Communication disorders in preschool children

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Abstract
Competence in the broad range of communication skills is essential for a full and varied life experience. Yet speech, language and communication difficulties are amongst the most common of all childhood difficulties and cause parents and professionals considerable concern. This brief review of common causes of communication disability provides information about aetiology, prevalence and current practice in direct and indirect treatment as well as educational contexts. The research base relating to intervention is limited, with very few studies that would meet the requirements of rigorous medical research. However, the literature is reviewed here, and prognoses and long-term outcomes are considered.

Keywords communication development; communication disorders; language therapy; preschool speech

Introduction
The recent Bercow review of services for children and young people with speech, language and communication needs (SLCN) considered the prevalence of children with these needs in the UK, examined the provision of services, and made several recommendations based on this evaluation. In the introduction to the report the authors describe communication as core in all social interaction, and assert that high levels of communicative competence are essential for scholastic and work progression (quoting a joint declaration by UNICEF, UNESCO and WHO). The authors state that children and young people who face significant difficulty acquiring the ability to communicate require appropriate support for them to interact socially, to participate fully in education, and to lead safe healthy lives.

Incidence
Childhood language difficulties are very common, and 20% of parents have concerns about their child’s language development at some time; 6% of children are referred to speech and language therapy because of concerns about their speech skills, 6–8% of children aged 0–7 years have significant primary SLCN and require additional support, and 1% of children have severe, complex and long-term SLCN requiring specialist support. A much larger number of children benefit from a language-rich environment to facilitate their learning, as for example those provided by Sure Start and similar programmes.

Typical development and early milestones
Babies are predisposed to attend to the human voice from birth. Research has indicated that infants rapidly become skilled in recognizing and discriminating verbal sounds, and parents automatically modify their vocal behaviour in ways that facilitate infant focus and learning. By 2 months of age infants and their parents engage in reciprocal social interactions that follow the natural patterns of conversation and enhance the baby’s recognition of contingent responses, where the adult responds to a baby in individual and interesting ways, thus facilitating cognitive as well as social learning. This phase of prelinguistic development requires a degree of adult interpretation. From 9 to 12 months overt signals of communicative intent, including gestures, vocalization, and contrastive intonation patterns emerge. This is the beginning of conversation about objects, events and experiences, and interaction becomes more frequent, more flexible, and better organized.

Babbling is universal and encourages adult imitation. Initially the infant produces sounds relating to their internal state, moving on to laughing and cooing with repetitive vowel sounds involving variation in pitch and volume. By around 6 months the baby produces consonant—vowel combinations with sentence-like inflections. Early babble includes all phonetic sounds, but by 9–10 months this is reduced to the sounds heard in the native language. Interestingly, deaf children raised in signing households start ‘sign babbling’ at 7–11 months, before developing more language specific signs.

Research has suggested some commonalities in the development of first words with a bias towards the use of nouns before other vocabulary such as adjectives and verbs. There is some cross-language similarity with six words (‘daddy’, ‘mummy’, ‘bye’, ‘hi’, ‘uh-oh’, and ‘woof woof’) consistently appearing in the first 20. All babies tend to use person-related nouns (e.g. kinship terms), but the prevalence of object and animal names varies across cultures. During the second year nouns, verbs and adjectives predominate in early word combinations (e.g. ‘daddy gone’, ‘want biscuit’). Early phrases relate to common themes such as the appearance and disappearance of objects and people, desires (e.g. ‘no want juice’), basic events (e.g. ‘teddy fall down’) and attribution (e.g. ‘dinner hot’). Grammatical forms emerge throughout the third year, and by the end of the fourth year children are generally talking in complex sentences with most grammatical structures achieved.

Typically developing children vary in their ability to produce speech sounds accurately, with up to 13% variable production for some sounds, depending on language and word complexity, being typical of 3- to 3½-year-old children. Accuracy improves with age, with high levels of inconsistent production being uncommon in normal development at any age. Therefore inconsistent speech sound production should be considered a possible marker for speech disorder. Research has consistently indicated that girls outperform boys in early language milestones, and this is so even in babies born prematurely.

Bilingual children
There is a consensus that bilingualism does not result in lasting language delay. Inconsistent findings in some research may have

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resulted from methodological issues such as underestimating the child’s vocabulary in the native tongue. So-called language mixing (when words or phrases from more than one language are combined in an utterance) has been considered by some to be evidence of confused language development. However, since this occurs commonly when bilingual adults talk to each other, children who are raised in bilingual environments will regularly have heard such ‘mixed’ utterances. Indeed, it has been suggested that the linguistic knowledge acquired by bilingual children leads to cognitive and linguistic advantage. A study investigating a subset of 6- and 7-year-old bilingual children attending language units found that they tended to have more severe difficulties when compared to their monolingual peers, and also tended to make slower progress. The authors question whether this is the result of professionals failing to detect all but the most severely affected bilingual children, whether language tests disadvantage bilingual children, or whether bilingualism aggravates language difficulties in young children. In contrast, a more recent study suggests that a bilingual background is not associated with more severe language problems in 5- to 6-year-olds at risk for language impairment. Recommendations for intervention with children growing up with more than one language indicate that: (1) children should, if possible, receive therapy in both languages, or at the very least have guidance on how to facilitate their child’s language development in their native tongue, and (2) the language of the home should not be changed to fit in with teaching as this will lead to the loss of a language that has already been acquired. There is some limited evidence that work in one language may benefit development in another if they are fairly similar in structure.

**Atypical development**

Communication difficulties may arise as a result of internal factors (i.e. issues relating to abnormal neurological, cognitive or physical development, sensory impairment or prematurity) or have environmental causes (i.e. abuse or neglect, psychological trauma or postnatal depression). When biological and environmental factors co-occur, problems may be exacerbated. For many there may be no single identifiable cause, and multiple adverse factors can be responsible.

**Prematurity**

In babies born prematurely, there is a greater risk of complex neurological complications that give rise to associated problems in communication. Some research has suggested that even in neurologically unimpaired preterm children subtle language difficulties may occur, with birth weight and gestational age being negatively correlated with language development at all ages. When demographic factors, neonatal factors, socioeconomic factors, growth and disability are taken into account, factors relating to infant health are most predictive of language development in preterm children.

**Sensory impairments**

Hearing impairment can have serious consequences on the development of speech, language and communication in children. Many children suffer from fluctuating hearing loss at some time before they are 5 years old, primarily caused by otitis media with effusion (OME or ‘glue ear’). There are no significant consequences for most of these children, but a minority will experience delays in language acquisition, which may result in problems with attention, behaviour and learning. Acquired hearing loss can arise from damage to the middle ear and is often associated with a history of ear infections. Deaf children born to parents who are part of the deaf community are likely to be native signers, exposed to sign language from birth, and are not therefore liable to difficulties with language acquisition per se, although speech and literacy development are often delayed.

The vast majority of children with congenital sensorineural hearing loss have hearing parents. Recent advances in neonatal hearing screening may reduce the likelihood of late detection and the risk of lasting educational and social consequences. Hall and Elliman report that 40% of children with sensorineural hearing loss also have visual difficulties. Visual impairment itself does not tend to have a long-term impact on language ability, but there may be some delays in language acquisition and understanding of concepts resulting from difficulties engaging in shared focus for communication.

**Cleft lip and palate (CLP) and velopharyngeal dysfunction (VPD)**

The incidence of CLP in the UK is approximately 1 in 700, with around a quarter being cleft lip alone, and a quarter being cleft palate alone. Approximately 20% of combined lip and palate clefts are bilateral. A number of syndromes is associated with CLP, although aetiology is varied and may include both genetic and environmental causes. CLP can affect many aspects of speech and result in severely reduced intelligibility. Velopharyngeal dysfunction may occur resulting in ‘hypernasality’. In addition to problems with speech, CLP and VPD often result in feeding difficulties. Problems associated with CLP — such as persistent ‘glue ear’ — increase the risk of language delays (as described above).

**Stammering**

Stammering is a disorder of fluency that generally begins early in childhood (2–5 years of age). The majority of young children experience a spontaneous recovery. Theories differ as to causal factors, but include a possible neurophysiological predisposition, a result of environmental or self-imposed demands exceeding the child’s cognitive, linguistic or emotional capacity (the ‘demand capacity’ model of stammering), and a view of the disorder as resulting from a motor programming difficulty. For children under 5 years of age most speech and language therapists recommend ‘indirect’ intervention, such as supporting parents to facilitate their child’s fluency.

**Learning disabilities**

Children with learning disabilities experience a range of language and communication deficits. Type and severity may be associated with specific syndromes or congenital conditions and will depend on the level of overall ability, ranging from profound and multiple learning disability (PMLD) to mild learning disability. Educational terminology differs from medical descriptions and relates primarily to the level of support the child requires to access educational and social environments.

**Autism spectrum disorder (ASD)**

Autism spectrum disorder is a term used to describe individuals with problems in three main areas of functioning: social
generally used as an umbrella term. The terms and ‘untreated’ groups still had substantial speech and language communication delays. Indeed, 70% of all children in both their treated and ‘watchful waiting’ for many young children with communication, reciprocal interaction, and repetitive and stereotype behaviours. Autism spectrum disorders can occur with or without learning disability. Prevalence estimates vary depending upon diagnostic criteria: 1% for all ASDs reducing to 25 per 10,000 children who meet the strictest criteria for childhood autism. A significant minority (approximately 25%) of children with autism has difficulties affecting all aspects of communication, including non-verbal skills. The majority do acquire speech, although it may be very delayed, and abnormal features such as idiosyncratic language are common. These children also experience difficulty with abstract concepts and language in social and educational contexts. By current definition individuals with Asperger syndrome (a disorder accepted to be within the autism spectrum) have phrase speech by 3 years of age and are not considered to experience language difficulties or significant cognitive impairments, although subtle communication deficits are common.

Specific language impairment (SLI)
Specific language impairment is a significant language difficulty in the absence of an identified aetiological factor such as learning disability, hearing impairment, global delay, emotional, behavioural or neurological difficulties, or autism. There is a distinction between language delay and language disorder, with ‘impairment’ generally used as an umbrella term. The terms primary or specific are used to distinguish language impairments that are not secondary to a known condition. Deficits are currently described using standardized assessments of cognitive and language skills with a significant discrepancy between verbal and non-verbal skills. There is some concern that this definition does not adequately characterize the language impairment, and ‘markers’ for deficits such as phonological memory and sequencing skills have been the subject of research. Given the lack of consensus regarding how SLI is defined, estimates as to the prevalence of the condition vary significantly. Tomblin et al estimate the prevalence of SLI in US preschoolers to be just over 7%, whilst a rate of just 1% was found in a sample of Finnish children up to 6 years of age. Estimates for the UK suggest a prevalence of approximately 5%, with nearly three times as many boys as girls affected. Law et al conclude that although there are some adequate screening tests, there is limited justification for the introduction of universal screening for primary speech and language delay in the UK. Elsewhere in Europe screening is more universal, with a view that language delay is an important marker for a range of neuro-developmental difficulties in later childhood, and might be utilized to identify the need for early intervention.

Intervention
The Bercow review stresses that universal, targeted, and specialist services are required to meet the range of needs of children and young people with SLCN. The report recommends that support for SLCN is essential in the early years of a child’s life. However, evidence of the effectiveness of such provision is limited. Glogowska et al concluded that early speech and language therapy intervention did not provide better outcomes than ‘watchful waiting’ for many young children with communication delays. Indeed, 70% of all children in both their treated and ‘untreated’ groups still had substantial speech and language deficits when re-assessed at a mean age of 44 months. The authors suggest that this may be the result of their inclusion of broad categories of difficulty (with the expected wide range in outcomes) combined with often low-intensity therapy for children in the treatment group, with the mean number of contacts being 8.1 (range 0–17) in their study.

The 2003 Cochrane review of speech and language therapy for children of all ages reported results of 25 studies. Research assessing the treatment of phonological and expressive vocabulary difficulties shows some benefit; there is inconsistent evidence for teaching expressive grammar, whilst there is little evidence for effective intervention for children with receptive language difficulties. Furthermore, clinician-administered intervention and parent-delivered treatments did not differ in outcome, nor was there a difference between group and individual interventions. However, increased duration of therapy and the use of normal language peers in therapy were shown to have a positive effect on outcome. A second systematic review, which included preschool as well as school-age children, outlined significant gaps in the research but suggested that there is some good evidence for specific language intervention practices for school-age children.

In practice, most agree that for preschool children parents have an essential role, but also that professional input is invaluable. There is some limited evidence that a parent-based intervention approach was more effective than conventional treatment comprising direct clinic-based intervention sessions for 3-year-old children with expressive language delays. In this study the parent-based intervention was more expensive than the comparative treatment, but the benefit to children in terms of language gains was considered to outweigh this difference. A similar economic evaluation of specialist Early Years Centres compared to NHS routine speech and language therapy found improvement in scores on some but not all assessments of language outcome. The authors conclude that specialist provision, although more expensive, represented efficient use of resources. An evaluation of the Hanen training programme for nursery staff did not find changes in children’s expressive or receptive language skills post-intervention, although differences in children’s social interactions and staff awareness and confidence in supporting children with SLCN were evident. In contrast, an education-based direct small group intervention specifically targeted for 3- and 4-year-old children with language delay was found to be effective in improving language scores on a formal test of language competence.

Any intervention approach that involves parents must take into account factors associated with cultural context, such as the role of the extended family; their expectation of their child’s learning needs, and their style of communication. In addition to this, research has suggested that factors such as parental learning style, health beliefs and interaction skills can be influential in determining outcome, although these factors may be less important than child characteristics when a child has a developmental disorder such as Down syndrome. Several studies have demonstrated some positive effects from relatively low-intensity parent-mediated intervention, primarily in relation to individuals with ASD. However, long-term effects have not been demonstrated. Good outcomes have been demonstrated for therapy focusing on specific phonological impairments in children with severe speech disorder and socially disadvantaged children.
Prognosis
The prognosis for children who experience developmental language difficulties depends on the nature of the difficulty. Some studies have suggested that 40–60% of children with expressive language delay alone spontaneously resolve. However, 87% of children with receptive language impairments still experience problems at school entry (i.e. 4½ to 5½ years), even if they have caught up on language measures, and many experience problems with literacy acquisition. One study found that when assessed at 7–10 years, over a quarter of children continue to have difficulties with persisting SLI, social and literacy problems. An important finding is that if language problems resolve by 5½ years then literacy development may proceed normally; if not, there is a high risk of persisting SLI and literacy problems at 8 years. In a follow-up at age 11 of children who had been assessed in language units at 7 years, 89% still performed badly on one language measure; 63% were poor on three or more measures (not just language), 28% had poor performance IQ scores; 5% scored highly for ASD; only 58% currently met criteria for SLI; and 8% had resolved difficulties. At 15 years there is a raised incidence of attentional and social difficulties for children with persisting SLI.

Future directions and resource implications
Speech and language competence starts in the first weeks of life. Difficulties in acquiring these skills arise from a wide range of causes, will affect a child’s education and social development, and can potentially have lifelong effects. The evidence base for intervention is sparse, with few well-conducted studies. There is a need for research that will assist us to tailor intervention to specific needs and to be more precise about the expected outcomes for the range of neurodevelopmental conditions that can cause communication impairments. When allocating scarce resources to the large numbers of children with communication impairments, it is essential to ensure that predictive factors that might suggest a likelihood of spontaneous recovery versus those that risk persisting lifelong impairments are taken into account.

FURTHER READING
Bercow J. The Bercow report: a review of services for children and young people (0–19) with speech, language and communication needs. Also available at: www.dcsf.gov.uk/slcnaction; 2008 (accessed 11 Apr 2009).

Practice points
- Speech, language and communication difficulties are amongst the most common of all childhood difficulties and cause parents and professionals considerable concern
- By 4 years of age children are generally talking in complex sentences with most grammatical structures achieved
- Bilingualism can result in advantages for language competence, although it is possible that it exacerbates language difficulties in those who have them or that children with SLI and bilingualism are less likely to be diagnosed compared to their monolingual peers
- The evidence base for intervention is limited, with a mix of efficacy for some specific treatments of difficulties such as speech production; benefits from indirect (i.e. teacher- or parent-delivered) intervention for children with more global difficulties are not clear
- Whilst expressive language delays are likely to resolve spontaneously, children with more significant communication impairments are likely to have lifelong difficulties which can limit their ability to share the social world or to engage in work