

Categories of neonatal care



Elizabeth S Draper

Chair BAPM Data Working Group

Professor of Perinatal & Paediatric Epidemiology
Dept of Health Sciences,
University of Leicester
msn@leicester.ac.uk



Bryan Gill

President of the British Association of Perinatal Medicine

bryan.gill@leedsth.nhs.uk

Over recent years the development of Health Resource Groups (HRGs) for the funding of neonatal critical care has been based on the British Association of Perinatal Medicine (BAPM) categories of care 2001¹, ensuring the standardisation of data collection across units. These HRGs are used to determine the funding requirement for units, in terms of staff and consumables, based on the severity of case mix of the babies admitted for care. They are not, however, a reflection of the overall staffing needs of a unit as they are based on nurse staffing requirements alone and do not include medical or other staffing requirements.

Since 2001 neonatal care has undergone major changes including new interventions (eg therapeutic hypothermia^{2,3}), and a lower requirement of care for specified groups of infants. For example the management of the whole duration of care for babies with neonatal abstinence syndrome was previously defined as high dependency care, whereas these patients, once stabilised on treatment, are now largely managed on postnatal or transitional care wards⁴. In addition some elements of the 2001 BAPM categories of care were considered too vague to ensure standardised data collection across units and consequently they were felt to be no longer 'fit for purpose'.

Following the publication of the 2010 BAPM Standards for Hospitals providing Neonatal Care¹, the BAPM Executive Committee therefore commissioned a working group (BAPM Data Working Group) to review, and where necessary revise, the neonatal categories of care.

A multidisciplinary working group was established, comprising neonatologists, nurses, epidemiologists, a statistician and administrative support. Over a series of meetings and email correspondence a draft list of the revised categories of care was produced using the 2001 BAPM categories of care as a starting point¹. The purpose of the categories of care is to indicate the staffing and requirements for consumables based on the intervention requirements of infants and therefore the group felt that measures of infant morbidity were not necessary or appropriate. The data items directly relating to individual infant characteristics in the 2001 BAPM categories of care were therefore excluded (birth weight, gestational age and age).

For each category of care a general principle was produced followed by a detailed definition of what constitutes a day of care at that level. The revised categories of care were developed to be used as hierarchical classification to be allocated

each day (where staff need only collect the highest level of care required by an infant) based on an infant's intervention requirements in terms of procedures, drugs and invasive devices using a simple to construct algorithm.

Any revision of the categories of care was inevitably going to lead to concern among the neonatal community, in particular regarding their future funding. The group felt that moving non-invasive ventilation in the first five days from intensive care to the high dependency category, may have an untoward impact on the income for those neonatal units which predominantly manage their preterm infants in the first few days using this form of respiratory support. It was therefore proposed that the combination of non-invasive respiratory support and parenteral nutrition be defined as intensive care, to maintain the level of intensive care in those units who undertake predominantly non-invasive respiratory support for their preterm infants and the high likelihood that some level of parenteral nutrition will be used in the first few days after birth.

In order to try and assess the overall impact of the new categories of care on the funding for units the Neonatal Data Analysis Unit (NDAU) was approached to map the new categories of care onto the 2001 categories. The aim was to assess the effect of non-invasive ventilation combined with parenteral nutrition as a criterion for intensive care, and measure the effect of the removal of the least frequent items in the new categories of care in order to define an efficient dataset.

The NDAU analysis was based on data for 46,961 babies from 124 neonatal units in England, covering 668,650 care days in 2009. In summary the analysis indicated that the overall impact would be small and the national distribution of categories of care for neonatal units would be principally unchanged. However the impact on individual neonatal units would vary by level of unit with lower level neonatal units showing a proportionally greater decrease in intensive care days, although it should be noted that they provide fewer days at this level. Due to the hierarchical nature of the classification and the rare instances of a number of the data items occurring in isolation, it was also reported that a number of data items could be dropped from the proposed new definitions with only minor effect. The full report of this exercise can be accessed via the publications on the BAPM website.

A report from the BAPM Data Working Group was sent to the BAPM EC for provisional

INTENSIVE CARE

General principle

This is care provided for babies who are the most unwell or unstable and have the greatest needs in relation to staff skills and staff-to-patient ratios.

Definition of intensive care day

- Any day where a baby receives any form of mechanical respiratory support via a tracheal tube
- **BOTH** non-invasive ventilation (eg nasal CPAP, SIPAP, BIPAP, Vapotherm) and PN
- Day of surgery (including laser therapy for ROP)
- Day of death
- Any day receiving any of the following
 - Presence of an umbilical arterial line
 - Presence of an umbilical venous line
 - Presence of a peripheral arterial line
 - Insulin infusion
 - Presence of a chest drain
 - Exchange transfusion
 - Therapeutic hypothermia
 - Prostaglandin infusion
 - Presence of Replogle tube
 - Presence of epidural catheter
 - Presence of silo for gastroschisis
 - Presence of external ventricular drain
 - Dialysis (any type)

HIGH DEPENDENCY CARE

General principle

This is care provided for babies who require highly skilled staff but where the ratio of nurse-to-patient is less than intensive care.

Definition of high dependency care day

- Any day where a baby does not fulfill the criteria for intensive care where any of the following apply:
- Any day where a baby receives any form of noninvasive respiratory support (eg nasal CPAP, SIPAP, BIPAP, HHFNC)
 - Any day receiving any of the following:
 - parenteral nutrition
 - continuous infusion of drugs (except prostaglandin and/or insulin)
 - presence of a central venous or long line (PICC)
 - presence of a tracheostomy
 - presence of a urethral or suprapubic catheter
 - presence of trans-anastomotic tube following oesophageal atresia repair
 - presence of NP airway/nasal stent
 - observation of seizures/CF monitoring
 - barrier nursing
 - ventricular tap

SPECIAL CARE

General principle

Special care is provided for babies who require additional care delivered by the neonatal service but do not require either intensive or high dependency care.

Definition of special care day

- Any day where a baby does not fulfill the criteria for intensive or high dependency care and requires any of the following:
 - oxygen by nasal cannula
 - feeding by nasogastric, jejunal tube or gastrostomy
 - continuous physiological monitoring (excluding apnoea monitors only)
 - care of a stoma
 - presence of IV cannula
 - baby receiving phototherapy
 - special observation of physiological variables at least four hourly

TRANSITIONAL CARE

General principle

Transitional care can be delivered in two service models, within a dedicated transitional care ward or within a postnatal ward. In either case the mother **must be resident with her baby and providing care.**

Care above that which is needed normally, is provided by the mother with support from a midwife/healthcare professional who needs no specialist neonatal training. Examples include low birthweight babies, babies who are on a stable reducing programme of opiate withdrawal for neonatal abstinence syndrome and babies requiring a specific treatment that can be administered on a postnatal ward, such as antibiotics or phototherapy.

FIGURE 1 BAPM categories of care 2011.

approval and circulation to the BAPM membership for consultation, alongside a summary of the NDAU mapping exercise. The new categories of care were published on the BAPM website in August 2011 (FIGURE 1)⁵.

The publication of the new categories of care was clearly a first step towards their use in clinical practice. Two further areas of work will be required:

- to facilitate the development of neonatal database systems to assign the new categories of care
- to adapt the current HRGs in line with the new categories of care in conjunction with the Payments by Results (PbR) centre at the Department of Health. In addition Clevermed are now in the

process of mapping the new categories of care to the Badger dataset. Part of this process will be to carry out a validation study to check the robustness of the new categories of care alongside the actual costs of neonatal services to help determine future tariffs.

In summary, as with any change or adaptation in clinical care, it is always difficult to achieve full agreement. Although some areas of concern still remain with the newly defined categories of neonatal care, their simplicity is generally supported.

Thank you to all members of the BAPM Data Working Group⁵.

References

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