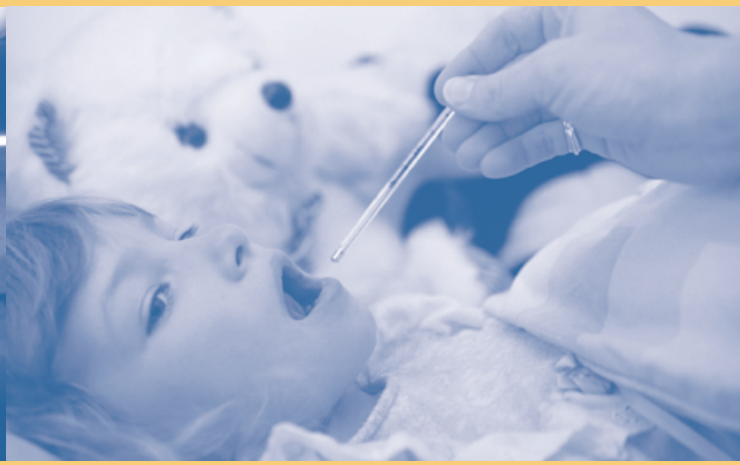
Paediatric Surgical Services In Northern Ireland

Report of a Working Group



1999

AS - DHSS

DHSS

306-079-001

Paediatric Surgical Services In Northern Ireland

Report of a Working Group

1999

DHSS

AS - DHSS

306-079-002

CONTENTS

1.0 Introduction

1.1 In October 1997 a working group was established at the request of the Chief Medical Officer to advise on arrangements for Paediatric Surgery in Northern Ireland (NI). The agreed remit was as follows:

"to consider available guidance on the provision of Paediatric Surgical services and in light of this

- to advise the Chief Medical Officer of the most appropriate arrangements within NI for the provision of

a) Specialist Paediatric Surgery
b) General Paediatric Surgery

- and to advise the Chief Medical Officer of the most appropriate level of Paediatric Surgical staffing and the deployment of such staff."

2.0 Definitions

2.1 Paediatric Surgery is a broad speciality covering a number of organ systems. Surgical specialities which are not encompassed within the definition of Paediatric Surgery include Ear, Nose and Throat Surgery, Eye Surgery, Orthopaedic Surgery, Plastic Surgery, Neurosurgery and Cardiac Surgery. It was agreed that practice in these areas was outside the scope of the Working Group.

2.2 The definitions of "Specialist Paediatric Surgery" and "General Paediatric Surgery" were drawn from guidance published by the British Association of Paediatric Surgeons[1] and the Senate of Surgery of Great Britain and Ireland[2].

2.3 General Paediatric Surgery is the surgical treatment of relatively common disorders which usually do not require a major or complex operation or peri-operative care. These include

elective procedures: herniotomy for congenital inguinal hernia and congenital hydrocele, circumcision, orchidopexy and repair of umbilical hernia

emergency procedures: appendicectomy, correction of torsion of testes, repair of incarcerated inguinal hernia and less complex trauma.

2.4 Specialist Paediatric Surgery consists of four clinical categories.

- Neonatal surgery

- The surgical management of infants and children with complex conditions requiring special expertise

- The management of children with relatively straight forward surgical conditions who have an associated disorder

- Paediatric urology

3.0 Process

3.1 The Working Group (the membership of which is given in Appendix A) met on 5 occasions. A survey to establish current Paediatric Surgical practice in hospitals outside the Royal Belfast Hospital for Sick Children (RBHSC) and the Ulster Hospital, Dundonald (UHD) was undertaken. This information was augmented by data from the Regional Information Branch of DHSS on surgical admissions by hospital among those under 15 years of age. The numbers of children admitted with certain conditions such as pyloric stenosis and obstructed inguinal hernia were also obtained from this source. Consultant General Surgeons from each acute hospital undertaking General Paediatric Surgery provided data on the number of procedures undertaken on children in their hospital units for specific conditions.

3.2 Miss Leela Kapila was invited by the Chairperson of the Working Group to advise, in particular, on arrangements for the provision of specialist paediatric surgery in Northern Ireland. At the time of her visit, Miss Kapila was the incoming President of the British Association of Paediatric Surgeons and a Council member of the Royal College of Surgeons of England. Miss Kapila was recently Adviser to the Chief Medical Officer (England) on Paediatric Surgery. She was also Chairperson of a Working Party established by the Senate of the Surgical Colleges of Great Britain and Ireland which considered the provision of General Surgical Services for children.

3.3 Miss Kapila visited Northern Ireland on two occasions. On her first visit she met with the Specialist Paediatric Surgeons and Trust representatives from the UHD and the RBHSC. On her return to the Province she again visited both hospitals. In addition to meeting with the Paediatric Surgeons and Trust representatives, Miss Kapila met with the Chief Executive and Director of Public Health of the Eastern Health and Social Services Board. The view, expressed by Miss Kapila, on the current paediatric surgical service and her advice on its future configuration have been included in the recommendations.

4.0 Range of publications considered

4.1 A full bibliography of reports considered is given at the end of the Report. These reports propose arrangements which would support a safe paediatric surgical service in both specialist centres and district general hospitals. They cover standards for surgical, anaesthetic and nursing and paediatric medical input. The psychological needs of children and the physical environment are also addressed as are the requirements for Accident and Emergency Departments.

5.0 Standards

5.1 **Standards for Specialist Paediatric Surgery**

A number of reports, including the Senate report[2], emphasise that Specialist Paediatric Surgery (as defined in paragraph 2.3) should only be undertaken by Specialist Paediatric Surgeons. The report of the British Association of Paediatric Surgeons (BAPS)[1] details the support required from other specialist paediatric services.

The BAPS report[1] makes the following recommendation in respect of specialist paediatric surgical manpower. "Taking into account the heavy demands of out-of-hours work and the increasing range of responsibilities being placed on consultant surgeons, it is unacceptable to plan a department with fewer than 4 Paediatric Surgeons and one Paediatric Urologist."

5.2 **Standards for General Paediatric Surgery**

The Senate report[2] recognizes that there is a clear need for General Surgeons to provide General Paediatric Surgical Services within district general hospitals. This requirement, the report indicates, is unlikely to change for the foreseeable future. It accepts that children who do not require major or complex surgery can be treated locally and need not travel to regional centres for treatment. The Senate report highlights the impact on Specialist Paediatric Services should all General Paediatric Surgical cases be referred to regional centres. The proportion of complex cases managed by Specialist Paediatric Surgeons would fall substantially and this could be associated with a loss of skills. Expertise, particularly in Neo-natal Surgery, could be difficult to maintain. Furthermore, if Specialist Paediatric Surgeons were to provide all General Paediatric Surgery in the United Kingdom, the number of Specialist Paediatric Surgeons would need to increase by at least 70 from the current level.

If General Paediatric Surgery is to be undertaken in a district general hospital then certain standards must be met. These are set out clearly in the Senate Report.

- A General Surgeon should be designated to provide General Paediatric Surgery and should have

.

- 6 months training in paediatric surgery undertaken in a SAC accredited specialist paediatric surgical unit towards the end of the period of higher specialist training (now year 3 level or above)

- care for a sufficient number of children annually to maintain a high level of competence

- aim to have at least one operating session per fortnight dedicated to children and certainly not less frequently than monthly

- participate in audit and maintain continuing education in paediatric surgery.

• An Anaesthetist should be designated to provide anaesthesia for children and he/she should meet the criteria laid down by the Royal College of Anaesthetists.

• A Paediatrician should be available who would be involved with the care of patients when appropriate.

• There should be a children's ward to which all children should be admitted or, in the case of day surgery, there should be a dedicated list in a day care unit.

• There should be protocols in place for access to paediatric intensive care beds.

• The hospital should have an Accident and Emergency Department with appropriate amenities for children.

• In all areas, staff should include nurses with special training in children.

• There should be close liaison with the Specialist Paediatric Surgical Centre.

The Senate Working Party recognizes that many consultant surgeons regularly undertaking general paediatric surgery have not had training at the recommended level. It acknowledges however that it is impractical to require those consultants to be retrained or to be released from their existing duties to received further training. It has emphasised the need for such surgeons, nevertheless, to ensure through their continuing medical education that they remain abreast of new surgical techniques and methods of management. In addition the Senate Working Party has recommended that General Surgeons appointed after 1999 who cannot meet the standards defined should not undertake Paediatric Surgery.

5.3 **Management of surgical emergencies at a district general hospital**

The Senate Working Party has also addressed issues relating to the most appropriate management of paediatric surgical emergencies presenting at district general hospitals. The Working Party acknowledges that most paediatric surgical emergencies require urgent but not necessarily immediate surgical treatment. It is

proposed that if an appropriately trained surgeon is not available and will not be available within a reasonable time, the child should be transferred. The initial stabilisation and non-operative management by the duty surgeon could facilitate the subsequent safe transfer of care to the duty surgeon's designated colleague or to an appropriate unit.

5.4 Standards for cover arrangements at district general hospitals

The Senate Working Party has also addressed issues relating to out-of-hours cover for General Paediatric Surgeons in a district general hospital. The importance of having at least one designated surgeon responsible for General Paediatric Surgical services in a district general hospital is restated. When the designated surgeon and/or anaesthetist is not available, special arrangements need to be made to ensure continuous cover by staff with adequate training and continuing experience in Paediatric Surgery. The Working Party defined continuing experience as being the equivalent of at least one operating session per fortnight. The Working Party has recommended that "When surgeons with appropriate training and expertise are not available, children should be transferred to a hospital with the necessary staff and facilities."

5.5 Standards for anaesthetic support

A number of reports have highlighted the risks associated with anaesthetists undertaking 'occasional' paediatric practice. These include the National Confidential Enquiry into Perioperative Deaths (NCEPOD), which reported in 1989 on perioperative deaths in childhood[3].

The Royal College of Anaesthetists issued guidance for purchasers on Paediatric Anaesthesia in 1994 and has since contributed a position statement to the report on "Children's Surgical Services" produced by the Royal College of Paediatrics and Child Health (1996)" [4].
The following key points are made:

- There should be a nominated suitably trained anaesthetist (defined as six months training at Specialist Registrar levels 4 and 5) responsible for services for children.

- The paediatric anaesthetic service should always be led by consultants who anaesthetise children regularly, at least the equivalent of one full operating list per week.

- Children under 5 years of age should normally be anaesthetised by a consultant or under the appropriate supervision of a consultant.

- New born infants should only be operated upon by an anaesthetist and surgeon experienced in the care of neonates.

- Occasional practice must not be undertaken. However in life threatening situations, anaesthesia should be undertaken by the most senior appropriately experienced anaesthetist available.

- If an adequately trained and experienced consultant is not available, arrangements to transfer the child to another hospital with the necessary facilities should be made.

The Linkman Conference of the Association of Anaesthetists has suggested the frequency with which anaesthetists should be anaesthetising children of different ages. It recommends the following average figures:

- 1 infant (< 6 months) per month (12/year)

- 1 child (under 5 years) per week (50/year)

- 1 child (under 10 years) per day (300/year)

5.6 Nursing support

The report "Welfare of Young Children and People in Hospital" [5] sets out the standards of care of children before and after surgery. It details the nurse staffing and training requirements. This report makes the following recommendations:

- There should be at least 2 Registered Sick Children's Nurses (RSCN) (or nurses who have completed the child branch of Project 2000) on duty 24 hours a day in all hospital children's departments and wards.

- There should be a RSCN available 24 hours a day to advise on the nursing of children in other departments such as out-patients and accident and emergency.

These recommendations have been endorsed by Sir Cecil Clothier in his report into the deaths and injuries to children resulting from the crimes of Beverly Allitt[6]. The Chief Executive of the Management Executive has also required each Health and Social Services Board and Trust to ensure that such arrangements are in place[7].

5.7 **Standards for accident and emergency medicine**

The British Association for Accident and Emergency Medicine has contributed the following advice for incorporation into the report "Children's Surgical Services"[4]:

- All Accident and Emergency staff should receive training specifically related to the care of children.

- Where the need is urgent and the condition life threatening, surgery should be undertaken in the Accident and Emergency department by the most

experienced surgeon and anaesthetist available. Local plans should be made to ensure the availability of staff experienced in the care of children.

- Local plans should ensure ready access to Paediatric Intensive Care facilities for children who present with life threatening injuries. Units admitting children following trauma should have direct access to intensive care and clearly defined arrangements for transfer to a Paediatric Intensive Care Unit.

5.8 **Standards for access to paediatric medical cover**

The report "Children's Surgical Services" states that children requiring in-patient care following paediatric surgery should only have such surgery undertaken in a hospital which has a fully staffed paediatric department[4].

5.9 Standards for organisational issues and physical environment

The Royal College of Anaesthetists' Guidance to Purchasers[8] highlights the importance of appropriate theatre design, appearance and working practices which should reflect the emotional and physical needs of children. The value of facilitating the presence of parents at the induction of anaesthesia and immediately after recovery from anaesthesia is emphasised. The report, "Children's Surgical Services", also emphasises the importance of adequate play facilities.

The publication "Just for the Day"[12] sets out a package of quality standards for day care admissions for children.

5.10 **Standards for supervision of medical staff**

The National Confidential Enquiry into Peri-operative Deaths (NCEPOD) has made the following recommendations regarding the supervision of junior surgical and anaesthetic staff:

- No trainee should undertake any anaesthetic or surgical operation on a child of any age without consultation with their consultant (NCEPOD 1989)[3]

- It is no longer acceptable for basic specialist trainees (senior house officers) in some specialties to work alone without suitable supervision and direction by their consultant (NCEPOD 1991/2)[10]

- Trainees of less than three year's training in the specialty should not anaesthetise or operate without appropriate supervision (NCEPOD 1992/3)[11]

6.0 Current practice

6.1 Specialist paediatric surgery

The Specialist Paediatric Surgeons provide a service at two hospitals; the Royal Belfast Hospital for Sick Children and the Ulster Hospital, Dundonald. Elective, day case and emergency surgery and out-patient clinics relating to this service are undertaken on both sites.

The service is delivered by 3 Consultant Paediatric Surgeons, one recently appointed Locum Consultant Paediatric Surgeon, 2 Specialist Registrars and 4 Senior House Officers. Three of the SHOs are attached to the RBHSC and one to the UHD. Each surgeon has fixed commitments on both sites.

The out-of hours service is provided by the Specialist Paediatric Surgeon who is on call for both the RBHSC and the UHD. In the RBHSC, the Consultant is supported by either a Specialist Registrar or a Paediatric Surgical SHO. In the UHD, the Consultant supported by either a Paediatric Surgical SHO or a General Surgical SHO. From 1 August 1996, these support arrangements have been enhanced by the involvement of a General Surgical Registrar in the out of hours paediatric surgical service at the UHD.

The Specialist Paediatric Surgical team provides not only a regional specialist service but also a General Paediatric Surgical service to the greater Belfast area. There is no specialist outreach service at present.

The number of beds in the Paediatric Surgical Units is as follows:

RBHSC

- 29 paediatric surgical beds (12 neonatal/infants, 17 for older children)
- 9 day care beds.

These are supported by 73 medical paediatric beds and 6 intensive care beds.

UHD

- 20 paediatric surgical beds
- 10 day care beds

These are supported by 20 medical paediatric beds and 13 cots. In addition an acute paediatric assessment unit with 6 beds has recently been established and this is open 9am to 5pm, Monday to Friday.

6.2 General paediatric surgery

General paediatric surgery is undertaken by General Surgeons in the following hospitals:

NHSSB area - Antrim, Coleraine, Route, Mid-Ulster, Whiteabbey Hospitals.

SHSSB area - Craigavon, South Tyrone, Daisy Hill Hospitals.

EHSSB area - Lagan Valley, Downe, Mater Hospitals.

WHSSB area - Altnagelvin, Erne, Tyrone County Hospitals.

A questionnaire was developed by the Working Group to ascertain the current practice in relation to Paediatric Surgery in these hospitals. As the same surgical team manages Coleraine and Route Hospitals only one questionnaire was sent to that Trust. A total of 13 questionnaires was thus issued and 12 were returned. As the return from the Mater Hospital indicated virtually no surgical activity, it was decided that this return should be excluded from the analysis. The survey has indicated the following points in relation to Paediatric Surgery in 11 units.

6.2.1 **Surgery**

In 10 of the 11 units all consultant surgeons operate on children routinely for both elective and emergency procedures.

Three of 11 units have a designated surgeon who performs the majority (greater than or equal to 60%) of General Paediatric Surgery in that hospital.

Three units reported having one consultant surgeon who had undertaken 6 or more months training at registrar/senior registrar level during his/her general surgical training. A further one unit reported having 2 surgeons and 2 units report having 3 or more surgeons with such training.

6.2.2 **Procedures**

Questions were asked regarding the management of certain conditions.

Pyloric stenosis - 4 of 11 units indicated that they undertake pyloromyotomies.
Intussusception - 7 of 11 units indicated that they undertake reduction procedures.
Strangulated/incarcerated inguinal hernia - 9 of 11 respondents indicated that their unit undertake the surgical management of these conditions.
Appendicectomy - 10 of 11 units indicated that they operate on children with appendicitis.

6.2.3 **Theatre arrangements**

Three of 11 units have designated “children only” theatre lists.

In 2 of 11 units there is a distinct and separate recovery room for the post-operative management of children.

6.2.4 **Anaesthetic support**

In 8 of 11 units, all Consultant Anaesthetists are involved in anaesthetising children.
In 2 of 11 units, there is a designated Consultant Anaesthetist for General Paediatric Surgery.

(The position in the eleventh unit was not reported.)

6.2.5 **Nursing support**

In 2 of 11 units there are designated paediatric anaesthetic nurses in both theatre and recovery suites.

In the 9 hospitals without paediatric anaesthetic nurses, the anaesthetic nursing staff have received formal and accredited training in paediatric anaesthesia.

6.2.6 **Paediatric medical support**

Six of the 11 units have 24 hour resident paediatric medical cover.

7.0 Volumes/workloads

7.1 **Services provided by Specialist Paediatric Surgeons**

Table 1 shows the total volume of patient activity (measured in terms of deaths and discharges) relating to RBHSC and UHD in 1996/7. The figures include elective and emergency in-patient admissions, transfers and day cases.

Table 1
Total Paediatric Surgical Deaths and Discharges - UHD and RBHSC - 1996/7*

	Age					
	< 1 mth	1 - <3 mths	3 mths - <1 yr	1 - 4 yrs	5 yrs +	Total
UHD	4	27	60	494	930	1515
RBHSC	98	180	219	635	1007	2139

* Source: Regional Information Branch DHSS

Table 2 shows the number of children having paediatric surgical operations undertaken in those two hospitals. These are presented as numbers of 'primary procedures' undertaken on an elective in-patient, emergency / transferred in-patient or day case basis.

Table 2

Paediatric Surgical Procedures - Primary procedures as elective in-patient, emergency/transferred in-patient or day case - for UHD and RBHSC - 1996/7*

	Elective in-patient	Emergency/ transferred in-patients	Day Case	Total
UHD	69	134	674	877
RBHSC	305	584	464	1353

*Source: Regional Information Branch DHSS

Tables 3(a), (b) and (c) present the data on surgical procedures by age group and by type of admission: elective in-patient, emergency/transferred in-patient or day case.

Table 3(a)

Primary Surgical Procedures as elective in-patient by age UHD and RBHSC - 1996/7*

	Age					
	< 1 mth	1 - <3 mths	3 mths - <1 yr	1 - 4 yrs	5 yrs +	Total
UHD	0	1	4	26	38	69
RBHSC	7	25	56	94	123	305

* Source: Regional Information Branch DHSS

Table 3(b)

Primary Surgical Procedures as emergency or transferred in-patient by age - UHD and RBHSC - 1996/7

	Age					
	< 1 mth	1 - <3 mths	3 mths - <1 yr	1 - 4 yrs	5 yrs +	Total
UHD	3	5	3	23	100	134
RBHSC	77	105	51	124	227	584

* Source: Regional Information Branch DHSS

Table 3(c)
Primary Surgical Procedures as day cases by age UHD and RBHSC - 1996/7*

	Age					
	< 1 mth	1 - <3 mths	3 mths - <1 yr	1 - 4 yrs	5 yrs +	Total
UHD	0	6	27	268	373	674
RBHSC	0	0	19	199	246	464

* Source: Regional Information Branch DHSS

Tables 1-3 indicate that a significant proportion of children admitted to the UHD and the RBHSC do not have a surgical procedure undertaken. Of 1515 children discharged from the UHD, 203 had had an in-patient procedure and 674 a day case procedure. The remaining 638 (42%) had no procedure and presumably were admitted for observation. Of 2139 children discharged from the RBHSC, 889 had had an in-patient procedure and 464 a day case procedure. The remaining 786 (37%) had no procedure.

Tables 1-3 also indicate that the volume of in-patient activity in the UHD and associated surgical interventions in those under 3 months is very low. The majority of babies in this age-group requiring surgery are currently directed or transferred to RBHSC. The numbers having an emergency surgical procedure in the 3 months - 4 year age group are also relatively low in UHD (26 primary procedures in UHD in 1996/7 compared with 175 procedures RBHSC).

Day case activity in the UHD exceeds that in the RBHSC by 45% (674 vs 464 cases respectively in 1996/7). The figures are higher in each of the age groups described excluding babies under one month.

There were approximately five times as many elective in-patients procedures undertaken in RBHSC as in UHD in 1996/7 (305 vs 69 primary procedures). The number of emergency procedures relating to children of all ages was four fold higher in RBHSC than in the UHD (584 vs 134 procedures, 1996/7).

A significant number of out-patients is seen on both sites with the number of new and review out-patient attendances at the UHD being approximately half of that at RBHSC. (Table 4)

Table 4
Out-patient Activity - UHD and RBHSC - 1996/7*

	Out-patient (new)	Out-patient (review)
UHD	843	1833
RBHSC	1731	3893

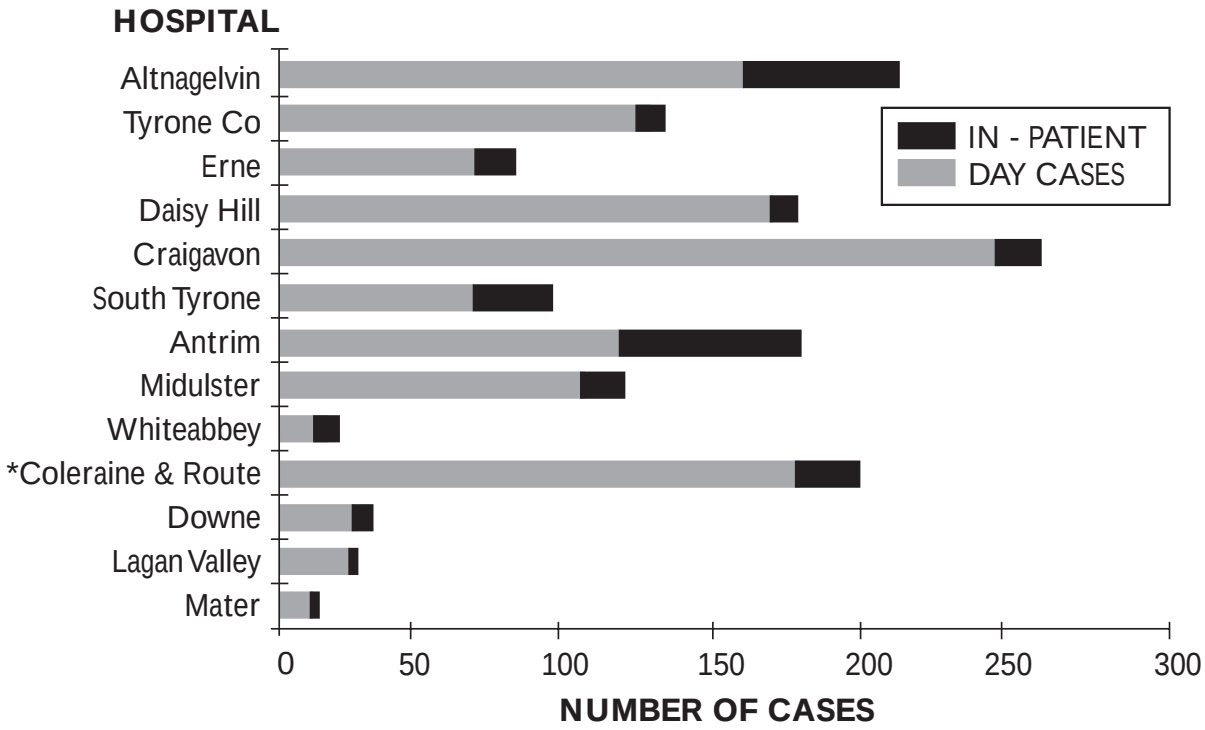
* Source: SAC submission Oct 97

7.2 General paediatric surgery undertaken by General Surgeons

The Regional Information Branch of DHSS supplied the Working Group with hospital specific data on children under 15 years discharged from general surgical units. Patients were categorised as day cases, elective in-patient cases or emergency in-patient cases. These data are summarised in this section.

The surgical service to Coleraine and Route Hospitals is delivered by a single surgical team. The data indicate that all emergency paediatric surgical admissions are directed to the Coleraine Hospital site. Almost all elective in-patient paediatric surgery is undertaken at Coleraine while day case surgery is undertaken on both sites. The data are presented combined for the two hospitals in Figures 1 and 2. With the opening of the new Causeway Hospital, all paediatric surgery will be undertaken on a single site.

Figure 1
Day case and Elective In-Patient activity by deaths & discharges by hospital, 1996/97



*Data for the 2 hospitals have been combined

Source: Regional Information Branch DHSS

Figure 1 shows that only 5 hospitals/units undertook in excess of 150 paediatric surgical procedures as an in-patient or day case basis in 1996/7. These were Altnagelvin, Craigavon, Antrim, Coleraine/Route and Daisy Hill Hospitals. Of these, 3 were in the range 151-200 cases, 1 in the range 201-250 and 1 just in excess of 250.

Figure 1 also shows that the majority of children having a surgical procedure have that procedure undertaken on a day case basis. There is, however, a wide variation between hospitals in the proportion of elective surgical procedures undertaken as day cases. Table 5 indicates that the range is from 60-96% with an average of 80%. The comparable day case rates for the UHD and the RBHSC are 91% and 59% respectively.

Table 5

Percentage of elective surgical activity undertaken on day case basis, by hospital in 1996/7

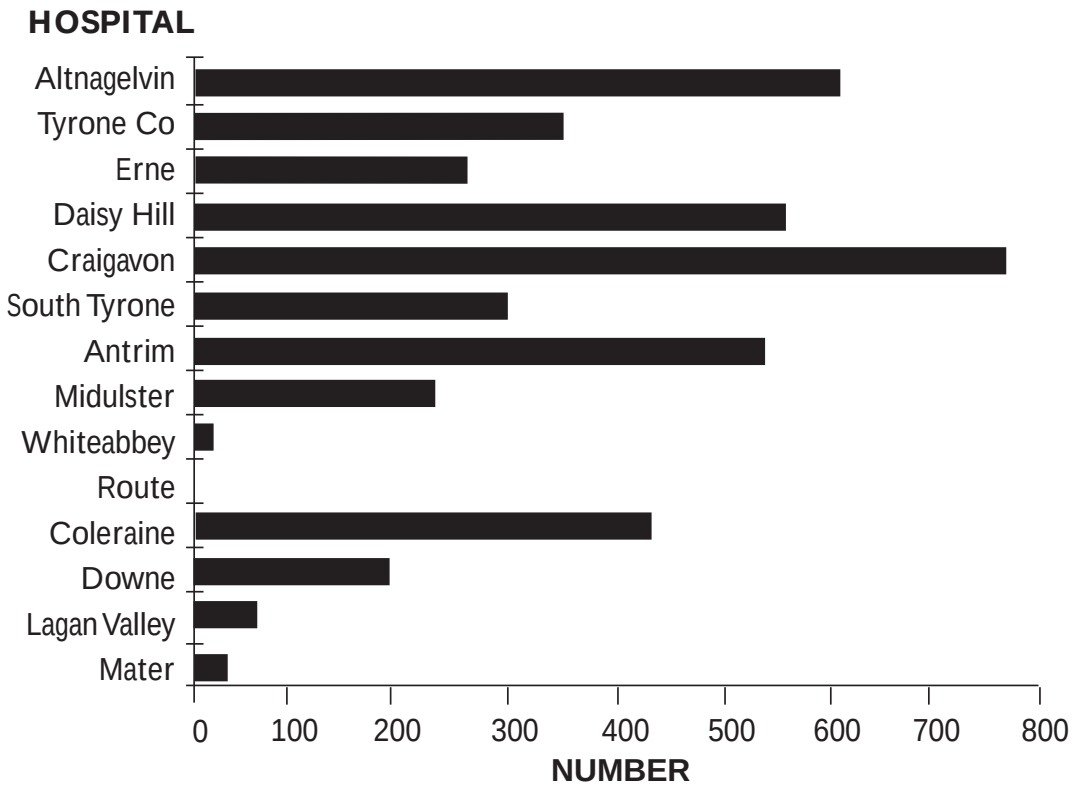
Hospital	% Day Case/Total elective operations
Altnagelvin	71
Tyrone County	90
Erne	80
Daisy Hill	95
Craigavon	96
South Tyrone	66
Antrim	60
Mid Ulster	87
Whiteabbey	78
Coleraine/Route	89
Downe	78
Lagan Valley	75
Mater	75
Average of above units	80
UHD	91
RBHSC	59

Figure 2 indicates the number of children under 15 years discharged from surgical units in Northern Ireland in 1996/7 following a paediatric emergency surgical admission. It has not been possible to ascertain the number of those admissions which resulted in an emergency operation/procedure. The volumes are relatively high.

- Four of 14 units had in excess of 500 admissions
- A further 2 hospitals had 300-499 admissions
- Four hospitals had 200-299 admissions
- The remaining 4 hospitals had less than 70 admissions
- One hospital, the Route, had no emergency admissions. This is in line with the Unit's policy of concentrating all in-patient general paediatric surgery on the Coleraine Hospital site.

Figure 2

Number of Emergency Admission aged <15 years to Hospital General Surgical Depts 1996/97



Source: Regional Information Branch DHSS

Overall the data indicate a particularly low combined volume of day case, elective and emergency in-patient admissions in 4 hospitals - the Mater, Lagan Valley, Downe and Whiteabbey Hospitals.

7.3 Paediatric surgical procedures undertaken in general surgical units

It is important to consider not just the volume of General Paediatric Surgical cases being managed in a particular unit, but also the nature of the cases and the ages of the children concerned.

The Regional Information Branch of DHSS generated data on the number of children under 1 year of age discharged from hospital with a diagnosis of pyloric stenosis, intussusception, obstructed inguinal hernia and non-obstructed inguinal hernia and acute appendicitis under one year of age. These may be considered as relatively high risk procedures.

This and other sources indicate the following average annual figures for the province for infants under 1 year of age.

• Pyloric Stenosis	100-120
• Intussusception	30-40
• Inguinal hernia (obstructed and non-obstructed)	100
• Acute appendicitis	2-5

While the vast majority of such infants have their definitive management undertaken by Specialist Paediatric Surgeons some are managed by General Surgeons. The frequency of such procedure undertaken outside RBHSC/UHD was gleaned from data in the survey of paediatric surgical activity and supplementary information provided by General Surgeons.

Pyloric stenosis

Already many hospitals have taken appropriate steps to refer such children to other centres for management. Pyloric stenosis is surgically managed in only 4 hospitals outside RBHSC/UHD: these are Craigavon, Altnagelvin, Antrim and Coleraine Hospitals.

Each of these units has a paediatric medical in-patient unit whose consultant staff assist with pre and post operative support. On average, 10 babies per year are managed in each of these units.

Intussusception

It was difficult to obtain reliable data on the number of infants with intussusception. Available information indicated that approximately 30-40 infants present with intussusception each year, some of whom are over 1 year of age. Only 5-6 infants per year are managed in hospitals outside the RBHSC. None of these hospitals is managing more than 2 cases per year.

Inguinal hernia

Approximately 100 infants under 1 year of age have surgery for repair of inguinal hernias each year. Up to 20 of these are undertaken as emergency procedures where the hernias have become obstructed. Only 2 such emergency procedures were undertaken outside RBHSC in 1996 along with 18 repairs of non-obstructed hernias.

Acute appendicitis

Acute appendicitis in an infant under 1 year of age is extremely uncommon. Only 2-5 infants present with such a diagnosis each year throughout the province. Surgical management is undertaken only very occasionally outside the RBHSC.

8.0 Discussion - Specialist Paediatric Surgical Services

8.1 Medical manpower

Miss Leela Kapila was invited to visit the province to advise on arrangements for the provision of specialist paediatric surgical services.

Miss Kapila has indicated that the workload undertaken by the Specialist Paediatric Surgeons in Belfast is well above the norm. She has strongly recommended that a fourth substantive consultant paediatric surgeon be appointed as soon as possible. This would facilitate sub-specialisation and reduce waiting times for in-patient and day surgery procedures.

8.2 Day surgery

The day surgery facilities at the UHD were considered as excellent by Miss Kapila and the scope for further utilisation was noted. Miss Kapila has recommended that, to optimise the use of this facility, an additional day case session per week be added. This would mean that each of the 4 consultants would spend at least one full day at the UHD with a day surgery session in the morning and an out-patient session in the afternoon.

In order to achieve equitable waiting times for day surgery at the RBHSC and the UHD, it is recommended that a common waiting list be developed.

It is also recommended that medical staff training in paediatric surgery should attend the UHD on a regular basis to gain appropriate experience of paediatric day surgery.

Protocols should be developed for the management of children who develop complications after day surgery and are unfit to return home.

8.3 In-patient surgery

Miss Kapila has considered the in-patient surgical activity at both the UHD and the RBHSC. She has noted the low level of emergency surgical procedures undertaken at the UHD and the lack of experienced junior surgical support. In light of this Miss Kapila has recommended that emergency and elective in-patient paediatric surgery be concentrated on the RBHSC site. During Miss Kapila's second visit to the Province details of how this would be managed in practice were considered and are outlined below.

8.4 **Management of referrals**

a) General Practitioners contacting the UHD regarding a child with a significant head injury or a clear diagnosis of acute appendicitis would be advised to refer the child directly to the RBHSC.

b) Children referred by General Practitioners to the UHD because of complaints such as non-specific abdominal pain or minor head injury should be assessed by appropriately experienced medical staff in either the Accident and Emergency Department or the Paediatric Assessment Unit. Should that assessment suggest a medical diagnosis such as urinary tract infection or constipation the child would be observed in the assessment unit or admitted to the paediatric medical ward. Should the assessment suggest a surgical problem then advice from the Paediatric Surgical Department would be sought. Between 9am-5pm, this would normally be available from the on-site Consultant Paediatric Surgeon. Outside these hours surgical advice would be sought from the paediatric surgical staff on call at the RBHSC. Where it has been established that a paediatric surgery opinion is required outside normal working hours, the child concerned would be transferred to the RBHSC.

   It is recommended that those involved in the implementation process further develop these arrangements and support them with appropriate protocols and guidelines. Account should be taken of guidance due to be issued in the near future by the Royal College of Surgeons on the management of head injuries.

c) Arrangements for the assessment of acutely ill children presenting at the UHD throughout the 24 hour period should be updated. This should include extension of the opening hours of the Paediatric Assessment Unit from the current level of 9am - 5pm to 9am - 9pm Monday - Friday.

8.5 **Implications for RBHSC**

Currently the RBHSC does not have a separate emergency theatre. This means that emergency procedures undertaken during normal working hours regularly displace children booked for elective surgery. In view of the anticipated increase in the numbers being admitted for emergency surgery, it is essential to have at least one emergency theatre session available each day, Monday to Friday. It would also be important to have clearly defined arrangements whereby consultant staff could readily contact Consultant Paediatric Surgeons to discuss the potential transfer of emergency cases.

Arrangements for the assessment of acutely ill children presenting at the RBHSC throughout the 24 hour period should be updated. Revised arrangements should include a Paediatric Assessment service, such as that currently operating in the UHD. This should operate at least between 9am - 9pm, Monday to Friday, but ideally would be open to midnight and at weekends.

8.6 **Elective in-patient surgery**

Currently approximately 70 children each year have an elective in-patient surgical procedure undertaken at the UHD. It is recommended that in future such surgery be undertaken only on the RBHSC site. This would include laparascopic surgery currently undertaken at the UHD.

8.7 **Outreach clinics**

The British Association of Paediatric Surgery has highlighted the value of outreach clinics. However, in view of the heavy workload even for 4 Consultant Surgeons, Miss Kapila has recommended that, at this stage, outreach clinics could only be introduced by way of replacement of a clinic at the RBHSC/UHD. Miss Kapila has proposed that once in every 1/2 months, an outreach clinic be offered to enable new and follow up patients to be seen nearer to their homes. This proposal would require further discussion between commissioning bodies, the paediatric surgical team and the RGH Trust.

8.8 **Administration**

Miss Kapila has proposed that the Paediatric Surgical Units of the UHD and the RBHSC be consolidated into a single unit with a unified budget serving both hospitals.

9.0 Discussion - General paediatric surgical services

9.1 **Adherence to standards**

Evidence presented in this report indicates that current guidance on arrangements for General Paediatric Surgery in a district general hospital has not been adopted in full by hospitals in Northern Ireland.

- Only 3 hospitals have a designated Consultant Surgeon with responsibility for Paediatric Surgery.
- Only 2 hospitals have designated Consultant Anaesthetists for Paediatric Surgery.
- Only 3 hospitals have operating sessions dedicated to children.
- The volume of elective in-patient and day case surgery is so low in 4 hospitals that it could not sustain even one dedicated operating session per month.

- Only 2 hospitals have anaesthetically qualified/trained nurses in both theatre and recovery suites.

- Only 6 hospitals have the backing of resident paediatric medical staff.

Some hospitals have identified a designated surgeon and anaesthetist and have a dedicated "child only" operating list yet the caseloads being managed are so low that it is difficult to see how skills could be maintained.

9.2 Way forward for provision of general paediatric surgery

There is a clear need to maintain general paediatric surgical services outside Belfast (RBHSC/UHD). The information collated suggests that standards set out for the provision of General Paediatric Surgery could only be met by a small number of hospitals in the province.

Key parameters are:

- availability of on-site in-patient medical paediatric services
- the designation of a surgeon or surgeons with appropriate training/expertise
- the designation of an anaesthetist or anaesthetists with appropriate training/expertise
- an adequate volume of elective in-patient and day case activity to sustain "child only" lists on a weekly or fortnightly basis.

Only six hospitals outside RBHSC/UHD have an in-patient medical paediatric unit (Antrim, Coleraine, Craigavon, Daisy Hill, Altnagelvin and Erne Hospitals). Each of these, with the exception of the Erne Hospital has at least one consultant with some training in paediatric surgery. Of the six hospitals, all except the Erne has the volume of surgical activity to support weekly or fortnightly "child only" lists. If the paediatric surgical activity in the Erne and Tyrone County Hospitals was to be concentrated onto a single site, then adequate volumes could be achieved.

It is therefore evident that there are at most six hospitals outside the RBHSC/UHD that will be able to meet the defined standards for the provision of general paediatric surgery.

Consideration needs to be given to the arrangements within these hospitals which will allow these standards to be met.

9.2.1 Establishment of child only lists

A number of reports have indicated that children should be managed on lists dedicated to their care and not have their operations as part of an adult list. It is therefore recommended that each hospital aiming to provide general paediatric surgery should introduce "child only" lists for such surgery. Although not part of the remit of this group, it would seem appropriate for "child only" lists to be established

in other situations where children are having elective surgery such as in ENT, ophthalmology and plastic surgery.

9.2.2 **Surgical support**

Within each of the 6 hospitals, one or more surgeons should be designated to provide surgical services for children.

Ideally such surgeons should have had at least 6 months training in an accredited specialist paediatric unit towards the end of their higher specialist training. The Senate Working Party report recognises, however, that not all surgeons currently providing paediatric surgical services have had such training and acknowledges the impracticality of requiring those surgeons to be retrained. Designated surgeons must nevertheless ensure that they remain abreast of new paediatric surgical techniques and management methods through continuing medical education.
In line with the report of the Senate Working Party, any consultant surgeon appointed after August 1999 should not undertake general paediatric surgery unless he or she has completed appropriate training in an approved post.

When the designated surgeon or surgeons is not available local arrangements for continuous cover must be in place. All surgeons on the on call rota would be expected to maintain their skills so that they could appropriately manage paediatric surgical emergencies, such as torsion of the testes, requiring immediate or urgent intervention. However, when the clinical situation permits, children should be stabilised and managed non-operatively until an appropriately experienced surgeon is available. Transfer should be considered if such a surgeon would not be available within a reasonable time.

9.2.3 **Anaesthetic support**

A number of reports have highlighted the risks associated with anaesthetists undertaking “occasional” paediatric practice. The Royal College of Anaesthetists has indicated that hospitals proposing to undertake paediatric surgery should designate a consultant anaesthetist to be responsible for anaesthetic services for children. This anaesthetist should meet the training requirements set out by the Royal College (ie 6 months training at specialist registrar levels 4/5 in an accredited post).

The paediatric anaesthetic service should be led by consultants who anaesthetise children regularly to at least the equivalent of one full operating list per week. (This standard could more readily be achieved if ENT operating lists were separated into child and adult lists). The workload of consultant anaesthetists should be audited on an annual basis to ensure that those undertaking paediatric anaesthesia do so on a regular basis. The audits should be undertaken locally and reported at both local and regional level.
In each of the 6 hospitals in Northern Ireland likely to be undertaking general paediatric surgery there would appear to be an adequate workload for at least 2

consultant anaesthetists to provide anaesthetic support to surgeons undertaking elective paediatric surgery.

With the designation of one or more anaesthetist to undertake paediatric anaesthesia, there is the potential for the remaining anaesthetists to lose their skills in intubating and resuscitating seriously ill children. It is essential that all anaesthetists on the on call rota develop and maintain their skills in resuscitating children in life-threatening situations. Appropriate arrangements should be agreed locally and could include, for example, regular attendance at Advanced Paediatric Life Support courses.

9.3 Additional quality issues

9.3.1 Anaesthesia in babies born pre-term

Anaesthesia in babies born prematurely requires special mention. Those born less than 37 weeks gestation have significant risk of apnoea post-general anaesthesia[12]. All such pre-term babies should be referred to the RBHSC for elective or emergency surgery up to the age of 12 months.

9.3.2 Day case surgery

Local data indicate that the majority of paediatric surgical procedures are undertaken on a day case basis. This is entirely in line with recommended guidelines and should be the approach adopted wherever feasible. Currently the proportion of elective procedures being undertaken on a day case basis outside the RBHSC/UHD averages 80%. Rates however vary from hospital to hospital ranging from 60 to 96%. The Working Group recommends that each unit should attain at least the average day case rate of 80%.

The Working Group endorses the recommendations of the report "Just for the Day" which sets out standards for day case admissions for children.

9.3.3 Management of relatively high risk conditions

Pyloric stenosis

There are already appropriate arrangements in place for the management of babies with pyloric stenosis. These babies are either referred to the RBHSC or to 1 of 4 hospitals outside Belfast. In these hospitals there is support available from in-patient medical paediatric units and consultant paediatricians with experience of these conditions undertake the pre- and post-operative care.

Intussusception

Reduction of intussusception is a high risk procedure which requires the skills of a trained radiologist who is managing an adequate number of cases to maintain his

or her expertise. Because of the risk of bowel perforation, access to theatre and an experienced surgeon must be immediately available. Because of these requirements and the relative small volumes it is recommended that all cases of suspected intussusception should be referred to the RBHSC for management.

Inguinal hernia

Repair of incarcerated inguinal hernias in infants under 1 year of age is technically difficult and the pre- and post-operative management complex. Only 2 such operations were undertaken outside the RBHSC in 1996. Because of the difficulties and the small volumes concerned it is recommended that all infants with incarcerated inguinal hernias be stabilized and transferred to the RBHSC for management.

Already most infants under 1 year with non-obstructed inguinal hernia are referred to the RBHSC for management. In order to have access to experienced paediatric anaesthetists, it is recommended that all non-obstructed inguinal hernias in infants under 1 year should also be referred to the RBHSC.

Acute appendicitis

Acute appendicitis is an uncommon condition in infants under 1 year of age. At most 1-2 cases per year present at hospitals outside Belfast. Because of the small volumes and the enhanced support that can be offered by experienced paediatric anaesthetists, such infants should be referred to the RBHSC for management.

9.3.4 Accident and Emergency Services

Approximately one third of the work of an Accident and Emergency Department is with children. Such facilities should therefore be 'child orientated'. Furthermore all Accident and Emergency staff need to receive training specifically related to the care of children. Local plans should ensure ready access to paediatric intensive care facilities for children who present with life-threatening injury. Units admitting children following trauma should have clearly defined arrangements for transfer to a paediatric intensive care unit.

10.0 Regional issues

10.1 Training issues

Currently General Surgeons do not receive training in Paediatric Surgery at the regional centre. This means that over time, as General Surgeons with paediatric training and expertise retire, they will be replaced by surgeons who will not have the training to undertake General Paediatric Surgery.

To address this difficult issue Miss Kapila suggested that the regional centre should offer a 6 month training slot to general surgical Specialist Registrars within their higher specialist training period. This would be in addition to the training currently offered, of longer duration, to those wishing to train as Specialist Paediatric Surgeons.

The RBHSC subsequently sought accreditation for a third Specialist Registrar post. This was successful and the centre will now be able to offer 6 month training slots to general surgical Specialist Registrars who wish to gain experience in General Paediatric Surgery. Similarly surgeons who wish to undertake general paediatric surgery in a hospital outside the regional centre could undertake 6 months training before taking up post.

10.2 **Transport**

If ill babies and children are to be moved from the hospital of admission to another hospital for management, then appropriate transport arrangements must be in place. A Working Group has recently been established by the Chief Medical Officer to advise on the issue of transporting ill children to the Regional Paediatric Intensive Care Unit. This group should also address the needs of ill babies and children requiring transfer for surgical management.

11.0 Recommendations

11.1 General Paediatric Surgical Services

1 In-patient General Paediatric Surgery should be concentrated on a smaller number of hospital sites. (A maximum of 6 hospitals outside RBHSC/UHD.)

2 If a hospital outside the regional centre is to continue to undertake General Paediatric Surgery the following recommendations must be fulfilled:

- Elective surgery on children should be undertaken on "child-only" lists.
- At least one General Surgeon should be designated to provide General Paediatric Surgery and should
  - have 6 months training in Paediatric Surgery undertaken in a SAC accredited Specialist Paediatric Surgical Unit towards the end of the period of Higher Specialist Training (now year 3 level or above) or significant experience in general paediatric surgery
  - care for a sufficient number of children annually to maintain a high level of competence
  - aim to undertake at least one operating session per fortnight dedicated to children (and not less than one per month)
  - participate in audit and maintain continuing education in Paediatric Surgery.
- Surgeons on the on call rota who are not the designated surgeons must maintain their skills so that they can appropriately manage paediatric surgical emergencies, such as torsion of testes, requiring immediate or urgent intervention.
- A Consultant Anaesthetist should be nominated to be responsible for anaesthesia for children. He/she should meet the criteria laid down by the Royal College of Anaesthetists which include
  - six months training at Specialist Registrar level
  - undertaking the equivalent of one full operating list per week.
- All anaesthetists on the on-call rota should develop and maintain their skills in resuscitating children in life-threatening situations.
- The workload of consultant anaesthetists should be audited on an annual basis to ensure that those undertaking paediatric anaesthesia do so on a regular basis. The audits should be undertaken locally and reported at both local and regional levels.
- Children requiring an overnight stay should only be admitted to a unit which has an in-patient medical paediatric department on site.
- The Clothier requirements with respect to nurse staffing levels must be met.
- There should be a children's ward to which all children are admitted or, in the case

of day surgery, there should be a dedicated list in a day care unit.

- There must be an adequate volume of throughput to support dedicated operating lists (preferably a minimum of one list per fortnight and not less than one list per month) and to maintain skills of designated surgical staff.
- When the designated Surgeon and/or Anaesthetist is not available local arrangements need to be in place to ensure continuous cover by staff with adequate training and continuing experience in Paediatric Surgery.
- There should be clear operational policies for access to regional paediatric intensive care beds.
- There should be close liaison with the Specialist Paediatric Surgical Centre.

3 Elective and emergency admissions to hospitals which fail to meet the above requirements should cease.

4 In view of the small volumes, all cases of suspected intussusception plus all those children under one year of age requiring surgery for appendicitis or inguinal hernia should be referred to the RBHSC for management.

5 Babies with pyloric stenosis should only be managed in a small number of centres where the pre and post operative care can be undertaken by a Consultant Paediatrician with experience of this condition and all other standards for paediatric surgery can be met.

6 Each unit undertaking General Paediatric Surgery should achieve a day case rate of at least the 1996/7 Northern Ireland average of 80%.

7 General Surgeons appointed after August 1999 who have not had training in Paediatric Surgery should not undertake General Paediatric Surgical activity.

8 Babies and children falling into the following categories must be referred to the regional centre:

- Neonates requiring surgery (with the exception of pyloric stenosis).
- Those with complex conditions requiring special surgical expertise eg in the fields of gastro-enterology or oncology.
- Those with straightforward surgical conditions who have an associated disorder.
- Those with a paediatric urological condition requiring surgery.
- Pre-term babies up to one year of age requiring general anaesthetic.

11.2 **Accident and Emergency Services**

- A specially designated child friendly area within the accident and emergency department should be available.

- A specially equipped area should be set aside for the resuscitation of ill children.
- All Accident and Emergency staff should receive training specifically related to the care of children.
- Clearly defined protocols for seeking experienced paediatric help in resuscitation of the ill child should be established.
- Locally agreed policies relating to the further care of children presenting with paediatric surgical conditions should be available for consultation.
- Lines of communication should be established between A&E staff and Specialist Paediatric Surgical Teams to facilitate decision making and the transfer of appropriate patients.
- Children with major trauma within the Greater Belfast area should all be taken to Accident and Emergency Department, Royal Belfast Hospital for Sick Children.
- Children with major trauma outside greater Belfast area should be taken to the nearest appropriate acute hospital (appropriate as defined by the working group report on the Management of Major Trauma in Northern Ireland May 1993).
- All units admitting children following trauma should have clearly defined arrangements for transfer to a Paediatric Intensive Care Unit.

11.3 **Specialist Paediatric Surgical Services**

- A fourth Consultant Specialist Paediatric Surgeon should be appointed as soon as possible. This surgeon should have sessional commitments to both the RBHSC and the UHD.
- Consultant Paediatric Surgeons should further develop sub-specialty interests.
- Day case surgery should continue at both the RBHSC and UHD but should be expanded by one session on the UHD site.
- A common waiting list for day surgery should be developed to ensure equitable waiting times between the RBHSC and UHD.
- Emergency and elective in-patient surgery should be concentrated on the RBHSC site.
- The Paediatric Assessment Unit at the UHD should extend its opening hours to at least 9am - 9pm, Monday to Friday.
- Protocols should be developed to inform GPs and hospital staff on those conditions which should be referred directly to the RBHSC and the circumstances when transfer of a child from the UHD to RBHSC would be appropriate.
- Protocols should also be developed for the management of children who develop post-operative complications and are unfit to return home following day surgery.
- Access to an emergency theatre session at RBHSC must be made available on a daily basis, Monday - Friday, as a matter of urgency.

- A Paediatric Assessment Unit, with opening hours of at least 9am - 9pm, Monday - Friday, should be established at the RBHSC.
- The RBHSC must ensure access to an adequate number of staffed paediatric surgical beds to manage the anticipated increase in referrals.
- The RBHSC should ensure that effective arrangements are in place for contacting consultant paediatric surgeons for advice or to discuss the potential transfer of a child.
- The implications for Paediatric Intensive Care beds need consideration.
- Out-patient sessions should be expanded on the UHD site.
- Consideration should be given to developing a limited outreach service.

11.4 **Training**

General surgical Specialist Registrars should be encouraged to undertake 6 months training in Paediatric Surgery as part of their Higher Specialist Training.

11.5 **Supervision**

There should be adherence to the NCEPOD recommendations regarding supervision of junior anaesthetic and surgical staff (para 5.10).

11.6 **Transport**

There must be appropriate transport arrangements developed for the transfer of ill babies and children between hospitals and to the RBHSC for management.

11.7 **General Principles**

While the remit of the Working Group excluded consideration of ENT, ophthalmology and other surgical specialities, the same principles of good practice should apply.

12.0 Implementation and audit

12.1 Implementation Groups

Each Health and Social Services Board should convene an Implementation Group to take forward those recommendations endorsed by the Chief Medical Officer. These groups should also agree an audit programme to ensure that arrangements and standards agreed are met. Should the structures for the commissioning of Health and Personal Social Services change before implementation is complete, then the Chief Medical Officer should identify the most appropriate body to oversee the implementation process.

12.2 **Timescales**

12.2.1 **It is proposed that the following recommendations are implemented within 12 months of issue of the final agreed report:**

- The appointment of a fourth consultant paediatric surgeon.
- Access to an emergency theatre at RBHSC each morning, Monday to Friday.
- The establishment of joint waiting lists for day surgery between the RBHSC and the UHD.
- Opening hours of the paediatric assessment unit at the UHD extended to 9am-9pm, Monday - Friday.
- Arrangements established to transfer all children with intussusception and those under one year with appendicitis and inguinal hernia to the RBHSC for surgery.

12.2.2 **It is proposed that within 18 months of issue of the final agreed report, that the following recommendations are implemented:**

- Agreement reached between commissioners and providers on those hospitals which will continue to undertake paediatric surgery.
- Plans established to cease general paediatric surgery in remaining hospitals.
- Within those hospitals continuing to provide general paediatric surgery arrangements should be in place, as the minimum, to
  - establish child only lists
  - designate consultant surgeons for general paediatric surgery
  - designate a consultant anaesthetist to be responsible for anaesthetic services for children
  - achieve the Clothier recommendations for levels of Registered Sick Children's Nurses
  - achieve a day case rate of at least 80%.
- Local arrangements agreed to maintain skills of on-call surgeons and anaesthetists.
- Paediatric assessment unit established at the RBHSC.

12.2.3 **It is proposed that within 24 months of the issue of the final agreed report that the following recommendations are implemented:**

- Specially designated children's ward and child friendly areas within the accident and emergency and day surgery departments.
- Range of clinical management protocols developed.
- Audit of implementation process completed.
- On-going audit of adherence to standards developed and in place.

Bibliography

1 The British Association of Paediatric Surgeons. A Guide for Purchasers and Providers of Paediatric Surgical Services, revised edition March 1995.

2 The Provision of General Surgical Services for Children - Report of the Senate of Surgery of Great Britain and Ireland, July 1998.

3 The report of the National Confidential Enquiry into Peri-operative Deaths 1989.

4 The Royal College of Paediatrics and Child Health. Children's Surgical Services, Report of an ad hoc multi-disciplinary children's surgical liaison group, 1996.

5 Department of Health. Welfare of Children and Young People in Hospital, 1991.

6 Report of the Independent Inquiry relating to deaths and injuries on the childrens ward at Grantham and Kesteven General Hospital during the period February to April 1991 (" The Allitt Inquiry") July 1992.

7 Letter Chief Executive, Management Executive. The Allitt Enquiry - April 1994.

8 The Royal College of Anaesthetists, Guide for Purchasers on Paediatric Anaesthesia 1994.

9 Rosemary Thornes. Just for the Day, Caring for children in the health services, 1991.

10 The report of the National Confidential Enquiry into Peri-operative Deaths 1991/92.

11 The report of the National Confidential Enquiry into Peri-operative Deaths 1992/93.

12 Former pre-term infants undergoing inguinal hernia repair; A Survey of Paediatric Anaesthetic Practice (T. Montague et al, RBHSC, 1998).

MEMBERSHIP OF THE WORKING GROUP

CHAIRPERSON:
Dr A M Telford, Director of Public Health, SHSSB

MEMBERS

Mr V Boston, Consultant Paediatric Surgeon, Royal Belfast Hospital for Sick Children

Dr R Taylor, Consultant Paediatric Anaesthetist, Royal Belfast Hospital for Sick Children

Ms E McElkerney, Directorate Manager, Woman and Child Health Directorate, Ulster Hospital

Mr K J S Panesar, Consultant Surgeon, Altnagelvin Hospital

Mr W G Humphries, Consultant Surgeon, Antrim Hospital

Dr P Loughran, Consultant Anaesthetist, Daisy Hill Hospital

Dr B Bell, Consultant Paediatrician, Craigavon Area Hospital

Dr C Beattie, Consultant in Public Health Medicine, EHSSB

Sister G Hanna, Theatre Department, Antrim Hospital

Dr M Boyle, Senior Medical Officer, DHSS NI

Dr F Kennedy, Consultant in Public Health Medicine, NHSSB

Dr S McGovern, Consultant, A&E Department, Craigavon Area Hospital

Mr W J I Stirling, Consultant Surgeon, Craigavon Area Hospital

Dr J A Phillips, Consultant Paediatrician, Erne Hospital

Dr K O'Kane, Senior House Officer Public Health Medicine, SHSSB