



Early Speech, Language and Communication

Development: Which Factors are Associated with Better or Poorer Outcomes?

The National Early Language and Communication Team

January 2025

Copyright

Crown copyright 2025.

You may re-use this information (not including logos) free of charge in any format or medium, under the terms of the Open Government Licence.

To view this licence, visit the [National Archives website](#).

Please [contact us](#) if you would like to know more about Education Scotland publications.

First published August 2024.

[Views expressed in this report are not necessarily those of Education Scotland or any other government department.]

Contents

Copyright	2
Contents	3
Key Themes	4
Introduction.....	5
Early Speech, Language and Communication Development in Scotland	6
Which Factors are Associated with Better and Poorer SLC Outcomes?	8
Biomedical, Genetic and Neurodevelopmental Differences	9
Social and Environmental Factors Associated with Poorer SLC Outcomes	11
Factors Associated with Better SLC Outcomes	13
How can we use Getting it Right for Every Child to think about SLC as a Wellbeing Issue?	17
What is Possible within the Scottish Context?	19
How Can we Achieve This?	19
Summary	22
Reflective Questions for Leaders and Practitioners	23
References	24
Appendix 1	28

Key Themes

Early speech, language and communication development is a critical foundation for better long-term outcomes for children. Robust speech language and communication development has a recognised association with positive wellbeing and attainment outcomes.

Biomedical, genetic, social-environmental factors and parental communication approaches interact in a dynamic and unique way to impact on early speech, language and communication development outcomes.

‘Early and often’ parental responsiveness, from the first stages of development, is crucial for speech, language and communication development.

Some parents face multiple challenges that impact on the home learning environment and need extra help to support their child’s development.

Early intervention approaches can be more effective where there is an understanding about the protective and risk factors associated with better and poorer speech, language and communication development outcomes.

Use of [The National Practice Model](#)/My World Triangle can provide a practical framework to support the early years workforce identify risk and protective factors for early speech, language and communication development. This approach will help to identify the need for early preventative and supportive interventions.

Introduction

Early speech language and communication (SLC) development is a critical foundation for children's long-term outcomes in terms of recognised associations with later wellbeing and attainment.

This short briefing paper draws on evidence from the literature, exploring the early factors associated with better and poorer SLC outcomes. It is possible to draw conclusions about the factors associated with better and poorer SLC outcomes from the research, however, it is important to recognise that factors interact in a dynamic and unique fashion for individual families.

The paper will link to current legislation and policy frameworks within Scotland to explore opportunities for prevention of SLC concerns or reducing their impact on wellbeing.

This paper is relevant to strategic leaders, operational managers and practitioners working with parents, parents-to-be, infants and young children across the early years workforce within Scotland.

A series of reflection points for all levels of the workforce is included in the final section.

This paper uses the term 'parent' throughout, acknowledging that some children may have different caregiver relationships within their home environments.

Early SLC Development in Scotland

The importance of the first 1000 days, from conception to the end of a child's second year, has been recognised as having the greatest impact on subsequent wellbeing and health across the individual's life course ([World Health Organisation's Commission on Social Determinants of Health, 2008](#)).

The evidence regarding the lifelong impact of SLC concerns is clear, particularly in relation to the connection with learning and attainment, wellbeing and mental health, poverty, employment, justice and behaviour (see below).

Learning & Attainment - Early language emerges as **the most important factor in influencing literacy levels at age eleven**¹

Wellbeing & Mental Health - Children with SLC needs are at **increased risk of developing mental health problems**²

Poverty - Children from **socially disadvantaged** families are more than **twice** as likely to be identified with an **SLC concern**³

Employment - **88%** of long term **unemployed** young men were found to have an **SLC need** ⁴

Justice - **Over 60%** of young people who come into contact with the **justice system** are found to have **SLC needs**⁵

Behaviour - Studies **consistently** observe **higher levels of behaviour challenges** among people identified with **SLC needs**⁶

The importance of children's communication rights is recognised following the incorporation of the United Nations Convention on the Rights of the Child (UNCRC) into the law within Scotland. UNCRC ensures that children's communication rights are specifically enshrined within Article 12 and 13, relating to freedom of expression and opinion.

The value of prevention and early intervention principles is equally recognised within Scotland, where there is a national commitment to giving every child the best start as an essential approach to reducing health inequalities across the life course.

The Scottish Government Early Child Development Transformational Change Programme emphasises the importance of a preventative approach from pre-birth across all developmental domains, including SLC. ([Children and Young People \(Scotland\) Act 2014](#), [GIRFEC](#), [Child Poverty \(Scotland\) Act 2017](#), [UNCRC \(Incorporation\) \(Scotland\) Act 2024](#), [The Promise Scotland](#), [Early Child Development Transformational Change Programme](#))

Across Scotland, early child development is monitored via a Universal Health Visiting Pathway with recorded concerns at the 27- 30 month Child Health Review (CHR) reported in the [National Performance Framework](#).

Since the COVID-19 pandemic, there has been an increase in reported developmental concerns at the 27–30 month CHR. The highest increase in reported concerns is evident in the developmental domain of SLC (Figure 1). This national data set reveals an increased likelihood of SLC concerns in areas of multiple deprivation ([Public Health Scotland, Early Child Development Dashboard](#)).

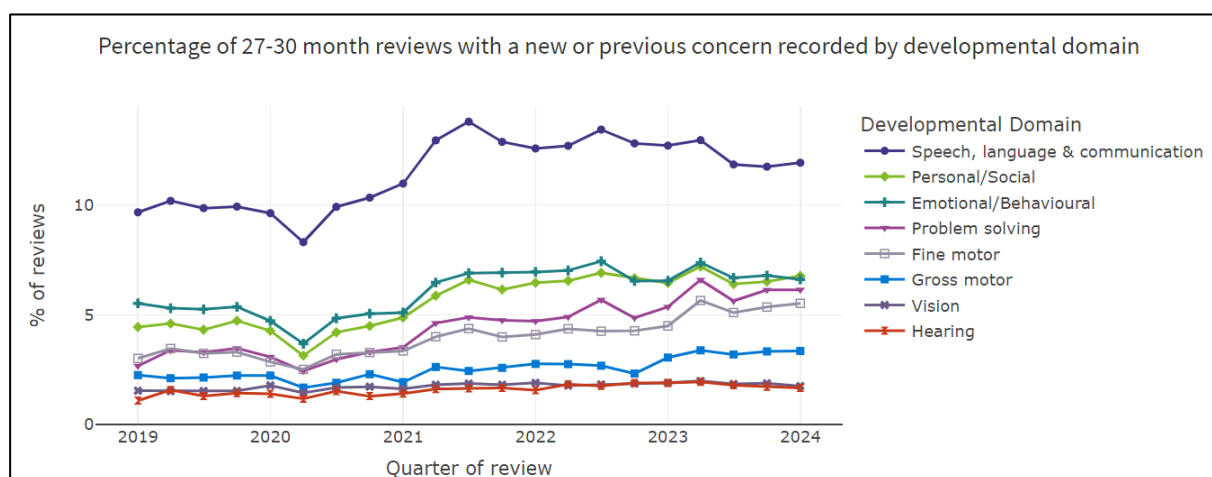


Figure 1. Health in the Early Years in Scotland Dashboard, Public Health Scotland (last accessed October 2024)

This briefing paper draws from the literature and explores the factors associated with better and poorer SLC outcomes and aims to identify opportunities for prevention and early intervention. There may be persisting and distinct SLC differences associated

with biomedical conditions (such as deafness or genetic conditions) or neurodevelopmental differences. However, social and environmental factors associated with poorer SLC outcomes may be responsive to primary or secondary prevention approaches (Appendix 1).

This paper describes some of the factors that are associated with better outcomes for SLC development, including responsive adult interactions and positive maternal mental health.⁷

Finally, the paper will consider how The National Practice Model can be applied to identify and strengthen protective factors and support vulnerabilities for SLC development. This model recognises children's wellbeing is shaped by individual developmental factors interacting with family and/or care factors, with support from local services and communities. The National Practice Model forms part of the wider Getting it Right for Every Child (GIRFEC) approach used across Scotland.

Which Factors are Associated with Better and Poorer SLC Outcomes?

It is possible to draw some general conclusions about the predictive factors associated with better and poorer SLC outcomes from research. These are summarised below under the following headings:

- Biomedical, Genetic and Neurodevelopmental Differences
- Social and Environmental Factors Associated with Poorer SLC Outcomes
- Factors Associated with Better SLC Outcomes

However, it is important to note that these factors interact in a dynamic and unique fashion for individual children. For example, some children may present with longer term SLC needs in the absence of any known associated risk factors. There is some evidence to suggest that the presence of a known risk factor for SLC concerns may have a lesser impact when other known supportive factors are present. ⁸

Bio-medical, Genetic and Neurodevelopmental Differences

“It has become increasingly accepted that language development is a product of both neurobiology and the environment. These intersect at the point of daily language interactions between parent and child, whereby language learning occurs through the interaction of a child’s genetically based characteristics and the child’s language experience.”

Levickis P, Conway L, Smith J, Bennetts S. (2022) ⁹

SLC development can be influenced by a range of biomedical conditions (such as deafness or genetic conditions) or neurodevelopmental differences.

Very pre-term birth and very low birth weight have been linked with poorer SLC outcomes.^{10 11 12} However, emerging evidence suggests that parent /caregiver responsiveness has a significant role in influencing developmental trajectories for infants with these recognised vulnerabilities.^{13 14 15}

Boys are nearly twice as likely as girls to experience language difficulties by age 5, with a large-scale U.K. study indicating that approximately 6% of boys and 3% of girls are affected.^{16 17 18 19}

Some neurodevelopmental differences that impact on SLC development, are known to have a genetic basis and high heritability, e.g. Developmental Language Disorder and Autism. ^{11 20 21 22}

Whilst these biomedical, genetic conditions and neurodevelopmental differences have recognised associations with SLC developmental trajectories, it is important to reiterate the multifactorial nature of risk for early SLC concerns. Many children experiencing biomedical and genetic vulnerabilities impacting on SLC development may also live in complex social and environmental contexts where intergenerational social inequalities are often evident. ²³

If there are emerging or known biomedical or neurodevelopmental differences, *and* environmental and social risk factors are also present, the potential impact on early

SLC development may be greater. Early identification and intervention are vital where SLC concerns are already evident, as they provide an opportunity to reduce future impact through a tertiary prevention approach (Appendix 1).

Social and Environmental Factors Associated with Poorer SLC Outcomes

“Using this term (social inequalities in language development) more frequently could help put children's developmental health (to which language contributes) on an equal footing with topics such as children's rights. Second, these social inequalities in language development are due to variations in living conditions and more specifically to disparities in social determinants of language. To support the language skills of children in a meaningful way, conducting actions targeting these determinants is a promising avenue.”

Di Sante, M. and Potvin, L. (2022) ²⁴

Infants and young children experiencing poverty may face increased risks for poorer SLC outcomes.^{25 26} Poverty and social inequality are known to impact across the child's whole life course, affecting health, wellbeing, attainment outcomes and wider life chances.²⁷ The effect of poverty and financial instability on parents, and parents-to-be, and the related increased associated stress may impact on the early and often responsive interactions that form the neurological and psychological basis of SLC development in developing brains.

Predictably, the wider social determinants impacting on general child health are also significant factors in SLC developmental outcomes, with inequalities in language skills following an observable social gradient.^{28 29}

Maternal education and literacy levels, family size and number of young children within the home have been associated with challenges for parents in creating a language-rich home environment, contributing to poorer SLC outcomes.^{7 8 30}

Families living with financial instability may have less access to home-based, neighbourhood and community resources essential to parental well-being which impacts of the provision of SLC nurturing experiences.^{31 32}

The reasons for the association of social factors with poorer SLC outcomes are complex. However, reducing social and financial pressures and associated stress they produce, can impact positively on parental capacity to provide responsive and

nurturing interactions with their infants and children.³³ Supporting parents to provide attuned, developmentally appropriate interactions at the earliest stages of development can provide a crucial protective factor for early SLC development and, for some children, may stop concerns emerging in the first place (primary or secondary prevention).

It is critical to recognise the dynamic, multifactorial nature of early SLC concerns. A longitudinal study involving 5000 children in Australia suggests that environmental influences are pivotal to SLC development in infancy and early childhood, with a smaller influence for genetic factors. These findings suggest that this balance changes by middle childhood, when genetic factors have more impact on SLC differences than environment.³⁴

The unique circumstances of every parent and child should be considered without assumptions e.g. many parents facing multiple social challenges provide responsive, language nurturing experiences for their children. Whatever challenges are present, parents who have knowledge and confidence about early childhood development have increased self-efficacy which is discussed below as a key component associated with better SLC outcomes. Practitioners can be evidence informed about the nature of the risks described above whilst continuing to apply non-judgemental values to their practice.

Factors Associated with Better SLC Outcomes

“Maternal and infant contingent vocal responsiveness is common across cultures further supporting its importance in child socialisation and language development.”

Thematic Report: Language acquisition in early years of childhood: The role of family and pre-primary education UNESCO (2023) ³⁵

Parental Responsiveness

There is a strong body of evidence supporting the crucial role of ‘early and often’ responsive parent and baby interactions as the foundations of SLC development. ^{34 36 37 38 39} Additionally, there is some evidence that this type of parental responsivity may be a supportive or protective factor for children experiencing wider socioeconomic risks. ^{30 40}

Responsive interactions are characterised by:

- adult notice of a baby’s focus of interest
- a shared focus in this interest (shared attention)
- provision of prompt and meaningful verbal and nonverbal responses during the interaction (contingency)

These interactions will include several ‘turns’ between baby and parent often described as ‘serve and return’.



Parental responsiveness has been found to be related to improved child language outcomes from infancy and throughout the early years. ^{39 41 42}

The period between 18 and 24 months has been identified as a particularly important time for responsive adult child conversational turns with increased interactive turns and words heard being associated with increased cognitive and language outcomes.⁴³

Whilst the quantity and diversity of parental *speech* within the home learning environment has been identified as having an impact on later outcomes, the quality

and quantity of responsive *interactions* has been shown to be of greater significance for early language and communication development.⁴⁴

The evidence is clear. Parental responsiveness and talk from the earliest stage of development is critical for early SLC development, and supporting early parental responsiveness may provide an opportunity to improve SLC outcomes. Practitioners supporting parents and parents-to-be have a golden opportunity to share this message, and all parents have a right to hear it.

Quality of Language Experiences in the Home Learning Environment

In addition to responsive interactions, the quantity and, crucially, the quality of parental talk within the home learning environment has been shown to be associated with better SLC outcomes.^{45 46 47} Within the literature, this is described as adult's use of:

- contingent labelling, comments and descriptions of a child's focus of activity/interest
- expansions (repeating and expanding on a child's utterance)
- imitations (modelling)
- responsive questions (questions based on the child's focus of attention and developmental stage) and balanced with comments.
- 'parentese' (child directed adult talk that is characteristically higher in pitch and slower in tempo but fully grammatical and involving real words, elongated vowels and warm exaggerated tones of voice.)⁴⁸

Confident Parents

Parents' confidence in their ability to influence their child's development has also been recognised as an important factor in responsive interactions.^{49 50} This factor has been identified as significant in relation to parents' understanding about language development.^{51 52 53} Supporting parents at the earliest stages with information about how children develop SLC, and the impact on later life chances, may help them to be more confident in providing a nurturing language rich home learning environment.

There is support within the literature for the positive impact of parent coaching intervention for early language development. Such intervention can improve confidence in the use of responsive interaction behaviours and conversational turns during the early years of life and have the potential to improve longer term SLC outcomes.^{54 55} Evidence suggests that parents facing adversity, e.g. maternal mental health or poverty, can particularly benefit from approaches which focus on improving early responsive interactions with their infants and children.^{56 57}

Supporting Maternal Mental Health

Positive maternal mental health and wellbeing has been identified as a protective factor for early SLC.^{58 59} However maternal depression has been found to be associated with a less responsive home language learning environment and less maternal awareness of their child's SLC competence.⁶⁰ Perinatal Infant Mental Health (PIMH) teams supporting parent-child relationships have an opportunity to consider the potential impact of their interventions on SLC development at the earliest stage when they support early and often responsive interaction.

Supporting Parent and Child Book Sharing

Finally, frequent early book sharing has been associated with better SLC outcomes particularly when parents use some of the effective parent and caregiver communication approaches described above (contingent labelling, expansions etc.). Shared reading, storytelling, rhymes and singing have been associated better expressive language ability, phonological skills and language comprehension.⁶¹

Supporting parents to embed these approaches early and frequently within book sharing has the potential to strengthen early SLC development, particularly when these approaches are interactive and child-led.^{62 63} Scotland's national Book Bug approach provides context and opportunity for the type of parental responsiveness and effective communication approaches described above to be experienced by infants and children within the home learning environment.

Factors Associated with SLC Outcomes: Key Messages from the Evidence

In summary, there is a robust body of evidence supporting the importance of environmental factors in the development of language and communication. For infants and young children up to 3 years of age, responsive parenting approaches have been identified as having a vital influence on early language development even when other risk factors are present. The positive impact of responsive parenting approaches, even in the context of social, genetic and biomedical risks, suggests that early interventions targeting support within the home learning environment has potential to improve SLC outcomes for pre-school children. Parents who feel confident and empowered are more able to create a home environment that supports early language development and learning.

How can we use Getting it Right for Every Child to think about SLC as a Wellbeing Issue?

“The highest rate of return in early childhood development comes from investing as early as possible, from birth through age five, in disadvantaged families. Starting at age three or four is too little too late, as it fails to recognize that skills beget skills in a complementary and dynamic way.”

James J. Heckman December 7, 2012

[Invest in Early Childhood Development: Reduce Deficits, Strengthen the Economy - The Heckman](#)

[Equation](#)

Scotland’s national GIRFEC approach provides a shared framework for practitioners working with families. It frames infant and child development in the context of their rights, unique family circumstances and wider world, exploring strengths, resilience, adversity and vulnerabilities.

The National Practice Model (My World Triangle, Resilience Matrix, SHANARRI wellbeing indicators, and the four contexts for learning within the Curriculum for Excellence) provides tools that support a shared perspective for considering early SLC development from birth and the complex interaction between biological, environmental, and social factors. This approach provides a context to identify the protective factors that are already in play in the child's world, and importantly, to highlight what else is needed to support early SLC development and reduce the risk and impact of emerging SLC needs.

Understanding speech language and communication needs (SLCN) at an early stage is a complex process. Early identification of concerns, some of which may resolve naturally over time, requires careful consideration to balance supporting families, without unintentionally increasing parental anxiety or over utilising resources. Conversely, some concerns may go unidentified during routine early professional contacts, only to emerge at later stages of development, potentially leading to missed opportunities for timely intervention and support. ⁶⁴

The current child health review points within Scotland’s Universal Health Visiting Pathway provide developmental surveillance, exploration of any parental concern and ongoing monitoring of a child’s development. Increased awareness of the factors

associated with better and poorer SLC outcomes will allow for more effective targeting of resources to underserved or under identified populations and at an earlier stage in a child's development.

Awareness of the social factors associated with SLC development is relevant to all clinicians and social care professionals. The National Practice Model provides an opportunity for everyone involved with infants, children and their families to explore and support risks and strengthen protective factors at an early stage. Using this model, practitioners can identify intersecting influences of relationship, social and community influences on early SLC development, alongside any biomedical and/or neurodevelopmental differences. This could strengthen opportunities to provide universal and targeted support where required at early routine contacts with infants, children and their families.

All practitioners working with parents and families have opportunities to prevent and intervene early to support SLC development. Using an [adapted My World Triangle](#), alongside an awareness of protective and risk factors, gives practitioners a familiar framework to consider prevention opportunities based on risk for SLC concerns. The adapted My World Triangle can be found [here](#) and includes:

- How I Grow and Develop- including impact of any known conditions or significant early history
- What I need from People who Look After Me - including protective parent, caregiver and adult communication behaviours
- My Wider World- the systemic and social determinants of SLC development

What is Possible within the Scottish Context?

“Parents, caregivers, and other caring adults need to understand their role in children's language development and to see talking and reading to infants and toddlers as normal and expected of all. Families with stressors and responsibilities may need more support from the larger mesosystem (e.g., from the community) and even ecosystems (e.g., support via public health campaigns) to be able to engage with their children. They will need other caring adults to interact with children when they cannot. Communities should ensure preventative interventions are available to everyone in the population of interest, namely those who may be considered at-risk for less optimal outcomes.”

Beecher and Van Pay 2020 ⁶⁵⁶⁶

Based on the evidence, we believe early SLC outcomes for many children, particularly those experiencing social and economic adversity, can improve. For this to be true, parents and parents-to-be need information and support at the earliest stage and throughout their child's early years. All practitioner contacts with parents and parents-to-be can make a difference to early SLC outcomes when support for early responsive interactions is given.

We believe that Scotland's National Practice Model provides the necessary shared framework and language to think about resilience and risk in relation to early SLC development.

Responsive interaction is strongly associated with better early SLC outcomes. We believe there is no stage of an infant or child's development that is 'too early' to provide parents with this advice and support.

How Can We Achieve This?

Shift the Focus to Prevention and Early Intervention

- We hope this paper will make the case for primary and secondary prevention approaches to be as compelling and as important as the case for early identification. This could include making SLC a priority focus within local children's planning frameworks.

- The importance of informed parents confidently providing nurturing early language learning experiences within the home is clear. Evidence based early SLC messages are now available to strengthen and augment other universal offers ([Chatting Together](#)).

Linking Current Policy to Strengthen SLC Outcomes

- We recognise that there are a number of current policy and practice approaches that provide opportunities to support early responsive relationships (e.g. Infant Mental Health Framework for Scotland, GIRFEC, Best Start Bright Futures and Realising the Ambition). Clarifying these opportunities in terms of the value for SLC outcomes, will help raise awareness of responsibilities across the workforce to provide preventative and targeted interventions.
- Ensuring a focus on early parental responsiveness within future policy development for the early years, including a focus on understanding, recognising, and addressing the social determinants of SLC, will sustain future improvements.
- Using The National Practice Model and adapted My World Triangle (Figure 5) to focus on the wider factors associated with early SLC development will help to improve understanding of SLC as a child wellbeing issue. This will support a focus on targeted approaches that tackle the underlying social determinants of SLC inequalities.

Supporting the Early Years Workforce

- Supporting practitioners to use the National Practice Model to recognise early factors associated with better and poorer SLC outcomes will facilitate targeted support and monitoring at the earliest stage. This gives a prevention opportunity rather than waiting for parental concerns to arise or be identified at a routine CHR.
- Awareness of the dynamic interaction between the factors described within this paper, will support practitioners to be confident and knowledgeable about

providing effective early SLC approaches in a way that works for best for individual families and children.

- Raising awareness of the issues described in this paper and building the confidence and the will within the universal workforce to support parents and parents-to-be at the earliest stage is vital to improving outcomes.
- Practitioners most proximal to parents and families have an opportunity to share consistent messages around the importance of early adult-child interactions and why this is important for later SLC outcomes. This may be achieved within current routine practice, such as breastfeeding / maternal wellbeing support, and may involve coaching and modelling for families.

Summary

“...improving environmental protective factors can lead to significant expansion in the acquisition of speech, language, and communication skills in infants... Interventions focused on supporting families to optimize home learning environments and enabling improvements in environmental protective factors, are key and even children with a poor start to life can catch up...”

Cronin, P. and Goodall, S. (2021) ³⁴

Research tells us that helping parents to understand the long-term benefits of responsive interactions with their child from the earliest stage of development is key. Some parents may need extra support and guidance with this, highlighting the necessity for both universal messaging and targeted support.

Additionally, the early years workforce (pre-birth to five) will need support to understand the factors associated with future SLC risks, and how to best help parents within their existing routine contacts and pathways.

To reduce early SLC concerns, a secondary prevention approach should be in place for children affected by conditions linked to poorer outcomes, as described within this paper. This requires identifying opportunities to strengthen awareness and application of key SLC messaging for those families and the workforce using existing policy frameworks and services delivery approaches.

With the right conditions, it is possible to change early SLC outcomes for our bumps, infants, and young children across Scotland.

Reflective Questions for Leaders and Practitioners

Policy Delivery

- Are there existing opportunities within my area of responsibility to support parents to provide early language nurturing opportunities within the home learning environment?

Strategic Leadership

- How do the factors associated with early speech, language and communication outcomes impact on the community in my area?
- Within my area, who needs to know about the factors associated early speech, language, and communication outcomes

Operational Leadership

- Are practitioners in my area aware of the factors associated with early speech, language, and communication outcomes?
- Does my team have a role in the prevention of early speech language and communication concerns?
- What interventions do my team deliver that could support parents to provide early language nurturing opportunities within the home learning environment?

Practitioners

- How could I use The National Practice Model / My World Triangle to help identify the factors associated with early speech, language and communication outcomes?
- Do I have a role in the prevention of early speech, language and communication concerns?
- How can I support parents to provide the responsive early interactions that build early speech, language and communication development?

References

1. Moss, G and Washbrook, E (2016) The Gender Gap in Language and literacy Development. Bristol: Uni of Bristol <https://www.bristol.ac.uk/media-library/sites/education/documents/bristol-working-papers-in-education/Understanding%20the%20Gender%20Gap%20working%20paper.pdf>
2. Botting, N., Toseeb, U., Pickles, A., Durkin, K., and Conti-Ramsden, G. Depression and anxiety change from adolescence to adulthood in individuals with and without language impairment. *PloS one*, 11(7)
3. Public Health England (2020) [Children's development and family circumstances: Exploring the SEED data](https://www.eif.org.uk/publications/childrens-development-and-family-circumstances-exploring-the-seed-data) | Early Intervention Foundation ([eif.org.uk](https://www.eif.org.uk))
4. Elliott N (2011). An investigation into the communication skills of unemployed young men: *Doctoral Thesis* <https://pure.southwales.ac.uk/en/studentTheses/an-investigation-into-the-communication-skills-of-unemployed-young-men>
5. Bryan, K., Freer, J. and Furlong, C. (2007), Language and Communication Difficulties in Juvenile Offenders. *International Journal of Language and Communication Disorders*, 42 (5), 505-520
6. Pickles, A., Durkin, K., Mok, P., Toseeb, U., and Conti-Ramsden, G. (2016). Conduct problems occur with hyperactivity in children with language impairment: A longitudinal study from childhood to adolescence
7. Bettio, C. D. B., Bazon, M. R., and Schmidt, A. (2019). Risk and Protective Factors for Language Development Delay, *Psicologia Em Estudo*, 24
8. Short, K., Eadie, P. and Kemp, L. (2019) 'Paths to language development in at risk children: a qualitative comparative analysis (QCA)', *BMC pediatrics*, 19(1), pp. 94–94
9. Levickis P, Conway L, Smith J, Bennetts S. (2022) Parent–Child Interaction and Its Impact on Language Development. In: Law J, Reilly S, McKean C, eds. *Language Development: Individual Differences in a Social Context*. Cambridge University Press;166-192.
10. Nelson, P.M., Scheiber, F., Demir-Lira, Ö.E., Harmon, H.M. (2024). Early medical risks to language development in extremely preterm infants. *Journal of Perinatology*
11. Putnick DL, Bornstein MH, Eryigit-Madzwamuse S, Wolke D. Long-Term Stability of Language Performance in Very Preterm, Moderate-Late Preterm, and Term Children. *J Pediatr*. 2017 Feb;181:74-79.e3
12. Sanchez, K., Boyce, J. O., Mei, C., St John, M., Smith, J., Leembruggen, L., Mills, S., Spittle, A. J., and Morgan, A. T. (2020). Communication in children born very preterm: a prospective cohort study. *Developmental Medicine and Child Neurology*, 62(4), 506–512.
13. Stefana, A., and Lavelli, M. (2017). Parental engagement and early interactions with preterm infants during the stay in the neonatal intensive care unit: protocol of a mixed-method and longitudinal study. *BMJ Open*, 7(2), e013824–e013824
14. Silveira, R. C., Mendes, E. W., Fuentesfria, R. N., Valentini, N. C., and Procianoy, R. S. (2018). Early intervention program for very low birth weight preterm infants and their parents: a study protocol. *BMC Pediatrics*, 18(1), 268–268
15. Treyvaud, K. (2014). Parent and family outcomes following very preterm or very low birth weight birth: A review. *Seminars in Fetal and Neonatal Medicine*, 19(2), 131–135.
16. Save The Children (2016) The Lost Boys. How boys are falling behind in their early years https://www.savethechildren.org.uk/content/dam/global/reports/the_lost_boys_report.pdf

-
17. Eriksson, M., Marschik, P., Tulviste, T., and Almgren, M., Pérez-Pereira, M., Wehberg, S., Umek, L., Gayraud, F., Kovačević, M., Gallego, Carlos. (2012). Differences between girls and boys in emerging language skills: Evidence from 10 language communities. *The British journal of developmental psychology*. 30. 326-43
 18. Zambrana, I.M., Pons, F., Eadie, P., and Ystrom, E. (2014). Trajectories of language delay from age 3 to 5: Persistence, recovery and late onset. *International Journal of Language and Communication Disorders*, 49, 304–316
 19. Korpilahti P, Kaljonen A, Jansson-Verkasalo E. (2016) Identification of biological and environmental risk factors for language delay: The Let's Talk STEPS study. *Infant Behav Dev*. Feb; 42:27-35
 20. Dale PS, Tosto MG, Hayiou-Thomas ME, Plomin R. (2015) Why does parental language input style predict child language development? A twin study of gene-environment correlation. *J Commun Disord*. Sep-Oct; 57:106-17
 21. Dale, P., Simonoff, E., Bishop, D. et al. (1998). Genetic influence on language delay in two-year-old children. *Nat Neurosci* 1, 324–328
 22. Spinath, F.M., Price, T.S., Dale, P.S. and Plomin, R. (2004), The Genetic and Environmental Origins of Language Disability and Ability. *Child Development*, 75: 445-454.
 23. Gonzalez-Gomez, N., O'Brien, F., and Harris, M. (2021). The effects of prematurity and socioeconomic deprivation on early speech perception: A story of two different delays. *Developmental Science* 24, e13020
 24. Di Sante, M. and Potvin, L., (2022) We Need to Talk About Social Inequalities in Language Development. *American Journal of Speech-Language Pathology*, Vol 31, Pages: 1894-1897
 25. Fernald, A., Marchman, V., and Weisleder, A. (2013). SES differences in language processing skill and vocabulary are evident at 18 months. *Developmental Science*, 16, pp. 234-48
 26. Law, J., Clegg, J., Rush, R., Roulstone, S., and Peters, T. J. (2019). Association of proximal elements of social disadvantage with children's language development at 2 years: An analysis of data from the children in focus (CiF) sample from the ALSPAC birth cohort. *International Journal of Language and Communication Disorders*, 54(3), 362–376
 27. Royal College of Paediatrics and Child Health (2021) Briefing: State of Child Health in the UK <https://www.rcpch.ac.uk/sites/default/files/2021-07/RCPCH%20Briefing%20-%20State%20of%20Child%20Health%20in%20the%20UK.pdf>
 28. Beard, A. (2018) Speech, language and communication: a public health issue across the lifecourse. *Paediatrics and Child Health*. Volume 28, Issue 3, P126-131
 29. Gascoigne, M. (2024) Meeting speech, language and communication needs: a whole-systems, population-based approach. *Paediatrics and Child Health* Volume 34, Issue 7, P201-210
 30. Short, K., Eadie, P. and Kemp, L. (2019) 'Paths to language development in at risk children: a qualitative comparative analysis (QCA)', *BMC pediatrics*, 19(1), pp. 94–94
 31. Elansary M, Wei WS, Pierce LJ, McCoy DC, Nelson CA. (2024) Association of Neighborhood Opportunity with Infant Brain Activity and Cognitive Development. *J Dev Behav Pediatr*. 01;45(3):e217-e224
 32. Pace, A., Luo R., 2, Hirsh-Pasek K. and Michnick Golinkoff R (2017) Identifying Pathways Between Socioeconomic Status and Language Development. *Annual Review of Linguistics*, Vol. 3:285-308z
 33. Law, J., Charlton, J., Asmussen, K. (2017) Language as a Child Wellbeing Indicator, Early Intervention Foundation <https://www.eif.org.uk/report/language-as-a-child-wellbeing-indicator>

-
34. Cronin, P. and Goodall, S. (2021) 'Measuring the Impact of Genetic and Environmental Risk and Protective Factors on Speech, Language, and Communication Development-Evidence from Australia', *International journal of environmental research and public health*, 18(8), pp. 4112
 35. UNESCO (2023) Language acquisition in early years of childhood: the role of family and pre-primary education: thematic report - UNESCO Digital Library
<https://unesdoc.unesco.org/ark:/48223/pf0000387215>
 36. Conway, L.J., Levickis, P.A., Smith, J., Mensah, F., Wake, M. and Reilly, S. (2018), Maternal communicative behaviours and interaction quality as predictors of language development: findings from a community-based study of slow-to-talk toddlers. *International Journal of Language and Communication Disorders*, 53: 339-354
 37. 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), e12753
 38. Tamis-LeMonda, C.S., Custode, S., Kuchirko, Y., Escobar, K. and Lo, T. (2019), Routine Language: Speech Directed to Infants During Home Activities. *Child Dev*, 90: 2135-2152
 39. Levickis, P., Eadie, P., Mensah, F., McKean, C., Bavin, E.L., and Reilly, S. (2023) Associations between responsive parental behaviours in infancy and toddlerhood, and language outcomes at age 7 years in a population-based sample. *International Journal of Language and Communication Disorders*, 58, 1098–1112.
 40. Borairi S, Fearon P, Madigan S, Plamondon A, Jenkins J. (2021) A mediation meta-analysis of the role of maternal responsivity in the association between socioeconomic risk and children's language. *Child Dev*. Nov;92(6):2177-2193.
 41. Donnellan E, Bannard C, McGillion ML, et al. (2019) Infants' intentionally communicative vocalizations elicit responses from caregivers and are the best predictors of the transition to language: a longitudinal investigation of infants' vocalizations, gestures and word production. *Developmental Science* 23(1): e12843
 42. Hirsh-Pasek K, Adamson LB, Bakeman R, et al. (2015) The contribution of early communication quality to low-income children's language success. *Psychological Science* 26(7): 1071–1083
 43. Gilkerson, J., Richards, J. A., Warren, S. F., Oller, D. K., Russo, R., and Vohr, B. (2018). Language experience in the second year of life and language outcomes in late childhood. *Pediatrics*, 142 (4)
 44. Anderson, N. J., Graham, S. A., Prime, H., Jenkins, J. M., and Madigan, S. (2021). Linking Quality and Quantity of Parental Linguistic Input to Child Language Skills: A Meta-Analysis. *Child Development*, 92(2), 484–501
 45. Levickis P, Reilly S, Girolametto L, et al. (2014) Maternal behaviors promoting language acquisition in slow-to-talk toddlers: prospective community-based study. *Journal of Developmental and Behavioral Pediatrics* 35(4): 274–281
 46. Levickis P, Reilly S, Girolametto L, et al. (2018b) Associations between maternal responsive linguistic input and child language performance at age 4 in a community-based sample of slow-to-talk toddlers. *Child: Care, Health and Development* 44(5):776–783.
 47. Rowe, M.L., Leech, K.A., Cabrera, N. (2016) Going Beyond Input Quantity: Wh-Questions Matter for Toddlers' Language and Cognitive Development. *Cognitive Science* 41 (2017, Suppl. 1) 162–179
 48. Ferjan Ramírez N, Lytle SR, Kuhl PK. (2020) Parent coaching increases conversational turns and advances infant language development. *Proc Natl Acad Sci U S A*. Feb 18;117(7):3484-3491
 49. Albanese AM, Russo GR, Geller PA. (2019) The role of parental self-efficacy in parent and child well-being: A systematic review of associated outcomes. *Child Care Health Dev.*; 45: 333–363

50. Alper RM, Beiting M, Luo R, Jaen J, Peel M, Levi O, Robinson C, Hirsh-Pasek K. (2021) Change the Things You Can: Modifiable Parent Characteristics Predict High-Quality Early Language Interaction Within Socioeconomic Status. *J Speech Lang Hear Res.* 2021 Jun 4;64(6):1992-2004. doi: 10.1044/2021_JSLHR-20-00412.
51. Rowe, M. L. (2008). Child-directed speech: Relation to socioeconomic status, knowledge of child development and child vocabulary skill. *Journal of Child Language*, 35(1), 185–205.
52. Albarran A. S., and Reich S. M. (2014), Using Baby Books to Increase New Mothers' Self-Efficacy and Improve Toddler Language Development, *Inf. Child. Dev.*, 23, pages 374–387
53. Stievenart, M and Martinez Perez, T. (2020). How can parental self-efficacy support children's early language development? Review of preliminary research and future perspectives. *European Journal of Developmental Psychology*. 18. 1-15. 10.1080/17405629.2020.1776102
54. Huber E, Ferjan Ramírez N, Corrigan NM, Kuhl PK. (2023) Parent coaching from 6 to 18 months improves child language outcomes through 30 months of age. *Dev Sci.* 26(6): e13391
55. Roberts MY, Kaiser AP. The effectiveness of parent-implemented language interventions: a meta-analysis. *Am J Speech Lang Pathol.* (2011) Aug;20(3):180-99. doi: 10.1044/1058-0360(2011/10-0055). Epub 2011 Apr 8. PMID: 21478280.
56. Ochoa W, Reich SM, Díaz G. (2021) A Randomized Control Trial of Using Baby Books to Reduce New Mothers' Feelings of Stress and Depression. *Matern Child Health J.* Oct;25(10):1615-1625. doi: 10.1007/s10995-021-03200-9.
57. Ferjan Ramírez, N. Lytle, S.R. Kuhl, P.K. (2020) Parent coaching increases conversational turns and advances infant language development, *Proc. Natl. Acad. Sci. U.S.A.* 117 (7) 3484-3491
58. Kaplan, P S., Christina M. Danko, C M., Everhart, K D., Diaz, A., Asherin, R M., Vogeli J M., Shiva M. Fekri S M. (2014) Maternal depression and expressive communication in one-year-old infants, *Infant Behavior and Development*, Volume 37, Issue 3, , Pages 398-405
59. Hughes, N., Sciberras, E. and Goldfeld, S. (2016) 'Family and Community Predictors of Comorbid Language, Socioemotional and Behavior Problems at School Entry', *PloS one*, 11(7), pp. e0158802–e0158802
60. Clifford BN, Stockdale LA, Coyne SM, Rainey V, Benitez VI (2022). Speaking of State of Mind: Maternal Mental Health Predicts Children's Home Language Environment and Expressive Language. *Journal of Child Language.*;49(3):469-485
61. Mustonen R, Torppa R, Stolt S. (2024); Parental linguistic support in a home environment is associated with language development of preschool-aged children. *Acta Paediatr.* 113: 1852–1859
62. Dickinson, David K., Griffith, Julie A., Golinkoff, Roberta Michnick, Hirsh-Pasek, Kathy, (2012) How Reading Books Fosters Language Development around the World, *Child Development Research*, 602807
63. Noble, C, Cameron-Faulkner T, Jessop A, Coates A, Sawyer H, Taylor-Ims R, Rowland C F (2020) The Impact of Interactive Shared Book Reading on Children's Language Skills: A Randomized Controlled Trial, *Journal of Speech, Language, and Hearing Research*, Vol 3, Issue 6
64. Reilly S, Wake M, Ukoumunne OC, et al. (2010) Predicting language outcomes at 4 years of age: findings from Early Language in Victoria Study. *Pediatrics* 126(6):e1530-7.
65. 66Beecher, C C, Van Pay, C K (2020). Investigation of the effectiveness of a community-based parent education program to engage families in increasing language interactions with their children, *Early Childhood Research Quarterly*, Volume 53 Pages 453-463

Appendix 1

Definitions: Prevention Approaches

Early intervention has the potential to prevent some speech language and communication concerns (SLC) developing in infants and children. Early identification and support for emerging SLC concerns can reduce impact and the social consequences that develop as a result.

We have used the following terms to describe a framework for prevention for different populations. This framework is neither linear nor hierarchical as all children and families will benefit from universal messages and some will require additional support.

Primary Prevention

Primary Prevention describes actions at a whole population level which aim to reduce the incidence of a condition and to prevent its later development. In the case of early SLC development this could be access to **universal** messages such as '[Chatting Together](#)' or other advice for all parents which encourages 'early and often' responsive adult interactions with infants and children to reduce the likelihood of SLC concerns developing.

Secondary Prevention

Secondary prevention approaches are **targeted** at specific groups within the population. These approaches aim to both prevent SLC concerns from emerging and to act where there are early signs of concern. Targeted approaches are delivered to families most at risk of developing SLC concerns e.g. where there are circumstances that impact upon responsive parent child interactions and /or when early signs of SLC concerns are noticed.

Tertiary Prevention

Tertiary prevention refers to interventions for an individual with a persisting condition or neurodevelopmental difference. Here the focus is on reducing negative

consequences, improving quality of life, and enhancing an individual's participation and inclusion. This type of **individualised** support is likely to be guided by practitioners with relevant expertise e.g. SLT, Psychologist, ASN services.

McKean, C. and Reilly, S. (2023) Creating the conditions for robust early language development for all: Part two: Evidence informed public health framework for child language in the early years. *International Journal of Language and Communication Disorders*, 58, 2242–2264.

Public Health Scotland The Three Levels of Prevention <https://publichealthscotland.scot/about-us/what-we-do-and-how-we-work/public-health-approach-to-prevention/the-three-levels-of-prevention/> (accessed 09/01/25)