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Supporting Speech, Language and Communication (SLC) Development in the Early Years: An Evidence Review of Universal, Population and Targeted Interventions

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Supporting Speech, Language and Communication (SLC) Development in the Early Years: An Evidence Review of Universal, Population and Targeted Interventions

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Views expressed in this report are those of the researchers and not necessarily those of the Welsh Government

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Glossary

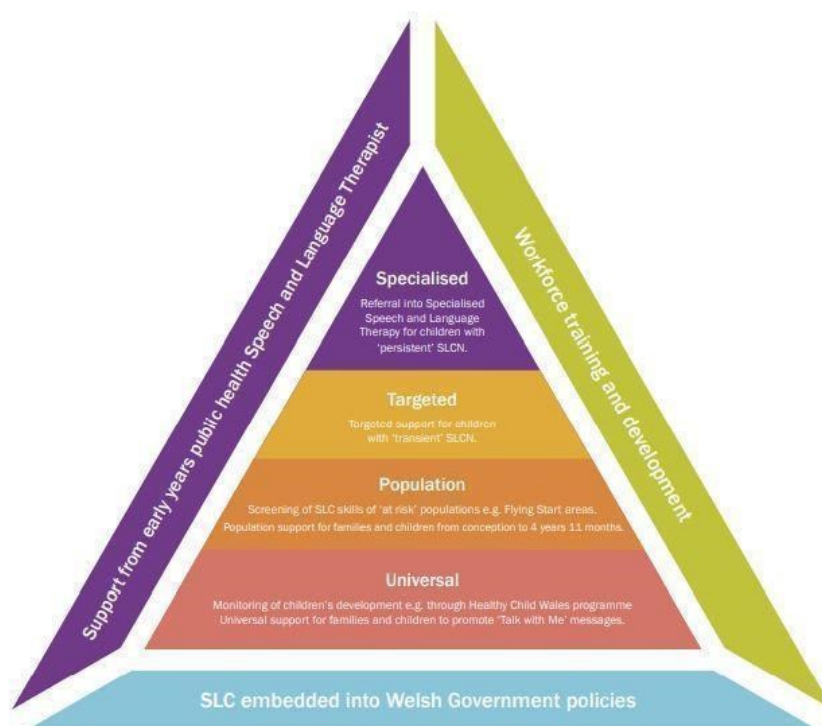
Acronym/Key word	Definition
Acceptability	How a tool is likely to be received by those people administering it and those people who are being screened.
Bilingualism	The ability to produce two languages with at least a basic level of functional proficiency or use, regardless of the age at which the languages were learned.
Inter-rater reliability	The level of agreement between two reviewers.
Majority language	A majority language is the language that is spoken by a majority of the population in a particular area.
Minority language	A minority language is a language that is spoken by a minority of the population in a particular area.
Multilingualism	The ability to speak more than two languages with at least a basic level of functional proficiency or use, regardless of the age at which those languages were learned.
Persistent Needs	A term used to describe the needs of children whose speech, language and communication difficulties persist even after intervention. Their problems might be restricted to speech, language and communication or they may have problems with these skills as part of another condition affecting their learning and/or development.
Prudent Healthcare	This describes a distinct way of shaping the Welsh NHS with the following principles: achieve health and wellbeing with the public, patients and professionals as equal partners through co-production; care for those with the greatest health needs first, making the most effective use of skills and resources; do only what is needed, no more, no less and do no harm; reduced inappropriate variation using evidence based practices consistently and transparently.

Receptive Language	The understanding of spoken language which includes understanding of vocabulary and grammar.
Reliability	The consistency of a measure i.e., whether the same scores would be reproduced if the test was administered again. There are various types of reliability including test-retest reliability, inter-rater and intra-rater reliability.
Sensitivity	A measurement of how often a test correctly identifies when a person has the condition being tested for. Low sensitivity results in false negatives where people with the condition are incorrectly identified as not having the condition.
Sequential bilingualism	The ability to produce two languages with exposure to each language having commenced in sequence i.e., the person was exposed to one language before being exposed to another language.
Simultaneous bilingualism	The ability to produce two languages with exposure to each language being concurrent and having commenced during infancy.
Specificity	A measurement of how often a test correctly identifies when a person does not have the condition being tested for. Low specificity can result in false positives where people without the condition are incorrectly identified as having the condition.
Speech, Language and Communication Needs (SLCN)	An umbrella term introduced in the Bercow (2008) report which describes all speech, language and communication needs that a child could be experiencing and is regardless of any underlying diagnosis or medical condition.
Validity	The extent to which a test measures what it intended to measure. There are various types of validity including content validity, construct validity and face validity, which is the degree to which those using the tool consider that it measures the concept being investigated.

1. Introduction

1.1. The 'Talk with Me: Speech, Language and Communication Delivery Plan' (Welsh Government, 2020) aims to ensure children receive high quality support in the early years (before age 5 years) to develop their speech, language and communication (SLC) skills on a scale according to their need i.e., universal, population, targeted, specialist. Universal provision is that which is available to all with the aim of increasing the general public's knowledge of SLC needs (SLCN). Population refers to public health campaigns which focus on particular groups e.g., [Flying Start](#), [Families First](#), [Early Years Integration Transformation Programme](#). Targeted interventions address specific needs, meaning children who have been identified as having SLCN (Welsh Government, 2020). Specialised levels of interventions are for children who have SLCN requiring specialist support from speech and language therapy services. Figure 1 summarises these tiers of intervention.

Figure 1: Tiers of Intervention



(Welsh Government, 2020)

1.2. The Welsh Government has a continuing commitment to ensuring all children have the best start in life and the aim of the Talk with Me delivery plan (Welsh Government, 2020) is that all children are supported by evidence-based

interventions to develop their SLC skills at the earliest opportunity. The work presented herein is pivotal in achieving this goal and will assist in delivering early years' provision that builds strong key skills (such as speech, language and communication) from birth to infancy. Moreover, the current report addresses the aims of the Healthy Child Wales Programme (Welsh Government, 2016) to assist children 'to meet all developmental milestones enabling them to achieve school readiness' (p. 5) and the goals of the UK Allied Health Professions Public Health Strategic Framework 2019-2024 to 'embed a preventative and population health approach, which is informed by evidence of need' (Allied Health Professions, 2019). The purpose of the work carried out and reported here is to identify those interventions which have strong evidence of improving SLC outcomes for children aged 0 to 5 years and could be adopted or adapted for use across Wales at a universal, population and targeted level.

- 1.3. The aim of universal provision is that it brings benefits to the whole community. It raises awareness of the importance of speech, language and communication for all children, provides education and resources to help families to provide language enriching opportunities and environments, as well as allowing surveillance and early identification of children at risk of having SLCN. Universal provision aims to ensure all families are provided with the appropriate resources to support them.
- 1.4. Population approaches offer intervention to groups who are more likely than others to develop a particular condition. In the case of language interventions, this includes families living with social disadvantage. Such approaches carry the risk of communities feeling marked out in some way and consequential disengagement of targeted groups (Guttman and Salmon, 2004). The Flying Start and Families First programmes in Wales have a clear focus on early years, multidisciplinary working and tackling the effects of poverty and deprivation for young children at a population level. These programmes are delivered in local authority areas across Wales which have been identified as having low-income households. Taking a universal together with population approach brings an advantage of reducing the potential for stigmatisation which can be inherent in some interventions which are tailored for specific groups of people.
- 1.5. Targeted intervention is delivered to those children who have been identified as having some element of SLCN. The trajectories of language development can be unstable and unpredictable between 2 and 4 years of age and some children who appear to be developing well at 2 years may develop language difficulties later (Reilly et al., 2010). Therefore, monitoring of SLC skills through universal

screening programmes can enable targeted interventions to be delivered in a timely manner. Children's response to these targeted interventions can help to determine which children would benefit from specialist level intervention ensuring prudent use of specialist resources.

- 1.6. Use of well-researched and applied universal, population and targeted SLC interventions in the early years, across parental and educational settings should help to prevent the consequences of language disadvantage (Beard, 2018). These interventions can boost the SLC capacity of public services before specialist input is necessary. Beyond universal, population or targeted interventions, some children with persistent and significant SLCN will require specialist SLC intervention from speech and language therapy services.
- 1.7. The impact of SLC difficulties has been well researched and reported (Pickles et al., 2016; Snow & Powell., 2011). Child language acquisition is critical to children's long-term development and well-being across multiple domains (Maggie et al., 2010; Marmot et al., 2010) and has a pivotal role in promoting social mobility (Irwin, Siddiqi & Hertzman; 2007; Law, Reilly & Snow, 2013; UNICEF, 2012; Wylie et al., 2014). There is evidence that children with early SLCN can experience literacy difficulties at school-age (Catts, 1997; McCormack et al., 2011; Schoon et al., 2010a; Wren et al., 2021) and often underachieve academically compared to their peers (Berkman et al., 2015; McKean et al., 2017; Snowling et al., 2001). SLC difficulties can also affect social and emotional wellbeing (Norbury et al., 2016) which includes children more likely to be reported as having behaviour difficulties (Willinger et al., 2003) and at risk of anxiety in childhood and adolescence (Beitchman et al., 1996; Beitchman et al., 2003). The effects of early SLC difficulties can last into adulthood affecting employment (Clegg et al., 2005) and mental health (Schoon et al., 2010b). Moreover, up to 60 per cent of young offenders have been reported as having SLCN (Bryan, Breer and Furlong, 2007). Conversely, children living in social deprivation at age 5 with good language skills are more likely to escape poverty in adulthood (Blandon, 2006). Providing input to develop SLC skills in the early years is cost effective in comparison to interventions for adolescents and adults for longer-term effects of SLCN (Heckman, 2000). For these reasons, the timing of intervention is pivotal and the importance of early intervention to develop children's SLC skills is paramount.
- 1.8. The evidence highlights the importance of providing early intervention. Promoting awareness of SLCN through provision of universal, population and targeted support in the early years, in the form of surveillance, identification and advice as

well as intervention, is important to ensure that all children are supported to achieve their potential by school entry. Interventions at each level will support children by empowering parents/carers and early years practitioners to provide opportunities that facilitate development of SLC skills across environments.

- 1.9. Examining the wider benefit of parental mental health and parenting interventions is important when considering universal and population approaches. A systematic review by Jeong et al. (2021) reported that there is strong evidence for the effect of parenting interventions on children's cognitive, language and motor development. In particular, interventions that focussed on developing responsive caregiving had the greatest effect. High levels of caregiver responsive behaviours are associated with stronger language skills in children (Madigan et al., 2019).
- 1.10. Poor maternal postnatal health has been demonstrated to have negative and lasting effects on children's development (Murray et al., 2010; Netsi et al., 2018; Sanger et al., 2015) including the development of a child's SLC skills (Clifford et al., 2022). This could be due to the impact it has on early interaction behaviours between mother and child. It has been widely demonstrated that maternal depression can impair maternal responsiveness (Luoma et al 2001, McLearn et al 2006) mother-child bonding and attachment (Atkinson et al., 2000; Gravener et al., 2012; Martins & Gaffan, 2000; Toth et al., 2009) and that this means that children of depressed mothers are at risk of a range of negative developmental outcomes, including SLCN (Handley et al., 2017).
- 1.11. The evidence for the impact of coronavirus (COVID-19) is beginning to emerge. A systematic review conducted by Racine et al. (2022) reported that symptoms of depression doubled in mothers of children aged under 5 compared to pre-pandemic estimates, while measures of anxiety tripled. Moreover, there is evidence that SLC development may also have been affected. Social distancing measures meant that children missed opportunities for social interactions and 'peer talk' (Charney, Camarata and Chern, 2021). An international study conducted during the first lockdown reported that children aged under 3 years had increased levels of passive screen time than prior to lockdown (Bergmann et al., 2022) and this was negatively associated with their expressive vocabulary skills (Bergmann et al., 2022; Kartushina et al., 2022). A report by the children's communication charity, ICAN (2021) highlights teachers' concerns that where children's SLC skills have been negatively affected by COVID-19, they may not be adequately able to catch up with their peers. Providing evidence-based interventions for SLC development has therefore become even more important in this context.

1.12. Children residing in Wales will be exposed to both the Welsh and English languages to varying degrees. Welsh has been spoken in Wales throughout recorded history. According to the most recent census, 538,300 usual residents of Wales aged three years or older reported being able to speak Welsh, amounting to 17.8% of the population (Welsh Government, 2022a). The number of speakers of Welsh fluctuates across different parts of Wales and there is variation in the population of Welsh speakers in different local authorities and in individual communities (Welsh Government, 2022). When reviewing interventions that aim to improve SLC skills in children, it is important to consider single-, dual- and multi-language exposure during childhood. Welsh and English are official languages in Wales (Welsh Government, 1993, 2011) and the number of children receiving Welsh-medium education is growing with 77,693 children being recorded as attending a Welsh-medium school in 2021-22 as compared to 75,434 in 2011-12 (Welsh Government, 2022b). This means that an increasing number of children are becoming Welsh-English bilinguals in childhood. Some children will be exposed to Welsh only within the home. Others will experience both Welsh and English. An additional group will hear only English in their home and Welsh within education. Alongside English and Welsh, some children living in Wales will be exposed (by varying degrees) to other languages spoken by family. The 2021 census reported that 8.9% of people in England and Wales reported using a main language other than English or Welsh (Welsh Government, 2022c). This diversity in language experience needs to be considered.

1.13. A systematic review by Law et al. (1998) reported that there is a wealth of evidence for the effectiveness of SLC interventions. The challenge is being able to identify which interventions are the most robust and are likely to convey the most benefit to children according to their need. The objectives specified by Welsh Government for which this report was commissioned were:

- to review the current evidence base for perinatal/infant mental health interventions and identify the SLC elements within these
- to review the current evidence for parenting interventions and identify the SLC elements within these (i.e., interventions which do not specifically target SLC but may have a beneficial effect on SLC skills)
- to review the current evidence regarding SLC interventions available at Universal, Targeted, and Population levels.

2. Methodology

- 2.1. Three rapid scoping reviews were undertaken to address the objectives using a modified version of the methodology outlined by The Centre for Evidence-Based Medicine (2020). The same methodology was used for each review.

Stage 0: Population, Concept (or phenomenon of interest), Context

- 2.2. Important characteristics of the population, often referred to as the ‘participants’, for each objective were identified, including age or definition of relationship with the child e.g., parent. The core concept for each review was identified, for example for objective one this was mental health interventions. Lastly, where relevant, the context was identified, such as either universal, population or targeted groups in objective 3.

Stage 1: Search strategies (including information sources)

- 2.3. Search strategies for each review are given in annex 1. Each search was carried out through Medline and CINAHL. These were chosen to ensure the searches included databases with focus on both medical and psychosocial elements. Table 1 shows the date ranges for each of the objectives. Objective 2 had a smaller number of return articles and so a wider date range was used. Objective 3 had a limited date range as there was a high number of return articles, plus evidence already available from previous literature. This adheres to guidelines for conducting a rapid review (Centre for Evidence-Based Medicine, 2020).

Table 1: Date ranges for searches

Objective	Start of date range	End of date range
Objective 1	2010	2022
Objective 2	2000	2022
Objective 3	2017	2022

- 2.4. Once the searches were run, they were entered into Endnote, a reference management tool, and deduplicated. Following this, they were exported from Endnote and entered into an online systematic review tool called Rayyan (Mourad et al., 2016). This tool allowed for two or more researchers to judge a paper in a blinded fashion. This blinding and then subsequent checking between the researchers ensures that those papers retained at each part of the review process are relevant (valid) to address the purpose of the review. In the reviews presented

within this report, articles were assessed at title level, and the first 10% were reviewed by two researchers to check that inter-rater reliability reached at least 98%. Any disagreement was discussed between the authors and a decision was reached. Ninety-eight percent is taken as an extremely high level of agreement within a scoping or systematic review, and follows best practice as outlined by Centre for Evidence-Based Medicine (2020) and the Joanna Briggs Institute (Peters, et al., 2020). This provides clarification within the team on the types of papers that are meaningful in these rapid scoping reviews. The same process was undertaken with the abstracts. At abstract level, due to a reduction in number of references needing to be reviewed, 20% were screened jointly to check inter-rater reliability reached at least 98%. Annex 2 (figures 2-4) contains the PRISMA flowchart of each review.

Inclusion Criteria:

- Interventions should be used with children from birth to age 5 years, or with parents where their children are in the same age bracket
- Intervention aims to improve the child's SLC skills
- At least one SLC outcome is reported in the results of the intervention study e.g., a measurement of the child's vocabulary
- Interventions that follow a manualised programme of work
- Intervention developed in or translated into English/Welsh
- Articles written in English/Welsh

Exclusion criteria:

- Intervention delivered when a child is primarily aged 5 years or older, or with parents where their children are older than 5 years.
- Intervention targeted non SLC development only e.g., literacy or physical development
- Interventions identified as not effective by the research evidence
- Studies focussing on specific populations only e.g., children with autistic spectrum disorder, cerebral palsy, cleft palate
- Intervention delivered at a specialist level only (need to be delivered by someone with a specific qualification e.g., Speech and Language Therapist or Psychologist)
- Conference abstracts, letters to editors, review/commentary

Stage 2: Review of other sources

- 2.5. Additional databases and resources including [PROSPERO](#) , [Cochrane](#), [Figshare](#) , OSF (Foster & Deardorff, 2017), [COSMIN](#), [JBI](#), and [Campbell](#) were searched using terms from the individual strategies. The researchers also used social media and contacts with subject matter experts to identify evidence and interventions relevant to each objective.

Other sources assessed were:

- [The Parent-Infant Foundation Toolkit for Clinical Interventions and Evidence-Informed Practice](#)
- [The Early Intervention Foundation Guidebook for early interventions](#)
- Relevant reviews available in the [NSPCC Library and Information Service](#)
- I CAN/[The Communication Trust What Works](#) database
- [Speech Bite \(Speech Pathology Database for Best Interventions and Treatment Efficacy\)](#)
- [American Speech-Language and Hearing Association \(ASHA\)](#) Evidence maps
- Previous systematic reviews, chapters or programmes of work such as Child Talk NIHR programme grant (Roulstone et al., 2015) and other reviews known to the research team (e.g., Asmussen et al., 2016; Axford et al., 2015; Eadie, Taylor & Stark, 2017; Law et al., 2017, 2018; Levickis et al., in press)

Stage 3: Compilation of list of interventions

- 2.6. A list of interventions was compiled from the retained abstracts across all three objectives, from the additional searches and from information supplied by subject matter experts. This extensive list was then reviewed to determine which interventions should be included. Inclusion and exclusion criteria as outlined above were applied and those interventions which were excluded are provided in annex 4 (Tables 8 -10).

Stage 4: Refinement of list of intervention

- 2.7. The remaining interventions were mapped against the Better Communication Research Project's (BCRP) categories of interventions (Roulstone et al., 2012). This framework was constructed in consultation with therapists, who assigned a category and a definition to the various different resources, tasks, and activities

they identified as performing, engaging with or using for a specific goal, or a programme of work. The definition of these broad areas is given in table 2.

Table 2: Better Communication Research Project categories of interventions (Roulstone et al., 2012)

Categories of Intervention	Definition
Programmes	Interventions that consist of a package of activities, arranged in some kind of hierarchical structure. Often these have been published as a named package.
Intervention activities	A discrete activity targeting a specific skill or deficit, for example, auditory discrimination and the use of barrier games.
Principle or Approaches to intervention	This refers to principles of interventions and might be approaches that would be included or form the basis of activities that were included in programmes (as defined above).
Service developed programmes	Programmes developed by a local team. Often with adapted components of published programmes or combination of intervention activities in a new way or in a way to suit a local delivery pathway.
Resources	Explicit resources (e.g., building bricks, or bubbles) or resources named as shorthand to an area of speech, language or communication that is being targeted/treated.
Training	Training packages targeting either parents or other practitioners, as a way of giving them skills to be effective deliverers of interventions.
Models or theories of intervention	Theories underpinning interventions rather than describing the activities or approaches.
Targets of intervention	These included aspects of the child's speech, language and communication, underpinning cognitive and processing skills or the broader psychosocial aspects of interaction.

2.8. Once mapped to the BCRP categories as outlined in table 2, interventions were mapped to the 'tiers of universal, population and targeted intervention' (Annex 3; Table 11). All interventions were then classified according to an accepted hierarchy of evidence that was originally adapted from the US Agency for Healthcare Policy and Research Classification (Table 3). This grading scheme is based on a scheme formulated by the Clinical Outcomes Group of the NHS Executive (Eccles & Mason, 2001).

Table 3: Hierarchy of Evidence

Level	Type of evidence
1	Evidence obtained from a single randomised controlled trial or a meta-analysis of randomised controlled trials
2a	Evidence obtained from at least 1 well-designed controlled study without randomisation
2b	Evidence obtained from at least 1 other well-designed quasi-experimental study
3	Evidence obtained from well-designed non-experimental descriptive studies, such as comparative studies, correlation studies and case studies
4	Evidence obtained from expert committee reports or opinions and/or clinical experiences of respected authorities
4	Evidence obtained from expert committee reports or opinions and/or clinical experiences of respected authorities

Adapted from Eccles M, Mason J (2001) How to develop cost conscious guidelines. Health Technology Assessment

2.9. Those interventions found to satisfy inclusion as a programme of work as defined by the BCRP (Table 2) were retained. Given the number of interventions identified, only those that were considered a programme of work were included. These were selected over other categories of interventions, as programmes being the most fully documented of the intervention types that are also in the public domain. Therefore, these types are more likely to have been used by a greater number of practitioners and to be available for adoption. Finally, those

programmes that had level 1 evidence as detailed in table 3 were retained as these provide the highest level of scientific evidence. Annexes 3-7 contains details of interventions other than programmes that were considered in the review.

- 2.10. The three rapid scoping reviews aim to identify interventions meeting the aforementioned criteria and provide a descriptive overview of these. This follows best practice for scoping reviews as detailed by the Centre for Evidence-Based Medicine (2020) and the Joanna Briggs Institute (2020). Therefore, the reviewed material is presented without critical appraisal of individual studies and there is no synthesis of evidence from different studies.

3. Results

3.1. In total, 15 different interventions were identified and defined as a programme of work with level 1 evidence for impact on children's SLC skills. Interventions have been classified as universal, population or targeted as the research team were best able to establish from the published literature. Three interventions were identified for objective 1 and three for objective 2, with nine interventions identified for objective 3. All of the included interventions are summarised in table 4 and then described in more detail in the following sections. No interventions using the Welsh language were identified.

In addition to the nine interventions retained for objective 3, a further three were considered, but were excluded because they were classified as specialist interventions (Annex 5; Table 11). Two of these are Hanen programmes and the fourth is the 'Parent-Child Interaction programme' developed in England. All are delivered by a speech and language therapist.

Another 12 programme level interventions were excluded because they had level 1 evidence which indicated they are *not* effective for improving SLC (Annex 7; Table 15-17). For example, Goldfield et al. (2012) reported that children in the Let's Read programme's intervention group had similar SLC outcomes at age 4 years to those in the control group.

Table 4: Summary of interventions.

Intervention	Description	Target population and setting
Attachment and Biobehavioural Catch Up (ABC)	A 10-session intervention that aims to enhance parent-child interaction by increasing parent nurturance and responsive behaviours. This programme is designed for parents caring for children with histories of adversity e.g., in foster care.	Home visiting programme for parents of infants. Home visitors are trained non specialists.
Attachment and Behavioural Catch up for Toddlers (ABC-T)	A 10-session intervention that aims to enhance parent-child interaction by increasing parent nurturance and responsive behaviours. This programme is designed for parents caring for children with histories of adversity e.g., in foster care.	Home visiting programme for parents of toddlers. Home visitors are trained non specialists.
Doors to Discovery	A pre-kindergarten programme that builds a foundation of oral language, phonological awareness, alphabet knowledge, and concepts of print and a love of books.	A pre-school literacy curriculum for pre-school teachers.
Early Talk Boost	A targeted intervention aimed at 3- to 4-year-old children with delayed language helps to boost their language skills to narrow the gap between them and their peers.	Small group intervention for 3- to 4-year-old children, delivered by a trained early years practitioner in early years settings.
Family Nurture Intervention (FNI)	Family Nurture Intervention (FNI) helps families re-establish emotional connection and autonomic co-regulation if they are interrupted. A trained nurse referred to by the authors as a 'Nurture Specialist' works with the family to help facilitate emotional connection.	Trained nurture specialist delivers FNI to families in NICU.
Incredible Years Parent-Toddler Programme (IYPTP)	The Incredible Years Parent-Toddler Programme (IYPTP) is a 12-week group-based behavioural intervention that teaches effective relationship and behavioural management skills including social, emotional and persistence coaching to enable parents to better support their children's development	Group for parents and toddlers (age 1 to 3 years) delivered by trained Incredible Years Facilitators.
Infant Behavior Program	An adaptation of Parent Child Interaction therapy for infants at risk of behaviour difficulties. Programme involves 7 weekly one-hour sessions which comprises one teaching session and six coaching sessions.	Home based intervention for parents and their infant, delivered by trained therapists.

Infant Health and Development Programme	The Infant Health and Development Program (IHDP) was developed to enhance the cognitive, behavioural, and health status of low birth weight (LBW), premature infants. Between birth of a premature child and the age of three, program families received: 1) paediatric follow-up, 2) home visits, 3) parent support groups, and 4) a systematic educational program provided in specialised child developmental centres. The purpose of this early intervention program is to prevent later developmental problems.	Home visiting and group intervention for parents of low-birth-weight premature infants. Delivered by an interdisciplinary team of trained health and social work professionals.
Learning Through Play Plus (LTP+)	LTP Plus comprises two components: Learning through play (LTP) and Cognitive Behaviour Therapy (CBT). The LTP Plus is a low-literacy, sustainable program intended to provide parents with information on the healthy growth and development of their young children. The LTP research-based activities enhance children's development while simultaneously promoting attachment security through building parents' ability to read and be sensitive to their children's cues and through active involvement in their children's development.	A group parenting intervention delivered by trained non specialists.
Let's Begin with the Letter People	An early education curriculum that uses 26 thematic units to develop children's language and early literacy skills.	An early education curriculum for pre-school children in early education settings.
Newborn Behavioral Observations (NBO) system	A tool designed to help parents and practitioners share together the fascinating uniqueness of a baby, through observing their behaviour. Practitioners and parents reflect on the shared observation and jointly develop strategies to assist the infant and to promote the parent-infant relationship.	An individualised intervention for parents and their newborns, delivered by an NBO clinician in hospital wards and home visits.
Nuffield Early Language Intervention	A programme for children in reception aiming to improve children's vocabulary, develop their narrative skills, encourage active listening and build confidence in independent speaking.	Small group and individual sessions for children in Reception (4 to 5 years) delivered by a trained teaching assistant in the school setting.
Read, Play, Learn	Vocabulary development through an intervention teaching words through book-reading and book-play.	A play-based curriculum for young children in a school setting

Story Friends	A language intervention programme for children aged 4 to 6. Including 26 interactive storybooks.	Interactive listening sessions for children aged 4 to 6 in school or other settings. Delivery requires no specialist training.
Video Interaction Project (VIP)	The Video Interaction Project (VIP) is a program that is added on to parents' regular paediatrician visits. At each session, the parent meets one-on-one with a therapist in the doctor's office. The parent is given a toy and/or book appropriate for their child's level and then filmed while they play with their child. Afterward, the therapist and parent review the video together. The therapist points out positive moments, such as when the parent responded to their child's sounds. The parents take home the video, the new toy or book, and some pamphlets that have play suggestions. The program is designed to help parents recognize successful moments with their child and help them reflect on what they are already doing to engage with their child in a positive way.	Individual parent-child intervention delivered by a VIP interventionist at a primary care setting.

Objective 1: Perinatal mental health interventions

- 3.2. Table 5 lists the three perinatal mental health interventions which fulfilled the criteria of being manualised programmes with level 1 evidence for an impact on SLC outcomes. Interventions that focused explicitly on increasing attachment with no specific SLC outcome were not included. All of the interventions had evidence to suggest they were effective at population level and had a positive effect on children's SLC development. All were delivered to mothers before their child was aged 6 months. There is evidence from research of non-manualised programmes that focusing on maternal-infant interaction can have a positive impact on child SLC development (Ghazi et al., 2021; Khan et al., 2018; Letourneau et al., 2011; Ochoa et al., 2021).

Table 5: Perinatal focused mental health manualised programme interventions with level 1 evidence for SLC impact

Intervention	Level of Intervention	Participants	Details of intervention	SLC Measure and Outcomes	Country of Origin	Reference/s
Family Nurture Intervention (FNI)	Population (Children born between 26 to 34 weeks gestation).	150 infants born between 26 to 34 weeks gestation (115 mothers) included in study. 59 mothers randomised to the FNI intervention. Standard care delivered to the control group.	Intervention delivered by NICU nurses trained in the approach on a 1:1 basis. Intervention delivered as soon as possible after delivery (mean length of time 7 days). Nurses met with mothers on average 6.4 hours per week while their baby was in NICU.	Bayley III scales, Child Behavior Checklist and Modified Checklist for Autism in Toddlers (M-CHAT) administered when child aged 18 months. Bayley III Scales: For children -1 standard deviation below the mean, FNI significantly increased cognitive scores by 6.0 points and language scores by 8.2 points. Child Behavior Checklist: Significantly less attention difficulties for children who had received FNI (effect size 0.51). -CHAT: Significantly fewer failed items for children who received FNI.	USA	Welch MG, Firestein MR, Austin J, et al. (2015)
Learning Through Play Plus (LTP+)	Population	Mothers diagnosed with depression with a child aged between 0 to 30	10 group sessions lasting 60 to 90 minutes, delivered weekly for 8 weeks, then fortnightly for 2 weeks.	Ages and Stages Questionnaire (ASQ-3) administered at baseline, 3 months post-intervention and 6 months post-intervention.	Pakistan	Husain et al. (2021)

		<p>months at time of recruitment.</p> <p>408 randomised to intervention group and 403 to the control group.</p>	<p>Intervention delivered by community health workers.</p> <p>Learning through play calendar depicting child development from birth to 3 years used. Developmentally appropriate messages to stimulate child development provided.</p> <p>Thinking Health Programme also delivered which uses cognitive behavioural therapy to discuss mother's personal health, mother-infant relationship and psychosocial support of others.</p>	<p>Scores were significantly better for children who had received LTP+ intervention for social, motor, problem-solving and communication domains.</p>		
Video Interaction Project (VIP)	<p>Population</p> <p>(Low-income families, greatest effect demonstrated in mothers with symptoms of depression).</p>	<p>Participants recruited from an urban hospital serving low-income, primarily immigrant families.</p> <p>675 mother-child dyads (225 randomised to VIP intervention).</p>	<p>Intervention delivered by a child development specialist on a 1:1 basis with families.</p> <p>Intervention delivered between birth to 6 months.</p> <p>Up to 4 visits by facilitator lasting approximately 30 minutes each.</p> <p>Intervention consisted of 5- to 10-minute video-taped parent-child interaction watched together with parent and child development specialist who reinforced positive interactions. Learning materials and</p>	<p>Measures taken when child was aged 6 months.</p> <p>StimQ (a structured interview to assess child interactions within the home).</p> <p>Symptoms of maternal depression measured using Patient Health Questionnaire, completed when child was aged 6 months.</p> <p>Significantly reduced mild and moderate depressive symptoms for mothers who had been randomised to VIP intervention.</p>	USA	Berkule et al. (2014)

			pamphlets provided to take home.	Greater effect on parental responsiveness for mothers with symptoms of depression.		
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Family Nurture Interventions (FNI)

- 3.3. This is a population level intervention, for parents of children born prematurely and requiring neonatal intensive care unit support and was delivered by nurses who were trained in the approach. Welch et al. (2015) reported that children in the intervention group demonstrated a significant improvement in their communication score on the Bayley Scales of Infant Development (3rd edition) at age 18 months (corrected). Further research, specifically monitoring the intervention's effect on SLC elements of development, using validated tools, would be beneficial to increase the strength of the evidence.

Learning Through Play Plus (LTP+)

- 3.4. At the time of writing, one randomised controlled trial has reported the efficacy of the LTP+ intervention for improving SLC outcomes (Husain et al., 2021). This intervention has been demonstrated as effective at population level, for mothers diagnosed with depression. It was designed to be delivered in groups by lay health workers and used the Ages and Stages Questionnaire (Squires, Bricker and Twombly, 2009) as the outcome measure. Children in the intervention group were reported to score significantly better than the control group for communication skills. However, it is important to note that this trial was designed and delivered in a Pakistani context and delivered in Urdu and it is not known whether the same pattern of results would be observed in a UK population.

Video Interactive Project (VIP)

- 3.5. The VIP has been demonstrated as being effective as a population-level intervention, for use with mothers diagnosed with depression (Berkule et al., 2014). The intervention was delivered via individual sessions with parents and their infant by a professional trained in the approach. Participants completed a structured interview, the StimQ infant, when their child was aged 6 months and this measure was reported to have good validity with measures of language development. Parental responsiveness increased in mothers with maternal depressive symptoms. In particular, there was a statistically significant larger effect when the depressive symptoms were milder.

In order to increase the strength of evidence for this intervention it would be beneficial to undertake further research using validated child language measures specifically as the measures used in this study primarily related to parental language behaviours.

Summary

- 3.6. Further research using validated measures of child language would be beneficial to increase the strength of evidence of benefits for children's SLC outcomes for interventions designed to support parental wellbeing. Two of the three interventions identified are aimed at mothers diagnosed with depression. Evidence for FNI, designed for parents of children born prematurely, shows that it is effective for developing parent-child relationships alongside improved SLC outcomes. It would be beneficial for further long-term monitoring of this intervention to ensure SLC outcomes were sustained past age 6 months.

Objective 2: Parenting Interventions

- 3.7. Table 6 lists the three parenting interventions which met the criteria of being a manualised programme with level 1 evidence for impact on SLC outcomes.

Table 6: Parenting manualised programme interventions with level 1 evidence for SLC impact

Intervention	Level of Intervention	Participants	Details of intervention	SLC Measure and Outcomes	Country of Origin	Reference
The Incredible Years Parent-Toddler Programme (IYPTP)	Population Families living in Flying Start areas of Wales.	89 participants (60 randomised to IYPTP and 29 to waiting list condition). Child aged between 12 to 36 months pre-intervention.	Parent education programme covering eight core topics: child-directed play, promoting toddler language, coaching child social and emotional development, effective praise and encouragement, spontaneous incentives, handling separations, positive discipline and effective limit setting. Intervention delivered by two group facilitators trained in the approach. 12, 2-hour weekly sessions were delivered to a group of parents (median number of parents attending was 11).	Parents were videoed interacting with their child and video was analysed pre and post intervention for five factors: Quantity and variety of parental language, encouraging language, critical language, child-led language and parent-led language interactions.	UK	Gridley et al. (2015)
Infant Behavior Program (IBP)	Population Families defined as low-income with majority (94.7%) having	60 mother-infant dyads (31 randomised to IBP and 29 to standard care).	Intervention delivered by professionals trained in the approach.	Child Language Data Exchange System (MacWhinney, 2000) Measure of infant language (total utterance and different utterances)	USA	Heymann et al. (2020)

	Hispanic or Latino ethnicity					
Newborn Behavioral Observations (NBO) system	Population Families living in low-income, underserved communities	Children less than 6 weeks old 38 newborns enrolled in study (16 randomised to NBO intervention and 22 to usual care).	NBO is a shared observation of the infant with the parent and the interventionist. Weekly home visits by an early interventionist who had been trained in the NBO approach. Delivered until the child was aged 12 weeks (corrected gestational age). Families received at least 3 one-hour sessions (some received 4 sessions).	Bayley Scales of Infant Development III Adaptive and Emotional Scales (Bayley, 1993) Batelle Developmental Inventory (2 nd edition) Measures collected at baseline, 3 months post-intervention and 6 months post-intervention.	USA	McManus et al. (2020)

Incredible Years Parent Toddler Programme (IYPTP)

- 3.8. Gridley et al. (2015) delivered this intervention at a population level to 89 disadvantaged families in Wales with children aged 12 to 36 months. Results showed a moderately significant impact on child-led language interactions. The authors suggest including more SLC specific information in the delivery of the programme.

Infant Behaviour Programme (IBP)

- 3.9. The IBP is a parenting intervention aiming to promote child-directed interaction. Heymann et al. (2020) reported that mothers in the intervention group increased their quantity and range of language used and this had a statistically significant correlation with the quantity and range of their child's utterances. However, at 6 month follow up these effects were no longer statistically significant compared to the control group. Therefore, further evidence to support the long-term outcomes of this intervention would be beneficial.

Newborn Behavioural Observations System (NBO System)

- 3.10. The NBO system was devised as a shortened, clinical tool from the Brazelton Neonatal Behavioral Assessment Scale (Brazelton, 1978) and was designed to support caregivers in developing their relationships through interactions with their infants. McManus et al. (2020) reported that newborns in the intervention group had greater gains in their communication scores on a standardised measure than children in the control group at 6 months post intervention. This difference was not evident at 3 months and so it is important to consider long-term measures as an important factor in evaluating an intervention, especially when children are newborn at the point of delivery of the intervention.

Summary

- 3.11. There is mixed evidence for the effectiveness of parenting interventions which have demonstrable effects on children's SLC development. The IYPTP could be adapted to increase the SLC element to improve these outcomes specifically as recommended by Gridley et al. (2015). Using a rigorous methodology to adapt this intervention could allow amendments for use with children living in bilingual or multilingual environments in Wales. The importance of follow-up measures of the intervention is important as both IBP and NBO systems have different outcomes

depending on when the measure was taken. Any interventions that are adopted or adapted should be evaluated to ensure their effectiveness.

Objective 3: SLC interventions available at universal, population and targeted levels

- 3.12. Table 7 lists the nine interventions that met the criteria of being a programme and having level 1 evidence for impact on SLC outcomes. Three interventions were designed to support parents in developing their child's SLC skills (*Attachment and Biobehavioural Catch-up; Attachment and Biobehavioural Catch-up Toddler; and Infant Health and Development Programme*). These interventions all included an element of education about SLC development and provided parents with strategies for enhanced communication with their children. All of these interventions have been demonstrated as being effective at a population level. The remaining six interventions were designed to be delivered by early years practitioners in a nursery/pre-school/education setting. Three of the interventions are reported to be effective at a targeted level for children who have been identified as having SLCN (*Early Talk Boost; Nuffield Early Language Intervention; and Story Friends*) while the other three have been demonstrated as effective at a population level (*Doors to Discovery; Let's Begin with the Letter People; and Read, Play, Learn*).

Table 7: SLC manualised programme interventions with level 1 evidence for SLC impact

Intervention	Level of Intervention	Participants	Details of intervention	SLC Measure and Outcomes	Country of Origin	Reference/s
Attachment and Biobehavioural Catch Up (ABC)	Population Children living in foster care	52 children living in foster care aged between 10 months and 22 months of age. 22 children in intervention group.	Intervention was delivered by parent coaches trained in the approach. They provided information based on research evidence, guided discussions with caregivers about parenting targets, supported parents and provided video feedback to highlight parents' strengths and progress. 10 one-hour long sessions delivered in the home.	Peabody Picture Vocabulary Test (3 rd edition) administered 2 years post intervention (children aged between 34 to 46 months). Children in intervention group had statistically significant higher standard scores than those in control group.	USA	Bernard et al. (2017)
Attachment and Biobehavioural Catch Up for Toddlers (ABC-T)	Population Children living in foster care	205 parents fostering a child aged between 24 to 36 months (88 randomised to ABC-T intervention, others received control intervention).	10 one-hour long sessions delivered to foster carers by parent coaches who were trained and paid by the study. ABC-T is designed to increase parental nurturance in response to distress, increase sensitive and responsive behaviours in response to non-distress, and to help parents	Peabody Picture Vocabulary Test (3 rd edition) administered at 36 months, 48 months and 60 months of age (a measure of receptive vocabulary). Children who received intervention had greater receptive vocabulary	USA	Raby et al. (2019)

			serve as co-regulators when children are overwhelmed.	skills at post-intervention than children in the control group.		
Doors to Discovery	Population Intervention was effective for children living within Head Start areas of USA	603 typically developing pre-kindergarten children (average age 4.6 years at midpoint of intervention). 245 children in Head start classrooms, 213 children in Title 1 classrooms and 145 children in universal pre-kindergarten classrooms. (Average between 15 to 20 children per class). 25 classes received this intervention, 24 classes received alternate intervention and 27 control classes (no intervention).	This intervention covers many aspects of literacy development alongside a focus on the development of receptive and expressive language plus vocabulary. Intervention was whole class teaching delivered by class teachers trained in the approach.	Pre-school language scale (4 th edition) auditory comprehension subscale and Expressive Vocabulary Test. Statistically significant gains in auditory comprehension and expressive vocabulary for children in intervention group in Head Start classrooms.	USA	Assel et al. (2007)
Early Talk Boost	Targeted Early years practitioners identified up to 8 children per class who they felt had delayed language development	85 nursery aged children (45 in intervention group and 40 in control group).	The intervention supports attention and listening, learning words and building sentences. 20-minute sessions delivered 3 times a week, for up to 9 weeks in groups of 6 to 8 children. Delivered by early years practitioners who had been trained in the approach.	Pre-school Language Scale (4 th edition). Children in the intervention group demonstrated improved scores.	UK	Reeves et al. (2018)

<p>Infant Health and Development Programme</p>	<p>Population Infants born <37 weeks gestation, weighing <2500 grams</p>	<p>985 infants born weighing less than 2500g and before 37 weeks gestation (377 randomised to intervention group and 608 to follow-up only group).</p>	<p>Intervention consisted of an educational home programme delivered weekly during the child's first year and then fortnightly until the child was aged 3 years old, alongside monthly parent support groups and a daily centre-based programme delivered from when the child was aged 12 months corrected age until age 36 months.</p>	<p>Bayley scales and Peabody Picture Vocabulary Test. Children in the higher low birthweight group (2001g to 2499g) had higher verbal IQ than children in the control group at age 5 years and statistically higher receptive vocabulary scores at age 8 years.</p>	<p>USA</p>	<p>Gross (1993)</p>
<p>Let's Begin with the Letter People</p>	<p>Population Intervention was effective for children living within Head Start areas of USA</p>	<p>603 typically developing pre-kindergarten children (average age 4.6 years at midpoint of intervention). 245 children in Head start classrooms, 213 children in Title 1 classrooms and 145 children in universal pre-kindergarten classrooms. (Average between 15 to 20 children per class). 24 classes received this intervention, 25 classes received alternate intervention and 27 control classes (no intervention).</p>	<p>The curriculum focuses on development of letter knowledge in multiple contexts and development of phonological awareness. One week per term devoted to one of 26 thematic units. Intervention was whole class teaching delivered by class teachers trained in the approach,</p>	<p>Pre-school language scale (4th edition) auditory comprehension subscale and Expressive Vocabulary Test. Statistically significant gains in auditory comprehension and expressive vocabulary for children in the intervention group in Head Start classrooms.</p>	<p>USA</p>	<p>Assel et al. (2007)</p>

<p>Nuffield Early Language Intervention</p>	<p>Targeted</p> <p>Children who achieved the lowest composite scores on the Child Evaluation of Language Fundamentals (CELF) Preschool II^{UK} (sentence structure and expressive vocabulary subtests).</p>	<p>394 participants who were in their nursery year at school.</p> <p>Participants were randomised by group (school). 132 children in the 30-week intervention group, 133 children in the 20-week intervention group and 129 children in the control group.</p> <p>Up to 12 children from each school who were those scoring the lowest composite score on the CELF preschool and the British Picture Vocabulary Test (BPVT). 47 percent of children were at the 14th percentile or below on all three tests.</p>	<p>Intervention was delivered for 10 weeks in nursery plus 20 weeks in reception OR 20 weeks in reception.</p> <p>Small group intervention for 30 minutes and then 15 minutes individual intervention which was delivered by a teaching assistant who was trained in the approach.</p>	<p>Range of assessments assessing expressive language, receptive vocabulary, grammatical skills and listening skills (CELF Expressive Vocabulary subtest, Renfrew Action Picture Test, BPVS, CELF Sentence Structure subtest and an adapted version of York Assessment of Reading for Comprehension).</p> <p>Measures collected at start of intervention, immediately post-intervention and at 6 months post intervention.</p> <p>Both groups that received intervention had significantly greater increase in scores than the control group. Minimal effect of which intervention group children had been in.</p>	<p>UK</p>	<p>Fricke et al. (2017)</p>
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<p>Nuffield Early Language Intervention</p>	<p>Targeted Children identified by the Nuffield Early Language Intervention Language Screen (5 children scoring the lowest in each class)</p>	<p>1173 participants (581 in intervention group and 592 in control group). Participants randomised by school. All children in reception year at school.</p>	<p>20-week programme delivered by teaching assistants trained in the intervention. 57 small group sessions, each lasting 30 minutes and 37 individual sessions, each lasting 15 minutes.</p>	<p>Expressive Vocabulary and Recalling sentences subtests from the Child Evaluation of Language Fundamentals (CELF) Preschool II^{uk}. The Renfrew Action Picture Test. Intervention group had significantly improved scores post-intervention time point. Language scores at pre-intervention did not affect post-intervention results.</p>	<p>UK</p>	<p>West et al. (2021)</p>
<p>Read, Play, Learn</p>	<p>Population Children living in low-income families</p>	<p>240 children aged between 4 to 5 years. Within-subjects research design so children acted as their own controls.</p>	<p>Intervention delivered by staff to a group of three children at a time, outside the classroom in a quiet location for four days a week over a two-month period. This consisted of reading two books aloud followed by a play session. Each word which had been selected as target vocabulary was highlighted during the reading with definitions provided and gesture/examples used to aid learning.</p>	<p>Researcher designed measure: New Word Definition Test (modified). Children in the intervention group had greater growth in knowledge of vocabulary for target words than control words.</p>	<p>USA</p>	<p>Hadley et al. (2016)</p>

<p>Story Friends</p>	<p>Targeted</p> <p>Children who scored between 0.5 to 2 standard deviations below the mean on Individual Growth and Development Indicators, Peabody Picture Vocabulary Test (4th edition) and Clinical Evaluation of Language Fundamentals Preschool assessments.</p>	<p>84 children (average age 54 months). 41 children in the intervention group and 43 in the control group.</p>	<p>Story Friends intervention has three components: automated listening centres, classroom strategies and home strategies.</p> <p>Delivered by teachers and education staff who had been trained in the approach.</p> <p>Children listened individually with own headphones in small groups of 3 to 4 children to stories which were approximately 9 to 11 minutes long. There are 13 books in total and each one was listened to 3 times.</p> <p>Classroom strategies related to each book were delivered by the teacher. Home strategies were introduced by a video which was around 8 minutes long with materials sent home by the class teacher.</p>	<p>Researcher-created vocabulary test based on vocabulary introduced in the Story Friends intervention.</p> <p>Story Friends intervention had a large effect on vocabulary size.</p>	<p>USA</p>	<p>Kelley et al. (2020)</p>
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Interventions delivered to parents

- 3.14. Research has demonstrated that the quality of parent-child interactions plays a critical role in supporting optimal language development in young children (Baumwell et al., 1997; Garcia et al., 2015; Hirsh-Pasek et al., 2015; Tamis-LeMonda et al., 2001). Three population-level interventions, delivered to parents and designed to support them in developing their child's SLC skills were identified.

Attachment and Biobehavioural Catch-Up (ABC) and Biobehavioral Catch-Up Toddler (ABC-T)

- 3.15. These are population-level interventions designed for children who have experienced adversity. Children included in the studies were living in foster care at the time of the intervention. Bernard et al. (2017) reported a significant growth in vocabulary for children in the intervention group and this remained significant even when other variables, such as gender and caregiver level of education, were controlled for. Raby et al. (2019) reported a significant increase in children's receptive (understanding of) vocabulary in their study and this was correlated with their foster parent's sensitivity to their communication.

Infant Health and Development Programme

- 3.16. This programme was introduced for children who had a low birthweight (>2500g). Therefore, this intervention is effective for improving SLC outcomes for a specific population of children.

Interventions delivered in education settings

- 3.17. Alongside interventions that support parents there is evidence that supporting children in early years settings can be effective in developing SLC skills (Bowyer-Crane et al., 2008; Rogde et al., 2019). The following six interventions were delivered by early years practitioners in education settings.

Doors to Discovery

- 3.18. This intervention was reported to be most effective for children who lived within Head Start regions in the USA (Assel et al., 2007). Head Start is a programme in the USA designed to promote school readiness for children from low-income families (Head Start, 2022).

Early Talk Boost

- 3.19. Early Talk Boost is delivered in education settings with children aged 3 to 4 years by early years practitioners who have been trained in the approach. This programme was initially piloted in 2014 to 2015 in four local education authorities in England including children from a range of socioeconomic groups. The pilot study resulted in children making statistically significant gains in their early language development. The intervention also had a high level of acceptability with both parents and early years practitioners (ICAN, 2015). A full trial of the intervention is required to determine if the results observed in the pilot study are supported with a larger sample.

Let's Begin with the Letter People

- 3.20. This intervention was reported as being most effective at a population level for children living within Head Start regions in the USA (Assel et al., 2007).

Nuffield Early Language Intervention

- 3.21 The efficacy of this intervention has consistently been demonstrated through randomised controlled trials with a large number of participants for children aged 3-5 in nursery or reception year (Fricke et al., 2013, Fricke et al., 2017, West et al., 2021). These studies demonstrated that children's oral language skills have benefited from the intervention to a statistically significant level and that these gains were present both immediately after the intervention and six months later. In the study by West et al. (2021) 34% of participants had English as an additional language and there was no difference in effect size for these children compared to monolingual speakers. Therefore, the intervention is deemed suitable for children whose home language is not English.

Read, Play, Learn

- 3.22 This intervention was delivered at a population level to children from low-income backgrounds and involved a combination of book-reading and play to enhance learning. Children in the study were reported to have growth in vocabulary knowledge following the intervention, with a medium to large effect size for different word types (nouns, verbs, adjectives) (Hadley et al., 2016).

Story Fun

- 3.23. Story Friends is a multi-component intervention delivered within the classroom setting. Alongside the randomised control trial demonstrating its effectiveness with children identified as having SLCN (Kelley et al., 2020), there is also lower-level evidence of its effectiveness as a population-level intervention (Annex 4; Table 14), with classrooms included in the study reported to serve children from predominantly low-income families (Peters-Sanders et al., 2019; Seven et al., 2020). Kelley et al. (2020) reported that children who were noted to have below average oral language skills were most likely to benefit from the intervention as opposed to children with very limited oral language skills, resulting in strong effects on vocabulary measures. The intervention has been revised based on previous research to address concerns over feasibility of its implementation in the classroom and in its revised form teachers reported that the programme was easy to implement, and they were highly motivated to continue its use to support children's language skills. There was a limited response rate to its evaluation by parents (13%) with those responding reporting that they were motivated to use the extension materials provided for home. They recommended including a bilingual component to the intervention and this was also highlighted by the teacher's evaluation.

Summary

- 3.24. The ABC and ABC-T interventions have been demonstrated as being effective in improving SLC in children who have experienced adversity. Similarly, there is evidence for the effectiveness of the Infant Health and Development Programme in improving SLC for a specific population of children (those born weighing 2001g-2499g).
- 3.25. In relation to interventions delivered within education settings this review has identified two randomised controlled trials demonstrating the effectiveness of the Nuffield Early Language Intervention. This could be considered for adaptation within the Welsh context as it has already been measured as having positive effects with children who speak languages other than English. Story Friends also has a developing evidence-base and has been revised based on research findings to ensure the feasibility of its implementation in the classroom.

3.26. Read, Play, Learn could also be considered for implementation for children living in areas of social deprivation as this has a strong evidence base for the effectiveness of improving children's vocabulary knowledge.

4. Discussion

- 4.1. This review has identified 15 interventions that are able to demonstrate level one evidence (at least one randomised controlled trial indicating a positive impact of the intervention, Eccles and Mason, 2001) that can be used to support children's SLC in their early years. The interventions included in the results section of this report are those identified as being delivered following a manual, ensuring consistency of the delivery of intervention for robust outcomes. The other interventions identified and subsequently examined and excluded from the results are all presented in the annexes of this report together with the reasons for their exclusion.
- 4.2. The level of underlying supporting research evidence and the nature of the intervention are important factors to consider when planning to adopt an intervention within a new context. Some of the interventions have been implemented successfully outside of a research context whilst some are still in their infancy in terms of both the implementation and evaluation of their effects on SLC. For example, a systematic review conducted by Grube and Liming (2018) concluded that the ABC intervention had a positive impact on vulnerable children and their families with demonstrable effects on emotional and behavioural outcomes as well as cognition. This intervention has also been demonstrated as being effective in community practice i.e., not just within research settings (Caron et al., 2016).

Universal, Targeted and Population Provision of SLC interventions

- 4.3. The benefits of providing intervention at universal, population and targeted levels have been discussed for many years. Rose (1992) argued that intervention at a universal level in the early years would bring about positive changes with cumulative benefits. These cumulative effects may not be easily measurable as they act in a preventative manner and therefore children may not develop SLCN. There may be wider effects, for example, on behaviour or social development, which the programme does not set out to measure (Greenberg and Abenavoli, 2017). This could explain why there appears to be limited evidence regarding universal interventions benefitting SLC development. Research is ongoing for some of the interventions that already have level 1 evidence and for some of those detailed in annex 7, (tables 15-17) which have yet to undertake a randomised controlled trial. For example, there is currently no randomised

controlled trial evaluating the outcomes of the newly developed ELIM intervention at a universal level.

- 4.4. There is an argument that providing interventions at a universal level will only widen the gap between the most advantaged and disadvantaged children as those who are advanced stand to benefit the most from interventions (Ceci and Papierno, 2005). But delivering interventions at a population level can ensure prudent use of resources to close the gap between socioeconomic groups (Hart and Risley, 2003). Evaluation of both the effectiveness and cost-effectiveness of programmes such as Early Head Start, provide support for interventions at a population level. The Early Head Start programme has been able to demonstrate statistically significant positive effects on cognition, language, and socio-emotional outcomes for children as well as demonstrable differences in parental behaviour in relation to providing emotional support for language and learning for their children (Love et al., 2005).
- 4.5. It is important to consider that the length of time programmes have been in place can affect outcomes. Initial evaluations of population level outcomes from Sure Start in the UK reported that there were minimal benefits of the programme (Rutter, 2006). However, later evaluations, once programmes had been embedded, reported beneficial effects for children and families using longitudinal measures (Melhuish, Belsky and Barnes, 2010). Many of the interventions described as being effective have collected data over a short timescale and so it is not possible to determine how long the effects of the intervention last.
- 4.6. Alongside interventions that provide support to parents, are interventions that can support children's SLC development in education settings. There is evidence that attendance in childcare/pre-school settings can have positive effects on a child's SLC development (Collisson et al., 2016). For those who have experienced social deprivation (Alsford et al., 2017; Locke et al., 2002), intervention in pre-school settings is seen as a way for children to combat discrepancy in their language development compared to peers (Dockrell et al., 2010; Lee and Pring, 2016). The provision of targeted interventions for such children can be beneficial in improving outcomes in the early years.
- 4.7. Children's SLC development is multifactorial and is influenced by both internal and external factors (McKean et al., 2016). Therefore, children will benefit from a series of interventions at universal, population and targeted levels which can be tailored for individual circumstances (McKean, Mensah and Reilly, 2022).

Moreover, they need to be able to access these interventions in a timely manner as children who achieve low scores on language assessments at age four years are likely to have ongoing, persistent SLCN (McKean et al., 2017). It is important to carefully consider the series of interventions provided to ensure that there is equity in its availability.

Parental Mental Health

- 4.8. The Healthy Child Wales programme recognises the importance of supporting parents and the impact that parental mental wellbeing may have on children's developmental outcomes (Welsh Government, 2016). Many parental mental health interventions focus on improving parental-child relationships, attachment and maternal sensitivity and it is likely that interventions for these areas would positively impact on parent-child interaction and therefore child SLC skills. There is evidence for the benefits of early intervention to support parental mental health on children's SLC development (Harrison and McLeod, 2020). Further research targeting maternal wellbeing, where validated measures of SLC are included in the methodology, would strengthen the evidence base and allow for monitoring of the wider effects of the intervention.

Empowering Parents

- 4.9. There is evidence that high levels of parental responsiveness and child-directed speech is positively associated with children's language outcomes, and this can mediate the effects of socioeconomic status (Huttenlocher et al., 2010; Hoff, 2013; Hirsh-Pasek et al., 2015; Rowe and Snow, 2020). Providing support and education for parents regarding SLC in the early years could empower families and interrupt intergenerational cycles.
- 4.10. There is strong evidence for the efficacy of training parents to promote SLC development in young children. A number of recent randomised controlled trials using a training/coaching approach with parents reported positive outcomes for child language measures (Burgoyne et al., 2018; Ferjan Ramirez et al., 2019; Hampton et al., 2017; Mohammed et al., 2019; Rockers et al., 2018; Shi et al., 2020; Sudfeld et al., 2021; Williams, So and Sui, 2020; Worku et al., 2018). These interventions were not included in the results as they were not a fully defined programme of work but provided education to parents about SLC development and/or provided strategies for parents to implement. In all these studies children in the intervention groups demonstrated increased communication

scores compared to the control groups at a statistically significant level including interventions at universal, population and targeted levels. By training parents to deliver interventions to promote language development, and through the education around parenting/communication principles which that entails, there is the suggestion that opportunities for positive parenting strategies and impacts can be sustained beyond the programme's duration, even if family circumstances alter (Leung et al., 2017a). Early intervention which includes engagement and training of parents has the potential to have a greater impact than a single intervention delivered in isolation however, this will not be suitable for families.

Parental Perception of Accessing Services

- 4.11. A universal intervention accessible to all may be a useful strategy to reach those who would not otherwise come forward for specific help. There is evidence that mothers with low incomes and depressive symptoms are less likely to seek help (Weissman et al., 2004) while some women from ethnic minority backgrounds are more likely to consider mental health as a social rather than medical problem (Brown et al., 2011; Rahman et al., 2007). This may be an important consideration for the provision of universal interventions where participants are not identified as being offered a mental health service.
- 4.12. Under-served populations are also less likely to engage with local services and more likely to have poor language skills (Brown et al., 2020; Kovandzic, 2011). Kovandzic (2011) investigated the Parents and Communities Together (PACT) intervention and discusses the importance of engaging local communities in universal or population-based interventions, including local religious groups such as churches or mosques, and delivery by local community members alongside health professionals. Nuffield Foundation (2022) found that many parents feel that parenting is stressful and that they are judged by others, which could be a barrier to accepting or requesting help or support for their child's language development. Access to interventions for under-served communities can be improved when familiar people are involved in the delivery. This is consistent with a preference for seeking informal help from friends and family and others in their community rather than health professionals (Brown et al., 2014). There should be interventions available at universal, population and targeted levels to meet the needs of individuals and ensure they receive the support that they require.

Interventions in the Welsh Context

- 4.13. The identified level 1 programme interventions were developed in the USA and the UK (but not specifically Wales) and none are in Welsh. Many of these interventions feature direct input with the child focusing on language aspects such as vocabulary, speech sounds and building sentences. Speech and language acquisition in the early years for many children in Wales is in Welsh (either exclusively or alongside English and/or other languages). For these children, interventions need to be developed and carried out in Welsh. Other level 1 interventions focus on supporting parents to develop skills and strategies. Within these interventions, parents are being encouraged to set targets, recognise strengths and take part in support groups. Where the parents' language of choice is Welsh and the interactions with the children are in Welsh, it is important that this type of input is also offered in Welsh and that measures of outcome are also in Welsh.

The developmental trajectory of speech, language and communication skills for bilingual children is different to that seen in monolingual children due to bi-directional influence of one language on the other, which influences the rate and nature of development in each language (Paradis and Genesee, 1996). The diversity in patterns of language exposure in Wales (see 1.12 for more information) also need to be taken into account when developing and implementing interventions, as acquisition patterns vary depending on whether the bilingualism is simultaneous or sequential. Gathercole and Thomas (2009) investigated bilingual development in stable bilingual communities and the extent to which speakers aged between 7 and 10 years became fully bilingual in their two community languages. They found that for Welsh, grammatical accuracy within the production of sentences and the ability to acquire vocabulary at the expected rate was directly related to the input the participants received at home and in school, with those from Welsh-speaking homes performing better than those from English-speaking homes. This was not the case for English however, where high levels of proficiency were recorded in all children, irrespective of home language background (Gathercole & Thomas, 2009). Although these data relate to children that are older than the scope of this report, this research demonstrates that successful acquisition of Welsh, the minority language, is influenced by language use patterns and therefore highlights the relationship between patterns of language exposure and acquisition.

- 4.14. Within Wales, Flying Start often provides SLC groups for children aged under four years old. These sessions tend to focus on learning together through play. An evaluation of Flying Start (Welsh Government, 2019) reported that it is more likely that parents in the most advantaged and educated groups attended 'Language and Play', an SLC group. There was limited take-up from parents who had no qualifications, were on low incomes or were first time parents.

Guidance on adapting intervention for different contexts

- 4.15. There is growing interest in adapting evidence informed intervention for implementation in new contexts. Use of interventions with an existing evidence base could be more efficient than the development of new interventions for each context. However, effects often depend on the context. With this in mind, recommendations arising from this report need to be considered carefully in light of how they may need to be adapted to different contexts. This could be undertaken by service providers following guidance (Moore et al., 2021). Moore et al (2021), provide a detailed 4 step plan which includes a diverse range of stakeholders with the aim to make the adaption acceptable to professionals and parents alike, and therefore amenable to implementation into practice. Although a detailed methodology is provided by Moore et al. (2021). The 4 step ADAPT process includes:

1. Assess the rationale for intervention, and consider intervention-context fit
 - a. Define the problem in the target population
 - b. Identify candidate intervention (e.g., the ones presented within this report)
 - c. Obtain detailed information on the selected intervention and contexts in which it has been evaluated
 - d. Map similarities and difference between original and new contexts
 - e. Consider intellectual property issues
2. Plan and undertake adaptations
 - a. Identify and respond to constraints and facilitators
 - b. Adapt intervention material (e.g., creation of Welsh materials , with the acknowledgement that some elements such as speech sounds

that are evidence based in English, may need additional consideration and data gathering)

- c. Consider potential for unintended consequences
- d. Consider costs and resources needed for the adapted intervention
- e. Recruit individuals and groups to deliver the intervention

3. Plan and undertake piloting and evaluation

- a. Consider the extent and type of evaluation warranted
- b. Consider the value of new information to policy makers, practitioners, and other stakeholders
- c. Consider resources available for evaluation
- d. Evaluate feasibility and consider further adaptations based on feedback from all stakeholders
- e. Document and classify responsive adaptations
- f. Undertake evaluation of effectiveness, cost effectiveness, or process (if needed)

4. Implement and maintain the adapted intervention at scale

- a. Build sustainable partnerships, capacity, and plans for maintenance
- b. Establish data monitoring systems
- c. Report/publish the adapted intervention

4.16. Using this methodology, it is hoped that a more acceptable, effective, sustainable and accountable adaptation of a previously developed intervention could be produced for a local context.

Limitations of a rapid scoping review

4.17. The rapid scoping reviews undertaken for this work have identified interventions which are manualised programmes, with level 1 evidence and could be implemented at universal, population and targeted levels of provision. However, it is important to recognise the limitations of this process. Unlike a full scoping

review or systematic review only two databases were searched. In a standard review, four or five would be involved. Nevertheless, the two which were used (Medline and CINAHL) were carefully selected as they cover medical specialties and indexed journals about nursing, allied health, biomedicine and healthcare. Although there is no universally accepted definition of a 'rapid review', they are often characterised by a lack of blinding and cross checking of retained articles. To counter that, in this work we followed a rigorous process where 20% of the articles at each stage were validated by at least two of the authors of the report. The database searches also had date limits, so additional searches were included at stage 2 to address any gaps in the identification of interventions that the date limits may have produced. It is still possible however, that some interventions were missed, and some that were included were miscategorised, given limitations in available information from online and journal sources.

- 4.18. To determine the level of evidence for the interventions, we used the categorisation outlined in Eccles and Mason (2001). Information to carry out this categorisation was identified using references sourced through the review process and also via internet searches and personal contacts of the project team. However, it was frequently the case that the retained programmes, at the time of writing, had only one randomised controlled trial to allow their categorisation as a level one manualised intervention programme. It is also worthy of note that programmes such as ELIM, are newly developed and as such have not had time to undertake and report this type of research study. Therefore, the decisions on the use of interventions should be evaluated and re-evaluated as new evidence is produced and made available.

Future work

- 4.19. The three rapid scoping reviews described in this report focus only on interventions which can be categorised as manualised programmes (Roulstone et al, 2012) and only those with level 1 evidence, typically one randomised controlled trial. Future work could explore the value of other types of intervention from the Roulstone et al (2015) categorisation and also interventions with lower levels of evidence. This is likely to produce a large number of potential interventions however, so some degree of prioritisation is needed to ensure the outputs from such work can be used meaningfully to inform service provision.

As stated in the previous section, another important area for future work is to monitor new evidence relating to interventions which show promise from the review (i.e., they include an element which could lead to improvements in children's SLC skills but currently have a lower level of evidence than a randomised controlled trial). To this end, we should also be looking at ways we can support and promote trials of interventions to acquire higher level evidence of effectiveness.

Conclusions

- 4.20. Three rapid scoping reviews were carried out to consider the evidence for impact on SLC development for interventions which target parent mental health, parenting skills, or SLC skills at a universal, population or targeted level. A high number of interventions were initially identified and only those which were categorised as manualised interventions with level 1 evidence (at least a single randomised controlled trial) were included. A total of 15 interventions across all three reviews were identified. Each has a different focus and there is variation in the nature of the intervention and the manner of delivery. These 15 interventions provide a starting point when deciding which interventions to implement in order to provide a robust process for supporting SLC development when working with and through parents at a universal, population and targeted level.

5. Recommendations

- 5.1. The work carried out and reported in this review has identified a number of recommendations with regards to available high level evidence interventions for use with parents and children to develop SLC skills. One of the aims for this piece of work was to identify if an effective level 1 evidence intervention programme for SLC was currently available in Welsh. At present no identified intervention fulfilled these criteria.
- 5.2. **Recommendation 1:** A perinatal/infant mental health intervention which includes an element of parental-infant interaction in order to impact positively on the infant's SLC skills should be developed for the Welsh context, using the ADAPT guidance.
- 5.3. **Recommendation 2:** Universal or population level, structured interventions aimed specifically, or at least in part, at the development of SLC should be available within a local context. This provision may be provided by local early years educational settings, primary healthcare providers or similar.
- 5.4. **Recommendation 3:** A manualised intervention targeting, at least in part, SLC development in Welsh-speaking children under 5-years-old should be 'adapted' from a pre-existing intervention. Alternatively, an original intervention should be developed, validated and trialled for its effective implementation in a Welsh context.
- 5.5. **Recommendation 4:** Where any intervention has been adapted to fit the Welsh context, or adopted from a different context, validated measures of child language should be used. Follow-up measures should be taken to ensure the effectiveness of the intervention for long term SLC outcomes.
- 5.6. **Recommendation 5:** A pathway or framework of interventions providing equitable access to services should be developed that provides support to families at universal, population and targeted levels to promote parental responsiveness across the preschool years.
- 5.7. **Recommendation 6:** Further research on perinatal/infant mental health interventions using validated measures of child language would be beneficial in order to better understand the impact of parent mental health interventions on child SLC development.

6. Summary

- 6.1 This review considered the current evidence for perinatal/infant and parent mental health and parenting interventions to identify the SLC elements within these as well as the current evidence regarding interventions specifically targeting SLC skills at Universal, Population and Targeted levels.
- 6.2 Three rapid scoping reviews were undertaken. The interventions identified from these reviews were categorized according to the nature of the intervention, the target of the intervention (Universal, Population or Targeted) and the level of supporting evidence. Those interventions which were categorized as a programme which could be delivered by non-specialists and had level one evidence were reported.
- 6.3 A total of 15 interventions fulfilled these criteria. Three of these were components of parent mental health interventions; three were components of parenting interventions; and the remaining nine were targeting SLC skills. None were designed specifically for use with families speaking Welsh.
- 6.4 The recommendations arising from this work include the development or adaptation of an intervention specifically for Wales.

References

[Allied Health Professions Federation. \(2019\) UK Allied Health Professions Public Health Strategic Framework 2019-2024.](#)

[Alsford, E., Ralephata, A., Bolderson, S., Curtin, M., Parish, E., Klaber, V., and Pring, T. \(2017\) The wrong side of the tracks: Starting school in a socially disadvantaged London borough. *Child Language Teaching and Therapy*. 33, pp. 145–56](#)

Andrew, A., Attanasio, O., Fitzsimons, E., Grantham-McGregor, S., Meghir, C. and Rubio-Codina, M. (2018) Impacts 2 years after a scalable early childhood development intervention to increase psychosocial stimulation in the home: A follow-up of a cluster randomised controlled trial in Colombia. *PLoS medicine*, 15(4), p.e1002556

[Asmussen, K., Feinstein, L., Martin, J. and Chowdry, H. \(2016\) Foundations for life: what works to support parent child interaction in the early years. Early Intervention Foundation.](#)

[Assel, M.A., Landry, S.H., Swank, P.R. and Gunnewig, S. \(2007\) An evaluation of curriculum, setting, and mentoring on the performance of children enrolled in pre-kindergarten. *Reading and writing*. 20\(5\), pp.463-494.](#)

[Atkinson, L., Paglia, A., Coolbear, J., Niccols, A., Parker, K. C. and Guger, S. \(2000\) Attachment security: a meta-analysis of maternal mental health correlates. *Clinical psychology review*, 20\(8\), pp. 1019–1040.](#)

[Axford, N., Sonthalia, S., Wrigley, Z., Goodwin, A., Ohlson, C., Bjornstad, G., Barlow, J., Schrader-McMillan, A., Coad, J. and Toft, A. \(2015\) The best start at home, in *Early Intervention Foundation Evidence. Early Intervention Foundation: London.*](#)

Barlow, J., Herath, N.I., Bartram Torrance, C., Bennett, C. and Wei, Y. (2018) The Neonatal Behavioral Assessment Scale (NBAS) and Newborn Behavioral Observations (NBO) system for supporting caregivers and improving outcomes in caregivers and their infants. *Cochrane Database Syst Rev*. 14;3(3):CD011754. doi: 10.1002/14651858

Baumwell, L., Tamis-LeMonda, C. S. and Bornstein, M.H. (1997) Maternal verbal sensitivity and child language comprehension. *Infant behavior and Development*, 20(2), pp. 247-258

Beard, A. (2018) Speech, language and communication: a public health issue across the life course. *Paediatrics and Child Health*, 28(3), pp. 126-131

Beebe, B., Myers, M.M., Lee, S.H., Lange, A., Ewing, J., Rubinchik, N., Andrews, H., Austin, J., Hane, A., Margolis, A.E., Hofer, M., Ludwig, R.J. and Welch, M.G. (2018) Family nurture

intervention for preterm infants facilitates positive mother-infant face-to-face engagement at 4 months. *Dev Psychol.* 54(11), pp. 2016-2031. doi: 10.1037/dev0000557.

Beitchman, J.H., Wilson, B., Brownlie, E.B., Walters, H., Inglis, A. and Lancee, W. (1996) 'Long-Term Consistency in Speech/Language Profiles: II. Behavioural, Emotional, and Social Outcomes', *Journal of the American Academy of Child and Adolescent Psychiatry*, 35(6), pp. 815-825. Doi: 10.1097/00004583-199606000-00022

Beitchman, J.H., Wilson, E.B., Johnson, C.J., Atkinson, L., Young, A. and Adlaf, E. (2003) 'Fourteen-year follow-up of speech/language impaired and control children: psychiatric outcome', *Journal of the American Academy of Child and Adolescent Psychiatry*, 40(1), pp. 75–82. doi: 10.1097/00004583-200101000-00019

Benzies, K.M., Gasperowicz, M., Afzal, A. and Loewen, M. (2021) Welcome to Parenthood is associated with reduction of postnatal depressive symptoms during the transition from pregnancy to 6 months postpartum in a community sample: a longitudinal evaluation. *Archives of Women's Mental Health*, 24(3), pp.493-501

Bergmann, C., Dimitrova, N., Alaslani, K., Almohammadi, A., Alroqi, H., Aussems, S., Barokova, M., Davies, C., Gonzalez-Gomez, N., Gibson, S.P. and Havron, N. (2022) Young children's screen time during the first COVID-19 lockdown in 12 countries. *Scientific reports*, 12(1), pp. 1-15

[Berkman, N.D., Wallace, I., Watson, L., Coyne-Beasley, T., Cullen, K., Wood, C. and Lohr, K.N. \(2015\) Screening for Speech and Language Delays and Disorders in Children Age 5 Years or Younger: A Systematic Review for the U.S. Preventive Services Task Force \[Internet\]. Rockville \(MD\): Agency for Healthcare Research and Quality \(US\). Report No.: 13-05197-EF-1.](#)

Berkule, S.B., Cates, C.B., Dreyer, B.P., Huberman, H.S., Arevalo, J., Burtchen, N., Weisleder, A. and Mendelsohn, A.L. (2014) Reducing maternal depressive symptoms through promotion of parenting in pediatric primary care. *Clinical pediatrics*, 53(5), pp. 460-469

Bernard, K., Lee, A.H. and Dozier, M. (2017) Effects of the ABC intervention on foster children's receptive vocabulary: Follow-up results from a randomized clinical trial. *Child maltreatment*, 22(2), pp.174-179

[Binks, H. and Thomas, E. \(2019\) Long-term outcomes for bilinguals in minority language contexts: Welsh-English teenagers' performance on measures of grammatical gender and plural morphology in Welsh. Applied Psycholinguistics, 40 \(4\), pp.1019-1049.](#)

[Blanden, J. \(2006\) 'Bucking the Trend': What Enables Those who are Disadvantaged in Childhood to Succeed Later in Life?. Corporate Document Services.](#)

Blizzard, A.M., Barroso, N.E., Ramos, F.G., Graziano, P.A. and Bagner, D.M. (2018) Behavioral Parent Training in Infancy: What About the Parent-Infant Relationship? *J Clin Child Adolesc Psychol.* 47(sup1) pp. S341-S353. doi: 10.1080/15374416.2017.1310045

Blower, S.L., Berry, V.L., Bursnall, M.C., Cohen, J., Gridley, N., Loban, A., Mandefield, L., Mason-Jones, A.J., McGilloway, S., McKendrick, K.L. and Mitchell, S.B. (2021) Enhancing Social-Emotional Outcomes in Early Years (E-SEE): Randomized Pilot Study of Incredible Years Infant and Toddler Programs. *Journal of Child and Family Studies*, 30(8), pp.1933-1949

Bohr, Y., Halpert, B., Chan, J., Lishak, V. and Brightling, L. (2010) Community-based parenting training: do adapted evidence-based programmes improve parent–infant interactions?. *Journal of Reproductive and Infant psychology*, 28(1), pp.55-68

Brooks-Gunn, J., McCarton, C.M., Casey, P.H., McCormick, M.C., Bauer, C.R., Bernbaum, J.C., Tyson, J., Swanson, M., Bennett, F.C., Scott, D.T., et al. (1994) Early intervention in low-birth-weight premature infants. Results through age 5 years from the Infant Health and Development Program. *JAMA.* 272(16), pp. 1257-62

Bowyer-Crane, C., Snowling, M. J., Duff, F. J., Fieldsend, E., Carroll, J. M., Miles, J., ... and Hulme, C. (2008) Improving early language and literacy skills: Differential effects of an oral language versus a phonology with reading intervention. *Journal of Child Psychology and Psychiatry*, 49(4), pp. 422-432

Brazelton, T.B. (1978) The Brazelton Neonatal Behavior Assessment Scale: introduction. *Monogr Soc Res Child Dev.* 43(5-6), pp. 1-13

Brentani, A., Walker, S., Chang-Lopez, S., Grisi, S., Powell, C. and Fink, G. (2021) A home visit-based early childhood stimulation programme in Brazil—a randomized controlled trial. *Health policy and planning*, 36(3), pp.288-297

Brown, J.S.L., Evans-Lacko, S., Aschan, L., Henderson, M.J., Hatch, S.L. and Hotopf, M. (2014) Seeking informal and formal help for mental health problems in the community: A

secondary analysis from a psychiatric morbidity survey in South London. *BMC Psychiatr.* 14, pp. 275

Brown, J., Casey, S.J., Bishop, A.J., Prytys, M., Whittinger, N. and Weinman, J. (2011) How black African and white British women perceive depression and help-seeking for this problem: A pilot vignette study. *Int. J. Soc. Psychiatr.* 57, pp. 364–376

Bryan, K., Freer, J. and Furlong, C. (2007) 'Language and communication difficulties in juvenile offenders', *International Journal of Language and Communication Disorders*, 42(5), pp. 505-520. doi: 10.1080/13682820601053977.

Buil, A., Sankey, C., Caeymaex, L., Apter, G., Gratier, M. and Devouche, E. (2020) Fostering mother-very preterm infant communication during skin-to-skin contact through a modified positioning. *Early Human Development*, 141, p.104939

Burgoyne, K., Gardner, R., Whiteley, H., Snowling, M.J. and Hulme, C. (2018) Evaluation of a parent-delivered early language enrichment programme: Evidence from a randomised controlled trial. *Journal of Child Psychology and Psychiatry*, 59(5), pp.545-555

Caron, E.B., Weston-Lee, P., Haggerty, D. and Dozier, M. (2016) Community implementation outcomes of Attachment and Biobehavioral Catch-up. *Child Abuse Negl.* 53, pp. 128-37. doi: 10.1016/j.chiabu.2015.11.010

Catts, H.W. (1997) 'The Early Identification of Language-based reading difficulties', *Language, Speech and Hearing Services in Schools*, 28(1), pp. 86-89. Doi: 10.1044/0161-1461.2801.86.

Ceci, S.J. and Papierno, P.B. (2005) The Rhetoric and Reality of Gap Closing: When the "Have-Nots" Gain but the "Haves" Gain Even More. *American Psychologist*, 60(2), pp. 149–160

[Centre for Evidence-Based Medicine. \(2020\) PROTOCOL Rapid reviews of evidence for WHO scientific briefs on COVID-19 and selected Noncommunicable Diseases \(NCDs\) – The Centre for Evidence-Based Medicine.](#)

Chacko, A., Fabiano, G.A., Doctoroff, G.L. and Fortson, B. (2018) Engaging fathers in effective parenting for preschool children using shared book reading: A randomized controlled trial. *Journal of Clinical Child & Adolescent Psychology*, 47(1), pp.79-93

Charney, S.A., Camarata, S.M. and Chern, A. (2021) Potential impact of the COVID-19 pandemic on communication and language skills in children. *Otolaryngology–Head and Neck Surgery*, 165(1), pp. 1-2

Clegg, J., Hollis, C., Mawhood, L. and Rutter, M. (2005) 'Developmental language disorder—a follow-up in later adult life: Cognitive, language and psychosocial outcomes', *Journal of Child Psychology and Psychiatry*, 46, pp. 128–149

Clegg, J., Rohde, C., McLachlan, H., Elks, L. and Hall, A. (2020) Evaluating the Elklan Talking Matters Programme: Exploring the impact of a training programme for early years professionals on pre-school children's language development. *Child Language Teaching and Therapy*, 36(2), pp. 108-125

Clifford, B.N., Stockdale, L.A., Coyne, S.M., Rainey, V. and Benitez, V.L. (2022) Speaking of State of Mind: Maternal Mental Health Predicts Children's Home Language Environment and Expressive Language. *J Child Lang.* 49(3), pp. 469-485. Doi: 10.1017/S0305000921000131

Collisson, B.A., Graham, S.A, Preston, J.L., Rose, M.S., McDonald, S. and Tough, S. (2016) Risk and protective factors for late talking: An epidemiologic investigation, *The Journal of Pediatrics*, 172, pp. 168-174. Doi: 10.1016/j.jpeds.2016.02.020

Dockrell, J.E., Stuart, M. and King, D. (2010) Supporting early oral language skills for English language learners in inner city preschool provision. *British Journal of Educational Psychology*, 80, pp. 497–515

Doherty, L., Nicholson, J. and Williams, K. (2007) Sing & Grow: the co-existence of evaluation research and clinical practice in an early intervention music therapy project. *The New Zealand Journal of Music Therapy*, 5, pp.1-16.

[Eadie, P., Tayler, C. and Stark, H. \(2017\) Every toddler talking final report. August. Melbourne, Victoria, Australia: University of Melbourne.](#)

Ebbels, S. (2007) Teaching grammar to school-aged children with specific language impairment using Shape Coding. *Child Language Teaching and Therapy*, 23(1), pp. 67-93. doi:10.1191/0265659007072143

[Eccles, M. and Mason, J. \(2001\) How to develop cost conscious guidelines. Health Technology Assessment 5:16.](#)

- Elmquist, M., Finestack, L.H., Kriese, A., Lease, E.M. and McConnell, S.R. (2021) Parent education to improve early language development: A preliminary evaluation of LENA Start™. *Journal of child language*, 48(4), pp.670-698
- Feeley, N., Zekowitz, P., Shrier, I., Stremler, R., Westreich, R., Dunkley, D., Steele, R., Rosberger, Z., Lefebvre, F. and Papageorgiou, A. (2012) Follow-up of the cues and care trial: mother and infant outcomes at 6 months. *Journal of Early Intervention*, 34(2), pp.65-81
- Ferjan Ramírez, N., Lytle, S.R., Fish, M. and Kuhl, P.K. (2019) Parent coaching at 6 and 10 months improves language outcomes at 14 months: A randomized controlled trial. *Developmental science*, 22(3), p.e12762
- Fischel, J.E., Bracken, S.S., Fuchs-Eisenberg, A., Spira, E.G., Katz, S. and Shaller, G. (2007) Evaluation of curricular approaches to enhance preschool early literacy skills. *Journal of Literacy Research*, 39(4), pp. 471–501
- Fong, N.W.Y., Ho, S.K.Y., So, B.J.W. and Lian, W.B. (2012) Evaluation of the Hanen it Takes Two to Talk Intervention Programme. *Proceedings of Singapore Healthcare*, 21(4), pp.251-256
- Ford, R.M., McDougall, S.J. and Evans, D. (2009) Parent-delivered compensatory education for children at risk of educational failure: Improving the academic and self-regulatory skills of a Sure Start preschool sample. *British journal of psychology*, 100(4), pp. 773-797
- Fricke, S., Bowyer-Crane, C., Haley, A.J., Hulme, C. and Snowling, M.J. (2013) Efficacy of language intervention in the early years. *Journal of Child Psychology and Psychiatry*, 54(3), pp. 280-290
- Fricke, S., Burgoyne, K., Bowyer-Crane, C., Kyriacou, M., Zosimidou, A., Maxwell, L., Lervåg, A., Snowling, M.J. and Hulme, C. (2017) The efficacy of early language intervention in mainstream school settings: a randomized controlled trial. *Journal of Child Psychology and Psychiatry*, 58(10), pp. 1141-1151
- Frizelle, P., Mullane, E., O'Shea, A., Ceroni, A., Dahly, D., Horgan, A., Levickis, P. and Mckean, C. (2021) Happy Talk: A pilot effectiveness study of a targeted-selective speech–language and communication intervention for children from areas of social disadvantage. *International Journal of Language & Communication Disorders*, 56(5), pp. 954-974
- Garcia, D., Bagner, D.M., Pruden, S.M. and Nichols-Lopez, K. (2015) Language production in children with and at risk for delay: Mediating role of parenting skills. *Journal of Clinical Child & Adolescent Psychology*, 44(5), pp. 814-825

Gathercole, V.C.M. and Thomas, E.M. (2009) Bilingual first language development: Dominant language takeover, threatened minority take-up. *Bilingualism: Language and Cognition*, 12(1), pp. 213-37

Ghazi, M., Zare, M., Ramezani, M., Heidarzadeh, M. and Behnam Vashani, H. (2021) The Effect of Home Visit Program Based on the Continued Kangaroo Mother Care on Maternal Resiliency and Development of Premature Infant: A Randomized Clinical Trial. *International journal of community based nursing and midwifery*, 9(1), pp. 64–75

Gibbard, D. (1994) Parental-based intervention with pre-school language-delayed children. *Eur J Disord Commun.* 29. pp.131–50

[Grobrain \(2021\) GroBrain: Helping parents raise emotionally healthy infants.](#)

Goldfeld, S., Quach, J., Nicholls, R., Reilly, S., Ukoumunne, O.C. and Wake, M. (2012) Four-year-old outcomes of a universal infant-toddler shared reading intervention: the Let's read trial. *Archives of pediatrics & adolescent medicine*, 166(11), pp.1045-1052

Goodman, J.H., Prager, J., Goldstein, R. and Freeman, M. (2015) Perinatal dyadic psychotherapy for postpartum depression: a randomized controlled pilot trial. *Archives of women's mental health*, 18(3), pp.493-506.

[Gravener, J.A., Rogosch, F.A., Oshri, A., Narayan, A.J., Cicchetti, D. and Toth, S.L. \(2012\) The relations among maternal depressive disorder, maternal expressed emotion, and toddler behavior problems and attachment. *Journal of abnormal child psychology*, 40\(5\), pp. 803–813.](#)

Greenberg, M.T. and Abenavoli, R. (2017) Universal Interventions: Fully Exploring Their Impacts and Potential to Produce Population-Level Impacts, *Journal of Research on Educational Effectiveness*, 10(1), pp. 40-67

Gridley, N., Hutchings, J. and Baker-Henningham, H. (2015) The Incredible Years Parent–Toddler Programme and parental language: a randomised controlled trial. *Child: care, health and development*, 41(1), pp.103-111

[Gross, R.T. \(1993\) Infant Health and Development Program \(IHDP\): Enhancing the Outcomes of Low Birth Weight, Premature Infants in the United States, 1985-1988. Inter-university Consortium for Political and Social Research \[distributor\], 1993-10-03.](#)

Grøver, V., Rydland, V., Gustafsson, J.E. and Snow, C.E. (2020) Shared book reading in preschool supports bilingual children's second-language learning: A cluster-randomized trial. *Child development*, 91(6), pp.2192-2210

Grube, W.A. and Liming, K.W. (2018) Attachment and biobehavioral catch-up: A systematic Review. *Infant Ment Health J.* 39(6), pp.656-673

Guttman, N. and Salmon, C.T. (2004) Guilt, Fear, Stigma and Knowledge Gaps: Ethical Issues in Public Health Communication Interventions. *Bioethics*, 18(6), p. 531-552

Hadley, E.B., Dickinson, D.K., Hirsh-Pasek, K., Golinkoff, R.M. and Nesbitt, K.T. (2016) 'Examining the acquisition of vocabulary knowledge depth among preschool students', *Reading Research Quarterly*, 51(2), pp. 181–96

Hampton, L.H., Kaiser, A.P. and Roberts, M.Y. (2017) One-year language outcomes in toddlers with language delays: An RCT follow-up. *Pediatrics*, 140(5), e20163646.

Handley, E.D., Michl-Petzing, L.C., Rogosch, F.A., Cicchetti, D. and Toth, S.L. (2017) Developmental cascade effects of interpersonal psychotherapy for depressed mothers: Longitudinal associations with toddler attachment, temperament, and maternal parenting efficacy. *Development and psychopathology*, 29(2), pp. 601–615

Harrison, L.J. and McLeod, S. (2010) 'Risk and protective factors associated with speech and language impairment in a nationally representative sample of 4- to 5-Year-old children', *Journal of Speech Language and Hearing Research*, 53(2), pp. 508–529

Hart, B. and Risley, T.R. (2003) The early catastrophe: The 30 million word gap. *American Educator*, 27, pp. 4-9.

Hassinger-Das, B., Toub, T.S., Zosh, J.M., Michnick, J., Golinkoff, R. and Hirsh-Pasek, K. (2017) More than just fun: a place for games in playful learning/Más que diversión: el lugar de los juegos reglados en el aprendizaje lúdico. *Infancia y Aprendizaje*, 40(2), pp. 191-218

[Head Start. \(2022\) Head Start Programs. The Administration for Children and Families \(hhs.gov\).](https://www.hhs.gov/ohr/hsa/hsa-programs/)

Healey, D. and Healey, M. (2019) Randomized Controlled Trial comparing the effectiveness of structured-play (ENGAGE) and behavior management (TRIPLE P) in reducing problem behaviors in preschoolers. *Scientific Reports*, 9(1), pp.1-9

[Heckman, J.J., 2000. Invest in the very young. Chicago, IL: Ounce of Prevention Fund. The University of Chicago Harris School of Public Policy Studies.](#)

Heymann, P., Heflin, B.H., Baralt, M. and Bagner, D.M. (2020) Infant-directed language following a brief behavioral parenting intervention: The importance of language quality. *Infant Behavior and Development*, 58, p.101419

Hirsh-Pasek, K., Adamson, L. B., Bakeman, R., Owen, M. T., Golinkoff, R. M., Pace, A., ... and Suma, K. (2015) The contribution of early communication quality to low-income children's language success. *Psychological science*, 26(7), pp. 1071-1083

Hoff, E. (2013) Interpreting the early language trajectories of children from low-SES and language minority homes: implications for closing achievement gaps, *Developmental psychology*, 49(1), pp. 4-14

Holt, C., Gentileau, C., Gemmill, A.W. and Milgrom, J. (2021) Improving the mother-infant relationship following postnatal depression: a randomised controlled trial of a brief intervention (HUGS). *Archives of women's mental health*, 24(6), pp.913-923

Horowitz, J.A., Murphy, C.A., Gregory, K., Wojcik, J., Pulcini, J. and Solon, L. (2013) Nurse home visits improve maternal/infant interaction and decrease severity of postpartum depression. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, 42(3), pp. 287-300

Husain, N., Kiran, T., Fatima, B., Chaudhry, I.B., Husain, M., Shah, S., Bassett, P., Cohen, N., Jafri, F., Naeem, S. and Zadeh, Z. (2021) An integrated parenting intervention for maternal depression and child development in a low-resource setting: Cluster randomized controlled trial. *Depression and anxiety*, 38(9), pp. 925-939

Husain, N., Zulqernain, F., Carter, L.A., Chaudhry, I.B., Fatima, B., Kiran, T., Chaudhry, N., Naeem, S., Jafri, F., Lunat, F. and Haq, S.U. (2017) Treatment of maternal depression in urban slums of Karachi, Pakistan: a randomized controlled trial (RCT) of an integrated maternal psychological and early child development intervention. *Asian Journal of Psychiatry*, 29, pp. 63-70

Huttenlocher, J., Waterfall, H., Vasilyeva, M., Vevea, J. and Hedges, L. V. (2010) Sources of variability in children's language growth. *Cognitive psychology*, 61(4), pp. 343-365

Hutchings, J., Bywater, T., Daley, D., Gardner, F., Whitaker, C., Jones, K., Eames, C. and Edwards, R.T. (2007) Parenting intervention in Sure Start services for children at risk of developing conduct disorder: pragmatic randomised controlled trial. *BMJ*, 334(7595), p. 678

Hutchings, J., Griffith, N., Bywater, T. and Williams, M.E. (2017) Evaluating the Incredible Years Toddler Parenting Programme with parents of toddlers in disadvantaged (Flying Start) areas of Wales. *Child: care, health and development*, 43(1), pp.104-113

[I CAN \(2015\). Early Talk Boost Evaluation Report.](#)

[I CAN \(2021\) Speaking up for the Covid Generation.](#)

Irwin, L.G., Siddiqi, A. and Hertzman, G. (2007) *Early child development: a powerful equalizer*. Vancouver, BC: Human Early Learning Partnership (HELP)

Jeong, J., Francett, E.E., Ramos de Oliveira, C.V., Rehmani, K. and Yousafzai, A.K. (2021). Parenting interventions to promote early child development in the first three years of life: A global systematic review and meta-analysis. *PLoS medicine*, 18(5), p.e.1003602

Kachingwe, M., Chikowe, I., Van der Haar, L. and Dzabala, N. (2021) Assessing the Impact of an Intervention Project by the Young women's Christian Association of Malawi on Psychosocial Well-Being of Adolescent Mothers and Their Children in Malawi. *Frontiers in public health*, 9, p.235

[Kartushina, N., Mani, N., Aktan-Erciyas, A.S.L.I., Alaslani, K., Aldrich, N.J., Almohammadi, A., Alroqi, H., Anderson, L., Andonova, E., Aussems, S. and Babineau, M. \(2022\) COVID-19 first lockdown as a unique window into language acquisition: What you do \(with your child\) matters. *Language Development Research*.](#)

Kelley, E.S., Barker, R.M., Peters-Sanders, L., Madsen, K., Seven, Y., Soto, X., Olsen, W., Hull, K. and Goldstein, H. (2020) Feasible implementation strategies for improving vocabulary knowledge of high-risk preschoolers: Results from a cluster-randomized trial. *Journal of Speech, Language, and Hearing Research*, 63(12), pp.4000-4017

Khan, M.A., Owais, S.S., Maqbool, S., Ishaq, S., Khan, H.J., Minhas, F.A., Hicks, J., Khan, M.A. and Walley, J.D. (2018) Is integrated private-clinic based early child development care effective? A clustered randomised trial in Pakistan. *BJGP open*, 2(2)

Kovandzic, M., Chew-Graham, C., Reeve, P.J., Edwards, S. Peters, S. Edge, D. Aseem, S. Gask, L. and Dowrick, C. (2011) Access to primary mental health care for hard-to-reach groups: From 'silent suffering' to 'making it work'. *Soc. Sci. Med.* 72, pp. 763–772

Kruijthoff-Broekman, A., Wiefferink, C., Rieffe, C. and Uilenburg, N. (2019) Parent-implemented early language intervention programme for late talkers: parental

communicative behaviour change and child language outcomes at 3 and 4 years of age. *International Journal of Language & Communication Disorders*, 54(3), pp. 451-464

Kwok, E.Y., Cunningham, B. and Oram Cardy, J. (2020) Effectiveness of a parent-implemented language intervention for late-to-talk children: a real-world retrospective clinical chart review. *International journal of speech-language pathology*, 22(1), pp.48-58

Law, J., Boyle, J., Harris, F., Harkness, A. and Nye, C. (1998) 'Screening for speech and language delay: A systematic review of the literature', *Health Technology Assessment*, 2(9), pp. 1-184

[Law, J., Charlton, C., McKean, C., Beyer, F., Fernandez-Garcia, C., Mashayekhi, A. and Rush, R. \(2018\) Parent-child reading to improve language development and school readiness: A systematic review and meta-analysis. *Psychology*.](#)

[Law, J., Charlton, J., Dockrell, J., Gascoigne, M., McKean, C. and Theakston, A. \(2017\) *Early Language Development: Needs, provision, and intervention for preschool children from socio-economically disadvantage backgrounds*. London: Institute of Education.](#)

Law, J., Reilly, S. and Snow, P.C. (2013) Child speech, language and communication need re-examined in a public health context: a new direction for the speech and language therapy profession. *International Journal of Language & Communication Disorders*, 48(5), pp.486-496

Lee, A., Kim, S.O., Gim, G.M., Kim, D.S. and Park, S. (2020) Care farming program for family health: A pilot study with mothers and children. *International Journal of Environmental Research and Public Health*, 17(1), p. 27.

Lee, W. and Pring, T. (2016) Supporting language in schools: Evaluating an intervention for children with delayed language in the early school years. *Child Language Teaching and Therapy*, 32, pp. 135–46

Letourneau, N., Stewart, M., Dennis, C.L., Hegadoren, K., Duffett-Leger, L. and Watson, B. (2011) Effect of home-based peer support on maternal–infant interactions among women with postpartum depression: A randomized, controlled trial. *International journal of mental health nursing*, 20(5), pp. 345-357

Leung, C., Tsang, S., and Kwan, H.W. (2017a) Efficacy of a universal parent training program (HOPE-20) cluster randomized controlled trial. *Research on Social Work Practice*, 27(5), pp. 523-537

Leung, C., Tsang, S. and Li, B. (2017b) Efficacy of Fun to Learn for the Young Program: Randomized Controlled Trial. *Journal of Child and Family Studies*, 26(10), pp. 2865-2878

Levickis, P., et al., A review of interventions to promote language development in early childhood, in *Language Development: Individual Differences in a Social Context*, J. Law, C. McKean, and S. Reilly, Editors. in press, Cambridge University Press: Cambridge

Locke, A., Ginsborg, J. and Peers, I. (2002) Development and disadvantage: Implications for the early years and beyond. *International Journal of Language and Communication Disorders*, 37, pp. 3–15.

Love, J.M., Kisker, E.E., Ross, C., Raikes, H., Constantine, J., Boller, K., Brooks-Gunn, J., Chazan-Cohen, R., Tarullo, L.B., Brady-Smith, C., Fuligni, A.S., Schochet, P.Z., Paulsell, D. and Vogel, C. (2005) The effectiveness of early head start for 3-year-old children and their parents: lessons for policy and programs. *Dev Psychol.* 41(6), pp.885-901

Lowell, D.I., Carter, A.S., Godoy, L., Paulicin, B. and Briggs-Gowan, M.J. (2011) A randomized controlled trial of Child FIRST: A comprehensive home-based intervention translating research into early childhood practice. *Child development*, 82(1), pp. 193-208

Luoma, I., Tamminen, T., Kaukonen, P., Laippala, P., Puura, K., Salmelin, R. and Almqvist, F. (2001) Longitudinal study of maternal depressive symptoms and child well-being. *J Am Acad Child Adolesc Psychiatry.* 40(12), pp. 1367-74

Luoto, J.E., Garcia, I.L., Aboud, F.E., Singla, D.R., Fernald, L.C., Pitchik, H.O., Saya, U.Y., Otieno, R. and Alu, E. (2021) Group-based parenting interventions to promote child development in rural Kenya: a multi-arm, cluster-randomised community effectiveness trial. *The Lancet Global Health*, 9(3), pp.e309-e319

Madigan, S., Prime, H., Graham, S.A., Rodrigues, M., Anderson, N., Khoury, J. and Jenkins K.M. (2019). Parenting behavior and child language: A meta-analysis. *Pediatrics*, 144(4)

Maggi, S., Irwin, L. J., Siddiqi, A. and Hertzman, C. (2010) The social determinants of early child development: An overview. *Journal of Paediatrics and Child Health*, 46, pp. 627-35

[Marmot, M., Allen, J., Goldblatt, P., Boyce, T., McNeish, D., Grady, M. and Geddes, I. \(2010\) Fair society, healthy lives: The Marmot Review.](#)

Martins, C. and Gaffan, E. A. (2000) Effects of early maternal depression on patterns of infant-mother attachment: a meta-analytic investigation. *Journal of child psychology and psychiatry, and allied disciplines*, 41(6), pp. 737–746

Maselko, J., Sikander, S., Turner, E.L., Bates, L.M., Ahmad, I., Atif, N., Baranov, V., Bhalotra, S., Bibi, A., Bibi, T. and Bilal, S. (2020) Effectiveness of a peer-delivered, psychosocial intervention on maternal depression and child development at 3 years postnatal: a cluster randomised trial in Pakistan. *The Lancet Psychiatry*, 7(9), pp. 775-787

McCarton, C.M., Brooks-Gunn, J., Wallace, I.F., Bauer, C.R., Bennett, F.C., Bernbaum, J.C., Broyles, R.S., Casey, P.H., McCormick, M.C., Scott, D.T., Tyson, J., Tonascia, J. and Meinert, C.L. (1997) Results at age 8 years of early intervention for low-birth-weight premature infants. *The Infant Health and Development Program. JAMA*. 277(2), pp. 126-32

McCormick, M.C., Brooks-Gunn, J., Buka, S.L., Goldman, J., Yu, J., Salganik, M., Scott, D.T., Bennett, F.C., Kay, L.L., Bernbaum, J.C., Bauer, C.R., Martin, C., Woods, E.R., Martin, A. and Casey, P.H. (2006) Early intervention in low birth weight premature infants: results at 18 years of age for the Infant Health and Development Program. *Pediatrics*. 117(3), pp. 771-80

McCormack, J., Harrison, L.J., McLeod, S. and McAllister, L. (2011) 'A Nationally Representative Study of the Association between Communication Impairment at 4-5 years old and Children's Life Activities at 7-9 years old', *Journal of Speech, Language and Hearing Research*, 54(5), pp. 1328-1348

McGilloway, S., Mhaille, G.N., Bywater, T., Furlong, M., Leckey, Y., Kelly, P., Comiskey, C. and Donnelly, M. (2012) A parenting intervention for childhood behavioral problems: a randomized controlled trial in disadvantaged community-based settings. *Journal of consulting and clinical psychology*, 80(1), p.116

McKean, C., Law, J., Mensah, F., Cini, E., Eadie, P., Frazer, K. and Reilly, S. (2016) 'Predicting meaningful differences in school-entry language skills from child and family factors measured at 12 months of age', *International Journal of Early Childhood*, 48(3), pp. 329-351. doi: 10.1007/s13158-016-0174-0.

McKean, C., Reilly, S., Bavin, E.L., Bretherton, L., Cini, E., Conway, L., Cook, F., Eadie, P., Prior, M., Wake, W. and Mensah, F. (2017) 'Language Outcomes at 7 years: Early Predictors and Co-Occurring Difficulties', *Pediatrics*, 139(3), e20161684

McKean, C., Mensah, F. and Reilly, S. (2022) Language Trajectories in Childhood: The Nature and Drivers of Individual Differences and Their Impacts for Intervention In J.Law, S. Reilly and C. McKean (Eds.), *Language Development: Individual Differences in a Social Context* (pp. 259-280). Cambridge: Cambridge University Press.

McLearn, K.T., Minkovitz, C.S., Strobino, D.M., Marks, E. and Hou, W. (2006) The timing of maternal depressive symptoms and mothers' parenting practices with young children: implications for pediatric practice. *Pediatrics*. 118(1), e174-82

McManus, B.M., Blanchard, Y., Murphy, N.J. and Nugent, J.K. (2020) The effects of the Newborn Behavioral Observations (NBO) system in early intervention: A multisite randomized controlled trial. *Infant Mental Health Journal*, 41(6), pp.757-769

Melhuish, E., Belsky, J. and Barnes, J. (2010) Evaluation and value of Sure Start. *Arch Dis Child*. 95(3), pp. 159-61

Mohammed, H., El-Gibaly, O., Monazea, E., Saleh, M. and Mohammed, H. (2019) The effect of a maternal training programme on early childhood development in Egypt. *Eastern Mediterranean health journal*, 25(8), pp. 575-582

Moore, G., Campbell, M., Copeland, L., Craig, P., Movsisyan, A., Hoddinott, P., ... and Evans, R. (2021) Adapting interventions to new contexts—the ADAPT guidance. *BMJ*, 374

Murray, L., Arteché, A., Fearon, P., Halligan, S., Croudace, T. and Cooper, P. (2010) The effects of maternal postnatal depression and child sex on academic performance at age 16 years: a developmental approach. *J Child Psychol Psychiatry*. 51(10), pp. 1150-9. doi: 10.1111/j.1469-7610.2010.02259.x

Netsi, E., Pearson, R.M., Murray, L., Cooper, P., Craske, M.G. and Stein, A. (2018) Association of Persistent and Severe Postnatal Depression With Child Outcomes. *JAMA Psychiatry*. 75(3), pp. 247-253. doi: 10.1001/jamapsychiatry.2017.4363.

[NICE. \(2014\) Antenatal and postnatal mental health: Clinical and service management guidance. In Clinical guideline 192. London: NICE.](#)

Norbury, C.F., Gooch, D., Wray, C., Baird, G., Charman, T., Simonoff, E., Vamvakas, G. and Pickles, A. (2016) The impact of nonverbal ability on prevalence and clinical presentation of language disorder: evidence from a population study. *Journal of Child Psychology and Psychiatry*, 57(11), pp. 1247-1257. doi: 10.1111/jcpp.12573

[Nuffield Foundation \(2022\) Time for Parents: The Changing Face of early childhood in the UK.](#)

Ochoa, W., Reich, S.M. and Díaz, G. (2021) A Randomized Control Trial of Using Baby Books to Reduce New Mothers' Feelings of Stress and Depression. *Matern Child Health J*. 25(10), pp. 1615-1625

O'Connor, T.G., Heron, J., Golding, J., Glover, V. and ALSPAC Study Team. (2003) Maternal antenatal anxiety and behavioural/emotional problems in children: a test of a programming hypothesis. *Journal of child psychology and psychiatry, and allied disciplines*, 44(7), pp. 1025–1036

Ouzzani, M., Hammady, H., Fedorowicz, Z. and Elmagarmid, A. (2016) Rayyan — a web and mobile app for systematic reviews. *Systematic Reviews* 5:210, DOI: 10.1186/s13643-016-0384-4.

Paradis, J. and Genesee, F. (1996) Syntactic acquisition in bilingual children. *Studies in Second Language Acquisition*, 18(1), pp. 1-25

Paris, R., Bolton, R.E. and Spielman, E. (2011) Evaluating a home-based dyadic intervention: Changes in postpartum depression, maternal perceptions, and mother–infant interactions. *Infant Mental Health Journal*, 32(3), pp. 319-338

[Peters, M.D.J., Godfrey, C., Mclnerney, P., Munn, Z., Tricco, A.C. and Khalil, H. \(2020\) Chapter 11: Scoping Reviews \(2020\). In: Aromataris E, Munn Z \(Editors\). JBI Manual for Evidence Synthesis. JBI, 2020.](#)

Peters-Sanders, L.A., Kelley, E.S., Biel, C.H., Madsen, K., Soto, X., Seven, Y., Hull, K. and Goldstein, H. (2019) Moving forward four words at a time: Effects of a supplemental preschool vocabulary intervention. *Language, Speech, and Hearing Services in Schools*, 51(1), pp.165-175

Piasta, S.B., Sawyer, B., Justice, L.M., O'Connell, A.A., Jiang, H., Dogucu, M. and Khan, K.S. (2020) Effects of Read It Again! in early childhood special education classrooms as compared to regular shared book reading. *Journal of Early Intervention*, 42(3), pp. 224-243

Piccolo, L.D.R., Weisleder, A., Oliveira, J., Mazzuchelli, D.S., Lopez, A.S., Neto, W.D., Cates, C.B. and Mendelsohn, A.L. (2022) Reading Aloud, Self-Regulation, and Early Language and Cognitive Development in Northern Brazil. *Journal of Developmental & Behavioral Pediatrics*, 43(2), pp.e70-e78

[Pickles, A., Durkin, K., Mok, P., Toseeb, U. and Conti-Ramsden, G. \(2016\) Conduct problems co-occur with hyperactivity in children with language impairment: A longitudinal study from childhood to adolescence. *Autism and Developmental Language Impairments*.](#)

Pontoppidan, M., Klest, S.K. and Sandoy, T.M. (2016) The incredible years parents and babies program: A pilot randomized controlled trial. *PloS one*, 11(12), p.e0167592

[Public Health England \(2020\) Early Language and Identification Measure and intervention: Guidance Handbook. Early language identification measure and intervention: guidance handbook.](#)

Raby, K.L., Freedman, E., Yarger, H.A., Lind, T. and Dozier, M. (2019) Enhancing the language development of toddlers in foster care by promoting foster parents' sensitivity: Results from a randomized controlled trial. *Developmental science*, 22(2), p.e12753.

Racine, N., Eirich, R., Cooke, J., Zhu, J., Pador, P., Dunnewold, N. and Madigan, S. (2022) When the Bough Breaks: A systematic review and meta-analysis of mental health symptoms in mothers of young children during the COVID-19 pandemic. *Infant Mental Health Journal*. 43(1), pp. 36-54

Raouna, A., Malcolm, R., Ibrahim, R. and MacBeth, A. (2021) Promoting sensitive parenting in 'at-risk' mothers and fathers: A UK outcome study of Mellow Babies, a group-based early intervention program for parents and their babies. *Plos one*, 16(2), p.e0245226

Ravn, I.H., Smith, L., Smeby, N.A., Kynoe, N.M., Sandvik, L., Bunch, E.H. and Lindemann, R. (2012) Effects of early mother–infant intervention on outcomes in mothers and moderately and late preterm infants at age 1 year: A randomized controlled trial. *Infant Behavior and Development*, 35(1), pp. 36-47

Reeves, L., Hartshorne, M., Black, R., Atkinson, J., Baxter, A. and Pring, T. (2018) Early talk boost: A targeted intervention for three year old children with delayed language development. *Child Language Teaching and Therapy*, 34(1), pp. 53-62

Reilly, S., Wake, M., Ukoumunne, O., Bavin, E., Prior, M., Cini, E., Conway, L., Eadie, P. and Bretherton, L. (2010) Predicting language outcomes at 4 years of age: Findings from the Early Language in Victoria Study. *Pediatrics*, 126(6), E1530-E1537.

Rahman, A. (2007) Challenges and opportunities in developing a psychological intervention for perinatal depression in rural Pakistan – a multi-method study. *Arch Womens Ment Health* 10, pp. 211–219

Roby, E., Miller, E.B., Shaw, D.S., Morris, P., Gill, A., Bogen, D.L., Rosas, J., Canfield, C.F., Hails, K.A., Wippick, H. and Honoroff, J. (2021). Improving parent-child interactions in pediatric health care: A two-site randomized controlled trial. *Pediatrics*, 147(3). Article e20201799

Rockers, P.C., Zanolini, A., Banda, B., Chipili, M.M., Hughes, R.C., Hamer, D.H. and Fink, G. (2018) Two-year impact of community-based health screening and parenting groups on

child development in Zambia: Follow-up to a cluster-randomized controlled trial. *PLoS medicine*, 15(4), p.e1002555

[Rogde, K., Hagen, Å. M., Melby-Lervåg, M. and Lervåg, A. \(2019\) The effect of linguistic comprehension instruction on generalized language and reading comprehension skills: A systematic review.](#)

Rose, G. (1992). *The strategy of preventive medicine*. Oxford, England: Oxford University Press.

Roskos, K., Ergul, C., Bryan, T., Burstein, K., Christie, J. and Han, M. (2008). Who's learning what words and how fast? Preschoolers' vocabulary growth in an early literacy program. *Journal of Research in Childhood Education*, 22(3), pp. 275-290

Roulstone, S. E., Marshall, J. E., Powell, G. G., Goldbart, J., Wren, Y. E., Coad, J., ... and Coad, R. A. (2015) Evidence-based intervention for preschool children with primary speech and language impairments: Child Talk—an exploratory mixed-methods study. *Programme Grants for applied research*, 3(5), pp. 1-408

[Roulstone, S., Wren, Y., Bakopoulou, I., Goodlad, S. and Lindsay, G. \(2012\) Exploring interventions for children and young people with speech, language and communication needs: A study of practice.](#)

Rowe, M.L. and Snow, C.E. (2020) Analyzing input quality along three dimensions: Interactive, linguistic, and conceptual. *Journal of Child Language*, 47(1), 5–21.

Rutter, M. (2006) Is Sure Start an Effective Preventive Intervention? *Child Adolesc Ment Health*. 11(3). pp. 135-141

Sanger, C., Iles, J.E., Andrew, C.S. and Ramchandani, P.G. (2015) Associations between postnatal maternal depression and psychological outcomes in adolescent offspring: a systematic review. *Arch Womens Ment Health*. 18(2), pp. 147-162

Saunders, R., Brack, M., Renz, B., Thomson, J. and Pilling, S. (2020) An Evaluation of Parent Training Interventions in Scotland: The Psychology of Parenting Project (PoPP). *Journal of Child and Family Studies*, 29(12), pp.3369-3380

Schoon, I., Parsons, S., Rush, R. and Law, J. (2010a) Childhood language skills and adult literacy: a 29-year follow-up study. *Pediatrics*, 125(3), pp. e459-e466

Schoon, I., Parsons, S., Rush, R. and Law, J. (2010b) Children's language ability and psychosocial development: A 29-year follow-up study. *Pediatrics*, 126(1), pp. e73-e80

Seven, Y., Hull, K., Madsen, K., Ferron, J., Peters-Sanders, L., Soto, X., Kelley, E.S. and Goldstein, H. (2020) Classwide extensions of vocabulary intervention improve learning of academic vocabulary by preschoolers. *Journal of Speech, Language, and Hearing Research*, 63(1), pp. 173-189

[Share, M., Doyle, E., Callahan, A., Greene, S., Wachtler, M. and Boyd, E. \(2011\) Baseline evaluation of the Dublin Docklands Parent child home Programme. Dublin, Children's Research Centre, Trinity College.](#)

Shi, H., Li, X., Fang, H., Zhang, J. and Wang, X. (2020) The Effectiveness and Cost-effectiveness of a Parenting Intervention Integrated with Primary Health Care on Early Childhood Development: a Cluster-Randomized Controlled Trial. *Prevention Science*, 21(5), pp.661-671

Shin, J.Y. and Nguyen Duc, S. (2017) The effects of a home-based intervention conducted by college students for young children with developmental delays in Vietnam. *International journal of developmental disabilities*, 63(2), pp.110-123

Singla, D.R., Kumbakumba, E. and Aboud, F.E. (2015) Effects of a parenting intervention to address maternal psychological wellbeing and child development and growth in rural Uganda: a community-based, cluster-randomised trial. *The Lancet Global Health*, 3(8), pp. e458-e469

Smallegange, E.S., Hermanns, J.M.A. and Oort, F.J. (2016) Evaluating the effectiveness of combining Home-Start and triple P parenting support in the Netherlands. *Children and Youth Services Review*, 68, pp. 178-186

Snow, P. C. and Powell, M. B. (2011) Oral language competence in incarcerated young offenders: Links with offending severity. *International Journal of Speech Language Pathology*, 13(6), pp. 480–489

Snowling, M.J., Adams, J.W., Bishop, D.V.M. and Stothard, S.E. (2001) 'Educational attainments of school leavers with a preschool history of speech-language impairments', *International Journal of Language and Communication Disorders*, 36(2), pp. 173-183.

Squires, J., Bricker, D. D. and Twombly, E. (2009). *Ages & stages questionnaires*. Paul H. Brookes.

Sudfeld, C.R., Bliznashka, L., Ashery, G., Yousafzai, A.K. and Masanja, H. (2021) Effect of a home-based health, nutrition and responsive stimulation intervention and conditional cash

transfers on child development and growth: a cluster-randomised controlled trial in Tanzania. *BMJ global health*, 6(4), p.e005086.

Suttora, C., Zuccarini, M., Aceti, A., Corvaglia, L., Guarini, A. and Sansavini, A. (2021) The Effects of a Parent-Implemented Language Intervention on Late-Talkers' Expressive Skills: The Mediation Role of Parental Speech Contingency and Dialogic Reading Abilities. *Frontiers in psychology*, p.3645.

Tamis-LeMonda, C. S., Bornstein, M. H., & Baumwell, L. (2001) Maternal responsiveness and children's achievement of language milestones. *Child development*, 72(3), pp. 748-767

Toth, S.L., Rogosch, F.A., Sturge-Apple, M. and Cicchetti, D. (2009) Maternal depression, children's attachment security, and representational development: an organizational perspective. *Child development*, 80(1), pp. 192–208

Trude, A.C., Martins, R.C., Martins-Silva, T., Blumenberg, C., Carpena, M.X., Del-Ponte, B. and Loret de Mola, C. (2021) A WhatsApp-Based Intervention to Improve Maternal Social Support and Maternal–Child Health in Southern Brazil: The Text-Message Intervention to Enhance Social Support (TIES) Feasibility Study. *INQUIRY: The Journal of Health Care Organization, Provision, and Financing*, 58, p.00469580211048701

Tryphonopoulos, P.D. and Letourneau, N. (2020) Promising Results From a Video-Feedback Interaction Guidance Intervention for Improving Maternal–Infant Interaction Quality of Depressed Mothers: A Feasibility Pilot Study. *Canadian Journal of Nursing Research*, 52(2), pp.74-87

[Unicef. \(2012\). *Inequities in early childhood development: What the data say: Evidence from the Multiple Indicator Cluster Surveys*. New York: UNICEF.](#)

Weissman, M.M., Feder, A., Pilowsky, D.J., Olsson, M., Fuentes, M., Blanco, C., Lantigua, R., Gameroff, M.J. and Shea, S. (2004) Depressed mothers coming to primary care: maternal reports of problems with their children. *J Affect Disord*. 78(2), pp. 93-100

Welch, M.G., Firestein, M.R., Austin, J., Hane, A.A., Stark, R.I., Hofer, M.A., Garland, M., Glickstein, S.B., Brunelli, S.A., Ludwig, R.J. and Myers, M.M. (2015) Family Nurture Intervention in the neonatal intensive care unit improves social-relatedness, attention, and neurodevelopment of preterm infants at 18 months in a randomized controlled trial. *J Child Psychol Psychiatry*. 56. pp.1202–1211

[Welsh Government. \(1993\) *Welsh Language Act 1993*.](#)

[Welsh Government. \(2011\) Welsh Language \(Wales\) Measure 2011.](#)

[Welsh Government. \(2016\) An overview of the Healthy Child Wales Programme.](#)

[Welsh Government. \(2017\) Prosperity for all: The National Strategy.](#)

[Welsh Government. \(2017\) Securing Wales' Future \(summary\).](#)

[Welsh Government. \(2019\) Evaluation of Flying Start: Findings from the baseline survey of families- mapping needs and measuring early influence among families with babies aged 7 – 20 months. Summary report.](#)

[Welsh Government. \(2020\) Siarad Gyda Fi/Talk with me: Speech, Language and Communication \(SLC\) Delivery Plan.](#)

[Welsh Government \(2022a\) Welsh language in Wales \(Census 2021\).](#)

[Welsh Government \(2022b\) Pupil Level Annual School Census \(PLASC\) - Pupils by local authority, region and Welsh medium type.](#)

[Welsh Government \(2022c\) Ethnic group, national identity, language and religion in Wales \(Census 2021\)](#)

West, G., Snowling, M.J., Lervåg, A., Buchanan-Worster, E., Duta, M., Hall, A., McLachlan, H. and Hulme, C. (2021) Early language screening and intervention can be delivered successfully at scale: evidence from a cluster randomized controlled trial. *Journal of Child Psychology and Psychiatry*, 62(12), pp.1425-1434

Williams, K.E., So, K.T. and Siu, T.S.C. (2020) A randomized controlled trial of the effects of parental involvement in supported playgroup on parenting stress and toddler social-communicative behavior. *Children and Youth Services Review*, 118, p.105364

Willinger, U., Brunner, E., Diendorfer-Radner, G., Sams, J., Sirsch, U. and Eisenwort, B. (2003) 'Behaviour in children with language development disorders', *Canadian Journal of Psychiatry*, 48, pp. 607–614

Worku, B.N., Abessa, T.G., Wondafrash, M., Lemmens, J., Vally, J., Bruckers, L., Kolsteren, P. and Granitzer, M. (2018) Effects of home-based play-assisted stimulation on developmental performances of children living in extreme poverty: a randomized single-blind controlled trial. *BMC pediatrics*, 18(1), pp. 1-11

Wren, Y., Pagnamenta, E., Peters, T. J., Emond, A., Northstone, K., Miller, L. L. and Roulstone, S. (2021) Educational outcomes associated with persistent speech disorder.

International Journal of Language & Communication Disorders, 56(2), pp. 299-312. doi: 10.1111/1460-6984.12599

Wylie, K., McAllister, L., Davidson, B., Marshall, J. and Law, J. (2014) Adopting public health approaches to communication disability: Challenges for the education of speech-language pathologists. *Folia Phoniatrica et Logopaedica*, 66(4-5), pp. 164-175

Yazejian, N., Bryant, D.M., Hans, S., Horm, D., St. Clair, L., File, N. and Burchinal, M. (2017) Child and parenting outcomes after 1 year of Educare. *Child Development*, 88(5), pp.1671-1688

Yazejian, N., Bryant, D.M., Kuhn, L.J., Burchinal, M., Horm, D., Hans, S., File, N. and Jackson, B. (2020) The Educare intervention: Outcomes at age 3. *Early Childhood Research Quarterly*, 53, pp.425-440.

Annex 1: Search strings

Objective 1: Review the current evidence base for parental mental health interventions and identify the SLC elements of these interventions

We began by identifying the available databases and reviews which summarise the evidence for parental mental health interventions. This included but was not limited to:

- The Parent-Infant Foundation Toolkit for Clinical Interventions and Evidence-Informed Practice
- The Early Intervention Foundation Guidebook for early interventions
- Relevant reviews available in the NSPCC Library and Information Service

We expanded on this initial list by carrying out keyword searches using website databases in Cochrane, Prospero, FigShare, Open Science Framework, IRIS, DataCite, ResearchGate, Research Registry.

Rapid Review

Medline and CINAHL with the following MESH search terms:

Perinatal, Infant, Child, Mental Health, Investigational Therap*, Investigational treatment and search terms of: (child* OR neonat* OR infant* OR baby OR babies OR toddler* OR pre-school* OR preschool* OR school-age* OR youth* OR pre-adolescent* OR paediatric* OR pediatric*) AND (mental health OR stress OR stress, psychological OR anxiety OR depression).

Objective 2: Review current evidence for parenting interventions and identify the SLC elements of these interventions

We began by identifying the available databases and reviews summarise the evidence for parental mental health interventions. This included but was not limited to:

- The Parent-Infant Foundation Toolkit for Clinical Interventions and Evidence-Informed Practice
- The Early Intervention Foundation Guidebook for early interventions

- Relevant reviews available in the NSPCC Library and Information Service

We expanded on this initial list by carrying out keyword searches using databases in Cochrane, Prospero, FigShare, Open Science Framework, IRIS, DataCite, ResearchGate, Research Registry.

It was also informed by information provided by the Welsh Government Parenting team, through the provision of a long list of known interventions.

Rapid Review

Medline and CINAHL with the following MESH search terms:

Child Rearing, Parent-Child Relations, Investigational Therap*, Investigational treatment, and search terms of (child* OR neonat* OR infant* OR baby OR babies OR toddler* OR pre-school* OR preschool* OR school-age* OR youth* OR pre-adolescent* OR paediatric* OR pediatric*) AND (parent OR parenting OR mother OR father OR maternal OR paternal OR family OR families) AND (intervent* OR program* OR support* OR training* OR practice* OR skill* OR competenc* OR behavior* OR style* OR efficacy* OR self-efficacy OR confidence* OR strateg*)

Objective 3: Review current evidence regarding SLC interventions available at Universal, Population and Targeted levels

This review used existing databases and reviews however it differs from objectives 1 and 2 in that the primary focus of all interventions is the promotion of speech language and communication (SLC) skills in universal, population and targeted groups.

We identified the relevant interventions in three main ways: evidence databases; existing systematic reviews; third sector provision with evaluated interventions for universal, population and targeted interventions.

Evidence databases. We began by exploring relevant interventions in three databases:

1. I CAN/The Communication Trust What Works database What works database (ican.org.uk)
2. Speech Bite (Speech Pathology Database for Best Interventions and Treatment Efficacy) Speechbite

3. American Speech-Language and Hearing Association (ASHA) Evidence maps
Evidence Maps (asha.org)

Rapid Review

A search for other existing systematic reviews was carried out using Medline and CINAHL with the following MESH search terms:

(speech disorder\$ OR speech intelligibility\$ OR speech therap\$ OR language therap\$ OR speech development OR speech delay OR language disorder\$ OR language development disorder\$ OR sign language\$ OR child\$ language OR language therap\$ OR language development OR language delay OR non\$verbal communication OR communication development OR 'exp Speech Disorders' OR speech Intelligibility OR "rehabilitation of speech and language disorders"/ or language therapy/ or speech therapy/ OR Language Development Disorders OR Language Disorders OR Child Language OR Language Development OR Communication Disorders.

In addition, search terms for Systematic Review, Scoping review, Review were added.

Annex 2: PRISMA flow charts

Figure 2: Objective 1 PRISMA flow chart

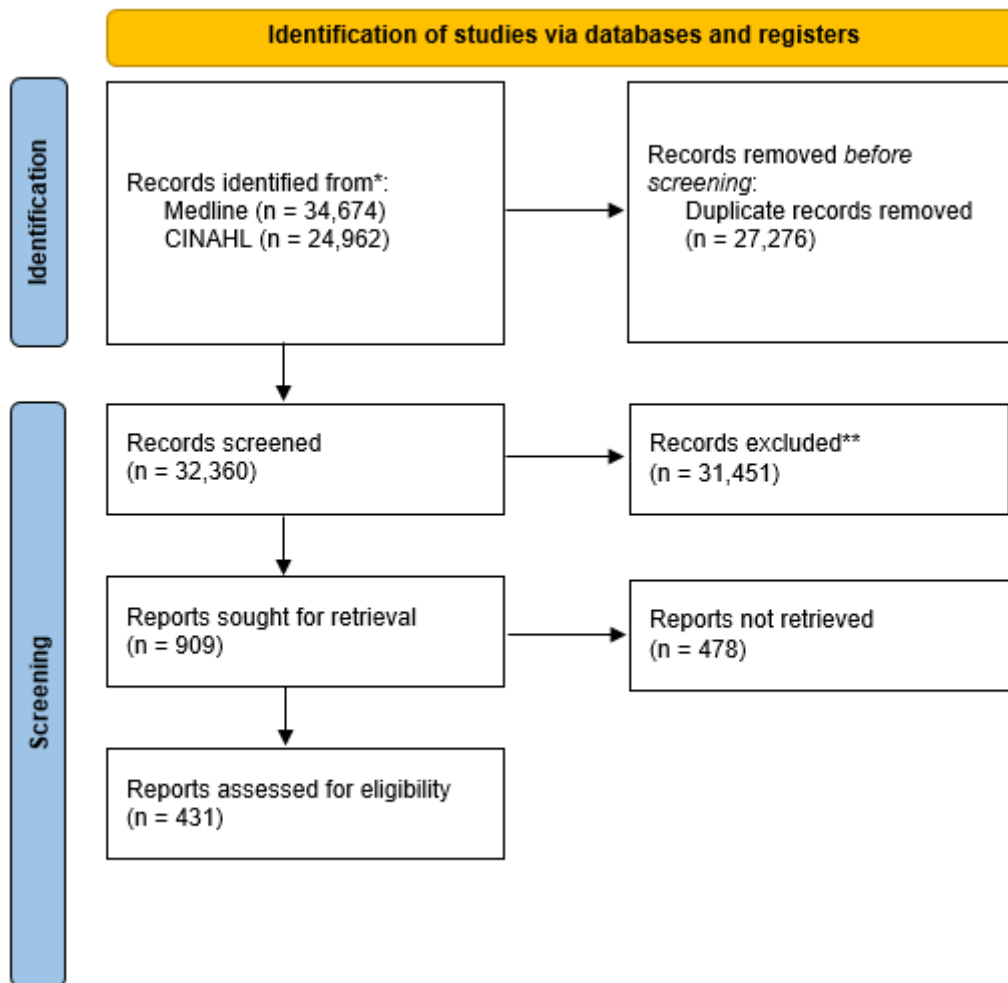


Figure 3: Objective 2 PRISMA flow chart

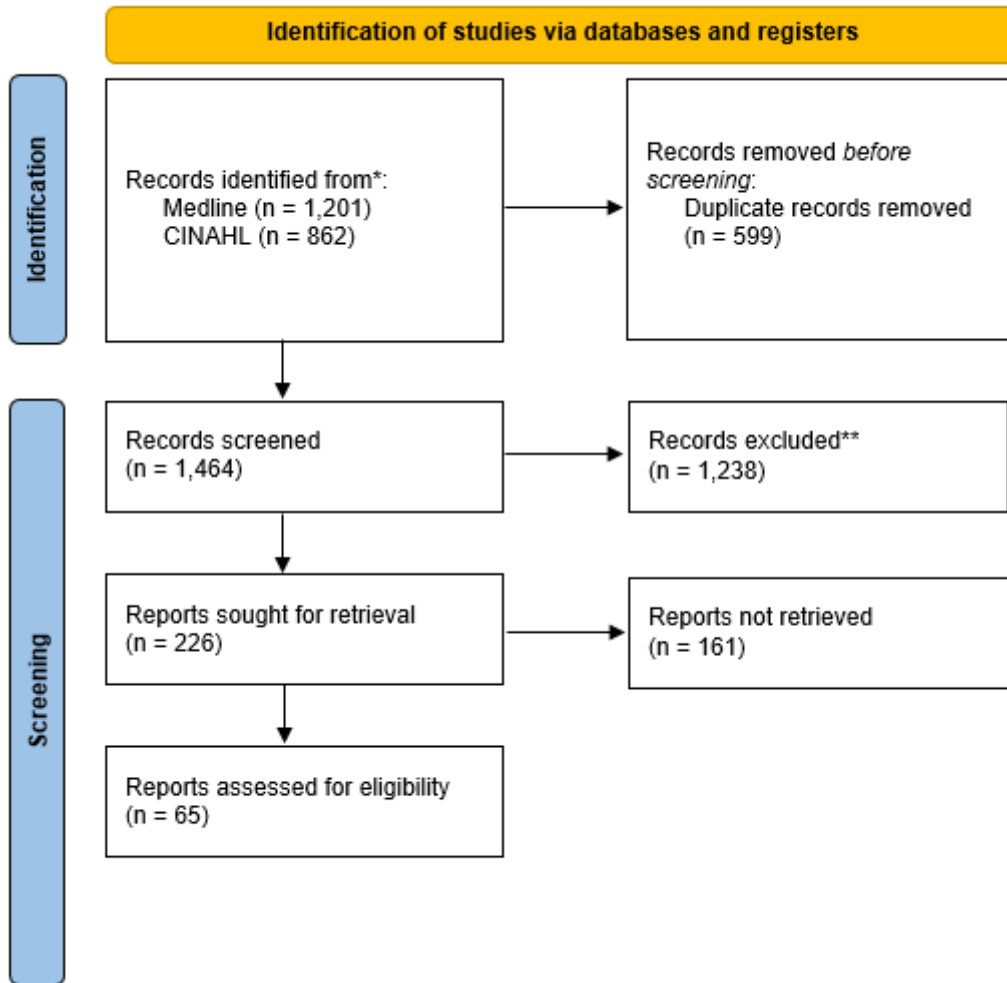
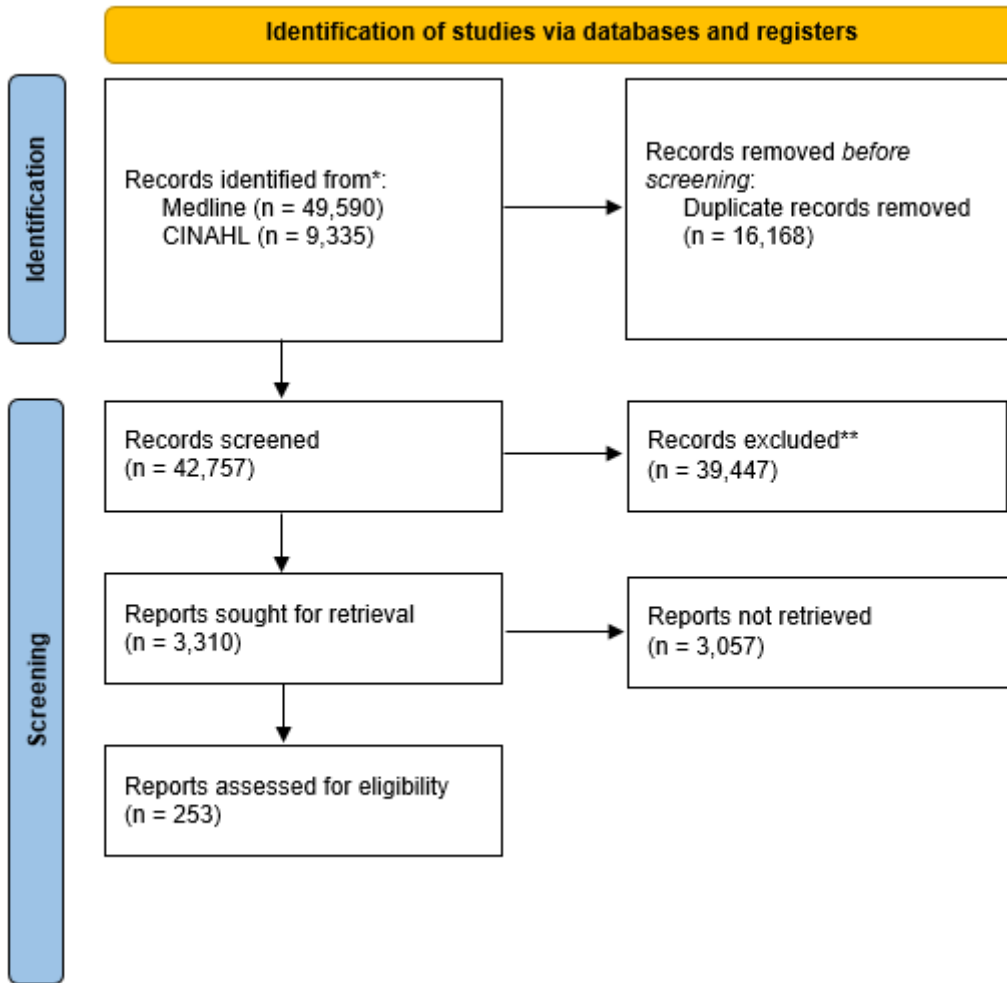


Figure 4: Objective 3 PRISMA flow chart



Annex 3: Definition of Tiers of Intervention

Tier of Intervention	Welsh Government definition (reported in 'Talk with Me')	Example
Universal	Public Health initiatives available to everyone in a specified region with the aim of improving the general public's knowledge of SLC e.g., Healthy Child Wales Programme.	Rhyme time is organised and delivered by a local library. Available for parents/grandparents/carers to access. May have different groups for different ages of children
Population	Public Health campaigns focussed on specific groups within a population, e.g., specific age range, groups at particular risk. Support is offered for a population known to be disadvantaged and at possible risk if the issue is not addressed e.g., Flying Start.	Rhyme time is organised and delivered by Flying Start staff at a community hub. Families residing in the Flying Start catchment are able to attend.
Targeted	Approaches tailored for an individual to reduce the risk of a preventable condition. This will address the specific needs of a child or adult who requires more focussed and structured direct intervention e.g., targeted groups for children with identified SLCN.	Rhyme time is organised and delivered by Early Years/healthcare workers. Children identified through screening as having SLCN are invited to attend.
Specialised	Services for those with greater needs requiring a greater level of knowledge and skill to diagnose, consider treatment options, deliver intervention and monitor progress. This aims to reduce the impairment and improve the wellbeing of the child or adult e.g., formal assessment by a SLT in 'core' service	Block of Speech and Language Therapy delivered by a Speech and Language Therapist to address an identified SLC target.

Annex 4: Interventions excluded

Table 8: Interventions identified in objective 1 which fulfilled all criteria except categorisation as a programme

Intervention	BCRP Definition	Level of Intervention	Reference/s
Home visit based on continued Kangaroo Mother Care	Intervention Activity	Population	Ghazi, M., Zare, M., Ramezani, M., Heidarzadeh, M. and Behnam Vashani, H. (2021) The Effect of Home Visit Program Based on the Continued Kangaroo Mother Care on Maternal Resiliency and Development of Premature Infant: A Randomized Clinical Trial. <i>International journal of community based nursing and midwifery</i> , 9(1) pp. 64–75
Integrated Early Child Development (ECD) Package	Service developed Programme	Population	Khan, M.A., Owais, S.S., Maqbool, S., Ishaq, S., Khan, H.J., Minhas, F.A., Hicks, J., Khan, M.A. and Walley, J.D. (2018) Is integrated private-clinic based early child development care effective? A clustered randomised trial in Pakistan. <i>BJGP open</i> , 2(2)
Peer Support and maternal-infant interaction intervention	Service developed Programme	Targeted	Letourneau, N., Stewart, M., Dennis, C.L., Hegadoren, K., Duffett-Leger, L. and Watson, B. (2011) Effect of home-based peer support on maternal–infant interactions among women with postpartum depression: A randomized, controlled trial. <i>International journal of mental health nursing</i> , 20(5), pp. 345-357
The Baby Books Project	Resource	Universal	Ochoa, W., Reich, S.M. and Díaz, G. (2021) A Randomized Control Trial of Using Baby Books to Reduce New Mothers’ Feelings of Stress and Depression. <i>Maternal and child health journal</i> . 25(10), pp. 1615-1625.

Table 9: Interventions identified in objective 2 which fulfilled all criteria except categorisation as a programme

Intervention	BCRP Definition	Level of Intervention	Reference/s
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Child First	Model of Intervention	Targeted	Lowell, D.I., Carter, A.S., Godoy, L., Paulicin, B. and Briggs-Gowan, M.J. (2011) A randomized controlled trial of Child FIRST: A comprehensive home-based intervention translating research into early childhood practice. <i>Child development</i> , 82(1), pp. 193-208
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Table 10: Interventions identified in objective 3 which fulfilled all criteria except categorisation as a programme

Intervention	BCRP Definition	Level of Intervention	Reference/s
Educare	Service-developed programme	Population	Yazejian, N., Bryant, D.M., Hans, S., Horm, D., St. Clair, L., File, N. and Burchinal, M. (2017) Child and parenting outcomes after 1 year of Educare. <i>Child Development</i> , 88(5), pp. 1671-1688 Yazejian, N., Bryant, D.M., Kuhn, L.J., Burchinal, M., Horm, D., Hans, S., File, N. and Jackson, B. (2020) The Educare intervention: Outcomes at age 3. <i>Early Childhood Research Quarterly</i> , 53, pp. 425-440
Extend Program	Service developed programme	Population	Grøver, V., Rydland, V., Gustafsson, J.E. and Snow, C.E. (2020) Shared book reading in preschool supports bilingual children's second-language learning: A cluster-randomized trial. <i>Child development</i> , 91(6), pp. 2192-2210
Fathers Supporting Success	Training	Population	Chacko, A., Fabiano, G.A., Doctoroff, G.L. and Fortson, B. (2018) Engaging fathers in effective parenting for preschool children using shared book reading: A randomized controlled trial. <i>Journal of Clinical Child & Adolescent Psychology</i> , 47(1), pp.79-93
Fun to Learn for the Young (FLY)	Service developed Programme	Population	Leung, C., Tsang, S. and Li, B. (2017b) Efficacy of Fun to Learn for the Young Program: Randomized Controlled Trial. <i>Journal of Child and Family Studies</i> , 26(10), pp. 2865-2878

Hands on Parent Empowerment (HOPE) 20	Training	Universal	Leung, C., Tsang, S. and Kwan, H.W. (2017a) Efficacy of a universal parent training program (HOPE-20) cluster randomized controlled trial. <i>Research on Social Work Practice</i> , 27(5), pp.523-537
Msingi Bora	Service developed programme	Universal	Luoto, J.E., Garcia, I.L., Aboud, F.E., Singla, D.R., Fernald, L.C., Pitchik, H.O., Saya, U.Y., Otieno, R. and Alu, E. (2021) Group-based parenting interventions to promote child development in rural Kenya: a multi-arm, cluster-randomised community effectiveness trial. <i>The Lancet Global Health</i> , 9(3), pp. e309-e319
Portage	Service developed programme	Targeted	Shin, J.Y. and Nguyen Duc, S. (2017) The effects of a home-based intervention conducted by college students for young children with developmental delays in Vietnam. <i>International journal of developmental disabilities</i> , 63(2), pp. 110-123
Universidade de Bebe	Service developed programme	Population	Piccolo, L.D.R., Weisleder, A., Oliveira, J., Mazzuchelli, D.S., Lopez, A.S., Neto, W.D., Cates, C.B. and Mendelsohn, A.L., 2022. Reading Aloud, Self-Regulation, and Early Language and Cognitive Development in Northern Brazil. <i>Journal of Developmental & Behavioral Pediatrics</i> , 43(2), pp. e70-e78

Annex 5: Interventions delivered at a specialist level

Table 11: Interventions reporting speech, language, or communication outcomes, but excluded because delivery is at a specialist level

Name of Intervention	Reference
Hanen It Takes Two to Talk	Fong, N.W.Y., Ho, S.K.Y., So, B.J.W. and Lian, W.B. (2012) Evaluation of the Hanen it Takes Two to Talk Intervention Programme. <i>Proceedings of Singapore Healthcare</i> , 21(4), pp. 251-256
Hanen Target Word	Kwok, E.Y., Cunningham, B. and Oram Cardy, J. (2020). Effectiveness of a parent-implemented language intervention for late-to-talk children: a real-world retrospective clinical chart review. <i>International journal of speech-language pathology</i> , 22(1), pp. 48-58
Hanen Target Word	Kruythoff-Broekman, A., Wiefferink, C., Rieffe, C. and Uilenburg, N. (2019) Parent-implemented early language intervention programme for late talkers: parental communicative behaviour change and child language outcomes at 3 and 4 years of age. <i>International Journal of Language & Communication Disorders</i> , 54(3), pp. 451-464
Parent based language intervention	Gibbard, D. (1994) Parental-based intervention with pre-school language-delayed children. <i>Eur J Disord Commun.</i> 29, pp. 131–50

Annex 6: Programme interventions without Level 1 evidence

Table 12: Interventions identified through objective 1 which fulfilled all criteria except level 1 evidence

Intervention	BCRP Definition	Level of Evidence	Level of Intervention	Reference/s
Attachment based parental training programme (adapted from Right from the Start)	Programme	2b	Population	Bohr, Y., Halpert, B., Chan, J., Lishak, V. and Brightling, L. (2010) Community-based parenting training: do adapted evidence-based programmes improve parent–infant interactions?. <i>Journal of Reproductive and Infant psychology</i> , 28(1), pp. 55-68
Care Farming	Programme	2B	Population	Lee, A., Kim, S.O., Gim, G.M., Kim, D.S. and Park, S. (2020) Care farming program for family health: A pilot study with mothers and children. <i>International Journal of Environmental Research and Public Health</i> , 17(1), p. 27
Early Connections Program	Programme	3	Targeted	Paris, R., Bolton, R.E. and Spielman, E. (2011) Evaluating a home-based dyadic intervention: Changes in postpartum depression, maternal perceptions, and mother–infant interactions. <i>Infant Mental Health Journal</i> , 32(3), pp. 319-338
Home Start and Triple P level 4	Programme	3B	Population	Smallegange, E.S., Hermanns, J.M.A. and Oort, F.J. (2016) Evaluating the effectiveness of combining Home-Start and triple P parenting support in the Netherlands. <i>Children and Youth Services Review</i> , 68, pp. 178-186
Integrated Parenting Intervention	Programme	2b	Population	Singla, D.R., Kumbakumba, E. and Aboud, F.E. (2015) Effects of a parenting intervention to address maternal psychological wellbeing and child development and growth in rural Uganda: a community-based, cluster-randomised trial. <i>The Lancet Global Health</i> , 3(8), pp. e458-e469

Mellow Babies	Programme	2b	Targeted	Raouna, A., Malcolm, R., Ibrahim, R. and MacBeth, A. (2021) Promoting sensitive parenting in 'at-risk' mothers and fathers: A UK outcome study of Mellow Babies, a group-based early intervention program for parents and their babies. <i>Plos one</i> , 16(2), p. e0245226
Text message Intervention to Enhance Social support (TIES)	Programme	2B	Universal	Trude, A.C., Martins, R.C., Martins-Silva, T., Blumenberg, C., Carpena, M.X., Del-Ponte, B. and Loret de Mola, C. (2021) A WhatsApp-Based Intervention to Improve Maternal Social Support and Maternal–Child Health in Southern Brazil: The Text-Message Intervention to Enhance Social Support (TIES) Feasibility Study. <i>INQUIRY: The Journal of Health Care Organization, Provision, and Financing</i> , 58, p.00469580211048701
Video Interaction Guidance (VIG)	Programme	2b	Targeted	Tryphonopoulos, P.D. and Letourneau, N. (2020) Promising Results From a Video-Feedback Interaction Guidance Intervention for Improving Maternal–Infant Interaction Quality of Depressed Mothers: A Feasibility Pilot Study. <i>Canadian Journal of Nursing Research</i> , 52(2), pp. 74-87
YWCA Community Project	YWCA developed Programme	3	Population	Kachingwe, M., Chikowe, I., Van der Haar, L. and Dzabala, N. (2021) Assessing the Impact of an Intervention Project by the Young women's Christian Association of Malawi on Psychosocial Well-Being of Adolescent Mothers and Their Children in Malawi. <i>Frontiers in public health</i> , 9, p. 235
Welcome to Parenthood (W2)	Programme	2b	Population	Benzies, K.M., Gasperowicz, M., Afzal, A. and Loewen, M. (2021) Welcome to Parenthood is associated with reduction of postnatal depressive symptoms during the transition from pregnancy to 6 months postpartum in a community sample: a longitudinal evaluation. <i>Archives of Women's Mental Health</i> , 24(3), pp. 493-501

Table 13: Interventions identified through objective 2 which fulfilled all criteria except level 1 evidence

Intervention	BCRP Definition	Level of Evidence	Level of Intervention	Reference/s
Incredible Years Parenting Training Programme	Programme	2b	Population	McGilloway, S., Mhaille, G.N., Bywater, T., Furlong, M., Leckey, Y., Kelly, P., Comiskey, C. and Donnelly, M. (2012) A parenting intervention for childhood behavioral problems: a randomized controlled trial in disadvantaged community-based settings. <i>Journal of consulting and clinical psychology</i> , 80(1), p.116
Incredible Years Toddler Parenting Programme	Programme	2b	Population	Hutchings, J., Griffith, N., Bywater, T. and Williams, M.E. (2017) Evaluating the Incredible Years Toddler Parenting Programme with parents of toddlers in disadvantaged (Flying Start) areas of Wales. <i>Child: care, health and development</i> , 43(1), pp. 104-113
Incredible Years (Pre-school BASIC Parent Programme)	Programme	3	Population	Saunders, R., Brack, M., Renz, B., Thomson, J. and Pilling, S. (2020) An Evaluation of Parent Training Interventions in Scotland: The Psychology of Parenting Project (PoPP). <i>Journal of Child and Family Studies</i> , 29(12), pp. 3369-3380
The Webster-Stratton Incredible Years basic parenting programme	Programme	2a	Targeted	Hutchings, J., Bywater, T., Daley, D., Gardner, F., Whitaker, C., Jones, K., Eames, C. and Edwards, R.T. (2007) Parenting intervention in Sure Start services for children at risk of developing conduct disorder: pragmatic randomised controlled trial. <i>BMJ</i> , 334(7595), p.678

Table 14: Interventions identified through objective 3 which fulfilled all criteria except level 1 evidence

Intervention	BCRP Definition	Level of Evidence	Level of Intervention	Reference/s
Early Language Identification Measure (ELIM) and Intervention	Programme	3	Universal	Public Health England (2020) Early Language and Identification Measure and intervention: Guidance Handbook. Early language identification measure and intervention: guidance handbook (publishing.service.gov.uk) Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/939872/ELIM_Handbook_December-2020.pdf (Accessed June 2022)
ELKLAN: Talking Matters	Programme	3	Universal	Clegg, J., Rohde, C., McLachlan, H., Elks, L. and Hall, A. (2020) Evaluating the Elklan Talking Matters Programme: Exploring the impact of a training programme for early years professionals on pre-school children's language development. <i>Child Language Teaching and Therapy</i> , 36(2), pp. 108-125
Gap House programme - Language through colour	Service developed Programme	4		Ebbels, S. (2007) Teaching grammar to school-aged children with specific language impairment using Shape Coding. <i>Child Language Teaching and Therapy</i> . 23(1), pp. 67-93
Grobrain	Programme	4	Universal	Grobrain (2021) GroBrain: Helping parents raise emotionally healthy infants. Available at www.grobrain.com (Accessed 3 August 2022)
Happy Talk	Programme	3	Population	Frizelle, P., Mullane, E., O'Shea, A., Ceroni, A., Dahly, D., Horgan, A., Levickis, P. and Mckean, C. (2021) Happy Talk: A pilot effectiveness study of a targeted-selective speech–language and communication intervention for children from areas of social disadvantage. <i>International Journal of Language & Communication Disorders</i> , 56(5), pp. 954-974

LENA Start	Programme	2b	Universal	Elmquist, M., Finestack, L.H., Kriese, A., Lease, E.M. and McConnell, S.R. (2021) Parent education to improve early language development: A preliminary evaluation of LENA Start™. <i>Journal of child language</i> , 48(4), pp. 670-698
Let's Play in Tandem	Programme	2b	Population	Ford, R.M., McDougall, S.J. and Evans, D. (2009) Parent-delivered compensatory education for children at risk of educational failure: Improving the academic and self-regulatory skills of a Sure Start preschool sample. <i>British journal of psychology</i> , 100(4), pp. 773-797
Oltre il Libro	Programme	2a	Targeted	Suttora, C., Zuccarini, M., Aceti, A., Corvaglia, L., Guarini, A. and Sansavini, A. (2021) The Effects of a Parent-Implemented Language Intervention on Late-Talkers' Expressive Skills: The Mediation Role of Parental Speech Contingency and Dialogic Reading Abilities. <i>Frontiers in psychology</i> , p.3645.
Parent Child Home Programme	Programme	3	Universal	Share, M., Doyle, E., Callahan, A., Greene, S., Wachtler, M. and Boyd, E. (2011) Baseline evaluation of the Dublin Docklands Parent child home Programme. Dublin, Children's Research Centre, Trinity College. Available at: https://www.drugsandalcohol.ie/19355/ (Accessed 16 August 2022)
Story Friends	Programme	3 3	Universal Universal	Seven, Y., Hull, K., Madsen, K., Ferron, J., Peters-Sanders, L., Soto, X., Kelley, E.S. and Goldstein, H. (2020) Classwide extensions of vocabulary intervention improve learning of academic vocabulary by preschoolers. <i>Journal of Speech, Language, and Hearing Research</i> , 63(1), pp. 173-189 Peters-Sanders, L.A., Kelley, E.S., Biel, C.H., Madsen, K., Soto, X., Seven, Y., Hull, K. and Goldstein, H. (2019) Moving forward four words at a time: Effects of a supplemental preschool vocabulary intervention. <i>Language, Speech, and Hearing Services in Schools</i> , 51(1), pp. 165-175

Supported Diagonal Flexion (SDF)	Intervention	3	Population	Buil, A., Sankey, C., Caeymaex, L., Apter, G., Gratier, M. and Devouche, E. (2020) Fostering mother-very preterm infant communication during skin-to-skin contact through a modified positioning. <i>Early Human Development</i> , 141, p. 104939.
Sing and Grow	Service developed programme	3	Population	Doherty, L., Nicholson, J. and Williams, K. (2007) Sing & Grow: the co-existence of evaluation research and clinical practice in an early intervention music therapy project. <i>The New Zealand Journal of Music Therapy</i> , 5, pp. 1-16
Talking Time	Service developed programme	2b	Targeted	Dockrell, J.E., Stuart, M. and King, D. (2010) Supporting early oral language skills for English language learners in inner city preschool provision. <i>British Journal of Educational Psychology</i> , 80(4), pp. 497-515
WellComm	Programme	n/a	Targeted	Unable to source any evidence regarding the intervention element of the tool.

Annex 7: Identified interventions identified as not effective

Table 15: Interventions identified through Objective 1 which fulfilled criteria, but evidence suggested were not effective

Intervention	Level of Intervention	Results	Reference/s
Communicating and Relating Effectively (CARE)	Population	No significant differences between the intervention and control groups. Both groups had significant improvements for maternal-infant relational effectiveness and responsiveness to caregiver.	Horowitz, J.A., Murphy, C.A., Gregory, K., Wojcik, J., Pulcini, J. and Solon, L. (2013) Nurse home visits improve maternal/infant interaction and decrease severity of postpartum depression. <i>Journal of Obstetric, Gynecologic & Neonatal Nursing</i> , 42(3), pp. 287-300
Cues	Targeted	The study found no significant differences between groups on the Bayley cognitive, motor, or language composite scores. In the trial, it was found that at 2 months, Cues mothers were more knowledgeable about how to interact with their infant compared with Care mothers. However, this did not translate into difference in interactive behavior at 6 months.	Feeley, N., Zelkowitz, P., Shrier, I., Stremmer, R., Westreich, R., Dunkley, D., Steele, R., Rosberger, Z., Lefebvre, F. and Papageorgiou, A. (2012) Follow-up of the cues and care trial: mother and infant outcomes at 6 months. <i>Journal of Early Intervention</i> , 34(2), pp. 65-81

Happiness Understanding Giving Sharing (HUGS)	Targeted	no significant differences between the conditions on communication and personal-social. The conditions did not differ significantly in the number scoring above the cut-off on social-emotional competence	Holt, C., Gentileau, C., Gemmill, A.W. and Milgrom, J. (2021) Improving the mother-infant relationship following postnatal depression: a randomised controlled trial of a brief intervention (HUGS). Archives of women's mental health, 24(6), pp.913-923
Mother-Infant Transaction Program (MITP)	Population	Infant communication skills, as reported by the mothers who completed the Pictorial Infant Communication Scales (PICS), yielded no significant group differences	Ravn, I.H., Smith, L., Smeby, N.A., Kynoe, N.M., Sandvik, L., Bunch, E.H. and Lindemann, R. (2012) Effects of early mother–infant intervention on outcomes in mothers and moderately and late preterm infants at age 1 year: A randomized controlled trial. Infant Behavior and Development, 35(1), pp. 36-47
Perinatal Dyadic Psychotherapy (PDP)	Targeted	For CIB-sensitivity, and CIB-reciprocity, neither time nor group was statistically significant. For CIB-involvement, time was statistically significant ($p < 0.001$) but group was not ($p > 0.9$). In no case, was there a statistically significant interaction between time and group	Goodman, J.H., Prager, J., Goldstein, R. and Freeman, M. (2015) Perinatal dyadic psychotherapy for postpartum depression: a randomized controlled pilot trial. Archives of women's mental health, 18(3), pp. 493-506

The Thinking Healthy Program, Peer-delivered (THPP+)	Population	For the child primary outcome of SDQ-TD, the mean adjusted difference between intervention and enhanced usual care group was -0.10 (95% CI -1.39 to 1.19). There were also no significant differences between the two groups in the secondary outcomes of receptive language and fine motor scores from the BSITD	Maselko, J., Sikander, S., Turner, E.L., Bates, L.M., Ahmad, I., Atif, N., Baranov, V., Bhalotra, S., Bibi, A., Bibi, T. and Bilal, S. (2020) Effectiveness of a peer-delivered, psychosocial intervention on maternal depression and child development at 3 years postnatal: a cluster randomised trial in Pakistan. <i>The Lancet Psychiatry</i> , 7(9), pp. 775-787
The Incredible Years Parents and Babies (IYPB)	Universal	No difference in the infant development scales including communication was found between control and intervention groups.	Pontoppidan, M., Klest, S.K. and Sandoy, T.M. (2016) The incredible years parents and babies program: A pilot randomized controlled trial. <i>PloS one</i> , 11(12), p. e0167592.

Table 16: Interventions identified through Objective 2 which fulfilled criteria, but evidence suggested were not effective

Intervention	Level of Intervention	Results	Reference
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Enhancing Neurobehavioural Gains with the Aid of Games and Exercise (ENGAGE)	Targeted	Improvements in comprehension of instructions were noted for both groups of children and it is difficult to know whether this is a treatment effect or practice effect.	Healey, D. and Healey, M. (2019) Randomized Controlled Trial comparing the effectiveness of structured-play (ENGAGE) and behavior management (TRIPLE P) in reducing problem behaviors in preschoolers. <i>Scientific Reports</i> , 9(1), pp. 1-9
Incredible Years Infant and Toddler parent Programmes (IYIP)	Universal/ Targeted	No systematic difference between arms for the child primary outcome at any of the time points are apparent.	Blower, S.L., Berry, V.L., Bursnall, M.C., Cohen, J., Gridley, N., Loban, A., Mandefield, L., Mason-Jones, A.J., McGilloway, S., McKendrick, K.L. and Mitchell, S.B. (2021) Enhancing Social-Emotional Outcomes in Early Years (E-SEE): Randomized Pilot Study of Incredible Years Infant and Toddler Programs. <i>Journal of Child and Family Studies</i> , 30(8), pp. 1933-1949

Table 17: Interventions identified through Objective 3 which fulfilled criteria, but evidence suggested were not effective

Intervention	Level of Intervention	Results	Reference
Let's Read	Universal	Intervention and control arms had similar outcomes at age 4 years.	Goldfeld, S., Quach, J., Nicholls, R., Reilly, S., Ukoumunne, O.C. and Wake, M. (2012) Four-year-old outcomes of a universal infant-toddler shared reading intervention: the Let's read trial. <i>Archives of pediatrics & adolescent medicine</i> , 166(11), pp. 1045-1052.

Reach up and Learn	Population	Immediately post intervention marginal effects noted.	Andrew, A., Attanasio, O., Augsburg, B., Day, M., Grantham-McGregor, S., Meghir, C., Mehrin, F., Pahwa, S. and Rubio-Codina, M. (2020) Effects of a scalable home-visiting intervention on child development in slums of urban India: evidence from a randomised controlled trial. <i>Journal of child psychology and psychiatry</i> , 61(6), pp. 644-652
Reach up and Learn	Population	2 years post intervention no beneficial effects of the intervention on child development measures compared to the control group	Andrew, A., Attanasio, O., Fitzsimons, E., Grantham-McGregor, S., Meghir, C. and Rubio-Codina, M. (2018) Impacts 2 years after a scalable early childhood development intervention to increase psychosocial stimulation in the home: A follow-up of a cluster randomised controlled trial in Colombia. <i>PLoS medicine</i> , 15(4), p. e1002556
Reach up and Learn	Universal	No overall treatment effect on language measures	Brentani, A., Walker, S., Chang-Lopez, S., Grisi, S., Powell, C. and Fink, G. (2021) A home visit-based early childhood stimulation programme in Brazil—a randomized controlled trial. <i>Health policy and planning</i> , 36(3), pp. 288-297
Read it Again! (Pre-K)	Universal	No significant direct effects of intervention	Piasta, S.B., Sawyer, B., Justice, L.M., O'Connell, A.A., Jiang, H., Dogucu, M. and Khan, K.S. (2020) Effects of Read It Again! in early childhood special education classrooms as compared to regular shared book reading. <i>Journal of Early Intervention</i> , 42(3), pp. 224-243