THE FEDERATION OF EUROPEAN ASSOCIATIONS OF PAEDIATRIC ANAESTHESIA

(Recommendations for Paediatric Anaesthesia Services, ECOFFEY JC, France; ERBER A, Switzerland; HOLZKI J, Germany TURNER NM, The Netherlands, personal communications)

1) Introduction

The perioperative care of infants and children demands special facilities and presents a challenge for anaesthesiologists. The outcome of surgery and anaesthesia in children is closely related to the experience of the clinical team involved and it is recognised that surgeons and anaesthesiologists should not undertake occasional paediatric practice.[1] Furthermore, it has been shown that an experienced surgical and anaesthesia team considerably decreases morbidity and mortality in young children.

There are existing guidelines in the United Kingdom,[2] France, Switzerland, Germany and The Netherlands but there are currently no agreed standards for the European Community as a whole. Accordingly, in this document The Federation of European Associations of Paediatric Anaesthesia (FEAPA) put foreword practicable recommendations. The aim of these recommendations is to set down desirable standards for paediatric anaesthetic services throughout Europe.

2) Clinical services and facilities

2.1) Anaesthesia for children demands properly trained and skilled staff, medical, nursing and support staff with appropriate facilities. Thus paediatric anaesthesia should not be undertaken where these are not available.

2.2) The ideal child-orientated environment may not be able to be provided in some institutions, nevertheless, children of all ages should not be treated in direct association with adult patients both in wards and day surgery units. For example, recovery areas should be screened or separated from those for adults.

2.3) Neonatal and paediatric high dependency and intensive care services should be available, commensurate with the type of surgery undertaken.

2.4) There should be an adequate acute pain relief service in place for children of all ages that should be properly staffed and funded.

2.5) Parents (or carers) should be involved in all aspects of the decisions affecting the care of their children including the physical and psychological preparation for, and recovery from, surgery and anaesthesia. Appropriate medication, for example local analgesic ointments and sedatives, should be available.

2.6) Overnight accommodation should be available for the parents of children who require admission to hospital, particularly those who are serious ill.

In all but very exceptional circumstances, for example a life threatening emergency, parents should be given full information about the proposed anaesthetic and surgical their written informed consent obtained.

2.7) Children should be given an explanation of these procedures appropriate to their age and, when appropriate, their consent should also be obtained

2.8) Age-adjusted anaesthetic equipment and disposable items should be available for general and regional anaesthesia. A full range of monitoring devices should be available in the induction, operating and recovery areas.

2.9) Anaesthesia machines should be able to provide mechanical pulmonary ventilation for all age groups (volume and pressure-controlled ventilation, variable respiratory rates, appropriately designed paediatric breathing systems).

Warming devices should be available in the operating room and recovery area.

2.10) In non-specialized hospitals it is desirable to provide a mobile box for paediatric anaesthesia containing the necessary age related equipment, drugs (including those required for resuscitation) and devices for general and regional anaesthesia for infants and children. These boxes are especially important in general hospitals, where children undergo surgical operations within the same operating areas as used for adults.

3) Training and education

3.1) Children of all ages, who undergo anaesthesia must be managed by anaesthesiologists who have received the necessary training in paediatric anaesthesia and resuscitation.

3.2) Trainees in anaesthesia must be appropriately supervised when anaesthetising children. The recommended training and supervision in paediatric anaesthesia is detailed in the FEAPA document "Recommendations for Training in Paediatric Anaesthesia" which should be considered in conjunction with this document.

3.3) All anaesthesiologists whether they are specialist paediatric anaesthesiologists working in spe-

cialised units or those with an interest in paediatric anaesthesia working in non specialized District Hospitals must recognise and work within the limits of their professional competence. They should participate in continuing medical education that is relevant to paediatric anaesthesia and resuscitation in order to maintain the skills that they acquired during their initial training.

3.4) There should be a regular audit and morbidity meetings related to paediatric anaesthesia. This should involve all staff participating in the care of children and ideally should include the views of the children, when appropriate, and their parents.

4) Organisation in Non-Specialized Hospitals

4.1) The level of the surgical service for children and the system for ensuring an appropriate and safe paediatric anaesthesia service in non-specialized District Hospitals are issues that have been extensively discussed in many European countries.[3-7]

4.2) Neonates, infants and children up to 3 years of age are at greatest risk of experiencing anaesthesia complications.[4, 7] In this age group there is no "minor" surgery or anaesthesia because even in minor procedures the management of these patients can be difficult if the staff is not familiar with this age group.

Therefore, newborns, former pre-term infants (up to 50 weeks post-conceptual age), infants up to 12 months of age and most of the younger children (up to 3 years) should be transferred to specialized centres. The decision to transfer should be based on the number of procedures performed per year in this age group at the local hospital and the experience of all the staff.

4.3) Children with severe or rare co-morbidity require transfer to a specialist unit,

In addition, a lack of local facilities such as the possible requirement for postoperative intensive care, the absence of a paediatrician and paediatric nursing staff may necessitate transferring a child, of any age, to a specialised centre.[8]

4.4) The organisation for the transportation of emergency cases should be well defined.[6]

4.5) The anaesthesiology staff in a non-specialized District hospital should select a member of the group to be responsible for the organisation of the care for paediatric patients and for training and assisting other colleagues in the department. These designated specialists should be capable of participating in the routine perioperative service for children but should not be expected to be the sole specialist providing the service. They are expected to update their knowledge and skills in paediatric anaesthesia and resuscitation obtained during their training and thus should have the opportunity to visit paediatric anaesthesia centres from time to time (at least once a year).

5. Conclusion

The FEAPA is firmly of the opinion that these recommendations are both reasonable and attainable and should be the standard for paediatric anaesthesia care in all countries of the European Community

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THE FEDERATION OF EUROPEAN ASSOCIATIONS OF PAEDIATRIC ANAESTHESIA

Guidelines for training in paediatric anaesthesia

Approximately 20% of the population in European Countries are children defined as persons under the age of 16 years. However, in individual countries the definition of a child varies, for example in the United Kingdom and the Netherlands a child is defined as a person under 18 years of age. The delivery of an anaesthesia service to this group of patients requires that anaesthesiologists who care for children must have had a proper training in the management of paediatric anaesthesia and also have sufficient ongoing experience to maintain skills.

In the European community, the body responsible for setting minimum standards of training and expertise for medical specialists in anaesthesia is the Union Européenne des Médecins Spécialistes (UEMS) Section of Anaesthesiology, Reanimation and Intensive Care. The aims of this UEMS Section are to harmonise training programmes and achieve minimum standards of training and expertise among the Member European Union States, to allow the free movement of doctors and specialists, which is the aim of the European Union.[1]

The year 2001 Training Guidelines in Anaesthesia of the European Board of Anaesthesiology, Reanimation and Intensive Care address the training requirements for general specialists and do not deal with advanced training in the sub-specialities following recognition of general specialist competence.

However, it has been reported that special guidelines are in preparation for some sub-specialities.[2]

The aim of this document is to put forward **recommendations for the minimum amount of training** required in paediatric anaesthesia throughout the European Community. It is important to appreciate that all training in anaesthesia should be competency based with continuous assessment and supervision. Furthermore, it must be stressed that **recommendations as to the number of cases to be undertaken by trainees should only be taken as a guide and not as an absolute requirement.**

The following should be possible to achieve.[3]

All trainees in anaesthesia, regardless of their future career

A minimum of 3 months of continuous training should be provided in a specialist paediatric centre in a University hospital, a large Children's Hospital or a District(non specialist) Hospital with a large paediatric department, or a combination thereof, that have all the facilities required for the management of children. This training should not only include a sufficient number within the different surgical specialities but also a mixed age group of paediatric surgical patients

The recommended number of patients is:

— 10 infants less than 1 year of age (2 neonates);
— 20 children aged 1 to 3 years;
— 60 children aged 3 to 10 years.

For trainees who aspire to a post with an interest in paediatric anaesthesia (less than 50% of their time or on average the equivalent of at least half a day of paediatric anaesthesia per week).

A further training module of at least 6 months of continuous training is recommended.

For trainees who wish to acquire a specialist post in paediatric anaesthesia (more than 50% of their time or on average the equivalent of at least 2 and a half days per week).

A further module of continuous training for **a minimum of one year** in a specialised paediatric centre is recommended.

Trainees in the extended training modules above should spend periods of 1 and 2 months respectively in a paediatric intensive care unit. This period of training is to familiarise the trainee with the principles of paediatric intensive care management and must not be considered as a full training in paediatric intensive care that in many countries takes an additional period of training of up to 2 years. In addition, the surgical case mix should be extensive and must include emergency cases.

All trainees will be expected to have attained a knowledge of:

— anatomical, physiological and pharmacological differences between children and adults;
— resuscitation of the neonate, infant and child;
— general principles of the management of the neonate and the premature baby;
— important syndromes that may affect the management of anaesthesia;
— general principles of paediatric intensive care and paediatric emergency medicine;
— principles of the safe transportation of infants and children to or from other centres;
— medico-legal issues specific to paediatric practice, for example consent and clinical research;

At the completion of training the trainee should attained competence in:

— resuscitation, basic and advanced life support;
— preoperative evaluation and premedication;
— stabilisation and transportation of the emergency case;
— techniques for induction and maintenance of general anaesthesia;
— airway management in all age groups;
— monitoring;
— circulatory support and fluid management;
— regional anaesthesia and analgesia;
— perioperative pain management;
— postoperative recovery room management and the initial stabilisation of vital parameters of children who require intensive care management;
— communication skills in respect to children and their parents;
— trainees in extended training are expected to have competency and experience in a wider case mix including the more specialised areas of paediatric anaesthesia practice, for example cardiac and neurological surgery.

Assessment

— trainees must keep a logbook of cases that they have been involved with and should participate in audit;
— the trainee should be assessed during and at the completion of their paediatric training. This formal assessment, by the head of department or other authorised person, should include an interview, review of the trainee's logbook and reports from supervisors.

Supervision

Teaching and supervision should be adjusted to the age of the child undergoing anaesthesia and other recognised risk factors.
— Level 1:
the trainer teaches and supervises the trainee during the whole procedure in infants aged 1 year or less.
— Level 2:
the trainer is present at induction and recovery, children aged 1 to3 years.
— Level 3:
the trainer is immediately available in the hospital, children aged over 3 years.

For neonates and infants up to 1 year of age, level 1 supervision and the presence of a specialised assistant, who may be a nurse, should be mandatory. Level 2 and 3 supervision should be appropriate with regard to uncomplicated elective surgery, but not for major emergency surgery or for high-risk patients including neonates. For these cases a team of two clinicians, one a specialist, would be advisable, regardless of the patients' age. As far as practical, trainees should, in the interests of training, accompany a specialist during the management of these cases For trainees in the additional extended training modules, the levels of supervision may be varied commensurate with the individual's experience and expertise, in line with their department's policies.

Specialist Practice in Paediatric Anaesthesia

SPECIALIST PAEDIATRIC ANAESTHESIOLOGIST

Specialists in paediatric anaesthesia are defined as anaesthesiologists who have had an extra training of at least one year in a specialised centre and who spend at least 50% of their working week with the care of children of different age groups, usually in a specialist centre. These paediatric anaesthesiologists are expected to keep up to date and competent in paediatric resuscitation, anaesthesia, pain management, emergency paediatric medicine and initial stabilisation of children requiring intensive care.

SPECIALIST ANAESTHESIOLOGIST WITH AN INTEREST IN PAEDIATRIC ANAESTHESIA

These specialists may work in a District Hospital or single speciality unit or hospital and they would be expected to undertake a minimum of the equivalent of one half day paediatric operating list per week. Continuing medical education and professional development must be undertaken to ensure that these specialists also keep up to date with the developments and advances in paediatric anaesthesia. Contact should be established with a specialised paediatric surgical centre to enable these anaesthesiologists to make visits for updating their knowledge and expertise.

SPECIALISTS IN GENERAL ANAESTHESIA

All specialist anaesthesiologists in general anaesthesia should be capable of safely anaesthetising children over 3 years of age for the common surgical procedures of childhood. They are also required to keep up to date in paediatric resuscitation and the stabilisation of infants and children prior to transfer to paediatric surgical centres.

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RECOMMENDATIONS AND GUIDELINES IN PAEDIATRIC ANESTHESIA

Problems specific to pediatric anesthesia make it a highly specialized area within anesthesia and resuscitation. Foremost is the wide patient age range, from premature neonates and infants to young children and adolescents, each group with its particular anatomy, physiology and metabolism, and each demanding a thorough understanding of anesthesia care and resuscitation management.
Various studies in pediatric anesthesia (a SIAARTI Study Group paper on pediatric anesthesia and resuscitation [1995] and a recent work by Murat [2004]) have shown that pediatric anesthesia is safe when performed by experts in a special facility [1-3]. Furthermore, differences in morbidity and mortality have been linked to whether anesthesia is performed in a pediatric or and an adult patient setting; anesthesia-related risks were also found to be lower when procedures are performed in special centers that routinely manage pediatric anesthesia care [4, 5].
Today, quality is a vital part of our work. This means that the services we deliver must be safe, efficacious and efficient. To acquire the right know how, appropriate training at special centers that routinely carry out pediatric anesthesia services is essential. In Italy, SIAARTI and SARNePI have responded to the need to define standards with the publication of three series of guidelines on sedation in neuroradiology, difficult intubation and cranial trauma [6-8]. At the European level, in response to the need to harmonize procedures for facilitating the free movement of physicians within the European Community, the Federation of European Associations of Pediatric Anesthesia (FEAPA) has recently issued two documents (Guidelines for Training in Pediatric Anesthesia and Recommendations for Pediatric Anesthesia Services in Europe). The documents outline the desired standards pediatric anesthesia centers and the length and place of training in pediatric anesthesia. While broadly defining minimum requirements for anesthesia training and services in FEAPA member countries, the recommendations and guidelines emphasize the importance of having an anesthesia team (anesthetist, surgeon, pediatrician, nurses) and a pediatric intensive care bed available when necessary.
Only in this way can services be delivered that are safe and prompt to handle emergencies.
We believe these Recommendations will be a useful guide for specialists in pediatric anesthesia and resuscitation.

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RACCOMANDAZIONI E LINEE GUIDA IN ANESTESIA PEDIATRICA

L'anestesia pediatrica ha sempre presentato peculiarità e caratteristiche tali da qualificarla come "superspecialità" nell'ambito della specialità in Anestesia e Rianimazione.
La notevole estensione della fascia di età che coinvolge l'anestesista rianimatore si estende dal neonato prematuro al lattante, dal bambino in età prescolare alle successive varie epoche scolari; come si può facilmente intuire le caratteristiche anatomiche, fisiologiche e metaboliche variano al variare dell'età e necessitano di una profonda conoscenza nel settore per affrontare una anestesia/rianimazione di un paziente pediatrico.
Le indagini conoscitive svolte nel corso degli anni sull'attività anestesiologica pediatrica , tra di esse una pubblicata dal Gruppo di Studio SIAARTI per l'anestesia e Rianimazione pediatrica su Minerva Anestesiologica nel 1995 e più recentemente una effettuata dalla Murat all'interno del proprio ospedale e pubblicata su Pediatric Anesthesia, dimostrano come l'anestesia pediatrica sia sicura ma sottolineano l'importanza che le procedure vengano eseguite da anestesisti esperti nel settore ed in ambito dedicato [1-3].
A conferma di quanto affermato vi sono lavori che mostrano la significativa differenza in termini di morbidità e mortalità a seconda che l'anestesia sia eseguita in ambiente pediatrico oppure in ospedali per l'adulto, con rischi connessi all'anestesia che si riducono quando essa viene eseguita in centri dedicati e che eseguono con pratica routinaria l'anestesia pediatrica [4, 5].
Oggi la Qualità è parte essenziale nel nostro lavoro e ciò significa che la nostra disciplina deve fornire un lavoro in assoluta sicurezza, efficacia ed efficienza.
Il know how per affrontare un piccolo paziente richiede pertanto un periodo di apprendimento che deve essere effettuato presso centri che svolgono abitualmente questa disciplina.
In Italia la SIAARTI e la SARNePI, avvertendo la necessità di riferimenti per l'attività pediatrica , hanno pubblicato 3 Linee-Guida rispettivamente sulla sedazione in neuroradiologia, sull'intubazione difficile e recentemente sul trauma cranico [6-8].
In Europa, rendendosi conto dell'importanza del problema ed alla luce della recente necessità di uniformare le metodiche onde permettere un facile traferimento di medici passaggio all'interno della Comunità Europea, la Federazione Europea delle Associazioni di Anestesia Pediatrica (Federation of European Associations of Pediatric Anaesthesia, FEAPA) ha prodotto 2 documenti intitolati rispettivamente "Raccomandazioni per il training in anestesia pediatrica" e "Raccomandazioni per i centri di anestesia pediatrica".
In questi documenti vengono descritti da un lato i requisiti per potersi definire centro di anestesia pediatrica e dall'altro per quanto tempo e dove deve essere eseguito il preiodo di training.
Si tratta naturalmente di raccomandazioni generiche, suggerimenti che devono necessariamente adattarsi alle realtà dei vari paesi aderenti alla Federazione ma che comunque sottolineano l'importanza di avere una equipe dedicata formata da anestesista, chirurgo, pediatra e nurses per potere effettuare una anestesia ad un piccolo paziente, avendo poi a disposizione un eventuale posto letto di rianimazione pediatrica, se necessario.
Solo agendo in questo modo si può lavorare in assoluta sicurezza ,pronti ad affrontare anche eventuali emergenze.
Ci auguriamo che queste Raccomandazioni possano essere utili a chiunque si voglia dedicare alla anestesia e rianimazione neonatale e pediatrica fornendo una guida per affrontare con metodo e tranquillità questa difficile ed entusiasmante specialità.

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