Seminars in Fetal & Neonatal Medicine (2005) **10**, 91—98

ELSEVIER

Seminars in FETAL & NEONATAL MEDICINE

www.elsevierhealth.com/journals/siny

Managing safe staffing

Sara L. Watkin*

Neonatal Intensive Care Unit, Nottingham City Hospital, Hucknall Road, Nottingham NG5 1PB, UK

KEYWORDS
Neonatal;
Staffing;
Training

Summary Low staffing numbers in intensive care are associated with a number of adverse sequelae, including increased mortality. This article explores the evidence behind recommendations for safe staffing of neonatal units within the UK. Increasing pressure to reduce the hours all medical staff work and the increasing duration of neonatal nurse training requires all units to reflect on how they develop and maintain staff skills and prioritise training. To ensure safe staffing, numerous examples of innovative practice exist within the UK. Examples include network-wide workforces, clinical support workers and neonatal housekeepers.
© 2004 Elsevier Ltd. All rights reserved.

What is the evidence for the number of staff required?

Effects of low staffing in non-neonatal intensive care environments

Low staffing levels in intensive care environments have been shown to be associated with a number of adverse outcomes, including increased mortality.[1] Staff morale falls and fatigue increases as a result of frequent changes in off-duty and no opportunity for 'down time'.[2] Patient care is jeopardised and untoward incidents increase.[3,4] Hospital-acquired infection rates increase[5] and there is also an increase in needle-stick injuries.[6] Human observations reduce and dependence on technology occurs, with a decreased ability to detect incidents.[7]

Effects of low staffing in the neonatal environment

A number of studies over the last 15 years have explored the relationship between neonatal mortality and morbidity (defined as cerebral injury) and organisation of neonatal intensive care.[8—14] Studies from within the UK have been inconsistent in their findings, with earlier studies suggesting improved outcomes in tertiary centres[8,9] compared with non-tertiary centres but later studies refuting this.[12,13]

When neonatal intensive care provision in Australia was compared to that in Scotland, improved clinical risk index for babies (CRIB)-adjusted outcomes were demonstrated for very low birth weight (VLBW) infants born in Australia.[11] Although organisational differences in neonatal intensive care between the two countries was suggested as the main contributing factor, other explanations might have been the different recommendations for nurse:patient ratios for ventilated infants

* Tel.: +44 115 9691 169x46209.
E-mail address: swatkin@ncht.trent.nhs.uk

1744-165X/$ - see front matter © 2004 Elsevier Ltd. All rights reserved.
doi:10.1016/j.siny.2004.09.008

(1:1 in Australia compared to 1:2 in the UK at that time), duration of neonatal nurse training (1 year in Australia compared to 6 months in UK at that time) and number of full-time neonatologists per unit (greater in Australia).

Few have studied directly the effect of staffing levels both medical and nursing on neonatal outcome. The UK neonatal staffing study[15] prospectively studied 13,515 infants admitted to 54 randomly selected neonatal intensive care units stratified according to volume of patients, nursing provision and consultant provision. Mortality increased with increasing workload in all types of neonatal intensive care unit (NICU). Infants admitted at full capacity versus half capacity were found to be about 50% more likely to die. These results strongly suggest that as units become busier performance is compromised. Present national recommendations from the British Association of Perinatal Medicine are that neonatal services should be planned on the basis of an average occupancy of 70% based on nursing numbers.[16]

Hamilton et al.[17] in data published in abstract form only, looked at the relationship between staffing levels and mortality in seven Scottish and two Australian NICUs. Their results suggested that the risk of neonatal mortality is independently related to the staffing levels, especially in the first 3 days of life, with a 79% increase in odds of mortality when more than 1.7 infants were assigned to each nurse per shift. Conversely, Callaghan et al.[18] in a retrospective analysis of 692 VLBW infants admitted to Royal Women's Hospital, Brisbane, over a 4-year period, showed that CRIB- and dependency-adjusted mortality decreased in the periods of high nursing infant:staff ratios (i.e. >1.71). The authors suggested that their findings might reflect the increased handling of babies during periods of high staffing levels.

High neonatal workload has also repeatedly been shown to be associated with increased nosocomial infection rates.[19–21] No prospective studies have related outcome to required versus actual nurse provision per infant throughout stay.

How common is low staffing?

In 1998, 75% of neonatal units in the UK reported problems in nurse staffing.[22] In 1999, Parmanum[23] reported that 382 babies were transferred out of the 37 largest perinatal centres in UK over a 3-month period. In the majority of cases indication for transfer was lack of a neonatal intensive care (NIC) cot. It was not clear whether cots would have been available if the units had been staffed appropriately.

What are appropriate staffing levels – assessing neonatal workload

Staff levels on neonatal units need to be appropriate to the dependency of the babies. Despite this, there have been no published studies assessing nursing needs of babies requiring intensive care (IC) since 1993.[24,25] It is widely recognised that recommendations based on these studies are no longer valid and, because of the increasing complexity of neonatal intensive care, underestimate the present nursing need.[16]

Two measurement tools[26,25] were widely used in the UK throughout the 1990s to define the amount of intensive, high-dependency and special care a unit was performing, and thus the number of nursing staff required to undertake this work. A third tool, using an activity analysis study, was not widely embraced.[24]

The Northern Neonatal Network Dependency Scale[25] was established through the accumulation of evidence and definitions of IC, high-dependency care (HDC) and special care (SC) as defined through activity analysis. This system was described as having greater interobserver reliability by the system authors. Although previously widely used it has largely been replaced by the British Association of Perinatal Medicine (BAPM) 2001 standards.

BAPM standards were first set in 1992 and have been revised on two occasions (1996[27] and 2001[16]). The initial standards were not based on empirical evidence but have been developed over time to reflect changes in neonatal intensive care and where available evidence from the recent literature. The standards are based on a biomedical framework. No reliability testing has been performed of these standards and Yoxall et al.[28] reported a high level of inaccuracy and disagreement when using the 1992 standards in a tertiary NIC setting. These inaccuracies can be reduced by using computerised algorithms to calculate the level of care.

The 2001 standards[16] are now widely regarded as the gold standard to which neonatal units within the UK should aspire,[29] although many still struggle to achieve the earlier BAPM[26,27] and Northern Neonatal Network[25] standards. Significant changes have occurred in the latest standards, with a narrowing of the definition of neonatal intensive care

Download English Version:

https://daneshyari.com/en/article/9336010

Download Persian Version:

https://daneshyari.com/article/9336010

Daneshyari.com