



# Prematurity and the challenge for educators

Educational consultant **Professor Barry Carpenter** and schools research consultant **Jo Egerton** look at the impact on learning for children born premature.

**T**HE changing pattern of special educational needs and disabilities (SEND) across all types of school is now well documented. A much observed trend is the increasing numbers of children with profound and complex needs. In the UK, Government figures for 2004-2009 (National Statistics, 2004, 2009) revealed a 29.7% rise in PMLD admissions to schools. In part, this may be linked to the survival of prematurely born children.

According to the Medical Research Council, in the last decade, the significant trend towards the survival of children pre-27 weeks gestation,

over 50% of whom, are likely to survive with some form of SEND, has dramatically contributed to the annual figure of 80,000 (one in eight) children born premature in the UK. The learning profiles of these children are often complex, with permutations of disability and additional need that are new to many school contexts. From these profiles of learner need arise new teaching strategies often derived from a process of inquiry - exploring, investigating, and discovering innovative pathways to effective learning, attainment and progress. This pedagogical dimension requires new styles of leadership and management

in all phases and designations of school that recognise, guide and support the inquiry process.

## **The educational needs of children born premature**

Children born premature are a rapidly emerging group of children entering our school system. It has been reported that there are likely to be four children born premature in every primary classroom; in special schools and settings this will be higher. Two in every 100 children are born extremely premature.

Reduced white matter, white matter injury and brain haemorrhaging

associated with premature birth can result in developmental delay, motor difficulties (e.g. risk of cerebral palsy), sensory impairment, cognitive and executive function difficulties (e.g. problems with linguistic processing speed, memory), emotional and social processing difficulties (e.g. higher anxiety levels, depression and aggression) and intellectual disabilities.

The EPICure study, which followed all children born extremely premature in England in 1995, found that, at age 6 years, 32% had mild disabilities, 24% had moderate disabilities and 22% had severe disabilities. They found that 60% of these children develop inattention type attention deficit disorder (non-hyperactive), and over 10% develop autistic symptoms. At 11 years old, they are likely to need more educational resources than their full-term peers.

In 2012 it was reported that, among a group of children born very preterm:

- 10% had neurosensory impairments (e.g. cerebral palsy, developmental coordination disorder, visual and/or hearing impairments)
- 40% had cognitive deficits, language problems, inattention, and educational underachievement
- 33% needed ongoing specialist health care
- 66% needed educational or psychological support during their school years.

Children born premature who have IQ within the normal range and are unaffected by neurodevelopmental impairments are also at risk of poorer school performance than children born at term with a normal birth weight. Their learning difficulties and other disabilities at all levels of prematurity can be easily overlooked; for example:

- Children may have ADD rather than ADHD - they are often inattentive without being hyperactive
- They tend not to develop risk-taking (attention-attracting)



behaviour

- They are more likely to internalise behaviours (e.g. suffer from anxiety, depression, etc.)
- Their difficulties may be subtle across a range of areas, so the combined impact on learning is overlooked.

Premature birth is thus a significant predictor for school underachievement, poor social and psychological wellbeing and later unemployment; however, often prematurity remains unidentified by schools as a significant learning risk factor.

Children born preterm with poor test performance and learning progression did not receive appropriate special education support. This suggests that schools need better and systematic procedures to identify, address and follow up the learning difficulties experienced by preterm children; families also need to be involved to achieve optimal educational outcomes.

Although as infants and toddlers, children born premature appear to catch up with their peers, children born three months prematurely are three to four times more likely to struggle

in school than their full-term peers, and these difficulties persist into their teenage years. Children born moderate/late preterm (32-36 weeks gestation) tend to have a pattern of subtle but clear learning difficulties which can adversely affect school outcomes. For example 'persistent and mildly poorer grammatical skills and verbal working memory' or neuropsychological difficulties requiring SEN support (e.g. speech therapy). Milder brain abnormalities can give rise to conditions such as learning difficulties, ASD, ADHD.

One mother described her son's difficulties at mainstream school: "My son was born at 24 weeks. He is five years old, and commenced a mainstream primary school this September. He has a statement of special educational needs. He has been diagnosed with global learning delay and has difficulty with his behaviour and attention... I would like to be able to say that my son has 'additional needs of extreme prematurity', but that condition does not exist in the medical or teaching world. I often dread picking my son up from school to be informed of his antics. I will dutifully go through the motions of discussing his behaviour

with him and the teacher, but really I feel very sad for him because it is not all his fault. The teachers do not understand that sometimes he just cannot help his behaviour. He is definitely wired differently to his peers."

Brain differences persist and difficulties often intensify with age. Additionally, at 15-16 years children born extremely premature are 2-3 times more likely to have emotional problems.

Understanding these problems and their origins has important implications for potential teaching styles and interventions. These children are 'wired differently'. If they learn differently, in what way do we teach differently, and, if we teach differently, what are the leadership and management issues arising that may be new in our portfolio of practice?



### **Supporting children born premature in the classroom**

As with other SEN, there are five important steps a school should take in supporting children born premature:

- Identifying the children
- Knowing the difficulties
- Developing an appropriate monitoring framework
- Training the staff
- Identifying the child's transdisciplinary networks.

Early identification and intervention is critical to optimal life outcomes, and it is important to identify the child who is 'at risk of learning difficulties' and to know the types of difficulty commonly associated with prematurity so that their learning progress can be proactively assessed and reviewed using a condition-relevant monitoring framework.

Identifying children born premature, and their gestational age at birth, can take place at school entry (all phases) through tactful questioning of parents: 'Is there anything in your child's birth history which might impact on their learning'; and, if prematurity, 'How many weeks premature were

they born?' This knowledge gives the appropriate context for considering the child's learning difficulties. Without this, individual difficulties can be seen as insignificant, whereas they may be the tip of a cluster of future difficulties associated with premature birth which will have a very significant impact on the child's ability to learn.

The principle of identifying the child's supportive transdisciplinary networks - starting with the family and including health, mental health and therapy professionals - and maintaining proactive links ensures that the school quickly learns of any change with implications for the child's learning and gains specialist advice on supporting this.

It is also crucial that schools provide training for educators to equip them so they know the 'red flags' associated with premature birth, and are well prepared to identify children at risk early and intervene effectively.

### **Finding solutions**

As more has become known of the developmental effects of prematurity, the focus of research has begun to shift to interventions. However, research into effective interventions for school-

age children and young people is at an early stage.

However, they are also at increased risk of autism, attention deficit hyperactivity disorder (ADHD), peer relationship problems, mental health problems and/or psychiatric disorders compared with their peers.

### **Assessing for motor and neurosensory impairments**

Unless they are severe, motor, visual and hearing problems can be difficult for non-specialists to identify, but can result in specific and avoidable learning delays. Children born very/extremely premature are around 2-4 times as likely to have motor/neurosensory difficulties as their full-term peers (e.g. motor problems: 31%; visual problems: 51%, mild auditory difficulties: 13%) and need formal sensory assessment (Hornby and Woodward, 2009).

### **Supporting cognition**

Children born preterm with learning difficulties have significantly poorer performance than full-term peers in all subjects, but particularly in maths and literacy. As mentioned above, the brains of children born premature with learning difficulties are often

'wired differently' to their full-term peers. More areas of the brain become activated to solve complex tasks, reducing processing efficiency. To support their learning, Wolke (2013) suggests:

- Carrying out a cognitive workload assessment allowing targeted support
- Using adaptive computerised working memory training programmes
- Organising learning tasks in smaller chunks to maintain attention. (ranked above IQ as the greatest predictor of educational success)
- Using attention training and focusing tasks.

### Challenges for educators

For educators, there are a number of barriers within the school system to meeting the needs of children and young people born premature; for example:

- Most schools do not currently ask parents about their child's birth history, which would identify children born premature on school entry, and allow educators to be proactive
- Without this prior knowledge, educators may dismiss parent concerns about their child's learning, development or behaviour as over-anxiousness.
- Educators may have unrealistic expectations of children whose age is ahead of their developmental abilities due to their premature birth
- There is comparatively little research on how these children develop or on how to implement effective strategies through their school years.

The EPICure study suggests that educational priorities need to be established for this group of learners at different ages and stages of development, and that schools and parents should consider benefits



from deferred or delayed school entry. At age 4.5 years, many are not developmentally ready to sit for extended periods, to focus attention, to have their learning directed, and to learn as part of a large group of children.

### Looking to the future

Andy Cole, CEO of Bliss, a special care baby charity in the UK, noted: "Parents of extremely premature babies are increasingly interested in the longer term educational and developmental needs of their children."

"Without action, we are asking teachers to teach with one hand tied behind their back. There are children struggling who could learn in a different style." (Maddern, 2013).

However, educators feel ill-prepared to meet the learning needs of this group of children. A survey by the University of Warwick (Henderson et al. 2012) found that although 89% of 120 teachers said they were likely to teach a child born premature, only 6% felt they had received sufficient training.

From early childhood to secondary school, we need to ensure that preterm born learners have adequate educational facilities, support and

resources. This means that all school staff need to be aware of their increased risk of learning, social and behavioural difficulties, and their varied and often complex needs (Hornby and Woodward, 2009).

It is important to raise awareness of the impact of prematurity and the associated educational needs among policy makers, health professionals and educators, and take action including:

- Identification of children born premature on school entry, and continuing regular assessment
- Proactive early identification of emerging motor, communication, cognitive, emotional and social difficulties; some may not appear until pre-teenage years
- A focus on identifying effective teaching and learning strategies
- Professional development for educators
- A transdisciplinary approach - including families and a range of professionals - to establish educational, social and developmental priorities for these children and young people.