

**BRITISH ASSOCIATION OF PERINATAL MEDICINE**

**STANDARDS FOR HOSPITALS PROVIDING  
NEONATAL INTENSIVE AND  
HIGH DEPENDENCY CARE**

**(Second Edition)**

**and  
Categories of Babies requiring Neonatal Care**



*FOUNDED 1976*

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**British Association of Perinatal Medicine**

***Standards for Hospitals Providing Neonatal Intensive and High Dependency Care  
(Second Edition)  
and  
Categories of Babies requiring Neonatal Care***

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## **LIST OF CONTENTS**

### **Foreword to the Second Edition**

<b>1</b>	Introduction	<b>1</b>
<b>2</b>	Definitions of Neonatal Intensive Care, High Dependency Care and the Designation of Neonatal Units	<b>2</b>
<b>3</b>	Care of the Sick Newborn Infant	<b>2</b>
<b>4</b>	The Pattern of Service	<b>3</b>
<b>5</b>	Staffing Levels	<b>4</b>
	5.1 Neonatal Nursing staff	<b>4</b>
	5.2 Advanced Neonatal Nurse Practitioners	<b>6</b>
	5.3 Consultants	<b>6</b>
	5.4 Resident Medical Staff	<b>7</b>
	5.5 Transport Services	<b>7</b>
	5.6 Other Sub-specialists	<b>7</b>
	5.7 Additional Staff	<b>8</b>
<b>6</b>	Parents	<b>8</b>
<b>7</b>	Other Facilities for Children	<b>9</b>
<b>8</b>	Equipment	<b>9</b>
<b>9</b>	Clinical Standards for Neonatal Care	<b>9</b>
	9.1 Clinical Practice of Neonatal Medicine	<b>9</b>
	9.2 Clinical Protocols	<b>10</b>
	9.3 Quality Assurance	<b>10</b>
	9.4 Monitoring of Long Term Morbidity	<b>10</b>
	9.5 Monitoring Service Provision and Access	<b>10</b>
	9.6 Training and Continuing Professional Development	<b>11</b>
	<b>Summary and Recommendations</b>	<b>12</b>
	<b>Annexe - Categories of Babies requiring Neonatal Care</b>	<b>13</b>
	<b>References</b>	<b>15</b>

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## **FOREWORD**

Since the first edition of this document was published in 1996<sup>1</sup> the widespread use of antenatal steroids, the use of replacement surfactant and refinements in ventilator technology have all reduced mortality and morbidity in the majority of sick babies who receive intensive care. As a result intensive care is directed increasingly towards the management of extremely preterm babies and a smaller number of mature babies many of whom have severe pulmonary hypertension. Overall the demand for neonatal intensive care has risen. At the same time there has been increasing public demand for transparency in the delivery of health care and the assurance that care is provided by professionals whose level of specialised training is appropriate to the clinical situation.

These changes are not reflected in the present day provision of care for sick babies. Many continue to receive ventilatory support in hospitals with low annual activity staffed by doctors who also have a heavy general paediatric workload and by some who do not have training in the provision of neonatal intensive care. In addition the shortage of specialised nurses, reductions in training posts for paediatricians and the cost of replacing expensive equipment, require change to be made if optimal care is to be provided for all sick babies. Any reorganisation should ensure improved equity of access to services, so that a woman knows if her chosen place of delivery does not provide all levels of care, what arrangements will be made if she or her baby develops problems.

This document includes a revision of the *Categories of Babies Requiring Neonatal Care* published in 1992<sup>2</sup> and describes the standard of care that babies should receive both when problems arise unexpectedly in a unit not equipped to provide continuing intensive or high dependency support, and in the longer term.

It takes time to train specialist nurses and paediatricians; the recommendations for the staffing of neonatal units included in this document cannot be achieved immediately. Strategic planning is needed both at national and regional level to determine the configuration of the service and to develop programmes to recruit and retain staff. All babies should receive the same high standard of care but the solution as to how to achieve it will vary in different parts of the country.

One of the results of the present service is the common situation whereby a woman has to be transferred to a centre quite unknown to her far from home, or is separated from her baby. This is unacceptable and should be less common if hospitals providing different levels of obstetric and neonatal care work together in 'Managed Clinical Networks'. The size of networks will vary but all will include a lead hospital whose staff have defined responsibilities for the co-ordination of care within the network and at least one hospital that provides the whole range of medical intensive care. Transfers for different levels of care will take place using guidelines agreed within the network.

There has been wide consultation amongst the members of BAPM and the Neonatal Nurses Association. All comments have been carefully considered in the production of the second edition, which takes into account the level of sophistication that neonatal care has achieved. Organisational change is now needed to ensure that these standards of care are available to all families and that the outcome for all babies continues to improve.

*This document has been endorsed by the Council of the Royal College of Paediatrics and Child Health and by the Trustees of BLISS, the National Charity of the Newborn.*



**The BAPM Executive Committee**  
**President – Professor Andrew Wilkinson**

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## 1 INTRODUCTION

- 1.1 Neonatal Care is based on a large body of research based evidence covering aspects of clinical management, nurse staffing and the economic basis of the service. Other practice has developed upon the strengths of clinical experience and observation.
- 1.2 Previous reports have drawn attention to the arrangements within the National Health Service needed to deliver such care and the standards that should be reached.<sup>3-9</sup> The Clinical Standards Advisory Group (CSAG) was set up in 1991, as part of NHS reforms, to act as an independent source of expert advice to health ministers and the NHS, on standards of clinical care, access to and availability of services. The first report published in July 1993, considered Neonatal Intensive Care.<sup>10</sup>
- 1.3 The Second CSAG Report on Neonatal Intensive Care, published in 1995,<sup>11</sup> which included as an appendix the 1<sup>st</sup> edition of this document, *Standards for Hospitals Providing Neonatal Intensive Care*,<sup>1</sup> contained the following additional recommendations:
  - a) that regional surveys of NIC are supported...until national statistics provide...sufficient detail to permit strategic planning.
  - b) that each Purchasing Authority publishes what it considers to be the need of its population for NIC and the services it has purchased.
  - c) that senior members of the medical and nursing staff are part of the commissioning team.
  - d) that the wider responsibilities of the larger units are defined and recognised.
  - e) that, as a quality measure, events when a baby (or mother) is transferred inappropriately, are recorded and a goal of reducing such journeys to 10% of all transfers is set.
  - f) that the NHSE facilitates the acceptance of national quality standards and a uniform approach to costing NIC.
- 1.4 The British Association of Perinatal Medicine (BAPM), founded in 1976, is the association of professionals who have a special interest in the care of the fetus and newborn baby. Using the evidence that is available, a working group of the Association, in consultation with the membership, the Royal Colleges and the Neonatal Nurses Association, prepared the first edition of this document in 1996.<sup>1</sup> It described the clinical and pastoral needs of sick and vulnerable infants and their families, and set a standard against which the quality of neonatal care could be appraised.
- 1.5 In the light of further changes in the NHS, therapeutic advances and a perceived lack of progress in achieving organisational improvements, the British Association of Perinatal Medicine has produced this revised second edition which includes new information where this is available.
- 1.6 It is recommended that to achieve these standards throughout the UK, hospitals should work together as Managed Clinical Networks.

The role of hospitals within each network will vary but at least one will provide the full range of medical neonatal intensive care. Within Heath Regions networks should be served by centralised transport services that will transfer babies within and between networks.

## **2 DEFINITIONS OF NEONATAL INTENSIVE AND HIGH DEPENDENCY CARE AND THE DESIGNATION OF NEONATAL UNITS**

- 2.1 Almost ten years ago *Categories of Babies Requiring Neonatal Care 1992* was published to facilitate the recording of neonatal workload.<sup>2</sup> To reflect changes in clinical practice over the last decade *Categories of Babies Requiring Neonatal Care* has been revised and is annexed to this document.

The revision provides a tool for recording workload that accurately reflects present medical and nursing requirements and access to supporting services needed for babies with different clinical problems. Some babies who would previously have been recorded as receiving intensive care, most notably those who are clinically stable but continue to receive nasal CPAP, will in future be counted with high dependency activity.

These changes result in more restrictive use of the term intensive care to identify those babies who must receive (at least) 1:1 nursing and require the immediate availability of staff trained to manage any emergency that might reasonably be expected to arise.

### **2.2 Designation of Neonatal Units**

*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.

## **3 CARE OF THE SICK NEWBORN INFANT**

All maternity units must provide facilities for the care of unexpectedly sick newborn infants as described in sections 3.1 and 3.2 below:

### **3.1 In the Delivery Room**

3.1.1 Every maternity unit, whether or not care of sick babies is undertaken, must have clearly established arrangements for the prompt, safe and effective resuscitation of babies<sup>12</sup> and for the care of babies who require continuing support, either in the maternity unit or by safe transfer elsewhere.

3.1.2 In any maternity unit, the delivery of a preterm, ill or seriously malformed baby may occur unexpectedly, and thus a professional who has received training and is skilled in all aspects of neonatal resuscitation must be immediately available.<sup>12</sup>

3.1.3 When it is anticipated that a baby may require intensive or high dependency care, a maternity unit where this is not provided must have clearly established arrangements, agreed within the network, to transfer the mother.

- 3.1.4 In critical situations where ethical issues may arise, such as a decision whether or not to continue resuscitation for an extremely preterm or malformed baby, a senior doctor, usually a consultant, should be in attendance.

## **3.2 Neonatal Intensive and High Dependency Care**

3.2.1 A need for specialised care for a sick baby can often be anticipated before birth. There should be written arrangements, agreed amongst professionals within each network, for the transfer of a mother with a high-risk pregnancy, to ensure that whenever feasible, she is managed and delivered at a centre with appropriate obstetric and neonatal facilities. In some cases the expertise of a feto-maternal medicine unit will be needed.

3.2.2 After initial stabilisation a sick baby will require care in a neonatal unit. Therefore all hospitals that do not provide this should have written arrangements for the transfer of the baby to a hospital that provides appropriate facilities. Response times for finalising arrangements and transferring the baby should be agreed within the network.

3.2.3 Where a maternity hospital is not intending to provide any intensive or high dependency care, a baby who has problems identified immediately after birth, or who becomes ill subsequently, may have a requirement for one or more of the following services. These should therefore be available to ensure safe care of the baby prior to appropriate transfer:

- Incubator care
- Monitoring of vital signs, including blood pressure and blood gases
- Fluid and drug treatment
- Venous access
- Artificial ventilation
- Portable X-ray facilities
- Drainage of a pneumothorax
- Administration of Surfactant

### **NEONATAL CARE SERVICE SPECIFICATION**

*The following service specification provides a basis for the provision of a Neonatal Care Service based upon current recommendations and evidence*

## **4 THE PATTERN OF SERVICE**

4.1 Throughout the 1990s there was an increase in the total number of intensive care days provided.<sup>13,14</sup> The number of intensive care days needed for a particular Health Authority will vary depending mainly on the number of low and very low birth weight babies born. For example, using length of stay for babies of different weights in the South East Thames Region during 1994-1999, the requirements in 1999, using 1992 definitions<sup>2</sup>, for the former Thames Regions, which include inner city and rural districts, (total births 184,093) varied between 1.0 and 1.9 intensive care cots per 1000 births (70% occupancy).<sup>15</sup> Precisely how many cots are needed will depend on the number and size of units in the network.<sup>16</sup>

- 4.2 The optimum size of any Neonatal Network needs to be assessed taking into account local geography and regional availability of facilities. Clinical evidence is accumulating which appears to favour a more centralised model of service provision of NIC for the sickest babies than presently exists in the UK.<sup>17-20</sup> Apparent differences in outcome in the UK and overseas may, in part, be attributable to the lack of centralisation within the UK.<sup>21,22</sup>
- 4.3 The UK Neonatal Staffing Study indicated that, with present levels of staffing, risk adjusted mortality rises linearly with occupancy.<sup>20</sup> Infants admitted when Intensive Care Units are at full versus half capacity have 50% greater odds of dying. This may be attributable to a number of factors including inadequate staffing and change of case mix as workload increases. It is crucial that staff levels are appropriate to the dependency of the babies.
- 4.4 Specialist perinatal services should be developed within each network so that women whose babies are likely to require intensive care are managed in centres which can provide appropriate facilities for both mother and baby. A recent study has reported a very large number of transfers out of regional centres of mothers with high-risk pregnancies because of a lack of neonatal facilities – often associated with a shortage of neonatal nurses.<sup>23</sup>
- 4.5 In order to be able to admit infants to the Neonatal Unit and to maintain safety, services should be planned for average occupancy of 70%.
- 4.6 The rising demand for Neonatal Intensive Care, the shortage of nurses, reductions in training posts for paediatricians and the need to rationalise the use of expensive equipment, combined with evidence of sub-optimal care,<sup>23</sup> are clear evidence that such services need specialist commissioning. We strongly recommend that urgent consideration is given to the development of a National Service Framework for Neonatal Care.
- 4.7 Regional Commissioners should oversee the development of managed clinical networks. The structure of the networks will vary depending upon the population and site of hospitals.
- 4.8 Units which undertake neonatal cardiology or neonatal surgery, should have separately identified resources in order to preserve a satisfactory level of cot availability.

## **5 STAFFING LEVELS**

### **5.1 Neonatal Nursing Staff**

- 5.1.1 The under provision of trained neonatal nurses noted in the first edition of this document in 1996 has become more serious. This reflects a national shortage of nurses and increasing pressures within neonatal units.
- 5.1.2 Neonatal Nurses are highly skilled within their specialty practice and urgent development of competency-based grading is required to acknowledge these skills in order to encourage staff recruitment and retention.
- 5.1.3 All units undertaking neonatal intensive and high-dependency care should be able to demonstrate the required number of appropriately trained and qualified nurses. A lack of trained staff may lead to care that is unsafe.

- 5.1.4 There have been no published studies assessing the nursing needs of babies receiving intensive care since 1993. Because of therapeutic and technological advances, the care of sick babies has become more complex and so the recommendations based on those studies<sup>24,25</sup> inevitably underestimate present need. Despite this, staffing in most units rarely meets the BAPM and Neonatal Nurses Association standards of 1992.<sup>2</sup> Consequently the stresses upon neonatal nurses shown in published studies<sup>26</sup> have increased.
- 5.1.5 The recommendations for staffing levels based on studies in the early 1990s<sup>24,25</sup> must now be regarded as a minimum standard.
- i) 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, for example with severe pulmonary hypertension, two nurses will be required.
  - ii) High Dependency Care  
A nurse should not have responsibility for the care of more than two babies.
  - iii) Special Care  
A nurse should not have responsibility for more than four babies who are receiving Special Care.
- 5.1.6 Units undertaking any neonatal intensive or high dependency care should have a senior nurse with neonatal experience and managerial responsibility.
- i) All units should have a designated nurse responsible for further education and training, including in-service experience in resuscitation of babies at birth.
  - ii) The need for extra nursing support cannot be predicted so there should always be at least one nurse available on each shift on all units providing intensive and/or high dependency care.
  - iii) The nursing establishment for each unit should be sufficient to allow for leave, maternity leave, sickness, study leave, staff training, attendance at multi-disciplinary meetings and professional development, without compromising the principles above. Such provision requires careful evaluation.
  - iv) Nurses caring for babies receiving any intensive or high dependency care should have post-basic training and hold one of the nationally recognised qualifications.
- 5.1.7 The recommendation for paediatric intensive care is for at least one trained nurse per patient.<sup>27</sup> There is no reason why the needs of the sickest newborn babies should be less. The nursing establishment of a Neonatal Intensive Care Unit should be calculated to ensure that the infants receiving intensive care are the sole responsibility of a qualified Neonatal Nurse.

- 5.1.8 In addition to the nursing establishment for direct patient care the following people should be identified in units providing intensive or high-dependency care:
- i) **Professional support staff** - specialist roles not engaged in the provision of direct patient care. This will include staff who provide support after discharge from hospital who may be neonatal nurses with midwifery or health visiting experience.
  - ii) **Other Support Staff** - any personnel engaging in support activity, e.g. administrative and secretarial staff and ward clerks.

## 5.2 Advanced Neonatal Nurse Practitioners

- 5.2.1 The training of Advanced Neonatal Nurse Practitioners has developed during the 1990s and they now provide an important additional tier of professionals providing care, but as yet there is no nationally-agreed career structure.<sup>28</sup> The extent to which their competencies replace those of Junior Medical Staff varies from Unit to Unit.
- 5.2.2 Nevertheless, it is expected that there will be greater demand for ANNPs both as neonatal nurses broaden their specialised expertise and as a result of a reduction in training posts for paediatricians.
- 5.2.3 Advanced neonatal nurse practice provides a basis for the development of Nurse Consultants with particular special interests, for example, in family care or transport.

## MEDICAL STAFF

This section describes the staff needed in different settings to ensure the availability of professionals who are competent to manage the service and any emergency that might reasonably be expected to arise. These professionals will usually be doctors but appropriately trained skilled advanced neonatal nurse practitioners will increasingly be able to take over some of these roles. These levels of staffing cannot be achieved if continuing intensive care is practised in a large number of hospitals. This standard will require planned staff development and a strategic distribution of work within managed clinical networks.

## 5.3 Consultants

- 5.3.1 Where a maternity hospital is not intending to provide intensive or high dependency care (Level 1 Unit), there should nevertheless be a designated Consultant Paediatrician responsible for the clinical standards of care of newborn babies.
- 5.3.2 Where only high dependency and short-term intensive care is to be provided (Level 2 Unit), the Unit should have one Consultant who is responsible for the direction and management of the Unit. This includes the monitoring of clinical policies, practice and standards. There should be 24 hour availability of a consultant or non-consultant career grade doctor with neonatal training. In future those appointed to posts providing cover for the neonatal unit should have had at least one year of specialist training in a post or posts approved for neonatal training. They should maintain their professional development in the care of newborn babies. This should include regular revalidation in Newborn Life Support.
- 5.3.3 Where continuing neonatal intensive care is provided (Level 3 Unit), the Unit should be staffed by consultants whose principal duties are to the NICU. All new appointees to such posts should have CCST in Paediatrics (Neonatal Medicine).<sup>29</sup>

## 5.4 Resident Medical Staff

### 5.4.1 **Staff with Intensive Care Experience**

Where only high dependency and short-term intensive care is provided (Level 2 Unit), a resident doctor holding MRCPCH or equivalent, who has completed General Professional Training, must be available. If a paediatric service and a neonatal high dependency service co-exist, staffing arrangements should ensure the immediate availability to the neonatal unit of a professional competent to manage a neonatal emergency when the paediatric service is busy.

Where continuing neonatal intensive care is provided (Level 3 Unit), there must be 24-hour resident cover by a doctor who has completed General Professional Training and in addition has experience equivalent to at least one year of 'core' Higher Specialist Training in paediatrics, including four months of neonatology. This doctor should be available for the Intensive Care Unit at all times and not be required to cover any other Service.

### 5.4.2 **Senior House Officers (SHOs) and Advanced Neonatal Nurse Practitioners (ANNPs) who undertake SHO duties**

Units undertaking intensive and high dependency care (Level 2 and 3 Units), must have 24-hour cover by an SHO or ANNP whose only responsibilities are to the neonatal and maternity services. In large Neonatal Units, it will be necessary to have more than one SHO or ANNP on duty at all times.

### 5.4.3 **Pre-registration House Officers**

Pre-registration House Officers should not provide resident medical cover for neonatal intensive or high dependency care.

## 5.5 Transport Services

5.5.1 Each Unit accepting neonatal referrals should have, or have access to, an appropriately staffed and equipped transport service.

5.5.2 Neonatal transport services will form an important part of a Managed Clinical Network. Transport needs to be organised on a Regional basis; one transport team may cover several networks.<sup>30</sup>

5.5.3 If the on-call doctor or a nurse has to be absent transporting a baby there must be defined arrangements to cover their duties.

## 5.6 Other Sub-specialists

5.6.1 Each Unit providing Neonatal Intensive Care should have defined lines of communication and access to specialist advice from the following:

- a) Obstetrics/Feto-maternal Medicine
- b) Neonatal Surgery and Anaesthesia
- c) Paediatric Cardiology
- d) Radiology (including Ultrasound, CT & MRI)
- e) Ophthalmology
- f) Laboratory services:
  - Clinical Chemistry
  - Microbiology
  - Haematology & Transfusion

- g) Child Development Centre
- h) Perinatal Pathology
- i) Clinical Genetics, including Dysmorphology
- j) Paediatric Neurology and Neurophysiology
- k) Paediatric Nephrology
- l) Audiology
- m) Other Surgical Specialists (ENT, Orthopaedics, Neurosurgery).

5.6.2 There must be access to autopsy by a trained Perinatal/Paediatric Pathologist.

## **5.7 Additional Staff**

5.7.1 Staff who support Neonatal Care must have training and expertise relevant to their role in the care of sick newborn infants and their parents:

- a) Radiographers
- b) Pharmacists
- c) Physiotherapists
- d) Neurophysiology staff
- e) Dieticians
- f) Infection control staff.

5.7.2 Each Unit providing Neonatal Intensive Care should have trained supporting staff to minimise inappropriate work which otherwise would be undertaken by nursing and medical staff. Examples are:

- a) Administrative, secretarial and clerical staff
- b) Medical Technical Officers
- c) Phlebotomists
- d) Staff responsible for liaison with primary care teams
- e) Audit assistants.

## **6 PARENTS**

6.1 Parents should be actively encouraged to take part in the care of their baby.

6.2 The evidence that breastfeeding is advantageous is undeniable and it should be encouraged. There should be comfortable discreet areas for expressing milk. Breastmilk pumps should be widely available for all mothers, and there should be a system for home-loan of equipment.

6.3 In addition, there should be other facilities for parents such as bedrooms, a quiet room, a bathroom, facilities for making drinks, and a telephone.

6.4 In addition there should be further support available for parents as appropriate, such as:

- a) Social Worker
- b) Spiritual Advisers
- c) Bereavement Counsellor
- d) Breast-Feeding Support Staff
- e) Psychological/Psychiatric Advice
- f) Community support after discharge from hospital (Usually Neonatal Nurses with Health Visitor or Midwifery training)
- g) Multi-ethnic health advocates and translators.

## **7 OTHER FACILITIES FOR CHILDREN**

Given the need for such wide-ranging clinical and non-clinical support, there are clear benefits in the neonatal intensive care unit being sited either within or adjacent to a comprehensive children's department. It is critically important that this relationship is not placed at risk during reconfiguration of Maternity or Paediatric Services in adjacent hospitals.

## **8 EQUIPMENT**

8.1 Each Unit providing Neonatal Intensive or High Dependency Care should have a policy prepared in consultation with a Department of Medical Physics and agreed with management. There should be a budget for the purchasing, maintenance, replacement and upgrading of equipment for neonatal care, which complies with national standards. Such a policy should also extend to appropriate training of clinical staff as well as record keeping of the usage of equipment and quality assurance in keeping with good laboratory and clinical practice.

8.2 Each Neonatal Intensive Care and High Dependency cot should have available the following:

- a) Incubator or unit with radiant heating
- b) Ventilator\* and NCPAP driver with humidifier
- c) Syringe/infusion pumps
- d) Facilities for monitoring the following variables:
  - i) Respiration
  - ii) Heart rate
  - iii) Intra-vascular blood pressure
  - iv) Transcutaneous or intra-arterial oxygen tension
  - v) Oxygen saturation
  - vi) Ambient oxygen.

\* intensive care cot only.

8.3 There must be access to equipment for:

- a) Resuscitation
- b) Blood gas analysis (on the Neonatal Unit, by Unit staff)
- c) Phototherapy
- d) Non-invasive blood pressure measurement
- e) Transillumination by cold light
- f) Portable X-Rays
- g) Ultrasound scanning
- h) Expression of breast milk
- i) Transport (including mechanical ventilation)
- j) Instant photographs.

8.4 There must also be access to a 24-hour laboratory service orientated to neonatal service needs.

## **9 CLINICAL STANDARDS**

### **9.1 Clinical Practice of Neonatal Medicine**

9.1.1 The efficacy of therapeutic and management techniques in many areas of perinatal and neonatal medicine have been well researched using randomised clinical controlled trials. Several recent advances have been shown to have important effects on the frequency

of death and neonatal disease processes. For example the use of antenatal steroids,<sup>31</sup> surfactant replacement therapy,<sup>32,33</sup> nitric oxide in term babies<sup>34</sup> and extra corporeal membrane oxygenation (ECMO) in selected conditions.<sup>35</sup> The results of clinical trials have been extensively reviewed and are widely available.<sup>36, 37</sup> The evidence from such research should be used to guide clinical practice.

## **9.2 Clinical Protocols**

- 9.2.1 Each Unit undertaking Neonatal Intensive Care should have agreed, written protocols for medical and nursing staff, which also contain details of practical procedures. These must be regularly reviewed through discussion and audit.
- 9.2.2 There should be a protocol for the resuscitation and management of extremely preterm infants.<sup>38,39</sup>
- 9.2.3 There should be monitoring systems for short and longer term morbidity among survivors with plans for regular review; including protocols for:
  - a) cerebral ultrasound examination<sup>40</sup>
  - b) screening and treatment for retinopathy of prematurity<sup>41</sup>
  - c) screening for hearing loss.<sup>42</sup>

## **9.3 Quality Assurance**

- 9.3.1 Each Unit should use a data collection system to monitor workload and the results of practice. Appropriate audit assistance, IT and computer systems are essential if this is to be achieved.
- 9.3.2 Each Neonatal Network should develop a system to monitor performance using the BAPM Neonatal Dataset which can form the basis of a standardised annual report.<sup>43</sup>
- 9.3.3 Each Unit should have an established strategy for clinical governance, including an audit programme and critical incident reporting.

## **9.4 Monitoring of Long Term Morbidity**

- 9.4.1 Each Unit should have a defined protocol for neurodevelopmental follow up and close liaison with local child development teams. The later health status of survivors at particular risk of disability should be ascertained up to at least a corrected age of two years. The use of standardised guidelines for the definition of disability is recommended.<sup>44</sup>

## **9.5 Monitoring Service Provision and Access**

- 9.5.1 Units undertaking Neonatal Intensive Care should co-operate with professional organisations to monitor clinical standards and contribute to interdepartmental audit undertaken jointly with other Neonatal Units in the network.
- 9.5.2 Each Unit must keep a record of all in-utero and postnatal transfers including those requests that could not be met, together with the reasons for refusal.

## 9.6 Training and Continuing Professional Development

### 9.6.1 **Training:**

Each new member of staff should undergo a period of induction, orientation and training. Until proficient at resuscitation of babies at birth, an SHO or other professional should not have primary responsibility for unsupervised attendance at deliveries. Before or soon after commencement of their post new staff should be expected to undertake the Newborn Life Support (NLS) Course or equivalent. All hospitals providing Neonatal Intensive Care should have a regular continuing programme of in-service training including neonatal resuscitation.<sup>12</sup>

### 9.6.2 **Continuing Education**

In addition to regular clinical meetings, in which all Neonatal Intensive Care Staff participate, the staff of each Unit should attend regular multi-disciplinary meetings with midwives, obstetricians and pathologists to monitor mortality and morbidity. Records should be kept of attendance and decisions taken at these meetings. Such meetings are recognised for Continuing Professional Development credits. Nurses and doctors involved in Neonatal Intensive Care should be able to demonstrate continuing professional development in the speciality by attendance at local meetings, suitable training courses and national meetings.

## SUMMARY AND RECOMMENDATIONS

- 1 The *Categories of Babies Requiring Neonatal Care* have been revised to reflect the significant changes that have taken place in the care of sick newborn babies during the last decade. This document describes revised Standards for Neonatal Intensive and High Dependency Care which should only be undertaken in hospitals with appropriate resources and staff with specialist experience.
- 2 All maternity hospitals, including those that do not provide *intensive or high dependency care*, must have staff and facilities for resuscitation and stabilisation for the unexpectedly sick newborn infant. Procedures must be agreed with the local hospital(s) with a neonatal unit for the transfer of high-risk obstetric cases and the post-natal transfer of sick babies.
- 3 Hospitals providing neonatal *intensive and high dependency care* must have continuous availability of qualified medical and nursing staff and resources to meet the needs of all babies.
- 4 Hospitals must be able to demonstrate the necessary professional and technical infrastructure, together with protocols to access specialist services provided elsewhere.
- 5 Standards for the expected levels of equipment have been established and should be adhered to. Local systems for purchasing, quality assurance and replacement of equipment are necessary.
- 6 There must be suitable facilities for parents to stay near to their baby.
- 7 Each unit providing Neonatal Intensive and High Dependency Care should comply fully with:
  - Clinical guidelines
  - Quality Assurance
  - Follow up of high risk survivors
  - Monitoring service provision and access
  - Training and continuing education.
- 8 Units should produce an annual report summarising their activity in a standardised form.
- 9 All units providing neonatal care should be appraised against national criteria of service provision.
- 10 The introduction of Managed Clinical Networks should improve the quality of care for mother and baby and facilitate achievement of these Standards.

## CATEGORIES OF NEONATAL CARE

The British Association of Perinatal Medicine and Neonatal Nurses Association (BAPM/NNA) Categories of Neonatal Care were last revised in 1992<sup>2</sup>. Although recommended in the BAPM Neonatal Dataset<sup>43</sup> for the recording of activity, it was noted that some of the definitions needed revision.

In this new edition only babies that are so sick or have a high likelihood of acute deterioration such that they need 1:1 care by a nurse with a neonatal qualification and the immediate presence of a competent doctor have been classified as receiving *intensive care*.

A nurse should not look after more than two babies designated as needing *high dependency care* and no more than four receiving *special care*.

Since 1993 there has been no published evidence relating babies with defined clinical problems to their nursing and medical needs. There have however been major changes in the delivery of care. The most notable of these have been the widespread use of ante-natal steroids and surfactant treatment which have contributed to a reduced need for ventilation particularly for babies from 28 weeks gestational age. This has been accompanied by an increase in the use of nasal CPAP which, for very immature babies, may be continued for many weeks.

In the absence of prospectively collected data the new 'Categories of Neonatal Care' are based upon clinical experience. Wide consultation amongst the members of BAPM and the NNA has taken place which has resulted in these new designations.

The major change has been to move babies five days old, who are clinically stable but still receiving nasal CPAP (NCPAP), from the intensive to the high dependency category. This will have impact

upon the number of days of intensive and high dependency care activity recorded by a unit and it is important that departments record when they begin to use the new definitions.

These categories reflect the care a baby receives on any part of the day in question irrespective of whether or not the hospital aims normally to provide care at that level.

Babies requiring **transport** inevitably need at least 1:1 nursing and will often need medical support. Transport activity should be recorded separately and has been excluded from the 'Categories'.

### Intensive Care

*These babies have the most complex problems. They need 1:1 care by a nurse with a neonatal qualification. The possibility of acute deterioration is such that there should be the constant availability of a competent doctor.*

- 1 receiving any respiratory support via a tracheal tube and in the first 24 hours after its withdrawal
- 2 receiving NCPAP for any part of the day and less than five days old
- 3 below 1000g current weight and receiving NCPAP for any part of the day and for 24 hours after withdrawal
- 4 less than 29 weeks gestational age and less than 48 hours old

- 5 requiring major emergency surgery, for the pre-operative period and post-operatively for 24 hours
- 6 requiring complex clinical procedures:
  - Full exchange transfusion
  - Peritoneal dialysis
  - Infusion of an inotrope, pulmonary vasodilator or prostaglandin and for 24 hours afterwards
- 7 any other very unstable baby considered by the nurse-in-charge to need 1:1 nursing: *for audit, a register should be kept of the clinical details of babies recorded in this category*
- 8 a baby on the day of death.

### **High Dependency Care**

*A nurse should not be responsible for the care of more than two babies in this category -*

- 1 receiving NCPAP for any part of the day and not fulfilling any of the criteria for intensive care
- 2 below 1000g current weight and not fulfilling any of the criteria for intensive care
- 3 receiving parenteral nutrition
- 4 having convulsions
- 5 receiving oxygen therapy and below 1500g current weight
- 6 requiring treatment for neonatal abstinence syndrome
- 7 requiring specified procedures that do not fulfil any criteria for intensive care:
  - Care of an intra-arterial catheter or chest drain
  - Partial exchange transfusion
  - Tracheostomy care until supervised by a parent
- 8 requiring frequent stimulation for severe apnoea.

### **Special Care**

*A nurse should not be responsible for the care of more than four babies receiving Special or Normal Care.*

Special care is provided for all other babies who could not reasonably be expected to be looked after at home by their mother.

### **Normal Care**

Is provided for babies who themselves have no medical indication to be in hospital.

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