

# Special care for sick babies – choice or chance? The first BLISS Baby Report

BLISS, the premature baby charity, has worked with a number of organisations and individuals to ascertain current practice and provision of neonatal care in neonatal units throughout the UK and to gather parents' views of their experiences of the care of their baby. Conclusions drawn from the data should help to highlight areas of concern and if effective action is taken then neonatal care and outcome for these vulnerable babies will improve.

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Using the BLISS Baby Charter (FIGURE 1) for special care babies' as a framework for establishing goals and benchmarks, a review has been undertaken to identify current neonatal practice and service provision for each core value and to establish how this measures against what we consider sick and premature babies should be receiving. The results were published in July 2005 as the first BLISS Baby Report entitled *Special care for sick babies – choice or chance?* BLISS commissioned the National Perinatal Epidemiology Unit (NPEU) to undertake an independent research review to identify some baseline data about current organisation and aspects of policy in neonatal care, and independent consultants to undertake a gap analysis on staffing levels. The review included:

- a national survey of neonatal units undertaken in the winter of 2004/5
- a questionnaire sent to 220 units throughout the UK
- a questionnaire for parents about their experiences, which was available for on-line completion via the BLISS website for a period in Spring 2005
- a study to identify staff levels and to quantify the cost of eliminating the gap against British Association of Perinatal Medicine (BAPM) standards of care<sup>3</sup>.

The response rate was as follows:

- 153 units completed the questionnaire, representing a 70% response rate across the UK; 70% from England, 80% from Scotland, 57% from Wales and 71% from N. Ireland.
- 150 responses were received from parents representing experiences from 127 hospitals, which were also analysed by NPEU.



FIGURE 1 The BLISS Baby Charter.

Information was requested on networks, admissions/capacity, cots, transfer arrangements, staffing, practice in relation to developmental care and facilities and information for parents. This article discusses the results in relation to staffing, capacity, gap analysis, developmental care and parents' issues. The parent questionnaire asked similar questions but related to their personal experience. It was interesting to note that parents' experiences of service provision did not always match with the unit responses.

## Staffing levels and BAPM standards

Recommendations on staffing levels have changed over time. The most recent recommendations about optimal staffing levels from BAPM suggest that the following should be regarded as the minimum standard:

## Keywords

capacity; staffing; developmental care; networks; closures; nursing vacancies; kangaroo care; skin-to-skin contact; unit environment; gap analysis

## Key points

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1. Ninety five per cent of units that responded reported having taken in more babies than they were resourced or staffed for.
2. Only 2% of units have reached BAPM staffing standards.
3. Forty per cent of units say they have an identified lead for developmental care but only 24% of units have anyone trained or in training.
4. Research shows service needs an additional 2,700 nurses at an extra cost of £75 million per year.

Unit type	Total required establishment (WTEs) (2001/2003 recommendations)	Total current WTE	Total mismatch (WTEs)
Type 1 (n=27)	579.31	402.57	-176.74
Type 2 (n=51)	1901.81	1253.08	-648.73
Type 3 (n=65)	4948.38	3532.18	-1450.20

**TABLE 1** Recommended and current total nurse establishment and mismatch for study units. Source: NPEU

- Intensive Care: because of the complexities of care needed for a baby receiving intensive care, there should be 1:1 nursing. Occasionally when a baby is particularly unstable, two nurses per baby will be required
- High Dependency Care: one nurse should not have responsibility for the care of more than two babies
- Special Care: one nurse should not have responsibility for more than four babies who are receiving special care

The Department of Health (DH) Neonatal Intensive Care Review<sup>4</sup> developed a formula for calculating the number of nurses needed to provide this standard. Using this, the establishments required for the study units working in their current configuration were calculated for each unit type and compared to their current total Whole Time Equivalent (WTE) establishment (TABLE 1).

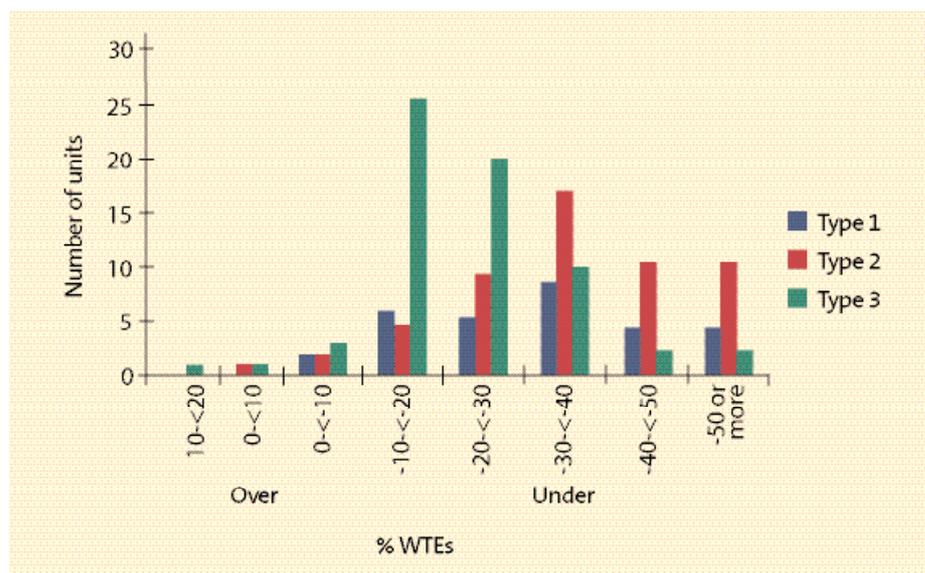
Most study unit establishments showed a negative value using this formula, with only three of the 143 units (2.1%) for which data were available found to be up to or over the recommendation. Of note, these estimates do not take into account vacancies and the functional establishments providing the nursing element of neonatal care were thus lower than what is actually shown.

The distribution according to unit type is shown in FIGURE 2. The extent of the current mismatch is greatest in type 2 units.

### Capacity

As a result of the Neonatal Intensive Care

Review<sup>4</sup>, neonatal care services are currently being reorganised into Managed Clinical Networks. Each network will comprise a range of neonatal units offering differing levels of care with the intention of having sufficient and appropriate capacity to care for the babies born within the network. There are three levels of units as recommended by BAPM<sup>5</sup>:



**FIGURE 2** Nurse staffing mismatch in % WTEs by unit type (Type 1 n=27; Type 2 n=51; Type 3 n=65). Source: NPEU

- Level 1 Units provide special care but do not aim to provide any continuing high dependency or intensive care. This term includes units with or without resident medical staff.
- Level 2 Units provide high dependency care and some short-term intensive care as agreed within the network.

Level 3 Units provide the whole range of medical neonatal care but not necessarily all specialist services such as neonatal surgery.

Both Level 2 and 3 would also provide special care for their local babies.

For the purposes of this project, units are described as Type 1, 2 or 3 but they map onto the levels described above. BAPM also recommended that units are so configured, resourced and staffed that they operate at 75% capacity – thus allowing for admission of new babies or return of recovering babies at all times. The development of the networks, if they are funded and staffed adequately, should result in mothers and babies no longer being transferred often hundreds of miles away because their local neonatal unit is

closed to new admissions.

Almost all units (95%, n=146) reported that they exceeded their unit cot capacity. TABLE 2 details the cot demands, which exceed the unit provision for each category of cot, grouped according to unit type. Of note, 40% of type 1 units (with special care and less than 3 high dependency care cots) cared for babies requiring intensive care. Overall, high dependency care was in greatest demand with 81% units reporting 'going over' on high dependency care cots.

The distribution of excessive unit demands is detailed for all four countries within the UK (FIGURE 3). All the responding units in Northern Ireland reported 'going over' on cot demands, versus 97.7% for those in England and 91.7% for those in Scotland. The Welsh

Type of unit	n (%) units exceeding overall cot numbers	n (%) units exceeding SC cots	n (%) exceeding HD cots	n (%) exceeding IC cots
Type 1	28 (93.3)	3 (76.7)	18 (60)	12 (40)
Type 2	53 (94.6)	40 (71.4)	50 (89.3)	37 (66.1)
Type 3	67 (100)	49 (73.1)	56 (83.1)	51 (76.1)

**TABLE 2** Cot demands exceeding unit provision by unit type. Source: NPEU

Unit type	WTEs			WTE vacancies			% vacant of total WTEs
	Total	Mean (s.d.)	Range	Total	Mean (s.d.)	Range	
Type 1	402.6	14.91 (4.32)	4-24.2	25.93	0.96 (1.28)	0-5.1	6.4
Type 2	1253.08	24.6 (8.1)	10.5-49.0	102.12	1.96 (1.76)	0-7.5	8.2
Type 3	3532.18	54.34 (23.51)	21.5-130.0	272.45	4.26 (4.07)	0-16.8	7.7

**TABLE 3** WTE and WTE vacancies by unit type. *Source: NPEU*

units reported the lowest incidence of excessive cot demands at 87.5%.

**Closures**

Currently neonatal units throughout the country find they have to close their unit to new admissions. This can be due to full occupancy or cots closed because of staff shortages. These closures lead to transfers, frequently out of the local network and sometimes hundreds of miles away, babies from multiple births being split up and often mothers being separated from their babies. A total of 72% (n=110) of units reported that they had been closed to admissions at some time in the previous six months. There was little difference in unit closures across each of the unit types (FIGURE 4).

However, the proportion of units closed varied according to country, with the highest closure incidence in Northern Ireland (80% of units), followed by England (73.4%, n=94), Scotland (66.7%, n=8) and Wales (50%, n=4) (FIGURE 5).

**Staffing levels against current establishment**

One of the factors contributing to closure of cots/units is shortage of staff against the

current establishment through vacancies or absence. Units were asked about nursing vacancies amongst their current establishment.

Nurse staffing and vacancies, measured in whole time equivalents (WTEs), are shown for the study units (TABLE 3). Overall, the total number of WTEs was 5187.83 with 400.5 WTE (7.72%) vacancies. This equates to a mean nursing establishment of 36.28 WTE (4-130) with an average vacancy rate of 2.8 per unit. However, nearly a quarter of units reported having no vacancies at all. As shown, the proportion of WTE vacancies differed relatively little by unit type. Also, perhaps surprisingly, overall the current vacancy rate of 8% is no different from that reported in a large-scale study of 56 neonatal units ten years previously<sup>5</sup>.

The highest proportion of vacancies was for staff midwives/staff nurses with 61% of all vacancies, followed by sister/charge nurses (20%).

When reviewing the neonatal nursing workforce, consideration was given to the unit policies on maintaining adequate nursing levels for the number of cots and the use of cover for each level of unit. (FIGURE 6). All types of unit primarily used their own nursing staff to cover staff shortages with agency staff being the least used by each unit type. This strategy, while

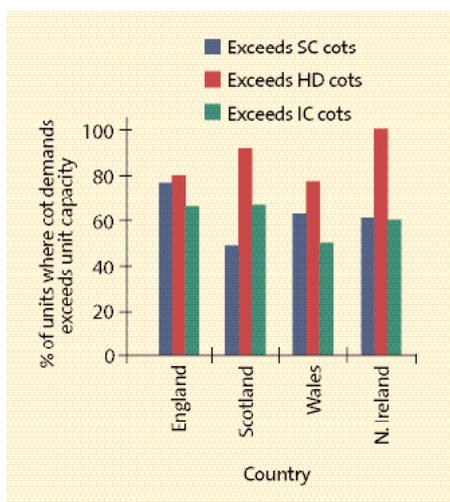
least costly, is likely to contribute to further staffing difficulties. BLISS is aware of considerable anecdotal evidence of staff demoralisation and fatigue caused by increasing shortages and non-replacement of staff.

**Developmental care**

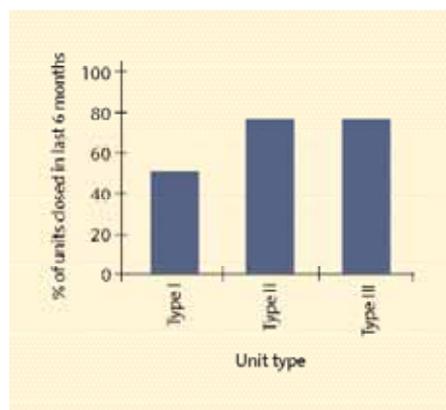
There is increasing recognition that the needs and development of premature and sick babies can be better addressed by focusing not just on their medical needs but also by respecting the baby as an individual who can communicate and has social and emotional needs.

Developmental care uses a range of medical and nursing interventions that aim to decrease the stress of preterm neonates in neonatal intensive care. It aims to adapt behaviours and procedures in the neonatal unit to reduce the isolation, stress and emotional detachment experienced by babies receiving care in a high technology environment. These interventions are designed to allow optimal neurobehavioral development of the baby and include:

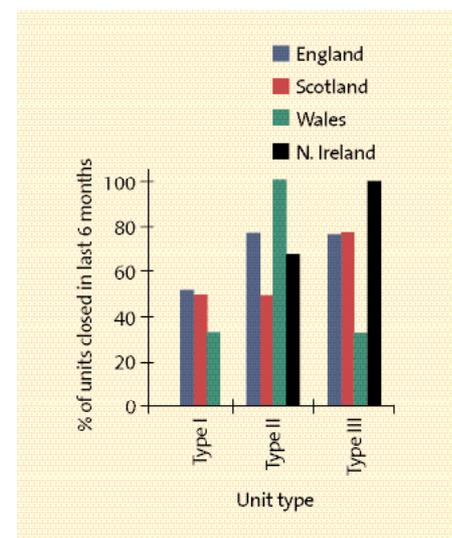
- awareness and control of the environment in the NICU – particularly light and sound



**FIGURE 3** Proportion of units per country where cot demands exceeded unit capacity. *Source: NPEU*



**FIGURE 4** Proportion of units closed to admissions in previous six months by unit type. *Source: NPEU*



**FIGURE 5** Proportion of units in each country closed to admissions in the previous six months by unit type. *Source: NPEU*

- schedule of care giving and medical interventions; supporting and encouraging parents to be involved in the care of their baby
- supporting non-nutritive sucking, positive touch and skin to skin contact by using, for example kangaroo care.

Study units were asked about their engagement in developmental care, whether there was a designated person or team responsible for this, what behavioural or neurodevelopmental assessments were used and what training had been undertaken. Overall 40% of units had a designated lead person or team in charge of developmental care. These leads are primarily neonatal nurses. More worrying was the fact that only 24% (35), had staff trained or who are in the process of receiving developmental care training.

The frequency of having a lead in developmental care and uptake in developmental care training varied across country and unit type (TABLES 4 AND 5). Half of Type 3 units have such a lead whereas only around a quarter of Type 1 are in a similar position. More English units demonstrated participation in developmental care, by having both a designated lead and more staff trained or in the process of receiving training in developmental care.

Contact with their baby, whether it involves feeding or not is an important activity for parents and babies, particularly when the baby is in the neonatal unit for some time. It is recognised that skin-to-skin contact and gentle touch can have benefits for both sides of the partnership. Skin to skin contact by using kangaroo care helps the parents to form an attachment with their baby. It can also help to stimulate or improve mother's milk production as well as having a calming effect on the baby, which can enable them to sleep more deeply and it has shown to improve oxygenation of the blood<sup>6</sup>. Whilst babies are on a neonatal unit, they have to endure many medical procedures which cause discomfort and stress. It is important that staff on the unit work with parents to show them how to comfort their baby through positive and gentle touch.

The study units were asked about practice in relation to this aspect of care as were the parents in their questionnaire. While half the units (51%) use kangaroo care or skin-to-skin contact and a quarter (25%) use massage or gentle touch regularly, there is a large remainder where

these are occasional or absent activities (FIGURE 7).

According to the parents, 26% regularly had skin-to-skin contact/kangaroo care when they visited their baby, 50% sometimes but 24% never did.

### Unit environment

Neonatal units can be noisy, bright and very busy places. This is not the best environment for a very sick baby, who is already under great stress and whose development and recovery can be hindered by the additional trauma of bright lights sometimes being left on all day and night, noisy people and banging of doors and cupboards.

The survey asked a range of questions about policy in relation to the quality of care and the way in which developmental needs are addressed to improve the environment within the unit and what practical modifications to the general physical environment and routine are in place (FIGURE 8).

As far as the parents were concerned, 75% indicated that there was a quiet time in their unit and 58% used incubator covers.

Positioning for premature babies is very important whilst in the neonatal unit, whether they are in an incubator or open cot. It is good to recreate the curled up position that the baby would have been in, had the pregnancy gone to full term and they also need to feel secure by having a boundary around them. These procedures can help towards the baby's physical and

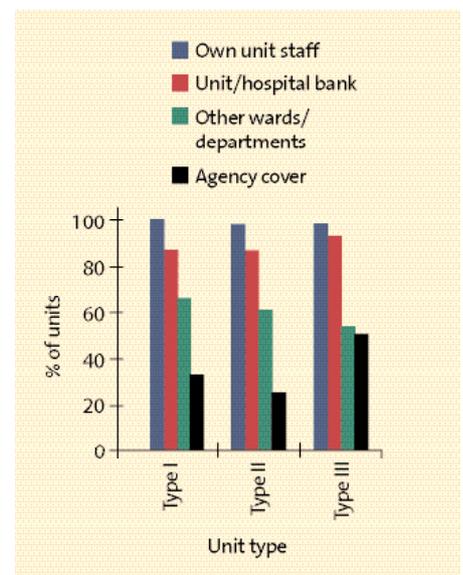


FIGURE 6 Use of coverage when short staffed per unit level. Source: NPEU

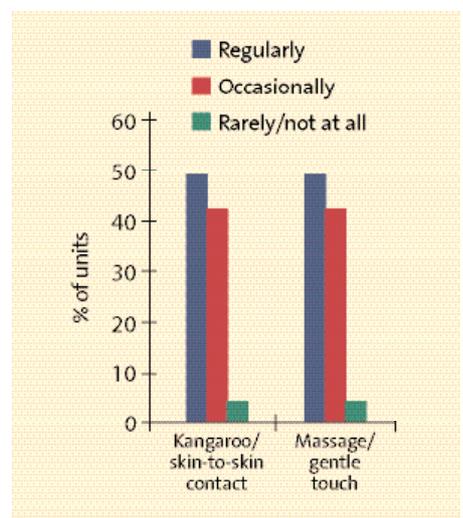


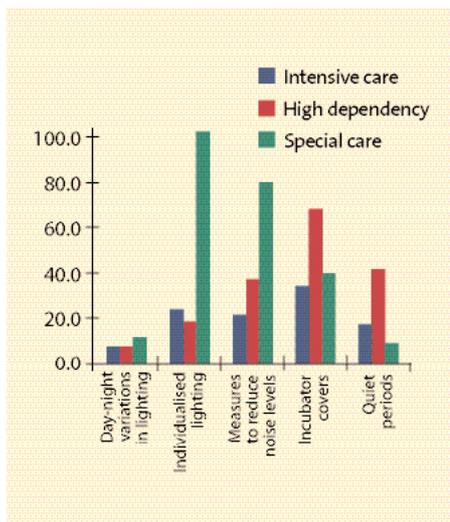
FIGURE 7 Use of touch and skin-to-skin contact in neonatal care (n=151 units). Source: NPEU

Country	Designated developmental care lead % (n of units)	Staff trained/receiving training in developmental care % (n of units)
England	41.3 (52)	26.3 (33)
Scotland	50 (6)	8.3 (1)
Wales	25 (2)	0
N. Ireland	20 (1)	20 (1)

TABLE 4 Developmental care lead and training by country. Source: NPEU

Unit type	Designated developmental care lead % (n of units)	Staff trained/receiving training in developmental care % (n of units)
Type 1	27.6 (8)	14.8 (4)
Type 2	28.6 (16)	23.6 (13)
Type 3	56.1 (37)	27.3 (18)

TABLE 5 Developmental care lead and training by unit type. Source: NPEU



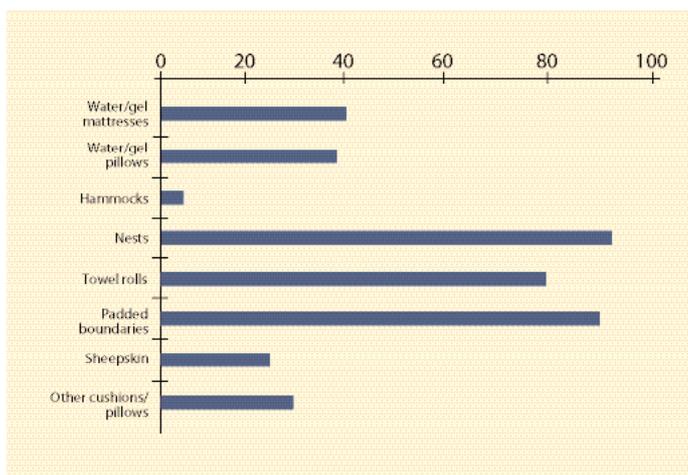
**FIGURE 8** Aspects of environmental care used to support infants' development in different areas of care (n=145). Source: NPEU

development needs as well as reducing stress. A number of measures can be used in caring for individual babies in open cots or incubators which will achieve this aim. All units seem to have a policy of providing some aids that will enable infants to be cared for in a space that involves boundaries created from soft and pliable materials (FIGURE 9).

Seventy two per cent of parents surveyed indicated that their baby was made comfortable by body positioning, and 85% said sheets were formed into a nest.

### Funding for the future

From the unit survey, and the analysis undertaken in England, it is clear that there remains a substantial gap between current staffing levels and those required to satisfy the BAPM standards and that it would cost a significant amount annually to close this gap. There is, however, better news if



**FIGURE 9** Aids used to maintain babies' positioning in neonatal care. Source: NPEU

hospitals network, as the shortfall, particularly for doctor numbers, crucially depends on the extent to which hospitals share their scarce resources. If hospitals engage in fairly intensive networking, ie a ratio of 5:1, then the gap in doctor's numbers between BAPM standards and current provision can almost be eliminated. This has clear benefits in terms of costs and also outcomes for babies.

If hospitals do not network at all, then the cost of eliminating the gap in staffing requirements based on the formula developed for calculating the staff needed for BAPM standards, is estimated to be around £250m. However, if hospitals do network effectively, it can be reduced substantially but still stands at over £80m per year. However, it should be noted that this cost, assuming hospitals network, is primarily due to the additional nurses required and can all but be eliminated for

Gap analysis	Wage cost (£m)		
	Medical cost	Nurse cost	Total cost
Current vs no network	£171	£76	£247
Current vs 3 to 1 ratio	£34	£76	£110
Current vs 5 to 1 ratio	£8	£75	£83

**TABLE 6** Wage cost gap for England.

doctors (TABLE 6).

The picture appears less rosy for nurse numbers, where these are far less dependent on the extent of networking, and the gap remains, regardless of networks, at around 2,700 nurses equivalent to a cost of £75m per annum. The issue here is not only about money but also about finding the nurses.

Whilst the analysis indicates a nursing shortfall, it appears to be unevenly distributed between the different grades and consequently the different levels of care. There appears, from the results, to be sufficient numbers of nurses in ICU and HDU, with the shortfall mainly appearing for lower grade SCBU nurses.

### Conclusion

A number of key areas of concern in

the care of babies have been highlighted when comparing the results of this work against the BLISS Baby Charter core values. Networking can help to eliminate the gap and move towards BAPM standards, which will result in lower cost and better outcomes, supporting the National Service Framework<sup>7</sup> and the Department of Health's current policy direction, but a note of caution needs to be exercised. For networking to be truly effective, there needs to be appropriate facilities and organisation in place for transferring the sickest babies to the more centralised facilities (costs which are not included in the analysis) and, perhaps more crucially, a significant change of culture within neonatal intensive care units providing care. However, if we are to reduce the rate of unit closures to new admissions and transfers out of network for non-clinical reasons, the serious shortfalls in nurse

staffing and the funding needed to achieve this have to be addressed. This in turn will have a significant impact on the outcomes for these vulnerable babies.

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