Evidence-based service modules for a sustained home visiting program:

Centre for Community Child Health

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1. Executive summary

1.1 Background

The Australian Research Alliance for Children and Youth (ARACY), the Centre for Community Child Health (CCCH) at the Murdoch Childrens Research Institute and the Royal Children's Hospital, and the University of New South Wales are collaborating to design a sustained home visiting program for vulnerable families with young children. The program is called right@home.

To support this work, CCCH prepared two literature reviews. The first review (McDonald et al., 2012) sought to answer the question 'what works in home visiting programs?'. The conclusion reached was that it was not possible to answer the question definitively, either because the evidence regarding the 'components' of home visiting programs is contradictory or contested, or the evidence is not available.

As this review focused on *what* was delivered (ie. the efficacy of different manualised programs), rather than *how* services were delivered (ie. the effect of the manner in which services were delivered and the nature of the relationships established between service providers and parents), a second literature review was conducted (Moore et al., 2012).

This second literature review found that there is converging evidence from a number of sources to support the idea that process aspects of service delivery matter for outcomes – that *how* services are provided is as important as *what* is provided. A number of key elements of effective service delivery processes have been repeatedly identified in the research literature and these represent the threshold features or bedrock on which all services should be based: if services are not delivered in accordance with these process features, then efforts to change people's behaviour will be less effective (Moore et al., 2012).

The evidence also indicated that the identification of goals, and of strategies to achieve these goals, needs to be done in partnership with parents. However, while the ultimate choice of strategies should be made by parents, the strategies on offer used must be evidence-based. Therefore, service providers should be able to draw on a suite of evidence-based strategies to address the range of challenges that parents face in caring for their children (Moore et al., 2012).

In the light of these findings, it was decided that the right@home home visiting program would not involve the delivery of a manualised program. Rather, service delivery would be based on the processes of effective engagement and partnership, while the content of the program would take two forms: standard modules that are delivered to all participants, and e.g. information on the stages of child development), and evidence-based 'service modules' (i.e. specific strategies)

that could be deployed to address issues that are of particular concern to individual parents.

To identify the service modules, CCCH was commissioned to undertake a third literature review, which is the subject of the present report. This review aimed to identify evidence-based strategies to address common parenting issues faced by parents of young children. Due to time constraints, it was not feasible to attempt to identify all the issues that might concern parents. Instead, it was agreed that the literature review would focus on the most common self-identified needs of vulnerable parents in Australia. Nine key issues were nominated, organised by three key areas:

Care of the child: promoting good nutrition/eating, managing sleeping issues and ensuring safety.

Relationship with the child: ensuring maternal bonding, promoting child attachment and managing crying and separation issues.

Home learning environment: promoting communication and language, providing appropriate toys and encouraging play, and providing appropriate social opportunities.

It was decided that two of these areas – promoting communication and language, and providing appropriate toys and encouraging play – were already adequately covered by the *Learning to Communicate* program, which had been used in an earlier program – the Miller Early Childhood Sustained Home-visiting (MECSH) program – and was due to be incorporated in the right@home program as well.

Accordingly, searches were undertaken for the most effective strategies for achieving/managing the remaining seven key areas: promoting good nutrition/eating; managing sleeping issues; ensuring safety; ensuring maternal bonding; promoting child attachment; managing crying and separation issues; and providing appropriate social opportunities. The aim was to include these strategies in a series of service modules that would comprise a 'toolkit' which practitioners could use to respond to parents' needs.

1.2 Key findings

Promoting good nutrition/eating

Nutrition is one of most common health issues that women face whilst pregnant. Women may lack knowledge on what the nutrient intake required for pregnancy and may be unable to access advice to assist them. Once the baby is born, many feeding problems can occur during the early childhood period. These feeding problems maybe transient or may persist, hampering the child's development leading failure to thrive and parental concerns.

There appears to be a lack of completed randomised controlled trial studies that have looked specifically at ways of promoting good nutrition/eating amongst young children. However, there are a number of studies currently being conducted in Australia and New Zealand that may provide insight into effective practices in this area.

In the absence of evidence of this kind, the general guidelines produced by authoritative bodies such as the National Health and Medical Research Council and the American Academy of Pediatrics could be used as part of the right@home program. The National Health and Medical Research Council has developed dietary guidelines for children and adolescents in Australia which incorporate three key messages: encourage and support breastfeeding; enjoy a wide variety of nutritious foods; and caring for children's food (i.e. safe storage and preparation).

Managing sleeping issues

Infant sleep problems can have a profoundly negative impact upon parents and the fact that parent reports of infant sleep problems are so common means that infant sleep problems are a significant issue for families with young children. For vulnerable families the problems associated with infant sleep problems (e.g. fatigue, depression, poor health) are likely to be even more significant because many vulnerable families lack the support systems (both formal and informal) that would help them manage infant sleep problems.

Evidence clearly demonstrates a number of effective strategies for managing infant sleep issues. Some of these strategies have been tested multiple times. Two preventative behavioural approaches and one non-preventative (treatment) approach are recommended for use in the right@home program. Where none of these strategies is viable, alternatives are recommended.

Ensuring safety

Injury is a leading cause of death among Australian children. The vast majority of these injuries are preventable. Children from disadvantaged backgrounds are at particular risk of unintentional injury. Therefore there is a strong rationale for implementing child safe strategies as part of the right@home program.

For children aged 0-2 there appears to be more evidence-based strategies for ensuring safety inside rather than outside the home. A large proportion of these strategies involve the provision and/or installation of free or discounted safety equipment. Although free or discounted safety equipment does appear to enhance the effectiveness of safety interventions, the strategy is likely to be very costly.

The most common alternative to strategies that provide free or discounted safety equipment is educational strategies. These strategies differ in terms of their intensity. Tailored approaches appear to be promising, especially because the level of

knowledge and the number and type of risk factors present in right@home participants' homes is likely to vary.

The search for strategies that ensure the safety of children aged 0-2 outside of the home yielded disappointing results. In the absence of evidence-based strategies, sharing information with parents about preventing issues that could occur outside the home (e.g. drowning in a swimming pool) would appear to be a very important part of ensuring the safety of infants involved in the right@home program.

Ensuring maternal bonding

The term 'maternal bonding' is most commonly used to refer to a mother's positive feelings toward and sense of connection with her yet-to-be-born or newborn baby, which is seen as the precursor to attachment. Perhaps because of the excessive claims that have been made about its developmental importance, the notion of maternal bonding seems to have fallen into disrepute, or at least conceptual confusion. However, the mother's thoughts and feeling towards her child cannot be irrelevant to the course of the relationship and hence to the development of the child.

To test this, evidence regarding both prenatal and postnatal maternal bonding was examined, along with studies of problems that arise and how bonding can be promoted. While there is some evidence to support the importance of mothers' thoughts and feelings towards her child, there do not appear to be any evidence-based strategies that are effective in directly promoting mothers' positive feelings towards their infants.

However, this may not be a problem: while maternal bonding may be desirable, it may be an outcome that is best approached indirectly rather than directly. That is, rather than being a necessary precursor to positive relationships with the infant, maternal bonding (ie. positive feeling towards and a sense of being connected to the infant) may be as much an outcome of such relationships. If that is the case, then maternal bonding is best approached through strategies that promote positive infant-mother relationships. Such strategies are described in the next section.

Promoting child attachment

Although the notion is contested, the weight of evidence suggests that attachment is an inborn neurobiological system that motivates infants to seek proximity to primary caregivers and establish communication with them. It is a dynamic, bidirectional process that involves both the infant and caregiver. There is considerable evidence that the quality of children's early attachment relationships is linked with socioemotional functioning in close relationships, peer, and educational contexts throughout development.

The quality of the attachment relationship is dependent on the sensitivity of the caregiver's responsiveness to the needs of the child, and interventions that have

targeted parental sensitivity have been found to be more effective in enhancing attachment security than interventions targeting other issues.

In general, for the purposes of a home visiting service, it seems best to focus on promoting responsive developmental caregiving rather than trying to promote attachment feelings or thoughts in either the mother or the child. While there are strategies that seek to address parental attachment models and attributions directly, these are specialised strategies that may be best left to mental health specialists. Moreover, changes in a mother's thoughts and feeling towards her child may be best achieved as an indirect outcome of improved relationships with the child.

This evidence suggests that the best approach to promoting attachment is not to focus on attachment itself (which is difficult to target because of it consists of the internalised states of the parent and child), but to focus instead on parental responsiveness (which consists of observable behaviour and is easier to address). The assumption is that responsive parenting will lead to secure attachments.

There are a number of training programs that seek to promote child-caregiver attachment by focusing on establishing a highly responsive parenting style, and there is good evidence that these can be effective. A review of these programs found that, although no program met all the required criteria and therefore could be recommended unreservedly, two programs were recommended as being compatible with right@home principles, having some evidence of effectiveness, and being readily available for use in Australia.

There are a number of intervention models that incorporate video feedback in working with parent-infant relationships. Because of technological limitations, earlier models tended to be clinic-based rather than home-based and reserved for use with parents with severe relationship problems.

The development of more portable and more sophisticated videoing technologies has greatly expanded the possible uses of video-feedback, including its use within home-visiting programs for vulnerable families. However, there are no published studies that show how new technologies could be incorporated into a regular home-visiting program. A review of existing interventions identified one program that stood out as having all the right qualities for right@home, a good body of evidence to support its efficacy, and protocols that are accessible and relatively easy to integrate into a home visiting program.

Managing crying and separation issues

Regarding crying, two kinds of crying have been identified: the prolonged crying that peaks at 5–6 weeks and is gone by 12 weeks (when most infants become settled at night), and crying associated with sleep-waking problems beyond the age of 12 weeks. There is evidence that these have different causes, and that infant sleep-waking problems usually involve maintenance of signalling behaviours rather

than a generalised disturbance. In a minority of families, excessive crying is linked with more long term and serious problems, such as maternal depression, parenting stress, and subsequent child behaviour problems.

Although programs to reduce prolonged crying have been subjected to randomised controlled trials, none have been found to be effective. This may be due to the fact that the causes of infant prolonged crying are multifaceted, and it is hard to control all the interacting and coevolving variables involved. However, responsive parenting and even moderate levels of physical contact from birth are associated with reduced crying, and paediatric guidelines that focus on promoting responsive parenting have been developed.

Regarding separation, it is apparent that young children's response to separation from their parents can be problematic for both the parent and child. Separation usually takes the form of another caregiver or early childhood service provider caring for the young child while the parent works or is otherwise occupied.

Separation issues do not arise until children are 7-9 months old, when the child begins to discriminate clearly between care provided by attachment figures and that provided by less familiar others. Infants who did not previously protest when separated from the parent may now cry when the parent leaves the room or when they are left with an unfamiliar person. Such behaviour reaches its peak in babies aged 14-18 months and typically decreases throughout early childhood. These anxieties are thus a normal part of development. However, a small percentage of children may continue to be particularly and regularly distressed when separating, and develop separation anxiety disorder.

Despite the universal nature of the experience of separation, there appears to be few studies that directly address the management of separation issues and no randomised controlled trials. There have been a number of studies of how parents and children manage the separations involved when the children are 'handed over' to an early childhood service, and practices associated with smooth versus problematic separations have been identified. Advice for parents on how to manage separations smoothly is readily available on parenting websites.

In the light of these findings, it would seem that the most appropriate way of managing separation issues is by addressing mother-child attachments through responsive parenting interventions, as discussed in the previous section on attachment. The evidence indicates that warm, affective, sensitive and responsive mothering provides the basis for secure mother–child attachment and is associated with fewer expressions of separation anxiety, better relations to another caregiver and more engagement in exploration and play. Thus, promoting responsive parenting would seem to be the most effective way of limiting and managing separation problems.

Crying and separation issues were both identified as problems that parents commonly face. However, a review of the literature has shown that both follow normal developmental patterns, and can often be addressed by providing the parent with information about these patterns. In addition, promoting responsive parenting seems to be a key strategy for reducing both crying and separation problems. Once again, the responsive parenting programs strategies identified earlier in this review can play a major role in helping parents manage these two common issues.

Providing appropriate social opportunities

Social support is critical to child and family wellbeing. Social support and social capital have a range of positive benefits for children and families and, in the absence of social support, children and families appear to be at risk of a number of negative phenomena including low birth weight, depressive symptoms (parental) and child abuse and neglect.

The search undertaken for this project suggests that there is a lack of evidence-based strategies for enhancing social opportunities as part of the individual nurse-family relationships that constitute home visiting programs. Those that do exist appear to be relatively intensive, perhaps highlighting the complex nature of social relationships and the process of enhancing them.

1.3 Discussion

This review has built on the findings of two previous reviews conducted for this project (McDonald et al., 2012; Moore et al., 2012). Based on the findings of the second literature review, recommended core features of a prospective home visiting model were described. This service model needs to be flexible enough to cater for variations in family needs and circumstances, while maintaining a constant core of evidence-based practice.

In the present review, an attempt was made to identify evidence-based strategies that home visiting nurses could draw on when addressing parents' needs and concerns. This exercise was only partly successful. Solid evidence-based practices could only be identified in three of the topics: managing sleeping issues, ensuring safety; and promoting child attachment (through responsive parenting). Paediatric guidelines are available for two other topics: promoting good nutrition/eating, and managing crying and separation issues. And in the final topic, providing appropriate social opportunities, there were neither evidence-based practices nor paediatric guidelines. The review suggests that responsive parenting strategies are likely to be relevant for three of the topics: ensuring maternal bonding; promoting child attachment; and managing crying and separation issues.

2. Introduction

2.1 Background

The Australian Research Alliance for Children and Youth (ARACY), the Centre for Community Child Health (CCCH) at the Royal Children's Hospital, and the University of New South Wales are collaborating to design a sustained home visiting program for vulnerable families with young children. The program is called right@home.

To support this work, CCCH prepared two literature reviews. The first review (McDonald et al., 2012) sought to answer the question 'what works in home visiting programs?' The conclusion reached was that it was not possible to answer the question definitively, either because the evidence regarding the 'components' of home visiting programs is contradictory or contested, or the evidence is not available. While there is enough evidence to suggest that home visiting programs can make a difference in the lives of children and families, further research is needed to determine what makes some home visiting programs more effective than others.

This first review drew upon rigorous evaluations of key home visiting programs and therefore focused on *what* was delivered (i.e. the efficacy of different manualised programs), with little or no consideration of *how* services were delivered (i.e. the effect of the manner in which services were delivered and the nature of the relationships established between service providers and parents). Accordingly, ARACY commissioned CCCH to conduct a second literature review focusing on two main topics:

- the importance of *how* services are delivered (as distinct from *what* is delivered) – what features of the process of service delivery are associated with better outcomes; and

- working with vulnerable families – what is known about effective ways of engaging and working with vulnerable parents and families.

This second literature review (Moore et al., 2012) found that there is converging evidence from a number of sources to support the idea that process aspects of service delivery matter for outcomes – that *how* services are provided is as important as *what* is provided. A number of key elements of effective service delivery processes have been repeatedly identified in the research literature. This evidence indicates that effective services are relationship-based, partnership-based, capacity-building, provide choices, address immediate practical issues faced by families, and also seek to address background factors that compromise parenting and family functioning. These process variables appear to be of particular importance for the most vulnerable families, who appear to be less likely to make use of professional services that do not possess these qualities.

The process variables identified as essential for effective service delivery represent the threshold features or bedrock on which all services should be based: if services are not delivered in accordance with these process features, then efforts to change people's behaviour will be less effective. The evidence also indicated that the identification of goals, and of strategies to achieve these goals, needs to be done in partnership with parents: if parents are not involved, then the goals chosen are less likely to be of greatest salience to them, and the strategies chosen are less likely to be acceptable to them. This makes it less likely that parents will make good use of the help offered, and thus reduces the overall efficacy of the intervention. However, while the choice of strategies should, ultimately, be made by parents, the strategies on offer used must be evidence-based. Therefore, service providers should be able to draw on a suite of evidence-based strategies to address the range of challenges that parents face in caring for their children.

This approach to service delivery differs from the service delivery models covered in the first literature review. Many of these were manualised evidence-based programs whose form and content were predetermined, often leaving little room for flexibility to accommodate different family needs and circumstances. Yet, as the second literature review found, basing services on parental priorities and tailoring interventions according to family preferences are key features of effective service delivery. What is needed is an approach that is flexible enough to cater for variations in family needs and circumstances while maintaining a constant core of evidence-based practice.

The solution lies in recognising that there are two forms of evidence-based practice to be considered: the process features of effective service delivery (*how* practitioners engage and work with families), and the evidence-based strategies used (*what* interventions practitioners offer families). Practitioners need to begin by building sound relationships with parents, and continuously check to ensure that they are attuned to the issues that are of most concern to parents and responding in ways that respectful of their values and circumstances.

In the light of these findings, it was decided that the right@home home visiting program would not involve the delivery of a manualised program. Rather, service delivery would be based on the processes of effective engagement and partnership, while the content of the program would take two forms:

- standard modules that are delivered to all participants (e.g. information on the stages of child development), and
- evidence-based 'service modules' (i.e. specific strategies) that could be deployed to address issues that are of particular concern to individual parents.

To identify the service modules, the Centre for Community Child Health was commissioned to undertake a third literature review, which is the subject of the present report.

2.2 Literature review of service modules

Due to time constraints, it was not feasible to attempt to identify all the issues that might concern parents. Instead, it was agreed that the literature review would focus on the most common self-identified needs of vulnerable parents in Australia. Nine key issues were nominated, organised by three key areas:

- ***Care of the child***: promoting good nutrition/eating, managing sleeping issues, and ensuring safety.
- ***Relationship with the child***: ensuring maternal bonding, promoting child attachment, and managing crying and separation issues.
- ***Home learning environment***: promoting communication and language, providing appropriate toys and encouraging play, and providing appropriate social opportunities.

These service modules comprise a 'toolkit' that practitioners can use to respond to parents' needs.

It was determined that the content delivered to parents as part of the right@home program should reflect the key features of the *Learning to Communicate* program, which are:

- anticipatory;
- aspirational;
- although structured, can be adapted to an individual;
- designed for families in low SES; and
- designed to build self esteem and empowerment through skill building.

The Learning to Communicate program is currently being used as part of the Miller Early Childhood Sustained Home-visiting (MECSH) program, and adequately covers the following key areas:

- promoting communication and language; and
- providing appropriate toys and encouraging play.

Accordingly, searches were undertaken for the most effective strategies for achieving/managing the remaining seven key areas:

- promoting good nutrition/eating;
- managing sleeping issues;
- ensuring safety;
- ensuring maternal bonding;
- promoting child attachment;
- managing crying and separation issues; and
- providing appropriate social opportunities.

The focus of the search was for strategies that have been demonstrated to be effective at achieving/managing the seven key areas listed above, and reflect the key features of the Learning to Communicate approach.

It was also regarded as important that the strategies are appropriate to the needs and circumstances of vulnerable families and can feasibly be implemented as part of a home visiting program.

Where available, the cost of a particular module (e.g. the cost of a specific program) and the training implications was also noted.

2.3 Methodology

The methodology for undertaking the search involved the following steps:

1. Identify the key search terms for the particular topic
2. Use the key search terms to search the most appropriate resources (e.g. MEDLINE, CINAHL) for effective strategies and the most appropriate measures
3. Assess each strategy according to:
    a. the quality of the evidence
    b. whether it reflects the key features of the Learning to Communicate approach
    c. whether it is appropriate to the needs and circumstances of vulnerable families
    d. whether it can be feasibly implemented as part of a home visiting program
4. Identify all the strategies that meet the criteria.

Part A: Care of the child

3. Promoting good nutrition/eating

Background

The review for strategies pertaining to good nutrition focuses on evidence and best practice in establishing and promoting smooth transition and healthy eating habits.

The review begins by discussing the broad concept of good nutrition in children under two years. It deals with everyday issues that mothers face with infants, starting with effective strategies to promote and ultimately elevate breastfeeding rates; then moving on to the issue of breast milk or formula, subsequently possible strategies to tackle solid food introduction and fussy eating. Evidence in the form of randomised controlled trails is limited when associated with children under the age of two and rather guidelines and recommendations seem more prevalent.

The final section of the review explores the literature regarding evidence-based strategies and has been summarised in a table detailing possible strategies that can be part of a toolkit for the nurse to use with families that come across these issues.

The conclusion to the report looks at the key issues emerging from the review in order to inform the development of possible elements of a toolkit.

Systematic searches were undertaken using Medline, Cinhal, ERIC, Informit and PsychInfo. The following search terms were used:

- breastfeeding
- formula
- weaning
- infant feeding/nutrition
- transition to solids
- good nutrition in children/infants/early childhood
- nutrition guidelines/recommendations.

These particular search terms have the greatest association and relevance with early childhood nutrition and nutrition during pregnancy and aided in finding necessary literature to conduct this review.

Subsequently a search for grey literature was undertaken using Google using the same keywords to identify literature and research arising from practitioner and non-government agencies.

Feeding development

Feeding, like other sensorimotor skills, is a developmental skill that matures during the first two years of life. It is a highly complex sensorimotor process with developmental stages based on neurological maturation and experiential learning (Ramsay, 2004).

The first year of life is characterized by rapid developmental changes related to eating (Black & Hurley, 2004):

> As infants gain truncal control, they progress from sucking liquids in a supine or semi-reclined position to eating solid foods in a seated position. Oral motor skills progress from a basic suck-swallow mechanism with breast milk or formula to a chew-swallow mechanism with semi-solids, progressing to complex textures. As infants gain fine motor control, they progress from being fed exclusively by others to at least partial self-feeding. Their diet extends from breast milk or formula, through baby cereals and specially prepared foods, to the family diet. By the end of the first year of life, children can sit independently, can chew and swallow a range of textures, are learning to feed themselves, and are making the transition to the family diet and meal patterns. (Black & Hurley, 2004)

The essential component of feeding behaviour in young children is the relationship between the child and the primary caregiver. The act of feeding can be highly charged emotionally for the mother, partly because of the cultural expectation that it is her primary responsibility to ensure the early growth and well-being of her child (Liu & Stein, 2005). Therefore, from the very beginning the maternal-infant feeding relationship is influenced by physiologic as well as interactional forces at multiple levels (Liu & Stein, 2005; Ramsay, 2004). The caregiver's behaviours and the child's temperament influence the feeding relationship (Liu & Stein, 2005).

Children's eating patterns and food preferences are established early in life. When children refuse nutritious foods such as fruits or vegetables, mealtimes can become stressful or confrontational, and children may be denied both the nutrients they require and healthy, responsive interactions with caregivers.

Eating patterns have developmental, family and environmental influences. As children become developmentally able to make the transition to family foods, their internal regulatory cues for hunger and satiety are often overridden by familial and cultural patterns (Black & Hurley, 2004). At the family level, children of caregivers who model unhealthy dietary behaviours are likely to establish patterns of eating behaviours and food preferences that include excess amounts of fat and sugar. (Black & Hurley, 2004). Caregivers who are inexperienced or stressed, and those who

have poor eating habits themselves, may be most in need of assistance to facilitate healthy, nutritious mealtime behaviour with their children (Black & Hurley, 2004).

Feeding difficulties

Feeding difficulties are one of the most common developmental disturbances in otherwise healthy infants and young children, often resulting in poor growth and failure to thrive. An estimated 25% to 28% of infants less than six months of age, and 24% of two-year-old children are reported by their parents to have feeding problems (Ramsay, 2004). Most of these eating problems are temporary and easily resolved with little or no intervention.

However, eating problems that persist can undermine children's growth, development and relationships with their caregivers, leading to long-term health and developmental problems (Black & Hurley, 2004). Severe and chronic feeding problems occur in 1% to 2% of children. According to Piazza and Carroll-Hernandez (2007), a feeding disorder is identified when a child is unable or refuses to eat or drink a sufficient quantity or variety of food to maintain proper nutrition.

Feeding disorders can be the result of multiple causes. One common problem is sensory food aversion (Chatoor, 2009), which occurs when young children have transitioned to self-feeding, and when issues of autonomy and dependency have to be negotiated between parents and child. According to Liu and Stein (2005), other feeding problems include

- *Overeating*, resulting in overweight and obesity. These children are not only at risk for medical problems (e.g. diabetes mellitus, hypertension, orthopaedic problems, obstructive sleep apnoea), but also poor self-esteem, disturbed body image, social isolation, maladjustment, depression and eating disorders.

- *Poor eating or not gaining sufficient weight*. Failure to thrive occurs when a child's rate of weight gain has decreased to below the third to fifth percentile for gestation-corrected age and sex, or the child's weight has fallen and crossed two major percentiles in a standardized growth chart. Children with failure to thrive may have impaired growth (e.g. height, head circumference) and developmental skills and are at risk for long-term developmental and behavioural problems.

- *Feeding behaviour problems.* Parents may have difficulty making the transition from an infant who is cooperative during feeding to a toddler who seeks independence at mealtime. Limited food preferences may be normal and temporary during this period or may develop into a behavioural disorder. Food phobias or a post-traumatic feeding disorder may result from a painful episode (e.g. choking with a particular food) or a difficult experience associated with a food-induced allergic reaction.

- *Unusual choices.* Pica, or the ingestion of non-food substances, is normal in children under two years of age who explore their environment through hand-to-mouth experiences. After two years of age, pica is a behavioural condition more frequent in children with insufficient stimulation, psychological disorders and mental retardation.

- *Unhealthy food choices.* Food preferences are established through exposure and accessibility to foods, modelling and advertisements. Most 'alternative' diets are not harmful, although specific nutrient deficiencies should be addressed with some (for example, iron and vitamin B12 in vegan diets).

While most feeding problems in infants and young children are temporary, emotional and social development may be impacted during late childhood, adolescence and adulthood. Obesity, cardiovascular disease, diabetes mellitus and behavioural problems are more frequent in those with early childhood feeding problems. (Liu & Stein, 2005). According to Piazza and Carroll-Hernadez (2007), long-term, chronic feeding problems are associated with a number of adverse outcomes, including health risks for the children, increased perceived stress for children and families, mental health problems in families, increased risk of eating disorders such as anorexia, and increased health care costs for children and families. These outcomes can be avoided if effective treatment is provided.

Interdisciplinary, intensive treatment of paediatric feeding disorders has been shown to be successful in improving a wide variety of feeding problems, including dependence on supplemental feedings, selectivity by type and texture of food, inappropriate mealtime behaviour, failure to transition to age-appropriate textures of food, and failure to self-feed (Piazza and Carroll-Hernadez, 2007).

Literature search findings

There is considerable information relating to infant feeding contained in the nutrition guidelines set out by bodies such as the National Health and Medical Research Council nationally and the American Academy of Paediatrics. Although this information is widely disseminated, there have been few randomised controlled trails linked to this information.

Guidelines

According to the Department of Health and Aging (2011), between 2007 and 2012, over $4.5 million has been provided to develop guidelines on healthy eating in early childhood settings. This forms part of the Government's Plan for Early Childhood and Plan for Tackling Obesity. A consortium of the Murdoch Childrens Research Institute Centre for Community Child Health, Early Childhood Australia and The Royal Children's Hospital, Melbourne developed the guidelines and resources. They are evidence-based and support a consistent, national approach to childhood nutrition and physical activity. Consultations with state and territory governments, child

health experts, the early childhood sector and families informed the development of the resources; field testing was also undertaken.

The resulting guidelines –*Get Up & Grow: Healthy Eating and Physical Activity for Early Childhood* – were launched in 2009 and consist of 10 healthy guidelines. The guidelines aim to provide practical information to support and promote healthy eating for children aged five and under.

Get Up & Grow: Healthy Eating and Physical Activity for Early Childhood health eating guidelines (Department of Health and Aging, 2011)

Healthy eating guideline 1: Exclusive breastfeeding is recommended, with positive support, for babies up to six months. Continued breastfeeding is recommended for at least 12 months – and longer if the mother and baby wish.

Healthy eating guideline 2: If an infant is not breastfed, is partially breastfed, or if breastfeeding is discontinued, use an infant formula until 12 months of age.

Healthy eating guideline 3: Introduce suitable solids at around six months.

Healthy eating guideline 4: Make sure that food offered to children is appropriate to the child's age and development, and includes a wide variety of nutritious foods consistent with the *Dietary Guidelines for Children and Adolescents in Australia*.

Healthy eating guideline 5: Provide water in addition to age-appropriate milk drinks. Infants under the age of six months who are not exclusively breastfed can be offered cooled boiled water in addition to infant formula.

Healthy eating guideline 6: Plan mealtimes to be positive, relaxed and social.

Healthy eating guideline 7: Encourage children to try different food types and textures in a positive eating environment.

Healthy eating guideline 8: Offer an appropriate amount of food, but allow children to decide themselves how much they will actually eat.

Healthy eating guideline 9: Offer meals and snacks at regular and predictable intervals.

Healthy eating guideline 10: Ensure that food is safely prepared for children to eat – from the preparation stages to consumption."

In addition to these guidelines there are national and international guidelines that have been developed to guild professional as well as the lay person. The National Health and Medical Research Council (2003) has developed the following dietary guidelines for children and adolescents in Australia:

Dietary Guidelines for Children and Adolescents in Australia incorporating the Infant Feeding Guidelines for Health Worker (National Health and Medical Research Council, 2003).

Encourage and support breastfeeding

Children and adolescents need sufficient nutritious foods to grow and develop normally

- Growth should be checked regularly for young children
- Physical activity is important for all children and adolescents

Enjoy a wide variety of nutritious foods

Children and adolescents should be encouraged to:

- Eat plenty of vegetables, legumes and fruits
- Eat plenty of cereals (including breads, rice, pasta and noodles), preferably wholegrain
- Include lean meat, fish, poultry and/or alternatives
- Include milks, yoghurts, cheese and/or alternatives - Reduced-fat milks are not suitable for young children under 2 years, because of their high energy needs, but reduced-fat varieties should be encouraged for older children and adolescents
- Choose water as a drink - alcohol is not recommended for children

and care should be taken to:

- Limit saturated fat and moderate total fat intake - low-fat diets are not suitable for infants
- Choose foods low in salt
- Consume only moderate amounts of sugars and foods containing added sugars

Care for your child's food: prepare and store it safely.

Another set of guidelines has been issued by the American Academy of Pediatrics:

Infant feeding recommendations (American Academy of Pediatrics)
• Breastfeed exclusively for approximately the first 6 months, continue until 12 months. • Supplement breastfed infants with iron after four to six months. • Iron-fortified infant formula is an appropriate substitute for breastfeeding in the first year. • Introduce solid foods when the infant is developmentally ready, typically in the four to six month age range. • Juices may be introduced in the diet of infants after six months of age; if introduced, 100% juices should be used, and juice should be limited to four to six ounces daily. • introduction of cow's milk until one year of age; cow's milk should be whole milk during the second year of life.

Nutrition during pregnancy

Nutrition is one of most common health issues that women face whilst pregnant (Begley 2002). Begley (2002) identified a number of issues for pregnant women in regards to nutrition including: a lack of knowledge and advice received on what are good nutrient intakes for pregnancy; the promotion of bacteria awareness was seen as giving food a negative connotation; general practitioners (GPs) were identified as lacking nutrition knowledge and having limited time to discuss nutrition; and printed educational materials did not contain sufficient detail. Begley (2001) concluded that there is a lack of consistent educational and promotional efforts for general nutrition in pregnancy, particularly from GPs. There is a need to design and implement effective and consistent strategies to improve nutrient intakes during pregnancy to meet public health nutrition objectives in Australia (Begley, 2002).

Interventions to prevent obesity

Due to recent concerns about increases in childhood obesity rates, there has been a sudden spate of trials of early intervention programs designed to prevent the development of obesity. So far, these trials have primarily focused on older children,

with few focusing on the early years of the child (Askie et al., 2010). Reviews of the research literature on interventions with children below school age have been conducted by Campbell and Hesketh (2007) and Hesketh and Campbell (2010), and there are a number of trials that are currently being run with children aged from 3 months and with mothers antenatally (Wen et al., 2007; Daniels et al., 2009; Campbell et al., 2008; Taylor et al., 2011). In their most recent review of the research, Hesketh and Campbell (2010) found that the majority of the studies that had been conducted were in child care or preschool settings rather than homes.

There are a number of reasons why starting interventions to prevent childhood obesity very early may be effective. Evidence indicates that rapid early weight gain before two years of age is associated with increased risk of overweight in later childhood and most excess weight gained before puberty is gained by the age of five years (Askie et al., 2010). Interventions with school-age children and even preschool children have had limited success (Hesketh & Campbell, 2010). Moreover, there are also a range of potentially modifiable factors operating early in life that are likely to be linked with later obesity or obesity-promoting behaviours. Askie et al. (2010) identify the following factors:

- ***Dietary patterns and eating habits.*** There is some evidence that children who were breastfed have significantly lower levels of obesity than those who were formula fed, although this association remains controversial. The types and texture of foods offered to infants as they transition from milk to family foods are key determinants of early food preferences, intake patterns and dietary quality which then track to older ages and are associated with later obesity risk.

- ***Parental early feeding practices.*** Parental feeding practices strongly influence children's eating behaviours, which are firmly established by five years of age and lay the foundation of adult eating habits. Parental feeding practices determine infant exposure to food (type, amount, frequency), and include responses (e.g. coercion) to infant feeding behaviour (e.g. food refusal). The degree of parental control in child feeding (including restriction, monitoring or pressure) is associated with later child feeding behaviour (preferences and intake) and weight status.

- ***Physical activity.*** High levels of physical activity reduce the likelihood of weight gain over time. Changes in weight occur most frequently in interventions that also demonstrate change in physical activity levels.

- ***TV viewing practices and sedentary behaviours.*** Children who watch TV for more than two hours per day are more likely to be obese, have unhealthy dietary patterns and low levels of physical activity. Many young children exceed this viewing threshold and such patterns of sedentary behaviour track throughout childhood.

- ***Sleep patterns.*** Numerous studies have linked shorter sleep duration with obesity and increased cardiovascular risk, but there is limited evidence so far available regarding the effects of altering sleep patterns on body weight during childhood.

- ***Parenting style.*** Emerging evidence has linked parenting style (e.g. authoritative, authoritarian, libertarian) to early feeding practices, child eating behaviour and weight status. However, none of these studies involved children aged less than five years, and there have been no methodologically sound studies of efforts to help parents of young children modify their feeding practices. (Askie et al., 2010)

There are four current studies in Australia and New Zealand of early interventions to prevent obesity:

- The ***Healthy Beginnings*** study (Wen et al., 2007) is a randomised controlled trial involving first time mothers in a low SES area in Sydney. Conducted over the first two years of life, it aims to increase healthy feeding behaviours and physical activity, decrease physical inactivity, enhance parent-child interaction, and hence reduce overweight and obesity among children at 2 and 5 years of age. The intervention comprises eight home visits from a specially trained community nurse over two years and pro-active telephone support between the visits.

- The ***NOURISH*** study (Daniels et al., 2009) is a multisite trail being conducted in Brisbane and Adelaide, with a primary focus on early childhood as a foundation for fostering healthy food preferences in the child's future. It is a community-based intervention targeting first time mothers with healthy term infants aged between 4-7 months. The intervention takes the form of two education peer support modules (6 fortnightly sessions each). The second part of the intervention will occur when the infant is aged between 13-16 months to coincide with establishment of solid feeding.

- The ***Melbourne InFANT Program*** (Campbell et al., 2009) is a randomised control trial that aims to evaluate the effectiveness of an intervention to prevent early childhood obesity. It involves first-time mothers with 3 month olds, and focuses on diet, physical activity and sedentary behaviour. (Campbell, 2009).

- The ***Prevention of Overweight in Infancy (POI)*** study (Taylor et al., 2011) in New Zealand is evaluating two primary prevention strategies during late pregnancy and early childhood that could be delivered separately or together as part of normal health care. This study is focusing on the extent to which sleep, food and activity interventions in infancy prevent the development of overweight.

None of these studies has yet reported results, but should be monitored since they will provide evidence of the effectiveness of local interventions.

Conclusions

During the early phases of life infants undergo rapid developmental changes. As they develop their needs and demands also change, from relying solely on milk (breast and/or formula) to requiring the introduction of a well-balanced solid diet.

The early childhood period may give rise to feeding problems, These feeding problems maybe transient or may persist, hampering the child's development leading failure to thrive and parental concerns. Sensory Food Aversion is one of the most common feeding disorders during the first 3 years of life.

Nutrition is one of most common health issues that women face whilst pregnant. Women may lack knowledge on what are good nutrient intakes, required for pregnancy and may be unable to access advice to assist them.

The National Health and Medical Research Council has developed dietary guidelines for children and adolescents in Australia that incorporate three key messages: encourage and support breastfeeding; enjoy a wide variety of nutritious foods; and caring for children's food (i.e. safe storage and preparation).

There appears to be a lack of completed randomised controlled trial studies that have looked specifically at ways of promoting good nutrition/eating amongst young children. However, there are a number of studies currently being conducted in Australia and New Zealand that may provide insight into effective practices in this area.

The general guidelines produced by authoritative bodies such as the National Health and Medical Research Council and the American Academy of Pediatrics could be used as part of the right@home program.

4. Managing infant sleep issues

Background

There is no standard definition of an 'infant sleep problem', however common characteristics of infants whose parents report an infant sleep problem are that they have longer and more frequent night waking incidents and greater difficulties settling (Hiscock et al., 2007).

Parental reports of infant sleep problems are common (Mindell et al., 2009; Kerr et al., 1996; Owens, 2004). It is estimated that up to one in three families with infants experience a problem with infant sleep (Fisher et al., 2011).

For most infants, sleep problems during the night become less problematic over the course of the first year of life (Fisher et al., 2011) and most sleeping issues during infancy are transient (Owens, 2004), however for 25% of families, sleep problems continue past the first 12 months of life (Fisher et al., 2011).

St. James Roberts et al. (2007) highlight the importance of distinguishing between infant sleep and infant crying issues. The authors note that infant crying and infant sleep problems present differently, at different time points and often in different infants (St. James Roberts et al., 2007). For example, parents are most likely to complain about infant crying at 4-6 weeks of age whereas concerns about infant sleep typically emerge after the infant reaches 3 months of age (St .James Roberts et al., 2007).

Sleep plays a critical role in early brain development, learning and memory (Kuhn et al., 2003), and although much research has investigated the impact of infant sleep problems on parents, research on the impact of poor or insufficient sleep upon infants themselves is limited (Sadeh, 2003). This may be because, as Nikopolous and St. James Roberts (2003) note:

> "'Infant and child sleeping problems' are usually greater sources of concern for parents than for children" (p. 111).

However, some research suggests that severe sleep problems during infancy are linked to the development of behavioural issues in childhood (Richman et al. in Owens et al., 1999; Thunstrom, 2002).

Resolving infant sleep issues is important to parents because of the negative impact these issues can have upon them and their families (Mindell et al., 2009; Wiggs, 2004). Parents whose infant has a sleep problem often experience extreme levels of fatigue (Sadeh & Anders, 1993). Referring to children aged 0-5, Owens (2004) notes:

> 'the impact of childhood sleep problems is intensified by their direct relationship to the quality and quantity of parents' sleep, particularly if disrupted sleep results in daytime fatigue and mood disturbances, and leads

> to a decreased level of effective parenting' (p. 2).Infant sleep problems are associated with poorer maternal and paternal general health (Martin et al., 2007) and a number of studies have demonstrated elevated levels of depressed mood amongst mothers whose infant or toddler has a sleep issue (Hiscock et al., 2001; Meltzer & Mindell, 2007). A study undertaken in Iceland demonstrated that parents whose infants were hospitalised for sleep problems had a psychopathological degree of distress (i.e. a markedly higher degree of stress than the equivalent population mean)(Thome & Skuladottir, 2005). On rare occasions, parents exasperated by their infant's inability to settle may resort to hitting or shaking which can lead to the infant suffering brain damage or death (Reijneveld et al., 2004).

Parent fatigue related to infant sleep issues is often normalised or trivialised despite the negative impact it can have upon parents' daily functioning (Fisher et al., 2011). Fisher et al. (2011) compare the profound fatigue suffered by parents of newborn children to occupational fatigue which:

> 'has adverse effects on emotional, cognitive and physical domains and is accompanied by poor judgement, slower reactions to events, decreased skills, increased clumsiness, reduced concentration and vigilance, and impaired memory' (p. 13).

In the past, health professionals seeking guidance in regards to helping parents with infant sleep problems have encountered contradictory and non-evidence based advice (France & Hudson, 1993). Fisher et al. (2011) notes the risks inherent in ignoring evidence-based strategies for dealing with infant sleep issues:

> 'In the absence of a clear evidence-base to management of [parent] fatigue [caused by infant sleep issues], [parent fatigue] can be normalised, or responded to with advice that might be unproven, ineffective and difficult to implement including 'sleep when the baby sleeps' or 'get more help'' (p. 13).

In support of the claim regarding the prevalence of non evidence-based advice about infant sleep issues by Fisher et al. (2011), and following up on France and Hudson's (1993) claim regarding the history of non-scientific evidence about infant sleep issues, St. James Roberts et al. (2006) notes that infant sleep advice is often led by expert opinion instead of scientific evidence.

The extent to which infant sleep issues impact upon parents is evident in the amount of time health professionals spend on this issue. Sleep issues are one of the most common problems for which parents seek professional advice (Kerr et al., 1996).

A recent Australian study found that the average annual cost to the Australian federal government of sleep problems amongst children aged 0-7 is $27.5 million (Quach et al, 2013). Considering the cost of infant sleep issues to government, it is

perhaps not surprising that child sleep disorders have been referred to as a 'serious public health problem' (Encyclopaedia on Early Childhood Development, 2010).

In the following discussion, an overview of the body of evidence pertaining to this topic is presented. A number of general recommendations for managing infant sleep as part of the right@home program are outlined, followed by a number of recommended strategies. Some alternative strategies are provided (for use in those cases where the recommended strategies are not appropriate). This is followed by some summary concluding points.

Evidence-based strategies for managing infant sleep issues

In general, young children's sleep problems can usually be resolved easily and quickly (Wiggs, 2004) and there is a range of possible methods that can be used by physicians to treat infant sleep disturbances (France et al., 1993).

Evidence-based strategies for managing infant sleep issues can be categorised according to those that involve the use of drug treatments and those that do not use drug treatments.[1] Although pharmacological treatments have been favoured in the past, behavioural therapy is now favoured (Wiggs, 2004). This review only considers non-pharmacological treatments.

There are a number of different non-pharmacological behavioural strategies used to manage infant sleep issues. Behavioural strategies are "based on basic behavioural principles that reduce or eliminate some problems (e.g. crying) and reinforce others (e.g. appropriate bedtime behaviours)" (Owens, 2004, p. 3-4).

Common behavioural strategies include:

- ***Extinction***: an approach whereby parents are instructed to put their child to bed and not attend to the child unless the parents deem it to be absolutely necessary (Owens et al., 1999).
- ***Graduated extinction*** (referred to hereon in as 'controlled crying'): a range of techniques whereby parents are instructed to ignore bedtime crying and tantrums for specified periods. The duration or interval between checking on the child is tailored to the child's age and temperament, as well as the

[1] In fact, some non-pharmacological treatments for bedtime and night-time waking have been shown to be *more* effective than pharmacologic treatments and more acceptable to parents (Owens, 2004).

parents' judgment of how long they can tolerate the child crying (Mindell et al., 2006).

- ***Parental presence:*** similar to extinction however the parent sleeps in the room, where the infant can see the parent (Matthey et al., 2012). Most studies trialling the effectiveness of parental presence require the parent to not respond to the infant unless s/he is "unduly distressed" (Matthey et al., 2012, p. 438).

- ***Positive routines***: Parents develop a consistent, calm bedtime routine (i.e. the "same activities in the same order") on a nightly basis (Mindell et al., 2009, p. 599; Mindell et al., 1999).

- ***Scheduled awakening***: involves parents waking their child 15 - 60 minutes prior to the time the child usually wakes spontaneously and resettling them to sleep in their usual manner (Ramchandani et al., 2000).

Some behavioural strategies used to manage infant sleep issues have attracted controversy. For example, some researchers and advocates have been critical of extinction and indicated that it may be unethical (Owens et al., 1999). Parents may also find this approach distressing and stressful (Owens et al., 1999; Mindell et al., 1999; Mindell et al., 2006). Mindell et al. (1999) claims that extinction is typically the least popular option for parents whose infant has a sleep issue and, therefore, the least likely to be implemented effectively by parents.

In response to these concerns, France et al. (1993) advocate for a "consumer model" for professionals dealing with families whose child has a sleep disturbance:

> "which requires therapists to present various alternatives and allows parents to make the ultimate decision regarding the manner in which they wish to handle their infant's sleep disturbance" (p. 644).

Controlled crying is a related alternative to extinction – whereas extinction involves not attending to the child at all (unless absolutely necessary), controlled crying involves a more 'graduated' approach.[2] However parents may still find ignoring their crying child difficult (Mindell et al., 1999; Matthey & Crncec, 2012; Reid et al., 1999), even where there is empirical evidence to demonstrate that this approach is not

[2] Matthey and Crncec (2012) note however that controlled crying is not technically a form of extinction: "strictly speaking, extinction procedures do not incorporate parents occasionally responding to their child's crying (e.g., calming them), as this would constitute contingent reinforcement. Behavioural research has shown that contingent reinforcement (whether intermittent or always contingent) prolongs behaviour in comparison to extinction procedures" (p. 438).

harmful to the infant's short or long term wellbeing (Crncec et al., 2010; France, 1992; Price et al., 2012).[3]

In a systematic review published in 1999, Owens et al. argued that whether controlled crying is as "robust" as extinction is yet to be established. However, in the same year a small randomised control trial that compared the effects of controlled crying to extinction found that both strategies significantly lowered infant sleep problems, and the different outcomes of the two approaches did not differ significantly (Reid et al., 1999).[4] A subsequent study (not a randomised controlled trial) found that controlled crying led to "poorer resolution of awakening and crying" when compared to extinction (France et al., 2005, p. 13). The authors concluded:

> "[Controlled crying] is advocated by child-care professionals as a more gentle program but, in fact, it appears to result in more crying overall than the much maligned [extinction] or "cold-turkey" program" (France et al., 2005, p. 14).

However, Reid et al. (1999), who also compared controlled crying and extinction, did not find any significant difference between the two in regards to infant crying (although France et al. (2005) and Reid et al. (1999) used different measures for this variable). Mindell et al. (2006) argues that there is little evidence from direct comparison studies to suggest that any single behavioural intervention is "vastly superior to another" (p. 1269).

One potential limitation of behavioural approaches, noted by Wiggs (2004) is its demanding nature:

> "Behavioural interventions can be demanding of both parents' emotional resources and therapists' time, and results from research projects may not necessarily be extrapolated to a general clinic situation" (Wiggs, 2004, p. 4)

Another approach used to manage infant sleep issues is an educational approach. Although educational approaches are described differently in different studies, two randomised controlled trials that compared behavioural and educational

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[3] Matthey and Crncec (2012) note that the *Australian Association for Infant Mental Health* has expressed concern about 'extinction' approaches (i.e. approaches that involve leaving the child to cry for any period of time without caregiver comfort). Concern from well known infant health organisations about the negative impact of 'extinction' approaches might also contribute to parents' concerns about these approaches despite – and even when they are alerted to – the fact that empirical evidence shows no short term or long term damaging emotional effects.

[4] Extinction has been evaluated in more clinical studies than any other treatment for infant sleep disturbance (Kuhn et al., 2003)

interventions make a distinction between interventions that "prescribe" what parents can do (behavioural) as opposed to those that provide written information and suggestions that parents can adapt to their own circumstances (educational) (St. James Roberts et al., 2001; Hiscock et al., 2002).

Both trials demonstrated that behavioural interventions are more effective than educational approaches (St. James Roberts et al., 2001; Hiscock et al., 2002).

In their cost burden analysis and cost effective analysis of a behavioural program for infants during the first 12 months and designed to prevent infant sleeping programs, Morris et al. (2001) report that behavioural interventions incur a small cost but produce a small significant benefit whereas educational interventions also incur a small cost but *without* producing a significant benefit.[5] Findings by Morris et al. (2001) appear to lend support to the claim that behavioural interventions are more effective than educational approaches.

Some research demonstrates that preventive approaches to managing infant sleep issues are effective in terms of improving infant sleep duration, parent sleep duration and parent sense of competence) (Wolfson et al., 1992; Nikopoulos et al., 2003; Pinilla & Birch, 1993). Mindell et al. (2006) argue that preventive parent education for managing infant sleep issues: "may set the standard as the most economical and time efficient approach to behaviourally based pediatric sleep problems" (p. 1268).

Nikopolous et al. (2003) argue that because most infants learn to sleep through the night without a behavioural program, the "optimum strategy" is to identify infants at risk of developing a sleeping program and then implement a preventative behavioural program with those infants and their parents.[6]

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[5] Morris et al. (2001) analysed data from the Crying or Sleeping Infants Study (COSI) to generate these findings. The COSI is a randomised controlled trial that compares the effectiveness of behavioural and educational interventions at reducing infant sleep and crying problems when compared to existing care. The behavioural intervention involved providing parents with detailed prescriptive information about accentuating day/night differences. The educational intervention involved the provision of an information booklet outlining current best practice.

[6] Nikopoulos et al. (2003) demonstrated that it is possible to identify infants at risk of being unable to sleep through the night at three months of age. The primary risk factor was frequent feeding at one week of age (Nikopoulos et al., 2003).

General recommendations

A number of general issues regarding managing infant sleep emerged during the course of undertaking this review. The most common are summarised here for the purpose of 'general recommendations.'

Timing

Parents' concerns about infant sleep typically emerge after the infant's first three months of life. St. James Roberts et al. (2001) considered whether behavioural interventions prior to three months of age can work if – at that age – the human infant neurological systems underlying voluntary behaviour remain immature (St. James Roberts et al., 2001).

St. James Roberts et al. (2001) research with infants in this age group suggests that during the first three months of life infants can adapt their behaviour. However, the authors argue that any intervention introduced in the first three months of a child's life need to meet three criteria:

- parents must be willing to implement the intervention;
- it must assist infants to improve their sleeping, reduce their crying or both; and
- it must be cost-effective and appropriate for use in a primary health-care context

All of these criteria are important to any sleep or crying intervention implemented as part of the right@home program, but it is recommended that for the right@home program these principles are very carefully considered if a sleep or crying intervention is implemented prior to three months of age.

Parent choice

Choice for parents appears to be especially important when it comes to managing infant sleep issues. This is probably because of the difficulties some parents will have implementing a strategy that requires them to ignore their infant's cry. As noted previously, even when empirical evidence demonstrating the effectiveness of these strategies is presented to families, along with the reassurance that the strategies do not appear to have any short or long term impact on the child, some parents are still unwilling to implement them.

St. James Roberts et al. (2001), when describing the potential widespread implementation of a specific behavioural program, states:

> "Rather than seeking to implement the behavioural programme universally, the optimum health service policy may well be to provide parents with

information about the programme's effects and to support informed choice" (St. James Roberts, 2001, p. 296).

As noted previously, France et al. (1993) support the St. James Roberts et al. (2001) argument here and advocates for a "consumer model" for professionals dealing with families whose child has a sleep disturbance.

It is recommended that with sleep strategies, parents are offered a choice whereby they can select a strategy that does not involve ignoring their child's cry.

Recommended strategies

Recommended strategies include preventative approaches and non-preventative approaches. Amongst all infant sleep strategies identified for this project, the recommended strategies most strongly fulfil the following criteria:

- a strong evidence base;
- tested in the home environment;
- available for use as part of the right@home program;
- low/nil cost; and
- brief.

Any risks or limitations of the following recommended strategies are identified.

Where viable alternatives to the strategies that most strongly fulfil the criteria were identified, these are listed in order of preference (i.e. from most to least recommended). Recommended alternatives did not fulfil the aforementioned criteria as well as recommended strategies, however they are the next most appropriate strategies for the right@home program.

Recommended preventative approaches

Two preventative approaches are recommended. Where neither of these two strategies is viable, one alternative has been recommended.

1. Preventative behavioural program

This program involves three main steps, whereby parents are asked to:

- maximise the difference between day and night environments by minimising light and social interaction at night
- settle a baby judged to be sleepy in a cot or similar place and avoid feeding or cuddling to sleep at night time

- delay feeding once the baby gets to 3 weeks of age (if the baby is healthy and putting on weight normally)

The extent to which this program fulfils the requirements of the right@home program is as follows:

- *evidence-base*: well-established (two randomised controlled trials: Nikopolous et al., 2003; St James Roberts et al., 2001)
- *tested in the home environment*: explained to parents in a clinic environment and implemented by parents at home
- *available for use as part of right@home*: the approach is described in detail in St James Roberts et al. (2001). The approach does not appear to be subject to copyright
- *low/nil cost*: does not appear to have additional costs (e.g. manuals, guides, equipment)
- *brief*: the approach appears to have been explained to parents in a single consultation (Nikopolous et al., 2003; St James Roberts et al., 2001). It is not clear, however, the extent to which additional support (if any) was provided
- *risks/limitations:* none identified.

2. Preventative behavioural educational intervention

This program involves a meeting between nurse and mother to discuss sleep information and strategies, the provision of an 11-page booklet and weekly phone contact (for five weeks).

The extent to which this program fulfils the requirements of the right@home program is as follows:

- *evidence-base*: well-established (one randomised controlled trial: Stremler et al., 2006).
- *tested in the home environment*: explained to parents in a clinic environment and implemented by parents at home
- *available for use as part of right@home*: health professional discusses infant and mother sleep issues and provides support and encouragement. Does not appear to be subject to copyright
- *low / nil cost*: does not appear to have additional costs (e.g. manuals, guides, equipment)

- *brief*: a single consultation and follow up phone calls to discuss issues and problem solve weekly (for five weeks)

- *risks/limitations:* none identified.

Recommended preventative alternatives:

Parent training program (Wolfson et al., 1992): delivered in a group format; involves four sessions (two prior to birth, two after birth). *Risks/limitations*: has not been trialled in a home environment and not trialled as part of a one-on-one consultation.

Recommended non-preventative approaches

One non-preventative approach is recommended. Where this strategy is not viable, two alternatives have been recommended.

Extinction has not been recommended as a strategy because of the limitations of the strategy. These limitations are not related to the evidence (i.e. both France et al. (2005) and Reid et al. (1999) indicate that extinction is effective and there is a lack of evidence to demonstrate any negative impacts of extinction on the child's short and long term outcomes) but to the fact that extinction is likely to distressing to parents, an unpopular choice among parents and likely to be implemented by parents ineffectively (Mindell et al., 1999).

1. Controlled crying

Controlled crying incorporates a range of techniques whereby parents are instructed to ignore bedtime crying and tantrums for specified periods. The duration or interval between checking on the child is tailored to the child's age and temperament, as well as the parents' judgment of how long they can tolerate the child crying (Mindell et al., 2006).

The extent to which this program fulfils the requirements of the right@home program is as follows:

- *evidence-base*: best/better (than other evidence-based strategies) (one randomised controlled trial: Hiscock et al., 2002), well-established (three randomised controlled trials: Hiscock et al., 2007; Reid et al., 1999; Matthey et al., 2012; France et al., 2005)

- *tested in the home environment*: for all five studies (Hiscock et al., 2002; Hiscock et al., 2007; Reid et al., 1999; Matthey et al., 2012; France et al., 2005), controlled crying was explained to parents in a clinic environment and implemented by parents at home

- *available for use as part of right@home*: controlled crying is an established strategy that is described in multiple publications

- *low / nil cost*: the approach does not appear to have significant additional costs on top of staff, training, infrastructure etc. As part of the Hiscock et al.. (2007) intervention, nurses underwent two 2.5 hour training sessions

- *brief*: the approach can be explained to parents during a single consultation (e.g. Hiscock et al., 2007) however the number of contacts between professional and parents trialling controlled crying varies

- *risks/limitations*: some researchers and advocates have expressed concerns about the long term emotional impact of controlled crying; however a recent randomised controlled trial involving 225 families demonstrated that controlled crying does not have long-lasting impacts (either positive or negative) on children at age 6 (Price et al., 2012). It has been suggested that controlled crying is less favourable than extinction because it results in more infant crying than extinction (France et al., 2005), however this argument is based upon a small trial and another study found that there were no significant differences between the two in regards to infant crying (Reid et al., 1999).

2. Parental presence

One parent sleeps in the room, where the infant can see them and does not respond to the infant unless the infant is very distressed.

The extent to which this program fulfils the requirements of the right@home program is as follows:

- *evidence-base*: well-established (three randomised controlled trials: Hiscock et al., 2007; Matthey et al., 2012; France et al., 2005)

- *tested in the home environment*: explained to parents in a clinic environment and implemented by parents at home

- *available for use as part of right@home*: parental presence is an established strategy that is described in multiple publications

- *low/nil cost*: the approach does not appear to have significant additional costs on top of staff, training, infrastructure etc

- *brief*: the intervention can take between 1-3 weeks, with a gradual removal of parental presence over time (France et al., 2005; Hiscock et al., 2007; Matthey et al., 2012).

- *risks/limitations*: parental presence requires parents to ignore a crying child unless they are very distressed. Some parents may have difficulties with this approach.

3. Positive routines

The positive routines process involves parents developing a consistent, calm bedtime routine (i.e. the "same activities in the same order") on a nightly basis (Mindell et al., 2009, p. 599; Mindell et al., 1999).

The extent to which this program fulfils the requirements of the right@home program is as follows:

- *evidence-base*: well-established (one randomised controlled trial: Mindell et al., 2009)
- *tested in the home environment*: it is not clear where the positive routines process described in Mindell et al. (2009) was explained to parents, but it was implemented by parents in the home environment
- *available for use as part of right@home*: positive routines is an established strategy that is described in multiple publications
- *low / nil cost*: the approach does not appear to have significant additional costs on top of staff, training, infrastructure etc
- *brief*: it is not clear how long the process took to describe to parents for the Mindell et al. (2009) study but as the strategy is fairly straightforward it is assumed that it would not be an especially onerous strategy to explain to parents
- *risks/limitations*: positive routines require parents to have a "wider repertoire of responses" than some other behavioural approaches (Kuhn et al., 2003, p. 589).

Recommended non-preventative alternatives:

Scheduled awakening

Scheduled awakening involves parents waking and consoling child approximately 15 to 30 minutes before a typical spontaneous awakening. No studies published during or after 1990 were identified that demonstrated the effectiveness of scheduled awakening. However, three systematic reviews of strategies for managing infant sleep issues indicate that this is an effective treatment option (i.e. based upon studies undertaken *prior* to 1990) (Mindell et al., 2006; Ramchandi et al., 2000; Owens et al., 1999).

One of the problems with scheduled awakening is that parents may be unwilling to wake a sleeping baby (St James Roberts, 2001; Mindell et al., 1999). It is not appropriate for infants who have settling problems (Owens et al., 1999; France et al., 1993, p. 643).

Conclusions

Infant sleep problems can have a profoundly negative impact upon parents and the fact that parent reports of infant sleep problems are so common means that infant sleep problems are a significant issue for families with young children.

For vulnerable families the problems associated with infant sleep problems (e.g. fatigue, depression, poor health) are likely to be even more significant because many vulnerable families lack the support systems (both formal and informal) that would help them manage infant sleep problems.

Evidence clearly demonstrates a number of effective strategies for managing infant sleep issues. Some of these strategies have tested multiple times. One of the strengths of these strategies is that many are described in detail in multiple publications and are not subject to copyright. As such, they would appear to be relatively easy to integrate into the right@home program.

One of the limitations of some of the 'extinction' strategies is that parents may be reluctant to implement them because they feel uncomfortable ignoring their child's cry. Hence, it is important to provide parents with a choice of strategies for managing infant sleep issues.

5. Ensuring safety

Background

Childhood injury is a major global public health concern (WHO, 2008).[7] The World Health Organisation (WHO) reports that unintentional child injury account for almost 90% of the total number of child deaths in children and young people under the age of 18 years (WHO, 2008).

Australia is not exempt from this problem. In 2011 the Australian Institute of Health and Welfare (AIHW) (2011) reported that injury is a leading cause of death among Australian children and the vast majority (roughly 90%) of these injuries are preventable.

The impact of child injury can be physical, mental or psychological (WHO, 2008) and injuries can have significant effects on children's health and development (AIHW, 2011). Children who suffer from serious injury can be left with permanent injuries, lifelong disability and chronic pain (WHO, 2008). In the long term, those children may encounter obstacles at school and in the workforce. Even less serious injuries that require hospitalisation can interfere with a child's education (WHO, 2008).

Infants (i.e. children aged 0-4 years) are especially prone to injury because of their inquisitive nature, their impulsiveness and their underdeveloped reasoning skills (Garzon 2005). In 2005-2007, children in Australia aged 0-4 died at a rate of 10 per 100,000 children, triple the rate for children aged 5-9 years (AIHW, 2011). This higher rate of injury-related deaths for children aged 0-4, when compared to older children, was evident across all states and territories of Australia (AIHW, 2011).

Childhood injury can occur in the home environment (e.g. unguarded staircases) or in the community (e.g. traffic accidents) (Garzon 2005). The primary causes of unintentional injury (leading to hospitalisation)[8] to children aged 0-4 in Australia in 2008-2009 were (in order from most to least common):

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[7] This review focused exclusively upon unintentional childhood injuries and did not include a search of strategies for preventing or treating injuries caused by abuse or neglect. Scott et al. (2012) refer to an increasing tendency to view the division between intentional and unintentional injury as artificial. It could be argued that in some cases "unintentional" injuries are the result of supervisory neglect (Scott et al., 2012) and some research demonstrates an association between unintentional injury and maltreatment (Slusher et al. in Scott et al., 2012).

[8] This list excludes "other unintentional injuries."

- falls;
- fires, burns and scalds;
- poisoning (pharmaceuticals);
- poisoning (other substances);
- transportation; and
- drowning (McKenna & Harrison, 2012).

Injury prevention is especially relevant for vulnerable families as low socioeconomic status is a major risk factor for unintentional injury amongst children (Garzon 2005; Towner 2005). This is a global phenomenon – in all countries across the world, including Australia, children belonging to the most disadvantaged groups in the population are most at risk of unintentional injuries (WHO, 2008).

In Australia, Indigenous children are over-represented in injury mortality statistics, as are children who live in rural and remote areas (AIHW, 2011). Higher rates of unintentional injury have been found amongst children whose mother has a mental illness, whose parents are going through major life events (e.g. separation) and whose parents have high levels of stress (Kendrick et al., 2007a).

Research undertaken in the UK demonstrates that families with high levels of risk regarding unintentional child injury (e.g. non-home owners, lack of access to a car, in receipt of means tested benefits) are more likely to request home safety checks and low cost safety equipment than families without those risk factors precisely because they understand that their children are at greater risk of unintentional injury (van Weeghel et al., 1997).[9]

Child behavioural problems have also been associated with higher levels of unintentional child injury (Kendrick et al., 2007a), and certain parenting styles

[9] Child safety awareness, the authors argue, is not a barrier to implementing child safe practices within these families, rather it is the cost of safety equipment (van Weeghel et al., 1997). As such, their recommendation to health care workers is: "to acknowledge that the family is aware of the risks and will already be taking action to keep their children safe. Building on this, health care workers can explore with the family the risks they are most concerned about, the action the family has already taken, the barriers preventing the family from further addressing those risks, and they can identify support they can offer the family" (p. 30).

appear to be protective factors for unintentional child injury (e.g. increased frequency of playing with children) (Kendrick et al., 2007a).

The World Health Organisation (2008) classifies interventions to prevent unintentional child injury according to three 'Es':

- *engineering*: involves modifying an environment to make it more "user-friendly" such as improving transport infrastructure around schools and kindergartens and modifying products such as child-resistant containers for household chemicals;

- *enforcement*: incorporates legislation such as mandatory child passenger restraints, seat belts and fencing around swimming pools; and

- *education*: incorporates, for example, education programs about pedestrian safety targeted towards children, community advertising about testing the temperature of water before bathing children and educating health professionals, policy-makers, the media and the broader community about child safety issues.

Home visiting is one of the methods that have been used to prevent unintentional child injuries amongst high risk families (WHO, 2008). These home visiting programs typically focus upon improving the home environment, preventing potential child safety problems and providing or explaining safety equipment (WHO, 2008). WHO (2008) notes that:

> "Home-visiting programmes have been shown to be associated with an improvement in the quality of the home environment as a means to reduce unintentional injuries" (p. 18).

In the following discussion, an overview of the body of evidence pertaining to this topic is provided. A number of general recommendations for enhancing child safety as part of the right@home program are described, followed by a number of recommended strategies. Some alternative strategies are provided (for use in those cases where the recommended strategies are not appropriate). This is followed by some summary concluding points.

Evidence based strategies for preventing unintentional child injuries: Overview

In the following discussion, an overview of the body of evidence regarding the prevention of unintentional child injuries in and outside the home is provided.

Injuries in the home

The majority of strategies identified in this search (n=26) pertained to safety inside the home. In terms of the general effectiveness of strategies that seek to prevent unintentional child injury, systematic reviews of preventive interventions targeting

unintentional child injury suggest that there is a lack of well-designed studies demonstrating the impact of these interventions on actual child injury rates (DiGuiseppe et al., 2000; Kendrick et al., 2007b; Kendrick et al., 2008; Towner et al., 2001). In other words, there may be *indirect* evidence to demonstrate the effectiveness of these interventions (e.g. an increase in safety practices in the home) but there is a lack of *direct* evidence (e.g. rates of hospitalisation, rates of child poisoning) showing that the interventions actually lead to a reduction in child injury.

Even some common home safety measures advocated as part of general home safety measures, such as locking away medications and household chemicals, are not supported by direct evidence, as DiGuiseppe et al. (2000) note:

> "Although the widespread use of child-resistant containers for medications and household chemicals has reduced childhood poisonings, any added effect of locking away such containers has not been evaluated. Lack of evidence about the impact of these strategies on injury outcomes makes it difficult to ascertain the extent children would benefit from clinical interventions that encourage their parents to adopt measures to childproof the home" (p. 74).

Kendrick et al. (2007a) points out, however, that it is not possible to conclusively state that child safety interventions do not reduce child injury rates, as research has demonstrated that safety equipment and safety practices are less common amongst children who have a significant injury than those who don't.

The strategies identified for this project can be categorised into two broad categories: (a) those that provide and/or install free or discounted safety equipment and (b) those that don't provide and/or install free or discounted safety equipment. These two categories – and the evidence for each – are discussed further below.

Strategies that involve the provision and/or installation of free or discounted safety equipment

Most of the strategies identified for this project regarding child safety in the home involved the provision and/or installation of free or discounted safety devices (e.g. smoke alarms, window locks, cupboard and drawer catches, socket covers, door slam devices and stair-gates).

Some of these strategies only provided and/or installed safety equipment, whereas the majority involved additional support (e.g. safety advice, written information, safety education *in addition to* safety equipment). Some studies suggest that child safety interventions are most effective when they combine multiple components, including free or subsidized safety equipment (DiGuiseppe et al., 2000).

Some research also suggests that providing free safety equipment enhances the effectiveness of child home safety interventions (Ingram et al., 2012; Kendrick et al., 2007b). For example, in a systematic review of key barriers and facilitators when

implementing injury prevention interventions Ingram et al. (2012) argued that the provision and fitting of safety equipment is important to the success of child safety interventions, especially those involving low income families:

> "Studies which did not have funds to provide free equipment gave advice, information about local suppliers and facilitated access to equipment for low-income families. While this was better than nothing, it was not found to be as successful as provision and free fitting" (p. 264).

Kendrick et al. (2007b; 2009) found that for some types of home safety behaviours (i.e. functional smoke alarm, storing cleaning products out of reach, having syrup of ipecac, having a fitted stair gate and using socket covers on unused sockets) free equipment enhanced effectiveness.

Two studies that compared interventions that did and did not provide safety equipment indicate that the latter are less effective or not effective. For example, LeBailly et al. in Kendrick et al., 2007b) compared three different interventions targeting fire safety in the home:

> (1) a home visit and provision of safety equipment;
>
> (2) a home visit and the provision of safety equipment and safety counselling; and
>
> (3) a home visit and safety counselling.

Only the first two groups demonstrated improved use of safety devices (LeBailly et al., 1990).

Sznadjer et al. (2003) undertook a similar comparison to LeBailly et al. (1990), namely comparing the effectiveness of:

> (1) home safety counselling; and
>
> (2) home safety counselling and a free home safety kit.

Sznadjer et al. (2003) found that safety counselling and the provision of free equipment was a more effective strategy at improving safety risks in the home compared to counselling alone.

There are two key points to make regarding child safety strategies regarding the provision and/or installation of free or discounted safety equipment. Firstly, it is important to note that the majority of interventions identified that involved the provision and/or installation of free or discounted safety equipment *only*

provided/installed smoke alarms (referred to hereon in as 'smoke alarm interventions').[10]

In regards to those smoke alarm interventions, it is important to note that there is a high rate of smoke alarm ownership in Australia (Barnett et al., 2011). Therefore, smoke alarm interventions may not be an efficient use of right@home resources.

Secondly, the provision of free or discounted safety equipment as part of a child home safety intervention is likely to involve significant costs. A study by Paul et al. (1992) found that it cost $1516 to purchase and install all recommended child safety devices in NSW.[11] Some of the strategies identified in this search encouraged families to purchase their own equipment however this may not be appropriate or feasible for a program that is targeting vulnerable families.

Strategies that do not involve the provision and/or installation of free or discounted safety equipment

Twelve strategies were identified that did not involve the provision and/or installation of free or discounted safety equipment. These strategies primarily involved educational strategies that were delivered in a range of ways such as:

- computer-generated safety advice (Nansel et al., 2002);
- educational videos (Blake in Kendrick et al., 2007b; Kelly et al., 2003);
- verbal counselling[12] (Rehmani et al., 2010); and
- leaflets and tip sheets (Clamp et al., 1998; Tan et al., 2004).

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[10] Others provide a range of different types of safety equipment (e.g. window locks, cupboard and drawer catches, socket covers, door slam devices, stair gates etc).

[11] Seventeen devices in total were recommended safety devices in NSW at the time Paul et al. (2002) undertook their study. DiGuiseppe et al. (2000) notes that high cost of safety equipment can be a barrier for families implementing child safety practices.

[12] Some interventions are described as 'education' and some as 'counselling', however the difference between these two different 'types' of intervention are often difficult to pinpoint. Counselling appears to typically be delivered by a health professional (although not always) as part of a one-on-one consultation and often seems to take the form of a structured consultation. Educational strategies, on the other hand, are not necessarily part of a verbal, one-on-one transaction. Counselling appears to be a format via which education about home safety takes place; however many educational strategies could be viewed as 'counselling', therefore viewing counselling and education as different 'types' of strategies is not especially useful in terms of determining which is more effective. Therefore, all counselling strategies are included here as educational strategies.

Some of these strategies target a single, specific risk (e.g. poisoning (Kelly et al., 2003), baby walkers (Kendrick et al., 2005). Ingram et al. (2012) note that concentrating on one specific type of injury or safety risk can be a successful strategy and that a complex intervention can be a barrier to success. However, no evidence was identified that demonstrated that a 'single issue' strategy is more effective than a comprehensive strategy. Needless to say, a single issue strategy is likely to be easier to implement (for both professionals and parents).

Many educational strategies included the provision of supporting information (e.g. leaflets, pamphlets). Evidence indicates that parents in the UK feel there is a lack of available information about existing knowledge in regards to child safety, suggesting that this type of information may be appreciated by parents (NHS, 2010). The UK National Health Service (2010) point out, however, that the timing of the provision of this information is important. If provided at the time of a child's birth the information is likely not to be retained, when compared to information provided subsequently in a community or clinic setting (NHS, 2010).

It is previously noted in this review that there is a lack of evidence regarding the impact of child home safety interventions on actual child injury rates (DiGuiseppe et al., 2000; Kendrick et al., 2007b; Kendrick et al., 2008; Towner et al., 2001). Similarly, there is a lack of evidence regarding the impact of home safety education on actual child injury rates (Kendrick et al., 2007b).

Some of the strategies identified for this search involved safety counselling. DiGuiseppe et al. (2000) conducted a systematic review and found that in general, clinical counselling has "little effect on home safety practices designed to childproof the home" (p. 74) either because the strategies identified were not intensive enough or were too difficult or too confusing for parents to implement. However, DiGuiseppe et al. (2000) noted that counselling strategies that appear to have the greatest effect on safety practices combine approaches that seek to modify predisposing (i.e. knowledge, attitudes, beliefs, personal preferences etc), enabling (i.e. availability and accessibility of resources or services that facilitate achievement of the desired behaviour) and reinforcing (i.e. factors that reinforce or reward the behaviour change required) factors. DiGuiseppi et al. (2000) also note that interventions that combine all three of these approaches are time-consuming.

Ingram et al. (2012) also note that interventions that use simple methods for reinforcing messages (e.g. annual reminders) and provide incentives have demonstrated some success. They also note that motivational techniques are more successful when information is perceived as personally relevant to participants (Ingram et al., 2012).

Kendrick et al. (2007b) found that home safety education was effective at increasing the following safety practices:

- having a safe hot tap water temperature;

- having a functional smoke alarm;
- storing medicines and cleaning products out of reach;
- having syrup of ipecac and the poison control centre number accessible;
- having a fitted stair gate;
- using socket covers on unused sockets; and
- storing sharp objects out of reach.

There was also some evidence indicating the effectiveness of home safety education for reducing the use of baby walkers and increasing the use of fire guards. (As noted previously, the effect size appeared to be larger for interventions that provided equipment, compared to those that relied upon education alone).

Kendrick found a lack of evidence regarding the effectiveness of home safety education for:

- increased possession of non-slip bathmats;
- increased possession of fire extinguishers;
- preventing children being left alone in the bath; and
- keeping food, drinks, small objects or matches out of reach.

Kendrick et al. (2007) found that home safety education that is provided in a one-to-one, face-to-face educational format (either in a clinical setting or in the home) is effective at increasing a range of safety practices, particularly when safety equipment is provided.[13]

Ingram et al. (2012) conducted a systematic review and found that health education, which looks at the causes of home injury, is well accepted by parents and cost effective. They also report that educational materials (handouts, stickers) served to reinforce safety messages in many studies.

[13] The authors note that the effect sizes appeared to be larger for those interventions that provided safety equipment than for those that provided education only for the following practices specifically: having a functional smoke alarm, storing cleaning products out of reach, having syrup of ipecac, having a fitted stair gate and using socket covers on unused sockets (Kendrick et al., 2007a/b, p. 35).

Towner et al. (2001) found that parent education interventions in the home regarding burns and scalds, poisoning, and falls prevention, had some evidence to indicate their effectiveness at behaviour change.[14]

The educational strategies identified for this project differed in terms of the intensity of additional support provided as part of the educational strategies. For example, some strategies simply involved the screening of a video and the provision of written information (e.g. Kelly et al., 2003) whereas others involved a home visit (or visits), written information and verbal encouragement (e.g. Kendrick et al., 2005).

Some educational strategies were "tailored" to the individual family/household (see for example Paul et al., 1994; Nansel et al., 2002; McDonald et al., 2005). McDonald et al. (2005) describes tailoring as:

> "a process of creating individualised communication [using] an assessment-based approach in which individuals provide personal data related to a given health outcome. These data are then used to deliver the most appropriate information or strategies to meet the families' unique needs" (p. 169).

Ingram et al. (2012) claims that combining tailored education and environmental strategies is important for the success of child safety interventions. The authors also claim that tailoring interventions to individual families (i.e. tailored to educational level) is more likely to change (parent) behaviour.

In summary, although there is a lack of evidence to demonstrate the direct effect of safety interventions in the home, there is evidence to demonstrate that educational interventions alone (i.e. not providing safety equipment) can be effective at increasing some safety practices. However, in general providing safety equipment appears to increase the effect size of home safety interventions. Educational interventions differ significantly in regards to the methods and intensity of the intervention.

Injuries outside the home

All evidence-based strategies for improving infant safety outside the home (eight in total) pertained to car/traffic safety. As with the home safety strategies, these strategies can be categorised according to those that provide (or loan) free (or discounted) equipment and those that do not.

All of those strategies that involved the provision (or loan) of equipment pertained to car seats or car restraints (four in total). Legislation in all states and territories of

[14] This was the lowest level of evidence reported by Towner et al. (2000). The other two categories for interventions were: 'good evidence' or 'reasonable evidence'.

Australia require children aged 0-7 to travel in an approved child restraint/booster seat and for children under the age of four to travel in the back seat of a car. Because of the existence of this legislation, the provision (or loan) of free (or discounted) child restraints may not be the most efficient use of right@home resources.

Diguiseppe and Roberts (2000) make a similar conclusion in regards to strategies that provide (or loan) free or discounted car safety equipment in the US:

> "The majority of these studies were conducted before infant and child motor vehicle restraint legislation was enacted in all states, and similar interventions are unlikely to have the same impact now ... Parents who do not use child car seats after a decade of legislation are likely to be harder to influence than were the subjects of these trials" (p. 59-62).

Those strategies for improving infant safety outside the home that did not involve equipment took the form of education or promotion. Educational strategies pertained to a range of topics including:

- the use of child passenger restraints (Tessier, 2010);
- child passenger safety knowledge (Shenoi et al., 2010);
- targeted education to improve child restraint use (Brixey et al., 2009); and
- child safety seat installation (Lane et al., 2000).

Once again, because of Australian legislation regarding the use of child restraints in cars, some of these strategies may not be unnecessary or ineffective.

Two of these strategies (Tessier et al., 2010; Lane et al., 2000) involved 'hands-on' demonstrations of how to install a car restraint.

In summary, half of the strategies designed to prevent child injuries outside the home are not relevant to the right@home program because they require the provision of equipment. Some of the remaining strategies may be appropriate, however because of Australian legislation regarding child car restraints some may not be necessary or effective in the Australian context.

General recommendations

A number of general issues ensuring infant safety emerged during the course of undertaking this review. The most common are summarised here for the purpose of 'general recommendations'.

Information regarding safety outside the home

The search for evidence-based strategies regarding the safety of children aged 0-2 years outside the home yielded disappointing results. All strategies identified regarded car/traffic safety. Transportation is the fifth most common cause of injury amongst children aged 0-4 in Australia, therefore car/traffic strategies are clearly important (McKenna & Harrison, 2012). However, the majority of the strategies identified focused upon the use of infant/child car seating/restraints (e.g. child car seat loan program, no-cost child passenger restraint). Every state and territory in Australia now has legislation regarding the use of child safety seating in cars therefore many of these strategies are likely to be irrelevant in Australia.

Although drowning is a less common cause of injury amongst children aged 0-4 than transportation, it is important to note that a significant proportion of Australians hospitalised for near-drowning incidents in 2008-2009 were children aged 0-4 (41.1% of the total) (McKenna & Harrison, 2012). In other words, whereas a greater number of infants are hospitalised for transportation accidents than near-drowning incidents, children aged 0-4 are at greater risk of near-drowning incidents when compared to all other age groups. A significant proportion of these occur in outside swimming pools (46% of all drowning cases in that age group).

In the absence of relevant evidence-based strategies for infants outside the home, it would appear critical for right@home participants to receive some type of information, education or counselling about safety risks for their infants outside the home. Organisations such as KidSafe (2012) have information for parents on these topics (though the state/territory-based offices) and although these resources do not appear to have been tested for their effectiveness, they are the next best option to evidence-based strategies.

Format

A one-on-one, face-to-face educational format has been shown to be effective for parenting interventions designed to prevent unintentional child injury (Kendrick et al., 2007a). This format (as opposed to, for example, using a video or a computer program) would appear to be most appropriate for the right@home intervention as it is likely to build upon and help to develop a relationship of trust between nurse home visitor and parent.

Tailoring safety information

A number of strategies identified as part of this project involved tailoring safety information to the specific risk factors of a family's lifestyle or within their home (e.g. Paul et al., 1994; Nansel et al., 2002; McDonald et al., 2001). There is some evidence to indicate that tailoring safety information to individual parents/families is a facilitator for the implementation of home injury prevention strategies (Ingram et al., 2012).

Tailoring typically involves some kind of home assessment, followed by the provision of information that is tailored to the specific risks within that household. It is likely that there will be some variation between right@home participants in terms of the number and type risks present in their household therefore tailoring would appear to be a useful approach.

There is also evidence to demonstrate that families with a high risk of unintentional child injury are aware of those risks (van Weeghel et al., 1997). In other words, it is not lack of knowledge that is stopping these families from changing their home environment. Tailoring safety information to the needs of families (i.e. what do they know, what don't they know) would therefore appear to be important and could be seen as part of a strength-based approach (i.e. recognising what families already know).

Providing information about where to obtain safety equipment

In the absence of providing free or discounted safety equipment, providing information about where to obtain safety equipment is another strategy that has been used (e.g. Paul et al., 1994). (All state and territory based 'KidSafe' programs in Australia provide access to discounted safety equipment). It should be recognised, however, that cost has been identified as one of the most significant barriers for families purchasing and installing safety equipment (Ingram et al., 2012; Paul et al., 1994; van Weeghel et al., 1997). For at least some families, therefore, providing information about where to obtain equipment will not necessarily lead to the purchase and installation of that equipment.

Uptake

Researchers hypothesise that one of the reasons why child safety interventions have been unsuccessful in the past is that the suggestions are not implemented by parents. Although a safety intervention may only need to be undertaken once for each right@home family (rather than regularly throughout the duration of the family's involvement in the program), it may be useful for nurses to 'check in' on how safety plans are progressing. The continuous relationship between right@home nurses and families would appear to be beneficial in as far as encouraging and supporting implementation.

Recommended strategies

Recommended strategies include those designed for safety in the home and those designed for safety outside the home. Amongst all infant safety strategies identified for this project, the recommended strategies most strongly fulfil the following criteria:

- a strong evidence base;
- tested in the home environment;
- available for use as part of the right@home program;

- low/nil cost; and
- brief.

Any risks or limitations of the following recommended strategies are identified.

Where viable alternatives to the strategies that most strongly fulfil the criteria were identified, these are listed in order of preference (i.e. from most to least recommended). Recommended alternatives did not fulfil the aforementioned criteria as well as recommended strategies, however they are the next most appropriate strategies for the right@home program.

Interventions that focused on a single, specific safety risk (e.g. fire, poisoning) have not been included as recommended strategies as a generalist safety intervention would appear to be more appropriate for the right@home program. However, if a decision is made to focus on single, specific safety risks the information in the 'alternative strategies' section could be considered. These strategies are not ordered according to preference as each (total n = 3) addresses a different risk.

Safety in the home strategies

1. Safe place project intervention (tailored education program)

The *Safe Place Project* intervention (Paul et al., 1994) consisted of three aspects:

- a home safety check
- a tailored safety education booklet: each safety hazard identified during the home safety check was marked in the booklet by the interviewer. Beneath each hazard was a list of options that could be undertaken to reduce the hazard and a list of local outlets where specific safety devices could be obtained
- improving the availability of safety devices: local retail outlets were sought or arranged for safety devices. Where this was not possible, some items were ordered by the research team and made available through the local hospital.

The extent to which this program fulfils the requirements of the right@home program is as follows:

- *evidence-base:* well-established (Paul et al., 1994)
- *tested in the home environment:* all three aspects of the intervention were carried out in the home environment

- *available for use as part of right@home:* because of the age of the trial (i.e. 1994), it may not be possible to get the original home safety check and booklet from the researchers. However, an example of the information in the booklet is provided in the publication (i.e. Paul et al., 1994) and it appears relatively easy to replicate

- *low/nil cost*: the cost of the intervention by Paul et al. (1994) is not stated, however it would appear to be relatively inexpensive compared with many of the other strategies ~~listed in table xx~~identified because it does not involve the use of specific resources (e.g. children's books). In regards to training, the intervention was delivered by volunteers, not health professionals. Volunteers attended a one hour small group training session and undertook a practice house check with feedback on performance. As such, the training costs would appear to be relatively low for this intervention

- *brief*: the intervention involved of a single home visit and a single follow up house check

- *risks/limitations:* The intervention has only been trialled once, was trialled almost 20 years ago and the sample size was fairly small (198 families). Only 72 of 94 pre-test house checks for the intervention group were undertaken because of difficulties scheduling appointments (Paul et al., 1992).

2. Injury prevention counselling

The Injury prevention counselling program (Mock et al., 2003) involves a single home visit delivered by a nurse or health professional during which the nurse counsels cover the range of safety topics that are appropriate to the age of the child(ren). Written information and audio-visual materials were used to communicate the information to parents.

The extent to which this program fulfils the requirements of the right@home program is as follows:

- *evidence-base*: promising (Mock et al., 2003)

- *tested in the home environment*: the intervention was tested in the home environment (as part of a home visit from a health professional)

- *available for use as part of right@home*: the intervention used audio-visual materials from The Injury Prevention Program (TIPP) of the American Academy of Pediatrics and a locally developed program entitled 'Healthy Child.' It is not clear whether these materials are freely available as part of the right@home program.

- *low/nil cost:* The cost of the intervention is not stated. However, on face value, the intervention would appear to be relatively inexpensive compared to

some of the other interventions identified, because it is brief (see below) and does not involve the development of specific 'intensive' resources (e.g. children's books). Mock et al. (2003) notes that injury prevention counselling has been identified as cost-effective in other studies

- *brief*: the intervention consisted of a single half hour home visit
- *risks/limitations:* the intervention was trialled in a developing country (Mexico) and therefore may not have the same impact in Australia. A number of studies have indicated that safety counselling is ineffective or less effective than other strategies (LeBailly et al., 1990; Sznadjer et al., 2003; DiGuiseppi and Robert, 2000).

Recommended safety in the home alternatives

Generalist safety programs

Injury prevention TIPP sheets (Powell et al., 2003): leaflets with age appropriate information about home safety. It is not clear from the information provided whether the leaflets were reviewed with parents or whether they were simply provided to parents to read themselves. Nor is it clear how long the intervention took. The intervention was not trialled in a home environment.

Educational book (to be read by parents to children) (Reich et al., 2011): an educational book provided to parents that they then read to their children. The strategy requires parents to have a first grade reading level and assumes that parents do (or will) read to their children. It is not clear whether the books used in the intervention are freely available. If not, the cost of producing the books is likely to be significant (e.g. development, editing, printing etc).

Tailored safety advice via computer (Nansel et al., 2002): a tailored safety advice program delivered by computer. The strategy was not trialled in a home environment. Computer equipment may not be accessible to right@home nurses. The intervention requires parents have adequate literacy levels.

Tailored safety advice in a clinic (McDonald et al., 2005): tailored safety advice in a well child clinic which was then fed back to a paediatrician who undertook tailored safety counselling with parent(s). The strategy was not trialled in a home environment and appears relatively intensive (in terms of the development of resources and training) and thereby potentially expensive to implement.

Risk-specific safety programs *(no order of preference)*

Fire safety training (McConnell et al., 1998): targeting fire safety specifically, the intervention was delivered by fire fighters and was delivered in a group format.

Child poisoning intervention (Kelly et al., 2003): targeting poisoning specifically, the intervention consisted of a videotape and information about a poison control centre. The strategy was not trialled in a home environment. Audio-visual equipment may not be accessible to right@home nurses.

Baby walker advice (Kendrick et al., 2005): targeting the use of baby walkers specifically, the intervention involves advice from a midwife or health visitor to discourage walker use and information about the risks of baby walkers. It is not clear if the strategy was trialled in a home environment.

Safety outside the home strategies

1. Infant car seat video education

This strategy involved parents watching a video on child passenger safety and being provided with a handout on age-appropriate child passenger safety (in a clinical setting). The videos shown were specific to the age of the child (0-1 years, 1-4 years and 5-8 years).

The extent to which this strategy fulfils the requirements of the right@home program is as follows:

- *evidence-base*: well-established (Shenoi et al., 2010)
- *tested in the home environment*: the intervention was not tested in the home environment. It was undertaken in a clinical setting.
- *available for use as part of right@home*: the intervention required parents to watch a video on child passenger safety. Written safety materials were provided to parents afterwards. It is not clear if this video is available for distribution. If the resources are available, they will most likely need to be adapted to the Australian context.
- *low/nil cost*: if the videotape needs to be adapted, it may have cost implications. Otherwise, the intervention appears to be relatively low cost.
- *brief*: the duration of the video is 5-10 minutes and it was watched in a single sitting
- *risks/limitations:* the video may need to be adapted to the Australian context. The intervention was trialled in a emergency care setting and may be as effective in a home setting.

Recommended safety in the home alternatives

No feasible alternatives to the aforementioned strategy were identified.

Conclusions

Injury is a leading cause of death among Australian children. The vast majority of these injuries are preventable. Children from disadvantaged backgrounds are at particular risk of unintentional injury. Therefore there is a strong rationale for implementing child safe strategies as part of the right@home program.

For children aged 0-2 there appear to be more evidence-based strategies for ensuring safety inside rather than outside the home. A large proportion of these strategies involve the provision and/or installation of free or discounted safety equipment. Although free or discounted safety equipment does appear to enhance the effectiveness of safety interventions, the strategy is likely to be very costly.

The most common alternative to strategies that provide free or discounted safety equipment is educational strategies. These strategies differ in terms of their intensity. Tailored approaches appear to be promising, especially because the level of knowledge and the number and type of risk factors present in right@home participants' homes is likely to vary.

The search for strategies that ensure the safety of children aged 0-2 outside of the home yielded disappointing results. In the absence of evidence-based strategies, sharing information with parents about preventing issues that could occur outside the home (e.g. drowning in a swimming pool) would appear to be a very important part of ensuring the safety of infants involved in the right@home program.

Part B: Relationship with the child

6. Ensuring maternal bonding

While maternal bonding is a term that is frequently invoked, there is no clear or commonly agreed definition (Altaweli & Roberts, 2010; Carter-Jessop & Keller, 1987; Cook & Sparks, 2008; Erickson, 1996). Thus, Cook and Sparks (2008) define *bonding* as the mother's feelings toward her newborn baby, *attachment* as what grows from bonding and is reciprocated by the child, and *interaction* as what passes between caregiver and child (p. 112). Erickson (1996) proposed that bonding is the process, whereas attachment is the outcome, and that therefore bonding is a prerequisite to attachment. Bonding is defined as 'the process that occurs from the first moment that the mother begins to feel connected to her baby; attachment is the outcome of the bonding process and occurs on a continuum.' (Erickson, 1996, p. 193).

The theory of maternal–infant bonding was first described by the American paediatricians Klaus and Kennell (1976). They claimed that there was 'a sensitive period in the first minutes and hours of life during which it is necessary that the mother and father have close contact with their neonate for later development to be optimal.' This view came in for a lot of criticism (Brody, 1983), and, in the second edition of their original book (Klaus and Kennell, 1982), they modified their position considerably, acknowledging that there was limited evidence for such a sensitive period. However, by then the idea had become popularised, with the terms bonding and attachment often being used interchangeably. In fact, there is some evidence for a hormonally determined sensitive period (Fleming et al., 1997) although compromise of this appears to be successfully negotiated by most mothers (Mortimore, 2007).

Perhaps as a result of this confusion, the mother's bond to her child has not been studied nearly as much as the child's attachment to the parent (McConnaughy, 2011), and the evidence for its importance is more equivocal. According to Benoit (2004), 'bonding' has not been shown to predict any aspect of child outcome, whereas attachment is a powerful predictor of a child's later social and emotional outcome.

What studies there are have addressed bonding during the prenatal period as well as the postnatal period.

Prenatal bonding

Prenatal attachment refers to both the behavioural and representational components of the mother's developing connection to the child (Slade et al., 2009). Doan and Zimmerman (2002) proposed the following working definition:

> 'Prenatal attachment is an abstract concept, representing the affiliative relationship between a parent and fetus, which is potentially present before

pregnancy, is related to cognitive and emotional abilities to conceptualize another human being, and develops within an ecological system.'

Reviews of evidence regarding prenatal attachment (Alhusen, 2008; Canella, 2005; Doan and Zimerman, 2002, 2003) suggest that some mothers experience a strong sense of connection with their yet-to-be-born child, but there is considerable variation, with other mothers experiencing low, or no, sense of attachment during pregnancy (Doan & Zimerman, 2002).

Research has also found that, even prior to becoming pregnant, there are individual differences in men and women in the ability to conceptualise what it would be like to be pregnant, and the extent to which they might feel positively attached to the foetus. (Doan & Zimerman, 2003). Longitudinal studies on maternal foetal attachment show a shift towards a stronger attachment as pregnancy progresses, and predict positive outcomes in the postpartum period (Cannella, 2005). Factors associated with higher levels of prenatal attachment include positive family support, greater psychological well-being, and having an ultrasound performed, while factors such as depression, substance abuse, and higher anxiety levels are associated with lower levels (Alhusen, 2008).

Does maternal prenatal bonding/attachment relate to maternal postnatal bonding and behaviour? According to Slade et al. (2009), the degree to which a mother feels attached and connected to her unborn child, or exhibits behaviours that are consistent with a developing attachment to the child, has been linked to a number of child and parent outcomes, including the mother's experience of and involvement with the baby after birth (e.g. Figueiredo & Costa, 2009). For instance, a study by Siddiqui and Hagglof (2000) used a self-administered questionnaire to measure expectant mothers' prenatal attachment towards their unborn baby during the third trimester of pregnancy. They found that these reported levels of prenatal attachment were a good predictor of the early mother-infant relationship. Mothers who were high on prenatal attachment in general showed more involvement while interacting with their babies.

On the basis of studies such as these, Doan and Zimerman (2003) conclude that there is evidence of continuity in some characteristics that affect a woman's interaction with her developing child during pregnancy and that influence maternal-child interaction after birth. However, they note that, while there is some evidence that women's prenatal attachment is correlated with postnatal attachment, there are many factors that can influence this developmental sequence.

According to Wittkowski et al. (2007), some mothers experience a delay in the onset of maternal affection after childbirth and occasionally a longer lasting failure to bond will ensue. However, little is known about the precise prevalence of these difficulties, how they relate to maternal mental health, how they develop over time and what their biological and psychosocial correlates are.

McConnaughy (2011) conducted a small qualitative study of mothers' perceptions of their bonding process with their first children. First-time mothers were interviewed when their children were three years old about their bonding experiences from pregnancy to the present. Nearly all of the mothers experienced fear or panic at first contact with the newborn regarding taking on the responsibility of sustaining the life of the child. However, about half of the mothers reported that they bonded immediately at first contact with their babies or during pregnancy, while another half of the mothers reported that they bonded gradually over the first two years. Most of the mothers reported that there was a point in time in which they understood that they were 'fully bonded': when they felt they were fully giving themselves to the child and would forever.

Does separation from the infant after birth affect maternal bonding? Feldman et al. (1999) examined maternal bonding in three groups of mothers: mothers of full-term infants who maintained continuous contact to the infant, mothers of healthy premature infants who were separated from the infant, and mothers of very low birthweight infants who experienced potential loss and prolonged separation.

Mothers of term infants reported medium-to-high levels of preoccupations with thoughts of infant safety and well-being. Such preoccupations were significantly greater in the mothers separated from their infants, but were significantly less on the third group of mothers who were facing impending loss. Bonding behaviours and thoughts were the highest among mothers of term infants and declined linearly with the duration of mother-infant separation.

In a study with very low birthweight infants, Mehler et al. (2011) investigated whether there was a relationship between the mother seeing the child within the first three hours of birth and subsequent attachment behaviour in their infants. They found that preterm infants whose mothers had seen them within 3 hours after birth had a higher rate of secure attachment than preterm infants with no early contact.

How important are the first hours after birth for maternal bonding? As already noted, Although the bonding theory Klaus and Kennell (1976) originally claimed there was a crucial sensitive period in the first few hours and days after birth, but subsequently acknowledged that there was limited evidence for such a narrow sensitive period (Klaus & Kennell, 1982). Nevertheless, Kennell and McGrath (2005) suggest that certain hospital practices can encourage the development of a positive bond between the mother and child. Nurses and midwives can promote this bonding

through giving continual support throughout labour, by encouraging skin-to-skin contact between the mother and her infant straight after delivery, by encouraging continued breastfeeding, and by enabling the newborn baby to be kept in the same room as the mother in the initial hours and days after delivery.

The overall conclusion is best stated by Giustardi et al. (2011): Research suggests that

> ' … mothers and fathers generally are quite able to be loving parents even if they must be separated from their babies as a result of prematurity, illness, or other reasons. Bonding is a complex, personal experience that takes time. There's no magic formula and it can't be forced. A baby whose basic needs are being met won't suffer if the bond is delayed for some time at first.

Does breastfeeding promote maternal bonding? On the basis of a critical review of the research literature on breastfeeding benefits, Schulze and Carlisle (2010) conclude that, although breastfeeding confers numerous benefits to infants, these are sometimes overstated. Despite often being promoted as a benefit of breastfeeding, there is little support of the assertion that breastfeeding enhances bonding between mothers and their infants.

For instance, a study by Else-Quest et al. (2003) that drew on data from a longitudinal study of over 500 mother-infant pairs measured bonding and the quality of the mother-infant relationship at 4 and 12 months in breastfeeding and bottlefeeding conditions. Although breastfeeding mother-infant pairs tended to show higher quality relationships at 12 months, bottlefeeding pairs did not display poor quality or precarious relationships.

In another study, Smith and Ellwood (2011) explored whether exclusively breastfeeding mothers spent more time in close interactive behaviours with their infants than mothers who have commenced or completed weaning. They found that the mothers of exclusively breastfed infants received greatest amounts of emotional care from their mother, and exclusively formula-fed infants the least. Mixed fed infants received more emotional care time than formula-fed infants, but less than fully breastfed infants.

For mothers who want or need to bottlefeed their infants, the situation is complicated by prevailing societal judgments that feeding babies formula milk is risky, both for physical health and the mother-child relationship (Lee, 2007, 2008). This can lead to mothers who formula feed having to struggle hard to maintain a positive sense of themselves as mothers (Lee, 2008).

Problems in maternal bonding

Baylin and Hughes (2012) formulated the concept of *parental blocked care* as a shorthand way of describing the suppression of parents' potential to nurture a child, especially if the child is slow to reciprocate warmth and love. Others have described this phenomenon as 'maternal bonding disorder' (Kumar 1997) or 'bonding failure'

(Sluckin, 1998), an extreme and persistent lack of emotional connection between a mother and her infant. According to Sluckin (1998), little is known about the prevalence, precipitants or nature of the interaction between 'non-bonded' mothers and their babies.

Kumar (1997) interviewed women who had suffered from at least one episode of postnatal mental illness and who described an unexpected and often catastrophic failure to love one or more of their babies. These women reported absent affection, sometimes hate, rejection, neglect or impulses to harm, in relation to at least one of their children. These feelings often began immediately or very shortly after the birth, and with one exception, were specific to one child.

The nature of the link between postnatal mental illness and such disorders of maternal bonding remains unclear. In the infant mental health field, there are many accounts of how to address such problematic infant-parent relationships (eg. Hembree-Kigin & McNeil, 1995; Lillas & Turnbull, 2009; Sameroff et al., 2004).

Prolonged physical separation from one's infant or traumatic interference can sometimes impede the development of maternal-infant bonding. There are many medical procedures and illnesses that can cause mother and child to become separated immediately after birth and affect bonding, but separation can also be the result of maternal trauma. One specialist intervention that can help overcome this barrier to bonding is Eye Movement Desensitization and Reprocessing (EMDR), which is an integrative psychotherapy that is a well-accepted treatment for trauma (Madrid et al., 2006).

*Does postnatal depression interfere with maternal bonding to the infant and young child***?** A review by Misri and Kendrick (2008) suggests that it does. A study by Moehler et al. (2006) found that maternal depressive symptoms were strongly associated with lower quality of maternal bonding to the infant and child from two weeks until fourteen months of postnatal age. Even mild and unrecognized maternal depressive symptoms had a significant impact on maternal bonding, if they occurred during the first four months of life.

According to Brockington (2008), severe disorders of the mother-infant relationship are seen in a substantial proportion of mothers seeking help for postpartum mood disorders. These disorders involve rejection of the infants and/or pathological anger. Although research is in its early stages, the causation probably includes unwanted pregnancy, depression, and challenging infant behaviour. These disorders are risk factors for child abuse and neglect, with damaging consequences for the infants.

Other factors

There is some evidence suggesting that mothers who were subjected to domestic violence during pregnancy were less likely to bond well with their foetus and subsequently their child (Zeitlin et al., 1999). Abused women were more likely to suffer from post-natal depression as compared to their non-abused counterparts,

the degree of depression was not related to the severity of the abuse experienced. These findings suggest that exposure to abuse weakens the maternal-foetal bond, possibly making it not amenable to the normal strengthening post partum, thus diminishing the strength of the maternal-infant bond in abused mothers.

Conclusions

The evidence reviewed here suggests that there are a number of factors and circumstances that can interfere with or promote the development of maternal bonding. However, what is lacking is any clear evidence that maternal bonding is an essential prerequisite for the development of a positive parent-child relationship or for the promotion of child development. On the assumption that maternal bonding does play a causal role, various strategies have been devised for promoting maternal bonding. These will now be reviewed to see if they throw any more light upon this relationship.

Evidence-based strategies for promoting maternal bonding

Promoting prenatal bonding

On the basis of an integrative review, Cannella (2005) found only two experimental studies of interventions to strengthen mothers' positive feelings towards their unborn child (Koniak-Griffin and Verzemnieks, 1991; Mikhail et al., 1991). Both programs focused on increasing knowledge about the development and behaviour and development of the foetus, and both were deemed to be effective.

Promoting postnatal bonding

Baylin and Hughes (2012) drew upon recent findings in neuroscience to develop a way of working with stressed parents whose potential to nurture their child was blocked or suppressed, especially if the child was slow to reciprocate warmth and love.

They began with the assumption that insensitive parenting is often linked to stress and deficiencies in key brain systems, including the dopamine and oxytocin systems. Parents with blocked care may want to like and enjoy their children, but do not know how to activate the 'good chemistry' that would enable them to do so. Baylin and Hughes's approach was to use the same therapeutic interventions (playfulness, acceptance, curiosity, empathy) that they used when engaging children, providing the parents with a safe space where they could express their own needs for connection. They reasoned that, if they wanted parents to provide for their child, they needed to provide first for the parents. This is consistent with the notion of 'parallel processes' used in the infant mental health field (Moore, 2006).

The practice of increasingly early discharge from hospital following birth has threatened the successful adjustment of parents to their new parenting role. To support such parents more effectively, one study (Zadorosnyi, 2007) trialled the

provision of postnatal home support worker in a geographically defined catchment area of a metropolitan hospital in South Australia. In line with other research, this study highlighted the importance of rest and the value of practical physical, social and emotional care and support in the home in the postnatal period to maternal well-being, successful bonding and transition to motherhood.

Early skin-to-skin contact (also known as kangaroo care) has been identified as a strategy to promote maternal bonding. It involves placing the naked baby prone on the mother's bare chest at birth or soon afterwards. There is evidence that, when healthy newborn infants are provided with such skin-to-skin contact and allowed to rest, they display an inborn sequential behavioural pattern during the first hours following birth (Kennell & Klaus, 1998; Widstrom, 2011).

In a study by Widstrom et al. (2011), full-term infants were videotaped immediately after birth, and nine distinct phases in the infant behaviours were identified. When birth crying had stopped, the babies showed a short period of relaxation and then successively became alert. They went through an 'awakening phase', an 'active phase' with movements of limbs, rooting activity and looking at the mother's face, a 'crawling phase' with soliciting sounds, a 'familiarisation phase' with licking of the areola, and a 'suckling phase' and last a 'sleeping phase'.

Finding the mother's breast and beginning suckling occurs within an hour of birth. The newly born infant also massages the mother's breasts in preparation for the first feed. The massage-like movements are followed by increased maternal oxytocin levels and are, among other things, suggested to be significant for mother–infant interaction. Apart from eliciting the infant's sequential behaviour, skin-to-skin contact has been found to be the best natural way to keep the infant warm after birth. Thus, although inborn breastfeeding reflexes were depressed at birth, possibly because of a depressed sensory system, it seems that when the infant is given the option to peacefully go through the nine behavioural phases when skin-to-skin with its mother, this results in early optimal self-regulation.

The effect of skin-to-skin contact on self-regulation in preterm infants has been evaluated in several studies. In these studies, the preterm infant has repetitively been put skin-to-skin with its mother during the neonatal period and found to improve self-regulation. Widstrom et al. hypothesize that the full-term healthy infant when skin-to-skin with its mother immediately after birth optimises its ability to reach self-regulation within the first period of wakefulness when going through the inborn biological program to find the mother's breast.

Based upon these findings and conclusions, Widstrom et al. make the following recommendations:

- The baby should stay skin-to-skin with its mother the first hours after birth, and delivery ward routines should be designed so as to not disturb the

infant's self-regulation process, first suckling and maternal–infant attachment behaviours.

- As the infant seems to be depending on olfactory cues, the staff must avoid washing the mother's breasts and also postpone the baby's bathing and weighing.
- Meperidine should not be administered to the mother as a standard clinical routine as it delays the infants' natural behavioural sequence
- Care must be taken to ensure that airways remain free.
- All healthy infants should remain with their mothers from birth throughout the maternity stay to further facilitate breastfeeding and attachment.

Winberg (2005) reviews work demonstrating that interactions between mother and newborn infant in the period just after birth influence the physiology and behaviour of both mother and infant. Close body contact of the infant with his/her mother helps regulate the newborn's temperature, energy conservation, acid-base balance, adjustment of respiration, crying, and nursing behaviours. Similarly, the baby may stimulate the mother's attention to his/her needs, the initiation and maintenance of breastfeeding, and the efficiency of her energy economy through vagus activation and a surge of gastrointestinal tract hormone release resulting in better exploitation of ingested calories. The effects of some of these changes can be detected months later.

However, Winberg asks if this early body contact is of any clinical importance in humans. The body intimacy following birth makes most new mothers and babies comfortable, but whether its deprivation— as often occurs in modern hospitalized deliveries— has any long term, negative effects is so far unknown.

Moore et al. (2012) have conducted a Cochrane review of studies of skin-to-skin contact and conclude that, despite the limitations of the research methodologies, the intervention appears to have positive effects on breastfeeding outcomes, promotes cardio-respiratory stability in the infant, reduces infant crying, and has no apparent short- or long-term negative effects. It also appears to promote maternal attachment behaviours: despite the variability in dose and timing of the intervention in the studies reviewed, there is at least a small effect on several dimensions of maternal neurobehaviour in relation to her infant. There were no such benefits evident in any study from infants being separated.

A related intervention is ***kangaroo mother care***, the main component of which is skin-to-skin contact between a mother and her newborn, but also includes frequent and exclusive or nearly exclusive breastfeeding, and early discharge from hospital (Tessier et al., 1998). A Cochrane review of the use of this strategy with low birthweight infants (Conde-Agudelo et al., 2011) concluded that the evidence

supported its use with such children as an alternative to conventional neonatal care in resource-limited settings. Compared with conventional neonatal care, kangaroo mother care was found to reduce mortality, severe infections and illnesses, lower respiratory tract disease, and length of hospital stay. It also resulted in increased weight, head circumference, and length gain, breastfeeding, mother satisfaction with method of infant care, some measures of maternal-infant attachment, and home environment.

Other reviews of this approach suggest that it has physiological benefits for the infant (Ludington-Hoe, 2011) and psychosocial benefits for both mother and infant (including reduced stress, enhancement of mother-infant bonding, and positive effects on the family environment and the infant's cognitive development (Charpak et al., 2005). Effective ways of training in the implementation of kangaroo mother care have been identified by Bergh et al. (2012).

Measuring maternal bonding

If promoting maternal bonding can be shown to contribute to improved developmental outcomes, then it would be useful to be able to measure it. According to Altaweli and Roberts (2010), various approaches have been used in the measurement of bonding and these include the use of structured interviews (Zeitlin et al., 1999; Brockington et al., 2001), self-completed questionnaires (Brockington et al., 2001) and self-rating instruments (Brockington et al., 2001, 2006; Taylor et al., 2005). The number of available instruments is, however, limited.

- *Prenatal Attachment Inventory* (Siddiqui & Hagglof, 2000). This self-administered questionnaire has been used to measure expectant mothers' prenatal attachment towards their unborn baby during the third trimester of pregnancy. Siddiqui and Hagglof suggest that this questionnaire could help identify women for whom the mother-child interaction is likely to be less than optimal.

Wittkowski et al. (2007) reported on two self-rating instruments that have been developed to assess maternal bonding and that demonstrate acceptable reliability and reasonable validity:

- *Mother-to-Infant Bonding Scale (MIB)* (Taylor et al., 2005). According to the developers, this eight-item questionnaire is acceptable for use with mothers and gives significant correlations with their early mood.

- *Postpartum Bonding Questionnaire (PBQ)* (Brockington et al., 2001, 2006). The developers suggest that this 25-item screening tool can be used, with the Edinburgh Postnatal Depression Scale, by midwives and health visitors, for the early diagnosis of mother-infant bonding disorders.

Conclusions

Perhaps because of the excessive claims about its developmental importance, the notion of maternal bonding seems to have fallen into disrepute, or at least conceptual confusion. However, although the mother's thoughts and feeling towards her child cannot be irrelevant to the course of the relationship and hence to the development of the child, the exact nature and strength of the links between maternal bonding, maternal behaviours, and child development are unclear. Therefore, although there is some evidence that maternal bonding can be promoted through strategies such as kangaroo mother care, the value of doing this is uncertain. (These strategies may, of course, have other benefits that make them valuable.)

Nevertheless, this may not be a problem: while maternal bonding may be desirable, it may be an outcome that is best approached indirectly rather than directly. That is, rather than being a necessary *precursor* to positive relationships with the infant, maternal bonding (ie. positive feeling towards and a sense of being connected to the infant) may be as much an *outcome* of such relationships.

If that is the case, then maternal bonding is best approached through strategies that promote positive infant-mother relationships. Such strategies are described in the next section.

7. Promoting child attachment

Background

The term attachment is a problematic one. Although there is a large body of experimental and practice literature devoted to the study of attachment, both the underlying theory and the interpretation of the evidence are contested (Kagan, 2011, 2012; Sroufe & Siegel, 2011; Vaughn & Shin, 2011; Wylie & Turner, 2011).

The weight of evidence, however, suggests that attachment is an inborn neurobiological system that motivates infants to seek proximity to primary caregivers and establish communication with them (Cozolino, 2006; Dozier & Bernard, 2009; Siegel, 2012; Zeanah & Smyke, 2009). This is a dynamic, bidirectional process that involves both the infant and caregiver (Cozolino, 2006, 2010; Landy, 2009; Sullivan et al., 2011). Just as infants are biologically programmed to seek contact with caregivers, the caregivers themselves are primed to reciprocate:

> 'Giving birth and exposure to children changes the brains of parents and caretakers in ways that support bonding, attachment, and nurturance' (Cozolino, 2010).

One of the problems in reaching consensus regarding the nature and function of attachment is gaining agreement as to what it is. The term attachment is sometimes used to refer to the attachment relationship between a caregiver and child, and sometimes to designate a hypothetical internalised state or mental model of relationships in the infant/child (or adult) that is the product of those attachment relationships. Internalised models are thought to arise from repeated experiences of interactions with caregivers (Benoit, 2004; Dozier & Bernard, 2009). Usually becoming apparent at around 8 months of age, these working models of relationships are thought to guide the developing child's subsequent relationships, and to become stable features of the child's social behaviour, with long-term consequences for social development and mental health (Sroufe & Siegel, 2011; Siegel, 2012).

Whatever the mechanism, there is considerable evidence that the quality of children's early attachment relationships are linked with socioemotional functioning in close relationships, peer, and educational contexts throughout development (Benoit, 2004; Egeland, 2009; Grossman et al., 2005; Juffer et al., 2008; Moss et al., 2011; Sroufe & Siegel, 2011).

Attachment relationships have been classified as secure, insecure, ambivalent, and disorganised (Landy, 2009; Siegel, 2012). The first three main types of attachment are adaptive to the child's first relationships and circumstances, although insecure and disorganized forms of attachment may not continue to be adaptive as the child's social relationships widen.

These attachment patterns affect infant and child development in a variety of domains and across several developmental periods: there is substantial evidence that children with secure attachments in childhood develop more positive social-emotional competence, cognitive functioning, physical health and mental health, whereas children with insecure attachments are more at risk for negative outcomes in these domains (Ranson & Urichuk, 2008). However, only the relatively rare fourth form of attachment – disorganised attachment – carries high risks of later relational and mental health problems (Bernier & Meins, 2008; Dozier & Bernard, 2009).

Although early formulations of attachment theory predicted that a person's attachment classification would remain stable over the course of their lifetime, the evidence suggests that early attachment behaviours are not necessarily permanent – they can change over time, for better or worse, as caregiving circumstances change and as new caregiving relationships are formed (Cozolino, 2002, 2006, Landy, 2009). Changes in attachment relationships are most likely to occur in high risk situations, where less than half may stay in the same attachment classification over time (Landy, 2009).

Nearly all infants form attachments, and usually do so with a small number of primary caregivers – not exclusively or primarily with the mother (Zeanah & Smyke, 2009). Children form a hierarchy of attachments with any caregiver who provides regular physical and/or emotional care, regardless of the quality of that care (Benoit, 2004). In fact, in the absence of more caring alternatives, children develop attachment relationships even with the most neglectful and abusive caregiver (Benoit, 2004).

A key function of a secure attachment between a child and caregiver is that it makes the child feel safe, secure and protected (Siegel, 2012; Sullivan et al., 2011). Thus, attachment can be distinguished from other key parenting roles by its purpose – the purpose of attachment is not to play with or entertain the child, feed the child, set limits for the child, or teach the child new skills. Instead, its purpose is to provide the child with a secure base from which to explore and, when necessary, to return to as a haven of safety and a source of comfort (Benoit, 2004). The attachment relationship also serves as the medium through which infants learn to be able to regulate their emotions and impulses (Cozolino, 2010; Schore, 2012; Schore & Schore, 2012; Siegel, 2012).

Although infants are biologically primed to interact with caregivers from birth, the capacity to form attachments is not present at birth but develops gradually over the first year of life (Landy, 2009; Zeanah & Smyke, 2009). After about 2 months, infants become dramatically more social, but still do not express a preference for one caregiver over another. Attachment behaviours emerge clearly at 7-8 months when the infant's earlier indiscriminate responsiveness to others becomes much more selective, and they begin to exhibit stranger wariness and separation protest (Zeanah et al., 2011).

Elements or qualities of attachment

A central tenet of attachment theory is that the quality of the attachment relationship is dependent on the sensitivity of the caregiver's responsiveness to the needs of the offspring (De Wolff & van Ijzendoorn 1997; Flores et al., 2008; Leavitt, 1999; Moss et al., 2011; Schore & Schore, 2012). Sensitive caregivers both accurately perceive children's emotional signals that govern their proximity-seeking behaviour, and respond in an appropriate and contingent manner (Juffer et al., 2008; Moss et al., 2011; Schore & Schore, 2012). Extreme parental insensitivity, frightened/frightening behaviour, and atypical caregiving have been linked to the development of disorganised attachment in infants and pre-schoolers (Moss et al., 2011).

Five qualities of parental behaviour appear to support the development of a secure parent–child attachment: *sensitivity, responsiveness, warmth and affection, consistency*, and *autonomy-promotion* (Marty et al., 2005). A parent capable of providing security-inducing, sensitive, responsive care who understands the child's individual attributes, accepts the child's behavioural processing and is thus capable of orchestrating harmonious interactions between self and infant on a relatively consistent basis promotes secure attachments (Marty et al., 2005).

These five characteristics have been grouped under general constructs such as emotional availability, parental responsivity, and maternal insightfulness, and used as the basis for interventions to promote positive parent-infant interventions. Different groups of researchers have linked these five characteristics together under the general constructs such as *emotional availability* (Biringen, 2000; Biringen & Easterbrooks, 2012; Biringen & Robinson, 1991), *parental responsivity* (Landry et al., 2006; Spiker et al., 2002), and *maternal insightfulness* (Koren-Karie etal., 2002; Oppenheim et al., 2008).

Responsive parenting involves repeated patterns of engagement and disengagement between parent and infant. This collaborative process is crucial for the development of emotional self-regulation.

Parents may have difficulty providing the sensitive, responsive, affective attunement and comforting responses that infants need in order to become securely attached. This can be for a number of reasons: lack of parenting experience, knowledge or confidence; a child's difficult temperament; significant life stresses or lack of support; parental mental health difficulties; or unresolved issues from their own experiences of being parented (Landy & Menna, 2006).

General evidence regarding effective ways of promoting attachment

Because of the different interpretations of the nature of attachment, programs that share the goal of enhancing attachment may differ in their focus, in their intervention strategy, and in the populations targeted. There is disagreement among experts in the area regarding the nature of what is needed.

The strongest predictor of infant attachment is parental state of mind with regard to attachment (Dozier & Bernard, 2009). Given this association between parental state of mind and infant attachment, some interventions target parent state of mind as a means of changing infant attachment, while others attempt to change parental behaviours without targeting parental state of mind (Dozier & Bernard, 2009). In particular, a number of interventions have attempted to enhance caregiver sensitivity. Caregiver sensitivity has not been linked as strongly with attachment quality as has state of mind (van Ijzendoorn, 1995), but sensitivity seems the most likely mechanism by which caregiving qualities are transmitted to children (Dozier & Bernard, 2009). In fact, interventions that have targeted sensitivity have been found to be more effective in enhancing attachment security than interventions targeting other issues (such as parental state of mind) (Bakermans-Kranenburg et al., 2003).

This evidence suggests that the best approach to promoting attachment is not to focus on attachment itself (which is difficult to target because of it consists of the internalised states of the parent and child), but to focus instead on parental responsiveness (which consists of observable behaviour and is easier to address). The assumption is that responsive parenting will lead to secure attachments.

In the following section, the evidence for strategies that seek to promote parental responsiveness is reviewed. A number of approaches are explored, with the main focus being on programs that seek to promote parenting and the use of video feedback as a tool for achieving this.

Evidence-based strategies for promoting parental responsivity

A number of training programs seek to promote child-caregiver attachment by focusing on establishing a highly responsive parenting style, either as the prime focus or as a component of an overall early intervention approach that may also include other components. There is good evidence that these training programs can lead to enhanced parent responsivity (Bakermans-Kranenburg et al., 2003, 2005; Benoit, 2009), although an exclusive focus on improving caregiver sensitivity may be neither sufficient nor effective in preventing or reducing disorganised attachment, which is the most damaging form of insecure attachment (Benoit, 2009).

Another major focus of interventions has been to ensure that the parent provides the child with a safe and predictable base from which to explore the world and to which the child can return for comfort when stressed (Dozier & Bernard, 2009).

Programs that involve direct work with parents of young children and that seek to promotes parental responsivity and child attachment security include the following:

- *Parents under Pressure (PuP) Program* (Harnett, Dawe & Rendalls, 2005)
- *The STEEP Program* (Egeland & Erickson, 2004)
- *Marte Meo Developmental Support Programme* (Aarts, 2008)

- *The Promoting First Relationships Curriculum* (Kelly et al., 2008)
- *Partners in Parenting Education (PIPE)* (Dolezol and Butterfield, 1994)
- *Mediational Intervention for Sensitizing Caregivers (MISC)* (Klein, 2000, 2006)
- *Developmental Parenting* (Roggman, Boyce and Innocenti, 2008)
- *The Mother-Infant Transaction Program* (Rauh et al., 1990)
- *The Circle of Security* (Hoffman, Marvin, Cooper and Powell, 2006)
- *Attachment and Biobehavioral Catch-up (ABC)* (Dozier et al., 2005)
- *The UCLA Family Development Project* (Heinicke et al., 1999)
- *It Takes Two to Talk: The Hanen Program for Parents* (Girolametto & Weitzman, 2006)
- *Play and Learning Strategies (PALS)* (Landry, Smith and Swank, 2006)
- *Mothers and Toddlers Program* (Suchman et al., 2009, 2010, 2011, 2012).
- *Watch, Wait and Wonder* (Muir et al., 2000)
- *The Nursing Child Assessment Satellite Training (NCAST) Approach* (Barnard et al., 1983; Sumner & Spietz, 1994) (www.ncast.org)
- *Newborn Behavioural Observations (NBO) System* (Nugent et al., 2007)
- *Sunderland Infant Program* (Svanberg, 2009; Svanberg et al., 2010)
- *Coaching the Interaction* (van den Boom, 1994, 1995)
- *Programme en intervention relationnelle* (Larin et al., 2006)
- *Make the Connection Parenting Programs* (www.firstthreeyears.org).

(A detailed review of these programs is provided in Appendix A.)

All of these programs have some evidence to support their effectiveness, a few have a reasonable body of evidence and one or two have been extensively studied (eg. the NCAST approach). However, for right@home purposes, there are several problems with these programs.

First, few of them have been widely adopted and therefore most of the evidence comes from studies conducted by the developers.

Second, many of these programs have been developed by and are meant to be delivered by infant mental health specialists. Their use by home visiting nurses has not been trialled.

Third, a number of them require special training and, in some cases, certification, making them an expensive proposition.

Although no program met all the required criteria and therefore could be recommended unreservedly, two programs were recommended as being compatible with right@home principles, having some evidence of effectiveness, and being readily available for use in Australia.

- *Promoting First Relationships Curriculum* (Kelly et al., 2008)
- *Developmental Parenting* (Roggman et al., 2008).

Also worth considering or further discussion with those who have used the program locally:

- *Mother-Infant Transaction Program* (Rauh et al., 1990)
- *Marte Meo Developmental Support Program* (Aarts, 2008).

Video feedback models

There are a number of intervention models that incorporate video feedback in working with parent-infant relationships. Because of technological limitations, earlier models tended to be clinic-based rather than home-based and reserved for use with parents with severe relationship problems. The development of more portable and more sophisticated videoing technologies has greatly expanded the possible uses of video feedback, including its use within home-visiting programs for vulnerable families.

Video feedback interventions have proved effective in promoting parental sensitivity and responsivity and, to a lesser extent, in promoting attachment security. However, there are no published studies that show how new technologies could be incorporated into a regular home-visiting program.

Video feedback techniques that were identified include the following:

- *Interaction Guidance* (McDonough, 1993, 2000, 2004)
- *Modified Interaction Guidance* (Benoit, 2001-02)
- *Video Interaction Project* (Mendelsohn et al., 2005, 2007, 2011)
- *Marte Meo Developmental Support Programme* (Aarts, 2008)

- *Video-feedback to Promote Positive Parenting* (VIPP) (Klein Velderman et al., 2006; Groeneveld et al., 2011)
- *Video Interaction Guidance* (Kennedy, Landor and Todd, 2011)
- *Seeing is Believing* (Erickson et al., 1999).

Of these, one video-based intervention stood out as having all the right qualities for right@home, a good body of evidence to support its efficacy, and protocols that are accessible and relatively easy to integrate into a home visiting program:

> *Video-feedback to Promote Positive Parenting* (VIPP) (Klein Velderman et al., 2006; Groeneveld et al., 2011)

(A detailed review of the evidence for these video feedback techniques can be found in Appendix A.)

Infant carrying

It has been hypothesised that increased physical contact between infant and mother would promote greater maternal responsiveness and more secure attachment between them (Anisfield et al., 1990). A comparison of mothers of newborn infants given soft baby carriers (more physical contact) with those given infant seats (less contact) found that the first group were more contingently responsive to their infants' vocalisations, and that their infants were more securely attached to their mothers at 1 year old (Anisfield et al., 1990).

Recommendation: With only one study to support it, the evidence for this form of intervention is not sufficiently strong to recommend for right@home purposes.

Infant massage

According to Underdown (2009), baby massage is a frequently used technique to encourage infant-parent attachment and promote good mental health in both parents and babies. A Cochrane review of the impact of infant massage on mental and physical outcomes for healthy infants in the first six months of life (Underdown et al., 2006) found that infant massage has no effect on growth, but can improve mother-infant interaction, sleep and relaxation, reduce crying, and have a beneficial impact on a number of physiological processes. However, there is no evidence of any impact on infant attachment, temperament, psychomotor or mental development. These results provide tentative evidence to support current practice with regard to the teaching of infant massage in the community during the first six months of life, but fall short of the evidence needed to recommend universal provision (Underdown et al., 2006).

Recommendation: While this form of intervention appears to have some benefits, the evidence is not yet strong enough to suggest that it should be universally adopted.

Conclusions

In general, for the purposes of a home visiting service, it seems best to focus on promoting responsive developmental caregiving rather than trying to promote attachment feelings or thoughts in either the mother or the child. While there are strategies that seek to address parental attachment models and attributions directly, these are specialised strategies that may be best left to mental health specialists. Moreover, changes in mother's thoughts and feeling towards her child may be best achieved as an indirect outcome of improved relationships with the child.

Both responsive parenting programs and video-feedback strategies have been shown to be effective in promoting responsive parenting. The review identified two responsive parenting programs and one video-feedback strategy that could be incorporated into the right@home program.

In addition, there are a number of flexible models for working with vulnerable families that might service as models for the current project. These include:

- Dishion and Stormshak (2007). *Intervening in Children's Lives: An Ecological, Family-Centered Approach to Mental Health Care*.
- Dishion, Stormshak and Kavanagh (2011). *Everyday parenting: A professional's guide to building family management skills.*
- Landy and Menna (2006). *Early Intervention with Multi-Risk Families: An Integrative Approach.*
- Roggman, Boyce and Innocenti (2008). *Developmental Parenting: A Guide for Early Childhood Practitioners.*

8. Managing crying and separation issues

CRYING

Excessive crying and unsettled behaviour in the first few months of life are common, with up to 20% of parents reporting these problems in their infants (Douglas & Hiscock, 2006; Hiscock & Jordan, 2004). Crying usually peaks at 6 weeks and abates by 12–16 weeks (Barr, 2006; Hiscock & Jordan, 2004; St. James Roberts & Peachey, 2011).

According to Barr (2006), there are six properties of crying that have been shown to be typical of, and probably unique to, the first months of life in otherwise normal infants:

- The overall amount of crying per day (fussing, crying and inconsolable crying combined) tends to increase week by week, peaking some time during the second month, and then receding to more stable and lower levels by the fourth or fifth month of age.
- Many of the crying bouts are unexpected and unpredictable, starting and stopping for no apparent reason, unrelated to feeding or wet nappies, and unrelated to anything that is going on in the environment.
- These crying bouts are resistant to soothing, or inconsolable.
- The infant appears to be in pain, even when it is not.
- The crying bouts are longer at this age than at any other time, lasting 35 to 40 minutes on average, and sometimes lasting one to two hours.
- The crying tends to cluster in the late afternoon and evening.
- Each of these properties separately, but especially all together, can be remarkably frustrating for any caregiver.

In a minority of families, excessive crying is linked with more long term and serious problems, such as maternal depression, parenting stress, and subsequent child behaviour problems (Douglas & Hill, 2011; Wake et al., 2006). Child abuse is also a potential outcome (Reijneveld et al., 2004).

Causes

St. James Roberts and Peachey (2011) distinguish between two kinds of crying: the prolonged crying that peaks at 5–6 weeks and is gone by 12 weeks (when most infants become settled at night), and crying associated with sleep-waking problems beyond the age of 12 weeks. There is evidence that these have different causes, and that infant sleep-waking problems usually involve maintenance of signalling

behaviours rather than a generalised disturbance.

For most irritable infants, there is no underlying medical cause for their crying (Hiscock & Jordan, 2004). In a minority of cases (about 5%), the cause is cow's milk and other food allergy, although gastro-oesophageal reflux disease, food allergies and lactose intolerance are often mistakenly diagnosed in unsettled babies (Douglas & Hiscock, 2010). Only if frequent vomiting (about five times a day) occurs is gastro-oesophageal reflux a likely cause (Douglas & Hiscock, 2010). Failure to diagnose correctable problems such as breastfeeding difficulty and cows milk allergy risks entrenching anxiety and disrupted mother–infant interactions in the long term (Douglas & Hiscock, 2010).

Responsive parenting and even moderate levels of physical contact from birth are associated with reduced crying (Douglas & Hill, 2011). According to Benoit (2004), during the first six months of life, promptly picking up a baby who is crying is associated with four major outcomes by the end of the first year of life. First, the baby cries less. Second, the baby has learned to self-soothe. Third, if the baby needs the caregiver to soothe him/her, the baby will respond more promptly. And finally, the caregiver who responded promptly and warmly most of the time (not all the time; nobody can respond ideally all of the time) to the baby's cries, will have created secure, organised attachment with all of the associated benefits.

Management

The causes of infant prolonged crying are multifaceted, and difficulty in controlling for interacting and coevolving variables may explain why well-conducted randomised controlled trials have not been effective (Douglas & Hill, 2011). Two such trials involved well-known programs: the *Period of PURPLE Crying* (Barr et al., 2009) and *The Happiest Baby* (McRury & Zolotar, 2010).

Barr et al. (2009) conducted a randomised controlled trial of the effectiveness of parent educational materials (*The Period of PURPLE Crying*) in changing mothers' knowledge and behaviour relevant to infant shaking. Although the study found that the use of the PURPLE education materials seem to lead to greater knowledge about early infant crying and the dangers of shaking, it did not lead to any significant differences in their actual responses to crying generally or to unsoothable crying.

McRury and Zolotor (2010) conducted a randomised, controlled trial of a behavioural intervention to reduce crying among infants. This was *The Happiest Baby* method, based on the hypothesis that actions mimicking conditions in the womb will trigger a calming reflex. Mothers of newborn infants were shown a videotape with instructions involving swaddling and the other techniques involved. A comparison group was shown a videotape with instructions for normal newborn care. The results indicated that the behavioural intervention, when provided via videotape, did not decrease total crying among normal infants, nor did it reduce parental stress levels.

Hiscock and Jordan (2004) recommend early intervention with an individually tailored mother and family-centred approach, after assessing for feeding difficulty and postnatal mental health problems and excluding underlying disease, including cow's milk allergy. A pilot study of brief paediatric intervention incorporating some of these elements (Smart & Hiscock, 2007) found that it resulted in fewer parents reporting that their infant's behaviour was still a problem, and reduced levels of depression in both mothers and fathers. Most parents rated exclusion of medical causes and information about normal sleeping/crying as useful. The study suggests that an intervention/prevention approach to infant behaviour problems should include fathers and contain information about normal infant sleeping and crying patterns and exclusion of medical causes (Smart & Hiscock, 2007).

According to Douglas and Hiscock (2010), parents of new babies complain of difficulty accessing appropriate care and receiving conflicting advice regarding management of crying. Advice on management of infants who cry excessively has been provided by Hiscock and Jordan (2004) and Douglas and Hill (2011).

Hiscock and Jordan (2004) stress the importance of assessing the mother–infant relationship and maternal fatigue, anxiety and depression. Management of excessive crying includes:

- explaining babies' normal crying and sleeping patterns
- helping parents help their baby deal with discomfort and distress through a baby-centred approach
- helping parents recognise when their baby is tired and apply a consistent approach to settling their baby
- encouraging parents to accept help from friends and family, and to simplify household tasks.

If parents are unable to manage their baby's crying, admission to a parenting centre (day stay or overnight stay) or local hospital should be arranged.

SEPARATION

Young children's response to separation from their parents can be problematic for both the parent and child. Separation usually takes the form of another caregiver or early childhood service provider caring for the young child while the parent works or is otherwise occupied.

Developmental patterns and incidence

Separation issues do not arise until children are 7-9 months old, when the child begins to discriminate clearly between care provided by attachment figures and that provided by less familiar others. Infants who did not previously protest when

separated from the parent may now cry when the parent leaves the room or when they are left with an unfamiliar person. Such behaviour reaches its peak in babies aged 14-18 months and typically decreases throughout early childhood. These anxieties are thus a normal part of development.

However, a small percentage of children may continue to be particularly and regularly distressed when separating, and develop separation anxiety disorder. About 3-4% of preschoolers and school-age children have been found to show this pattern of behaviour (Lavigne et al., 2009; Schniering et al., 2000). Methods of treatment for separation anxiety disorders are discussed by Rapee et al., (2009).

Children's responses to separations have been used to assess their attachment security. However, it is not how much the child cries when separated from the mother that indicates attachment security, but how the child behaves when reunited:

> While some babies are 'thoroughly distressed' by separation, their relationship with the caretaker will be classified as secure if, despite their distress, they effectively seek contact upon reunion and are comforted by it, later returning to play. Among those who cry at separation, it's only those who fail to be comforted on reunion (either being passive or angrily resisting attempts at comfort) who are classified as having insecure or anxious/resistant attachment. Conversely, it isn't the case that infants who don't cry at separation are all in relationships classified as insecure. Babies who show no separation distress, but actively greet and initiate interaction with the caregiver upon reunion are classified as having secure relationships. Only non-distressed infants who ignore or otherwise actively avoid parents upon reunion (demonstrating avoidant attachment) are considered insecurely attached (Sroufe & Siegel, 2011).

Attachment theory suggests that children's attachment insecurity plays a key role in the development of anxiety. A meta-analysis of studies of this relationship (Colonnesi et al., 2011) found that attachment is moderately related to anxiety, with ambivalent attachment being most strongly associated. The relationship between attachment and anxiety was stronger in adolescence rather than in early childhood.

Management

Despite the universal nature of the experience of separation, there appears to be few studies that directly address the management of separation issues.

There have been a number of studies of how parents and children manage the separation involved when the children are 'handed over' to an early childhood service (Field et al., 1984; Jovanovic, 2011; Klein et al., 2010). A study by Field et al. (1984) found that distress behaviours during the parents' departures were most frequently shown by toddlers, and the toddlers' parents hovered about them and

'sneaked out of the room' more frequently than with younger or older children. Parent behaviours such as giving verbal explanations, distracting the child, taking too long to leave, and 'sneaking out of the room' were correlated with greater distress on the part of the children, and leave-taking distress was in turn related to more ambivalent behaviour when child and parent were reunited.

Another observational study (Klein et al., 2010) confirmed that both seeking 'a quick escape' when the child was distracted and 'staying too long' in the room led to more distress and anxiety in the infant. Staying too long was especially disturbing when mothers continued to converse with the caregivers after having kissed their infant or toddler goodbye and thus having completed the 'separation ceremony'. Despite variability in the separation process due to child, parent and caregiver variables, certain 'separation ceremony' patterns or rituals emerged over time, and these appeared to help both mothers and infants through the difficult experiences of separation. If the caregiver tried to take the child before the ritual had been completed and the mother was ready, the process of separation became more problematic (Klein et al., 2010).

These studies show that infants' and toddlers' daily separations from their mothers are a complex process involving mother–child, mother–child–caregiver, mother–caregiver and child–caregiver patterns of interaction. In seeking to manage separations smoothly, Klein et al. (2010) suggest that infants should not start alternative care arrangements when there are any other dramatic events in the children's lives (such as toilet training, birth of a sibling, divorce, or moving to another home).

Advice for parents on how to manage separations smoothly is readily available on parenting websites (eg. Raising Children Network, Child and Youth Health[15]).

There are also recommended practices for how early caregivers can help parents manage handovers painlessly (eg. Gonzalez-Mena, 2004). However, there do not appear to be any randomised controlled trials of ways to address separation problems.

In the light of these findings, it would seem that the most appropriate way of managing separation issues is by addressing mother-child attachments through responsive parenting interventions, as discussed in the previous section on attachment. The evidence indicates that warm, affective, sensitive and responsive mothering provides the basis for secure mother–child attachment and is associated

[15] See <http://www.raisingchildren.net.au/articles/separation_anxiety.html/context/732>, and <http://www.cyh.com/HealthTopics/HealthTopicDetails.aspx?p=114&np=141&id=184>

with fewer expressions of separation anxiety, better relations to another caregiver and more engagement in exploration and play. Thus, promoting responsive parenting would seem to be the most effective way of limiting and managing separation problems.

Conclusions

Crying and separation issues were both identified as problems that parents commonly face. However, a review of the literature has shown that both follow normal developmental patterns, and can often be addressed by providing the parent with information about these patterns. In addition, promoting responsive parenting seems to be a key strategy for reducing both crying and separation problems. The responsive parenting programs strategies identified earlier in this review can play a major role in helping parents manage these two common issues.

Part C: Home learning environment

9. Providing appropriate social opportunities

Background

> *"Unsupported women... express [an] existential dilemma of bringing forth a new life into the world and having no one who care{s} about it"* (Norbeck et al., 1996, p. 953).

Social support is a critical aspect of child and family wellbeing. Social opportunities facilitate social support. The concept of social support is defined in various ways however DePanfilis et al. (1996) define it as: "social relationships that result in beneficial emotional or behavioural effects for one or more family members" (p. 38). DePanfilis et al. (1996) summarise the functions of social support as:

- emotional support (e.g. caring, love, empathy)
- instrumental or tangible support (e.g. material aid)
- cognitive aid (e.g. information, guidance)
- appraisal support (i.e. information relevant to self-evaluation)
- social companionship.

Social capital, related to social support and defined as the "features of social organization such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit" (Putnam, 1995, p. 67), is associated with:

- improved health
- greater well-being (self-report)
- better care for children
- lower crime rates
- better-quality government (OECD, 2001).

In the absence of social support and social capital, people face social isolation. The above quote from Norbeck et al. (1996) describes the experiences of pregnant African American women who lack social support during pregnancy and highlights the less tangible but profound impacts of social isolation. In fact, there is a strong body of evidence demonstrating the negative effects of social isolation on children, parents and families. Most significantly, evidence demonstrates an association between social isolation and child abuse and neglect (Wandersman & Nation, 1998;

Bishop & Leadbeater, 1999; Coohey, 1999; Coohey & Braun, 1997; DePanfilis & Zuravin, 1999; Gracia & Musitu, 2003).

Other research demonstrates that mothers who are socially isolated have an increased risk of developing depressive symptoms (Mulvaney & Kendrick, 2005). Social isolation amongst pregnant single mothers and socially isolated mothers has also been associated with low birth weight (Muhajarine & Vu, 2009; Norbeck et al., 1996).

When parents are socially isolated they miss out on support and information, both of which are critical to help them manage their role as parents, as Fegan and Bowes (1999) point out:

> "All families, including those living in urban areas, need access to information that helps them gain a realistic understanding of their child's development and of the possible impact of developmental changes on family life. Families living in isolated circumstances ... are often deprived of incidental encounters with other children and other parents within the local neighbourhood, encounters that can provide such information, reduce the intensity of uncertainty and alleviate parental anxiety" (p. 122).

Social support is also correlated with confidence in providing infant care (Ruchala et al., 1997).

Social isolation can result from a number of factors including:

- geographic isolation (eg living in rural and remote areas);
- physical isolation (eg cut off from the local neighbourhood by a six-lane highway);
- poor health, disability or special needs;
- cultural isolation – (eg not being able to speak the language);
- social isolation (eg being new to an area and not knowing anyone);
- lack of money to reciprocate hospitality;
- lack of education;
- lack of transport (Fegan & Bowes, 1999).

Not surprisingly, the level of social support needed will depend upon the needs of the family. Research undertaken in the UK demonstrates that the support needs of mothers are associated with the severity of their child's problems – the more severe the child's problems the greater the support needs (Sheppard et al., 2004).

Adolescent mothers are at particular risk of social isolation as they often lose social support after they become mothers, exactly at the time when they are in the greatest need of that support (Sadler et al., 2007).

Social connections are important for parents *and* children. Even very young children can benefit from interactions with peers (Holmes, 1993). Positive social ties between adults in a community also appear to have an indirect impact upon children's behaviour; with research demonstrating an association between these social ties and fewer child problem behaviours (Wilkenfeld et al., 2007).

Connections with community are also important for children. A sense of belonging to a community has been demonstrated to impact upon children's academic performance, pro-social development and wellbeing (Solomon, Battistich, Watson, Schaps, & Lewis, 2000).

Facilitating social opportunities for families is not always as straightforward as it sounds. Families may not only lack access to social support but also distrust available social support or lack the confidence or skills required to participate in the group-based social activities that provide social opportunities (DePanfilis, 1996). Some families may have a very large social network but still not be getting the support they need (Whittaker et al., 1991). Some parents may be experiencing stress as a result of the non-reciprocal nature of the relationships within their social network and may need assistance in managing that stress (e.g. assertiveness skills).

It is important to note also that social support does not always have a positive impact on child development. In some cases, families have social networks that reinforce behaviours and attitudes that are not conducive to healthy child development (Polansky et al., 1985; Whittaker et al., 1991). Moreover, for parents who are experiencing problems such as major depression, their peers may also be experiencing depression, which makes it difficult for them to provide the requisite support (Sheppard et al., 2004).

Whittaker et al. (1991) highlight the importance of individualising social network interventions to individual families' needs – for some families it will be important to enhance the size of their social networks, for others it will be more important to work on their existing social networks.

In the following discussion, the body of evidence pertaining to enhancing families' social opportunities is described. General recommendations regarding enhancing social support as part of the right@home program are described, followed by a number of recommended strategies. This is followed by some summary concluding points.

Evidence based strategies for enhancing social opportunities

DePanfilis et al. (1996) define a social support intervention as 'any intervention that at least partly addresses social isolation, loneliness or other deficits in the social

network of families' (p. 39).

Strategies for enhancing social opportunities include (DePanfilis et al., 1996):

- ***models for assessing social networks***: these models are used to assess quantity and quality of a family's connections with formal and informal supportive networks outside the family;
- ***multiservice interventions***: planning services to the specific needs of families that could include casework services, support groups, parent training, transportation etc.;
- ***individual social support***: intensive social contact with a volunteer or professional to help parents "expand and enrich" their social networks;
- ***parent support groups***: can serve multiple functions (e.g. emotional support, appraisal support), can be parent led or led by a professional and can include an educational component (e.g. problem solving, basic child care and skills);
- ***social skills training***: helps individuals to build their motivation and skills to access and benefit from supportive social relationships.

Although the first of these may be useful as part of the right@home program, using one of the models does not appear to, in and of itself, lead to an actual enhancement of social support for parents. These models are used to assess social networks and provide a starting point for discussing informal social support. Parents support groups are also not relevant to the right@home program as it involves individual relationships between professionals and parents.

Based upon the search undertaken for this particular project, the characteristics of the body of evidence regarding strategies for enhancing social opportunities are as follows:

- effective programs that seek to improve social opportunities or social support within the context of an individual professional-parent relationship appear to relate mostly to adult substance abuse and adult mental health;[16]
- most programs that have been evaluated and that seek to improve parents' social opportunities are group based programs;
- social support is used in some parenting programs as a way of improving infant-child interaction, parenting competence and confidence but is not a

[16] Most of these programs, furthermore, do not measure improvements in social support, rather social support is used as a means of investigating whether it improves substance abuse use or mental health.

> desired (nor measured) outcome in and of itself (see, for example, Ruchala & James, 1997; Drummond et al., 2008; Norbeck et al., 1996)

In summary, there are very few contemporary effective evidence-based strategies for improving parents' social opportunities within the context of an individual professional-parent relationship.

General recommendations

One general issue regarding enhancing social support emerged during the course of undertaking this review. It is summarised here for the purpose of 'general recommendations.'

Assessing social networks

Families may have many people in their social network, but it is important to assess the *meaningfulness* of that support. As Whittaker et al. (1991) notes, some families may have a very small social network but be receiving all the support they need, whereas other families may have a very large social network but receive little support.

Sheppard et al. (2004) examined the social support work carried out by social workers and concluded that social workers were not effective at targeting informal support towards parents' greatest needs.[17] In other words, they were not matching available informal supports to parents' greatest needs. Sheppard et al. (2004) argued that social workers needed to "develop a keener awareness of support deficits in order to target [support] better" (p. 958). Although assessing social networks in and of itself will not improve social networks, it is a necessary part of an effective intervention designed to improve social support for families (Whittaker et al., 1991).

Assessing the meaningfulness of a family's social network is especially important considering that in some situations only certain types or sources of support will be beneficial (Norbeck et al., 1996). As part of the assessment process, Whittaker et al. (1991) noted that it is important to consider both the positive and negative aspects of social networks. In their study of the Social Network Map (a tool for assessing social networks) they noted that:

> "The majority of respondents had one or more people in their network who were almost always critical of them. The proportion of critical network members was negatively related to emotional support. The findings suggest that interventions to decrease aversive interactions may be needed in

[17] This study focused upon depressed mothers (Sheppard et al., 2004).

conjunction with those designated to increase socially supportive behaviours" (Whittaker, 1991, p. 183).

A number of tools are available to assess social networks (e.g. see DePanfilis et al., 1996; Whittaker et al., 1991).

Recommended strategies

Amongst all the strategies identified for this project that sought to enhance social opportunities, the recommended strategies most strongly fulfil the following criteria:

- a strong evidence base;
- tested in the home environment;
- available for use as part of the right@home program;
- low/nil cost;
- brief.

Any risks or limitations of the following recommended strategies are identified.

Where viable alternatives to the strategies that most strongly fulfil the criteria were identified, these are listed in order of preference (i.e. from most to least recommended). Recommended alternatives did not fulfil the aforementioned criteria to the same degree as the recommended strategies, however they are the next most appropriate strategies for the right@home program.

1. Social support boosting intervention

This intervention involved the following strategies:

- caregiver and investigator together identify the caregiver's problems that are causing stress as well as network resources as a means of appraising of social support and enabling its mobilization
- caregivers set objective goals to facilitate caregiver problem solving
- investigator and caregiver identify potential formal and informal social support network resources for achieving caregiver goals and developed a plan for using social support network resources
- at monthly intervals, investigator and caregiver meet and the effectiveness of the plan is evaluated and revised as necessary
- problems, resources and plans for meeting goals, and the evaluation of the plan were all recorded using a structured flow sheet used to monitor the

intervention continuously (Hansell et al., 1998).

The extent to which this program fulfils the requirements of the right@home program is as follows:

- *evidence-base*: well-established (Hansell et al., 1998)
- *tested in the home environment*: it is not clear whether the intervention was delivered in the home environment.
- *available for use as part of right@home*: this intervention does not appear to require the use of specialised manuals, guides or equipment. The training requirements for those delivering the intervention are not specified.
- *low/nil cost*: as the intervention does not appear to require the use of specialised manuals, guides or equipment, there does not appear to be significant additional costs associated with this intervention.
- *brief*: the intervention is not brief. The intervention was delivered over 12 months, with monthly contact between the investigator and participant. Each contact lasted between 30 minutes and one hour depending upon the needs of the participant. However, the intervention appears to align with the general principles of the right@home intervention and, as such, may be able to be 'woven in' to the home visits.
- *risks/limitations:* the intervention was trialled with parents of children with HIV/AIDS and may not be as effective amongst parents involved in the right@home program.

2. Resource-enhancing discussions

The intervention involves 'resource-enhancing' nursing, whereby family members define themselves and their respective positions in the family and their community by means of life stories and identity stories (Häggman-Laitila et al., 2010). The family nurse's task is to facilitate the generation of new stories and related meanings.

The intervention is fairly intensive and also involved activities such as:

- video guidance;
- creation of a family tree;
- parents role map;
- network collaboration with close relatives of the family and authorities;
- observation of the family situation;

- parent-child group activity (Häggman-Laitila et al., 2010).

The 'McGill Model of Nursing' was used as a theoretical basis for the discussions. This is a nursing theory that is described in Gottlieb and Rowat (1987).

The extent to which this program fulfils the requirements of the right@home program is as follows:

- *evidence-base*: promising (two studies: Häggman-Laitila et al., 2010; Tanninen et al., 2010)
- *tested in the home environment*: the intervention was primarily delivered in the home
- *available for use as part of the right@home program*
- *low/nil cost*: As noted, the McGill Model of Nursing was used as a theoretical basis for the discussions. Further investigation is required to determine the costs associated with using this approach.
- *brief*: the intervention is not brief. The average time nurses spent with participants was 16-30 hours. The average number of consultations was 6-25 times. The average duration of the intervention was 3-12 months. However, the intervention appears to align with the general principles of the right@home intervention and, as such, may be able to be 'woven in' to the home visits.
- *risks/limitations:* The sample size was relatively small (n=30 families) and it has not been tested as part of a controlled trial.

Recommended social opportunity alternatives

No feasible alternatives to the aforementioned strategy were identified.

Conclusions

Social support is critical to child and family wellbeing. Social support and social capital have a range of positive benefits for children and families and, in the absence of social support, children and families appear to be at risk of a number of negative phenomena including low birth weight, depressive symptoms (parental) and child abuse and neglect.

The search undertaken for this project suggests that there is a lack of evidence-based strategies for enhancing social opportunities as part of the individual nurse-family relationships that constitute home visiting programs. Those that do exist appear to be relatively intensive, perhaps highlighting the complex nature of social relationships and the process of enhancing them.

Part D: Discussion

On the basis of the twin evidence reviews conducted by CCCH for this project (McDonald et al., 2012; Moore et al., 2012), some recommendations were made regarding a way of ensuring that home visiting services were evidence-based, both in content and processes.

The first of these reviews (McDonald et al., 2012) sought to answer the question 'what works in home visiting programs?' Based upon the findings of this review, the simple answer to this question is we don't really know. This is because either: (a) the evidence regarding the 'components' of home visiting programs is contradictory or contested or; (b) the evidence is not available.

The only component for which there appears to be a consensus in terms of what works in home visiting programs is antenatal (as opposed to postnatal) recruitment. The research is generally supportive of the following components in terms of making a home visiting program effective:

- a greater number of visits over a longer period of time (although for some specific outcomes less intensive approaches may be effective);
- targeting families who are at risk and/or have multiple or complex problems (although there is some evidence that high risk families may not benefit as greatly as moderately at risk families);
- if targeting families with multiple and complex problems, employing a workforce that has the appropriate skills and experience to work with those families.

McDonald et al. (2012) concluded that when attempting to design a home visiting program, it may be less useful to investigate home visiting programs per se and more useful to investigate the broader body of literature that looks at:

- What works with the group the program will be targeting? (e.g. What brings about an improvement in outcomes for at risk families? What brings about an improvement in outcomes for families with multiple and complex problems?)
- What works to achieve the specific outcomes the program is seeking to impact upon? (e.g. What is the most effective way of improving children's cognitive outcomes? What is the most effective way of improving parenting skills and behaviours?)

Accordingly, a second research review was conducted, this time focusing the evidence regarding effective *processes* in home visiting and other programs for vulnerable families (Moore et al., 2012). A number of key themes emerge from this review:

- There is general support for the notion that process aspects of service delivery matter for outcomes – that *how* services are provided is as important as *what* is provided.

- A number of key elements of effective service delivery processes have been repeatedly identified in the research literature: effective services are relationship-based, involve partnerships between professionals and parents, target goals that parents see as important, provide parents with choices regarding strategies, build parental competencies, are non-stigmatising, demonstrate cultural awareness and sensitivity, and maintain continuity of care.

- These process variables appear to be of particular importance for the most vulnerable families, who appear to be less likely to make use of professional services that do not possess these qualities.

A number of specific strategies for working with disadvantaged and multi-problem families were investigated. Of these, the most promising were motivational interviewing and video feedback techniques.

Towards a home-visiting service delivery model

Based on the findings of the second literature review (Moore et al., 2012), recommended core features of a prospective home visiting model are as follows:

- The process variables identified as essential for effective service delivery represent the *threshold* features of the model – the bedrock on which the service is based. These service features are the starting point for all service delivery as well as the core qualities that continue to infuse all subsequent service delivery. The key qualities include relationship-based, partnership-based, capacity-building, provision of choices, addressing immediate practical issues, and addressing background factors. To ensure that service delivery is faithful to these core practices, measures of process fidelity should be regularly used.
- The identification of goals and of strategies to achieve these goals needs to be done in partnership with parents. To help ensure that the process of selecting goals and strategies is done systematically, decision-making algorithms and guidelines should be developed. To ensure that the goals and strategies are compatible with parental values and priorities, measures of values fidelity should be regularly used.
- The strategies used should be evidence-based. Service providers should be able to draw on a suite of evidence-based strategies to address the range of challenges that parents face in caring for their children. To ensure that evidence-based strategies are delivered

consistently and rigorously, measures of program fidelity should be regularly used.

- It is clear from the literature reviews that delivering an intensive home visiting service for vulnerable families is a complex and skilled process. Families' needs and circumstances vary greatly, and the service model needs to be flexible enough to cater for these variations while maintaining a constant core of evidence-based practice. In the framework just outlined, the constant core is provided by the process features of service delivery, while the flexibility comes from the deployment of evidence-based strategies according to family need.

Identifying evidence-based modules

In the present review, an attempt was made to identify evidence-based strategies that home visiting nurses could draw on when addressing parents' needs and concerns. This exercise was only partly successful. Solid evidence-based practices could only be identified in three of the topics: managing sleeping issues, ensuring safety; and promoting child attachment (through responsive parenting). Paediatric guidelines are available for two other topics: promoting good nutrition/eating, and managing crying and separation issues. And in the final topic, providing appropriate social opportunities, there were neither evidence-based practices nor paediatric guidelines. The review suggests that responsive parenting strategies are likely to be relevant for three of the topics: ensuring maternal bonding; promoting child attachment; and managing crying and separation issues.

The relative lack of evidence in some of these areas is surprising. In some cases there appears to be a problem with the evidence. In these reviews, a conscientious attempt was made to identify evidence from high quality trails of various interventions. The results have been disappointing. This is not so much because the evidence suggests that many or most of the interventions are ineffective, but because few of the interventions have been properly trialled, and the quality of the trials that do exist is not sufficient to allow definite conclusions to be reached.

There are several reasons for this. One is that the interventions themselves are rarely simple and the preferred paradigm for testing their efficacy is often not appropriate. It is not possible to hold all variables constant and vary one. This problem is well illustrated by a recent Cochrane review of postnatal parental education for optimising infant general health and parent-infant relationships (Bryanton & Beck, 2010). This review looked for randomised controlled trials of any structured postnatal education provided by an educator to individual parents or groups of parents within the first two months post-birth related to the care of an infant or parent-infant relationships. Although the review identified 25 trials, only 15 provided useable data on outcomes of interest. The trials were small to moderate and of uncertain methodological quality. The usual benefit of meta-analyses of increasing statistical power by combining small studies was not achieved, since only four of the studies

tested the effect of an intervention on one or more different outcomes at different lengths of time postbirth.

Bryanton and Beck (2010) concluded that the benefits of educational programs to participants and their newborns remain unclear. Education on sleep enhancement appears to increase infant sleep and education about infant behaviour potentially enhances mothers' knowledge; however more and larger, well-designed studies are needed to confirm this. This is not a helpful conclusion, but it is not an uncommon one.

There is no shortage of clinical advice as to how the various issues can be addressed, but, with some exceptions, not much of this is backed by rigorous research. Clinical advice on issues such as nutrition, crying and separation is based on evidence – about what nutrition infants and toddlers need, what crying is normal etc. – but there is little evidence regarding the most effective ways of helping parents act on this evidence.

In areas such as bonding and attachment, there is evidence of both kinds, but the evidence regarding the most effective ways of promoting maternal bonding and infant attachment (or responsive parenting) is not strong. This is not because there have not been any strategies developed – on the contrary, there are dozens, many of them with long practice histories behind them. However, most have not been subject to rigorous evaluation, and much of the testing that has been done has been conducted by the developers themselves. This is partly because there is so much competition: there have been so many interventions developed that no single program emerges as the preferred model and has therefore been subject to widespread testing.

Most of these have arisen from the mental health field and developed by innovative leaders in the field. Many of these leaders are now reaching retirement age, and we seem to be coming to the end of an era of mental health-inspired interventions that were developed and often delivered in mental health settings rather than community-based settings or homes. There is a new generation of programs emerging, and these are much more likely to have been subjected to rigorous evaluation.

Appendix 1. Responsive Parenting and Video-feedback Interventions

Introduction

The literature review of maternal bonding and infant attachment found that attachment is built on maternal sensitivity and responsivity: the more sensitive and responsive a mother is to her infant's cues and signals, the more secure the attachment between them. Consistent and sensitive parenting provides infants with a sense of security, control, and trust in the environment, enabling them to explore that environment with greater confidence.

There is a substantial and growing body of evidence that cumulative exposure to a stable, highly responsive parenting style throughout the early childhood period is associated with a variety of child benefits in terms of language, cognitive, emotional, and social development.

This research indicates that children whose mothers display more responsive behaviour during the first years of life become more securely attached, develop better social-emotional functioning, have fewer emotional and behaviour problems, develop better social skills, achieve language milestones earlier, and score significantly higher on cognitive tests. Unresponsive parenting on the other hand is strongly associated with insecure attachment as well as poor social-emotional development including aggression and later behaviour problems.

In the light of these findings, it was recommended that the right@home module for maternal bonding and attachment should take the form of evidence-based strategies to promote parental sensitivity and responsivity.

The findings of this review are reported below. Two sets of strategies were investigated: video feedback techniques, and more general programs promoting sensitive and responsive parenting (some of which also made use of video feedback).

VIDEO FEEDBACK TECHNIQUES

General findings

In a meta-analysis of the use of video feedback in work with families, Fukkink (2008) concluded that these showed statistically significant positive effects of video feedback interventions on the parenting behaviour and attitude of parents and the development of the child. Parents become more skilled in interacting with their young child and experience fewer problems and gain more pleasure from their role as parent. Shorter programs appeared to be more effective in improving parenting skills. The experimental outcomes were smaller at child level if the parents belonged to a high-risk group.

Specific protocols

The following video feedback protocols are reviewed:

- *Interaction Guidance* (McDonough, 1993, 2000, 2004)
- *Modified Interaction Guidance* (Benoit, 2001-02)
- *Video Interaction Project* (Mendelsohn et al., 2005, 2007)
- *Seeing is Believing* (Erickson et al., 1999)
- *Video-feedback to Promote Positive Parenting (VIPP)* (Juffer et al., 2008)
- *Video Interaction Guidance* (Kennedy et al., 2011).

In reviewing the protocols, the key questions addressed were whether the protocol had been used with a population similar to that targeted by right@home, whether there was sound evidence of the efficacy of the protocol in promoting parental responsivity, and whether the protocol could be easily (and cheaply) incorporated into the right@home program.

Interaction Guidance (McDonough, 1993, 2000, 2004)

Description and rationale

Interaction Guidance (McDonough, 2000) was developed primarily to reach families that are difficult to engage, that are burdened by social adversity such as poverty, violence, and lack of education, that have a limited capacity for introspection, and have resisted previous offers of help using more traditional psychotherapeutic methods (McDonough, 2000). The treatment is clinic-based and involves 10-12 sessions over 2-6 months.

The Interaction Guidance protocols emphasise both process and structural elements of service delivery (McDonough, 2004). Process elements refer to how the clinician offers the therapeutic assistance, while the structural elements are the specific procedures of the intervention.

Evidence-base

This technique has a long history of use in clinical settings, but limited formal testing of efficacy. Clinical studies in Switzerland found Interaction Guidance to be as effective as brief psychoanalytic psychotherapy in improving caregivers' interactions with their infants, perceptions of their infants, and symptomatology in a middle-class, clinic-referred sample (Cramer et al., 1990; Robert-Tissot et al., 1996).

Suitability for right@home

The original protocol was clinic-based and does not appear to have been adapted for use in the home.

This technique requires intensive training. There is no publically available manual.

Conclusion

There is insufficient evidence of the efficacy of this approach, and it is not easily adaptable for right@home purposes.

Not recommended for right@home.

References

Cramer, B., Robert-Tissot, C., Stern, D. N., Serpa-Rusconi, S., De Muralt, M., Besson, G., Palacio-Espasa, F., Bachmann, J.-P., Knauer, D., Berney, C. and D'Arcis, U. (1990). Outcome evaluation in brief mother-infant psychotherapy: A preliminary report. **Infant Mental Health Journal, 11** (3), 278–300.

McDonough, S.C. (1993). Interaction guidance: Understanding and treating early infant-caregiver relationship disturbances. In C.H. Zeanah (Ed.). **Handbook of Infant Mental Health.** New York: The Guilford Press.

McDonough, S.C. (2000). Interaction guidance: An approach for difficult-to-engage families. In C.H. Zeanah (Ed.). **Handbook of Infant Mental Health (2nd Ed.).** New York: The Guilford Press.

McDonough, S.C. (2004). Interaction guidance: Promoting and nurturing the caregiving relationship. In A.J. Sameroff, S.C. McDonough and K.L. Rosenblum (Eds.). **Treating Parent-Infant Relationship Problems: Strategies for Intervention.** New York: Guilford Press.

Robert-Tissot, C., Cramer, B., Stern, D. N., Serpa, S. R., Bachmann, J.-P., Palacio-Espasa, F., Knauer, D., De Muralt, M., Berney, C. and Mendiguren, G. (1996), Outcome evaluation in brief mother-infant psychotherapies: Report on 75 cases. **Infant Mental Health Journal, 17** (2), 97–114.

Modified Interaction Guidance (Benoit, 2001-02)

Description and rationale

Modified Interaction Guidance is modified version of McDonough's Interaction Guidance technique. It is a strengths-based intervention that focuses on improving the relationship between caregiver and child. Originally developed by Diane Benoit,

an infant psychiatrist at Toronto Hospital for Sick Children, Modified Interaction Guidance has been used in hospitals, child and family services agencies, community counselling centres, and in client homes. It involves five to seven sessions where parents observe themselves interacting with their child on video, and with the support and guidance of the therapist, highlight points where the interactions are positive and 'working' and discuss some of the interactions where the parent missed cues or was unable to calm and comfort the child.

Evidence-base

This intervention strategy appears to have had extensive use in clinical and other settings, but limited formal testing of efficacy.

In a small-scale clinical trial, Benoit et al. (2001) examined the efficacy of Modified Interaction reducing atypical behaviours and disrupted communication during play interactions between mothers and their infants. There was a significant decrease in the level of disrupted communication from pre- to post-intervention sessions in the group. 73% of mothers from the group and 17% of mothers from the feeding-focused group initially classified as 'disrupted' attained a classification of 'nondisrupted' at the post-intervention session. These findings provide preliminary evidence of the efficacy of Modified Interaction Guidance.

Madigan et al. (2006) reanalysed data from the Benoit et al. (2001) intervention study. Whereas the initial study examined change in disrupted caregiver behaviour from pre- to post-intervention for two groups, with one receiving the Modified Interaction Guidance intervention and the other receiving a feeding-focused intervention, this reanalysis sought to determine at what stage over the course of the Modified Interaction Guidance intervention clinically meaningful change in the display of disrupted caregiver behavior is observed. Results showed a significant decrease in the total display of disrupted caregiver behaviours, as well as a change in classification from disrupted to not-disrupted, after receiving both feedback from the assessment and the first treatment session. A qualitative analysis of the data further revealed different patterns of change between caregivers. These findings provide preliminary empirical support suggesting that a reduction of disrupted caregiver behaviour can be observed relatively quickly after the commencement of the Modified Interaction Guidance intervention.

Suitability for right@home

This Canadian version of Interaction Guidance has been adapted for more general use, including home visiting services. It has a particular focus on preventing disorganised attachment.

It requires intensive training and there does not seem to be a manual that is publically available.

Conclusion

Although it has been used in home visiting services, there is insufficient evidence of the efficacy of this approach, and it is not easily available for use in the right@home program.

Not recommended for right@home

References

Benoit, D. (2001-02). Modified Interaction Guidance. **Newsletter of the Infant Mental Health Promotion Project (IMP), 32** (Winter), 1-5.

http://www.imhpromotion.ca/Portals/0/IMHP%20PDFs/IMPRINT/32IMPReprint-Benoit.pdf

Benoit, B., Madigan, S., Lecce, S., Shea, B., & Goldberg, S. (2001). Atypical maternal behavior before and after intervention. **Infant Mental Health Journal, 22**, 611–626.

Madigan, S., Hawkins, E., Goldberg, S. and Benoit, D. (2006). Reduction of disrupted caregiver behavior using modified interaction guidance. **Infant Mental Health Journal, 27** (5), 509–527. doi: 10.1002/imhj.20102

Video Interaction Project (Mendelsohn et al., 2005, 2007)

Description and rationale

The Video Interaction Project (VIP) approach is a US program that involves the use of videotaped interactions by child development specialists while parents wait to see their child's paediatric provider for well-child visits. The goal of VIP is to support the parent-child relationship and thereby enhance cognitive, language, and social-emotional development. The VIP approach is relationship based: a single child development specialist builds a caring relationship with each family that forms the foundation for the intervention.

VIP sessions begin at the first visit to the paediatrician when the infant is approximately 2 weeks old and continue regularly until age 3 years. Each 30- to 45-minute session includes (1) discussion of parental expectations and concerns about the child as well as the child's present and anticipated developmental progress, (2) receipt of a developmentally appropriate learning material (e.g., toy or book) that promotes parent-child engagement, (3) a 5- to 10-minute videotaped recording of the parent and child engaging in activities of the parent's choice, which is then rewound for the parent and the child development specialist to view together. As the tape is watched, the parent and the specialist each make observations based

on the videotape, with the specialist highlighting the parent's strengths and suggesting activities to practice at home. Because VIP is integrated into paediatric primary care and does not require home visits, its cost is relatively low.

Evidence-base

One RCT is reported, focusing on changes in the children rather than on responsive parenting. Mendelsohn et al. (2005) performed a randomised, controlled trial to assess the impact of the VIP approach with Latino children at risk of developmental delay on the basis of poverty and low maternal education. The results of assessments conducted when the children were 21 months old differed depending on the level of maternal education; the VIP was found to have a moderate impact on children whose mothers had between seventh and 11th grade education but little impact on children whose mothers had sixth grade or lower education.

In a follow-up study of the same group of children at 33 months of age, Mendelsohn et al. (2007) found that the VIP was associated with improved parenting practices including increased teaching behaviours as well as lower levels of parenting stress. VIP children were more likely to have normal cognitive development and less likely to have developmental delays.

Suitability for right@home

Clinic-based approach that has not been applied in home settings.

Conclusion

There is insufficient evidence of the efficacy of this approach, and it is not easily adaptable for right@home purposes.

Not recommended for right@home

References

Mendelsohn, A.L., Dreyer, B.P., Flynn, V., Foley, G.M., Tomopoulos, S., Rovira, I., Tineo, W., Pebenito, C., Torres, C., Torres, H. and Nixon, A. (2005). Use of videotaped interactions during pediatric well-child care to promote child development: A randomized controlled trial. **Journal of Developmental and Behavioural Pediatrics, 26** (1), 34-41.

Mendelsohn, A.L., Huberman, H.S., Berkule, S.B., Brockmeyer, C.A., Morrow, L.M. and Dreyer, B.P. (2011). Primary care strategies for promoting parent-child interactions and school readiness in at-risk families: the Bellevue Project for early language, literacy, and education success. **Archives of pediatrics & adolescent medicine, 165**: 33

Mendelsohn, A.L., Valdez, P.T., Flynn, V., Foley, G.M., Berkule, S.B., Tomopoulos, S., Fierman, A., Tineo, W. and Dreyer, B. (2007). Use of videotaped interactions

during paediatric well-child care: Impact at 33 months on parenting and on child development. **Journal of Developmental & Behavioural Pediatrics, 28** (3), 206-212.

Seeing is Believing (Erickson et al., 1999)

Description and rationale

Originally developed as part of the STEEP program (Egeland & Erickson, 2004), Seeing is Believing is designed for vulnerable families and helps parents increase their sensitivity and responsiveness to their baby's cues by using a filming strategy. Through filming and guided viewing, Seeing is Believing promotes perspective-taking by giving parents a chance to see, from the camera's point of view, what happens between them and their baby. The primary goal of using filming is to promote the parents' self-observation and reinforce their growing knowledge of and sensitivity to their babies. Parents are helped to see their own strengths and those of their babies, and encouraged to consider their infant's perspective as they interact with their babies. The parent keeps the video as a documented memory of the baby's development.

Evidence-base

Although extensively used as part of the STEEP program, there does not appear to have been any trialling of the efficacy of this technique independent of the overall program.

Suitability for right@home

Although focused on parental sensitivity, this protocol does not seem to place sufficient emphasis on the other key aspect of effective early parenting – parental responsivity.

Conclusion

There is insufficient evidence of the efficacy of this approach.

Not recommended for right@home.

References

Egeland, B. and Erickson, M.F. (2004). Lessons from STEEP: Linking theory, research, and practice for the well-being of infants and parents. In A.J. Sameroff, S.C. McDonough and K.L. Rosenblum (Eds.). **Treating Parent-Infant Relationship Problems: Strategies for Intervention.** New York: Guilford Press.

Erickson, M.F., Endersbe, J. and Simon, J. (1999). **Seeing Is Believing: Video-taping families and using guided self-observation to build on parenting strengths.** St. Paul, Minnesota: Irving B. Harris Training Centre for Infant and Toddler Development, University of Minnesota.

Video-feedback to Promote Positive Parenting (VIPP)(Juffer et al., 2008)

Description and rationale

This is a short-term, interaction-focused and attachment-based video-feedback intervention designed to promote maternal sensitivity and child attachment security. In addition to the core VIPP program, there is the VIPP-SD program (which adds a focus on sensitive discipline), and the VIPP-R program (which adds a focus on the mother's mental representations of attachment).

Attachment-based intervention efforts may be directed at the *representational level* (addressing parental representations in order to pave the way for subsequent behavioural changes), and at the *behavioural level* (addressing parental sensitivity). Attachment-based interventions may be supported not only to interact with their children in a sensitive way, but also to cope with the child's emerging demands for autonomy.

Juffer et al. (2008) describe the protocols of the VIPP programs. The programs are standardised and individualised, meaning that the intervener works from a general protocol but attunes the specific themes and guidelines for the individual parent and child relationship. All VIPP programs utilise videotaped interactions of the parent and child, and video feedback: watching and discussing the video with the parent. The VIPP programs are home-based and short-term, usually 4-8 sessions

Evidence-base

van IJzendoorn et al. (2008) summarise the evidence for the efficacy of their VIPP intervention programs, concluding from numerous studies on various samples in different countries that both the VIPP and the VIPP-R are effective in enhancing maternal sensitivity, with long-term benefits. The evidence for the VIPP-SD is limited to one RCT at this stage (van Zeijl et al., 2006), but this showed that it was also effective, especially in families where children were at risk of developing externalising behavioural problems.

The authors discuss reasons why relatively short-term and narrowly focussed interventions such as the VIPP programs are more effective than more intensive and more broadly focused programs, and suggest that it may be because they are easier to incorporate into service providers' existing expertise and to implement faithfully. One advantage of the VIPP programs is that the protocols are relatively

easy to understand and learn, and do not require highly qualified and highly trained interveners.

Groeneveld et al. (2011) report on a randomised controlled trial to test the efficacy of a version of VIPP positive parenting–child care (VIPP-CC). Forty-eight caregivers providing home-based child care were randomly assigned either to the intervention group or to the control group. Global child care quality improved in the intervention group but not in the control group. The program did not change observed caregiver sensitivity. After the intervention however, caregivers in the intervention group reported a more positive attitude toward sensitive caregiving than caregivers in the control group. The study shows that the family-based intervention can be applied with some minor modifications in a professional group setting as well. The brief VIPP-CC program is an important tool for enhancing quality of home-based child care.

Kalinauskien et al. (2009) conducted a randomised controlled trial of VIPP with 54 non-clinical, middle class Lithuanian mothers who were rated as low in sensitivity. They found that the intervention mothers significantly improved their sensitive responsiveness, even when maternal age, educational level, depression, daily hassles, efficacy, infant gender, and infant negative and positive affect were controlled for. However, attachment security in the VIPP infants was not enhanced after the intervention, compared with the control infants, and the infants did not seem to be differentially susceptible to the increase in maternal sensitivity dependent on their temperamental reactivity.

In a study designed to break the potential intergenerational cycle of insecure attachment, Klein Velderman et al. (2006) tested the effects of two attachment-based interventions in a sample of insecure mothers and their 7-10 month old children. The first intervention related to the behavioural level, seeking to enhance mothers' sensitive responsiveness by providing them with Video-Feedback Intervention to Promote Positive Parenting (VIPP). The second intervention combined VIPP with a Representational focus (VIPP-R) in the form of attachment discussions about the mothers' childhood attachment experiences in relation to their current caregiving. Follow up of the children at preschool age showed that the VIPP intervention (but not the VIPP-R intervention) resulted in a significantly decreased number of children displaying externalising behaviour problems compared to the control group. The VIPP effects on preschool behaviour problems show that this video-feedback intervention may be a promising first step in designing programs for the prevention of externalising behaviour problems in young children.

Van Zeijl (2006) conducted a randomised controlled trial of a home-based intervention with families of 1- to 3-year-old children with relatively high scores on externalising behaviour. The intervention was based on a variation on the VIPP – the Video-feedback Intervention to promote Positive Parenting and Sensitive Discipline (VIPP-SD). This intervention is based on attachment theory and coercion theory, and focuses on mirroring and discussing actual parent-child interactions in six 1.5-hr sessions with individual families at home. The VIPP-SD proved to be effective in

enhancing maternal attitudes toward sensitivity and sensitive discipline and in promoting sensitive discipline interactions in the intervention group as compared with the control group. Moreover, in families with more marital discord and in families with more daily hassles, the intervention resulted in a decrease of overactive problem behaviours in the children.

Suitability for right@home

The protocols are publically available, relatively easy to understand and learn, and do not require highly qualified and highly trained interveners.

Conclusion

This video-based intervention has all the right qualities for right@home, has a good body of evidence to support its efficacy, and has protocols that are accessible and relatively easy to integrate into a home visiting program.

Recommended for right@home.

References

Bakermans-Kranenburg, M.J., Van IJzendoorn, M.H., Mesman, J., Alink, L.R.A. and Juffer, F. (2008). Effects of an attachment-based intervention on daily cortisol moderated by dopamine receptor D4: A randomized control trial on 1- to 3-year-olds screened for externalizing behaviour. **Development and Psychopathology, 20** (3), 805-820. DOI: http://dx.doi.org/10.1017/S0954579408000382

Groeneveld, M. G., Vermeer, H. J., Van IJzendoorn, M. H., & Linting, M. (2011). Enhancing home-based child care quality through video-feedback intervention: A randomized controlled trial. **Journal of Family Psychology, 25** (1), 86-96, doi: 10.1037/a0022451.

Juffer, F., Bakermans-Kranenburg, M.J. & van Ijzendoorn, M.H. (Eds.)(2008). **Promoting positive parenting: An attachment-based intervention.** New York, NY: Taylor & Francis/Lawrence Erlbaum.

Juffer, F., Bakermans-Kranenburg, M.J. and van IJzendoorn, M.H. (2008). Methods of the video-feedback to promote positive parenting alone, with sensitive discipline, and with representational attachment discussions. In F. Juffer, M.J. Bakermans-Kranenburg & M.H. van IJzendoorn (Eds.), **Promoting positive parenting: An attachment-based intervention.** New York, NY: Taylor & Francis/Lawrence Erlbaum.

Kalinauskiene, L., Cekuoliene, D., Van Ijzendoorn, M.H., Bakermans-Kranenburg, M.J., Juffer, F. and Kusakovskaja, I. (2009). Supporting insensitive mothers: the Vilnius randomized control trial of video-feedback intervention to promote

maternal sensitivity and infant attachment security. **Child: Care, Health & Development, 35** (5): 613-23.

Klein Velderman, M., Bakermans-Kranenburg, M.J., Juffer. F. and van IJzendoorn, M.H. (2006). Effects of attachment-based interventions on maternal sensitivity and infant attachment: differential susceptibility of highly reactive infants. **Journal of Family Psychology, 20** (2):266-74.

Klein Velderman, M., Bakermans-Kranenburg, M.J., Juffer, M., Van Ijzendoorn, M.H., Mangelsdorf, S.C. and Zevalkink, J. (2006). Preventing preschool externalizing behavior problems through video-feedback intervention in infancy. **Infant Mental Health Journal, 27** (5), 466-493. DOI: 10.1002/imhj.20104

van IJzendoorn , M. H., Bakermans-Kranenburg, M. J. and Juffer , F. (2008). Video-feedback intervention to promote positive parenting: Evidence-based intervention for enhancing sensitivity and security. In F. Juffer, M.J. Bakermans-Kranenburg & M.H. van IJzendoorn (Eds.), **Promoting positive parenting: An attachment-based intervention.** New York, NY: Taylor & Francis/Lawrence Erlbaum.

Van Zeijl, J., Mesman, J., Van IJzendoorn, M., Bakermans-Kranenburg, M. J., Juffer, F., Stolk, M.N., Koot, H.M. and Alink, L.R.A. (2006). Attachment-based intervention for enhancing sensitive discipline in mothers of 1- to 3-year-old children at risk for externalizing behavior problems: A randomized controlled trial. **Journal of Consulting and Clinical Psychology, 74** (6), 994-1005. doi: 10.1037/0022-006X.74.6.994

Video Interaction Guidance (Kennedy et al., 2011)

Description and rationale

This is the UK version of VIPP and seeks to build positive relationships through filming and feedback sessions (Kennedy et al., 2011). It is a relationship-based intervention to promote attunement, empathy and wellbeing, in which clients are guided to reflect on video clips of their own successful interventions (Kennedy, 2011). Videos of parent-child interactions are edited by a professional/guider to show just a few short clips of the most successful interactions. VIG works by actively engaging clients in a process of change towards better relationships with others who are important to them. Clients are not taught how to interact better, but rather to learn through experience how they can actively develop more joyful relationships.

VIG is not a skills-based training that can be learnt by following a manual, but is more of an art that requires coaching and supervision rather than teaching. Training

takes the form of a two-day training course followed by 25 hours of supervision over at least 18 months.

Evidence-base

Fukkink et al. (2008) claim that there is convincing experimental and small-scale qualitative evidence that VIG is effective in enhancing maternal sensitivity and promoting the emotional wellbeing of vulnerable families. However, the experimental evidence cited refers to studies involving other video-feedback techniques (such as VIPP), and the evidence for VIG itself appears to be limited to small qualitative studies. Clinical accounts of the use of VIG in different settings include Brooks (2008).

Suitability for right@home

The video-feedback protocols seem to be more complicated and time-consuming than the VIPP protocols.

It requires two-day training course followed by extensive supervision over at least 18 months.

Conclusion

This strategy lacks strong supporting evidence, and does not seem to be as readily useable as the VIPP protocols.

Not recommended for right@home.

References

Brooks, Jenny (2008). Video Interaction Guidance: a practitioner's perspective. **Community Practitioner, 81** (9), 21-24.

Fukkink, R., Kennedy, H. and Todd, L. (2008). What is the evidence that VIG is effective? In **H. Kennedy, M. Landor and L. Todd (Eds.). Video Interaction Guidance: A Relationship-Based Intervention to Promote Attunement, Empathy and Wellbeing.** London, UK: Jessica Kingsley.

Kennedy, H. (2011). What is Video Interaction Guidance (VIG)? In **H. Kennedy, M. Landor and L. Todd (Eds.). Video Interaction Guidance: A Relationship-Based Intervention to Promote Attunement, Empathy and Wellbeing.** London, UK: Jessica Kingsley.

Kennedy, H., Landor, M. and Todd. L. (Eds.)(2011). **Video Interaction Guidance:** A Relationship-Based Intervention to Promote Attunement, Empathy and Wellbeing. London, UK: Jessica Kingsley.

GENERAL PROGRAMS

General reviews

Reviews and meta-analyses of the programs to promote parenting sensitivity and attachment security have been conducted by Bakermans-Kraneneburg et al. (2003, 2008), Brady et al. (2009), Eshel et al. (2006), Juffer et al. (2008), and Kong and Carta (2011).

- On the basis of a narrative summary of the evidence, Juffer at al. (2008) reported that most studies are of interventions directed towards high-risk or clinical families. The interventions differed in intensity and in the focus of the intervention: most focused on promoting parental sensitive behaviour towards the child, some on parental representations of attachment, and some on stimulating or providing social support. 81% of the studies were successful in enhancing parental behaviour, but only 39% were successful in enhancing positive child outcomes (attachment and other behaviours), indicating that it is easier to promote parental sensitivity than children's attachment security.
- A meta-analytic synthesis of the same studies by Bakermans-Kranenburg et al. (2003, 2008) also concluded that interventions can enhance maternal sensitivity and, to a lesser extent, infant attachment security. Interventions that only focus on sensitive maternal behaviour are successful at improving insensitive parenting as well as infant attachment security. The more successful the intervention was in promoting parental sensitivity, the more likely it was that infant attachment security improved. Interventions with fewer sessions and a start date not before six months after birth were somewhat more effective than other intervention modalities, regardless of the presence or absence of multiple problems in the families. Although none of the studies explicitly aimed at preventing disorganised infant attachment, sensitivity-focused interventions were also the most effective type of intervention in reducing attachment disorganisation.
- Kong and Carta (2011) synthesised the evidence from available studies regarding responsive interaction intervention for children with or at risk for developmental delays. Overall, the results of the reviewed studies indicated that implementation of various responsive interaction interventions resulted in significant positive changes in adults' responsive behaviours and children's emotional and social-communicative outcomes. Although the most frequently reported child outcomes were in the social-communication domain, the most consistently significant positive outcomes for parent and child outcomes were in the emotional domain.

- Eshel et al. (2006) conducted a systematic review of the evidence regarding the role of responsive parenting and the effectiveness of interventions to enhance it. They found a large corpus of research linking maternal responsiveness to improved child health and development, in both the immediate and long term. The review also found that maternal responsiveness is a skill that can be promoted and that current interventions are effective in enhancing responsiveness.
- Brady et al. (2009) summarised the evidence regarding interventions aimed at improving child language by improving maternal responsivity. Results have shown positive outcomes for maternal responsivity and lesser secondary benefits to child language outcomes. Some of the qualities that appear associated with better outcomes include timing the interventions to co-occur with specific developments in child behaviors, teaching over a span of approximately 10–12 sessions, and designing lessons to be culturally sensitive to individual families.

Overall, these reviews provide good support for the efficacy of parental responsivity training, and partial support for flow on benefits for children.

Specific training programs

The following programs are reviewed:

- *Parents under Pressure (PuP) Program* (Harnett, Dawe & Rendalls, 2005)
- *The STEEP Program* (Egeland & Erickson, 2004)
- *Marte Meo Developmental Support Programme* (Aarts, 2008)
- *The Promoting First Relationships Curriculum* (Kelly et al., 2008)
- *Partners in Parenting Education (PIPE)* (Dolezol and Butterfield, 1994)
- *Mediational Intervention for Sensitizing Caregivers (MISC)* (Klein, 2000, 2006)
- *Developmental Parenting* (Roggman, Boyce and Innocenti, 2008)
- *The Mother-Infant Transaction Program* (Rauh et al., 1990)
- *The Circle of Security* (Hoffman, Marvin, Cooper and Powell, 2006)
- *Attachment and Biobehavioral Catch-up (ABC)* (Dozier et al., 2005)
- *The UCLA Family Development Project* (Heinicke et al., 1999)
- *It Takes Two to Talk: The Hanen Program for Parents* (Girolametto & Weitzman, 2006)

- *Play and Learning Strategies (PALS)* (Landry, Smith and Swank, 2006)
- *Mothers and Toddlers Program* (Suchman et al., 2009, 2010, 2011, 2012).
- *Watch, Wait and Wonder* (Muir et al., 2000)
- *The Nursing Child Assessment Satellite Training (NCAST) Approach* (Barnard et al., 1983; Sumner & Spietz, 1994) (www.ncast.org)
- *Newborn Behavioural Observations (NBO) System* (Nugent et al., 2007)
- *Sunderland Infant Program* (Svanberg, 2009; Svanberg et al., 2010)
- *Coaching the Interaction* (van den Boom, 1994, 1995)
- *Programme en intervention relationnelle* (Larin et al., 2006)
- *Make the Connection Parenting Programs* (www.firstthreeyears.org).

In reviewing the programs, the key questions addressed were whether the program had a primary focus on promoting parental responsivity, whether the program had been used with a population similar to that targeted by right@home, whether there was sound evidence of the efficacy of the program in promoting parental responsivity, and whether the program could be easily (and inexpensively) incorporated into the right@home program.

Without directly contacting the developers, it was not always possible to obtain all the information needed to address the last of these questions. In some cases, it was unclear what protocols/manuals were available, what training was required, and whether the program had ever been used in Australian conditions.

A brief summary of the findings of each review follows.

Parents Under Pressure (PuP) Program (Harnett, Dawe & Rendalls, 2005)

Description and rationale

The Parents Under Pressure (PuP) Program (http://www.pupprogram.net.au/) combines psychological principles relating to parenting, child behaviour and parental emotion regulation within a case management model. The program is home-based and designed for families in which there are many difficult life circumstances that impact on family functioning. Such problems may include depression and anxiety, substance misuse, family conflict and severe financial stress. The program is highly individualised to suit each family. Parents are given their own Parent Workbook. For many parents, this becomes a personal journal of their treatment experience.

The overarching aim of the PuP program is to help parents facing adversity develop positive and secure relationships with their children. Within this strength-based approach, the family environment becomes more nurturing and less conflictual and child behaviour problems can be managed in a calm, non-punitive manner.

The PuP program is intended to be delivered on a one-on-one basis, preferably in the family's home. A Therapist Manual provides the theoretical overview behind the PuP program and the Parent Workbook is given to the family and forms the basis of the treatment program. Modules contain many different exercises that help the parent work towards their own parenting goals. The Parent Workbook is seen as a buffet of options to choose from rather than a recipe to follow. The art of PuP therapy is to use the program creatively, acknowledging the unique needs and resources of each family.

Evidence-base

This program has only been evaluated by the program developers. They have published results of three small-scale pilot or clinical studies, and one larger randomised controlled trial. The results are generally positive for those families that complete the course, but there appear to be reasonably high drop-out rates.

In a small clinical study, Harnett and Dawe (2008) evaluated the effectiveness of the PuP program with families referred by child protection services. Statistically significant improvement was found between the pre- and post-assessment measures on measures of parent functioning, child functioning, parent–child relationships, and social contextual measures. The majority of families showed clinically significant improvement, although a small proportion of the families showed no change or deteriorated.

Frye and Dawe (2008) conducted a feasibility study using the PuP program with a small group of women prisoners and their children in the post-release period. Women offenders and their children represent a severely disadvantaged and marginalised population. For those who completed the program, there were significant positive changes, in particular an improvement in maternal mental health and the quality of the parent-child relationship, with reductions found in child abuse potential and problem child behaviours.

Dawe et al. (2003) reported a pilot study using the PuP program with a small group of methadone-maintained families, all of whom reported significant improvements in parental functioning, parent–child relationship and parental substance use and risk behaviour. A subsequent randomised controlled trial with a larger group of parents on methadone maintenance found that, compared to brief intervention and control groups, those receiving the PuP program showed significant reductions in problems across multiple domains of family functioning, including a reduction in child abuse potential, rigid parenting attitudes and child behaviour problems.

Suitability for right@home

This program has not been used with families who are vulnerable but do not yet have established problems.

Training is intensive and expensive. In order to use the PuP program in clinical settings, a clinician is required to have training and clinical supervision in the PuP model, and to become an accredited PuP therapist. The training and clinical supervision program involves a combination of training and clinical supervision that adds up to 30 hours. The cost of the training and clinical supervision is $3,000 per clinician (excluding travel) where clinical supervision is conducted in pairs and includes a combination of telephone and face-to-face clinical supervision.

Conclusion

This program was not designed for the population that right@home will serve, and the training requirements are too demanding in terms of time and cost.

Not recommended for right@home

References

Harnett, P.H., Dawe, S. and Rendalls, V. (2005). **The Parents Under Pressure Program: Therapist's Manual.** Brisbane, Queensland: Griffith University.

Dawe, S., Harnett, P. H., Rendalls, V., & Staiger, P. (2003). Improving family functioning and child outcome in methadone maintained families: The Parents Under Pressure Program. *Drug and Alcohol Review*, *22*, 299-307.

Dawe, S., & Harnett, P. H. (2007). Improving family functioning in methadone maintained families: Results from a randomised controlled trial. **Journal of Substance Abuse Treatment, 32**, 381-390.

Dawe, S., Harnett, P. H., Rendalls, V., & Staiger, P. (2003). Improving family functioning and child outcome in methadone maintained families: The Parents Under Pressure Program. **Drug and Alcohol Review, 22**, 299 - 307

Frye, S., & Dawe, S. (2008). Interventions for women prisoners and their children in the post-release period. **Clinical Psychologist, 12** (3), 99-108.

http://www.pupprogram.net.au/media/5049/frye&dawe2008cp.pdf

Harnett, P. H., & Dawe, S. (2008). Reducing child abuse potential in families identified by social services: Implications for assessment and treatment. **Brief Treatment and Crisis Intervention, 8** (3), 226–235. http://www.pupprogram.net.au/media/5053/harnett&dawe2008bt&ci.pdf

The STEEP Program (Egeland & Erickson, 2004)

Description and rationale

Developed in 1986 by Byron Egeland and Martha Farrell Erickson, STEEP (Steps Towards Effective Enjoyable Parenting) begins prenatally and works on the premise that a secure attachment between parent and infant establishes ongoing patterns of healthy interaction that lay the foundation for the child's later competence and well-being. Through home visits and group sessions, STEEP facilitators work alongside parents to help them understand their child's development, respond sensitively and predictably to their child's needs, reflect on their own relationship history and make decisions that ensure a safe and supportive environment for their child and the whole family.

The program was designed for first-time at-risk mothers and combines bi-weekly home visits (beginning in the second trimester of pregnancy), bi-weekly parenting group sessions, and 'Seeing Is Believing' videotaping strategies.

Evidence-base

Erickson and Egeland (2004) summarised critical findings from three decades and illustrated how this research has been used to inform and shape preventive intervention for parents and infants in high-risk circumstances. However, there do not appear to be any published RCTs on the efficacy of this approach.

Suitability for right@home

The total STEEP program is more comprehensive than is required for the right@home intervention (eg. it includes parenting group sessions).

Training is available through Centre for Early Education and Development, University of Minnesota, but the STEEP Facilitator's Guide (Erickson et al., 2002) appears to be out of print.

Conclusion

Lacks strong evidence of efficacy and is more comprehensive than required.

Not recommended for right@home

References

Egeland, B. and Erickson, M.F. (2004). Lessons from STEEP: Linking theory, research, and practice for the well-being of infants and parents. In A.J. Sameroff, S.C. McDonough and K.L. Rosenblum (Eds.). **Treating Parent-Infant Relationship Problems: Strategies for Intervention.** New York: Guilford Press.

Erickson, M.F., Egeland, B.R., Simon, J. and Rose, T.K. (2002). **STEEP Facilitator's Guide: A Comprehensive Guide to Working With Parents From Pregnancy Through the First Two Years of the Child's Life.** Irving B. Harris Training Center for Infant and Toddler Development

Erickson, M.F. & Egeland, B. (2004). Linking theory and research to practice: The Minnesota Longitudinal Study of Parents and Children and the STEEP™ program. **Clinical Psychologist, 8** (1), 5-9. DOI: 10.1080/13284200410001672207

Erickson, M.F. and Kurz-Riemer, K. (1999). **Infants, Toddlers, and Families: A Framework for Support and Intervention.** New York: The Guilford Press.

Toth, S.L., Pianta, R.C. and Erickson, M.F. (2011). From research to practice: Developmental contributions to the field of prevention science. In D. Cicchetti and G.I. Roisman (Eds.). **Minnesota Symposia on Child Psychology Vol. 36: The Origins and Organisation of Adaptation and Maladaptation.** Hoboken, New Jersey: John Wiley and Sons.

Marte Meo Developmental Support Program (Aarts, 2008)

Description and rationale

The Marte Meo Developmental Support Program (http://www.martemeo.com), developed by Dutch specialist educator Maria Aarts, is a practical model for supporting development in everyday communication moments. The central focus of the program is to identify, activate and develop skills to enable and enhance constructive interaction. This program uses video review and from this training participants learn very concrete information about supporting children's development in daily interactive moments (infancy to school age children) and for transferring this information to parents and other significant carers (Aarts, 2008). In between sessions, the therapist looks at the video, understands what the child needs, and develops a work point list. At the next session the therapist invites parents to look at the images selected, so that parents can first 'see' how a behaviour indicates a need, and then recognise those moments when they can guide their child. After the first session, each session follows a set pattern – parents review the footage from the previous session with the therapist. The therapist then takes further

footage with the parents invited to practise the particular work point skill in a step-by-step method. After each session, practise takes place in everyday situations.

The Marte Meo therapist acts as a guide to assist parents to see the everyday moments they can help their child, and as the program is based on 'one's own strength', the therapist guides until the parents have found their own strength, confidence or rhythm with their child.

As described by Neander and Engstrom (2009), the starting point in the Marte Meo intervention is the question raised by the parent. The therapist makes a short video recording (3–7 minutes) of the child interacting with his/her parent(s) and analyses it, using a number of basic principles for a natural supportive dialogue. The principles the therapist is looking for are whether and how (1) the child's focus of attention is recognised by the parent, (2) the child's states, initiatives and feelings are acknowledged by the parent, (3) the child is given the time and space to react, (4) the child's ongoing actions, experiences and feelings are interpreted, punctuated and named by the parent, (5) the child is assisted to experience structure and predictability, (6) the child is guided by well-adjusted information and gets approving confirmation when a desirable behaviour is emerging, (7) the child is assisted through inevitable unpleasantness, (8) the child is encouraged to take an interest in other persons and their actions and feelings/sentiments, and (9) the child is helped to start and close an activity or a dialogue. The therapist then chooses sequences to review with the parent, to create a link between the parent's initial question and the therapist's idea of what kind of support the child needs. The basic purpose is to afford an opportunity for joint observation and reflection on the child and his/her needs. The sequences selected are preferably ones that contain "moments of solutions" where the child is provided with the support he/she needs and the parent thus becomes his/her own model. The second best choice is where the needs of the child are displayed. The parent becomes an active, reflective participant in the work of developing his/her interaction with the child, and the child is 'mentalised' instead of 'problemised'. The parent is encouraged to practise in everyday situations, and the process continues with new recordings, analyses and joint reflections.

Marte Meo programs have been developed for use with a variety of developmental problems (crying infants) and developmental disabilities (including autism, hyperactivity, intellectual disability). Programs are also available for a variety of settings (child care, child protection, family support, foster care) and purposes (assessment, quality improvement).

Evidence-base

Although widely used in Europe, there appears to be limited RCT evidence of the efficacy of the Marte Meo approach, although there a number of qualitative studies. The only reported study involving a control group is an Israeli study in which a Marte Meo video-based home training program was provided to families having problems in parent-child interactions with their young children (Weiner et al., 1994).

Compared to a control group, only the families receiving the intervention showed significant gains in all the eight areas of positive parent-child communication that are the focus of the program. These gains were generally sustained six months after program completion.

Vik and colleagues have reported a series of studies using in-depth qualitative interviewing with mothers before and after Marte Meo therapy (Vik, 2011; Vik & Braten, 2009; Vik & Hafting, 2006; Vik & Rohde, 2012). Overall, these studies show that the video-recording approach was effective in promoting the mothers' feelings of competence and positive self-image (Vik & Hafting, 2006), more sensitive and engaged interactions with their infants (Vik, 2011; Vik & Braten, 2009; Vik & Hafting, 2006), and fewer depressive symptoms (Vik, 2011).

In another qualitative study, Osterman et al. (2010) explored the usefulness of the Marte Meo method in supporting newly adoptive parents. The study group consisted of seven parent couples that had adopted children aged 5-15 months from overseas. The principle of the Marte Meo method is for the child's need to be approached at the child's own tempo and rhythm. It encourages and motivates the parents to adjust their interplay to the child's actual behaviour, leading to better adjustment to the child's tempo and rhythm. This is important because initial video filming reveals that most parents adopt a tempo that is too fast for their child. During this initial period, the Marte Meo method may be one way of working to meet adoptive parents' need for advice and support in their efforts to be sensitive to the developmental needs of their child.

Wadsby (2012) describes the comprehensive parenting program run by the Hagadal Parent–Baby Clinic in Sweden, which is based on the Marte Meo methods and has been evaluated since its development. The program aims to promote mother–child interaction as early as possible to prevent the development of mental and psychosocial problems in children who are identified as having parents at psychosocial risk. Psychosocial risk factors include the mother and/or father of the baby having alcohol and/or drug problems, and the mother having psychiatric problems and/or social problems of particular relevance to motherhood (eg. teenage pregnancy, children placed in foster care at some point, etc.). The program is intensive, lasting six weeks and requiring the mother (or father) and the baby spending five hours a day, three days a week, at the clinic participating in the treatment program. Each mother–baby dyad has two staff members who are responsible for their treatment. The effectiveness of this program has been demonstrated through several follow-up studies (eg. Wadsby, 2012; Wadsby & Arvidsson, 2010; Wadsby, Sydsjö & Svedin, 1998, 2001).

Lee and colleagues (2010) use case studies to describe the development and evaluation of The Boomerangs Aboriginal Circle of Security Parenting Camp Program, an intervention based on an attachment framework using the Circle of Security and Marte Meo programs as a base and drawing on traditional Indigenous culture.

Suitability for right@home

Marte Meo has been used extensively by KU Services in Sydney, which has now commissioned training materials to be developed. Robyn Dolby and Eilish Hughes are working with Maria Aarts on the Marte Meo Early Childhood Training Package at Marte Meo International/Australia. The package will contain six DVDs and booklets, which can be used by supervisors to train early childhood staff to become Marte Meo Practitioners. Marte Meo training has also been provided by the Benevolent Society in Sydney and Brisbane.

Conclusion

This video-based approach appears to be reasonably intensive and requires quite a lot of work by practitioners between visits, so therefore may not be suitable as a standard feature of a home visiting program. However, there is some qualitative evidence for its effectiveness, and it certainly focuses on parental responsiveness and is strength-based. Although it has many of the elements needed for the right@home program, it lacks a strong evidence base.

Worth considering for right@home if no other suitable program available.

References

Aarts, M. (2008). **Marte Meo - Basic Manual (Revised Edition).** Eindhoven, The Netherlands: Aarts Productions no. 1.

Lee, L., Griffiths, C., Glossop, P. & Eapen, V. (2010). The Boomerangs Parenting Program for Aboriginal parents and their young children. **Australasian Psychiatry, 18** (6), 527–33.

Neander, K. and Engström, I. (2009). Parents' assessment of parent-child interaction interventions – a longitudinal study in 101 families. **Child and Adolescent Psychiatry and Mental Health, 3** (8), doi:10.1186/1753-2000-3-8

Osterman, G., Möller, A. and Wirtberg, I. (2010). The Marte Meo method as a means of supporting new adoptive parents. **Adoption & Fostering Journal, 34** (2), 49-57.

Vik, K. (2011). Postnatal depression, mother-infant interaction and video interaction guidance. **European Psychiatry, 26** (Supp. 1), 111. http://dx.doi.org/10.1016/S0924-9338(11)72816-4,

Vik, K. and Braten, S. (2009). Video interaction guidance inviting transcendence of postpartum depressed mothers' self-centered state and holding behavior. **Infant Mental Health Journal, 30** (3), 287–300. doi: 10.1002/imhj.20215

Vik, K. and Hafting, M. (2006). Video interaction guidance offered to mothers with postnatal depression: Experiences from a pilot study. **Nordic Journal of Psychiatry, 60** (3), 234-238. doi:10.1080/08039480600636593

Vik, K. and Rohde, R. (2012). Tiny moments of great importance: The Marte Meo method applied in the context of early mother–infant interaction and postnatal depression. Utilizing Daniel Stern's theory of 'schemas of being with' in understanding empirical findings and developing a stringent Marte Meo methodology. **Clinical Child Psychology and Psychiatry**, published online before print December 14, 2012. doi: 10.1177/1359104512468286

Wadsby, M. (2012). Can early intervention have an impact on future life? A study of life events, social interaction, and child behavior among mothers at psychosocial risk and their children eight years after interaction treatment. **Journal of Family Social Work, 15** (1), 78-95.

Wadsby, M., Sydsjö, G & Svedin, C.G. (2001). Evaluation of an intervention programme to support mothers and babies at psychosocial risk: Assessment of mother/child interaction and mother's perceptions of benefit. **Health and Social Care in the Community, 9**, 125–133.

Wadsby, M. & Arvidsson, E. (2010). Eight years after – a follow-up study of mothers and children at psychosocial risk who received early treatment: Does early intervention leave its mark? **Child & Family Social Work, 15**, 452–460. doi: 10.1111/j.1365–2206.2010.00696.x

Wadsby, M., Sydsjö, G & Svedin, C.G. (1998). Evaluation of a short-term intervention program for psychosocial risk-mothers and their infants. **Nordic Journal of Psychiatry, 52**, 501–511.

Weiner, A., Kuppermintz, H. and Guttmann, D. (1994), Video home training (the Orion Project): A short-term preventive and treatment intervention for families with young children. **Family Process, 33** (4), 441–453. doi: 10.1111/j.1545-5300.1994.00441.x

The ***Promoting First Relationships*** Program (Kelly et al., 2008)

Description and rationale

The *Promoting First Relationships* program (http://pfrprogram.org/) aims to encourage the social-emotional development of the child by promoting responsive and nurturing mother-child relationships, or maternal sensitivity. Service providers model a healthy relationship with the mother, demonstrate empathy and understanding of the mother's situation, and design strategies that take into

account both the mother's and child's needs. They also seek to increase the mother's knowledge and experience of their infant. Four consultation strategies are used: joining, reflective observation, positive verbal feedback, and reflective questions. The ***Promoting First Relationships*** Program offers a practical way of training service providers to help parents and other caregivers provide sensitive and responsive caregiving that can result in mutually satisfying caregiver-child relationships

The sessions are held either at the home or at a clinic. These sessions usually commence at the age of 6 months and include videotaping mother-child interactions and offering positive verbal feedback to mothers.

The program requires sufficient training for service providers to become competent at providing positive, instructive feedback to caregivers. There are three different levels of Promoting First Relationships training available, including a three-day Learner's Workshop (Level 2) that is required prior to participating in Level 3 training.

Program materials include a 198-page revised Second Edition manual, a packet of handouts to be used with parents and other caregivers, and a 28-minute videotape or DVD.

Evidence-base

Kelly et al. (2008) report some encouraging initial results from a research and training project using the *Promoting First Relationship* approach to improve the relationship-focused skills of personnel serving young children, birth to 3, with disabilities and their families. Study results show an increase in relationship-focused staff practices as a result of training. In addition, results show an increase in parent sensitivity and responsiveness and a corresponding increase in child contingency and responsiveness during parent-child interactions from pre- to post-test.

Spieker et al. (2012) report on a community-based, randomised controlled trial using Promoting First Relationships (PFR) to improve parenting and toddler outcomes for toddlers. Community agency providers were trained to use PFR in the intervention for caregivers. From baseline to post-intervention, observational ratings of caregiver sensitivity improved more in the PFR condition than in the comparison condition. Caregiver understanding of toddlers' social-emotional needs and caregiver reports of child competence also differed by intervention condition post-intervention, with caregivers in the PFR condition reporting more understanding of toddlers and child competence. Two other randomised controlled trials using the PFR curriculum are underway.

Maher et al. (2008) report on a qualitative evaluation of a program implemented with 20 primarily low-income English- and Spanish-speaking grandparents providing childcare for infants and toddlers. The results demonstrated the perceived impact of

the program, the correspondence with outcomes in support of children's social and emotional development, and the program's feasibility for use with this population.

Suitability for right@home

The program does not require formal training or accreditation.

The program materials are readily available, relatively inexpensive, and include a 198-page revised Second Edition manual, an illustrated packet of handouts to be used with parents and other caregivers, and a 28-minute videotape or DVD.

Conclusion

Overall, this is a promising program. Although there are no reports of its use in Australia, it appears to be compatible with the right@home program and the materials are readily available.

Recommended for consideration for right@home.

References

Kelly, J. F., Zuckerman, T. G., Sandoval, D. & Buehlman, K. (2008). Promoting First Relationships: A Program for Service Providers to Help Parents and Other Caregivers Nurture Young Children's Social and Emotional Development (2nd Ed.). Seattle, Washington: NCAST-AVENUW Publications. http://www.pfrprogram.org/PFR_Curriculum.html

Kelly, J., Zuckerman, T. and Rosenblatt, S. (2008). Promoting first relationships: A relationship-focused early intervention approach. Infants & Young Children, 21 (4), 285-295.

Maher, E.J., Kelly, J. and Scarpa, J.P. (2008). A qualitative evaluation of a program to support family, friend, and neighbor caregivers. NHSA Dialog: A Research-to-Practice Journal for the Early Childhood Field, 11 (2), 69-89. DOI:

10.1080/15240750802018380

Spieker, S.J., Oxford, M.L., Kelly, J.F., Nelson, E.M. and Fleming, C.B. (2012). Promoting First Relationships: Randomized trial of a relationship-based intervention for toddlers in child welfare. Child Maltreatment, 17 (4), 271-286. doi: 10.1177/1077559512458176

Partners in Parenting Education (PIPE) (Dolezol & Butterfield, 1994)

Description and rationale

The PIPE program (www.howtoreadyourbaby.com/us/**pipe**) is a preventive intervention designed to develop a healthy relationship between a caregiver and infant. The goal is to increase the emotional availability and relationship-building skills of mothers to their infants. The PIPE curriculum and instructional model is experientially based and interactive. An educational partnership is created in which the parenting educator serves as the facilitator and coach, the mother represents the stable factor in the child's life, and the child is the teacher. The supervised activities in the instructional model are mother-child focused and aim to educate the caregivers about the emotional needs of the child. When mothers are able to read the cues of the infants, parenting becomes easier. The PIPE curriculum is divided into three units: listening, love is layers of sharing, and playing is learning.

Descriptions of various aspects of the PIPE program can be found in Butterfield (1996), Pipp-Siegel and Pressman (1996), Kubicek (1996), and Robinson and Glaves (1996).

Evidence-base

There are no published accounts of the program's efficacy.

Suitability for right@home

Requires training by certified PIPE trainers who have used PIPE in the field. Two-day trainings in PIPE are offered regularly in Colorado.

Conclusion

The lack of evidence and the lack of local training make this program unsuitable for right@home.

Not recommended for right@home

References

Butterfield, P.M. (1996). The Partners in Parenting Education Program: A new option in parent education, **Zero to Three, 17** (1).

Dolezol, S. and Butterfield, P.M. (1994). **Partners in Parenting Education.** Denver, Colorado: How to Read Your Baby.

Dolezal, S., Butterfield, R M., & Grimshaw, J. (1994). **Listen, listen, listen: A curriculum for Partners in Parenting Education.** Denver, Colorado: How to Read Your Baby Press.

Kubicek, L.F. (1996). Helping young children become competent communicators: The Role of relationships. **Zero to Three, 17** (1).

Pipp-Siegel, S. and Pressman, L. (1996). Developing a sense of self and others. **Zero to Three, 17** (1).

Robinson, J., Emde, R., & Korfmacher, J. (1997). Integrating an emotional regulation perspective in a program of prenatal and early childhood home visitation. **Journal of Community Psychology, 25**, 59–75

Robinson, J.L. and Glaves, L. (1996). Supporting emotion regulation and emotional availability through home visitation**. Zero to Three, 17** (1).

Mediational Intervention for Sensitizing Caregivers (MISC)(Klein, 2000, 2006)

Description and rationale

This approach has an educational focus, and is based upon theories of mediated learning (Klein, 1996). The objective of the developmental mediation approach is to promote a sound, facilitative adult-child relationship with a special focus on adults' teaching behaviour — enhancing and improving the literacy of interaction representing a child's 'mental diet'. Several basic characteristics of adults' behaviour that are necessary to create experiences of mediated learning for young children were empirically defined and identified, and subsequent empirical evidence suggests that these experiences may consequently promote the chances for cognitive and emotional development of young children by affecting their needs systems. These mediational processes include the following behaviours by adult caregivers: focusing, affecting, encouraging, expanding, and regulating behaviour.

The objective of the developmental mediation approach is to promote a sound, facilitative adult-child relationship with a special focus on adults' teaching behaviour — enhancing and improving the literacy of interaction representing a child's mental diet. One approach using the MISC is based on videotaping and providing video feedback of adult-child interactions. Adults view themselves interacting with their children and are helped to analyse their interactions in relation to their own views and perceptions of their child, themselves, their educational objectives, and the child's actual sensory profile and developmental status (Klein, 1996).

Evidence-base

Using the Mediated Learning Experience model, Klein (1991) conducted a longitudinal study aimed at improving the quality of parental interaction with very low birth weight children. Parents were randomly divided into an intervention and a

control group. The intervention group was visited at home, infrequently over seven months, by a mediator who identified basic criteria of quality of parent-child interaction and provided the parents with feedback on the quality of interaction with their own children. Parental behaviour following the intervention had changed significantly with respect to all criteria. Parents who had received intervention, as compared to the control group parents, provided their children with more behaviours related to focusing attention, exciting and rewarding, expanding children's understanding of the world around them, preplanning and regulating behaviour. Three years after the relatively non-intensive intervention, parents continued to show significant gains in quality of mediation.

Klein and Rye (2004) describe how basic principles of developmentally appropriate parental behaviour in Western cultures were integrated within the framework of indigenous practices of childrearing in Ethiopia as part of the interaction-oriented early intervention project in Addis Ababa. The Mediational Intervention for Sensitizing Caregivers (MISC) was chosen to improve the quality of adult-child interactions and consequently, to promote children's learning potential. One year following the intervention, mothers in the intervention group were more sensitive, responsive, and optimistic about their potential to affect their child's development than were the mothers in the comparison group. Parent-child interactions included less harsh commands and fewer orders. Six years following the intervention, significant changes were still noted in the quality of adult-child interactions and in developmental measures of the children. The findings confirmed that an increase in age-appropriate, sensitive and affective interactions had positive effects on children's cognitive and socioemotional development.

Lifshitz et al. (2010) have shown that the MISC approach is also effective with adults who have severe intellectual difficulties.

Suitability for right@home

This approach has been used in a number of different countries and cultural settings, with some success, but has not been trialled in Australia.

Conclusion

This program does not address parental responsivity directly, but has a more educational focus – which is not what is needed for this module, but may be applicable for the home learning right@home module.

Not recommended for right@home.

References

Klein, P.S. (1987). Promoting flexibility in young children's mind within the family — A cross cultural view. **International Journal of Early Childhood, 19** (2), 51-60.

Klein, P.S. (1991). Improving the quality of parental interaction with very low birth weight children: A longitudinal study using a Mediated Learning Experience model. **Infant Mental Health Journal, 12**: 321–337.

Klein, P.S. (1996). **Early Intervention: Cross-Cultural Experiences with a Mediational Approach.** New York; Garland Publishers.

Klein, P.S. (1997). A mediational approach to early intervention. **Journal of Development & Learning Disorders, 1** (1), 61-85.

Klein, P.S. (2000). A developmental mediation approach to early intervention; mediational intervention for sensitizing caregivers (MISC). **Educational & Child Psychology, 17** (3), 19-31.

Klein, P.S. (2006). The literacy of interaction: Are infants and young children receiving a 'mental diet' conducive for future learning? **Journal of Developmental Processes, 1** (1), 123-138.

Klein, P.S. and Rye, H. (2004). Interaction-oriented early intervention in Ethiopia: The MISC approach. **Infants and Young Children, 17** (4), 340-354.

Lifshitz, H., Klein, P.S. and Cohen, S.F. (2010). Effects of MISC intervention on cognition, autonomy, and behavioral functioning of adult consumers with severe intellectual disability. **Research in Developmental Disabilities, 31** (4), 881-894.

Developmental Parenting (Roggman, Boyce and Innocenti, 2008)

Description and rationale

The Developmental Parenting approach was designed as an Early Head Start home visiting program for low-income pregnant women and families with infants and toddlers. In the context of weekly home visits, the main intervention strategy is to spend at least three quarters of the visit time directly facilitating responsive parent–child play interactions to enhance the parentchild relationship and thereby promote child development. The elements of *developmental parenting* are explained in a useful (and inexpensive) book – *Developmental Parenting: A Guide for Early Childhood Practitioners (*Roggman et al., 2008).

Roggman et al. (2009) described how this approach was applied in the Bear River Early Head Start program, a home visiting program for low-income pregnant women and families with infants and toddlers in three rural counties in northern Utah and southern Idaho. The goal of the program was to improve children's developmental outcomes through a two-generation model by helping parents provide more of the

experiences infants and toddlers need for developing attachment security and cognitive skills. The program was designed to provide child and family development services in weekly home visits and socialisation groups for parents and children. Staff members worked to foster positive parent–child interactions, to enhance parents' understanding of their children's development, to encourage parents to engage in activities with their children that promote development, and to help families access needed services in the community.

The Bear River Early Head Start program's approach was based on an assumption that child development can be supported by helping parents improve the quality of their parenting interactions. Parents in Bear River Early Head Start were guided to read their infants' cues, respond to their physical and emotional needs, and enjoy playful interactions with them. These aspects of parenting were emphasised because the program's theory of change, or assumptions about expected outcomes and effective strategies, incorporated the premise that secure attachment and playful exploration are important for early social and cognitive development. In the program's theory of change, the primary goal was to strengthen families of infants and toddlers by promoting positive infant–parent interaction. The program's primary objectives for parents included more positive parent–infant play interactions, more nurturing and responsive parenting, and more knowledge about child development.

In the context of weekly home visits with a home visitor, or *family educator*, the main intervention strategy was to spend at least three quarters of the visit time directly facilitating responsive parent–child play interactions to enhance the parentchild relationship and thereby promote child development. Specific strategies used to promote positive infant–parent interaction included highlighting positive aspects of activities, pointing out the infant's response to the mother, encouraging the mother's response to the infant, asking the parent about the infant's interests and abilities, and discussing concepts of development specific to the infant's emerging abilities (Roggman et al., 2008). Home visits were planned in collaboration with parents, individualised to family needs, used primarily household materials, and adapted to the changing needs and development of the family. The flexibility, individualisation, and focus of these visits were thought to be particularly helpful for parents with depression or limited education because they received information at a basic level and were directly supported in their interactions with their children.

Evidence-base

Only two studies have been reported. Roggman, Boyce and Cook (2009) reported on a study to test whether a parenting-focused home-visiting program – the Bear River Early Head Start – could keep children on track developmentally, given their earlier development and the risk factors facing their families. They found that, compared to a comparison group, there were significant benefits to the Early Head Start children over and above earlier assessments and risk variables by 18 months in children's attachment security scores and by 36 months in children's cognitive

standard scores. The impact of the program on attachment security was greater for mothers with low education.

Roggman and Cook (2011) examined early attachment insecurity in relation to physical punishment and child aggression at ages two and three in the context of risk and intervention. A sample of 161 low-income families were randomly assigned either to a comparison group or to an Early Head Start program that provided weekly home visits aimed at increasing positive aspects of parenting behaviours. Children with higher security scores were less likely to be spanked at age three and less likely to be aggressive at ages two and three. Early Head Start made an independent contribution to less spanking at age three, over and above family risk factors, earlier attachment security, or earlier spanking. The results suggest that a secure attachment relationship and a parenting-focused home visiting intervention can reduce the physical punishment associated with child aggression and thereby indirectly reduce early childhood aggression.

Measures

Two useful measures have been developed by this group:

Roggman, L. A., Cook, G. A., & Jump Norman, V. K. (2008). *Parent Satisfaction with the Home Visitor and Home Visit: A survey for parents.* In L. A. Roggman, L. K. Boyce, and M. S. Innocenti, **Developmental Parenting: A Guide for Early Childhood Practitioners** (pp. 206-208). Baltimore: Paul H. Brookes Publishing.

Roggman, L. A., Cook, G. A., & Jump Norman, V. K., Christiansen, K., Boyce, L. K., & Innocenti, M. S. (2008). *Home Visit Rating Scales (HOVRS)*. In L. A. Roggman, L. K. Boyce, and M. S. Innocenti, **Developmental Parenting: A Guide for Early Childhood Practitioners** (pp. 209-217). Baltimore: Paul H. Brookes Publishing.

Suitability for right@home

This approach has not been used in Australia yet, and it unclear what the training needs are.

Conclusion

In terms of evidence, this is a promising program that has not yet had time to accumulate a body of evidence. However, the overall approach is very compatible with the right@home framework, and has much to recommend it.

Worth considering for right@home.

References

Roggman, L.A., Boyce, L.K. and Cook, G.A. (2009). Keeping kids on track: Impacts of a parenting-focused Early Head Start program on attachment security and cognitive development. **Early Education & Development, 20** (6), 920-941. DOI:

10.1080/10409280903118416

Roggman, L.A., Boyce, L.K. and Innocenti, M.S. (2008). **Developmental Parenting: A Guide for Early Childhood Practitioners.** Baltimore, Maryland: Paul H. Brookes.

Roggman, L.A. and Cook, G.A. (2011). Attachment, aggression, and family risk in a low-income sample. **Family Science, 1** (3-4), 191-204. doi: 10.1080/19424620.2010.567829

The Mother-Infant Transaction Program (Rauh et al., 1990)

Description and rationale

The Mother-Infant Transaction Program is a brief, economic neonatal intervention based on the transactional model of development and influenced predominantly by the conceptual design of the Neonatal Behavioral Assessment Scale. It was designed for use with mothers of low-birthweight infants.

Evidence-base

This program has been used successfully in several randomised controlled trials, including trials in Norway and one in Australia. A randomised controlled trial conducted by Achenbach et al. (1990) found that the Mother-Infant Transaction Program intervention prevented cognitive lags among low-birthweight children, and that long-term follow-ups are needed to evaluate the developmental effects of efforts to overcome major biological and environmental risks.

In a Norwegian study, Kaaresen et al. (2006) conducted a randomised controlled trial of the effects of an early-intervention program (a modified version of the Mother-Infant Transaction Program) on parenting stress after a preterm birth until 1 year corrected age. They found that this early-intervention program reduces parenting stress among both mothers and fathers of preterm infants to a level comparable to their term peers. The intervention was also successful in sensitising mothers to the temperamental regulatory competence of their preterm infants (Olafsen et al., 2008). A follow-up study found improved cognitive outcomes at corrected age of 5 years for children with birthweights of <2000 g. (Nordhov et al., 2010).

In another Norwegian randomised controlled trial, Ravn et al. (2011) found evidence that the Mother Infant Transaction Program contributed to better mother–infant interactions in moderately and late preterm infants of first-time mothers.

In an Australian study, Newnham et al. (2009) randomly assigned mothers of hospitalised preterm infants into an intervention or control condition. Intervention mothers received a modified Mother–Infant Transaction Program over seven sessions

prior to infant discharge and two sessions over the next three months. Infant temperament, mother–infant interaction and parenting stress were assessed at 3 and 6 months and infant development was measured by parental report at 24 months. Intervention compared with control dyads showed enhanced mother–infant interactions, infants were temperamentally more "approaching" and "easier", had fewer regulatory problems (colic, sleep, excessive crying), and had more developed communication skills, while mothers were less stressed by their infant at 3 months. These early gains in the development of preterm infants and in the relationship with and adjustment of their mothers, may explain the process by which intervention infants in the original study (Rauh et al., 1990) showed increasing cognitive advantages to 9 years of age.

Suitability for right@home

This program was specifically designed for mothers of low birthweight babies, so it applicability to a wider population is unknown.

It is unclear what resources are available or training is required.

Conclusion

It would be worth discussing this program with the Australian researchers who have used it.

Possible consideration for right@home.

References

Achenbach, T. M., Phares, V., Howell, C. T., Rauh, V. A. and Nurcombe, B. (1990). Seven-year outcome of the Vermont Intervention Program for Low-Birthweight Infants. **Child Development, 61** (6), 1672–1681. doi: 10.1111/j.1467-8624.1990.tb03558.x

Kaaresen, P.I., Rønning, J.A., Ulvund, S.E. and Dahl, L.B. (2006). A randomized, controlled trial of the effectiveness of an early-intervention program in reducing parenting stress after preterm birth. **Pediatrics, 118** (1), e9 -e19. doi: 10.1542/peds.2005-1491.

Newnham, C.A., Milgrom, J. and Skouteris, H. (2009). Effectiveness of a modified Mother–Infant Transaction Program on outcomes for preterm infants from 3 to 24 months of age. **Infant Behaviour and Development, 32** (1), 17–26. http://dx.doi.org/10.1016/j.infbeh.2008.09.004

Nordhov, S.M., Rønning, J.A., Dahl, L.B., Ulvund, S.E., Tunby, J. and Kaaresen, P.I. (2010). Early intervention improves cognitive outcomes for preterm infants: Randomized controlled trial. **Pediatrics, 126** (5), e1088-e1094. doi:10.1542/peds.2010-0778

Olafsen, K.S., Kaaresen, P.I., Handegårda, B.H., Ulvund, S.E., Dahl, L.B. and Rønning, J.A. (2008). Maternal ratings of infant regulatory competence from 6 to 12 months: Influence of perceived stress, birth-weight, and intervention: A randomized controlled trial. **Infant Behavior and Development, 31** (3), 408–421. http://dx.doi.org/10.1016/j.infbeh.2007.12.005,

Rauh, V.A., Nurcombe, B., Achenbach, T. and Howell, C. (1990). The Mother-Infant Transaction Program: the content and implications of an intervention for the mothers of low-birthweight infants. **Clinical Perinatology, 17** (1), 31–45.

Ravn, I.H., Smith, L., Lindemann, R., Smeby, N.A., Kyno, N.M., Bunch, E.H. and Sandvik, L. (2011). Effect of early intervention on social interaction between mothers and preterm infants at 12 months of age: A randomized controlled trial. **Infant Behavior and Development, 34** (2), 215–225. http://dx.doi.org/10.1016/j.infbeh.2010.11.004

The Circle of Security (Hoffman et al., 2006)

Description and rationale

The Circle of Security (www.circleofsecurity.org) is an educational and group therapy intervention that focuses on changing maladaptive interactive patterns between parents and children, to promote children's emotional security with parents (Cooper et al., 2005; Hoffman et al., 2006; Marvin et al., 2002; Powell et al., 2007, 2009). It accomplishes this primarily through videotaping parent-child interactions in a laboratory setting using standard protocols, and reviewing the videotapes of each group member in the group setting. Parents thus learn to appreciate their strengths, and change the aspects of their parenting style that are problematic. The intervention is based on attachment theory and research that shows that children have complementary and reciprocal needs to outwardly explore their worlds with confidence and the support of parents, and return to the proximity of parents for comfort and care when needed. The exploration-attachment dimensions of children's needs are presented as a continuous 'circle of security' that lays a foundation for children's social and emotional development.

Cassidy et al. (2011) have developed a home visiting version of this intervention – the Circle of Security Home Visiting (COS-HV4) Intervention (Cooper et al., 2000). This consists of four home visits commencing when infants were in the second half of their first year. Central to the intervention is the concept of the parent as a secure base who provides the infant with a sense of felt security. The intervention begins with helping the mother enhance her observation skills by helping her to understand what it is that infants need and to recognise infant signals related to these needs and then focuses on helping the mother to select and implement sensitive responses. This intervention is designed to help mothers attend to both infant

attachment and exploratory behaviours (eg. the intervention highlighted the importance of soothing a crying infant as well as the importance of fostering the infant's play in a supportive and nonintrusive way). The intervention is tailored to the individual characteristics of each particular infant and mother, and the approach was one in which the intervener was curious, supportive and nonjudgmental.

The Circle of Security approach has also been adapted for use in child care settings. (Dolby, 2007) and with Aboriginal populations (Lee et al., 2010.)

Evidence-base

According to Zeanah et al. (2011), there are preliminary data on the efficacy of the Circle of Security intervention. Although no randomised controlled trial has been conducted, the Circle of Security intervention is closely linked to attachment theory and research and, in its use of video feedback and promotion of caregiver reflection, leverages emerging best practices. Trials by the developers (Hoffman et al., 2006) suggest that the Circle of Security protocol is a promising intervention for the reduction of disorganised and insecure attachment in high-risk toddlers and preschoolers. According to Powell et al. (2009), there is encouraging preliminary data that the Circle of Security protocol is effective in reducing disorganisation and increasing security for children in the age range between toddler and early school years. They note the need for replication and RCTs conducted by other investigators to demonstrate the efficacy of this approach.

Dolby (2007) describes how the Circle of Security approach can be used to help educators and carers to look beyond children's immediate behaviour to meet their genuine relationship needs. Everyone has an 'emotional roadmap'—it's how we understand and interact with the world. By examining how each child's roadmap develops, the Circle of Security approach helps us to look beyond children's immediate behaviour to meet their genuine relationship needs. Dolby focuses on what is at the heart of high-quality child care and education: strong, secure relationships – supporting practitioners to connect deeply with children

Interventions may be differentially effective with infants of different temperaments. Studies by van den Boom (1994) and Cassidy et al. (2011) found that interventions to increase the rate of secure infant attachment were more effective with highly irritable infants. The Cassidy et al. (2011) study was a randomised controlled trial that used a four session home visiting version of the Circle of Security intervention – the Circle of Security Home Visiting (COS-HV4) Intervention. Although there were no significant differences between the intervention and control groups, the program was found to be particularly beneficial for highly irritable infants – they became disproportionately better attached than moderately irritable infants in the intervention program.

Suitability for right@home

In its original form, this intervention is a group-based program, making it unsuitable for right@home. However, the home-visiting adaptation (Cassidy et al., 2011) looks promising and could be worth exploring, although there is limited evidence to support it at this stage.

A four day training course is required for the group format (one is scheduled for Melbourne in March at a cost of $1000).

Conclusion

The evidence base for the group form of the intervention is not strong, and there is promising but limited evidence for the efficacy of the home-visiting adaptation at this stage. Questions have been raised about the thoroughness of the training provided.

Not recommended for right@home at this stage.

References

Cassidy, J., Woodhouse, S.S., Sherman, L.J., Stupica, B. and Lejuez, C.W. (2011). Enhancing infant attachment security: an examination of treatment efficacy and differential susceptibility. **Development & Psychopathology, 23** (1):131-48.

Cooper, G., Hoffman, K., Powell, B., & Marvin, R. (2005). The Circle of Security intervention: Differential diagnosis and differential treatment. In L. J. Berlin, Y. Ziv, L. M. Amaya-Jackson & M. T. Greenberg (Eds.), **Enhancing early attachments: Theory, research, intervention, and policy.** New York: Guilford Press.

Dolby, R. (2007). **The Circle of Security: Roadmap to building supportive relationships.** Canberra, ACT: Early Childhood Australia.

Hoffman, K.T., Marvin, R.S. Cooper, G. and Powell, B. (2006). Changing toddlers' and preschoolers' attachment classifications: The Circle of Security intervention. **Journal of Consulting and Clinical Psychology, 74 (**6), 017-1026.

Lee, L., Griffiths, C., Glossop, P. & Eapen, V. (2010). The Boomerangs Parenting Program for Aboriginal parents and their young children. **Australasian Psychiatry, 18** (6), 527–33.

Hoffman, K.T., Marvin, R.S. Cooper, G. & Powell, B. (2006). Changing toddlers' and preschoolers' attachment classifications: The Circle of Security intervention. **Journal of Consulting and Clinical Psychology, 74 (**6), 1017-1026.

Marvin, R., Cooper, G., Hoffman, K. & Powell, B. (2002). The Circle of Security project: Attachment-based intervention with caregiver–pre-school child dyads. **Attachment and Human Development, 4** (1), 107–124.

Powell, B., Cooper, G., Hoffman, K. and Marvin, R. (2007). The Circle of Security Project: A case study—"It hurts to give that which you did not receive." In D. *Oppenheim and D.F. Goldsmith, D.F. (Eds.).* **Attachment Theory in Clinical Work with Children: Bridging the Gap between Research and Practice. New York: Guilford Press.**

Powell, B., Cooper, G., Hoffman, K. and Marvin, R.S. (2009). The Circle of Security. In C.H. Zeanah (Ed.) **Handbook of Infant Mental Health (3rd. Ed.).** New York: Guilford Press.

Powell, B., Cooper, G., Hoffman, K. & Marvin, R. (2007). The Circle of Security Project: A case study—"It hurts to give that which you did not receive." In D. Oppenheim & D.F. Goldsmith (Eds.). **Attachment Theory in Clinical Work with Children: Bridging the Gap between Research and Practice.** New York: Guilford Press.

Zeanah, C.H., Berlin, L.J. and Boris, N.W. (2011). Practitioner review: clinical applications of attachment theory and research for infants and young children. **Journal of Child Psychology & Psychiatry & Allied Disciplines. 52** (8), 819-33.

Attachment and Biobehavioral Catch-up (ABC) (Dozier et al., 2005)

Description and rationale

The ABC (http://icp.psych.udel.edu/index.htm) is a 10-session intervention aimed at reducing barriers to the development of secure attachment relationships between foster parents and the young children in their care (Dozier et al., 2005). It addresses four major areas of challenge facing caregivers who foster young children: (a) young children in foster care may reject care that is offered to them, (b) caregivers' own histories may interfere with their providing nurturing care, (c) young children in foster care may need special help with self-regulation, and (d) young maltreated children may be especially sensitive to frightening behaviour in caregivers. These premises were used to develop the ABC program's four treatment modules: (a) parental nurturance, (b) following the child's lead, (c) 'overriding' one's own history and/or non-nurturing impulses, particularly as regards off-putting behaviour and negative emotional reactions in children, and (d) avoiding frightening behaviour with the child. Videotaped examples drawn from interactions between the foster parent and foster child are used to discuss and develop these themes. In addition,

live interactions between parent and child are included as part of the therapeutic focus.

Evidence-base

Preliminary findings from randomised trials with foster parents and infants (Dozier & Bernard, 2009; Dozier et al., 2006; Dozier et al., 2009) suggest that those infants who received the ABC treatment were more likely to be securely attached than those who did not.

Suitability for right@home

The program was designed for a different target group than the families that right@home will be working with, and has not been used with biological parents.

Conclusion

Not recommended for right@home

References

Dozier, M. & Bernard, K., (2009). The impact of attachment-based interventions on the quality of attachment among infants and young children. In: Tremblay RE, Barr RG, Peters RDeV, eds. **Encyclopedia on Early Childhood Development** [online]. Montreal, Quebec: Centre of Excellence for Early Childhood Development; 2004:1-5.

Dozier, M., Lindeheim, O., & Ackerman, J. (2005). Attachment and Biobehavioral Catch-up: An intervention targeting empirically identified needs of foster infants.. In L. Berlin, Y. Ziv, L. Amaya-Jackson, & M.T. Greenberg (Eds.), **Enhancing Early Attachments**. New York: Guilford Press.

Dozier, M., Peloso, E., Lindhiem, O., Gordon, M. K., Manni, M., Sepulveda, S., Ackerman, J., Bernier, A. & Levine, S. (2006). Developing evidence-based interventions for foster children: An example of a randomized clinical trial with infants and toddlers. **Journal of Social Issues, 62** (4), 765 -783.

Dozier, M., Lindehiem, O., Lewis, E., Bick, J., Bernard, K., & Peloso, E. (2009). Effects of a foster parent training program on young children's attachment behaviors: Preliminary evidence from a randomized clinical trial. **Child Adolescent Social Work, 26**, 321-332. DOI 10.1007/s10560-009-0165-1

The UCLA Family Development Project (Heinicke et al., 1999)

Description and rationale

The aim of the UCLA Family Development Project is to enhance the capacity of the members of a family to support each other and to effectively recognise and meet the needs of their infant. This is a comprehensive range of interventions that include a number of different elements, including pre- and post-natal health care; weekly home visits for the first year and then every other week for the second year; weekly mother-infant group; developmental assessment at the 1 and 2 year points; and psychiatric services where needed.

Home visits are provided by a mental health-child development home visitor who builds a positive relationship with the mothers and seeks to address issues that the mother is concerned about. This ranges from simply listening to her concerns, to offering direct help in responding to her infant. At about two months, the mothers are encouraged to join a mother-infant group where they can meet and interact with other mothers, who may share the same questions and concerns.

Evidence-base

There has been one randomised controlled trial study reported (Heinicke et al., 1999; 2000, 2001) showing support for the efficacy of this comprehensive intervention.

Suitability for right@home

Home visits were conducted by mental health professionals.

Details of the actual protocols and curriculum are not publically available. Training needs are also unclear.

Conclusion

This program is more comprehensive than is required for the right@home program, and does not seem to be easily accessible.

Not recommended for right@home

References

Heinicke, C.M., Goorsky, M., Levine, M., Ponce, V., Ruth, G., Silverman, M. & Sotelo, C. (2006) Pre and postnatal antecedents of a home visiting intervention and family developmental outcome. **Infant Mental Health Journal, 27** (1), 91-119.

Heinicke, C. M., Fineman, N. R., Ponce, V. A. and Guthrie, D. (2001). Relation-based intervention with at-risk mothers: outcome in the second year of life. **Infant Mental Health Journal, 22** (4), 231-262.

Heinicke, C. M., Goorsky, M., Moscov, S., Dudley, K., Gordon, J., Schneider, C. and Guthrie, D. (2000). Relationship-based intervention with at-risk mothers: factors affecting variations in outcome. **Infant Mental Health Journal, 21**(3), 133-155.

Heinicke, C. M., Fineman, N. R., Ruth, G., Recchia, S. L., Giuthrie, D. and Rodning, C. (1999). Relationship-based intervention with at-risk mothers: Outcome in the first year of life. **Infant Mental Health Journal, 20** (4), 349-374.

Heinicke, C. M. and Ponce, V. A. (1999). Relation-based early family intervention. In D. Cicchetti & S. L. Toth (Eds.), **Rochester Symposium on Developmental Psychopathology. Volume 9: Developmental Approaches to Prevention and Intervention.** Rochester: University of Rochester Press.

It Takes Two to Talk: The Hanen Program for Parents (Girolametto & Weitzman, 2006)

Description and rationale

A well-known approach that exemplifies the responsive parenting approach is the Hanen Program of Parents (Girolametto and Weitzman, 2006). This aims to increase the child's social communication skills and language development by enhancing the quality of interaction between the parent and child. Parents are taught that interaction should usually be initiated and controlled by the child. They are explicitly taught to follow their child's attentional lead and respond contingently to the child's behaviour in a manner that is congruent with the child's immediate interests. Methods of modelling, recasting, and expansions of the child's communication attempts are taught and of course strongly encouraged while the use of directives such as imitation prompts and test questions, are discouraged because it is assumed that they will disrupt the flow of interaction and the child's attentional engagement.

Parent groups are led by a Hanen Certified speech language pathologist, who has received specialised training at a Hanen certification workshop. These groups are offered to groups of parents (up to eight families per program) and have three major components: a pre-program assessment and baseline videotaping of parent-child interaction; a minimum of 16 hours (six to eight sessions) of group training for parents; and three individual video feedback sessions for each parent attending the program (parent-child interaction is videotaped by and reviewed with the speech language therapist).

Evidence-base

Girolametto and his colleagues have conducted several investigations (including randomised controlled trials) of the effects of the Hanen Parent Training Program (Girolametto, 1988; Girolametto et al., 1996a, 196b, 1998; Tannock et al., 1992). This research has consistently demonstrated direct effects of this particular approach on various measures of communication and language development with young children with language delays including children with Down syndrome (Girolametto and Weitzman, 2006). The most substantial of effects in these studies have been on various measures of language usage, as opposed to measures of language acquisition. That is, it is clear that enhanced parent responsivity leads to more frequent communication and language use by young children with developmental delays, but it is not as clear that enhanced responsivity has a major impact on their acquisition of new language forms and functions.

Suitability for right@home

Training is available in Australia, but the group format means that it would supplement home visiting rather than form an integral part of the home visits.

Conclusion

This approach focuses on promoting parental responsivity to child language, and therefore should be considered for potential inclusion as part of a language promotion module.

For consideration as a supplementary program for right@home

References

Girolametto, L. (1988). Improving the social-conversational skills of developmentally delayed children: An intervention study. **Journal of Speech and Hearing Disorders, 53**, 156-167.

Girolametto, L., Pearce, P. & Weitzman, E. (1996a). The effects of focused stimulation for promoting vocabulary in children with delays: A pilot study. **Journal of Childhood Communication Development, 17**, 39-49.

Girolametto, L., Pearce, P. & Weitzman, E. (1996b). Interactive focused stimulation for toddlers with expressive vocabulary delays. **Journal of Speech and Hearing Research, 39,** 1274-1283.

Girolametto, L. & Weitzman, E. (2006). It Takes Two to Talk — The Hanen Program for Parents: Early language intervention through caregiver training. In R. McCauley and M. Fey (Eds.). **Treatment of Language Disorders in Children.** Baltimore, Maryland: Paul h. Brookes.

Girolametto, L., Weitzman, E., & Clements-Baartman, J. (1998). Vocabulary intervention for children Down syndrome: Parent training using focused stimulation. **Infant-Toddler Intervention: A Transdisciplinary Journal, 8,** (2), 109-126.

Tannock, R., Girolametto, L. & Siegel, L. (1992). Language intervention with children who have developmental delays: Effects of an interactive approach. **American Journal of Mental Retardation, 97**, 145-160.

Play and Learning Strategies (PALS) (Landry, Smith and Swank, 2006)

Description and rationale

This home visiting program is designed to teach at-risk mothers of infants to engage in a highly responsive style that shares many similarities with the style taught by the Hanen Program. Its goal is to establish a style that includes four different aspects of responsiveness – contingent responding, emotional-affective support, support for infant foci of attention, and language input match to developmental needs.

The program is designed to be delivered in 10 weekly 90-min home visits by a trained parent educator who presents each session to the parent(s) and coaches the parent(s) in utilizing the specific techniques.

There are two versions of the program: PALS I Infant curriculum for families with children 5 months to 1 year, which consists of 10 weekly sessions; and PALS II Toddler curriculum for children 18 months to 3 years, which consists of 12 weekly sessions. Both versions are offered through 90-minute home visits conducted by a parent educator.

Parent educators are required to receive training and certification from the program developer, the Children's Learning Institute at the University of Texas Health Science Center.

Evidence-base

There is a good body of high quality studies to support the efficacy of this program. The program has been used with mothers of very low birthweight children, and a randomised controlled trial demonstrated that it was effective in helping the mothers become more responsive and in promoting children's social, emotional, communication and cognitive competence (Landry et al., 2003, 2006). The results of these and other studies (Gutentag et al., 2006; Landry, Smith et al., 2008) have been summarised by Landry, Taylor et al. (2008). These findings provide support for a causal role of responsive parenting in promoting more optimal development for children at risk for developmental problems.

Suitability for right@home

Parent educators are required to receive training and certification from the program developer, the Children's Learning Institute at the University of Texas Health Science Center.

Conclusion

Access to training is a major barrier, as is the length of the sessions and the structured nature of the curriculum – it would not be able to be easily incorporated into the right@home program. However, the general focus of this program is certainly compatible with the aims of right@home.

Not recommended for right@home.

References

Guttentag, C.L., Pedrosa-Josic, C., Landry, S.H., Smith, K.E., & Swank, P.R (2006). Individual variability in parenting profiles and predictors of change: Effects of an intervention with disadvantaged mothers. **Journal of Applied Developmental Psychology, 27** (4), 349-369.

Landry, S.H., Smith, K.E. and Swank, P.R. (2003). The importance of parenting during early childhood for school-age development. **Developmental Neuropsychology, 24** (2-3), 559-591.

Landry, S.H., Smith, K.E. and Swank, P.R. (2006). Responsive parenting: establishing early foundations for social, communication, and independent problem-solving skills. **Developmental Psychology, 42** (4), 627–642.

Landry, S.H., Smith, K.E., Swank, P.R. and Guttentag, C. (2008). A responsive parenting intervention: The optimal timing across early childhood for impacting maternal behaviors and child outcomes. **Developmental Psychology, 44** (5), 1335–1353.

Landry, S.H., Smith, K.E., Swank, P.R., Zucker, T., Crawford, A. and Solari, E.F. (2012). The effects of a responsive parenting intervention on parent–child interactions during shared book reading. **Developmental Psychology, 48** (4), 969-986. doi: 10.1037/a0026400

Landry, S.H., Taylor, H.B., Guttentag, C. and Smith, K.E. (2008). Responsive Parenting: Closing the learning gap for children with early developmental problems. **International Review of Research in Mental Retardation, 36**, 27–60. http://dx.doi.org/10.1016/S0074-7750(08)00002-5

Mothers and Toddlers Program (Suchman et al., 2009)

Description and rationale

The Mothers and Toddlers Program (MTP) treatment model, a 12-session, attachment-based individual therapy for substance-using mothers of children birth to 3 years of age. The MTP aims to improve maternal reflective functioning and representation. It is a clinic-based program delivered by therapists.

Evidence-base

Preliminary results from a randomised controlled trial (Suchman et al., 2010, 2011) have been reported and suggest promising results. Other analyses (Suchman et al., 2012) suggest the potential value of attachment-based parenting interventions for improving mother-child relations for substance-abusing mothers and the importance of providing these interventions in clinic settings where mothers have access to comprehensive care (eg. psychiatric services).

Suitability for right@home

This is a clinic-based program delivered by therapists, and has only been used with substance-abusing parents.

Conclusion

Not recommended for right@home

References

Suchman, N., DeCoste, C. and Mayes, L. (2009). The Mothers and Toddlers Program: An Attachment-Based Intervention for Mothers in Substance Abuse Treatment. In C.H. Zeanah (Ed.) **Handbook of Infant Mental Health (3rd. Ed.).** New York: Guilford Press.

Suchman, N.E., DeCoste, C., Castiglioni, N., McMahon, T.J., Rounsaville, B. and Mayes, L. (2010). The mothers and toddlers program, an attachment-based parenting intervention for substance using women: Post-treatment results from a randomized clinical pilot. **Attachment and Human Development, 12** (5), 483-504.

Suchman, N.E., Decoste, C., Mcmahon, T.J., Rounsaville, B. and Mayes, L. (2011). The Mothers and Toddlers program, an attachment-based parenting intervention for substance-using women: Results at 6-week follow-up in a randomized clinical pilot. **Infant Mental Health Journal, 32** (4), 427-449.

Suchman, N.E., Decoste, C., Rosenberger, P. and Mcmahon, T.J. (2012). Attachment-based intervention for substance-using mothers: A preliminary test of the proposed mechanisms of change. **Infant Mental Health Journal, 33** (4), 360-371

Watch, Wait and Wonder (Muir et al., 2000; Cohen et al., 2006)

Description and rationale

Watch, Wait and Wonder (http://watchwaitandwonder.com/) is a child-led psychotherapeutic approach that specifically and directly uses the infant's spontaneous activity in a free play format to enhance maternal sensitivity and responsiveness, the child's sense of self and self-efficacy, emotion regulation, and the child-parent attachment relationship. The approach provides space for the infant/child and parent to work through developmental and relational struggles through play. Also central to the process is engaging the parent to be reflective about the child's inner world of feelings, thoughts and desires, through which the parent recognises the separate self of the infant and gains an understanding of her own emotional responses to her child.

The term *watch, wait and wonder* was coined by Johnson, Dowling and Wesner (1980) in the context of a discussion of infant psychotherapy. Because of the central role of the infant/child in the intervention and the relationship focus, Watch, Wait and Wonder differs from other psychotherapeutic interventions which tend to focus primarily on the more verbal partner, the parent. The approach emphasises the child as the initiator and agent of change in infant-parent psychotherapy. The specific and ultimate aim is to enable the mother to follow her infant's lead.

Evidence-base

Cohen et al. (1999, 2002) compared two forms of psychodynamic psychotherapeutic interventions – Watch, Wait, and Wonder (WWW) and a more traditional mother–infant psychotherapy (PPT) approach – with clinically referred infants and their mothers. Both programs were successful in reducing infant-presenting problems, decreasing parenting stress, and reducing maternal intrusiveness and mother–infant conflict. The WWW group showed a greater shift toward a more organised or secure attachment relationship and a greater improvement in cognitive development and emotion regulation than infants in the PPT group. Moreover, mothers in the WWW group reported a larger increase in parenting satisfaction and competence and decrease in depression compared to mothers receiving PPT. These positive effects observed from the beginning to the end of treatment in both treatment groups in infant symptoms, parenting stress, and mother–infant interaction were maintained or improved further at six-month follow-up (Cohen et al., 2002).

Suitability for right@home

This intervention requires accredited training. An introductory three-day workshop run by two accredited International Trainers was recently run by Karitane in Sydney. Courses have also been run by Relationships Australia.

A Watch, Wait and Wonder training DVD is available from Good Beginnings ($65).

The program is reported to have been adapted in Australia by Dr Michael Zilibowitz, Developmental and Behavioural Paediatrician in Sydney, to make it more readily available as a universal parent education program, but there are no published details of the revised program or its evidence.

Conclusion

This program was designed as an infant psychotherapy program rather than a more general strategy for use with families such as those that right@home is aiming at. The program's efficacy with a more general population has yet to be demonstrated.

Not recommended for right@home.

References

Cohen, N.J., Lojkasek, M. & Muir, E. (2006). Watch, Wait, and Wonder: An infant-led approach to infant-parent psychotherapy. **The Signal**, April-June, 1-4. http://www.waimh.org/Files/Signal/Signal_2006_14_2.pdf

Cohen, N. J., Lojkasek, M., Muir, E., Muir, R. and Parker, C. J. (2002). Six-month follow-up of two mother–infant psychotherapies: Convergence of therapeutic outcomes. **Infant Mental Health Journal, 23** (4), 361–380. doi: 10.1002/imhj.10023

Cohen, N.J, Muir, E., Lojksek, M., Muir, R., Parker, C.J., Barwick, M.B., & Brown, M. (1999). Watch, Wait, and Wonder: Testing the effectiveness of a new approach to mother-infant psychotherapy. **Infant Mental Health Journal, 20**, 429-451.

Johnson, F.K., Dowling, J. and Wesner, D. (1980). Notes on infant psychotherapy. **Infant Mental Health Journal, 1** (1), 19-33.

Lojkasek, M., Muir, E. and Cohen, N.J. (2008). Watch, Wait and Wonder: Infants as agents of change in a play-based approach to mother-infant psychotherapy. In C.E. Schaefer, S. Kelly-Zion, J. McCormick and A. Ahnogi (Eds.). **Play Therapy for Very Young Children**. Lanham, Maryland: Jason Aronson.

Muir, E., Lojkasek, M. and Cohen, N.J. (2000). **Watch, Wait & Wonder: A Manual Describing a Dyadic Infant-led Approach to Problems in Infancy and Early Childhood.** Toronto, Ontario: Hincks-Dellcrest Institute

Rance, S. (2005). Attending to early relationship difficulties: Applying the 'Watch, Wait and Wonder' approach in a pilot approach for babies and infants. **Infant Observation, 8** (2), 125-138.

The Nursing Child Assessment Satellite Training (NCAST) programs (Barnard et al., 1983; Sumner & Spietz, 1994) (www.ncast.org)

Description and rationale

NCAST have developed several programs for use with vulnerable families of infants and toddlers, including the Parent-Child Interaction (PCI) Feeding and Teaching scales, the Keys to Caregiving resources, and the Promoting First Relationships program. The first two are described below, while the third has been described already.

Parent-Child Interaction (PCI) Feeding and Teaching scales

Developed by Kathryn Barnard in the 1970s, the NCAST Parent-Child Interaction (PCI) Feeding and Teaching scales are a reliable and valid means of observing and rating caregiver-child interaction for the purpose of assessing a dyad's strengths and areas needing improvement. The scales are widely used in both clinical practice and research with families and young children. They are used as pre and post-test measures and contain a well-developed set of observable behaviours that describe the caregiver-child communication and interaction during either a feeding situation, birth to 12 months of life, or a teaching situation, birth to 36 months of age. The Feeding Scale is used with infants birth to 1 year of age, and the Teaching Scale is appropriate for children from birth to 36 months.

Keys to Caregiving resources

Keys to Caregiving is described as a research-based program that seeks to increase parent's knowledge of the infant's capabilities and build competence and confidence in their caregiving. It takes the form of a series of videos and parent handouts about how to settle a baby, how to interpret their non-verbal cues and the importance of the feeding interaction.

Evidence-base

PCI Feeding and Teaching Scales

The NCAST scales appear to have been widely used for assessment purposes in a number of studies and in clinical practice (eg. Mischenko et al., 2004), but do not appear to have not been formally evaluated as an intervention in their own right.

Keys for Caregiving

Letourneau et al. (2001) conducted a small pilot study of a randomised controlled trial in which the Keys to Caregiving package was used to improve the parent-child relationship and indirectly enhancing the resilience capacity among at-risk children. Participating children were at risk for mental health problems due to poverty and/or their parents' lack of educational attainment, inexperience and young age. Results suggested that the interventions were effective in enhancing parent-child relationships.

Another pilot study (Jung et al., 2007) used Keys for Caregiving (KTC) o help post-natally depressed mothers to understand and respond to infant behaviours, with a goal of increasing positive affective expressions in infants. In this pilot study, KTC was used with mothers suffering from mild to moderate postnatal depression and their infants. After the intervention, the infants displayed a marked increase in responsiveness and pleasure when interacting face-to-face with their mothers, even though mothers' depression ratings did not change. This study suggests that an intervention that focuses on what mothers do with their infants instead of how they feel can be effective in increasing infants' positive responsiveness and improving infant outcomes.

Drummond et al. (2008) report a small study testing the effectiveness of the Keys to Caregiving Program in enhancing adolescent mother–infant interactions. Participants were sequentially allocated to groups in order of referral. Mothers within the treatment group showed significantly greater contingent responsiveness over time than those within the control group, although the numbers were too small for the results to be conclusive.

Suitability for right@home

PCI Feeding and Teaching Scales

In order to use the Feeding and Teaching Scales in practice or research, professionals must be trained through NCAST and be certified in the use of the scale(s). Training in the NCAST Parent-Child Interaction (PCI) Feeding and Teaching Scales is one of the components of the Nurse Family Partnership Program.

It is not clear that these scales function in the way that is needed, ie. whether the main focus is on promoting parental responsivity.

Keys to Caregiving

The complete Keys to Caregiving Program includes three DVDs covering six subjects (Infant State, Infant Behaviour, Infant Cues, State Modulation, Feeding Interaction and Nurse-Parent Communication), a facilitator guide, a learner's study guide, and five pads of 100 parent booklets each. It costs $US755.

Conclusion

NCAST programs have been widely used in Australia (eg. in South Australia), and it may be useful to discuss these local experiences with those involved. The Keys for Caregiving is the program that most closely matches the aims of right@home program, but there is only limited evidence for its efficacy, and it is a costly package.

Not recommended for right@home.

References

Barnard, K.E. (1980). **NCAST Nursing child assessment training / learning resource manual.** Seattle, Washington: NCAST , University of Washington.

Barnard, K. E. (2010). Keys to developing early parent–child relationships. In B. M. Lester and J. D. Sparrow (Eds.). **Nurturing Children and Families: Building on the Legacy of T. Berry Brazelton.** Oxford, UK: Wiley-Blackwell. doi: 10.1002/9781444324617.ch5

Barnard, K., Eyres, S., Lobo, M., Snyder, C.I. (1983). An ecological paradigm for assessment and intervention. In T.B. Brazelton and B.M. Lester (Eds.). New approaches to developmental screening of infants. New York: Elsevier.

Barnard, K.E. and Sumner, G.A. (2002). Promoting awareness of the infant's behavioural patterns: Elements of anticipatory guidance for parents. In J. Gomes-Pedro, J.K. Nugent, J.G. Young and T.B. Brazelton (Eds.). **The Infant and Family in the Twenty-First Century**. New York: Brunner-Routledge.

Drummond, J. E., Letourneau, N., Neufeld, S. M., Stewart, M. and Weir, A. (2008), Effectiveness of teaching an early parenting approach within a community-based support service for adolescent mothers. **Research in Nursing and Health, 31** (1), 12–22. doi: 10.1002/nur.20235

Jung, V., Short, R., Letourneau, N. and Andrews, D. (2007). Interventions with depressed mothers and their infants: modifying interactive behaviours. **Journal of Affective Disorders,** 98 (3):199-205.

Letourneau, N., Drummond, J., Fleming, D., Kysela, G., McDonald, L. and Stewart, M. (2001). Supporting parents: Can intervention improve parent-child relationships? **Journal of Family Nursing, 7** (2), 159-187. doi: 10.1177/107484070100700203

Mischenko, J., Cheater, F. and Street, J. (2004). NCAST: Tools to assess caregiver-child interaction. **Community Practitioner, 77** (2), 57-60.

Sumner, G. and Spietz, A. (Eds.)(1994). **NCAST caregiver/parent-child interaction feeding manual.** Seattle, Washington: NCAST Publications, University of Washington.

Sunderland Infant Program (Svanberg, 2009)

Description and rationale

The UK Sutherland Infant Program is a primary prevention-based intervention designed for health visitors working with mothers and their infants in home settings. It involves the use of a videotape feedback protocol delivered by health visitors in partnership with parent-infant psychologists to improve maternal sensitive responsiveness and secure infant attachment behaviours. A 3-4 minute video clip of parent-child interaction was taken at first visit and coded using the CARE-Index. Three levels of intervention were provided based on the CARE-Index score – a minimal one-session video feedback; a series of health-visitor provided video feedback sessions or video feedback provided by the health visitor plus tailor-made psychological therapy. There are four areas of focus for the intervention: developing mindfulness, acknowledging ambivalence, making links to mother's own childhood and her emotional roots, and dealing with separation.

Evidence-base

Only one preliminary study has been published (Svanberg et al., 2010). This described the development, implementation and evaluation of a clinical program that used a targeted prevention approach following a universally-offered screening of parent – infant interactions. The CARE-Index was used to assign mother-infant pairs to low, medium and high risk groups, and interventions – featuring the reflective videotape-based feedback technique – were tailored to each risk group in order to increase maternal sensitivity and improve infant attachment status. Results showed that mothers' sensitivity and infants' cooperativeness in the intervention group had increased significantly in comparison with the control group. In addition, infants in the intervention conditions were significantly more likely to be classified as securely attached and significantly less likely to be classified as having complex attachment strategies.

Suitability for right@home

There are no reports of this program being used in Australia so far.

The availability of training and access to program protocols is unclear.

Conclusion

This program focuses on the issues that right@home is seeking to address and makes use of a simple-to-administer video-based intervention. A unique feature of the intervention is the tailoring of interventions to match the (presumed) needs of mothers with different levels of risk. However, there is only preliminary evidence for the effectiveness of the program, and its does not appear to be locally available.

Not recommended for right@home

References

Svanberg, P.O. (2009). Promoting a secure attachment through early screening and interventions: The Sunderland Infant Programme. In J. Barlow and P. Svanberg (Eds.). **Keeping the baby in mind: Infant mental health in practice.** Hove, East Sussex: Routledge.

Svanberg, P.O., Mennet, L. and Spieker, S. (2010). Promoting a secure attachment: A primary prevention practice model. **Clinical Child Psychology and Psychiatry, 15** (3), 363-378.

Newborn Behavioural Observations (NBO) System **(**Nugent et al., 2007)

Description and rationale

The Newborn Behavioural Observations (NBO) System is an observational tool and handbook that gives professionals a systematic way to help parents respond with confidence to their baby's individual needs, and build positive parent-professional relationships in the process. It involves an exploration of the newborn conducted with parents to increase their understanding of their infant's behavioural cues as well as how to respond. It is based on the Neonatal Behavioural Assessment Scale (Brazelton & Nugent, 2007) and designed as a more flexible intervention tool to promote positive parent-infant relationships.

Girling (2006) provides a practitioner's account of the benefits of using the Neonatal Behavioural Assessment Scale in health-visiting practice in the UK. She suggests that it can add value to the assessments already being carried out by health visitors and can contribute to partnership working with parents as together they observe how

the infant interacts with and organises his/her world. The NBAS enables health visitors to demonstrate to parents an infant's strengths and abilities, together with any needs for extra care giving. This assessment has been shown to improve developmental outcomes by enhancing the infant-caregiver relationship, and provides health visitors with the opportunity to consolidate their relationship of trust with families.

Evidence-base

In a small study, Sanders and Buckner (2006) explored the feasibility and desirability of the Newborn Behavioural Observations (NBO) system as a nursing intervention to enhance engagement in first-time mothers. Perceptions of the NBO were obtained from mothers who participated in NBO sessions in the postpartum period and from unit nurses who had been given information on the NBO. Mothers rated the NBO high for increasing their knowledge of what their infants can do, and how to interact with them. Nurses believed the NBO to be an effective nursing intervention for enhancing maternal engagement in the early postpartum period.

Suitability for right@home

This is designed for home visitors working with first time mothers and their infants, and focuses on parental sensitivity and responsivity. The handbook has been published and is readily available.

Conclusion

Although the Neonatal Behavioural Assessment Scale has been widely used, the NBO system based on the NBAS has only preliminary evidence for its efficacy.

Not recommended for right@home

References

Girling, Ann (2006). The benefits of using the Neonatal Behavioural Assessment Scale in health visiting practice. **Community Practitioner, 79** (4), 118-120.

Nugent, J.K., Keefer, C.H., Minear, S., Johnson, L.C. and Blanchard, Y. (2007). **Understanding Newborn Behaviour and Early Relationships: The Newborn Behavioural Observations (NBO) System Handbook.** Baltimore, Maryland: Paul H. Brookes.

OTHER INTERVENTIONS

Several other interventions were examined, but were deemed unsuitable for right@home purposes

- *Coaching the Interaction* (The Leiden Program) (van den Boom, 1994, 1995)

  Although this Dutch program has been shown to be effective in RCT studies (van den Boom, 1994, 1995), the program itself and its protocols do not appear to have been published.

- Programme en intervention relationnelle (Larin et al., 2006)

  This short-term home visiting program was designed for French-speaking primary caregivers living in Quebec, Canada. Although it has on RCT study demonstrating its efficacy (Moss et al., 2011), it has not yet been used with English-speaking parents.

- *Make the Connection* Parenting Programs (www.firstthreeyears.org)

  Based on experience with the Hanen Parent Programs, these Canadian programs focus on the parent-infant relationship and seek to build positive attachments between parents and their infants. However, there have been no published studies of efficacy.

CONCLUSIONS

Conclusions regarding video-feedback protocols

Six video-feedback protocols were reviewed. The key questions addressed were whether the protocol had been used with a population similar to that targeted by right@home, whether there was sound evidence of the efficacy of the protocol in promoting parental responsivity, and whether the protocol could be easily (and cheaply) incorporated into the right@home program.

It should be noted that some of the general attachment-based interventions (eg. Marte Meo) also included video-feedback as part of the procedures used, but these have not been evaluated separately from their parent programs.

The findings are summarised in Table 1.

Table 1. Video Feedback Techniques & Recommendations

Program	Population	Comments	Recommendation
Interaction Guidance	Used in clinical settings; designed for difficult to engage families	Limited formal testing of efficacy; requires intensive training	Not recommended
Modified Interaction Guidance	Used in both clinical and home settings	Limited formal testing of efficacy; requires intensive training	Not recommended
Video Interaction Project	Paediatric clinic-based approach	Not used in home settings; limited evidence of efficacy	Not recommended
Seeing is Believing	Used as part of the STEEP intervention program for vulnerable families	Not trialed independently of the overall program	Not recommended
Video-feedback to Promote Positive Parenting (VIPP)	Short-term (4-8) sessions, interaction-focused and attachment-based; suitable for all populations	Several RCTs conducted demonstrating effectiveness; training available and cost effective	**Recommended**
Video Interaction Guidance (VIG)	Similar to VIPP but uses more complicated procedures; suitable for all populations	Training and supervision requirements prohibitive; evidence of effectiveness is limited	Not recommended

Recommendation. One protocol is recommended as best meeting all of these criteria: the *Video-feedback to Promote Positive Parenting (VIPP)* intervention developed by Juffer et al. (2008). This video-based intervention has all the right qualities for right@home, has a good body of evidence to support its efficacy, and has protocols that are accessible and relatively easy to integrate into a home visiting program.

Conclusions regarding responsive parenting programs

The general attachment-based interventions fall into two groups. First, there are a number of older programs derived from mental health theories and practices (eg. the *STEEP Program*, the *Watch, Wait and Wonder* intervention). Although some are well known and widely used, this generation of programs has not been well evaluated, although there is often plenty of qualitative and clinical evidence to support the general validity of the approach used.

The second group includes programs that have been developed more recently and are based more on developmental research findings. They include programs such as *Promoting First Relationships Curriculum* (Kelly et al., 2008) and *Play and Learning Strategies (PALS)* (Landry et al., 2006). These tend to have stronger and more focused rationales, and are being more rigorously evaluated than earlier programs were, although they may not have had enough time to accumulate a large body of research or longitudinal results.

Programs were rejected as unsuitable for the right@home program for several reasons:

- Some of the programs were designed for specific populations or purposes, and had not been trialled with the kinds of families that right@home will be addressing. These include the *Parents Under Pressure (PuP) Program, Mediational Intervention for Sensitizing Caregivers (MISC), Attachment and Biobehavioral Catch-up (ABC),* and the *Mothers and Toddlers Program.*
- Some of the programs lacked sufficient evidence to demonstrate their efficacy. These include the STEEP Program, the Partners in Parenting Education (PIPE), the Circle of Security, and the Newborn Behavioural Observations (NBO) System.
- Some of the programs are not readily accessible in Australia, either because the protocols are not published or available, or local training is not available or is prohibitively expensive. These include the *Play and Learning Strategies (PALS)* program, the *NCAST Keys for Caregiving* program, and the *Sunderland Infant Program*.

Although nearly all the programs seek to promote parental sensitivity and responsivity (and therefore maternal bonding and child attachment), they vary in their precise aims and how comprehensive they are. For right@home purposes, it seems best to select a program with a relatively narrow focus and minimal intervention. This is both because more focused programs have a greater chance of success and because briefer interventions are easier to implement. Moreover, there is evidence that briefer interventions are more effective (Bakermans-Kranenburg et al., 2003).

The findings are summarised in Table 2.

Table 2. General programs and recommendations

Program	Population	Comments	Recommendation
Parents under Pressure (PuP) Program	Designed for families with multiple problems	RCT results positive but high drop out rate; training expensive; not been used with vulnerable families	Not recommended
The STEEP Program	Any families	No RCTs; program is more comprehensive and resource intensive than required; overseas training	Not recommended
Marte Meo Developmental Support Program	Used with wide range of families and in a variety of settings (including homes)	Lacks strong RCT evidence but has good qualitative support; uses video-feedback as core strategy; has been used in Australian programs	**Consider if no other programs suitable**
The Promoting First Relationships Curriculum	Any families	Positive RCT results; incorporates video-feedback; training not available locally but no formal accreditation required; program materials are readily available and inexpensive	**Recommended**
Partners in Parenting Education (PIPE)	Any families	No evidence of efficacy; no accessible training	Not recommended
Mediational Intervention for Sensitizing Caregivers (MISC)	Used with mothers of low birthweight children; also in developing countries; not used in Australia	Program does not address parental responsivity directly, but has a more educational focus – not what is needed for right@home	Not recommended

Developmental Parenting	Designed as an Early Head Start home visiting program for low income pregnant women with infants and toddlers	Promising RCT results; unclear what training needs are; program materials readily available and compatible with right@home	**Recommended**
The Mother-Infant Transaction Program	Designed for use with mothers of low-birthweight infants; has been used in Australia	Positive RCT results; resource availability and training requirements unclear	**Worth considering**
The Circle of Security	Families with maladaptive interactive patterns between parents and children	Usually a group program, but home visiting adaptation available; not well evaluated; training is expensive	Not recommended
Attachment and Biobehavioral Catch-up (ABC)	Designed for foster parents and the young children in their care	Some RCT evidence positive; program is more comprehensive than is required; not been used with right@home population	Not recommended
The UCLA Family Development Project	Vulnerable families	Limited RCT evidence; program is more comprehensive than required; materials not available	Not recommended
It Takes Two to Talk: The Hanen Program for Parents	Any families, children with language delays	RCTs show promising results on language but unknown effects on responsivity	**Consider as supplementary program**

Play and Learning Strategies (PALS)	At-risk mothers of infants	Good evidence of efficacy; training difficult to access; sessions too long and structured to be easily incorporated into right@home	Not recommended
Mothers and Toddlers Program	12-session, attachment-based individual therapy for substance-using mothers of children birth to 3 years of age	Promising RCT results; clinic-based program; not been used with right@home target group	Not recommended
Watch, Wait and Wonder	Any families	Designed as infant psychotherapy program rather than a more general strategy; program's efficacy with a more general population not yet demonstrated	Not recommended
The Nursing Child Assessment Satellite Training (NCAST)	Any families	Some preliminary RCT support for the NCAST Keys to Caregiving package; materials are expensive; has been used in Australia	Not recommended
Sunderland Infant Program	Any families	Limited evidence of efficacy; availability of training and access to program protocols unclear	Not recommended
Newborn Behavioural Observations (NBO) System	First time mothers	Only preliminary evidence of efficacy	Not recommended

Recommendation. No program met all the required criteria and therefore can be recommended unreservedly. The following programs are recommended for consideration as being compatible with right@home principles, having some evidence of effectiveness, and being readily available for use in Australia:

- Promoting First Relationships Curriculum (Kelly et al., 2008)
- *Developmental Parenting* (Roggman et al., 2008)

Also worth considering or further discussion with those who have used the program locally:

- *Mother-Infant Transaction Program* (Rauh et al., 1990)
- *Marte Meo Developmental Support Program* (Aarts, 2008)

REFERENCES

Bakermans-Kranenburg, M.J., van IJzendoorn, M.H. and Juffer, F. (2003). Less is more: Meta-analyses of sensitivity and attachment interventions in early childhood. **Psychological Bulletin,** 129 (2), 195-215

Bakermans-Kranenburg, M.J., van IJzendoorn, M.H. and Juffer, F. (2008). Less is more: Meta-analytic arguments for the use of sensitivity-focused interventions. In F. Juffer, M.J. Bakermans-Kranenburg & M.H. van IJzendoorn (Eds.), **Promoting positive parenting: An attachment-based intervention.** New York, NY: Taylor & Francis/Lawrence Erlbaum.

Brady, N., Warren, S.F. and Sterling, A. (2009). Interventions aimed at improving child language by improving maternal responsivity. **International Review of Research in Mental Retardation, 37**, 333–357. http://dx.doi.org/10.1016/S0074-7750(09)37010-X

Eshel, N., Daelmans, B., de Mello, M.C. and Martines, J. (2006). Responsive parenting: interventions and outcomes. **Bulletin of the World Health Organisation, 84** (12), 992-999. http://www.scielosp.org/pdf/bwho/v84n12/v84n12a16.pdf

Fukkink, R.G. (2008). Video feedback in widescreen: A meta-analysis of family programs. **Clinical Psychology Review, 28**, 904-916.

Juffer, F., van IJzendoorn, M.H. and Bakermans-Kranenburg, M.J. (2008). Attachment-based interventions in early childhood: An overview. In F. Juffer, M.J. Bakermans-Kranenburg & M.H. van IJzendoorn (Eds.), **Promoting positive parenting: An attachment-based intervention.** New York, NY: Taylor & Francis/Lawrence Erlbaum.

Kong, N.Y. and Carta, J.J. (2011). Responsive interaction interventions for children with or at risk for developmental delays: A research synthesis. **Topics in Early Childhood Special Education**, first published on November 9, 2011. doi:10.1177/0271121411426486

Larin, S., St-Georges, R., Jacques, C., Otis, N., & Desaulniers, R. (2006). **Programme en intervention relationnelle: Guide d'intervention.** Unpublished manuscript, Les Centres jeunesse de Lanaudière, Quebec.

Moss, E., Dubois-Comtois, K., Cyr, C., Tarabulsy, G.M., St-Laurent, D. and Bernier, A. (2011). Efficacy of a home-visiting intervention aimed at improving maternal sensitivity, child attachment, and behavioral outcomes for maltreated children: A randomized control trial. **Development and Psychopathology**, 23 (1), 195-210.

van den Boom, D.C. (1994). The influence of temperament and mothering on attachment and exploration: An experimental manipulation of sensitive responsiveness among lower-class mothers with irritable infants. **Child Development, 65** (6), 1457-77.

van den Boom, D. C. (1995). Do first-year intervention effects endure? Follow-up during toddlerhood of a sample of Dutch irritable infants. **Child Development, 66** (6), 1798–1816. doi: 10.1111/j.1467-8624.1995.tb00966.x

References

Anisfeld, E., Casper, V., Nozyce, M. and Cunningham, N. (1990). Does infant carrying promote attachment? An experimental study of the effects of increased physical contact on the development of attachment. **Child Development, 61** (5), 1617-27.

Askie, L.M., Baur, L.A., Campbell, K., Daniels, L.A., Hesketh, K., Magarey, A., Mihrshahi, S., Rissel, C., Simes, J., Taylor, B., Taylor, R., Voysey, M., Wen, L.M. and EPOCH Collaboration (2010). The Early Prevention of Obesity in CHildren (EPOCH) Collaboration - an individual patient data prospective meta-analysis. **BMC Public Health, 10**:728. doi:10.1186/1471-2458-10-728

Australian Institute of Health and Welfare 2011. Headline Indicators for children's health, development and wellbeing 2011. Cat. no. PHE 144. Canberra: AIHW.

Bakermans-Kranenburg, M.J., van IJzendoorn, M.H. and Juffer, F. (2003). Less is more: Meta-analyses of sensitivity and attachment interventions in early childhood. **Psychological Bulletin, 129** (2), 195-215

Bakermans-Kranenburg, M.J., Van IJzendoorn, M.H. and Juffer, F. (2005). Disorganized infant attachment and preventive interventions: A review and meta-analysis. **Infant Mental Health Journal, 26** (3), 191-216.

Barnett, M., Bruck, D. and Ball, M., 2011. Smoke Alarm Maintenance in an Australian Community Sample. **Fire Safety Science 10**: 837-846.

Barr, R.G. (2006). Crying behaviour and its importance for psychosocial development in children. In R.E. Tremblay, R.G. Barr and R.DeV. Peters (Eds.). **Encyclopedia on Early Child Development.** Montreal, Quebec: Centre of Excellence for Early Child Development. http://www.child-encyclopedia.com/pages/PDF/BarrANGxp.pdf

Barr, R.G., Rivara, F.P., Barr M., Cummings, P., Taylor, J., Lengua, L.J. and Meredith-Benitz, E. (2009). Effectiveness of educational materials designed to change knowledge and behaviours regarding crying and shaken-baby syndrome in mothers of newborns: A randomized, controlled trail. **Pediatrics, 12**3 (3), 972-980. doi: 10.1542/peds.2008-0908.

Benoit, D. (2004). Infant-parent attachment: Definition, types, antecedents, measurement and outcome. **Paediatrics and Child Health, 9** (8): 541–545. PMCID: PMC2724160

Benoit, D. (2009). Efficacy of attachment-based interventions (rev. ed.). In Tremblay, R.E, Boivin, M., Peters, R.DeV. (Eds.), **Encyclopedia on Early Childhood Development** [online]. Montreal, Quebec: Centre of Excellence for Early Childhood Development and Strategic Knowledge Cluster on Early Child Development. http://www.child-encyclopedia.com/documents/BenoitANGxp_rev-Attachment.pdf

Bernier, A. and Meins. E. (2008). A threshold approach to understanding the origins of attachment disorganization. **Developmental Psychology, 44** (4), 969-82.

Biringen, Z. (2000). Emotional availability: Conceptualization and research findings. **American Journal of Orthopsychiatry, 70** (1), 104–114.

Biringen, Z. and Easterbrooks, M.A. (2012). Emotional availability: Concept, research, and window on developmental psychopathology. **Development and Psychopathology, 24** (1), 1-8.

Biringen, Z., & Robinson, J. (1991). Emotional availability in mother–child interactions: A conceptualization for research. **American Journal of Orthopsychiatry, 61**, 258–271.

Bishop, S., & Leadbeater, B. (1999). Maternal social support patterns and child maltreatment: Comparison of maltreating and nonmaltreating mothers. **American Journal of Orthopsychiatry, 69**, 172–181.

Black, M.M, and Hurley, K.M. (2007). Helping children develop healthy eating habits. In R.E. Tremblay, R.G. Barr and R.DeV. Peters (Eds.). **Encyclopedia on Early Childhood Development** [online]. Montreal, Quebec: Centre of Excellence for Early Childhood Development. http://www.child-encyclopedia.com/pages/PDF/Black-HurleyANGxp_rev-Eating.pdf

Brixey, S., Guse, C. E., & Ngui, E. (2009). Free child passenger restraints for patients in an urban pediatric medical home: Effects on caregiver behavior. **Wisconsin Medical Journal, 108**(7), 352-358.

Brune, N. E., & Bossert, T. (2009). Building social capital in post-conflict communities: Evidence from Nicaragua. **Social Science and Medicine, 68**(5), 885-893.

Bryanton, J. and Beck, C.T. (2010). Postnatal parental education for optimizing infant general health and parent-infant relationships (Review). **Cochrane Database**

of Systematic Reviews, 2010, Jan. 20; (1):CD004068. http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD004068.pub3/pdf

Campbell, K.J. and Hesketh, K.D. (2007). Strategies which aim to positively impact on weight, physical activity, diet and sedentary behaviours in children from zero to five years: A systematic review of the literature. **Obesity Review, 8** (4), 327–338.

Campbell, K., K. Hesketh, et al. (2008). "The Infant Feeding Activity and Nutrition Trial (INFANT) an early intervention to prevent childhood obesity: Cluster-randomised controlled trial." **BMC Public Health, 8**(1): 103.

Chatoor, I. (2009). Sensory Food Aversions in infants and toddlers. **Zero to Three, 29** (3), 44-49.

Clamp, M., & Kendrick, D. (1998). A randomised controlled trial of general practitioner safety advice for families with children under 5 years. **British Medical Journal, 316** (7144), 1576-1579.

Colonnesi, C., Draijer, E.M., Stams, G.J.J.M., Van der Bruggen, C.O., Bögels, S.M. and Noom, M.J. (2011). The relation between insecure attachment and child anxiety: A meta-analytic review. **Journal of Clinical Child & Adolescent Psychology, 40** (4), 630-645, DOI: 10.1080/15374416.2011.581623

Coohey, C. (1999). Child maltreatment: Testing the social isolation hypothesis. **Child Abuse & Neglect, 20**, 241–254.

Coohey, C., & Braun, N. (1997). Toward an integrated framework for understanding child physical abuse. **Child Abuse & Neglect, 21**, 1081–1094.

Cozolino, L. (2006). **The Neuroscience of Human Relationships: Attachment and the Developing Social Brain.** New York: W.W. Norton.

Cozolino, L.J. (2010). **The Neuroscience of Psychotherapy: Healing the Social Brain (2nd Ed.).** New York: W.W. Norton.

De Wolff, M. S. & van Ijzendoorn, M.H. (1997). Sensitivity and attachment: A meta-analysis on parental antecedents of infant attachment. **Child Development , 68** (4), 571–591 . DOI: 10.2307/1132107 PMid:9306636

Dozier, M. and Bernard, K. (2009). The impact of attachment-based interventions on the quality of attachment among infants and young children (revised ed.). In

Tremblay, R.E., Boivin, M. and Peters, R.DeV. (Eds.), **Encyclopedia on Early Childhood Development** [online]. Montreal, Quebec: Centre of Excellence for Early Childhood Development and Strategic Knowledge Cluster on Early Child Development. http://www.child-encyclopedia.com/documents/Dozier-BernardANGxp_rev.pdf

Daniels, L., A. Magarey, et al. (2009). "The NOURISH randomised control trial: Positive feeding practices and food preferences in early childhood - a primary prevention program for childhood obesity." **BMC Public Health, 9**(1): 387.

de Cuba, S.E., Frank, D.A. and Rose-Jacobs, R. (2008). **Nourishing Development: A Report on Food Insecurity and the Precursors to School Readiness among Very Young Children.** Boston, Massachusetts: The Children's Sentinel Nutrition Assessment Program. http://www.c-snap.org/upload/resource/nourishing_development_2_08.pdf

DePanfilis, D. (1996). Social isolation of neglectful families: A review of social support assessment and intervention models. **Child Maltreatment, 1**(1), 37-52.

DePanfilis, D., & Zuravin, S. J. (1999). Predicting child maltreatment recurrences during treatment. **Child Abuse & Neglect, 23**, 729– 743.

Department of Health and Aging. (2011). **Get Up & Grow: Healthy Eating and Physical Activity for Early Childhood (Get Up & Grow)** [online]. Camberra, ACT. http://www.health.gov.au/internet/main/publishing.nsf/Content/phd-early-childhood-nutrition-resources

DiGuiseppi, C., & Roberts, I. G. (2000). Individual-Level Injury Prevention Strategies in the Clinical Setting. **The Future of Children, 10**(1), 53-81.

DiGuiseppi, C., & Higgins, J. P. (2001). Interventions for promoting smoke alarm ownership and function. **Cochrane Database of Systematic Reviews.** Retrieved from: http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD002246/pdf

Dishion, T.J. and Stormshak, E.A. (2007. **Intervening in Children's Lives: An Ecological, Family-Centered Approach to Mental Health Care.** Washington, DC: American Psychological Association.

Dishion, T. J., Stormshak, E. A., & Kavanagh, K. (2011). **Everyday parenting: A professional's guide to building family management skills.** Champaign, Illinois: Research Press.

Douglas, P. and Hill, P. (2011). Managing infants who cry excessively in the first few months of life. **British Medical Journal, 343**, d7772. doi: http://dx.doi.org/10.1136/bmj.d7772

Douglas, P.S. and Hiscock, H. (2010). The unsettled baby: crying out for an integrated, multidisciplinary primary care approach. **Medical Journal of Australia, 193** (9), 533-536.

Drummond, J. E., Letourneau, N., Neufeld, S. M., Stewart, M., & Weir, A. (2008). Effectiveness of teaching an early parenting approach within a community-based support service for adolescent mothers. **Research in Nursing and Health, 31**(1), 12-22.

Egeland B. (2009). Attachment-based intervention and prevention programs for young children (Rev. ed.). In Tremblay, R.E., Boivin, M., Peters, R.DeV. (Eds.), **Encyclopedia on Early Childhood Development** [online]. Montreal, Quebec: Centre of Excellence for Early Childhood Development and Strategic Knowledge Cluster on Early Child Development. http://www.child-encyclopedia.com/documents/EgelandANGxp_rev.pdf.

Fegan, M. and Bowes, J. (1999). Isolation in rural, remote and urban communities. In J.M. Bowes and A. Hayes, A. (Eds.). **Children, Families, and Communities: Contexts and Consequences.** South Melbourne, Victoria: Oxford University Press.

Field, T., Gewirtz, J.L., Cohen, D., Garcia, R., Greenberg, R. and Collins, K. (1984). Leave taking and reunion of infants, toddlers, preschoolers, and their parents. **Child Development, 55** (2), 628–635.

Flores, P.A., Day, C., Richard, H. and Horace, A. (2007). Promoting mother-child attachment: Review of the past and recommendations for future intervention. **NHSA Dialog: A Research-to-Practice Journal for the Early Childhood Field, 10** (3-4), 129-142. DOI: 10.1080/15240750701741702

Garzon DL 2005. Contributing factors to preschool unintentional injury. Journal of Pediatric Nursing 20(6):441–7.

Gonzalez-Mena, J. (2004). **Diversity in Early Education Programs: Honouring Differences (4th Ed.).** Columbus, Ohio: McGraw-Hill College.

Gracia, E., & Musitu, G. (2003). Social isolation from communities and child maltreatment: A cross-cultural comparison. **Child Abuse & Neglect, 27**, 153–168.

Greenhalgh, T. (2012). Outside the Box: Why are Cochrane reviews so boring? **British Journal of General Practice, 62** (600): 371. doi: 10.3399/bjgp12X652418

Grossmann, K.E., Grossmann, K. and Waters, E. (Eds.)(2005). **Attachment from Infancy to Adulthood: The Major Longitudinal Studies.** New York: The Guildford Press.

Häggman-Laitila, A., Tanninen, H. M., & Pietilä, A. M. (2010). Effectiveness of resource-enhancing family-oriented intervention. **Journal of Clinical Nursing, 19**(17-18), 2500-2510.

Hansell, P. S., Hughes, C. B., Caliandro, G., Russo, P., Budin, W. C., Hartman, B., & Hernandez, O. C. (1998). The Effect of a Social Support Boosting Intervention on Stress, Coping, and Social Support in Caregivers of Children With HIV/AIDS. **Nursing Research, 47**(2), 79-86.

Hesketh, K.D. and Campbell, K.J. (2010). Interventions to prevent obesity in 0-5 year olds: an updated systematic review of the literature. **Obesity, 18**, Supplement 1, S27-35.

Hiscock, H. and Jordan, B. (2004). Problem crying in infancy**. Medical Journal of Australia, 181** (9), 507-512.

Ingram, J. C., Deave, T., Towner, E., Errington, G., Kay, B., & Kendrick, D. (2012). Identifying facilitators and barriers for home injury prevention interventions for pre-school children: a systematic review of the quantitative literature. **Health Education Research, 27**(2), 258-268.

Jovanovic, J. (2011). Saying goodbye: An investigation into parent–infant separation behaviours on arrival in childcare. **Child Care in Practice, 17** (3), 247-269. DOI: 10.1080/13575279.2011.571237

Juffer, F., Bakermans-Kranenburg, M.J. and van IJzendoorn, M.H. (2008). Promoting positive parenting: An introduction. In F. Juffer, M.J. Bakermans-Kranenburg & M.H. van IJzendoorn (Eds.), **Promoting positive parenting: An attachment-based intervention.** New York, NY: Taylor & Francis/Lawrence Erlbaum.

Kagan, J. (2011). Bringing up baby: Are we too attached? **Psychotherapy Networker**, March / April. http://www.psychotherapynetworker.org/magazine/recentissues/1269-bringing-up-baby

Kelly, N. R., Huffman, L. C., Mendoza, F. S., & Robinson, T. N. (2003). Effects of a videotape to increase use of poison control centres by low-income and spanish-speaking families: a randomized controlled trial. **Pediatrics, 111**(1), 21-26.

Kendrick, D., Illingworth, R., Woods, A., Watts, K., Collier, J., & Dewey, M. (2005). Promoting child safety in primary care: a cluster randomised controlled trial to reduce baby walker use. **British Journal of General Practice, 55**(517), 582–588.

Kendrick, D., Barlow, J., Hampshire, A., Polnay, L., & Stewart-Brown, S. (2007a). Parenting interventions for the prevention of unintentional injuries in childhood. **Cochrane database of systematic reviews**. Retrieved from: http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD006020.pub2/pdf

Kendrick, D., Coupland, C., Mulvaney, C., Simpson, J., Smith, S. J., Sutton, A., Watson, M., & Woods, A. (2007b). Home safety education and provision of safety equipment for injury prevention. **Cochrane Database of Systematic Reviews.** Retrieved from: http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD005014.pub3/pdf

Kendrick, D., Smith, S., Sutton, A., Watson, M., Coupland, C., Mulvaney, C., & Mason-Jones, A. (2008). Effect of education and safety equipment on poisoning-prevention practices and poisoning: systematic review, meta-analysis and meta-regression. **Archives of Disease in Childhood, 93**(7), 599-608.

Kendrick, D., Mulvaney, C., & Watson, M. (2009). Does targeting injury prevention towards families in disadvantaged areas reduce inequalities in safety practices? **Health Education Research, 24**(1), 32-41.

Kidsafe. (2012). Welcome to Kidsafe! http://www.kidsafe.com.au/

Klein, P.S., Kraft, R.R. & Shohet, C. (2010). Behaviour patterns in daily mother–child separations: possible opportunities for stress reduction. **Early Child Development and Care, 180** (3), 387-396.

Koren-Karie, N., Oppenheim, D., Dolev, S., Sher, E. and Etzion-Carasso, E. (2002). Mothers' insightfulness regarding their infants' internal experience: Relations

with maternal sensitivity and infant attachment. **Developmental Psychology, 38** (4), 534-542.

Landy, S. (2009). **Pathways to Competence: Encouraging Healthy Social and Emotional Development in Young Children (2nd. Ed.).** Baltimore, Maryland: Paul H. Brookes.

Landy, S. and Menna, R. (2006). **Early Intervention with Multi-Risk Families: An Integrative Approach.** Baltimore, Maryland: Paul H. Brookes.

Lane, W. G., Liu, G. C., & Newlin, E. (2000). The association between hands-on instruction and proper child safety seat installation. **Pediatrics, 106**(4 II SUPPL.), 924-929.

Landry, S.H., Smith, K.E. and Swank, P.R. (2006). Responsive parenting: establishing early foundations for social, communication, and independent problem-solving skills. **Developmental Psychology, 42** (4), 627–642.

Lavigne, J. V., LeBailly, S. A., Hopkins, J., Gouze, K. R., & Bins, H. J. (2009). The prevalence of ADHD, ODD, depression and anxiety in a community sample of 4-year-olds. Journal of Clinical Child and Adolescent Psychology, 38(3), 315-328.

Leavitt, L.A. (1999). Research to practice: emotional development and maternal/infant attachment. **Journal of Pediatric Health Care. 13** (3 – Part 2), S4-7

Liu, Y.H. and Stein, M.T. (2005). Feeding behaviour of infants and young children and its impact on child psychosocial and emotional development. In R.E. Tremblay, R.G. Barr and R.DeV. Peters (Eds.). **Encyclopedia on Early Childhood Development** [online]. Montreal, Quebec: Centre of Excellence for Early Childhood Development.

http://www.child-encyclopedia.com/Pages/PDF/Liu-SteinANGxp.pdf

McConnell, C. F., Dwyer, W. O., & Leeming, F. C. (1996). A behavioral approach to reducing fires in public housing. **Journal of Community Psychology, 24**, 201-212.

McDonald, E. M., Solomon, B., Shields, W., Serwint, J. R., Jacobsen, H., Weaver, N. L., Kreuter, M., & Gielen, A. C. (2005). Evaluation of kiosk-based tailoring to

promote household safety behaviors in an urban pediatric primary care practice. **Patient Education and Counseling, 58** (2), 168-181.

McDonald, M., Moore, T.G. and Goldfeld, S. (2012). **Sustained home visiting for vulnerable families and children: A literature review of effective programs**. Parkville, Victoria: The Royal Children's Hospital's Centre for Community Child Health and the Murdoch Childrens Research Institute. http://www.rch.org.au/uploadedFiles/Main/Content/ccch/resources_and_publications/Home_visiting_lit_review_RAH_programs_final.pdf

McKenna, K., & Harrison J. E. (2012). **Hospital separations due to injury and poisoning, Australia 2008–09.** Injury research and statistics series no. 65. Cat. no. INJCAT 141. Canberra: AIHW.

McRury, J.M. and Zolotor, A.J. (2010). A randomized, controlled trial of a behavioural intervention to reduce crying among infants. **Journal of the American Board of Family Medicine, 23** (3), 315-322.

Marty, A.H., Readdick, C.A. and Walters, C.M. (2005). Supporting secure parent-child attachments: the role of the non-parental caregiver. **Early Child Development and Care, 175** (3), 271-283.

Mock, C., Arreola-Risa, C., Trevino-Perez, R., Almazan-Saavedra, V., Zozaya-Paz, J. E., Gonzalez-Solis, R., Simpson, K., Rodriguez-Romo, L., & Hernandez-Torre, M. H. (2003). Injury prevention counselling to improve safety practices by parents in Mexico. **Bulletin of the World Health Organization, 81**(8), 591-598.

Moore, T.G, McDonald, M., Sanjeevan, S. and Price, A. (2012). **Sustained home visiting for vulnerable families and children: A literature review of effective processes and strategies.** Parkville Victoria: The Royal Children's Hospital's Centre for Community Child Health and the Murdoch Childrens Research Institute. http://www.rch.org.au/uploadedFiles/Main/Content/ccch/resources_and_publications/Home_visiting_lit_review_RAH_processes_final.pdf

Moss, E., Dubois-Comtois, K., Cyr, C., Tarabulsy, G.M., St-Laurent, D. and Bernier, A. (2011). Efficacy of a home-visiting intervention aimed at improving maternal sensitivity, child attachment, and behavioral outcomes for maltreated children: A randomized control trial. **Development and Psychopathology**, 23 (1), 195-210.

Muhajarine, N., & Vu, L. T. H. (2009). Neighbourhood contexts and low birthweight: Social disconnection heightens single parents risks in Saskatoon. **Canadian Journal of Public Health, 100**(2), 130-134.

Mulvaney, C., & Kendrick, D. (2005). Depressive symptoms in mothers of pre-school children. Effects of deprivation, social support, stress and neighbourhood social capital. **Social Psychiatry and Psychiatric Epidemiology, 40**(3), 202-208.

Nansel, T. R., Weaver, N., Donlin, M., Jacobsen, H., Kreuter, M. W., & Simons-Morton, B. (2002). Baby, Be Safe: the effect of tailored communications for pediatric injury prevention provided in a primary care setting. **Patient Education & Counseling, 46**(3), 175-190.

National Health and Medical Research Council (2003). **Dietary Guidelines for Children and Adolescents in Australia incorporating the Infant Feeding Guidelines for Health Workers.** Canberra, ACT: National Health and Medical Research Council. http://www.nhmrc.gov.au/publications/synopses/_files/n34.pdf

National Health Service. (2010). **Preventing unintentional injuries among the under-15s in the home (Appendix C: The Evidence).** Retrieved from: http://publications.nice.org.uk/preventing-unintentional-injuries-among-the-under-15s-in-the-home-ph30/appendix-c-the-evidence.

Norbeck, J. S., Dejoseph, J. F., & Smith, R. T. (1996). A randomized trial of an empirically-derived social support intervention to prevent low birthweight among African American women. **Social Science and Medicine, 43**(6), 947-954.

Oppenheim, D., Koren-Karie, N., Dolev, S. and Yirmiya, N. (2008). Secure attachment in children with autistic spectrum disorder: The role of maternal insightfulness. **Zero to Three, 28** (4), 25-30.

Organisation for Economic Co-operation and Development (2001). **The Well-Being of Nations: The Role of Human and Social Capital.** Paris, France: OECD Publications.

Paul, C. L., Redman, S., & Evans, D. (1992). The cost and availability of devices for preventing childhood injuries. **Journal of Paediatrics and Child Health, 28**(1), 22-26.

Paul, C. L., Sanson-Fisher, R. W., Redman, S., & Carter, S. (1994). Preventing accidental injury to young children in the home using volunteers. **Health Promotion International, 9**(4), 241-248.

Piazza, C.C. and Carroll-Hernandez, T.A. (2004). Assessment and treatment of pediatric feeding disorders. In R.E. Tremblay, R.G. Barr and R.DeV. Peters (Eds.). **Encyclopedia on Early Childhood Development** [online]. Montreal, Quebec: Centre of Excellence for Early Childhood Development. http://www.child-encyclopedia.com/Pages/PDF/Piazza-Carroll-HernandezANGxp.pdf

Polansky, N. A., Gaudin, J. M., Ammons, P. W., & Davis, K. B. (1985). The psychological ecology of the neglectful mother. **Child Abuse and Neglect, 9**, 265-275.

Powell, E. C., Malanchinski, J., & Sheehan, K. M. (2010). A randomized trial of a home safety education intervention using a safe home model. Journal of Trauma - Injury, **Infection and Critical Care, 69**(SUPPL. 4), S233-S236.

Putnam, R.D. (1995). Bowling alone: America's declining social capital. **Journal of Democracy, 6**, 65-78.

Ramsay, M. (2004). Feeding skills, appetite and feeding behaviours of infants and young children and their impact on growth and psychosocial development. In R.E. Tremblay, Barr, R.G. and Peters, R. De V. (Eds.). **Encyclopedia on Early Childhood Development** [online]. Montreal, Quebec: Centre of Excellence for Early Childhood Development. http://www.excellence-earlychildhood.ca/documents/RamsayANGxp-Eating.pdf

Ranson, K.E. and Urichuk, L.J. (2008). The effect of parent-child attachment relationships on child biopsychosocial outcomes: a review. **Early Child Development and Care, 178** (2), 129-152.

Rapee, R.M., Schniering, C.A. and Hudson, J.L. (2009). Anxiety Disorders during childhood and adolescence: Origins and treatment. Annual Review of Clinical Psychology, 5: 311-341. DOI: 10.1146/annurev.clinpsy.032408.153628

Rehmani, R., & LeBlanc, J. C. (2010). Home visits reduce the number of hazards for childhood home injuries in Karachi, Pakistan: A randomized controlled trial. International **Journal of Emergency Medicine, 3**(4), 333-339.

Reich, S. M., Penner, E. K., & Duncan, G. J. (2011). Using baby books to increase new mothers' safety practices. **Academic Pediatrics, 11**(1), 34-43.

Reijneveld, S.A., van der Wal, M.F., Brugman, E., Sing, R.A.H. and Verloove-Vanhorick, P. (2004). Infant crying and abuse. **The Lancet, 364** (9442), 1340-1342.

Roggman, L.A., Boyce, L.K. and Innocenti, M.S. (2008). **Developmental Parenting: A Guide for Early Childhood Practitioners.** Baltimore, Maryland: Paul H. Brookes.

Ruchala, P., & James, D. (1997). Social support, knowledge of infant development, and maternal confidence among adolescent and adult mothers. **Journal of Obstetric, Gynecologic, and Neonatal Nursing, 26**, 685–689.

Sadler, L., Swartz, M., Ryan-Krause, P., Seitz, V., Meadows-Oliver, M., Grey, M., et al. (2007). Promising outcomes in teen mothers enrolled in a school-based parent support program and child care centre. **Journal of School Health, 77**(3), 121–130.

Schniering, C.A., Hudson, J.L. and Rapee, R.M. (2000). Issues in the diagnosis and assessment of anxiety disorders in children and adolescents. **Clinical Psychology Review, 20** (4), 453–478.

Scott, D., Higgins, D., & Franklin, R. (2012). **The role of supervisory neglect in childhood injury.** Melbourne: Child Family Community Australia, Australian Institute of Family Studies. Retrieved from: http://www.aifs.gov.au/cfca/pubs/papers/a142582/index.html

Shenoi, R., Saz, E. U., Jones, J. L., Ma, L., & Yusuf, S. (2010). An emergency department intervention to improve knowledge of child passenger safety. **Pediatric Emergency Care, 26**(12), 881-887.

Sheppard, M. (2004). An evaluation of social support intervention with depressed mothers in child and family care. **British Journal of Social Work, 34**(7), 939-960.

Siegel, D.J. (2012). **The Developing Mind: How Relationships and the Brain Interact to Shape Who We Are (2nd Ed.)**. New York: The Guilford Press.

Schore, A.N. (2012). Attachment, affect regulation, and the developing right brain: Linking developmental neuroscience to pediatrics. In A.N. Schore: **The Science of the Art of Psychotherapy.** New York: W.W. Norton.

Schore, A.N. and Schore, J. (2012). Modern attachment theory: The central role of affect regulation in development and treatment. In A.N. Schore: **The Science of the Art of Psychotherapy.** New York: W.W. Norton.

Smart, J. and Hiscock, H. (2007). Early infant crying and sleeping problems: A pilot study of impact on parental well-being and parent-endorsed strategies for management. **Journal of Paediatrics and Child Health, 43** (4), 284-290.

Sroufe, A. and Siegel, D. (2011). The verdict is in: The case for attachment theory. **Psychotherapy Networker**, March / April.

http://www.psychotherapynetworker.org/magazine/recentissues/1271-the-verdict-is-in

Sroufe, A. and Siegel, D. (2011). The verdict is in: The case for attachment theory. **Psychotherapy Networker**, March / April. http://www.psychotherapynetworker.org/magazine/recentissues/1271-the-verdict-is-in

Solomon, D., V. Battisch, et al. (2000). "A six-district study of educational change: Direct and mediated effects on child development." **Social Psychology of Education, 4**: 3-51.

Spiker, D., Boyce, G. and Boyce, L. (2002). Parent-child interactions when young children have disabilities. **International Review of Research in Mental Retardation, 25**, 35–70.

St. James-Roberts, I. and Peachey, E. (2011). Distinguishing infant prolonged crying from sleep-waking problems. **Archives of Disease in Childhood, 96**: 340-344 doi:10.1136/adc.2010.200204

Sullivan, R., Perry, R., Sloan, A., Kleinhaus, K., & Burtchen, N. (2011). Infant bonding and attachment to the caregiver: Insights from basic and clinical science. **Clinics in Perinatology, 38** (4), 643-655.

Sznajder, M., Leduc, S., Janvrin, M. P., Bonnin, M. H., Aegerter, P., Baudier, F., & Chevallier, B. (2003). Home delivery of an injury prevention kit for children in four French cities: a controlled randomized trial. **Injury Prevention, 9**(3), 261-265.

Tan, N. C., Lim, N. M. L. H., & Gu, K. (2004). Effectiveness of nurse counselling in discouraging the use of infant walkers. **Asia-Pacific Journal of Public Health, 16**(2), 104–108.

Taylor, B., A.-L. Heath, et al. (2011). "Prevention of Overweight in Infancy (POI.nz) study: a randomised controlled trial of sleep, food and activity interventions for preventing overweight from birth." **BMC Public Health, 11**(1): 942.

Tessier, K. (2010). Effectiveness of hands-on education for correct child restraint use by parents. **Accident Analysis and Prevention, 42**, 1041-1047.

Towner, E., Dowswell, T., Mackereth, C., & Jarvis, S. J. (2001). **What works in preventing unintentional injuries in children and young adolescents? An updated systematic review.** Newcastle (UK): Community Child Health, Department of Child Health, University of Newcastle upon Tyne and National Health Service.

Tremblay, R.E., Barr, R.G. and Peters, R.DeV. (Eds.). **Encyclopedia on Early Child Development.** Montreal, Quebec: Centre of Excellence for Early Child Development. Available online at www.excellence-jeunesenfants/ca.

Underdown, A., Barlow, J., Chung, V., Stewart-Brown, S. (2006). Massage intervention for promoting mental and physical health in infants aged under six months. **Cochrane Database of Systematic Reviews 2006, Issue 4.** Art. No.: CD005038. DOI: 10.1002/14651858.CD005038.pub2.

Underdown, A. (2009). The power of touch – exploring infant massage. In J. Barlow and P. Svanberg (Eds.). **Keeping the baby in mind: Infant mental health in practice.** Hove, East Sussex: Routledge.

van Ijzendoorn, M.H. (1995). Adult attachment representations, parental responsiveness, and infant attachment: A meta-analysis on the predictive validity of the adult attachment interview. **Psychological Bulletin, 117** (3):387-403.

van Weeghel, I., & Kendrick, D. M., Patricia. (1997). Accidental injury: risk and preventative interventions. **Archives of Disease in Childhood, 77**, 28-31.

Vaughn, B.E. and Shin, N. (2011). Attachment, temperament, and adaptation: One long argument. In Cicchetti, D. and Roisman, G. I. (Eds), **Minnesota Symposia on Child Psychology, Vol. 36: The Origins and Organization of Adaptation and Maladaptation.** Hoboken, New Jersey: John Wiley & Sons.

Wake, M., Morton-Allen, E., Poulakis, Z., Hiscock, H., Gallagher, S. and Oberklaid, F. (2006). Prevalence, stability, and outcomes of cry-fuss and sleep problems in the first 2 years of life: Prospective community-based study. **Pediatrics, 117** (3), 836 -842. doi: 10.1542/peds.2005-0775

Wandersman, A., & Nation, M. (1998). Urban neighborhoods and mental health. **American Psychologist, 53**, 647-656

Wen, L. M., L. A. Baur, et al. (2007). "Early intervention of multiple home visits to prevent childhood obesity in a disadvantaged population: a home-based randomised controlled trial (Healthy Beginnings Trial)." **BMC Public Health, 7**: 76.

Whittaker, J. K., & Tracy, E. M. (2001). Social Network Intervention in Intensive Family-Based Preventive Services. **Prevention in Human Services, 9**(1), 175-192.

Wilkenfeld, B., Lippman, L., & Anderson-Moore, K. 2007. **Neighborhood Support Index.** Washington, US: Child Trends. Retrieved from: www.childtrends.org

Wylie, M.S. and Turner, L. (2011). The attuned therapist: Does attachment theory really matter? **Psychotherapy Networker**, March / April. http://www.psychotherapynetworker.org/magazine/recentissues/1261-the-attunded-therapist

World Health Organization. (2008). **World report on child injury prevention.** World Health Organization, UNICEF. Retrieved from: http://www.who.int/violence_injury_prevention/child/injury/world_report/en/

Zeanah, C.H. and Smyke, A.T. (2009). Attachment disorders. In C.H. Zeanah (Ed.), **Handbook of Infant Mental Health (3rd. Ed.).** New York: Guilford Press.