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30 Sep 2013

# The impact of prematurity on special educational needs

**Premature birth is often unidentified by schools but it can have a significant impact on learning. Barry Carpenter and Jo Egerton provide an introduction and suggest some interventions to suit these learners**

There are likely to be four children in every classroom who are born premature, and two in every 100 children who are born extremely premature<sup>1</sup>. Premature birth is described in terms of gestation (**number of weeks in the womb**) which affects the infant's birthweight. In the UK, the survival of infants born at less than 26 weeks gestation improved from 40% in 1995 to 53% in 2006, and continues to increase<sup>2</sup>. Premature birth is a significant predictor for school underachievement, poor social and psychological wellbeing and later unemployment<sup>3</sup> and so this increased survival rate can have an impact on schools

While many survive without long-term adverse outcomes, children born preterm are at increased risk from brain injury, and the earlier the birth, the greater the risk<sup>4</sup>. The longitudinal national EPICure study<sup>5</sup>, following all children born extremely premature in 1995, found that of those who survived, at the age of six 32% had mild disabilities, 24% had moderate disabilities and 22% had severe disabilities; at the age of 11, 53% of those in mainstream schools needed additional educational support<sup>6</sup>.

Among another group of very preterm children another study in 2012<sup>7</sup> reported that:

- 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 an 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<sup>8</sup>. 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<sup>9</sup> for example 'persistent and

mildly poorer grammatical skills and verbal working memory<sup>10</sup> or neuropsychological difficulties requiring SEN support (e.g. speech therapy). Milder brain abnormalities can give rise to conditions such as learning difficulties, ASD, ADHD<sup>11</sup> and these brain differences persist and difficulties often intensify with age<sup>12</sup>.

## Supportive school systems

A University of Warwick survey 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<sup>13</sup>. 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.

The indicative draft Code of Practice emphasises the importance of early identification and intervention and so it is therefore 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 prematurity

Identifying children born premature, and their gestational age at birth, can take place at school entry (at all phases) through tactful questioning of parents for example: 'Is there anything in your child's birth history which might impact on their learning' and if the child was born premature 'How many weeks premature were they born?' This knowledge gives the appropriate context for considering the child's learning difficulties<sup>14</sup>. 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 crucial that schools provide training for educators and SENCOs to equip them to know the 'red flags' associated with premature birth, and are well prepared to identify children at risk early and intervene effectively.

## Supporting children's learning

Children born preterm who have learning difficulties have significantly poorer performance than full-term peers in all subjects, but particularly in maths and literacy. However, they are also at increased risk of autism, ADHD, peer relationship problems, mental health problems/psychiatric disorders compared with their peers<sup>15</sup> and SENCOs should be aware of this. Below is an overview of the types of needs common in preterm children and some suggestions for support for these needs.

## Supporting cognition

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 one study<sup>16</sup> 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.

## 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 two to four 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<sup>17</sup>.

## Supporting executive functioning

Low birth weight/premature children are more likely to have deficits in recognition memory, memory span, and visual-spatial working than their full-term peers<sup>18</sup>, and regular assessment and monitoring of children born preterm for executive function delays or dysfunction is essential to protect learning.

Researchers<sup>19</sup> recommend targeted educational assistance including:

- Developing compensatory strategies
- Modifying demands (e.g. structuring sequential rather than simultaneous tasks)
- Targeted intervention programmes (e.g. computerised cognitive training).

## Supporting social, emotional and behavioural difficulties

Researchers<sup>20</sup> have identified a characteristic pattern of behaviours in children born preterm, including inattention/hyperactivity, social and emotional difficulties and a tendency to internalise rather than externalise problems. In the pre-teens and adolescent years, social, emotional and executive function difficulties become more evident as parts of the brain dealing with higher level cognitive functions mature<sup>21</sup>.

Self-regulation impairments are a fundamental cause of behavioural difficulties<sup>22</sup>, in children born premature. Research<sup>23</sup> suggests:

- Practising self-regulatory use of language and associated behaviour
- Teaching 'thinking before acting' (e.g. through chores, rule-based games, and role play)
- Developing social skills with peers through socio-drama and role-play, teaching tact, and modelling social behaviours
- Using innovative computer assisted interventions to support social skills and integration
- Ensuring a safe, nurturing environment through environmental and social supports (e.g. assisting group work, special peer mentoring, and liaising with parents over activities to increase friends).

## Points for the SENCO to consider

In the EPICure research, 60% of extremely preterm children required additional support in school at the age of 11<sup>24</sup>. However, 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 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.

One study<sup>25</sup> reported that over one-third (37%) of 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<sup>26</sup>; families also need to be involved to achieve optimal educational outcomes<sup>27</sup>.

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 but especially SENCOs need to be aware of their increased risk of learning, social and behavioural difficulties, and their varied and often complex needs<sup>28</sup>.

## References

- [Download the reference list here](#)

Author: **Barry Carpenter**

Author: **Jo Egerton**

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