Chapter

3

Developmental Psychology and Communicating with Children and Families

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Introduction

Picture the Scene

S is a ten-year old girl with complex heart disease who has been admitted for an interventional cardiac catheterisation. She had coped well with two previous heart operations – albeit when she was much younger – and is familiar with hospitals, so it is assumed that she will cope well this time too. On admission to hospital, she appears relaxed and cheerful, but as the time for her afternoon procedure approaches she becomes increasingly agitated and anxious. Her behaviour changes – she becomes more withdrawn until it is time to go to the anaesthetic room, where she starts crying and screaming, resisting any attempts to calm her down and reassure her. Her mother accompanies her and is also distressed, alternating between calmness and exasperation herself, also in tears, not sure what to do. This has never happened before. As S becomes physically aggressive and increasingly resistant and a 'time out' fails to calm her down, the procedure is cancelled and she is discharged home. She is upset with herself – she knows she needs the procedure and wants another date soon. She is adamant that next time will be different and she will be fine . . . but will she? How can anyone be sure of that?

Hospitals can be frightening places for children, but an awareness of how a child understands and reacts to medical procedures can enable professionals to work with children and families to reduce feelings of anxiety. A child's understanding is linked to their developmental stage rather than their chronological age, and knowledge of the tasks of each stage can help to inform the choice of intervention to reduce anxiety. Incorporating evidence-based psychological strategies into anaesthetic practice, using a developmental framework that takes account of individual child, family and situational factors, can help to reduce preoperative anxiety through fostering resilience and adaptive coping skills.

Developmental Psychology

There is a vast literature on the study of developmental psychology which clearly cannot be comprehensively covered in a few paragraphs, but a brief overview of some of the key concepts of developmental theory may help to illustrate why children behave in the way they do and how that knowledge can be applied in the hospital setting.

Developmental Theory

There are a number of theories of child development describing the social, cognitive and emotional changes that occur during childhood. Developmental theories provide an important framework for understanding child development, and one of the most influential is that of Jean Piaget, whose cognitive theory addressed how an individual's thought processes develop. Whilst seemingly obvious to us now, one of Piaget's tenets was that children think differently from adults. Unlike some earlier theorists, Piaget asserted that children are active agents in shaping their own development. Through continual interaction and cognitive adaptation, children become better able to understand and manage their world. Piaget described four stages of development through which children progress, characterised by qualitatively different ways of thinking as they develop an increasing ability to use logic and separate internal realities (e.g. wishes, needs and thoughts) from the outside world (Table 3.1).

Although development is described as occurring in discrete stages, in reality these aspects of development occur as a continuous process. Information is acquired, organised and applied,

Table 3.1 Stages of cognitive and psychosocial development, corresponding beliefs about illness and translation to the hospitalised child

Cognitive development	Psychosocial development	Beliefs about illness	Impact on ill/hospitalised child
Sensorimotor stage: birth–2 years • Knowledge of the world limited to infant's sensory perceptions and motor activities • Coordinating movement and action is primary focus • As child develops language, they learn that words represent words and objects • Concept of object permanence develops • Extent of understanding is greater than that of verbal expression • As infant develops sense of heightened attachment to caregiver(s), a fear of strangers develops at about 6–9 months	*0–18 months* • Focus is on developing trust due to complete dependency of infant on their carer • Failure to adequately meet physical and emotional needs results in child coming to believe they cannot trust adults, resulting in fear and a view that the world is inconsistent and unpredictable • Successful development of trust results in feeling safe and secure and the formation of a secure attachment with their caregiver(s)	*Birth–2 years* • Very limited understanding of health and illness	*Birth–2 years* • Respond to distraction, play, carer presence • Stranger anxiety and separation anxiety can result in high levels of distress • Can respond to parents' emotions • Can show fear/anger/sadness in response to painful procedures • Interventions should reinforce child–parent bond
Preoperational stage: 2–6 years • Child learns to use increasingly sophisticated language • Thinking is magical and egocentric, and causality is understood through magic • Become able to distinguish between appearance and reality • Start to develop intuitive reasoning but cannot yet mentally manipulate information • Have difficulties in retelling stories coherently (egocentric speech) • Believe that inanimate objects can think and feel like people do (animism)	*18 months–3 years* • Goal is to develop a sense of autonomy • Failure to successfully complete this stage results in a sense of self-doubt and inadequacy *3–5 years* • Begin to assert some control and take some responsibility for themselves through directing play and other social interactions, leading to development of initiative • May ask many questions to make greater sense of the world	*2–6 years* • *Phenomenism* – cause of illness seen to be external concrete phenomenon that may occur with illness but is temporally and spatially remote; unable to offer explanations of how these events cause illness • *Contagion* – cause of illness is believed to be objects or people near to but not touching child; link between the two may be 'magic'	*2–6 years* • Egocentric nature makes them believe that they have caused their illness or hospitalisation • Noxious events are seen as punishments for bad behaviour; pain confirms this • Important to emphasise that illness is not their fault • Respond well to role play and play therapy – e.g. wearing masks, playing with medical equipment with a toy • Simple concrete language should be used to inform child of what is happening and what they can expect to see, hear, taste and feel

Concrete operational stage: 7–11 years • Less egocentric • Start to develop logical thought • Thinking still very concrete but begin to order and organise information and coordinate information from several sources • Can use logic to understand more about the physical world but limited by lack of experience in the range of possibilities that exist in that world • Can use inductive logic (going from a specific experience to a general principle) but struggle using deductive logic	*6–11 years* • Begin to develop sense of pride in their achievements through social interactions • Those who successfully cope with new demands develop feeling of competence, socially and academically • Child who is not encouraged and nurtured doubts their abilities to be successful, resulting in feelings of inferiority	*7–11 years* • Increased ability to differentiate between self and other • *Contamination* – child distinguishes between cause of illness (person, object or action) and how it is effective; illness is contracted through child's body physically touching the person/object or child physically engaging in the action and becoming contaminated • *Internalisation* – illness is perceived to be located in the body, but cause may be external; external cause is linked to internal effect of illness through internalisation – e.g. swallowing	*7–11 years* • Begin to understand that medical treatment will help to make them well • Cannot understand how swallowed tablets or medication ending up in their stomach will help pain elsewhere • May fear surgery as form of mutilation • Anaesthesia may provoke anxiety because of confusion between sleep and death • Require explanations and reassurance • Distraction and relaxation techniques can work, and coping strategies can be taught • Giving some element of choice can increase sense of autonomy and control
Formal operational stage: 11+ years • Thinking becomes less concrete • Can use logic to solve abstract problems • Able to develop and use hypotheses, develop planning strategies, values and theories and manipulate ideas in their head	*11+ years* • Key attainment is of a sense of self and personal identity, which endures throughout adulthood	*11+ years* • Clear differentiation between self and other • *Physiological* – source and nature of illness are in specific internal physiological structures and functions • *Psychophysiological* – most mature conceptions of illness; awareness that thoughts and feelings can affect how body functions	*11+ years* • Can rationalise sufficiently to contribute to discussions about consent • Fear loss of autonomy and control in hospital setting • Require more sophisticated explanations tailored to their own personal experience • Involvement about treatment choices should be encouraged

allowing the child to develop increasingly complex ways of interacting with the world. In conjunction with the development of thought processes, other aspects of development such as social, emotional, motor and personality development also occur simultaneously, with each influencing the others. Similar to Piaget, psychologist Lev Vygotsky also believed that children developed through a series of stages, but, in contrast to Piaget's view that children learn through doing, Vygotsky believed that children learn through being shown. He described the importance of knowledgeable adults helping children to explore ideas which are just beyond their current stage of development, thereby bridging the gap between what they know and what they can be taught. Erik Erikson's eight-stage theory of psychosocial development covers the life span and highlights the importance of social interaction and relationships and the conflicts that arise during the different stages, with each stage being concerned with becoming competent in an area of life. An individual achieves a sense of mastery if they succeed in handling a stage well, or, if they manage a stage poorly, they develop a sense of inadequacy in that area of development. Each stage builds on the preceding stages and paves the way for subsequent stages. The first five stages relate to children, from infancy through to adolescence, and during the early stages in particular the interactions between children and their adult carers are critically important (Table 3.1).

Children's Understanding of Health and Illness

Knowledge about the stages of children's understanding of the causes of illness and its treatment can be helpful in managing children in the hospital environment. An awareness of how children understand health and illness and the misconceptions that they have at different ages is important when trying to explain medical procedures to children or informing them about their condition and its treatment. Simply talking in child-appropriate language is not sufficient – it is also necessary to appreciate what they think about illness and why they think about it in the way that they do (Table 3.1). A frequent assumption is that children with previous experience of illness and hospitalisation will have an increased level of understanding, but this is not necessarily so, and in some cases children will regress behaviourally and emotionally to an earlier stage of development when they are unwell or very anxious.

Children within a Family

Children usually live within a family structure, and families are important partners in their child's health care. Proponents of a family-centred approach to care recognise the vital role that families play in ensuring the health and well-being of children; parents are seen as experts in their child's care, and they are invited to actively participate in decision-making and the planning and provision of their child's care. Whilst there are many advantages to such an approach, some families may feel that they are expected to input into their child's care at a level which is beyond their expectations or capabilities, and this in itself can increase levels of stress and anxiety. Other approaches whereby the clinical team leads the planning of care and families are expected to comply with those plans may work better for some families but less well for others. Parents usually take on some advocacy role for their children and may have a clear view about what information they want their child to receive. Although many will have talked to their child about a forthcoming hospital visit and need for an operation or procedure, responding positively to the opportunity to meet the anaesthetist and supporting their child to engage in an age-appropriate dialogue with the clinical team, others may adopt a level of gatekeeping in relation to the information their child receives. Some parents may have avoided any discussion with, or in front of, the child about their hospital admission, usually to stop their child from worrying. Occasionally parents may have misled their child entirely about their hospital visit, and when the child realises this there can be a loss of trust. In situations where a child is clearly unaware of what is going on but is old enough to be given some information, discussions with parents should focus on the need to explain in an age-appropriate way why the child has come to hospital and what will happen. Some parents may find it challenging to give the information themselves and will welcome the support to enable this; others may still be resistant to allowing their child to be told. Whilst this may be a difficult situation that needs handling sensitively, it is usually unadvisable to perpetuate a situation where a child is given no information or deliberately misinformed.

In some instances, parents' own anxieties or personal experiences can influence their interactions with clinical staff, and they can transmit these anxieties to their child. For example, a parent may describe their child as being needle-phobic when it is actually they who (also) have the phobia. Exploring parents' concerns in such situations is important but also serves to highlight the importance of talking directly to children themselves when appropriate and involving them in decision-making in partnership with parents. Moreover, parents' perceptions of their child's feelings may not be an accurate reflection of how the child actually feels, particularly in the case of older children.

Finally, family factors and cultural influences can significantly impact how children experience illness. In our increasingly multi-cultural society, it is important to recognise racial, ethnic, socio-economic and cultural diversity as well as the diversity in beliefs about health and parenting practices in relation to health. Families may have a myriad of complex issues to deal with, of which their child's health is just one, and an awareness of, and respect for, what else is happening in a family's life can increase the likelihood of care being provided in a way that is acceptable to them.

Communicating with Parents

Parents often experience high levels of anxiety when their child is unwell or requiring surgery and will often look for reassurance from the professionals caring for their child. They may seek further opinions about their child's treatment and prognosis in an attempt to make the most informed decisions they can as advocates for their child. Providing parents with appropriate information at each stage of their child's treatment and checking that parents have correctly understood what they have been told is crucial, as is recognising that parents' own anxiety can impact their ability to absorb information. Parents need a comprehensive and accurate account of the anaesthetic process, what will happen and why and what measures will be taken to keep their child safe. More complex procedures may require more time to explain, and if parents are to provide informed consent for their child's surgery it is vital that they have this time. Parents need reassurance that their child's well-being is the priority of the medical team and that there will always be someone with their child, they will be kept as pain-free as possible and as soon as they can be with their child they will be allowed to be so. Parents will usually accompany their child to the anaesthetic room to reduce separation anxiety, but it is essential that they understand their role, the importance of them staying calm to help their child stay calm and the need for them to leave when they are asked to. Special consideration needs to be given to those parents who do not speak English, with trained interpreters available to ensure understanding about what will happen to their child. Similarly, parents with a learning disability may need additional time, support and/or other reasonable adjustments during the preoperative visit or in the anaesthetic room.

Communicating with Children

Effective communication between clinicians and children is essential if good care is to be provided. Understanding what children know, what else they want and need to know and what their hopes or fears are about their treatment all contribute to this goal. Whilst it is often quicker to focus on communicating with parents to gather information and review treatment plans, discussions which are exclusively with parents will prevent the anaesthetist from building rapport with the child – which is important both for the initial meeting but also later in the anaesthetic room. Children may have existing fears and misconceptions about their forthcoming treatment which are already compromising their ability to interact positively with unfamiliar clinical staff, so it is crucial that the anaesthetist creates an atmosphere that is calm, unhurried, non-threatening and engenders trust.

The Environment

The setting in which medical teams meet children and their families is important. Providing an environment in which children feel relaxed and at ease makes it much more likely that they will accept and interact with people they have not met before. Ensuring that the appearance of the physical space is welcoming and non-threatening, without medical equipment which may be frightening but with appropriate decoration, child-sized furniture and age-appropriate activities, helps to

reassure a child who may already be anxious. Other considerations include privacy, low noise levels and separate facilities to see an older child or adolescent on their own if indicated. Appearance of the anaesthetist is also important – some children may be fearful of a stranger in theatre scrubs whilst others may not realise that the friendly person they met at the preoperative clinic or earlier on the ward who was wearing ordinary clothes is the same person who is now dressed in scrubs in the anaesthetic room. Talking to children about what is going to happen should also include some information about what people will be wearing and what the anaesthetic room itself looks like.

Non-verbal Communication

Non-verbal communication is something that we all use, intentionally and unintentionally, and even very young children are able to pick up and respond to non-verbal cues. First impressions are important – facial expressions and gestures, making eye contact and appearing confident before even speaking to the child all matter. Children want people to look at them when they are talking to them. It is also helpful to be at the same physical level as the child – sitting on the floor with them or bending down so as not to be standing over them.

The child's body language provides clues about how they are feeling and how cooperative they might be with subsequent procedures. A child who refuses to make eye-contact, is fiddling with their fingers or a toy or is particularly clingy and hiding behind a parent is likely to be less tolerant of anaesthetic procedures than the child who has been responsive, interacting directly and making eye contact.

Verbal Communication

Verbal communication is not just about the language used – even very young children can pick up on the tone, character and speed of speech, so speaking in a calm and friendly manner is important. Language needs to be age appropriate, avoiding medical jargon and complicated explanations, and checking what a child has understood should also be part of the conversation. Some strategies for communicating with children are outlined in Table 3.2.

Table 3.2 Strategies for communicating with children

- Tell the child and parent who you are and your role.
- Speak in a quiet, calm, reassuring voice.
- Make eye-contact – children want staff to look at them when they are talking to them.
- Do not rush or make the child feel there is not enough time for them to share their feelings.
- Do not stand above them – get down to their eye level.
- Ensure any frightening medical equipment is out of sight.
- Use age/developmentally appropriate language.
- Identify beforehand how the child communicates and whether or not they have any particular issues with communication.
- Ensure that if a child uses alternative methods of communication – e.g. signing, symbols – these are available.
- If you do not have the necessary skills, ensure there is someone available to facilitate meaningful communication.
- Do not use words that may make the child more anxious.
- Periodically check the child's understanding.
- Give the child opportunities to ask questions.
- Be honest and open.
- Give choice if possible and appropriate to increase the child's sense of control.
- Always value the child's feelings – never let them think that their feelings are unimportant or irrelevant.
- Do not tease or laugh at the child or be patronising or condescending.
- Be aware of non-verbal cues – both the child's and your own.
- Provide the opportunity to see a young person without their parents present if appropriate.

Providing Explanations and Information

It is not always easy to gauge how much information and explanation to offer a child about anaesthesia and the procedures and risks involved. Each communication should be tailored to the needs of the individual child and the specific situation – explanations should be comprehensive, honest, accurate, reassuring and appropriate to their age and level of understanding. Consideration should be given to any special needs the child may have, including learning disabilities, communication disorders, sensory impairments and mental health

difficulties and how these may impact their ability to receive and process information, as well as the timing of information provision in terms of elective versus emergency procedures.

Information for Children to Access at Home

It is often useful if some preparation has begun before the hospital visit. Children should receive information that is meaningful and relevant to them, and any information should be age-appropriate, accurate, appealing and accessible. Consideration should also be given to information in different languages for children who do not speak English. Many hospitals now provide excellent written information on their websites, and there are guides produced by organisations such as the Royal College of Anaesthetists and the British Psychological Society. Hospitals increasingly have virtual hospital tours on their websites that enable children to develop a degree of familiarisation with the hospital before arrival. Some of the age-appropriate virtual tour apps also include the anaesthetic room and a virtual reality doctor, nurse and anaesthetist who explain what happens when a child needs an anaesthetic and the equipment that will be used. Children and their families may be introduced to these more specific apps at a preoperative visit and can then view the app again before they are admitted for their procedure.

Behavioural Approaches

For many children, age-appropriate explanations may not be sufficient to enable them to cooperate with induction of anaesthesia. Whilst the presence of parents to provide reassurance and avoid separation anxiety is important, play specialists and psychosocial team members have a range of strategies to reduce anxiety. For example, play specialists can help to prepare children for anaesthesia by demystifying some of the equipment and procedures – the preschool child who has pretended to give their favourite toy an anaesthetic and been allowed to play with the mask may be more tolerant of a mask themselves in the anaesthetic room. Distraction techniques can also be very effective, using books, tablets, game consoles or activities such as blowing bubbles. More recently, use of virtual reality has been used as an immersion technique in an imagined environment (distraction) or a real-world environment such as the anaesthetic room which provides familiarisation through preparation and an opportunity for rehearsal of coping strategies. Guided imagery in conjunction with relaxation is also a powerful tool that some children find helpful for reducing anxiety, whereby a child is guided to use their imagination to create positive images whilst maintaining a state of relaxation. All of these techniques depend on the development of rapport and trust.

The Highly Anxious Child: Recognising Anxiety

Despite everyone's best efforts, there will always be the child who refuses to cooperate with anaesthesia induction. In most cases, this will be a manifestation of extreme anxiety and may be predictable in advance, enabling a sedative premedication to be given to facilitate a calm induction. Some children may demonstrate anxiety overtly by their behaviour – such as being withdrawn, tearful, uncommunicative – or they may verbally express their anxiety. Others may refuse to cooperate from the outset with any interventions – even the simpler ones such as putting on a hospital gown. In some instances, parents may report that their children who are seemingly calm in the hospital environment have been exhibiting signs of anxiety at home such as disturbed sleep, changed eating patterns or expressing high levels of concern. There is a wealth of evidence indicating that high levels of preoperative anxiety can lead not only to a more difficult anaesthetic induction but also to adverse emotional and behavioural sequelae postoperatively such as sleep disturbance, separation anxiety, enuresis and temper tantrums. Whilst these changes are usually transient, they may persist for up to 12 months. The incidence of such sequelae is greatest in preschool children but can happen at any age. Early identification of such children will enable appropriate psychological and/or sedative premedication interventions to be implemented.

Lack of Cooperation in the Anaesthetic Room

In situations where a child refuses to allow anaesthetic induction despite preparation, behavioural techniques and/or premedication, there are a number of options available to the anaesthetist,

depending on the developmental and chronological age of the child, the urgency of the planned surgery and the views of the parents/caregivers:

- Very young children who are clearly unable to rationalise or assent to the process but who can be safely held by their parents can often be rapidly induced by an inhalational technique, although it is important to have good engagement with the parents so they are able to work with the anaesthetist to facilitate this calmly and safely.
- For older children who can express their refusal, it is clearly not appropriate to carry out a forced inhalation, as this would require a degree of restraint. If the anaesthetic is being given for an elective procedure, a 'time-out' should be given to enable the distressed child to become calmer or, if the child has changed their mind, an opportunity to talk about the reasons for their decision. At this stage, options include negotiation about the mode of induction, offering sedative premedication if it has not already been given, engaging other behavioural techniques or postponing the procedure to another day to allow more time for discussion and preparation.
- Physical restraint or forced induction are acceptable only in exceptional circumstances such as when life-saving emergency surgery is being refused.

Children with Special Needs

It is estimated that 2.5% of children in the United Kingdom have a learning disability. Compared to those without, children with a learning disability are more likely to need health care interventions and are at increased risk for developing challenging psychiatric disorders and behaviours. Communication impairments may limit the child's ability to express physical and emotional feelings, which can result in behaviours that are difficult to manage. It is common for children with a learning disability to find the process of anaesthesia particularly difficult.

A number of strategies and reasonable adjustments can be implemented to improve the experience of children with special needs, such as placing them first on the operating list to minimise waiting and fasting times, understanding their routine and keeping to this as much as possible, providing the right space on the ward for the individual child that takes into account factors such as sensitivity to light or noise and using premedication judiciously.

Working with parents before admission to proactively gather information about the child's individual requirements can help to improve the admission and anaesthetic room experience. Many children will have a health passport which provides useful information about their usual level of function, any particular physical or mental health difficulties and how they communicate. Such children often have complex health needs requiring multiple interventions, and knowledge of their previous experience(s) is useful. Advance planning with the multidisciplinary team and the family about all aspects of the proposed hospital admission is key.

Children with learning disabilities and/or language and communication disorders may use forms of augmentative and alternative communication (AAC). These are methods of communication such as gestures, picture boards, symbols and voice output communication aids. Using inclusive communication methods helps to inform, involve and empower children to make choices and decisions – for example, a child may be able to indicate 'yes' or 'no' and therefore contribute to discussions in which they can have a choice, such as options for anaesthesia induction. AAC methods can help children understand the unfamiliar procedures associated with hospital treatment, such as using a symbol system to create a timeline of a hospital visit, where each step in the process is represented by a symbol which is used as a prompt and a form of explanation (Figure 3.1).

Children with autistic spectrum disorders (ASD) may present a particular challenge in terms of communication. They often struggle with the loss of their usual, often rigid, routine and may become very agitated in noisy, open waiting areas. They may struggle to interact with strangers and resist being touched or examined. Different approaches may be necessary to help them understand what will happen and what is expected of them. In general, children with ASD respond best to communication techniques that help them to learn *how* to manage a hospital visit, such as social stories which give details of the social situation, social cues and expected behaviour. Virtual reality can also be particularly helpful for familiarisation with the anaesthetic room.

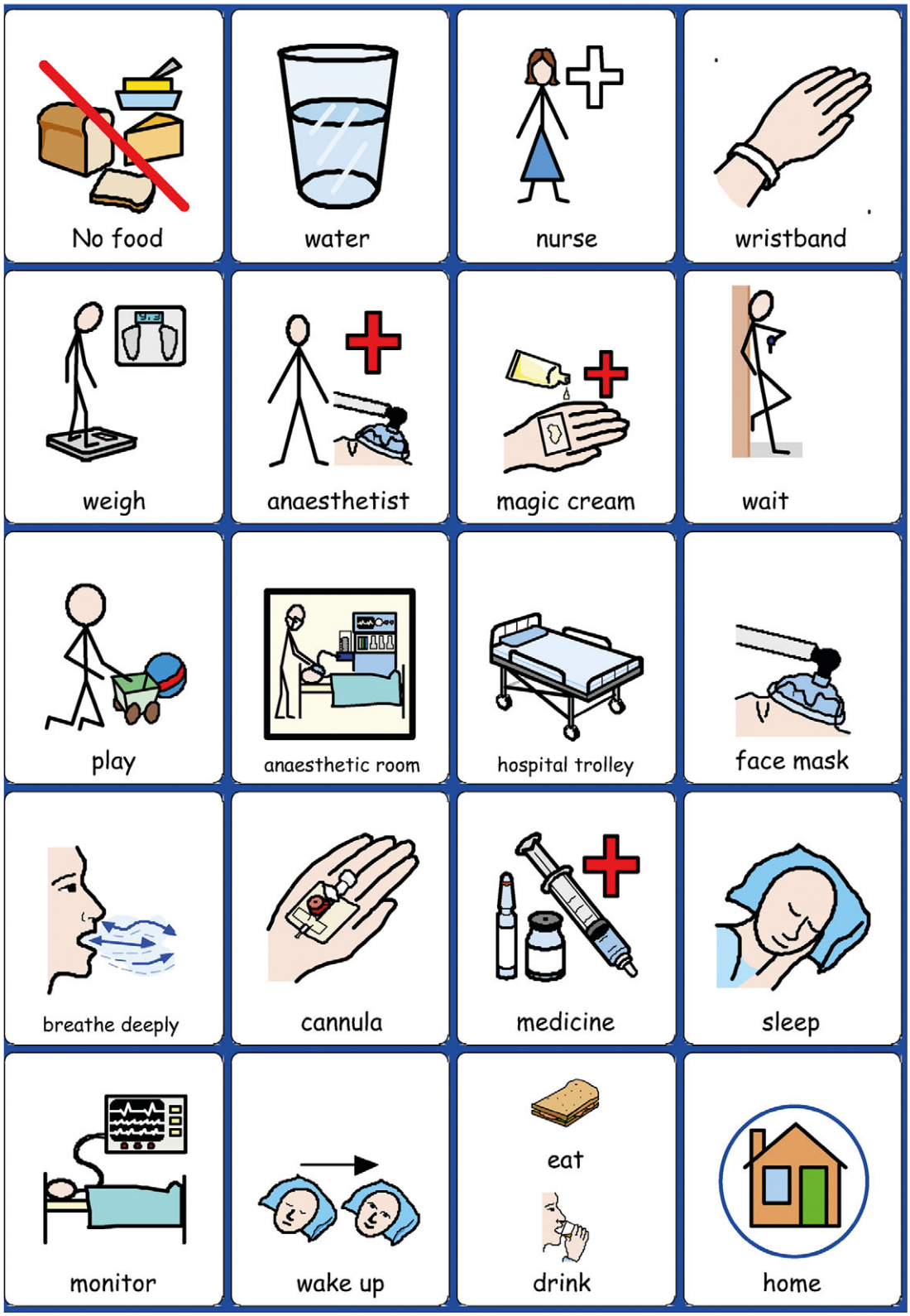

Figure 3.1 An example of a symbol system, used to create a timeline of a hospital visit.
Source: Used with permission from Widgit Symbols © Widgit Software. 2002–2011 www.widgit.com.

Finally …

So what happened to S? She was referred for specialist input from the psychologist and play specialist and was taught guided imagery and relaxation strategies. She had another preoperative visit at which the anaesthetist explained what would happen, reassuring her about pain relief, waking up after the procedure and not being on her own at any time. The psychologist also met with her mother to help her work through her own anxiety. On the day of the procedure, her mother and the play specialist accompanied her to the anaesthetic room. Her mother provided effective support, and S was able to use the rehearsed guided imagery techniques. Overall, the induction was calm and uneventful. The learning from this experience highlighted the importance of firstly not making assumptions based on a child's previous experience; secondly, the need for child-centred, age-appropriate communication, which is not only about giving information but also about exploring understanding and any concerns a child may have; and thirdly, the need to work with and engage parents to be effective sources of support to their children.

Key Points

- Efficient communication with children and their families is central to the delivery of high-quality anaesthetic care.
- Parents are important partners in their child's health care.
- Family factors and cultural influences can significantly impact how children experience illness and their responses to medical interventions.
- Children require age and developmentally appropriate information and explanations.
- Good preoperative preparation may reduce adverse postoperative emotional and behavioural sequelae.
- Gathering information, assessing understanding and avoiding assumptions are as important as providing information.
- Behavioural and psychological techniques may help to reduce anxiety and promote cooperation.
- Children with special needs may need a flexible approach, including using augmentative and alternative communication methods to ensure their ability to interact is maximised.

Further Reading

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Information about Makaton: www.makaton.org

Information about symbol resources: www.widgit.com

General information on AAC: www.communicationmatters.org.uk