Child abuse and Neglect: Vulnerability Factors

Introduction

Reviews on the theories of possible causes of child abuse and neglect have emphasised that child maltreatment has multi-factorial origin and that family violence is a product of poor relationships. There is recognition that dysfunctional family relationships and poor parent-child interactions can both contribute to and maintain child abuse and neglect. (Burrell, 1994; Crittenden, 1985; Wolfe, 1991; Wolfe, 1993). There is also the potential for good family relationships and parent-child interactions to act as protective factors and provide some resilience to social and environmental stress impinging on the family (Browne, 1997). These realisations have led to the development of a public health approach to child protection. This may be defined as follows:

- Child abuse and neglect is considered within the broader context of child welfare, families and communities.
- Children’s developmental needs are assessed in general rather than specifically in relation to child protection
- The parent’s capacity to respond appropriately to their child(ren)’s needs is evaluated.
- Consideration is paid to the impact of wider family and environmental factors on the capacity to parent.
**Key Message**

Child abuse usually occurs in circumstances where there are several vulnerability factors. Dysfunctional family relationships can contribute to child abuse and neglect. Positive parent-child interactions may provide resilience in an otherwise adverse environment.

**Vulnerability Factors**

Most of the time, the child is subjected to abuse by people close to them, ranging from family members to friends and acquaintances in the community, and more rarely strangers that the child meets during day-to-day activities. Abuse and neglect is potentially present in many environments where the child interacts with adults: in the family, on the street, in institutions and in the extended social environment. Each of these environments, presents factors that may endanger the child's optimal health, survival and development.

Vulnerability factors can be grouped in to those relating to the:

- characteristics of the child,
- parental strengths and weaknesses,
- environment, support and resources available to the family (community factors).

These three groupings form the axes of the 'Framework for the Assessment of Children in Need and their Families' (Department of Health 2000, TSO, London)

**Characteristics of the Child (Browne and Herbert, 1997):**

**Unwanted Children**

- Children who fail to meet their parent’s expectations and aspirations
- Born at the wrong time, for example, when the parents are more concerned with their alcohol or drug habit
- Unwanted due to a breakdown in the relationship of the parents
- The child is the progeny of forced, coercive or commercial sex
- Physically and/or mentally disabled
• Considered to be the wrong gender

Other Factors Affecting the Child
• Children who are premature, low birth weight, or ill are often separated at birth and/or have repeated periods of hospitalisation through frequent illness. This may disrupt the formation of the attachment between parent and child and make them vulnerable.
• Children who have physical or learning disabilities
• Children with behavioural problems, difficult temperament or personality
• Children soiling and wetting past their developmental age
• Children screaming and crying interminably and inconsolably

Parental Factors (Browne and Herbert, 1997)

Step-parents
Parents not biologically related to the child are often more reluctant to care and show affection. This increases the chances for abuse and neglect.

Parental Indifference, Intolerance or Over anxiousness
Parents with unrealistic expectations and negative attitudes/perceptions of their child’s behaviour are more likely to be abusive.

Antisocial Personality
Parents with rigid personalities may be impulsive and aggressive, and incapable of emotional or empathic responses to the child’s needs and necessities (Dixon, 2003)

Teenage Parents
Immature parents, who are dependent on their partner, are more likely to neglect the child's needs and attend to their own.

Multiple Births
Parents who have twins or another child before successfully weaning their older sibling and/or many children one after the other with less than 18 months between the births of children place increased stress on their capacity to parent. This, in turn, increases the chances of child abuse and neglect.
**Alcohol and Drug Abuse**
This is often associated with parents having a history of multiple stress or trauma (Pernanen, 1991).

**Parent Abused as a Child**
Parents who have experienced abuse and neglect in their own childhood are often characterised by attachment disorders which affect their relationships as an adult and their ability to show affection and care towards their own children (Morton, 1998). However it is important to be aware that the majority of individuals who are abused do not maltreat their own children (Widom, 1989). During their growth and development, abused individuals may experience positive factors which help break the cycle of abuse continuing. Examples are; receiving emotional support, stable relationships and home environment, receiving psychotherapy (Egeland, 1988; Egeland, 1991).

**Mental Health Problems**
Parents with psychiatric disorders: neurosis, psychosis, or psychopathology.

**Disabled Parents**
Parents with special needs themselves may unwittingly abuse and neglect their children due to the lack of mobility or mental capacity to care and show affection to their child.

**Single Parent Families**
Living in a single parent family increases the probability of child maltreatment, due to the extra parental stress, social isolation and economic problems associated with one parent caring for a child/children rather than two.

**Domestic Violence**
There is a higher risk to children living in a household where there is a violent adult.

**Persons Posing a Risk to Children**
A "Person Posing a Risk to Children” is someone who has been convicted of an offence against a child the offences range from murder, assault and neglect to sexual abuse and abduction). The presence of such a person in the household puts children at risk. The
agency for children’s social care must treat the notification or discovery of this as a child protection referral.

http://www.alsg.org/uk/safeguarding

**Community/Environmental Factors (Gelles, 1997):**

**Dwelling place and housing conditions**
Inadequate housing conditions and dwelling places include overcrowding unhealthy living arrangements and lack of sanitation, water, heating.

**Neighbourhood**
Neighbourhoods that are poor, dirty and unsafe. Violent and antisocial areas where the child may be discriminated based on age, sex, disability and ethnic group, may increase the probability of child abuse and neglect.

**Family Violence and Dysfunctional Family Interaction (Browne, 1997)**
These are harmful to the child even if they only witness the violence towards their mothers or siblings. Children who grow up in a violent family are more likely to show aggression and violence to others. Indeed, there is a high correlation between elder abuse, spouse abuse and child abuse in families, so those parents who hit each other or the elderly relatives are much more likely to abuse and neglect their children (Browne, 1998; Browne, 1999).

**Violence Towards Pets**
Interest is increasing in the link between child abuse, domestic violence and cruelty to pets in the family. This is a complex area, but research is indicating that animal abuse is part of a continuum of violence within the family. Violent offenders are more likely than non-violent offenders to have been cruel towards pet animals as children (Becker, 2004).

**Social Isolation**
This is often associated with family violence due to the lack of social constraint and control of others witnessing the abuse and neglect.
Poverty

This increases the chances of child abuse and neglect due to the parents’ stressful circumstances and poor relationships in the family. However, the majority of poor families who have good relationships do not wilfully abuse and neglect their children.

Are there Effective Programmes to Reduce Child Abuse/Maltreatment?

Many researchers have addressed this issue and it is beyond the scope of this chapter to review them. However, here are some examples of schemes designed to reduce child abuse. Sure Start, Early Help, Family/Nurse partnership

Dixon et al 2005 (Dixon, 2005) looked in details at risk factors in families. It was found that having a parent that was abused as a child increased the likelihood of that parent abusing their children by a factor of 4, compared with non-abused parents. Three significant risk factors made those abused parents 17 times more likely than non-abused parents to abuse their children. They were:

- Being a parent under 21 - this was especially significant
- Having a history of mental illness or depression
- Living with a violent adult

From these findings, it could be speculated that parents who recognise their being maltreated as children, could conceivably reduce their own risk to abuse by having children later, not living with violent partners and by seeking help for depression/mental illness. These parents could certainly be prioritised for preventative work. The study acknowledges that the risk factors found accounted for just over half of the total effect, so that other mechanisms come in to play. However, the study illustrates the effect of multiple risk factors present in vulnerable families, and begins to point the way for the possibility for practical focussed intervention to prevent the cycle of abuse being perpetuated.

Randomised controlled trials published by Olds D et al in 1995 and 1997 (Olds, 1995; Olds, 1997) found that when vulnerable families have a programme of nurse home visits over a prolonged period of time (prenatally and early childhood), there is reduced incidence of child
abuse and neglect and subsequent pregnancies. Maternal circumstances were also improved.

**Key Message**

Knowledge of risk factors can help identify vulnerable families and children.

Some children can be safeguarded by appropriate intervention which may be able to mitigate adverse circumstances.

Intervention is highly specialised, intensive and long term.

**Importance in Recognition of Vulnerability**

Understanding vulnerability factors is clearly relevant when assessing any child where abuse and/or neglect are concerns. Time must be taken to gather information from others involved, including local child protection teams, not only to gain further knowledge and understanding about the child and family, but also to see if any predisposing factors are present. The general practitioner, health visitor, school nurse and community paediatrician can often supply much information. Knowledge of previous accident and emergency attendances and other hospital visits are also important. Social workers involved with the family should be contacted.

**Summary**

It is well established that certain personal, social and family attributes predispose to child abuse and neglect. Knowledge of these risk factors is important so that children at risk can be identified, especially in the presence of clinical concerns. This may involve further enquiries from other professionals to gather information about a particular family. Furthermore, identified families can be offered extra help to try to prevent further abuse and neglect.
Growth: Relevance to Child Abuse and Neglect

Introduction

An understanding of childhood feeding problems and their implications on the child’s growth are important in the prevention and recognition of child abuse and neglect. Problems with feeding are common in childhood and it is important to recognise that most cases will NOT have a child protection concern. It is important however to recognise when there are child protection concerns and to know what to do next in terms of management.

What determines how a child grows?
The growth of the unborn baby and size at birth can be affected by the health and nutritional status of the mother, uterus and placenta. As well as premature birth, multiple birth, chromosomal disorders and intrauterine infections.

After birth, the most important factor in growth after the child’s genetic inheritance is nutrition. Babies also need loving care and attention and if they are neglected or abused, this may affect their physical growth as well as their personal and social development. More information on normal growth in children (Shields, 2012).

Key Message

- Growth is driven by a complex combination of genetics and nutrition, which may be influenced by major variations in the quality of care given
Monitoring Growth

The two most important measurements are length / height and weight. Weight can change quickly, weight loss through dehydration can occur in a matter of hours and any acute illness can cause weight loss in a few days or weeks. Weight can provide information about the child’s recent state of health. The child’s height gives an indication of health over a long period of time – months or usually years. Growth in height may be slowed or stopped by chronic illness, undernutrition or neglect – but this will not be obvious immediately. A child whose height gain has slowed and is below the normal range would be described as stunted.

A child who has substantially low weight relative to height due to either low fat or muscle mass would be described as wasted. By comparing the individual patterns of plotted height and weight measurements, it is possible to get an idea of the time over which a child has become unwell.

Key Message

- It is important to always measure the child’s height (or length) and weight whenever there are concerns about his/her health or well being
- Fluctuation in height and weight means different things. Weight changes quickly but it takes a long time for abnormal growth in height to be detectable

Growth charts

Growth charts are used to compare the height and weight of an individual child and the rate of growth of that child, with what is observed in a reference population – this makes it easier to decide whether the pattern is normal. The UK-WHO growth charts are used for this, these new charts were developed using data from the new WHO standards. Charts are divided into two age groups (0-4 years and 2-18 years) and examples can be downloaded as pdf files from the Royal College of Paediatrics and Child Health’s website (UK-WHO 0-4 years; UK-WHO 2-18 years) Paper charts

Children born between 32 and 36 weeks completed gestation are plotted on the preterm section of the chart until two weeks post-term. After that, their data can be plotted on the infancy chart at their gestationally adjusted age. There is a “Neonatal and Infant Close Monitoring” (NICM) chart (23 weeks gestation – 2 years) designed for infants born before 32 weeks as well as any infant where there are early concerns about growth or weight gain. The expectation might be that the perfectly proportioned baby would be on the same centile for both height and weight; however, it can be quite normal for this not to be the case.

**Plotting growth charts**

Whatever the measurement being plotted, it is important that age is calculated accurately. For preterm infants the NICM chart provides date boxes to allow accurate calculation of corrected gestational age.

The point on the chart should be noted with a small but noticeable dot. Plot exactly what the measurement is – the mark should not drift up or down to come in line with previous measurements. Sign and date the measurement on the chart or at the relevant part in the notes.

Growth charts are sometimes presented as evidence in child protection cases. If a growth chart is to be displayed at a child protection conference or in court, every length, height, weight and age must be double-checked to make sure that they have been correctly plotted. For infants less than two years, even if born at term, consider replotting on the NICM chart as this provides a larger scale and the date boxes make age errors less likely.

**Key Message**

- The RCPCH growth charts should be used to plot height and weight.
- Growth measurements and charts should be checked before they are used in a case conference or court.
How to measure height

Length and height should be measured using a device designed for the purpose. Different observers or different equipment will produce different results. Supine length is measured up to the age of two years; standing thereafter. Standing height varies during the day – it falls on average by 0.3cm by mid-morning, another 0.2 by lunchtime and very little thereafter.

The Royal College of Paediatrics and Child Health have developed video guidance for the correct technique for weighing and measuring children (How to measure height and length).

Key Message

- Some imprecision is unavoidable and is due to the fact that children are not rigid objects, repeated measurements are more informative. Errors can be minimised by careful attention to consistent technique.

Parental and child height

A child’s height is usually determined by polymorphic genetic factors, but these cannot be directly assessed. However, the height of his / her parents can provide some guide to this. In cases of short stature, the height of each parent should be measured and the mid parental height centile calculated using the lookup below, as provided on RCPCH 2-18 charts.
Measurement of Weight

Mothers like babies to be weighed as reassurance that the baby is well, it may help in the detection of medical disorders, but it can also cause needless worry and unnecessary referrals.

Babies should be weighed as a minimum at birth, 5 days and 10 days as part of the assessment of feeding. At this stage, the important issue is not centile position, but how current weight relates to birth weight. Some weight loss is normal in the first 5 days, with most infants gaining weight after that, though up to 8% are still below birthweight at 3 weeks. More information can be found on the normal pattern of weight loss in the first month (Paul, 2016). Breast-fed babies tend to lose more weight due to the lower energy content of colostrum.

This adjusts for the tendency for tall parents to have relatively shorter children.

- Mark mother’s height on the left hand scale and father’s height on the right scale using arrows
- Draw a line between arrowheads and read off mid-parental centile where this crosses the central line

Most children’s height centiles (90%) are within ±two centile spaces of the mid-parental centile and only one percent will be more than three centile spaces below.

NB It is important to ascertain that both parents are biological parents.
Research has shown that, contrary to concerns by many health professionals, early weighing supports rather than discourages breastfeeding as it allows the early support for infants with breastfeeding problems. After the first 5 days, few babies are more than 10% below birthweight. If feeding in these infants is carefully assessed and breastfeeding attachment and milk transfer problems addressed, admission is rarely required.

Occasionally there may be underlying reasons such as prematurity, illness or anatomical abnormalities such as cleft palate.

**Key Message**

- Newborn infants who remain more than 10% below birthweight should be assessed to exclude underlying illness and to address any feeding difficulties.

**Normal weight gain**

Growth charts rank a child’s measurements against children of the same age and sex. If a child gains weight more slowly than their peers, their measurement moves to a lower centile (crosses centiles). In the first 18 months of life, children often show upward and downward centile shifts, but the great majority remain within two centile spaces (the distance between two major centile lines) of their birth centiles. The weights of larger babies tend to fall towards the average over time, while those of smaller babies move upwards: the phenomenon of regression to the mean.

A short period of weight loss, followed by rapid catch-up happens quite often if the baby has a short-term illness such as gastroenteritis. If the baby continues to lose weight following recovery then further investigation is needed.
Key Message

- Babies usually track close to one centile line, and short-term centile crossing is common.
- Weight faltering can be defined using the ‘1-2-3’ definition: a sustained fall through 1 centile space for infants born below 9th centile, 2 for initially average infant and 3 for those above 91st centile

Weight faltering

Weight faltering describes a weight gain pattern rather than a diagnosis. It represents a spectrum from what may be a normal variant to children with serious problems. In clinical practice a weight that crosses more than two major centile spaces downwards is the recommended threshold for concern, as this is seen in less than 2% of average weight infants. Because of regression to the mean (see above) centile falls are commoner in initially heavy babies and rare in small babies, so the recommended thresholds for these infants are different. The term ‘failure to thrive’ is sometimes used to describe these babies, but this has misleading connotations of neglect that is usually not a factor. A more detailed description of weight faltering and its management (Shields, 2012; NICE Guideline).

What causes weight faltering?

Traditionally weight faltering has been classified into organic or non-organic causes; this is over simplistic and places too much emphasis on organic causes. The term ‘non-organic failure to thrive’ has been used to describe the situation where there is thought to be poor parenting and inadequate feeding. In practice, most cases of weight faltering occur in average, loving homes and appear to result from multiple interacting factors.
Key Message

- Organic disease is unlikely in children who are asymptomatic and well on examination.

Neglect and abuse

In general, the child who is healthy and happy will also be growing normally, but the reverse does not necessarily apply. Neglect and abuse are rare and weight faltering is common, so neglect may be seen more commonly in association with weight faltering, but most children with weight faltering are not neglected.

Assessment of growth is an important part of any child protection assessment. Serious undernutrition occurs in some chaotic or dysfunctional households. In such cases, there will usually be other evidence that the child is not receiving adequate care and attention.

There are rare cases where children may present with “Psycho social dwarfism”. These children have extreme short stature and then show rapid catch up in alternative care. They often also manifest ‘hyperphagia’ extreme hunger, stealing food, eating from rubbish bins, that suggests a background of undernutrition, although they are not usually obviously underweight. The exact underlying cause for this presentation is unclear, but it is hypothesised that their growth arrest is a response to extreme stress and emotional abuse.

Key Message

- Most abused or neglected children show normal growth and this does not exclude abuse
- Rarely children may show growth arrest in the context of stress and emotional abuse
Case 1 – The Neglected child who is receiving inadequate nutrition

A 22-month-old boy was referred to general paediatrics for investigation of his weight faltering. At birth his weight was on the 25th centile. His younger brother had died at the age of six months from sudden unexpected death of infancy. On examination, the child was found to be wearing inappropriate clothing for time of year, was generally unkempt and had excoriated eczema. His weight was below the 0.4th centile for his age while his height was on the 25th centile. His mother described him as having a good appetite and reported him as eating a good diet.

The senior doctor contacted social work and primary care to inform them of concerns she had about neglect of this boy. As part of the social work investigation, the family home was visited and it was found to have little evidence of appropriate food in the kitchen and was not clean.

The boy was admitted to hospital for two weeks, whilst the multi-agency work was ongoing. During this time he was unsettled and had a poor appetite but despite this gained 2 kg in weight. His excoriated eczema also improved with treatment. He was discharged to foster care after a case conference. He continued to be reviewed by the paediatric team, one year later his weight was between the 25th and 50th centile.

Key Message

- A child under two with BMI below 0.4th centile and a history of weight faltering is likely to be undernourished
- Reported dietary intake is a poor guide to actual intake, particularly when families feel under scrutiny
- A period of observation of weight gain in optimal alternative care may provide better evidence of prior undernutrition
Case 2 – Unintentional undernutrition

A 5-month-old child presented at age 7 months having shown slow weight gain since birth and dropped from 25th centile at birth to below 0.4th weight centile. She has been bottle fed from birth, and has never taken very large volumes and was not interested in solids. She is the youngest of five children and mother seemed placid and relatively unconcerned. HV described a chaotic and busy household. There were no signs or symptoms of disease and no obvious neurological deficits, but she had poor trunk control and was not reaching out for objects or mouthing. Advice was given about more frequent feeding and to push solids.

On review 2 weeks later, she had lost weight and was admitted. Measurement of length and review of previous lengths suggested true length centile was only 0.4th - 2nd, making underweight relatively less concerning, but skinfolds were both <0.4th centile. Observed feeding in hospital demonstrated immature oromotor skills, though normal swallow. Tube feeding commenced with gradual transfer onto oral high-energy milk
over 10 days. Discharged home on oral high energy milk, having gained 560g (10% increase). On review at 9 months she was now taking soft solids and finger foods, much more alert, handling and mouthing objects, sitting unaided and pulling to stand. High-energy milk was stopped at 13 months when weight was proportionate for height.

**Key Message**

- The combination of an undemanding baby and over-pressed mother can result in severe weight faltering in young babies
- The developmental delay that is seen in severe undernutrition may make solid feeding impractical at first, requiring the short-term use of high-energy milks.
- Early length measurements are important to assess the severity of weight faltering and the amount of catch up that can be expected

**Household and Parental factors**

Weight faltering has traditionally been seen as a manifestation of poverty. While this is still likely to be true in poorer societies, there is good evidence from large population based UK studies that there is no significant association between low socioeconomic status, poor educational attainment and weight faltering.

Parent’s ill health or mental illness may impact on their ability to provide adequate nutrition for their child. As may the chaotic lifestyle that is often associated with families in which there is a history of drug or alcohol misuse.
Case 3 – The child whose parents are living in poverty

A 5-month-old baby girl was referred to general paediatrics due to weight faltering, at birth she was on the 50th centile and although she is gaining weight slowly, she has drifted down to the 9th centile. Her parents, who are asylum seekers originally from Sudan, explained that she takes an appropriate volume of feed regularly and does so without problem. There are no signs of organic disease and no significant family history. The baby is well on examination.

The health visitor is asked to visit the family at home and observe feeding technique. When the health visitor meets with the family she notes that the mother is making up the formula milk that the baby is fed using only half of the amount of milk powder for the volume that is recommended. When the health visitor asks the family why, they explain that due to financial difficulties, they are using less milk powder to make up the bottles so that they can buy less milk and save money. They were unaware that they were eligible for healthy start vouchers to purchase formula milk. The health visitor works with the family and local authority to maximise the money that they are receiving and the baby subsequently begins to receive the correct strength of formula milk and begins to gain weight well.

Key Message

- A full social history should be taken in children with weight faltering, to see if there are any factors within the home environment that could be contributing.
- Food poverty is now rare in the UK but it may still be seen in families who are outside the benefit system or experiencing acute financial problems
Case 4 – Growth arrest associated with family trauma

A girl was referred aged 2 years because of ‘short stature’. She had been born at term to a mother with longstanding depressive illness and father who worked from home as a freelance IT consultant. She was born at term with a birth centile between 9th and 25th but gained weight slowly, dropping to the 2nd weight centile by 9 months. At this point mother was admitted to a psychiatric unit, and there was a steep fall in her weight centile to well below 0.4th. The family were unsupported and socially isolated and her weight faltering had remained unrecognised until referral. At age 2 years, her height was on 0.4th and her weight was -4SD below mean.

She was described now as having small appetite and seen to eat slowly. Despite dietary and behavioural assessment and advice, both weight and height centile continued to decline. Aged three years she was referred to the agency for children’s social care who convened a child protection case meeting. The family accepted a package of support including nursery placement, without the need for child protection proceedings. She showed substantial catch-up in weight, with only partial improvement in height, but both remained well below 0.4th at age 6 years when last seen.

Key Message

- Home environment can have direct and indirect impact on the growth and development of children
- It is important to involve social work and primary care in discussions when concerns about the home environment are raised.
- Children in families affected by mental health problems may have unrecognised vulnerability
- When stunting has already occurred it may not be fully reversible
Management of weight faltering

The paediatrician’s role is to assess children with weight faltering to rule out an underlying medical condition and fully assess their anthropometric status and growth history. Where there are signs or symptoms of an underlying illness, disorder or syndrome investigations should be instigated. Otherwise, an underlying medical cause is very unlikely. As part of the wider history, a full feeding history and social history should be taken to assess other factors that could be involved. Children should not be routinely investigated unless there are signs or symptoms of organic disease or if the weight faltering is persistent or severe.

Key Message

- Investigations should only be undertaken in the presence of signs or symptoms of disease, or where weight faltering is persistent or severe.

Community-based management

In the UK health visitors are the members of the community-based team that are best qualified for this management, because they provide a universal, non-stigmatising service to all infants and most commonly make the diagnosis in the first place. An account of the baby’s diet and feeding practices given to health professionals in a clinic may not relate to what is actually happening at home and a home visit to observe a mealtime is the best basis for providing support and advice about feeding. Health visitors are also well placed to identify the important minority of children who are failing to thrive because of abuse or neglect.

The key measure of improvement should be recovery in the weight gain pattern – a rise up through the centiles (catch up) that usually begins within four to eight weeks of a successful intervention such as dietary advice. A child can be said to have recovered once their current centile is within 1-2 centile spaces of their earlier position.
**Specialist input**

Initial referral of confirmed weight faltering without medical features should be to a paediatric trained dietician. The primary role of the dietician is to optimise the existing diet and advise on meal time management, rather than identify deficiencies.

Infants only need to be referred to a secondary care paediatrician if they show features suggesting an associated illness or have severe weight faltering that has persisted despite community and dietetic interventions.

**Child protection concerns**

Deciding whether to involve the agency for children’s social care can be straightforward or can be very difficult. Referral is appropriate in a child with weight faltering where there are major social problems, such as drug or alcohol abuse, domestic violence or parental mental health problems, as in any case where there is evidence suggesting abuse or neglect.

The much more difficult situation is where there are suspicions that weight faltering may be the result of neglect or emotional factors, but there are no other concerns about the care of the child. In these cases, it is important to liaise and work with colleagues such as the health visitor, experienced social worker and specialist safeguarding doctor or nurse. It is important to ensure that families have been appropriately advised and have truly heard this advice. Inpatient monitoring is non-advisable, except in very extreme circumstances. Hospitals are an unnatural place in which to assess feeding and mother-child interaction.

**Key Message**

- Liaison with other professionals who may have important information is essential to provide a complete picture of the child. This will also ensure the family can receive the highest level of support and advice.
**Obesity**

In children who may be overweight, the BMI centile can be calculated using the plotted height and weight centiles and BMI centile look up provided on the RCPCH charts. If this suggests that BMI is high it can then be calculated exactly and plotted on BMI chart which is provided with the RCPCH Childhood and Puberty Close Monitoring chart (CPCM) or these can be purchased separately (UK-WHO CPCM Chart 2-20 years). A BMI at or above the 98th centile suggests obesity. Around 10% of all children are above 98th centile, while around 3% are above the 99.6th centile. Where services exist, referral to a family based programme should be considered for any child above 99.6th, but many families with no other concerns referred to these programmes fail to attend or comply. For older teenagers referral to slimming clubs, as individuals, may be effective as long as the teenager is motivated. Co-morbidities such as hypertension, hyperinsulinaemia, type 2 diabetes, psychosocial dysfunction are rare in childhood, but more likely to be evident in teenagers and those with BMI greater than +3.5 SD at which point screening is advisable (Viner, 2012).

Obesity is common, and its presence should not be considered neglectful unless there is serious risk of harm from identified medical complications, additional or worsening medical complications occurring despite a multidisciplinary approach and non-compliance with the treatment plan.

**Case 5 – The child / young person who is obese and non-engaging**

A twelve-year-old boy weighing 130kg is referred to paediatric services due to obesity. The boy has a background of asthma and takes a salbutamol inhaler when required. He struggles to manage to make the walk to the bus stop in the mornings as he gets tired and out of breath and because of this has missed a number of days of school. He was referred to a dietician for advice with regards to his diet, he did not attend the first appointment, on re-referral he was seen and advised on how to improve his diet and increase his exercise levels. His mother joined him in clinic and explained that the boy does not really eat anything before midday when he eats his lunch of sandwiches and crisps. When he returns from school he will eat several
bags of crisps and bowls of cereal through the evening as well as his evening meal. Mother does not feel he has a significant problem with his weight, as the whole family are overweight. She is not keen for further follow up. The boy tells the paediatrician that he struggles to get to school most days and that he cannot take part in activities such as PE or games at playtime as he gets too out of breath. He explains that he is often picked on by his peers because of his weight. He eats crisps because he gets hungry in the afternoon and they are available for him to snack on.

He is seen jointly with a dietician and given a plan of how he can improve his diet, the risks of his obesity are explained to both he and his mother and is referred to a community based obesity service. When they reattend clinic three months later, the boy has increased in weight to 133kg, he continues to miss days of school, he did not attend the community obesity service and his mother continues to insist that he is naturally “big boned” and does not need to adjust his lifestyle.

The paediatrician refers the family to the agency for children’s social care and informs them of mum’s lack of engagement and the effects that his weight is having on his general health and well-being. The social work team become involved with the family and after this mother agrees to begin the recommended interventions.

**Key Message**

- It is not only children with weight faltering that can have child protection concerns. Increasingly children with obesity are becoming of concern.

**Head Circumference**

Head circumference is a crude but useful proxy for brain size and growth. An infant's head circumference increases from a median of 25cm at 28 weeks gestation, to 35cm at term and 45cm by 8 months. The brain weighs on average 400g at birth and this has increased to 1kg (70% of its adult weight) by the first birthday.

Guidance on how to measure head circumference correctly is provided by the RCPCH (How to measure head circumference). Head circumference should be measured as
part of the newborn examination. A second measurement should be taken at 6-8 weeks.

**Macrocephaly**

Abnormal growth of the head may be present at any age, but is most commonly a cause for concern in the first year of life. There are many causes, of which two of the most important are hydrocephalus and subdural haemorrhage. These will usually be identified by upward head centile crossing.

A large head without continued upward centile crossing is now commonly found, as UK heads are considerably larger than the WHO standard in use, resulting in at least 10% having heads above 98th centile.

In the majority of cases, there will be other clues that there is something wrong, such as poor weight gain, delayed or abnormal development, irritability, vomiting, seizures or signs of raised intracranial pressure – separated sutures, a bulging anterior fontanelle, downward deviation of the eyes (sunset sign), squint and prominent veins on the forehead. However, in rare cases abusive head trauma may be identified solely as a result of increasing head size.

Abusive head trauma is the commonest cause of death in physical child abuse. Other signs of physical abuse should be looked for including rib fractures, retinal haemorrhages, bruises and neck injury.

**Key Message**

- Abusive head trauma (AHT) may be initially identified by enlarging head circumference

**Microcephaly**

Microcephaly simply means a small head. The measurement may be less significant if the baby is small or if one or other parent has a small head. Microcephaly may be obvious at birth as an isolated finding or as part of a syndrome or systemic disorder.
There is a recognised association between microcephaly and infants and children who have been exposed to alcohol antenatally, foetal alcohol spectrum disorder (FASD). Children with FASD are more likely to have head circumference below the 3rd centile and this deficiency in head circumference is thought to persist into young adulthood.

**Key Message**

- Children with foetal alcohol spectrum disorder are more likely to have head circumference below the 3rd centile

**Cause and effect**

Deprivation, neglect and abuse are linked with, and may cause, reduced and probably suboptimal brain growth and development. However, it may also be the other way around – babies who are born with neurological deficits are more likely to have more complex needs and more likely to be neglected or abused.

**Summary**

Careful evaluation of growth (height, weight, head circumference) is an important part of the medical assessment in child protection work. Impaired early growth, especially brain growth can have long-term consequences for future development. Successful intervention in weight faltering will show rapid ‘catch up’ weight which will usually begin 4-8 weeks after the start of intervention. Identifying child protection concerns is not always straightforward and collecting and sharing information with other professionals should be done in order to aid analysis.
Child Development: Relevance to Child Abuse and Neglect

Introduction

Child development can be looked at in three different ways:

- Description of milestones – what the child does
- Cognitive development – the level of reasoning and understanding that the child has attained
- Emotional development – the development of feelings, relationships, and personal attributes such as confidence, trust, anxiety or fears

All three are important in child protection. Neglect is often associated with developmental delay. All forms of abuse may have a lifelong impact on development and emotional wellbeing. Recognition of attachment and disorganised attachment can help in recognising and understanding child maltreatment.

Interpretation of parental accounts of how injuries may have been caused need to be made in the context of the child’s developmental level and reasoning ability e.g. whether the child could have rolled off the bed or accessed a high locked cupboard where medication was stored. Paediatricians are often asked such questions as part of child abuse enquiries. For these reasons, detailed knowledge of child development is required for all those undertaking child protection work.
## Milestones

### Summary of Early Developmental Milestones

(Adapted from Bellman, 1996)

<table>
<thead>
<tr>
<th>Age</th>
<th>Posture and Gross Motor Skills</th>
<th>Fine Motor Skills</th>
<th>Language</th>
<th>Social skills and Play</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 weeks</td>
<td>When Prone: Lifts chin momentarily; some head lag on pulling to sit but some ability to lift head When Supine: Pattern of flexion at hips, knees and elbows. On ventral suspension: Raises head in line with body</td>
<td>Palmar grasp, no voluntary movements</td>
<td>Coos</td>
<td>Social smile</td>
</tr>
<tr>
<td>3 months</td>
<td>When prone: Lifts head and upper chest clear and sustains posture on forearms When Sitting: Minimal head lag, straight back with occasional dropping of head When standing: Sags at knees when held</td>
<td>Intense hand regards, Visually directed movement-reaching and hitting object</td>
<td>Laughs</td>
<td>Shakes rattle</td>
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<tr>
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<td>Language</td>
<td>Social skills and Play</td>
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<tr>
<td>6 months</td>
<td>On ventral suspension: Head held above level of body</td>
<td>Palmar grasp to pick up object in field of vision voluntarily, no voluntary release. No object permanence.</td>
<td>Monosyllabic babble</td>
<td>Transfers objects from hand to hand/mouth</td>
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<tr>
<td></td>
<td>When prone: Can lift head and chest clear, supports weight on extended arms, can roll over When supine: Lifts head from pillow and grasps foot When sitting: Holds head erect and back straight on pulled to sit, can sit against a wall with no lateral support. When standing: Can weight bear on feet when held</td>
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<tr>
<td>9 months</td>
<td>When prone: Gets into crawling position, crawls When sitting: Sits unsupported for 10-15 minutes, maintains balance to reach for nearby object</td>
<td>Developing firm grip between thumb and index finger Uses index finger to poke objects Wide range of manipulative skills-shaking, bashing,</td>
<td>Imitates sound Recognises own name</td>
<td>Plays “pat-a-cake” and “peek-a-boo”</td>
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</tr>
<tr>
<td>12 months</td>
<td>When standing: Can stand holding on, attempts steps if supported</td>
<td>pulling, pushing, holding. Object permanence</td>
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<tr>
<td></td>
<td>When sitting: Maintains position for indefinite period unsupported. Can rise independently from lying to sitting and from sitting to crawl on all fours.</td>
<td>Pincer grip Castro, bringing objects to together in midline</td>
<td>Jargon</td>
<td>Finger feeds, holds bottle. Holds spoon but does not feed</td>
</tr>
<tr>
<td>15 months</td>
<td>Can stand without aid of nearby objects. Can walk unsteadily on wide base. Can crawl upstairs.</td>
<td>Points with index finger to indicate wants. Builds tower of two blocks. Scribbles</td>
<td>One word selects 3 of 4 objects. Points to body parts on person.</td>
<td>Holds spoon and brings to mouth but cannot prevent it turning over</td>
</tr>
<tr>
<td>Age</td>
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</tbody>
</table>
| 18 months | Walks independently  
Stoops to pick up object  
Runs short distances  
Pushes/pulls toys from floor  
Sits independently in small chair, can carry large object.  
Climbs up stairs with hand held and down by creeping backward or sliding on buttocks | Builds tower of four blocks  
Turns pages two to three at a time, points to objects in book | 1-6 words  
Points to body parts on doll | Holds spoon and gets food safely to mouth  
Imitates domestic activities |
| 2 years   | Walks up and down stairs with two feet per step  
Can change course when running to avoid obstacles  
Squats and rises to feet with ease  
Climbs on furniture  
Kicks and throws ball  
Runs on tiptoe, jumps with both feet together | Builds tower of 8 blocks, imitates train with four blocks  
Circular scribble, may imitate a vertical line, starts to imitate horizontal line or circle when shown  
Turns pages one at a time  
Simple jigsaw by trial and error  
Manipulates miniature toys, peg | 50 words  
Joins two words  
Follows two step command | Eats skilfully with spoon  
Isolated pretend play |
<table>
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</thead>
<tbody>
<tr>
<td>3 years</td>
<td>Walks upstairs with one foot per step but uses two feet on descending</td>
<td>Builds tower of nine blocks, copies bridge. Draws circle from copy and cross from demonstration, attempts to draw crude “person”</td>
<td>200 words, joins 3-4 words, Questions: who, what,why,where Understands prepositions, simple negatives</td>
<td>Eats with fork and spoon Co-operative play with other children</td>
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<tr>
<td></td>
<td>Can stand / hop momentarily on one foot</td>
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<td></td>
<td>Can pedal a tricycle</td>
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<td></td>
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<tr>
<td></td>
<td>Jumps off step</td>
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<tr>
<td>4 years</td>
<td>Walks up and downstairs using alternating feet</td>
<td>Builds tower with more than ten blocks, builds stairs after demonstration</td>
<td>Sentences of 5+ words Uses pronouns, conjunctions Follows command with two instructions, understands complex negatives (neither/nor)</td>
<td>Eats skillfully with little help Takes turn in play</td>
</tr>
<tr>
<td></td>
<td>Stands on one foot for 3-5 seconds</td>
<td>Draws man with head and legs, simple house</td>
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<tr>
<td></td>
<td>Hops on one foot</td>
<td>Matches 4 primary coloured bricks</td>
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<td></td>
<td></td>
<td>Can do up buttons</td>
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<tr>
<td>5 Years</td>
<td>Skips in alternate feet</td>
<td>Draws a square and triangle from copy</td>
<td>Complex explanations and sequences Follows a command with three instructions</td>
<td>Copes with entire meal unaided Plays games to rules</td>
</tr>
<tr>
<td></td>
<td>Runs lightly on toes</td>
<td>Draws a house with windows, door, roof and chimney</td>
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<tr>
<td></td>
<td>Increased skill in kicking, throwing, catching balls.</td>
<td>Uses blocks to copy step design without demonstration,</td>
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</tr>
</tbody>
</table>
This section is concerned with milestones as they are currently used in child health practice with respect to gross motor and fine motor skills, social and language development. The ability to assess the development of a child cannot be obtained from written accounts alone and indeed a written account is only a very minor part of such training. Although charts, such as the Denver Developmental Screening Chart (Frankenberg, 1992), acknowledge the enormous range of normal that exists, it is impossible within a single scale to record all the individual variations in the quality of response obtained. Obtaining rapport with the child and recognising for example the shy, nervous or withdrawn child who is not performing to his real level of ability, are important skills that only come with practice and experience. In a way, what is needed is observation of the subtleties and fine detail of behaviour rather than testing for the crude gross milestones of development that are used in screening. If we are particularly concerned about a child, more detailed and graphic descriptions are certainly required in order to highlight areas of difficulty where particular help may be provided. Those using the standardised tests of developmental progress such as the Stanford Binet intelligence scale (Terman, 1961), the Wechsler intelligence scale for children (Wechsler, 1974), the Bayley (Bayley, 1965) scales of infant development and the Griffiths scales (Griffiths, 1970; Griffiths, 1976) must ask themselves the reason for doing so. Is it to provide a clinical description of the child, his abilities and his difficulties that would aid diagnosis and management, or is it to provide a comparison of an individual child with his peer group?

Assessment of development depends upon accurate observation and interpretation of those observations in the light of our knowledge about ‘normal’ development. It must not be forgotten that parents are the ultimate authority on the development of their own child, supplemented in the school age child by teachers’ observations. Formal developmental screening is no longer part of the UK child health surveillance
programme, with the realisation that parental observation and anxiety will lead to earlier diagnoses in most families than by screening tests. However, it should also be noted that in families where there are concerns regarding child abuse and neglect, the parents might not be the best observers of their child’s developmental concerns.

Descriptions of normal development, linked to a child’s ability to perform particular tasks at a particular age relate only to the performance of the ‘average’ child. For all milestones there is a very wide range of normal. Allowance must also be made for prematurity in interpretation of developmental information. The initial age is the age at which the first few most advanced children display the skill; the median age is the age at which 50% of children display the skill; the limit age is the age at which nearly all children have acquired the skill. The failure to acquire a range of skills by the limit age signals the need for a more detailed assessment. The development of individual children does not occur at a constant rate so that single observations of development, particularly in very young children, have little predictive value. Serial observations are much more valuable and will highlight children who ‘fade’ in their developmental progress compared to their peers and those who shine brighter and brighter with time. The trajectory taken may be strongly influenced in the same way as growth by adverse or favourable social circumstances.

**Assessment of Reflexes**

Reflexes in the newborn are a useful way of studying motor development. Exaggeration of reflexes, diminished reflexes, asymmetry of reflexes, persistence of primitive reflexes or delay in the acquisition of secondary reflexes form a useful body of knowledge in the study of developmental progress. The pattern of reflexes observed may be influenced by injury after birth as well as pre- and parental factors.

**Moro Reflex**

This is elicited in the supine position, with the head supported by one hand a little off the table. The head is then suddenly released, causing first abduction and extension of the arms with opening of the hands, followed by adduction of the arms and crying. This reflex is present very consistently at birth and disappears around 5 months. Persistence after 6 months of age must be considered abnormal. Because this reflex can be elicited so easily in its classical form, any variation from this should
be considered with suspicion. An asymmetrical Moro reflex may be due to a fractured limb as well as to neurological causes.

**Gallant’s Reflex**

With the baby held in ventral suspension, sharp stimulation with the fingernails of the skin down each side of the back results in flexion of the spine to the stimulated side. The Galant’s response is present in very preterm babies and its persistent absence in the newborn may well indicate a poor prognosis. Asymmetry is also important, as in the Moro reflex.

**The Stepping Reflex**

With the baby held vertically, contact of the soles of the feet on to a table causes reflex stepping movements of the legs. Persistence of the stepping reflex beyond the age of 6 months may indicate cerebral palsy.

**The palmar grasp reflex**

Insertion of an object or the examiner’s finger into the palm of the hand or on to the sole of the foot, produces reflex flexion of the fingers or toes. This produces a strong grasp with the palm and secondary contraction of the arm muscles sufficient to raise the baby from the supine position when traction is exerted by the examiner’s finger. This reflex needs to be lost before voluntary grasping can occur. Abnormal persistence may indicate cerebral damage as may absence or asymmetry in the newborn period.

**The Asymmetric Tonic Neck Reflex (ATNR)**

Turning of the head to one side leads to extension of the arm and leg on that side and flexion on the opposite side. This has been likened in boys to the position required to use a bow and arrow or in girls to the posture required to brush the hair holding a mirror in one hand and a brush in the other. In early life it may be useful in directing the hand towards objects in the visual field. However, it may prevent rolling over or the hands being brought to the face. Abnormal persistence of the ATNR, particularly in an exaggerated form is very frequently found in infants with cerebral palsy.
**Balance Reactions**

These are necessary in order for the child to develop ability in the sitting position. The response consists of extension of the arm to prevent falling when the child’s body is displaced to either side in the sitting position. Similar saving reactions occur in the standing position.

**The Parachute Reaction**

The child is held in a ventral position and is rapidly lowered head first towards the table. The arms extend in order to ‘save’ the child. Failure to appear is frequently seen in children with neurological abnormalities.

**Posture and Gross Motor Development**

The rate of development within an individual child varies depending upon his state of health, the degree of stimulation that he receives and such events as the arrival of a new baby, admission to hospital or a change of house. Allowance also needs to be made for prematurity. For this reason, data related to a child’s development cannot be taken in isolation from the environment in which he is living. Furthermore, the child’s personality and temperament may distort his response to the test procedure.

Children follow different patterns of events leading to walking including crawling, creeping and bottom shuffling. Those who bottom shuffle are usually late to walk because it is more difficult to get to the upright posture from the sitting position than from the crawling position. When assessing children who are slow to stand and walk it is obviously important to enquire about other methods of locomotion. Children who bottom shuffle tend to dislike lying in the prone position and thus do not develop crawling. Some children go straight from sitting to walking without an intervening stage.

**Six Weeks**

At the age of 6 weeks when lying prone, the baby is just able to raise his chin momentarily. When he is pulled to sit from the supine position the child still shows head lag but is able to show some ability to raise his head, particularly in the half-way position of this manoeuvre. When lying in the supine position the baby still adopts a pattern of flexion at the elbows, knees and hips. A pattern of extension at
this age may be an indication of spasticity. Held in ventral suspension he can hold his head in line with the rest of the body. A large discrepancy in the performance of the baby in the prone and supine position with superior performance when prone, may indicate a developmental abnormality such as cerebral palsy. However, some babies such as those who are bottom shufflers, greatly prefer one posture to another. Others are not given the opportunity to develop their motor skills in a wide variety of postures.

**Three Months**

By the age of 3 months there are some most impressive changes in the child’s motor abilities. In the prone position, the child is able to lift the head and upper chest clear and is able to sustain this posture supported by the forearms. When pulled to sitting there is only minimal head lag. In ventral suspension, the head is now above the level of the body. When held sitting, the back is straight and the head only occasionally drops forward. When held standing the child sags at the knees.

**Six Months**

At 6 months of age, in the prone position, the baby can lift his head and chest clear, supporting his weight on extended arms and can roll over. Rolling is a very complex motor activity involving coordination of right and left sides, arms, legs, head and trunk. If the child is able to execute such a complicated manoeuvre it is most unlikely that any motor deficit exists. In the supine position he is able to lift his head from the pillow and in this posture grasp his foot. When pulled to sit the head is erect and the back is straight. He is able to sit against a wall requiring no lateral support. When held standing the baby is able to bear weight on his feet.

**Nine Months**

By the age of 9 months most children will be able to sit unsupported for 10–15 minutes. This posture will be stable and the baby is able to maintain balance as he reaches out to grasp nearby objects. By this age the child can also stand holding on and may attempt to take steps if supported. In the prone position some may be crawling and most should be making some attempt at this manoeuvre.
One Year
At the age of 1 year the child can sit well and for an indefinite period of time. He can rise independently from the lying position to the sitting position and from the sitting position is able to crawl effectively on all fours. Some children get along by either hauling using the arms alone, or creeping on the hands and feet, or by bottom shuffling: some miss out these stages altogether. The child is now able to get up and down from the standing position and is able to walk around the furniture, a manoeuvre known as cruising. He may be able to stand without support for a few seconds.

Fifteen Months
At 15 months the child can get to the standing position without the aid of nearby objects. He is able to walk unsteadily on a wide base but frequently falls due to minor obstructions. Additional hazards to safety occur as the child learns to crawl upstairs but is unable to get down. He is also able to kneel with or without support.

Key Message
An understanding of motor development enables the paediatrician to judge whether a particular explanation for an injury is compatible with the child’s developmental abilities. There is a wide range of normality.

Eighteen Months
By 18 months of age walking skills are well developed and falls are seldom though there is obviously wide individual variation. He is now sufficiently stable to stoop and pick up an object from the floor without overbalancing. He can run for short distances and can push or pull toys around the floor. Carrying a large object does not result in falling over. He is able to sit down without help in a small chair. Getting upstairs can now be accomplished in an upright posture with the hand held and downward progression may occur by creeping backwards or by proceeding downwards step by step on the buttocks.
Two Years
By 2 years of age the child can go up and down stairs holding on in the upright position. This is done step by step and does not follow the adult pattern of alternating feet on each step. Running is now more skilled and the child is able to change course to avoid obstacles. He may play in a squatting position from which he can easily rise to his feet. Climbing on and off furniture is performed with ease but often not with the approval of his parents. He is beginning to be able to both throw and kick balls without falling over in the attempt. He has now developed the ability to jump with both feet together and to stand on tiptoe following a demonstration of this.

Three Years
At the age of 3 the child can walk upstairs with alternating feet but still has to use two feet on each step for descending. He can walk as well as stand on tiptoe and can also stand momentarily on one foot, a skill that many adults cannot demonstrate. The child can now pedal a tricycle as opposed to the previous manoeuvre of pushing it along with his feet on the ground. Increasing agility enables the child to climb nursery apparatus and to jump down one step. Others may attempt more than this but are not likely to succeed.

Four Years
By the age of 4 years the child can walk both up and down stairs using alternating feet. He can stand on one foot for 3–5 seconds and can hop on one foot, though there is wide variation depending upon the opportunities and encouragement to develop these skills.

Five Years
By the age of 5 years the child is able to skip on alternate feet and to run lightly on his toes. His wide repertoire of motor skills will be illustrated by climbing, sliding, swinging, etc. There is increased skill in kicking, throwing and catching balls. He is able in 90% of cases to walk heel to toe. By the age of 5, the child has developed a basic repertoire of gross motor skills. Following this there are improvements related to greater strength, greater precision, greater speed and length of performance.
**Fine Motor Skills**

Development of fine motor skills depends on normal vision and appropriate opportunities for learning. Deprivation of either will result in delay of acquisition of such skills.

**Six Weeks**
At 6 weeks the palmar grasp reflex operates but there are no voluntary fine motor movements.

**Three Months**
At 3 months of age there is intense hand regard, in which the child stares continually at his own hand. This intense observation leads in the next few months to the development of voluntary use of the hand that is visually directed. At 3 months the child may reach out and hit objects such as pram beads.

**Six Months**
By 6 months of age the child is able to pick up voluntarily any object such as a cube using a palmar grasp. Both the cube and his hand need to be within the same field of vision. At first this is only done with the greatest of difficulty and the cube is soon dropped. Lacking memory, the child does not look for the dropped object but seems to carry on unperturbed. Although voluntary grasp is established at this age, voluntary release is not seen for several months. At 6 months the child also begins to be able to transfer objects from one hand to another. However, the child is not yet able to use this as part of a problem solving exercise. So, if the child is offered a second cube, he is likely either to ignore this cube or to drop the first one and use the same hand to retrieve the second object. Once the child has learned the ability to grasp objects he soon learns to be able to bring them to his mouth, and to add these sensations to his other means of exploring and understanding objects.

**Nine Months**
At 9 months of age the child has developed a mature grip between thumb and index finger and can also use his index finger to approach and poke at small objects. Toys that are dropped are now sought for. The child has a wide range of manipulative skills; objects can be shaken, bashed, pulled, pushed or held.
**One Year**
By 1 year of age the practice of fine motor skills has enabled the child to pick up small objects such as crumbs. The child is able to use his fine motor skills to feed himself with a biscuit or hold his own bottle. He has developed the phenomenon of casting, in which toys are deliberately dropped and watched as they fall to the ground. Given two objects he may bring them together in the midline and match them or imitate a simple action such as banging two bricks together. If offered a third object, most children seem unable to transfer in order to grasp the third object but may become quite upset by this apparent dilemma and drop both of the original objects.

**Fifteen Months**
At 15 months of age the index finger has developed as an organ for pointing to objects that he wants. Children are reported to be able to build a tower of two cubes though there is a wide variation between these abilities from various reports. This may well be highly dependent on the child’s previous experience of bricks and his opportunity to practice. It cannot be assumed as perhaps some developmental tests do, that most children grow up surrounded by one-inch cubes.

**Eighteen Months**
By 18 months of age the average tower builder has progressed to a somewhat precarious edifice of three bricks. If given a crayon this will be used for spontaneous scribble usually in a preferred hand. The index finger may be used to point at objects in the book and the child can usually turn the pages two or three at a time, inflicting a variable degree of damage.

**Two Years**
At 2 years of age the average tower builder is up to a tower of six cubes, again bearing in mind the wide variation in accomplishment in this task. Although performance with crayon and paper is still largely scribble this may begin to assume a circular form and the child might also be able to draw dots and imitate a vertical line. Page turning one at a time is now achieved though it must be remembered that many children do not have books and cannot therefore develop the skill. Between 18 months and 2 years most children are able to complete simple jigsaws involving fitting a circle, square, and triangle – initially by trial and error and only later by
matching. Gains of skills and their level of development depend upon the availability of such toys as posting boxes, etc. Children may more readily demonstrate their fine motor skills in terms of manipulation of toys from activity centres up to small miniature toys, pegboards, jigsaws, dressing dolls, etc. than in more standardised tasks that do not hold the same degree of interest.

At 2 years of age the child is able to build a tower of seven blocks. He is also able to construct a ‘train’ from three blocks placed horizontally in a row and one block placed on top for a chimney. With a pencil he is able to imitate a circle and a horizontal line if this is demonstrated. Only at the next stage are they able to copy the completed symbol without a previous demonstration.

**Three Years**

By 3 years of age the child’s tower has grown to nine bricks and using three bricks the child can copy a bridge design. He can draw a circle from a copy and can now draw a cross if this is first demonstrated. The child is, at this stage, beginning to produce recognisable pictures and will produce the first crude picture of a person plus a variety of assorted parts. The Goodenough draw a man test (Goodenough, 1926; Bakwin, 1948) is a useful and reliable way of assessing development of children between ages 3 and 10. The child is asked to draw a man. He is left undisturbed and given as much time as he wants. The final drawing is scored using 51 criteria that record the degree of complexity and the anatomical details shown. The child is given a basal age of 3 years and is accorded an extra 3 months for each of the features recorded in his picture.

**Four Years**

By the age of 4 years we have now reached the limits of tower building, bearing in mind the number of one-inch cubes the paediatrician can carry in his bag at any one time. The tower is now ten or more cubes in height. From about 4 the child is able to construct stairs with the one-inch cubes after an initial demonstration. He can now copy a cross without a previous demonstration and can also draw a square if the technique is shown first. The drawing of a man will now have a head and legs and the picture may or may not have a separate trunk. Most children will also be able to draw a very simple representation of a house. The child of 4 should be able to name the four primary colours in the one-inch bricks and is certainly able to match them. Some children may have been able to do this since the age of 3. A 4 year old can
generally do buttons up, a useful practical skill that enables him to dress himself. However, absence of the skill probably indicates that the mother dresses the child because it is quicker.

**Five Years**
The 5 year old can draw a square and a triangle from a copy. (He will need to be 7 to be able to copy a diamond and 9 to be able to copy a parallelogram.) He can also draw a house with door, windows, a roof and a chimney. Using one-inch cubes he can copy the step design without demonstration and also construct a ‘gate’. Ideas of shape and copying ability have improved to the extent that the child can now learn to recognise and copy letters from the alphabet.

**Key Message**
An adverse environment such as physical restriction, e.g. confined to a buggy, domestic violence, lack of playthings, poor parent/child interaction, lack of stimulation, postnatal depression can impede normal child development.

**Social Development and Play**
Although appropriate toys for each age group are inserted into the text it must be recognised that to a large extent, the toys without the parent are useless. Also, the importance of play such as peek-a-boo, round and round the garden, and nursery rhymes that do not require any toys are a very important aspect of stimulation. The TV is not an adequate substitute for one to one parent-child interaction.

Children who lack these opportunities will be ill prepared for the activities in nursery school and unable to play cooperatively with other youngsters.

**Six Weeks**
At 6 weeks of age the child smiles in response to a friendly human face. The child is visually very alert and will fixate and stare at the mother’s face for long periods. As well as crying he develops a whole range of sounds; coos, glugs, grunts and laughter, which indicate mood. An awake baby in a carrycot only receives the stimulation that is brought to him. This may be obtained from mobiles suspended above the cot, by carrying him around or by the use of a bouncing cradle in which the baby reclines.
Three Months
At 3 months of age the child begins to react with excitement to familiar and pleasant situations such as feeding and bathing. Similar responses occur when during play. From 3 months the child may attempt to hit toys suspended on a string across the pram. Although the child can do very little with toys, things to listen to, such as a musical box and things to look at, such as mobiles, are very useful.

Six Months
At 6 months of age the child can successfully grasp suitable toys and transfer them to the mouth. He is capable of grasping a rattle and shaking it and may apply this strategy to many other objects. He is also able to play with his feet and take these to the mouth too. The child is now able to play with a wider range of toys of many different shapes and colours; they appear to enjoy those they can grasp or which make a noise like rattles and bells.

Nine Months
At the age of 9 months the development of memory means that the child becomes much more wary of strangers and sensitive to separation from his mother. It also means that lost toys are looked for and he can play games such as peep-bo. He can feed himself with a biscuit, and attempts to hold his own cup or bottle. He may also try to grab the spoon. He can now handle toys that require a wider range of manipulative skills to make them work.

One Year
At 1 year of age children who have been given the opportunity are able to drink from a cup. However, many parents feed their children, as this is tidier, so that they do not develop the skill until somewhat later. The same applies to spoon-feeding, which children can manage with help at this age but not all get the opportunity. At 12 months children understand how to cooperate in dressing, recognising that shoes go on feet and arms go in the sleeves. However, although many children do begin to cooperate with dressing at this stage, others who seem to dislike being dressed develop the ability of doing the reverse of what is being required. The same can apply to nappy changing, which can be difficult with a mobile uncooperative child. The child is now able to imitate gestures such as clapping hands and waving bye-
bye. Some are able to produce this spontaneously in appropriate situations and others on demand. The child is also able to grasp quickly and imitate other actions such as ringing a bell or banging two bricks together. In play the child will often concentrate for long periods of time, putting objects in and out of boxes or quietly emptying cupboards. Simple cooperative play is developing and the child will give a toy to the parent on request. Toys such as stacking beakers and pop-up men can be useful, though the child’s skills are more directed towards taking apart than putting together. Rag books are also useful.

**Fifteen Months**
At 15 months the curiosity and exploratory behaviour becomes more intense aided by the improved mobility and manipulative skills developed over this time. The child grasps anything within reach and cannot distinguish safe from dangerous objects. He will begin to be frequently told ‘no’ and reacts adversely if removed from unsuitable situations.

**Eighteen Months**
The child of 18 months should be able to manage a cup without too much spillage and to be pretty adept at using a spoon independently. He may be able to take off shoes and socks, often in inappropriate circumstances. Negativism and the need for constant supervision are usually more marked than at 15 months. Domestic mimicry is seen in terms of the child copying mother sweeping. The beginnings of symbolic play are also seen, for example putting dolly to sleep or giving mother ‘a cup of tea’ in a toy cup. The child has progressed from toys that one pushes to trucks or cars, or fitting pieces into other types of shape fitting toys. Sand and water are most appreciated and the child will begin to be able to use drawing and painting materials in a chaotic uncoordinated and sometimes undesirable manner.

**Key Message**
Negativism and a wider repertoire of motor skills can lead to multiple accidents, parental anger and abusive behaviour and hence require a high level of vigilant and informed parenting.
Two Years
The 2 year old may be slightly less of a danger to himself than the child of 18 months. Greater awareness and knowledge and improved motor abilities may reduce some hazards but increase others. Negativism continues to be prominent and temper tantrums a common feature. The 2 year old should be pretty competent in eating and drinking. The 2 year old is also ready though frequently not willing to be toilet trained, however with greater or lesser difficulty, most children will become dry during the day around this age. The child’s play shows further development in domestic mimicry. He begins to want to join in and ‘help’ with adult activities. Simple make believe play is also developing. Children of 2 years are unable to share their belongings and play alongside one another rather than with one another. Useful toys are replicas of adult materials such as tools, cups and saucers, toy cars, simple wooden trains and, of course, picture books and being told stories. The 2 year old is usually pretty reliable with using the toilet during the day. However many need help in that they are unable to pull down their pants or replace them. Make believe play is becoming increasingly elaborate with the child frequently talking to himself in play. Tray jigsaws may be very popular. Stories and picture books provide a good medium for adult interaction and for learning and provide the first section of the path to future reading. Scribbling with crayons and painting may just be beginning to emerge with some recognised form or pattern.

Three Years
The 3 year old should at last be fairly independent with toileting and accomplish all the subsidiary functions such as pulling pants up and down and washing hands. He is also able to play together with other children and understands concepts such as sharing or taking turns. Many 3 year olds, and quite a number of younger children too, are confident enough to separate from their parents at nursery school or play group. Recognisable drawings of a human body or a house begin to be made. The 3 year old can begin to make real constructions out of bricks or construction toys of various types and can make sensible layouts using things like miniature animals, people, etc. The 3 year old is able to remember nursery rhymes and also stories. He is constantly asking questions about things that he sees.
Four Years
The 4 year old continues to ask questions though they are now of the ‘why’ or ‘how’ variety rather than the ‘what’ or ‘who’. He can dress and undress except for difficult buttons and laces though the result may often be back to front or inside out. Imagination is shown strongly in play with such items as dressing up. He needs other children to play with and the idea of ‘friends’ becomes a well-established need.

Five Years
The 5 year old is able to play games with increasingly complicated sets of rules. A wider time perspective occurs in play. Particular themes either in play or within school can be carried on over a prolonged period in time. A 5 year old can, but not always, be protective and responsible towards his younger brothers and sisters. The 5 year old can play and build constructively and copy or produce increasingly complicated designs. He has the ability to tell the time, recognise letters and numbers, beginning the process of learning to read.

Language Development
Within a very few years the human child develops the most complex cognitive function known to man, that is the acquisition of a spoken language.

The development of language is an individual process with universal trends. It is a gradual process continuing well into primary school years and even then it cannot be said to be complete, for modification and acquisition of higher and more complex language takes place in teenage and adult years.

The acquisition of a spoken language is an interactive process, depending upon active conversational practise with parents, siblings and others and is not based on imitation alone, although it does have a role, with some children imitating more than others. It seems that the active participation of the child, “trying out” new vocabulary and “testing out” new conversational rules, is the key to the successful acquisition of language.

The human baby develops pre-linguistic skills in the first year of life. He is born with a very mobile tongue and sophisticated vocal organs to allow vocalisation and soon
after birth he becomes a highly sociable being, initiating two-way interactions with its carers by looking, smiling, cooing and crying.

A neonate also has sophisticated auditory perceptual skills and is capable of distinguishing individual speech sounds (e.g. “p” and “b”). This has been shown by analysis of changes in amplitude of sucking pressures on an artificial nipple, in response to tape recorded speech sounds.

In addition, the human baby has the ability to develop symbolic systems and seems to be “pre-programmed” to comprehend and develop grammatical patterns.

**Three to six months**

At 3-6 months babies start to vocalise developing babble patterns, containing consonant and vowel sounds (e.g. “ba” and “da”). At around 6-12 months babble then becomes repetitive (e.g. “ba-ba” and “da-da”) and also becomes more speech like. Babble then drifts towards the child’s own language for instance a Chinese baby’s babble by 9 months of age may sound quite different to that of an English baby of a similar age. Distinct words then gradually emerge from babble patterns and can initially be quite difficult to distinguish.

**One year**

At around 12 months of age the child acquires his first word that is individual to him. First words may not have a specific syntactic role “drink” for instance may be used as a noun for a cup, as a subject for fruit squash or as a verb for the act of drinking.

Throughout his first year, the child’s motivation to communicate advances as does its attention and listening skills.

**Twelve to fourteen months**

At around 12-14 months the child develops referencing. The child is able to filter out of a spoken sentence an object name and understands what that object is, by looking (e.g. “that’s a cat over there”). At the same time meaningful pointing begins, when the child looks and points to an object (e.g. a cup) and then turns to look to the parent and back to the object as if to say ‘I know that you know, that I would like a drink!’

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When a child has acquired around 30 words in his vocabulary there tends to be a rapid spurt in further acquisition and vocabulary tends to become more adult like. When the child has developed a vocabulary of around 50 words, a child starts to combine words into phrases. Typically, a child uses two word utterances for naming e.g. “that car”; for possession e.g. “baby book”; description e.g. “pretty bird” or plurality e.g. “two dog”. This trend appears to be universal across languages (and indeed across manual signing systems).

**Two years**

At around 2 years a child tends to develop early grammar e.g. “daddy sleep” (object and verb). Some language produced at around this age may appear to be grammatical but on further analysis seems to be the addition of little chunks on to some already learned grammar. e.g. “that’s mine -sweetie”. Grammar continues to develop by the child actively participating in conversation to trial their use of grammar. Clark long ago in 1974/1976 coined the phrase “talking to learn rather than learning to talk”.

A child tends to acquire a grammatical system between the age of 2 years and 4 years 6 months. There is great individual variation but there does appear to be some universal ordering. Most children develop the use of “ing” i.e.” he is running” before the correct use of past tense. Three word phrases tend to appear from the age of 2 years through to the age of 2 years 6 months with four and five word sentences appearing around 3 years of age to 3 years 6 months. A general maturation of language and grammatical skills takes place from the age of around 3 years 6 months for a further year when syntactical development is usually complete. Language continues to develop stylistically from around school entry age and can be used creatively to express ideas and thoughts and to direct activity.

Throughout the process of acquiring grammar and sentence structure, a child practises their conversational skills constantly, with parents and carers providing interaction, feedback and correction by indirect means. Parents do not normally provide absolute correction of grammatical mistakes but do offer indirect correction in the form of contingent questioning.
For example

Child:  “He runned in a race”
Parent:  “When did he run the race?”
Child:  “Yesterday”
Parent:  “Yes he ran the race yesterday”

**Nature or Nurture?**

Undoubtedly the development of an effective spoken language will depend upon the conversational environment in which a child is reared and those children deprived of conversational input frequently develop deviant language.

**Key Message**

Delays in expressive language and the development of imaginative play are particularly common in abused or neglected children. Such children may show poor attention skills and high activity levels.

Nature does play a part and it has been known for some time that communication difficulties run in families. Recently strong evidence has been provided by Dale et al (Dale, 1998) in the Twins Early Development Study, that heritability is stronger amongst those with the poorest language skills. There is also evidence of a genotype for specific language impairment, which may explain the language delay for some children growing up in a rich conversational atmosphere.

Can the way parents speak to a young child enhance development of an effective spoken language system? This aspect is relatively under-researched but certainly many cultures use “child directed speech” as a way of interacting with their children before they are able to keep pace with adult conversation. This type of speech has differing sound features to that of an adult. The pitch is higher, the intonation is more exaggerated and the tempo is slower. This appears to capture and maintain the child’s attention and makes it clear that the parent is talking to the child and no one else. The utterances are predominantly short; only 2 to 3 words longer than the child’s own utterances and well formed. This enables the child with a shorter attention span to follow the whole sentence. In “child directed speech” there are
fewer false starts and hesitations and fewer complex sentences and sub-ordinate clauses. It is highly repetitious and uses recasts and reformulations, providing correct “models of speech”.

As the child becomes more linguistically competent parents tend to use more questions rather than imperatives. A younger child would probably be directed (imperative) to “Give Mummy the cup” but an older child, (though still acquiring language and grammatical skills) might be asked the closed question, “Are you going to give me that cup?” Open questions are more usually employed when the child has developed a competent language and grammatical system.

**Key Message**

By looking in detail at the process of acquisition of spoken language it can be seen that those children with permanent (or temporary) hearing loss, those with global developmental delay, those with social and emotional developmental delay and those with social deprivation are likely to have significant difficulty and therefore delay in acquiring an effective spoken language system.
Table 1 - the typical pattern of language acquisition over time

<table>
<thead>
<tr>
<th>AGE LEVEL</th>
<th>LANGUAGE DEVELOPMENT</th>
<th>GRAMMATICAL STRUCTURES</th>
<th>SOUND SYSTEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>9-18 months</td>
<td>First words</td>
<td>Noun-like: cup</td>
<td>p / b / t / d / w /m /n</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Verb-like: gone</td>
<td>final consonant - missing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other: bye bye</td>
<td>reduplication: gee-gee</td>
</tr>
<tr>
<td>18-24 months</td>
<td>2-word phrases</td>
<td>SV: Daddy kick</td>
<td>As above</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SO: Mummy shoe</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>VO: kick ball</td>
<td></td>
</tr>
<tr>
<td>24-30 months</td>
<td>3-word phrases</td>
<td>SVO: daddy kick ball</td>
<td>As above</td>
</tr>
<tr>
<td></td>
<td></td>
<td>use of: the / is / a</td>
<td>and k / g / ng / h</td>
</tr>
<tr>
<td></td>
<td></td>
<td>word endings:</td>
<td>final consonant may be</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ing/ed</td>
<td>missing still</td>
</tr>
<tr>
<td></td>
<td></td>
<td>plural s</td>
<td></td>
</tr>
<tr>
<td>36-42 months</td>
<td>4-word phrases</td>
<td>SVAA: me go in kitchen</td>
<td>As above</td>
</tr>
<tr>
<td></td>
<td></td>
<td>in a minute have been</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>+ could have</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>er / est / s /</td>
<td></td>
</tr>
<tr>
<td>36-42 months</td>
<td>5-word phrases</td>
<td>More complex sentences</td>
<td>As above</td>
</tr>
<tr>
<td></td>
<td></td>
<td>use of because</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>me becomes I</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>tenses appear</td>
<td></td>
</tr>
<tr>
<td>42-54 months</td>
<td>Maturation of language skills</td>
<td>Correct past tense</td>
<td>As above</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I goed = I went</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>sheeps = sheep</td>
<td>and v / z / sh / ch / j / r</td>
</tr>
<tr>
<td>54 months onwards</td>
<td>Creative language to express ideas and thoughts</td>
<td>Syntactic development complete</td>
<td>Mature sound system b but may still be w for r and th for f</td>
</tr>
</tbody>
</table>

Key S= subject, V=verb, O=Object, A=Adverb

The table above provides an easy clinical framework to describe preschool language development.
Key Message

Language acquisition is the best predictor of future developmental progress and intelligence. It is essential for education. Language is the vehicle for thought. Those unable to argue verbally or express their needs could become frustrated and may be more likely to become violent.
Be cautious about the child who does not speak English and enlist help to access expression and comprehension in their mother tongue.

Developmental assessment

Developmental assessment is an important part of any paediatric evaluation and is needed as part of paediatric child protection investigation. Developmental delay can be seen in children who have been used abused or who are at risk of abuse. It helps us to assess the credibility of parents’ statements with regard to causation of injuries.

In most cases a brief question to the parents enquiring as to whether they have any concerns about the child’s developmental progress, together with informal observation of the child’s activities during the appointment will be sufficient.
In other circumstances, a more detailed assessment will be necessary. This may be because there is already concern about a developmental problem, or because the child is felt to be at increased risk of there being developmental delay e.g. in follow up of preterm infants, assessment of children with other disabilities (physical or sensory impairment) or in socially deprived children. Sometimes it will be necessary as part of an assessment of special educational needs, or as part of an evaluation of the needs of children in the care of social services.

The developmental assessment is just part of the whole evaluation which should also include a developmental history, an account from the parents of the child’s current functioning, and a medical examination. It may include reports of the child’s functioning in other environments e.g. family centre, nursery or school. It may be helpful to directly observe the child, not just in the clinic, but also in one of these settings, and/or in the home. There may be large and important differences.
Case Study: Peter Connelly (serious case review)

An online case study is available in the emodule associated with this chapter.

Summary

Assessment of children where there is concern about child abuse of any type must take place within a framework that includes the child’s development. Understanding of development will help us to evaluate the credibility of histories and to include developmental status as part of overall consequences of abuse.

Key Message

Knowledge and understanding of child development is essential when assessing a case of child abuse and neglect.
Appendix

Methods of Developmental Assessment Used by Paediatricians

Informal
In many cases, it is sufficient for the paediatrician to carry out an informal assessment in the clinic. An experienced paediatrician will be able to use a range of toys, books and simple tests (e.g. drawing shapes and building with bricks) that they are familiar with to build up a picture of the child’s developmental level. With experience, they will have become familiar with the range of responses to a particular task at any given age, and can therefore compare the child being assessed with this. It is useful to consider a few skills in each area of development e.g. gross motor, fine motor, social development and play, and communication. The paediatrician can then give an approximate developmental age at which the child is functioning for each parameter. When expressed in this way it is easily understandable to parents, who will be able to discuss their own view of the child’s development and whether the paediatrician has got what they consider to be an accurate picture. In other cases it may serve to illustrate to parents the degree of difficulty the child has in a specific area or alternatively may reassure them about their child’s progress.

Formal
Sometimes it is necessary to use a more formal, standardised assessment. This will give a quantitative assessment, resulting in a test score. Providing it is carried out with appropriate skill, the results should be reproducible. Such tests are used to compare the performance of groups of children, as may be necessary in research. For clinical purposes, they can be useful to gain a deeper insight into an individual child’s pattern of strengths and weaknesses, helping with diagnosis, planning interventions, and monitoring progress over time.

There are many different tests available; some used for screening and others detailed assessment. Most require specific training and a set of equipment. The use of some tests is restricted to particular professional groups, usually Psychologists. The tests described here are those commonly used by paediatricians in the UK.
Denver II (Frankenberg, 1992)

Age range 0 – 6

Previously known as the Denver Developmental Screening Test, this is widely used in clinical practice. In some areas, it has been introduced as a universal screening tool used by Health Visitors. The assessor completes a form, which represents graphically the developmental profile with boxes showing the 25th, 50th 75th and 90th centile for children attaining each ability.

This test is best used as a screening test. It can be performed quickly, in 10 – 20 minutes in a clinic. Its use is not restricted to any professional group and no specific training is required.

Schedule of Growing Skills (Bellman, 1996)

Age 0 – 5 years

This test is also primarily designed as a screening test, but is more detailed and can therefore be used as a more in-depth assessment. A record form is completed, looking at nine skill areas – passive postural, active postural, locomotor, manipulative, visual, hearing and language, speech and language, interactive social and self-care social. A skills score is calculated for each area, which is then converted to a developmental age. An additional cognitive skills score is derived from selected items in the other nine areas.

The Schedule takes about 20 minutes to complete. No specific training is required, and its use is not restricted.

Griffiths Scales of Mental Development (Griffiths 1976, Griffiths 1970)

0 – 8 years

This is a British test, widely used by UK paediatricians. Its use is restricted to those who have been on an accredited training course. The scales are divided into six areas – A locomotor, B personal social, C hearing and speech D eye and hand co-ordination, E performance and F practical reasoning (for those over 2 years) Results are scored as a mental age in months for each area which is divide by chronological age to give a developmental quotient (DQ). General quotient (GQ) can also be obtained by the average of the sub – quotients, but the meaning of this is limited,
the real value of the test being not just levels attained, but the profile of the child’s skills across the six areas.
The Griffiths scales take about an hour to complete.

Other Tests to consider

The paediatrician should also be aware of some of the many other tests that may be appropriate in particular circumstances, or to look at specific areas of development. Details of these are beyond the scope of this text but are discussed in detail elsewhere (Pollak, 1993).

Examples of other tests include Reynell – Zinkin scales (Reynell, 1979), for assessment of children with visual impairment, and the Leiter International Performance Scale Battery (Roid, 1970), which assesses non-verbal ability, and can be useful for those with no language, including deaf and autistic children. There are many specific language assessments e.g. Reynell Developmental Language Scale (Reynell, 1969) and developmental co-ordination problems can be usefully assessed using the Movement Assessment Battery For Children (Movement ABC) (Henderson, 1992)

The Wechsler Intelligence Scale for Children (WISC) and Wechsler Preschool and Primary Scale of Development (WPPSI) (Wechsler, 1974) are primarily used by psychologists. They cover the ranges 4 – 17, and have separate verbal and non-verbal sections. They are likely to be used for educational purposes in older children, where assessment is beyond the skills, or the remit of most paediatricians.