of particular interest are epigenetic changes in response to ACEs (Danese & McEwen, 2012; Sachs-Ericsson et al., 2016), neurobiological effects (Brodsky & Stanley, 2012; McCrory, Gerin, & Viding, 2017; Sapienza & Masten, 2011), and other biological correlates (Danese & McEwen, 2012), such as changes in the biological stress response (Kalmakis & Chandler, 2015).
- Other mechanisms identified for future research include the cellular and molecular outcomes of maternal substance use (Humphreys & Zeanah, 2015) and the roles of emotional processing and executive function skills (McLaughlin, 2016).
Individual differences

- Reviewers have frequently suggested the need for further research into the reasons behind differences of outcomes in individuals following a history of ACE.
- The need to identify resilience and vulnerability factors has been put forward by many authors (Bethell, Carle, et al., 2017; Danese & McEwen, 2012; Humphreys & Zeanah, 2015; Kajeepeta, Gelaye, Jackson, & Williams, 2015; McLaughlin, 2016; Nelson et al., 2017; Traub & Boynton-Jarrett, 2017). Candidate factors include the effects of culture (Sapienza & Masten, 2011), ethnicity, and gender (Kajeepeta et al., 2015) and mediating factors (Kalmakis & Chandler, 2015) such as cognitive risk factors (Liu, 2017).

Longitudinal research

- Another frequently mentioned focus for future research is the need to undertake more longitudinal studies.
- Gaps in the current evidence base that might be addressed by longitudinal studies include identifying resilience factors (Bethell, Carle, et al., 2017; Kajeepeta et al., 2015; Traub & Boynton-Jarrett, 2017), providing a stronger link between ACEs and specific negative outcomes (Huffhines et al., 2016; Humphreys & Zeanah, 2015; Liu, 2017; McCrory et al., 2017; Nelson et al., 2017; Su et al., 2015), following the biological effects of ACEs over time (Danese & McEwen, 2012) and using multiple current longitudinal studies to implement a common method to evaluate intervention outcomes (Bethell, Solloway, et al., 2017).

Other gaps

- Other gaps identified in the evidence base linking ACEs with negative long-term outcomes were comparisons between the effects of ACEs and other childhood stressors (Bethell, Carle, et al., 2017) and a lack of studies measuring the effect of ACEs in developing countries (Anda et al., 2010; Sapienza & Masten, 2011).

Evidence for the impact of specific adverse childhood experiences

Current evidence

- There is some evidence concerning the characteristics of ACEs that are associated with the most negative outcomes.
- In a number of reviews, cumulative or chronic exposure to ACEs predicted the greatest negative outcomes. Cumulative/chronic ACEs have been associated with negative outcomes in general (Anda et al., 2010; Danese & McEwen, 2012), and for psychosis (Dvir et al., 2013) and asthma (Exley, Norman, & Hyland, 2014).
- Other reviews have found that negative outcomes are more associated with some types of ACEs than with others.
- For example, a 2016 systematic review found associations between physical abuse and any type of cancer in three studies, an association between psychological abuse and any type of cancer in two studies, and two studies associating sexual abuse with specific types of
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cancer (Holman et al., 2016). However, the same review also found two studies reporting no association between physical and sexual abuse and specific types of cancer.

- Another systematic review looking at the relationship between ACEs and diabetes compared the effects of different types of ACEs and found that neglect had the strongest influence, while physical abuse had the least strong influence, on diabetes in later life (Huang et al., 2015).
- Reviewing studies on the effect of ACEs on sleep disturbance, Kajeepeta et al. (2015) found a significant association between family conflict at 7-15 years and insomnia at 18 years as well as a significant association between childhood sexual abuse and sleep disturbance 10 years later.
- Additionally, several studies have documented the negative effect of ACEs on mental health.
- Evidence-based literature has documented the link between neglect or emotional abuse in childhood and deregulation in emotional expression, as well as problems in discerning different types of emotional expressions (Naughton et al., 2013). Indeed, one study examining the effect of neglect and physical abuse found that 80% of children who experienced these forms of maltreatment showed dysregulated emotional patterns - specifically undercontrolled/ambivalent and overcontrolled/unresponsive types - compared with 37.2% of non-maltreated children in the control group (Maughan & Cicchetti, 2002).
- Emotional abuse and emotional neglect have also been found to be associated with negative comments about weight, shape, and eating in childhood, which had a formative effect on women at risk of eating disorders in university (Taylor et al., 2006).
- In an epidemiological study in New Zealand, higher rates of eating disorders were recorded among women who had experienced sexual abuse prior to age 16, with a younger age cohort, onset of menarche at an early age, and paternal overcontrol independently increasing risk too (Romans, Gendall, Martin, & Mullen, 2001).
- More generally, childhood abuse and neglect has also been found to be a significant risk factor for depression in later life (Bifulco, Bernazzani, Moran, & Ball, 2000; Hayden & Klein, 2001; Widom, DuMont, & Czaja, 2007). In fact, a recent meta-analysis estimates that the risk of developing recurrent and persistent depressive episodes is twice as high for those with a history of childhood maltreatment as those without (Nanni, Uher, & Danese, 2012).
- While a significant association has been found between all types of maltreatment and depression, emergent evidence suggests that psychological or emotional maltreatment may carry a particularly high risk for disorder development (Infurna et al., 2016).
- A prospective study revealed that while child physical abuse increases the likelihood of intermittent self-harm, experience of sexual abuse appears to have a more lasting effect associated with recurrent self-harm – and this relationship in particular was mediated by dissociative symptoms (Yates, Carlson, & Egeland, 2008).

Evidence gap

- Due to a lack of clarity in this area, many studies have proposed that the effects of particular types of ACEs should be a focus for further research (Humphreys & Zeanah, 2015; McLaughlin, 2016).
- Some of the same reviews referenced above concluded that further research was required to gain a full picture of the relationship between specific ACEs and outcomes such as cancer (Holman et al., 2016) and diabetes (Huang et al., 2015).
• In addition, a 2017 systematic review has identified **neglect** and **emotional abuse** as particular ACEs that are in need of further study (Read, Harper, Tucker, & Kennedy, 2017).

**Quality of the evidence base for specific early-years interventions to minimise the negative effects of adverse childhood experiences in later life**

**Early-years interventions**

• The information below includes examples of early-years interventions alongside evidence to evaluate their efficacy, rather than a comprehensive overview of the evidence base for early-years interventions.

• **A large meta-analysis of early preventive interventions** (70 studies) aimed at parental sensitivity and infant attachment security found that such interventions did appear to be effective. The most effective interventions used a moderate number of sessions and a clear-cut behavioural focus in families with (as well as without) multiple problems (Bakermans-Kranenburg, van Ijzendoorn, & Juffer, 2003b). **The interventions that focused on sensitive maternal behaviour were successful in improving insensitive parenting as well as infant attachment insecurity.**

• **A randomized preventive trial** that compared the effectiveness of an infant-parent psychotherapy programme and a psychoeducational parent intervention for 1-year-old infants in maltreating families found substantial increases in secure attachment in both treatment groups at 26-month follow-up (whereas increases in secure attachment were not found in the community standard controls) (Cicchetti, Rogosch, & Toth, 2006). **However, a 12-month follow-up study found that the psychotherapy programme had more sustained efficacy in terms of attachment security than the psychoeducational parenting intervention.** The children who had received child-parent psychotherapy had higher rates of secure attachment (55.6%) and lower rates of disorganized attachment (25.9%) at the 12-month follow-up assessment than children in the psychoeducational intervention (22.7% secure and 59.1% disorganized) and the community standard control (12.2% secure and 49% disorganized) conditions. This suggests that the parenting psychoeducational intervention, although promisingly efficacious by the end of treatment, did not demonstrate sustained efficacy (Stronach, Toth, Rogosch, & Cicchetti, 2013).

• **A systematic review and meta-analysis** of interventions to prevent mental disorders in the children of parents with mental illness found that interventions to protect such children appear to be effective (Siegenthaler, Munder, & Egger, 2012). A randomised preventive trial of child-parent psychotherapy with 130 toddlers of mothers suffering with major depressive disorder found that the toddlers in the child-parent psychotherapy group had higher rates of secure attachment compared with those in the depressed control group and the non-depressed comparison group (Toth, Rogosch, Manly, & Cicchetti, 2006). This study was recently extended into a randomised clinical trial of the efficacy of interpersonal
psychotherapy for economically disadvantaged mothers, which supported the efficacy of the intervention (Toth et al., 2013).

- A review of the efficacy of parenting programmes, based on eight randomized and quasi-randomized studies, has shown that group-based parent training was effective in reducing preschool children’s problematic behaviour and improving emotional and behavioural adjustments as reported by parents (Barlow, Smailagic, Ferriter, Bennett, & Jones, 2010). However, the long-term benefits of group-based parent training are uncertain; three follow-up studies included in the meta-analysis showed the intervention to be effective when measured by parents, but not to have a significant effect when measured by independent observers.

Foster care interventions

- There are several early-years interventions for children in foster or adoptive care, although their evidence bases are variable in strength.
- Therapeutic foster care interventions are foster-family based and support young people at risk of multiple placements or placements with outcomes such as hospital or secure settings (Turner & Macdonald, 2011). These interventions focus on training foster carers to provide therapeutic care within a family setting, restricting the number of young people in a placement to one or two, and providing the carer with support and better than standard compensation.
- Positive outcomes from therapeutic foster care interventions include reduced referrals to restrictive and non-family settings (Chamberlain & Reid, 1991), improvements in self-esteem, identity and personal growth (Colton, 1990), improvements for conduct disorders (Fonagy et al., 2014), and cost savings (Chamberlain & Weinrott, 1990). However, at present these interventions do not have a sufficiently robust evidence base.
- Fostering Changes is a foster care intervention that has been disseminated to all 152 Local Authorities in England and aims to build positive relationships, encourage positive behaviour and set appropriate limits. The 3-month intervention is based on social learning and attachment theory, combined with a practical skills-based approach. A randomised controlled trial evaluating the Fostering Changes programme found that it improved disruptive behaviour, attachment security and carer efficacy (Briskman et al., 2012).
- Among looked-after children, conduct disorder is by far the most common mental health problem, with 22% of 11–15-year-old boys diagnosed with socialised conduct disorder and 18% of 5–10-year-old boys diagnosed with oppositional defiant disorder (Meltzer, Gatward, Corbin, Goodman, & Ford, 2003).
- To address conduct disorders, there is very strong evidence for family-focused treatments that use multiple treatment modalities, if delivered with a high degree of fidelity (Fonagy et al., 2014). However, these family-focused interventions can be very demanding of families and maintaining participation may be difficult for foster families.
School-age interventions

- The following information is based on initial results from a recent systematic literature review by UCL. This identified 167 primary studies and 129 reviews addressing the relationship between children's mental health and later academic outcomes, and interventions to prevent and treat childhood mental health problems.
- As the mechanisms by which ACEs result in negative long-term outcomes are likely to be active during childhood, it is relevant to consider the evidence base for childhood mental health interventions regardless of whether they are aimed at children who have experienced adversity.
- For example, we know from the National Comorbidity Survey that ACEs account for nearly 32% of all psychiatric disorders, and 44% of those with childhood onset (Pechtel & Pizzagalli, 2011). Moreover, the best predictor of psychiatric disorders in adulthood is psychological disturbance or a psychiatric disorder – or symptoms thereof – in childhood or adolescence (Fryers & Brugha, 2013). Therefore, given that there is such a large overlap between ACEs and childhood mental health problems, interventions targeting childhood mental health are likely to be beneficial for children who have experienced adversity.
- Thirteen types of intervention in schools were identified that had potential to be beneficial for one or more types of mental health problem:
  - School wide anti-bullying programmes could be useful to tackle bullying and conduct disorder, although it is unclear how many children participating in these interventions have conduct disorders.
  - Psychoeducation can be useful for children at risk of developing anxiety disorders, substance use disorders, eating disorders, PTSD or self-injurious behaviour. Caution is required for children at risk of eating disorders or self-injurious behaviour due to the risk of iatrogenesis.
  - Computer-aided cognitive-behavioural therapy with support can be useful for anxiety disorder.
  - Brief skills-based interventions can be helpful for substance use disorder and children at risk of suicide. These interventions include elements of motivational interviewing, coping skills, cognitive-behavioural therapy (CBT) and/or social skills training.
  - Group or classroom-based CBT that fits well with existing student and staff timetables can be helpful for depression and anxiety.
  - Trauma-focused CBT programmes could be helpful in a school setting for children with PTSD.
  - Group-based ‘dissonance interventions’ involving students critiquing the ‘thin ideal’ can be useful for eating disorders.
  - Individual crisis interventions may be particularly helpful for girls at risk of suicide.
  - Working with parents in a non-stigmatising way could benefit children with conduct disorders, anxiety disorders, eating disorders and ADHD.
  - Complex multimodal interventions can be useful for substance use disorder and conduct disorder. These interventions can involve working across multiple domains – such as with the child and the parents – and delivering multiple types of intervention, such as skills training and psychoeducation.
  - Coordinated interventions between therapists, parents and teachers that focus on organisation can be helpful for children with ADHD to improve their organisation,
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academic outcomes, homework and family functioning. Coordinating medication management in this way can also be helpful for children with ADHD.

- Trained members of staff who can identify children who need referring to other services can be helpful for children with eating disorders, self-injurious behaviour, PTSD, substance use disorders and ADHD.

- Other specific interventions that showed benefits for childhood mental health included:
  - CBT to address sleep problems improved sleep quality and reduced depression and anxiety.
  - There is evidence to support digital programmes leading to improvements in internalizing problems, and there is some evidence that digital interventions can address bullying.
  - There have been promising results for mindfulness leading to improvements in mental health outcomes.
  - Diet has little effect on mental health, apart from an indirect effect through BMI.
  - There was a robust effect for physical activity improving mental health, which may be moderated by a corresponding reduction in screen time.
  - While mentoring may have positive effects for some young people, such as those experiencing eating disorders, it may have iatrogenic effects for others, for example, in cases of conduct disorder and substance use disorder.
  - Promising results have been found for self-help programmes for older adolescents.

**Gaps in the evidence base for interventions aimed at minimising the negative effects of adverse childhood experiences**

**Intervention development**

- Many literature reviews and overviews concluded that there was a lack of existing interventions in general (Bryson et al., 2017; Nelson et al., 2017; Somaini et al., 2011) and for certain populations.

- Population groups highlighted as requiring interventions to be developed or adapted to address their needs included looked-after children (Hambrick, Oppenheim-Weller, N’zi, & Taussig, 2016; Stewart, Leschied, den Dunnen, Zalmanowitz, & Baiden, 2013), children at risk of suicide (Sachs-Ericsson et al., 2016), children experiencing intimate partner violence (Montalvo-Liendo et al., 2015), obese women (McDonnell & Garbers, 2017), ethnic minorities (Figley & Burnette, 2017), children with comorbid PTSD and psychosis (Dvir et al., 2013), and young people experiencing homelessness (Davies & Allen, 2017).

- There were also suggestions to develop interventions focused on families (Bethell, Solloway, et al., 2017; Figley & Burnette, 2017), interventions with a whole-community focus (Bethell, Carle, et al., 2017; Bethell, Solloway, et al., 2017; Wiest-Stevenerson & Lee, 2016) and interventions to be used in primary care (Bransford & Blizard, 2017), and psychiatric and residential treatment services (Bryson et al., 2017).

- Other aspects of interventions proposed to need further research and development were screening tools for ACEs (Finkelhor, 2017), preventive interventions (Larkin, Felitti, & Anda, 2014; Su et al., 2015) and integrated models of intervention (Larkin et al., 2012; Waite, Gerrity, & Arango, 2010).
Intervention timing

- A number of reviews raised the need for better understanding of the optimal timing of an intervention, in terms of how the intervention interacts with child experiences and characteristics (Hambrick et al., 2016), and sensitive periods during development (Huang et al., 2015; McCrory et al., 2017; McLaughlin, 2016; Sapienza & Masten, 2011).

Intervention cost

- Consideration of cost is another area that requires further research.
- Reviews highlight the need for more information on the overall costs of assessing and addressing ACEs (Bethell, Carle, et al., 2017; Bethell, Solloway, et al., 2017), cost-benefit analyses (Finkelhor, 2017; Stewart et al., 2013), measures of costs saved (Mayer & Thursby, 2012) and cost-effectiveness (Larkin et al., 2014).

Other gaps

- Other gaps in the evidence base for interventions aimed at minimising the negative effects of ACEs include how to engage families in interventions (Bethell, Carle, et al., 2017; Hambrick et al., 2016), the sustainability of changes in practice following training in trauma-informed care (Wilson, Hutchinson, & Hurley, 2017), comparison of the effectiveness of different interventions (Hambrick et al., 2016), nursing approaches to ACEs (Kalmakis & Chandler, 2015; Waite et al., 2010), and the perspectives of those who use services, to better understand the experiences of mental health services and barriers to seeking help (Read et al., 2017; Wilson et al., 2017).

Reflection of the evidence base of early-years interventions to address adverse childhood experiences in local and national government policy

- Bethell, Solloway, et al. (2017) suggest that in the USA it takes on average 17 years for research to be translated to practice.
- Their research was based on stakeholder meetings, online information gathering, literature reviews, focus groups and research partnerships, which concluded that there is sufficient evidence to implement an applied child services, research and policy agenda to minimising the negative effects of ACEs.
- A recent review of trauma-informed approaches mentioned the USA as the only nation to have a national policy related to trauma (Sweeney, Clement, Filson, & Kennedy, 2016).
- The same review describes trauma-informed approaches as just beginning to reach the UK, with the Department of Health publishing recommendations in 2003, which resulted in asking about childhood abuse in mental health services becoming compulsory, and the 2014 NICE guidelines on schizophrenia including information about trauma.
- The latest Child Abuse and Neglect NICE guidelines (NICE, 2017) incorporate learning from the evidence base of early-years interventions to address ACEs into their recommendations.
For example, the guideline recommends offering evidence-based treatment programmes as early as possible to help support families showing signs of risk for child abuse and neglect.

- In addition, the guideline recommends that parenting programmes lasting at least 12 weeks and weekly home visiting programmes lasting at least 6 months should be considered for carers of children at risk of abuse or neglect (NICE, 2017), as well as a multi-agency response for practitioners working with children/young people and parents or carers where a child/young person has been abused or neglected. The parenting programmes recommendation in particular reflects the current evidence base, with the review of parenting programmes mentioned above (Barlow et al., 2010) finding that at least in the short term, parenting interventions were effective at reducing behavioural problems and supporting emotional adjustment.

- Additionally, the guidelines (NICE, 2017) suggest a range of therapeutic interventions for children/young people and families after child abuse and neglect has occurred:
  - For children under 5 years, an attachment-based parent-child psychotherapy intervention should be considered, based on the Cicchetti and Toth model (Cicchetti et al., 2006). This model involves directly observing child-parent interactions, explores the parental understanding of the child’s behaviour and the relationship between the parents’ reaction to the child’s behaviour and perceptions of the child and the parents’ own childhood experiences. As mentioned above, a randomised controlled trial found that parent-child psychotherapy was more beneficial for attachment outcomes at follow up than control conditions or parent psychoeducation for infants in maltreating families.
  - For children aged 12 and under, a comprehensive parenting intervention, such as SafeCare, is recommended.
  - For children and young people aged 17 and under, multisystemic therapy for child abuse and neglect is suggested.
  - For children and young people who have experienced sexual abuse, a range of therapeutic interventions are recommended, such as group or individual trauma-focused CBT and group or individual psychoanalytic therapy.

- The NICE Children’s Attachment Guideline (NICE, 2015) also includes recommendations that are supported by the evidence base for early-years interventions.

- Recommendations from this guideline include intervention in the form of a video feedback programme for parents in families where preschool-age children have or are at risk of having attachment difficulties and are on the edge of being taken into non-parental care. This programme seeks to help parents improve their nurturing of their infant, particularly when the infant is distressed; improve their understanding and interpretation of the child’s behaviour; respond positively to cues and expressions of the child’s feelings; behave in ways that are not frightening to the child; and improve self-regulation of their own feelings.

- This intervention has a reasonable evidence base: a meta-analysis of interventions including foster/adoptive families showed that increasing parental sensitivity led to enhanced attachment security (Bakermans-Kranenburg, Van Ijzendoorn, & Juffer, 2003a). The most successful treatment used video interaction feedback, whereby the carer watches video footage of themselves with the child and is taught to notice the child’s reaction to sensitive overtures and to increase the use of these.

- The guidelines further recommend that if the parents do not agree to take part in a video feedback programme, or if there is little improvement in parental sensitivity or child
attachment, or there are other causes for concern, further interventions should be implemented in the form of home-visiting programmes that take place over 18 months (NICE, 2015).

Challenges to disseminating, accessing and using the latest evidence

- It seems that currently the accessibility and visibility of research is a challenge to research being translated into practice.
- For example, a review of assessment and response to ACEs published in the *Journal of Psychosocial Nursing* indicated that although nurses formed a large proportion of frontline healthcare staff, there was a need to raise the visibility of research and practical strategies in this area (Waite et al., 2010).

Opportunities for evidence-based intervention not currently implemented

- The current approach to developing evidence-based psychosocial interventions is based on the pharmacological model, which uses randomised control trials and successive efficacy testing. In the successive efficacy testing process, a treatment is in the first instance developed by scientists; it is then tested in idealised conditions (an efficacy study) and then in ‘average’ conditions (an effectiveness study). The risk with this approach, in the context of developing psychosocial treatments, is that we measure outcomes against one particular metric (out of many possible metrics), without being certain that an evidence-based treatment has really made a difference in the patient’s everyday life and overall functioning (Kazdin, 2006).
- A different approach – the Deployment-Focused Model (DFM) – presents an opportunity for developing evidence-based psychosocial interventions in a way that avoids the problems arising from applying the successive efficacy testing model. The DFM method of developing and evaluating new interventions involves continuously monitoring treatment impact; developing interventions alongside practitioners; revising and tweaking interventions according to outcomes as they are developed and evaluated; and then incorporating these real-life adjustments before fully manualizing them (Weisz, Jensen-Doss, & Hawley, 2006).
- This is a process that involves analysing usual care, and isolating and selecting those aspects of usual care that are most effective.
- DFM presents a potentially rich opportunity for implementation because it works with best current practice in real-world settings and carefully considers usual care to find those aspects of it that are more successful. It is an approach that continues to use scientific methods to develop practice (by examining causal mechanisms, using careful evaluation, looking for circumstances that can interfere with treatment effect) but also uses practice to inform the science, by directing knowledge to where it is more needed and grounding science in everyday clinical care.
Support and oversight of research into adverse childhood experiences and relevant interventions

Extent to which current interventions are reviewed and contribute to the evidence base

- The need for further research on intervention outcomes in general is widely mentioned in the literature (Bethell, Solloway, et al., 2017; Humphreys & Zeanah, 2015; Sapienza & Masten, 2011).
- For example, the Child Adult Relationship Enhancement (CARE) intervention was developed to fill a gap in mental health services for children considered at risk of maltreatment. Since its development in 2006, the intervention has been delivered to over 2,000 caregivers and professionals, but currently there are no published evaluations of the intervention, leading Gurwitch et al. (2016) to recommend that evaluation of outcomes from those receiving the intervention will be important for CARE to become evidence-based.
- Evaluation of outcomes was also proposed for looked-after children (Hambrick et al., 2016), impacts of particular interventions on different population groups (Korotana, Dobson, Pusch, & Josephson, 2016) and effects on endocrine and immune systems (Danese & McEwen, 2012).
- Particular interventions and approaches that were suggested to require evaluation included screening approaches (Finkelhor, 2017), prevention interventions (Mayer & Thursby, 2012), trauma-informed educational approaches (Brunzell, Stokes, & Waters, 2016; Wiest-Stevenson & Lee, 2016), imagery rehearsal (Kajeepeta et al., 2015), psychological first aid (Lucio & Nelson, 2016), resilience building (Traub & Boynton-Jarrett, 2017) and trauma-informed care or trauma-informed approaches (Bryson et al., 2017; Ko et al., 2008; Oral et al., 2016; Read et al., 2017; Stewart et al., 2013; Su et al., 2015; Sweeney et al., 2016).

Mechanisms to bring together collection, communication, application and review of intervention evidence

- Bethell, Solloway, et al. (2017) set out potential developments to improve information sharing and accessibility of evidence around ACEs and related interventions.
- Their recommendations include a ‘living’ evidence synthesis and dissemination mechanism to use existing dissemination platforms to ensure that information reaches those involved in children’s health services; and using existing rapid-cycle learning platforms to maintain networks of families and professionals, to promote cross-sector learning and engagement and to develop open-source training and tools.

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