Don't Forget the Bubbles

Baby steps: understanding normal baby behaviour

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This is the author manuscript accepted for publication and has undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process, which may lead to differences between this version and the [Version of Record](#). Please cite this article as doi: [10.1111/1742-6723.12548](https://doi.org/10.1111/1742-6723.12548)

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Introduction

Children under one year of age are over represented in presentations to the Emergency Department (ED) (1). The presentations are often mild, nonspecific, or non-emergent (2), especially in the neonatal period.

As well as identifying an unwell infant (3), a key challenge for emergency clinicians is to give practical and evidence-based advice for parental questions. This article reviews common problems for the well infant in the first six months of life, including typical infant behaviour and development, the parent-child bond, and red flags to help identify an 'at risk' mother-child dyad. We will also review the evidence around sleeping patterns, feeding, and constipation. First-line advice for these topics is often nebulous and non-specific rather than pragmatic.

Development

Growth and development is rapid in the first few years of life, with marked variation between infants. Widespread screening is controversial, but it is appropriate for clinicians to know the developmental red flags for delays, so as to make early specialist referrals (4).

Assess each development domain when assessing a child. At six months, an infant should be rolling and lift their head off the ground when prone (gross motor). They will have mostly unclenched hands that can reach for and grasp objects (fine motor), have a social smile or squeal in response to people (social) and have begun to babble “ahah”, “oogoo” (language). The absence of any of these at six months is a red flag, demanding referral and investigation (5,6,7,8). Developmental regression should be differentiated from developmental arrest; it may be the first signs of a neurodegenerative disease.

Sleeping

Infant sleeping patterns are notoriously variable. Neonates sleep for an average of sixteen hours per day, decreasing to fourteen hours per day by six months, usually a longer sleep overnight and a number of naps through the day (9). Sleep patterns stabilise between six and twelve months, with establishment of adult-type architecture (including REM) at this age (9, 10).

Sleep hygiene for infants is controversial, with two traditional paradigms of “parent-led” or “baby-led” care. Neither has a particularly robust evidence base, and a mix of the two is the best approach to suggest at present (11). Pragmatically, this means incorporating lifestyle measures that may help sleep regulation, e.g. start the day at the same time each morning, morning

sunlight exposure, sleep when the child is sleepy, and limit environmental noise at night.

No discussion of a baby's sleep is complete without a reminder of the standard sleeping advice given to new parents, known as the B's of SIDS: baby; by themselves; at the base of a bassinet on their back; wrapped in a blanket; with bugger all else; beside the parent's bedside (12). Baby's head and face should remain uncovered and options for support of parental smoking reduction should be given. For more on this see the Don't Forget the Bubbles article "SIDS ... and kids."(13)

Feeding

The gold standard measure of a thriving infant is weight gain; ideally this is 200g/week in the first three months of life (14). In the first week of life, up to 10% weight loss is tolerated as normal; later unexplained weight loss is almost always pathological.

A dehydrated child will likely need admission; exclusion of hypoglycaemia is mandatory in a poor-feeding infant. Red-flags include poor urine output or urate crystals after day three (15), jitteriness or an overly sleepy infant. Jaundice should be quantified with a serum or transcutaneous bilirubin.

90% of mothers start breastfeeding, with 50% still exclusively breastfeeding at six months (14). Units with maternity coverage frequently provide lactation consultant support, which may extend to the ED. After weighing the infant, and eliciting the history, first steps in assessing breastfeeding problems are to observe a feed or quantify an expressed volume.

A textbook feeding pattern is a thriving child waking for feeds every 3-4 hours, feeding for <20 minutes total (10 minutes at each breast), not getting tired or falling asleep at the breast, with some awake periods thereafter. This pattern is variable and is not prescriptive, at the risk of placing unrealistic expectations on parents. (14,16)

When observing a feed, assess the quality of attachment and nutritive versus non-nutritive suckling. Nutritive sucking is slow, around once per second, elicits milk flow, and a swallow for every three sucks can be observed. Non-nutritive is rapid, with two sucks per second, no milk flow, and the absence of interval swallowing (17).

An expressed volume, particularly after a feed, is helpful in that it may demonstrate the difference between congested full breasts and those being adequately drained by the feeding neonate. Ask about bleeding nipples or painful areas of the breast - mastitis is treated with expression and antibiotics where appropriate.

Formula feeding, either exclusively or as a supplementary top-up is common; in countries with a safe water there is medically no barrier to its use. In the case of poor maternal supply, initial infant hypoglycaemia or maternal HIV infection, it will help meet safely the infant's nutritional demands (18). Breast is best but a feast is better than a famine.

For a child with colicky symptoms, parents will change formulas endlessly, in search of a solution to a child's feeding problems. This is to be discouraged, as it is expensive and unnecessary.

Soy-based formulas are not indicated under six months of age. Goats' milk (or that of other mammals - camel, mare, ass, ewe) should be avoided as they both contain similar proteins to cows' milk, and are difficult and expensive to buy.(19)

Hydrolysed or amino-acid formulas are the first line feed of choice for infants with cows' milk protein intolerance, food protein induced enterocolitis (FPIES), food protein induced proctocolitis or atopic eczema, and must be prescribed by a paediatrician.

Constipation

Infant stooling patterns are variable with a wide range of normal. Stooling typically peaks around three weeks of life at six per day (20). If parents describe their child as constipated, the symptom must be unpacked and more detail obtained, as with many of the terms in this article. Breastfed children stool more frequently than children who are formula fed (20).

The ROME 3 criteria defines functional constipation in children. The infant criteria are passage of two or fewer stools per week, painful or hard bowel movements, excessive stool retention, a large faecal mass in the rectum or large calibre stools (21). There is no need to do a digital rectal examination in infants or children (22), but do ensure an anus is present in the neonate. Although polyethylene glycol or lactulose are effective treatments of constipation in children, overall there is no evidence in their use in children under six months (23). Despite good evidence, glycerol suppositories are occasionally used in infants.

Crying

Crying peaks in infants around six weeks, often coinciding with a change in the nature and tone of a child's cry.

Younger children are at the highest risk for a non-accidental injury (24); often a tense parent and distressed child can exacerbate each other's emotion leading to a cycle of significant distress and exhaustion.

Rather than offer these parents little more than a diagnosis (and a late-night discharge), a sensible management plan is to refer to the inpatient paediatric team to break the cycle, allow the parent some rest and let experienced nursing staff settle the child for the night in a place of safety. Help can then be given in the form of parent crafting; such stresses can present as feeding difficulties without any evidence of weight loss.

The admission strategy should be offered to parents presenting with an otherwise well but persistently distressed and crying infant. This is as much about parental health as child health; postnatal depression leads to poor infant-parent bonding, other serious pathology or lapses in safety behaviours (25). Remember paternal postnatal depression occurs in 2-25% of new fathers, typically with later onset than maternal postnatal depression, with symptoms of acute anger and exhaustion and self-criticism. (26)

Summary

This brief foray into the problems unique to the first six months of life aims to equip the emergency clinician with a number of management options and an awareness of red flag concerns. We hope it is useful

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Title:

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Date:

2016-04-01

Citation:

Goldstein, H., Tagg, A., Davis, T. & Lawton, B. (2016). Baby steps: Understanding normal baby behaviour. EMERGENCY MEDICINE AUSTRALASIA, 28 (2), pp.130-132. <https://doi.org/10.1111/1742-6723.12548>.

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