

Paediatric Intensive Care Audit Network



Annual Report

March 2003 – February 2004

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The Paediatric Intensive Care Audit Network (PICANet) is a collaborative national project that has relied upon the hard work and support of many people, particularly those within the paediatric intensive care community in England and Wales. We thank all the staff from the paediatric intensive care units (PICUs), including those dedicated to audit, secretaries, nurses and doctors, for their continued contribution to PICANet. The collective support of the Paediatric Intensive Care Society has been crucial to our progress.

PICANet functions under the auspices of a Steering Group and formally links with clinicians and nursing staff through a Clinical Advisory Group; a full list of members can be found in Appendices A and B. We thank all members of these committees for their support and advice.

PICANet is funded by the Department of Health and by Health Commission Wales, Specialised Services.

PICANet has relied heavily on the excellent administrative support provided by Gill Ryder (University of Sheffield) both during everyday organisation and also in the production of this report. Tim Chater (University of Sheffield) is responsible for managing the PICANet database and has played a significant role in producing this report. Martin Perkins (University of Leicester) has provided essential programming skills in the IT development of PICANet.

FOREWORD

Paediatric intensive care in the United Kingdom has made dramatic advances during the last decade. For example, critically ill children may be resuscitated within but now are rarely cared for by adult intensive care units for any length of time. Similarly, the skills required for paediatric intensive care medicine and nursing have been recognised and developed. Training in paediatric intensive care medicine is now formalised in the UK, and specialist nursing qualifications in paediatric intensive care are held by the majority of nurses working in paediatric intensive care. Governments, which have provided the funding during this time allowing paediatric intensive care units to develop, are to be commended. This development of paediatric intensive care must, of course, be evaluated. The UK Paediatric Intensive Care Audit Network Database (PICANet) provides that evaluation.

The Paediatric Intensive Care Society (PICS) draws together health care practitioners in paediatric intensive care (doctors, nurses, physiotherapists and pharmacists, amongst others) in the UK. PICS believes that audit is vital to the continuing development of paediatric intensive care in the UK. Members of PICS have actively supported the development of PICANet and have been integral to data collection for PICANet. As chair of PICS I am delighted to congratulate PICANet on producing its first annual report on the care and outcome of the nation's sickest children.

The data PICANet has gathered is of tremendous value to many groups and individuals. Most importantly it will provide nation-wide high quality information for parents and patients as well as for those who fund and plan healthcare. Although a randomised control trial of the value of paediatric intensive care is ethically impossible, audit based on this high quality clinical database will provide a valuable method of assessment. It will allow clinicians to compare their unit to elsewhere as well as encouraging audit within individual units. It will be of use to clinicians in identifying areas of priority for research and the numbers needed to power randomised controlled trials. Finally, as with other audit networks, as PICANet continues from year to year the data gathered will become progressively better and more valuable to all concerned.

PICANet provides a wealth of detailed information regarding our most acutely challenging paediatric patients. It has required visionary thinking and has taken a great effort from many people. Although this first year's report is valuable in its own right, the effort should not be

squandered by allowing it to be the last report. It is essential that the process continues on for future years.



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EXECUTIVE SUMMARY

- PICANet is an audit of paediatric intensive care activity in England and Wales aiming to provide information on effective delivery of paediatric intensive care and an evidence base for clinical governance. The design and implementation of PICANet has progressed in close collaboration with members of the paediatric intensive care clinical community.
- Specific objectives are to identify best practice, monitor supply and demand, monitor and review outcomes of treatment episodes, facilitate strategic health care planning, quantify resource requirements and study the epidemiology of critical illness in children.
- For the first time in England and Wales data are available from all 29 designated PICUs (located in 24 NHS trusts). Findings are presented for England and Wales and for each individual (but unidentified) NHS trust. Each trust will be able to identify its position for comparison with the national benchmark.
- This report is based on a dataset of demographic and clinical information collected on all PICU admissions between 1st March 2003 and 29th February 2004.
- Data are collected using either bespoke PICANet software or other local clinical software programs. Data are transmitted via NHSnet, email or on disc to the secure central PICANet server using high grade encryption. Problems relating to information technology within hospitals have been a significant cause of delay in this process. Fewer difficulties have been encountered where the PICANet software is used.
- Data quality is addressed through visits to all participating units where systematic validation procedures are carried out. These have been extremely valuable exercises, well received by both unit staff and PICANet team members. Data validation reports have been returned to each unit to allow inconsistencies to be investigated and amended.
- The PICANet dataset includes admission and discharge data, as well as information on diagnoses, medical history, physiological measurements, interventions, occupancy and outcome.

- The primary reason for admission to paediatric intensive care is coded using Clinical Terms 3 (The READ Codes), according to recommendations from the NHS Information Authority (NHSIA).
- The Paediatric Index of Mortality (PIM) is the risk adjustment method used.
- Over the year March 2003 to February 2004, 13 805 admissions were recorded for children aged 0 – 15 years of age and 250 admissions for patients aged 16 years and above. Children under 1 year of age accounted for 48% of admissions, with 59% of these being male. Predictably, the same age group accounted for the vast majority of bed days.
- Overall, January 2004 and August 2003 were the busiest and least busy months respectively. A clear seasonal trend was observed for respiratory conditions.
- Paediatric intensive care services are available for both planned and unplanned admissions, but the prominence of unplanned episodes (59%) highlights the difficulties for resource allocation. A large proportion of unplanned admissions (47%) came from another hospital.
- Cardiac was the most common primary diagnostic group (31%), followed by respiratory (25%).
- The majority of retrievals were undertaken by the unit's own retrieval team (63%).
- Over half (58%) of all children admitted to paediatric intensive care were invasively ventilated.
- Median daily occupancy levels vary in accordance with unit size. The monthly occupancy levels do not vary significantly but do reflect the winter peak.
- The majority of children (94%) admitted to paediatric intensive care are discharged alive.

- Acquiring follow-up information 30 days post discharge proved difficult; 59% of those discharged alive had an unknown follow-up status.
- An additional remit of PICANet was to investigate PICU staffing levels. Two snapshot surveys were undertaken in September 2003 and in March 2004. Information was collected on the numbers and grades of nursing and medical staff working in paediatric intensive care.
- Recommendations have been made to facilitate the ongoing collection of high quality data in the paediatric intensive care environment. These include identifying a designated member of staff for data collection and entry and improving local IT infrastructure.

1 AIMS

PICANet was established to develop and maintain a secure and confidential high quality clinical database of paediatric intensive care activity in England and Wales with the following objectives:

- Identify best practice
- Monitor supply and demand
- Monitor and review outcomes of treatment episodes
- Facilitate strategic health care planning and quantify resource requirements
- Study the epidemiology of critical illness in children.

The aim was to set up a systematically collected and validated core dataset of demographic and clinical data on all admissions to PICUs, allowing comparison of PICU activity at a local level with national benchmarks. It was identified as being important to provide an evidence base on outcomes, processes and structures, which would permit planning for future practice, research and interventions.

Clinical governance is essential to the continued improvement of the National Health Service. PICANet plays a vital role in this process, providing comprehensive, routinely available information for clinicians and service commissioners.

2 BACKGROUND

The aim of paediatric intensive care is to prevent mortality in children with reversible critical illness whilst preserving or improving functional outcome [1]. Paediatric intensive care activity has increased greatly over the past few decades, but this growth has been accompanied with little objective evaluation of the service, and decisions have been made on a restricted evidence base. The ethical difficulties of conducting randomised controlled trials of paediatric intensive care, the heterogeneity of patient groups and the heterogeneity of hospitals providing paediatric intensive care have been cited as possible reasons for this [1, 2].

Both the Paediatric Intensive Care Society and the British Paediatric Association voiced concerns regarding the *ad hoc* development of paediatric intensive care in the United Kingdom as early as the 1980's. In 1993 a multidisciplinary working party on paediatric intensive care highlighted the fragmented organisation of paediatric intensive care provision [3]. In 1996 the Department of Health set up a national coordinating group, who published a report confirming these findings [4].

The importance of clinical audit is widely acknowledged. The National Service Framework for Children clearly identifies that national audit programs give the public powerful comparative information on performance in complex areas such as paediatric intensive care [5]. Units providing paediatric intensive care are expected to collect information on case mix (including illness severity, method, type and source of admission, median length of stay, interventions, and outcome). The risk adjustment tool used should allow inter-unit and regional comparisons [4, 6].

In 2000 the Department of Health tendered for a national paediatric intensive care database enabling core information to be collected in a standardised way. The tender was awarded to the Universities of Leeds, Leicester and Sheffield (all of whom have experience of prospective observational work in paediatrics) and the Paediatric Intensive Care Audit Network (PICANet) was established.

PICANet is monitored by an independent Steering Group (Appendix A) and is formally involved with the clinical community through support and advice received from the Clinical Advisory Group (Appendix B).

3 PARTICIPATING NHS TRUSTS AND HOSPITAL CHARACTERISTICS

The following 29 PICUs (from 24 NHS trusts) in England and Wales currently participate in PICANet:

NHS trust	Participating hospital	Number of beds on PICU		Type of unit
		ITU	HDU	
Addenbrooke's NHS Trust	Addenbrooke's Hospital, PICU	6	2	General PICU
Birmingham Children's Hospital NHS Trust	Birmingham Children's Hospital, PICU	19		General PICU & Cardiac
Brighton & Sussex University Hospitals NHS Trust	Royal Alexandra Hospital for Sick Children, Lydia Ward	1	1	General PICU
Cardiff & Vale NHS Trust	University Hospital of Wales, PICU	6		General PICU
Central Manchester & Manchester Children's University Hospitals NHS Trust	Royal Manchester Children's Hospital, PICU	15		General PICU
Great Ormond Street Hospital for Sick Children NHS Trust	Great Ormond Street Hospital for Children, PICU, NICU, CICU & DJW Ward	35	4	General PICU, Cardiac ITU, Neonatal Surgical Unit
Guy's & St. Thomas' Hospital NHS Trust	Guy's Hospital, PICU	14		General PICU & Cardiac
Hull & East Yorkshire Hospitals NHS Trust	Hull Royal Infirmary	2		Adult ICU
King's College Hospital NHS Trust	King's College Hospital, PICU	6		General PICU & Liver
Leeds Teaching Hospitals NHS Trust	Leeds General Infirmary, PICU	14		General PICU & Cardiac
	St. James's University Hospital, PICU	2		General PICU
Newcastle upon Tyne Hospitals NHS Trust	Newcastle General Hospital, PICU	10 ^b	6 ^b	General PICU
	Royal Victoria Infirmary Ward 3 PICU	10 ^b	6 ^b	Surgical PICU
	Freeman Hospital Ward 28 PICU	6		Cardiac PICU
University Hospital of North Staffordshire NHS Trust	City General Hospital, PICU	6	1	General PICU
Queen's Medical Centre Nottingham University Hospital NHS Trust	Queen's Medical Centre, PICU	6		General PICU
Oxford Radcliffe Hospitals NHS Trust	John Radcliffe Hospital, PICU	7		General PICU & Cardiac
Royal Brompton & Harefield NHS Trust	Royal Brompton Hospital, PICU	10.2		Cardiac PICU
Royal Liverpool Children's NHS Trust	Royal Liverpool Children's Hospital, PICU	19		General PICU & Cardiac
Sheffield Children's Hospital NHS Trust	Sheffield Children's Hospital, PICU	8		General PICU
	Sheffield Children's Hospital, NSU	3		Neonatal Surgical PICU
Southampton University Hospitals NHS Trust	Southampton General Hospital, PICU	9		General PICU & Cardiac

NHS trust	Participating hospital	Number of beds on PICU		Type of unit
		ITU	HDU	
South Tees Hospitals NHS Trust	James Cook University Hospital, PICU	4		General PICU
St. George's Healthcare NHS Trust	St. George's Hospital, PICU	5		General PICU
St. Mary's NHS Trust	St. Mary's Hospital, PICU	6	2	General PICU
The Lewisham Hospital NHS Trust	University Hospital Lewisham, PICU	1		General PICU
United Bristol Healthcare NHS Trust	Bristol Royal Hospital for Children, PICU	13.4		General PICU & Cardiac
University Hospitals of Leicester NHS Trust	Leicester Royal Infirmary, CICU	6		General PICU
	Glenfield Hospital, PICU	5		Cardiac PICU

Notes:

- ^a Includes admissions to both Leeds General units and St. James's
- ^b Beds split between two units.
- ^c Patients are defined as receiving either intensive care (level 1), high dependency care (level 2), special care (level 3) or normal care (level 4). Only those receiving intensive care (level 1) are included in PICANet. A more detailed definition can be found in Appendix C.

None of the units reported having any designated recovery beds.

4 THE PICANet DATASET

A dataset was agreed after consultation with the paediatric intensive care clinical community with a view to ensuring reliability and validity but remaining practical to collect. The preferred risk adjustment tool was the Paediatric Index of Mortality (PIM). The data required for PIM are easier to collect than those required for other paediatric risk adjustment tools and the algorithm is provided free of charge [7,8]. Once the dataset was finalised, a data collection form was produced and bespoke software was developed. The forms and software are provided free of charge to all participating units.

Prior to the implementation of data collection, the Caldicott Guardian at each participating NHS trust was informed of PICANet's confidentiality and data protection arrangements. The Patient Information Advisory Group (PIAG) granted PICANet exemption from gaining parental signed consent under Section 60 of the Health and Social Care Act. Class support enables PICANet to collect and process patient identifiable information for the purpose of auditing, monitoring and analysing patient care and treatments, in order to ensure that adequate and appropriate paediatric intensive care services are available for all children resident in England and Wales. Exemption was given under specified conditions in December 2002 and was renewed in December 2003.

4.1 Dataset

The PICANet dataset consists of 6 sections:

- Admission information
- Diagnosis & procedures
- Medical history
- Physiology data (PIM)
- Intervention information
- Discharge information

A summary of the variables collected and a copy of the data collection form are provided in Appendix D.

Information leaflets giving details of PICANet have been produced for parents, families and guardians of children admitted to paediatric intensive care (see Appendix E). Posters displaying similar information have been distributed to units.

4.2 Data collection

Relevant staff at all units have received training in the collection of the PICANet dataset. Each variable is carefully defined in the PICANet data collection manual. In the majority of units data are collected using the PICANet data collection form and the PICANet software. Alternatively, units can provide an abstract of data from their in-house software for import into the PICANet software. This process still subjects the data to validation checks (see below).

4.3 Clinical coding

All diagnoses are coded using Clinical Terms 3 (The READ Codes), the precursor to SNOMED Clinical Terms. This is in accordance to recommendations from the NHSIA [9]. The READ codes were supplied to all units on a CD, and support was provided by the PICANet team on all aspects of clinical coding.

4.4 Data validation

Missing, logically inconsistent and out of range data are identified at the time of data entry. Central validation reports are produced (see section 5.3).

4.5 Data transmission

Automated data transmission via NHSnet is available to units using the PICANet software. Where local IT conditions prevent connection to NHSnet, data can be exported locally to disk or a folder and sent by post or e-mail. All data is encrypted using high-grade encryption (PGP). Units are requested to submit data on a weekly basis. The data is stored on a secure, stand-alone server at the University of Sheffield. Further details can be seen in section 5, table 5.1.

5 DATA QUALITY

PICANet have devoted considerable resources to ensure the quality of the dataset, particularly with respect to completeness and accuracy.

5.1 Data submitted

Participating hospital	Data provided*	Type of software / mechanism of data transfer	Comment
Addenbrooke's Hospital	Full	PICANet / e-mail	
Birmingham Children's Hospital	Full	In-house / e-mail	
Bristol Royal Hospital for Children	Full	In-house / NHSnet	
Great Ormond Street Hospital for Children	Partial	In-house / e-mail	Full data provided for March 03 - May 03. Only basic admission and discharge data provided for the remaining time period.
Guy's Hospital	Full	In-house / e-mail	
Hull Royal Infirmary	Full	PICANet / NHSnet	
James Cook University Hospital	Full	PICANet / NHSnet	
John Radcliffe Hospital	Full	PICANet / NHSnet	
King's College Hospital	Full	PICANet / disk	
Leeds General Infirmary	Full	In-house / NHSnet	
Leicester Glenfield Hospital	Full	In-house / e-mail	
Leicester Royal Infirmary	Full	PICANet / e-mail	
Newcastle Freeman Hospital	Full	PICANet / e-mail	
Newcastle General Hospital	Full	PICANet / e-mail	
Newcastle Royal Victoria Infirmary	Full	PICANet / e-mail	
Queen's Medical Centre	Full	PICANet / NHSnet	
Royal Alexandra Hospital for Sick Children	Full	PICANet / e-mail	
Royal Brompton Hospital	Partial	Mela / e-mail	Intervention data not complete.
Royal Liverpool Children's Hospital	Full	PICANet / disk	
Royal Manchester Children's Hospital	Full	PICANet / e-mail	
St. George's Hospital	Partial	Mela / e-mail	Intervention data not complete.
St. James's University Hospital	Full	In-house / NHSnet	
St. Mary's Hospital	Partial	Mela / e-mail	Basic admission and discharge information provided; intervention data not complete.
Sheffield Children's Hospital (NSU PICU)	Full	PICANet / collected	
Sheffield Children's Hospital (PICU)	Full	PICANet / collected	
Southampton General Hospital	Full	PICANet / e-mail	
University Hospital Lewisham	Full	PICANet / NHSnet	
University Hospital of North Staffordshire	Full	PICANet / NHSnet	
University Hospital of Wales	Full	PICANet / e-mail	

* For the annual report period 01/03/03 – 29/02/04.

5.2 DocDat criteria

The Directory of Clinical Databases (DoCDat) is a web-based directory (www.docdat.org) of clinical databases existing within the UK. It is an information resource for all those involved in clinical audit, clinical governance, health services management, health services research, research funding, and academic publishing. PICANet have been registered with DoCDat since 2002. The site produces an independent report of the coverage and accuracy of the data held in each database, and provides information about how the databases are managed and what topics they concern. DoCDat does not provide the actual data contained within each database. At the time of this report DoCDat's report on the PICANet database has not yet been fully completed.

5.3 Data validation

Data are validated at the point of data entry, and validation reports are sent out to units following central checks. Units using the PICANet software are able to validate data entry locally. Where data is being extracted from in-house databases, the import facility in the PICANet software produces a validation log on all imported data.

Data quality is addressed through site visits. Notes from a randomly selected time period are requested in advance, and data that have been collected locally are checked against data extracted by the PICANet team on the day of the visit. The locally completed data collection forms are also checked against data that have been entered onto the PICANet database. Data validation reports following these visits are sent to each unit, allowing them to examine the findings.

These validation visits enabled an assessment of data accuracy to be carried out. Based on 304 sets of notes for which a re-abstraction of data was carried out by PICANet staff, sources of error were most notable in the recording of admission and discharge times, physiology variables associated with PIM and the number of days of ventilation. These issues were raised at the time of the validation visit and confirmed by the validation reports sent to the unit. We are confident that data collection accuracy will improve and this will be assessed more formally following completion of the second year validation visits.

The central validation process has revealed some systematic errors in data received from units importing data from their own databases, which have been rectified with relative ease. Units have responded well to the validation reports and in many cases, the number of

inconsistencies / missing data have been reduced to 1 or 2 items or none at all. A large proportion of queries have arisen in clinical coding and we hope that a modified clinical coding tool will improve clinical coding quality.

Our overall assessment is that data accuracy has improved with time and familiarity with the dataset.

5.4 Clinical coding difficulties

When the PICANet dataset was developed it was agreed by the Clinical Advisory Group that a 'pick list' of conditions commonly seen in paediatric intensive care should be coded using Clinical Terms 3 (The Read Codes), and that this pick list should be provided in the PICANet software. Where no satisfactory match could be found, units could add in additional codes using the NHS Clinical Terms Browser that was supplied to all units. The intention was that these additional codes would be incorporated in the pick list in future updates of the PICANet software.

In practice, the pick list of codes has proved inadequate and units have been coding in greater detail. The process of switching between the Clinical Terms Browser and the PICANet software slows data entry and has prompted requests for all Clinical Terms 3 codes to be integrated with the PICANet software. This work is now in progress and a prototype will be piloted later in the year.

It is an NHSIA requirement that Clinical Terms 3 (The Read Codes) are used for diagnostic coding. The PICANet team are developing search frames to allow easy searching for particular sets of conditions with much finer categorisation than the broad diagnostic groups reported here. The use of the Clinical Terms 3 (The Read Codes) complies with NHSIA standards and will allow detailed interrogation of the dataset as well as ensuring compatibility with other datasets.

6 ADMISSION DATA

In this section, we present admission data for the period March 2003 – February 2004. All data are based on admissions aged 0 – 15 years of age unless clearly specified otherwise.

Footnotes have been added to identify particular characteristics of the data.

Definitions:

A **planned admission** following surgery is an admission that your unit is aware of before the surgery begins and one that could have been delayed for 24 hours without risk. (e.g. spinal surgery)

An **unplanned admission** following surgery is an admission that your unit was not aware of before surgery began and one that could not have been delayed without risk. (e.g. bleeding tonsillectomy)

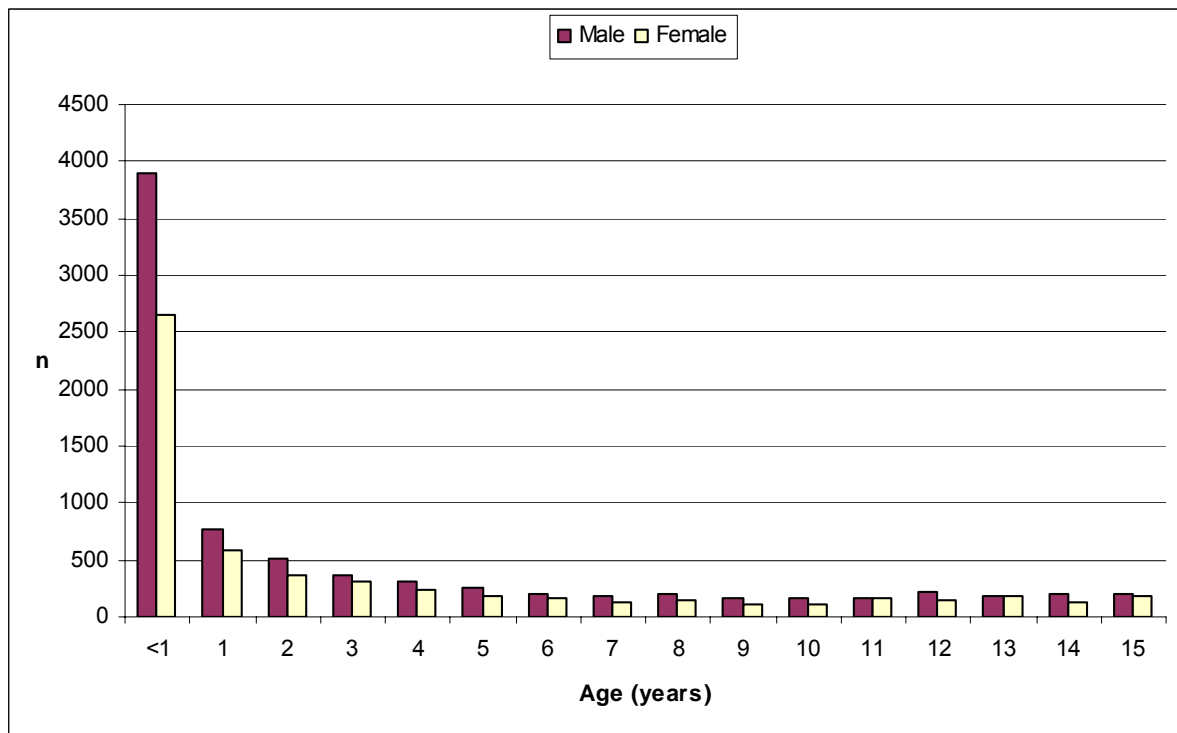
Surgery is defined as undergoing all or part of a procedure or anaesthesia for a procedure in an operating theatre or anaesthetic room. [Note: patients admitted from the operating theatre where surgery is not the main reason for admission (e.g. a patient with a head injury who is admitted from theatre after insertion of an ICP monitor) are not included here. In such patients the main reason for admission is head injury and thus the admission type would be unplanned – other].

A **planned, other admission** is any other planned admission that is not an emergency. (e.g. liver biopsy)

An **unplanned admission** is an admission that your unit was not expecting and is therefore an emergency admission to your unit. (e.g. status epilepticus)

6.1 Admissions by age

Figure 6.1.1 Admissions by age / sex

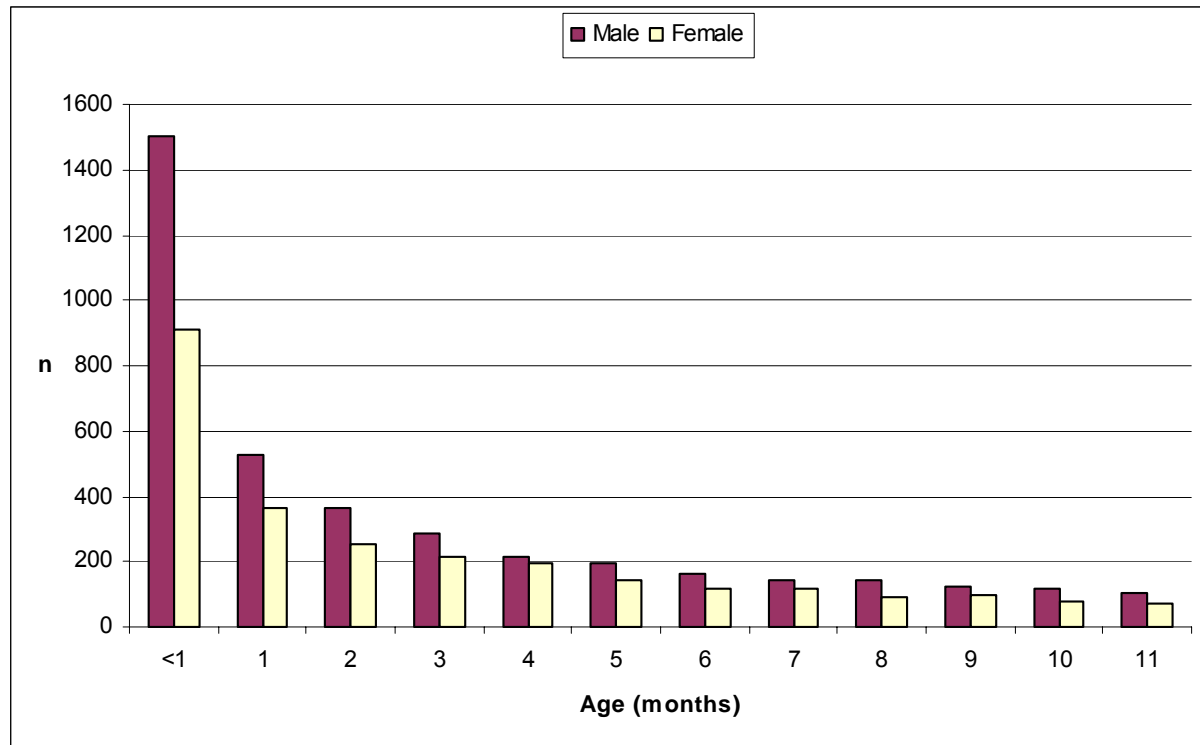


Note: Ambiguous 5
Unknown 17
Missing 2

Table 6.1.1 Admissions by age by NHS trust

NHS trust	Age (years)								Total	
	<1		1-4		5-10		11-15			
	n	%	n	%	n	%	n	%	n	%
A	129	(33)	104	(27)	88	(23)	65	(17)	386	(2.8)
B	110	(52)	47	(22)	29	(14)	26	(12)	212	(1.5)
C	121	(41)	76	(26)	44	(15)	54	(18)	295	(2.1)
D	228	(42)	161	(30)	58	(11)	93	(17)	540	(3.9)
E	953	(54)	385	(22)	223	(13)	199	(11)	1760	(12.7)
F	617	(59)	230	(22)	108	(10)	95	(9)	1050	(7.6)
G	20	(25)	31	(38)	17	(21)	13	(16)	81	(0.6)
H	89	(43)	46	(22)	38	(18)	35	(17)	208	(1.5)
I	410	(44)	272	(29)	151	(16)	95	(10)	928	(6.7)
J	38	(48)	27	(34)	8	(10)	7	(9)	80	(0.6)
K	435	(51)	208	(24)	124	(14)	91	(11)	858	(6.2)
L	73	(32)	65	(28)	39	(17)	54	(23)	231	(1.7)
M	107	(27)	96	(24)	85	(21)	111	(28)	399	(2.9)
N	143	(42)	98	(29)	52	(15)	44	(13)	337	(2.4)
O	284	(51)	139	(25)	92	(16)	44	(8)	559	(4.0)
P	510	(49)	283	(27)	127	(12)	128	(12)	1048	(7.6)
Q	227	(42)	132	(24)	82	(15)	104	(19)	545	(3.9)
R	343	(56)	114	(19)	84	(14)	69	(11)	610	(4.4)
S	58	(36)	44	(27)	42	(26)	18	(11)	162	(1.2)
T	101	(34)	100	(34)	46	(16)	49	(17)	296	(2.1)
U	170	(40)	128	(30)	85	(20)	39	(9)	422	(3.1)
V	546	(52)	238	(23)	140	(13)	124	(12)	1048	(7.6)
W	358	(48)	188	(25)	108	(14)	97	(13)	751	(5.4)
X	487	(49)	244	(24)	135	(14)	133	(13)	999	(7.2)
Total	6557	(47.5)	3456	(25.0)	2005	(14.5)	1787	(12.9)	13805	

Figure 6.1.2 Admissions by age (age less than 1 year) / sex



Note: Ambiguous 3
 Unknown 9
 Missing 1

Table 6.1.2 Admissions by age (age less than 1 year) by NHS trust

NHS trust	Age (months)								Total	
	<1		1-2		3-5		6-11			
	n	%	n	%	n	%	n	%	n	%
A	25	(19)	34	(26)	30	(23)	40	(31)	129	(2.0)
B	37	(34)	30	(27)	21	(19)	22	(20)	110	(1.7)
C	28	(23)	36	(30)	27	(22)	30	(25)	121	(1.8)
D	55	(24)	72	(32)	47	(21)	54	(24)	228	(3.5)
E	444	(47)	183	(19)	150	(16)	176	(18)	953	(14.5)
F	255	(41)	133	(22)	109	(18)	120	(19)	617	(9.4)
G	3	(15)	7	(35)	6	(30)	4	(20)	20	(0.3)
H	26	(29)	19	(21)	12	(13)	32	(36)	89	(1.4)
I	135	(33)	93	(23)	88	(21)	94	(23)	410	(6.3)
J	11	(29)	16	(42)	3	(8)	8	(21)	38	(0.6)
K	205	(47)	104	(24)	62	(14)	64	(15)	435	(6.6)
L	16	(22)	19	(26)	19	(26)	19	(26)	73	(1.1)
M	21	(20)	29	(27)	19	(18)	38	(36)	107	(1.6)
N	49	(34)	31	(22)	31	(22)	32	(22)	143	(2.2)
O	112	(39)	61	(21)	65	(23)	46	(16)	284	(4.3)
P	186	(36)	110	(22)	109	(21)	105	(21)	510	(7.8)
Q	75	(33)	73	(32)	40	(18)	39	(17)	227	(3.5)
R	140	(41)	77	(22)	55	(16)	71	(21)	343	(5.2)
S	18	(31)	20	(34)	14	(24)	6	(10)	58	(0.9)
T	24	(24)	20	(20)	24	(24)	33	(33)	101	(1.5)
U	23	(14)	56	(33)	38	(22)	53	(31)	170	(2.6)
V	211	(39)	117	(21)	107	(20)	111	(20)	546	(8.3)
W	116	(32)	86	(24)	85	(24)	71	(20)	358	(5.5)
X	205	(42)	84	(17)	94	(19)	104	(21)	487	(7.4)
Total	2420	(36.9)	1510	(23.0)	1255	(19.1)	1372	(20.9)	6557	

Table 6.1.3 Admissions aged 16 years and above by NHS trust

NHS trust	Admissions	
	n	%
A	4	(1.6)
B	3	(1.2)
C	7	(2.8)
D	7	(2.8)
E	36	(14.4)
F	10	(4.0)
H	5	(2.0)
I	16	(6.4)
K	21	(8.4)
L	14	(5.6)
M	4	(1.6)
N	7	(2.8)
O	1	(0.4)
P	22	(8.8)
Q	12	(4.8)
R	12	(4.8)
S	5	(2.0)
T	4	(1.6)
U	9	(3.6)
V	6	(2.4)
W	10	(4.0)
X	35	(14.0)
Total	250	

6.2 Admissions by month

Figure 6.2.1 Admissions by month / age

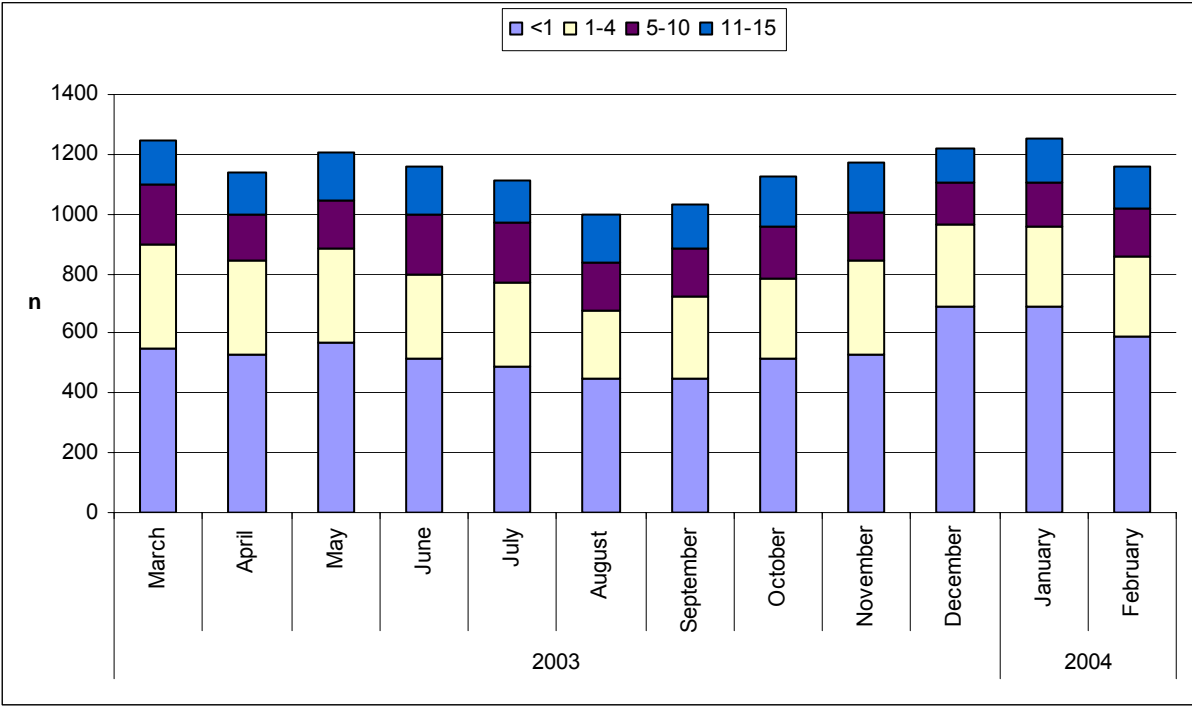


Table 6.2.1 Admissions by month / primary diagnostic group

Year	Month	Diagnostic group																Total	
		Neurological		Cardiac		Respiratory		Oncology		Infection		Musculoskeletal		Gastrointestinal		Other		n	%
		n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
2003	March	169	(14)	416	(33)	297	(24)	38	(3)	68	(5)	41	(3)	80	(6)	134	(11)	1243	(9.0)
	April	192	(17)	348	(31)	248	(22)	30	(3)	55	(5)	36	(3)	70	(6)	159	(14)	1138	(8.2)
	May	163	(14)	396	(33)	270	(22)	33	(3)	50	(4)	55	(5)	79	(7)	158	(13)	1204	(8.7)
	June	170	(15)	403	(35)	229	(20)	41	(4)	50	(4)	48	(4)	79	(7)	138	(12)	1158	(8.4)
	July	164	(15)	351	(32)	222	(20)	44	(4)	42	(4)	57	(5)	80	(7)	153	(14)	1113	(8.1)
	August	127	(13)	362	(36)	188	(19)	41	(4)	28	(3)	50	(5)	68	(7)	131	(13)	995	(7.2)
	September	141	(14)	382	(37)	188	(18)	30	(3)	45	(4)	39	(4)	62	(6)	144	(14)	1031	(7.5)
	October	157	(14)	363	(32)	249	(22)	30	(3)	50	(4)	47	(4)	85	(8)	143	(13)	1124	(8.1)
	November	188	(16)	361	(31)	304	(26)	35	(3)	56	(5)	51	(4)	64	(5)	113	(10)	1172	(8.5)
	December	159	(13)	282	(23)	504	(41)	22	(2)	77	(6)	31	(3)	55	(5)	90	(7)	1220	(8.8)
2004	January	141	(11)	325	(26)	418	(33)	39	(3)	67	(5)	47	(4)	76	(6)	137	(11)	1250	(9.1)
	February	163	(14)	343	(30)	309	(27)	38	(3)	57	(5)	36	(3)	62	(5)	149	(13)	1157	(8.4)
Total		1934	(14.0)	4332	(31.4)	3426	(24.8)	421	(3.0)	645	(4.7)	538	(3.9)	860	(6.2)	1649	(11.9)	13805	

Figure 6.2.2 Admissions by month / primary diagnostic group (respiratory)

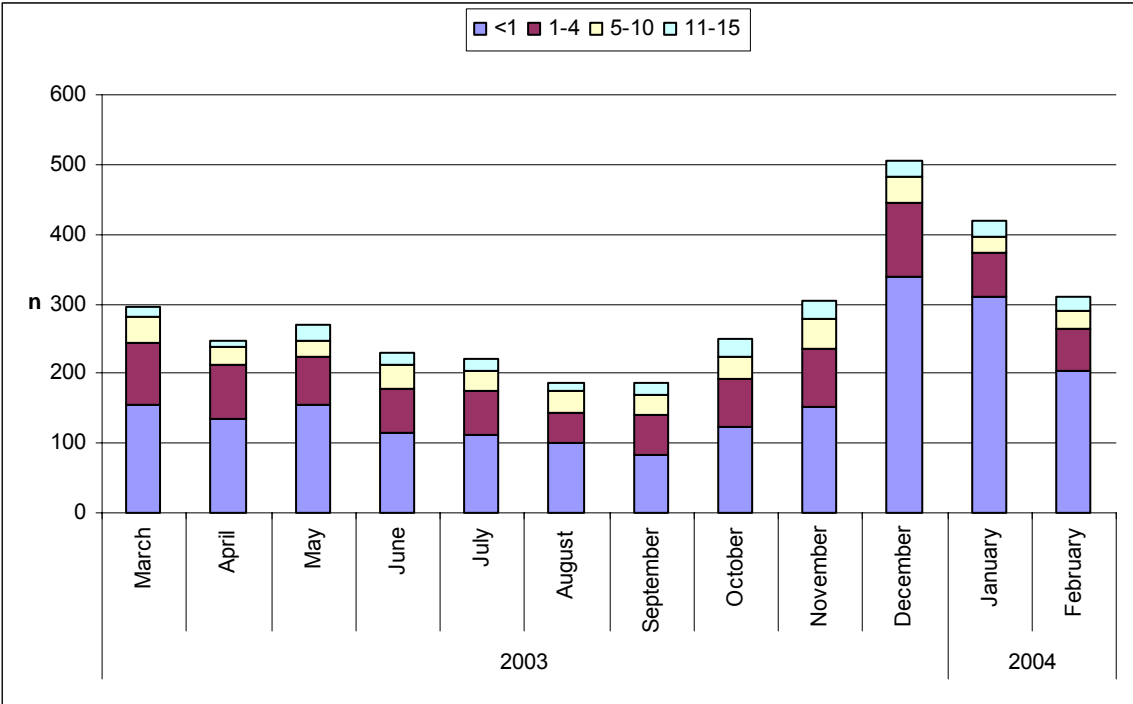


Table 6.2.2 Admissions by month by NHS trust

NHS trust	2003																				2004				Total	
	March		April		May		June		July		August		September		October		November		December		January		February		n	%
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%				
A	33	(9)	42	(11)	31	(8)	26	(7)	16	(4)	33	(9)	28	(7)	33	(9)	42	(11)	35	(9)	33	(9)	34	(9)	386	(2.8)
B	12	(6)	17	(8)	14	(7)	11	(5)	9	(4)	9	(4)	14	(7)	22	(10)	22	(10)	25	(12)	23	(11)	34	(16)	212	(1.5)
C	22	(7)	24	(8)	19	(6)	25	(8)	21	(7)	14	(5)	22	(7)	24	(8)	28	(9)	32	(11)	39	(13)	25	(8)	295	(2.1)
D	43	(8)	32	(6)	51	(9)	44	(8)	37	(7)	26	(5)	36	(7)	46	(9)	62	(11)	57	(11)	53	(10)	53	(10)	540	(3.9)
E	212	(12)	163	(9)	172	(10)	157	(9)	130	(7)	141	(8)	132	(8)	139	(8)	138	(8)	124	(7)	123	(7)	129	(7)	1760	(12.7)
F	88	(8)	77	(7)	97	(9)	77	(7)	83	(8)	76	(7)	77	(7)	86	(8)	108	(10)	84	(8)	112	(11)	85	(8)	1050	(7.6)
G	9	(11)	13	(16)	6	(7)	6	(7)	7	(9)	5	(6)	5	(6)	6	(7)	3	(4)	8	(10)	5	(6)	8	(10)	81	(0.6)
H	18	(9)	13	(6)	19	(9)	19	(9)	20	(10)	12	(6)	17	(8)	23	(11)	16	(8)	28	(13)	15	(7)	8	(4)	208	(1.5)
I	80	(9)	79	(9)	69	(7)	74	(8)	75	(8)	61	(7)	70	(8)	72	(8)	88	(9)	85	(9)	99	(11)	76	(8)	928	(6.7)
J	0	(0)	13	(16)	13	(16)	10	(13)	10	(13)	2	(3)	2	(3)	1	(1)	5	(6)	10	(13)	10	(13)	4	(5)	80	(0.6)
K	73	(9)	66	(8)	98	(11)	88	(10)	98	(11)	54	(6)	46	(5)	39	(5)	71	(8)	81	(9)	76	(9)	68	(8)	858	(6.2)
L	17	(7)	13	(6)	16	(7)	21	(9)	13	(6)	9	(4)	15	(6)	27	(12)	18	(8)	33	(14)	29	(13)	20	(9)	231	(1.7)
M	46	(12)	34	(9)	35	(9)	37	(9)	31	(8)	27	(7)	32	(8)	25	(6)	40	(10)	40	(10)	28	(7)	24	(6)	399	(2.9)
N	30	(9)	35	(10)	37	(11)	22	(7)	27	(8)	27	(8)	25	(7)	27	(8)	21	(6)	25	(7)	28	(8)	33	(10)	337	(2.4)
O	54	(10)	37	(7)	51	(9)	57	(10)	62	(11)	44	(8)	47	(8)	40	(7)	32	(6)	36	(6)	48	(9)	51	(9)	559	(4.0)
P	98	(9)	87	(8)	92	(9)	79	(8)	79	(8)	84	(8)	82	(8)	88	(8)	85	(8)	99	(9)	88	(8)	87	(8)	1048	(7.6)
Q	43	(8)	41	(8)	40	(7)	43	(8)	52	(10)	34	(6)	50	(9)	39	(7)	42	(8)	55	(10)	46	(8)	60	(11)	545	(3.9)
R	39	(6)	59	(10)	64	(10)	45	(7)	55	(9)	47	(8)	41	(7)	64	(10)	48	(8)	59	(10)	43	(7)	46	(8)	610	(4.4)
S	14	(9)	15	(9)	9	(6)	14	(9)	6	(4)	11	(7)	19	(12)	19	(12)	20	(12)	11	(7)	18	(11)	6	(4)	162	(1.2)
T	27	(9)	19	(6)	24	(8)	21	(7)	28	(9)	29	(10)	21	(7)	24	(8)	31	(10)	25	(8)	29	(10)	18	(6)	296	(2.1)
U	39	(9)	43	(10)	30	(7)	27	(6)	34	(8)	28	(7)	29	(7)	35	(8)	30	(7)	48	(11)	40	(9)	39	(9)	422	(3.1)
V	94	(9)	86	(8)	86	(8)	93	(9)	98	(9)	89	(8)	66	(6)	87	(8)	60	(6)	89	(8)	108	(10)	92	(9)	1048	(7.6)
W	62	(8)	56	(7)	52	(7)	77	(10)	56	(7)	57	(8)	63	(8)	62	(8)	65	(9)	62	(8)	69	(9)	70	(9)	751	(5.4)
X	90	(9)	74	(7)	79	(8)	85	(9)	66	(7)	76	(8)	92	(9)	96	(10)	97	(10)	69	(7)	88	(9)	87	(9)	999	(7.2)
Total	1243	(9.0)	1138	(8.2)	1204	(8.7)	1158	(8.4)	1113	(8.1)	995	(7.2)	1031	(7.5)	1124	(8.1)	1172	(8.5)	1220	(8.8)	1250	(9.1)	1157	(8.4)	13805	

6.3 Admissions by Strategic Health Authority (ALL AGES)

Table 6.3.1 Admissions by Strategic Health Authority

Strategic Health Authority/Health Board	Number of Admissions	
England		
Avon, Gloucestershire and Wiltshire	499	
Bedfordshire and Hertfordshire	216	
Birmingham and the Black Country	586	
Cheshire & Merseyside	633	
County Durham and Tees Valley	375	
Coventry, Warwickshire, Herefordshire and Worcestershire	280	
Cumbria and Lancashire	381	
Dorset and Somerset	210	
Essex	216	
Greater Manchester	515	
Hampshire and Isle of Wight	358	
Kent and Medway	232	
Leicestershire, Northamptonshire and Rutland	655	
Norfolk, Suffolk and Cambridgeshire	358	
North and East Yorkshire and Northern Lincolnshire	359	
North Central London	180	
North East London	236	
North West London	309	
Northumberland, Tyne & Wear	372	
Shropshire and Staffordshire	349	
South East London	364	
South West London	314	
South West Peninsula	197	
South Yorkshire	480	
Surrey and Sussex	601	
Thames Valley	358	
Trent	814	
West Yorkshire	641	
Scotland		
Argyll and Clyde	3	
Ayrshire and Arran	7	
Borders	1	
Dumfries and Galloway	4	
Fife	1	
Forth Valley	2	
Grampian	2	
Greater Glasgow	10	
Highland	2	
Lanarkshire	6	
Lothian	3	
Orkney	1	
Western Isles	1	
Wales	628	
Total validated address/postcodes ^b	11759	(83.7%)
No address/postcode supplied ^c	1705	(12.1%)
Unable to validate/unknown	591	(4.2%)
Total	14055^a	

Notes:

^a Based on all PICU admissions, regardless of age

^b Includes 402 episodes for which only a postcode was supplied

^c No address or postcode was provided by Trust E for 1254 episodes; Trust F for 309 episodes and Trust U for 141 episodes. Trust K provided partial postcodes for 200 episodes due to anonymisation of records and these could not be matched to an SHA.

6.4 Admissions by illness severity

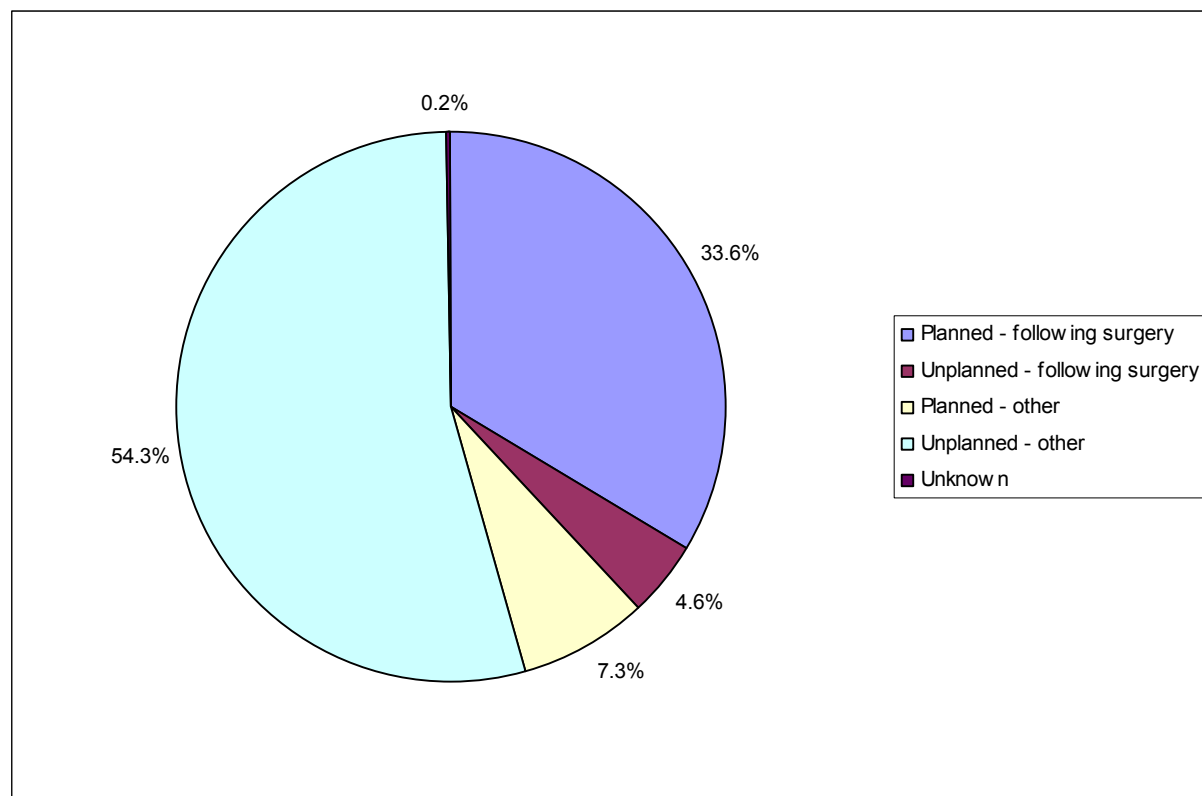
Table 6.4.1 Admissions by illness severity by NHS trust

NHS trust	Paediatric Index of Mortality (PIM)										Total	
	<1%		1-5%		5-15%		15-30%		30% +			
	n	%	n	%	n	%	n	%	n	%	n	%
A	193	(50)	111	(29)	76	(20)	4	(1)	2	(1)	386	(3.3)
B	102	(48)	71	(33)	31	(15)	4	(2)	4	(2)	212	(1.8)
C	51	(17)	89	(30)	92	(31)	34	(12)	29	(10)	295	(2.5)
D	61	(11)	165	(31)	203	(38)	54	(10)	57	(11)	540	(4.6)
F	95	(9)	460	(44)	326	(31)	100	(10)	69	(7)	1050	(9.0)
G	12	(15)	25	(31)	28	(35)	5	(6)	11	(14)	81	(0.7)
H	56	(27)	86	(41)	45	(22)	11	(5)	10	(5)	208	(1.8)
I	337	(36)	355	(38)	165	(18)	41	(4)	30	(3)	928	(8.0)
J	40	(50)	32	(40)	2	(3)	5	(6)	1	(1)	80	(0.7)
K	250	(29)	365	(43)	151	(18)	50	(6)	42	(5)	858	(7.4)
L	65	(28)	66	(29)	73	(32)	13	(6)	14	(6)	231	(2.0)
M	123	(31)	129	(32)	106	(27)	16	(4)	25	(6)	399	(3.4)
N	65	(19)	145	(43)	91	(27)	18	(5)	18	(5)	337	(2.9)
O	144	(26)	335	(60)	43	(8)	29	(5)	8	(1)	559	(4.8)
P	245	(23)	503	(48)	219	(21)	49	(5)	32	(3)	1048	(9.0)
Q	211	(39)	170	(31)	125	(23)	17	(3)	22	(4)	545	(4.7)
R	135	(22)	280	(46)	140	(23)	33	(5)	22	(4)	610	(5.2)
S	60	(37)	64	(40)	30	(19)	4	(2)	4	(2)	162	(1.4)
T	135	(46)	103	(35)	42	(14)	8	(3)	8	(3)	296	(2.5)
V	94	(9)	472	(45)	322	(31)	89	(8)	71	(7)	1048	(9.0)
W	107	(14)	352	(47)	197	(26)	65	(9)	30	(4)	751	(6.5)
X	485	(49)	318	(32)	122	(12)	52	(5)	22	(2)	999	(8.6)
Total	3066	(26.4)	4696	(40.4)	2629	(22.6)	701	(6.0)	531	(4.6)	11623^a	

Note: ^aFull data were not provided by Trust E and Trust U. Therefore they are not included in this table.

6.5 Admissions by admission type

Figure 6.5.1 Admissions by admission type



Note: Missing data are not included in this chart (see table 6.5.1 and 6.5.2).

Table 6.5.1 Admissions by admission type / age

Admission type	Age (years)								Total	
	<1		1-4		5-10		11-15		n	%
Planned - following surgery	1819	(43)	1094	(26)	671	(16)	633	(15)	4217	(30.5)
Unplanned - following surgery	219	(38)	148	(26)	125	(22)	85	(15)	577	(4.2)
Planned - other	481	(52)	207	(22)	126	(14)	108	(12)	922	(6.7)
Unplanned - other	3345	(49)	1733	(25)	922	(14)	826	(12)	6826	(49.4)
Unknown	10	(43)	6	(26)	4	(17)	3	(13)	23	(0.2)
Missing	683	(55)	268	(22)	157	(13)	132	(11)	1240	(9.0)
Total	6557	(47.5)	3456	(25.0)	2005	(14.5)	1787	(12.9)	13805	

Note: Full data were not provided by Trust E – this accounts for the majority of the missing admission types.

Table 6.5.2 Admissions by admission type by NHS trust

NHS trust	Admission type												Total	
	Planned - following surgery		Unplanned - following surgery		Planned - other		Unplanned - other		Unknown		Missing			
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
A	90	(23)	31	(8)	12	(3)	251	(65)	1	(0)	1	(0)	386	(2.8)
B	67	(32)	29	(14)	11	(5)	105	(50)	0	(0)	0	(0)	212	(1.5)
C	56	(19)	30	(10)	12	(4)	197	(67)	0	(0)	0	(0)	295	(2.1)
D	57	(11)	44	(8)	41	(8)	398	(74)	0	(0)	0	(0)	540	(3.9)
E	139	(8)	23	(1)	78	(4)	296	(17)	0	(0)	1224	(70)	1760	(12.7)
F	363	(35)	42	(4)	41	(4)	604	(58)	0	(0)	0	(0)	1050	(7.6)
G	1	(1)	4	(5)	1	(1)	75	(93)	0	(0)	0	(0)	81	(0.6)
H	46	(22)	8	(4)	51	(25)	101	(49)	2	(1)	0	(0)	208	(1.5)
I	391	(42)	39	(4)	65	(7)	432	(47)	0	(0)	1	(0)	928	(6.7)
J	28	(35)	5	(6)	1	(1)	46	(58)	0	(0)	0	(0)	80	(0.6)
K	286	(33)	84	(10)	97	(11)	390	(45)	0	(0)	1	(0)	858	(6.2)
L	35	(15)	14	(6)	17	(7)	165	(71)	0	(0)	0	(0)	231	(1.7)
M	152	(38)	37	(9)	10	(3)	200	(50)	0	(0)	0	(0)	399	(2.9)
N	142	(42)	23	(7)	14	(4)	158	(47)	0	(0)	0	(0)	337	(2.4)
O	375	(67)	15	(3)	38	(7)	129	(23)	2	(0)	0	(0)	559	(4.0)
P	541	(52)	36	(3)	21	(2)	450	(43)	0	(0)	0	(0)	1048	(7.6)
Q	156	(29)	34	(6)	15	(3)	340	(62)	0	(0)	0	(0)	545	(3.9)
R	196	(32)	26	(4)	88	(14)	300	(49)	0	(0)	0	(0)	610	(4.4)
S	16	(10)	5	(3)	14	(9)	127	(78)	0	(0)	0	(0)	162	(1.2)
T	79	(27)	21	(7)	22	(7)	171	(58)	3	(1)	0	(0)	296	(2.1)
U	25	(6)	9	(2)	7	(2)	378	(90)	2	(0)	1	(0)	422	(3.1)
V	425	(41)	0	(0)	0	(0)	623	(59)	0	(0)	0	(0)	1048	(7.6)
W	276	(37)	13	(2)	33	(4)	421	(56)	6	(1)	2	(0)	751	(5.4)
X	275	(28)	5	(1)	233	(23)	469	(47)	7	(1)	10	(1)	999	(7.2)
Total	4217	(30.5)	577	(4.2)	922	(6.7)	6826	(49.4)	23	(0.2)	1240	(9.0)	13805	

Note: Full data were not provided by Trust E – this accounts for the majority of the missing admission types.

Table 6.5.3 Admissions (unplanned - other) by source of admission by NHS trust

NHS trust	Source of admission												Total	
	Same hospital		Other hospital		Clinic		Home		Unknown		Missing			
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
A	140	(56)	109	(43)	0	(0)	1	(0)	0	(0)	1	(0)	251	(3.8)
B	90	(86)	13	(12)	0	(0)	2	(2)	0	(0)	0	(0)	105	(1.6)
C	68	(35)	128	(65)	0	(0)	0	(0)	0	(0)	1	(1)	197	(3.0)
D	116	(29)	281	(71)	0	(0)	1	(0)	0	(0)	0	(0)	398	(6.1)
F	0	(0)	0	(0)	0	(0)	0	(0)	604	(100)	0	(0)	604	(9.2)
G	71	(95)	4	(5)	0	(0)	0	(0)	0	(0)	0	(0)	75	(1.1)
H	61	(60)	35	(35)	1	(1)	3	(3)	1	(1)	0	(0)	101	(1.5)
I	186	(43)	246	(57)	0	(0)	0	(0)	0	(0)	0	(0)	432	(6.6)
J	44	(96)	1	(2)	0	(0)	1	(2)	0	(0)	0	(0)	46	(0.7)
K	153	(39)	236	(61)	0	(0)	0	(0)	0	(0)	1	(0)	390	(6.0)
L	69	(42)	88	(53)	0	(0)	8	(5)	0	(0)	0	(0)	165	(2.5)
M	130	(65)	66	(33)	0	(0)	4	(2)	0	(0)	0	(0)	200	(3.1)
N	88	(56)	70	(44)	0	(0)	0	(0)	0	(0)	0	(0)	158	(2.4)
O	55	(43)	70	(54)	1	(1)	2	(2)	1	(1)	0	(0)	129	(2.0)
P	255	(57)	194	(43)	0	(0)	1	(0)	0	(0)	0	(0)	450	(6.9)
Q	169	(50)	170	(50)	0	(0)	1	(0)	0	(0)	0	(0)	340	(5.2)
R	108	(36)	192	(64)	0	(0)	0	(0)	0	(0)	0	(0)	300	(4.6)
S	94	(74)	24	(19)	0	(0)	9	(7)	0	(0)	0	(0)	127	(1.9)
T	72	(42)	97	(57)	0	(0)	2	(1)	0	(0)	0	(0)	171	(2.6)
U	60	(16)	316	(84)	0	(0)	2	(1)	0	(0)	0	(0)	378	(5.8)
V	343	(55)	268	(43)	0	(0)	0	(0)	12	(2)	0	(0)	623	(9.5)
W	159	(38)	255	(61)	0	(0)	6	(1)	1	(0)	0	(0)	421	(6.4)
X	236	(50)	229	(49)	1	(0)	2	(0)	1	(0)	0	(0)	469	(7.2)
Total	2767	(42.4)	3092	(47.4)	3	(0.0)	45	(0.7)	620	(9.5)	3	(0.0)	6530^e	

Note: ^eFull data were not provided by Trust E. Therefore no data from this trust has been included in this table.

Table 6.5.4 Admissions (unplanned - other) by care area admitted from by NHS trust

NHS trust	Care area admitted from																				Total		
	CT scan or similar		Recovery only		HDU		Intermediate care area		ICU/PICU/NICU		Ward		Theatre & recovery		A & E		Unknown		Missing				
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n
A	3	(1)	0	(0)	0	(0)	2	(1)	17	(7)	91	(36)	37	(15)	74	(29)	25	(10)	2	(1)	251	(3.8)	
B	0	(0)	0	(0)	0	(0)	2	(2)	3	(3)	45	(43)	1	(1)	52	(50)	0	(0)	2	(2)	105	(1.6)	
C	5	(3)	0	(0)	42	(21)	1	(1)	61	(31)	32	(16)	13	(7)	42	(21)	0	(0)	1	(1)	197	(3.0)	
D	1	(0)	4	(1)	48	(12)	12	(3)	26	(7)	138	(35)	26	(7)	142	(36)	0	(0)	1	(0)	398	(6.1)	
F	1	(0)	0	(0)	28	(5)	0	(0)	107	(18)	211	(35)	34	(6)	172	(28)	51	(8)	0	(0)	604	(9.2)	
G	3	(4)	0	(0)	26	(35)	2	(3)	0	(0)	5	(7)	3	(4)	36	(48)	0	(0)	0	(0)	75	(1.1)	
H	0	(0)	0	(0)	0	(0)	5	(5)	9	(9)	47	(47)	2	(2)	37	(37)	0	(0)	1	(1)	101	(1.5)	
I	3	(1)	0	(0)	3	(1)	3	(1)	60	(14)	215	(50)	16	(4)	120	(28)	12	(3)	0	(0)	432	(6.6)	
J	1	(2)	0	(0)	0	(0)	1	(2)	0	(0)	13	(28)	2	(4)	28	(61)	0	(0)	1	(2)	46	(0.7)	
K	3	(1)	1	(0)	1	(0)	18	(5)	119	(31)	146	(37)	23	(6)	78	(20)	0	(0)	1	(0)	390	(6.0)	
L	0	(0)	0	(0)	14	(8)	0	(0)	11	(7)	84	(51)	3	(2)	45	(27)	0	(0)	8	(5)	165	(2.5)	
M	5	(3)	0	(0)	8	(4)	2	(1)	9	(5)	68	(34)	8	(4)	97	(49)	0	(0)	3	(2)	200	(3.1)	
N	4	(3)	0	(0)	9	(6)	2	(1)	24	(15)	64	(41)	3	(2)	52	(33)	0	(0)	0	(0)	158	(2.4)	
O	6	(5)	0	(0)	2	(2)	17	(13)	37	(29)	55	(43)	2	(2)	5	(4)	5	(4)	0	(0)	129	(2.0)	
P	15	(3)	1	(0)	31	(7)	17	(4)	37	(8)	174	(39)	20	(4)	153	(34)	1	(0)	1	(0)	450	(6.9)	
Q	3	(1)	0	(0)	19	(6)	5	(1)	65	(19)	130	(38)	18	(5)	99	(29)	0	(0)	1	(0)	340	(5.2)	
R	5	(2)	1	(0)	27	(9)	3	(1)	101	(34)	93	(31)	15	(5)	55	(18)	0	(0)	0	(0)	300	(4.6)	
S	0	(0)	0	(0)	3	(2)	22	(17)	5	(4)	60	(47)	1	(1)	28	(22)	0	(0)	8	(6)	127	(1.9)	
T	0	(0)	0	(0)	0	(0)	6	(4)	4	(2)	81	(47)	5	(3)	48	(28)	27	(16)	0	(0)	171	(2.6)	
U	0	(0)	2	(1)	9	(2)	1	(0)	24	(6)	67	(18)	24	(6)	85	(22)	44	(12)	122	(32)	378	(5.8)	
V	4	(1)	0	(0)	4	(1)	0	(0)	118	(19)	243	(39)	96	(15)	143	(23)	15	(2)	0	(0)	623	(9.5)	
W	2	(0)	2	(0)	19	(5)	1	(0)	134	(32)	129	(31)	23	(5)	64	(15)	47	(11)	0	(0)	421	(6.4)	
X	6	(1)	0	(0)	5	(1)	16	(3)	138	(29)	182	(39)	16	(3)	94	(20)	10	(2)	2	(0)	469	(7.2)	
Total	70	(1.1)	11	(0.2)	298	(4.6)	138	(2.1)	1109	(17.0)	2373	(36.3)	391	(6.0)	1749	(26.8)	237	(3.6)	154	(2.4)	6530 [†]		

Note: [†] Full data were not provided by Trust E. Therefore no data from this trust has been included in this table.

Table 6.5.5 Admissions (planned – following surgery) by primary diagnostic group by NHS trust

NHS trust	Diagnostic group																Total	
	Cardiac		Gastrointestinal		Infection		Musculoskeletal		Neurological		Oncology		Respiratory		Other		n	%
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%		
A	0	(0)	9	(10)	0	(0)	6	(7)	15	(17)	20	(22)	11	(12)	29	(32)	90	(2.2)
B	5	(7)	18	(27)	0	(0)	2	(3)	1	(1)	0	(0)	5	(7)	36	(54)	67	(1.6)
C	1	(2)	3	(5)	1	(2)	34	(61)	0	(0)	2	(4)	9	(16)	6	(11)	56	(1.4)
D	4	(7)	3	(5)	0	(0)	10	(18)	9	(16)	10	(18)	9	(16)	12	(21)	57	(1.4)
F	272	(75)	0	(0)	0	(0)	24	(7)	0	(0)	0	(0)	2	(1)	65	(18)	363	(8.9)
G	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	1	(100)	0	(0)	0	(0)	1	(0.0)
H	3	(7)	24	(52)	2	(4)	1	(2)	2	(4)	3	(7)	5	(11)	6	(13)	46	(1.1)
I	234	(60)	31	(8)	7	(2)	22	(6)	18	(5)	27	(7)	17	(4)	35	(9)	391	(9.6)
J	0	(0)	10	(36)	1	(4)	1	(4)	3	(11)	0	(0)	4	(14)	9	(32)	28	(0.7)
K	134	(47)	16	(6)	8	(3)	20	(7)	18	(6)	32	(11)	25	(9)	33	(12)	286	(7.0)
L	7	(20)	0	(0)	0	(0)	12	(34)	6	(17)	0	(0)	10	(29)	0	(0)	35	(0.9)
M	2	(1)	24	(16)	1	(1)	55	(36)	13	(9)	29	(19)	20	(13)	8	(5)	152	(3.7)
N	82	(58)	9	(6)	0	(0)	19	(13)	5	(4)	11	(8)	9	(6)	7	(5)	142	(3.5)
O	336	(90)	4	(1)	3	(1)	2	(1)	0	(0)	3	(1)	20	(5)	7	(2)	375	(9.2)
P	332	(61)	41	(8)	6	(1)	51	(9)	9	(2)	25	(5)	31	(6)	46	(9)	541	(13.3)
Q	2	(1)	34	(22)	1	(1)	40	(26)	14	(9)	13	(8)	15	(10)	37	(24)	156	(3.8)
R	141	(72)	16	(8)	1	(1)	17	(9)	7	(4)	4	(2)	3	(2)	7	(4)	196	(4.8)
S	0	(0)	1	(6)	0	(0)	7	(44)	0	(0)	1	(6)	5	(31)	2	(13)	16	(0.4)
T	2	(3)	21	(27)	0	(0)	7	(9)	5	(6)	26	(33)	7	(9)	11	(14)	79	(1.9)
U	1	(4)	5	(20)	1	(4)	1	(4)	4	(16)	0	(0)	11	(44)	2	(8)	25	(0.6)
V	335	(79)	7	(2)	0	(0)	16	(4)	5	(1)	12	(3)	11	(3)	39	(9)	425	(10.4)
W	229	(83)	8	(3)	2	(1)	4	(1)	5	(2)	9	(3)	11	(4)	8	(3)	276	(6.8)
X	162	(59)	29	(11)	10	(4)	22	(8)	6	(2)	8	(3)	11	(4)	27	(10)	275	(6.7)
Total	2284	(56.0)	313	(7.7)	44	(1.1)	373	(9.1)	145	(3.6)	236	(5.8)	251	(6.2)	432	(10.6)	4078^g	

Note: ^gFull data were not provided by Trust E. Therefore no data from this trust has been included in this table.

Table 6.5.6 Admissions (unplanned - following surgery) by primary diagnostic group by NHS trust

NHS trust	Diagnostic group																Total	
	Cardiac		Gastrointestinal		Infection		Musculoskeletal		Neurological		Oncology		Respiratory		Other		n	%
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%		
A	0	(0)	8	(26)	0	(0)	1	(3)	12	(39)	3	(10)	5	(16)	2	(6)	31	(5.6)
B	1	(3)	5	(17)	1	(3)	0	(0)	0	(0)	0	(0)	10	(34)	12	(41)	29	(5.2)
C	1	(3)	6	(20)	2	(7)	1	(3)	6	(20)	0	(0)	9	(30)	5	(17)	30	(5.4)
D	1	(2)	11	(25)	3	(7)	1	(2)	7	(16)	3	(7)	14	(32)	4	(9)	44	(7.9)
F	16	(38)	0	(0)	0	(0)	3	(7)	1	(2)	0	(0)	5	(12)	17	(40)	42	(7.6)
G	1	(25)	1	(25)	0	(0)	0	(0)	0	(0)	1	(25)	1	(25)	0	(0)	4	(0.7)
H	1	(13)	1	(13)	0	(0)	0	(0)	0	(0)	0	(0)	2	(25)	4	(50)	8	(1.4)
I	2	(5)	9	(23)	0	(0)	0	(0)	7	(18)	0	(0)	11	(28)	10	(26)	39	(7.0)
J	0	(0)	2	(40)	0	(0)	0	(0)	0	(0)	0	(0)	1	(20)	2	(40)	5	(0.9)
K	3	(4)	16	(19)	17	(20)	3	(4)	8	(10)	2	(2)	18	(21)	17	(20)	84	(15.2)
L	3	(21)	2	(14)	1	(7)	0	(0)	4	(29)	0	(0)	3	(21)	1	(7)	14	(2.5)
M	0	(0)	6	(16)	0	(0)	2	(5)	7	(19)	2	(5)	17	(46)	3	(8)	37	(6.7)
N	3	(13)	3	(13)	1	(4)	2	(9)	6	(26)	0	(0)	5	(22)	3	(13)	23	(4.2)
O	12	(80)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	2	(13)	1	(7)	15	(2.7)
P	9	(25)	1	(3)	4	(11)	1	(3)	7	(19)	1	(3)	9	(25)	4	(11)	36	(6.5)
Q	1	(3)	10	(29)	1	(3)	0	(0)	6	(18)	2	(6)	5	(15)	9	(26)	34	(6.1)
R	1	(4)	11	(42)	0	(0)	0	(0)	3	(12)	1	(4)	6	(23)	4	(15)	26	(4.7)
S	1	(20)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	3	(60)	1	(20)	5	(0.9)
T	1	(5)	7	(33)	2	(10)	0	(0)	2	(10)	3	(14)	4	(19)	2	(10)	21	(3.8)
U	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	7	(78)	2	(22)	9	(1.6)
W	4	(31)	6	(46)	0	(0)	0	(0)	0	(0)	0	(0)	1	(8)	2	(15)	13	(2.3)
X	0	(0)	3	(60)	0	(0)	0	(0)	0	(0)	0	(0)	1	(20)	1	(20)	5	(0.9)
Total	61	(11.0)	108	(19.5)	32	(5.8)	14	(2.5)	76	(13.7)	18	(3.2)	139	(25.1)	106	(19.1)	554 ^h	

Note: ^hFull data were not provided by Trust E. Therefore no data from this trust has been included in this table.

Table 6.5.7 Admissions (planned – other) by primary diagnostic group by NHS trust

NHS trust	Diagnostic group																Total	
	Cardiac		Gastrointestinal		Infection		Musculoskeletal		Neurological		Oncology		Respiratory		Other		n	%
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%		
A	0	(0)	2	(17)	0	(0)	0	(0)	1	(8)	3	(25)	2	(17)	4	(33)	12	(1.4)
B	1	(9)	2	(18)	0	(0)	0	(0)	0	(0)	0	(0)	1	(9)	7	(64)	11	(1.3)
C	1	(8)	0	(0)	1	(8)	0	(0)	0	(0)	0	(0)	7	(58)	3	(25)	12	(1.4)
D	3	(7)	1	(2)	3	(7)	2	(5)	8	(20)	1	(2)	14	(34)	9	(22)	41	(4.9)
F	23	(56)	0	(0)	0	(0)	0	(0)	4	(10)	0	(0)	10	(24)	4	(10)	41	(4.9)
G	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	1	(100)	0	(0)	1	(0.1)
H	1	(2)	8	(16)	2	(4)	3	(6)	17	(33)	1	(2)	10	(20)	9	(18)	51	(6.0)
I	27	(42)	4	(6)	0	(0)	0	(0)	1	(2)	8	(12)	15	(23)	10	(15)	65	(7.7)
J	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	1	(100)	1	(0.1)
K	52	(54)	2	(2)	5	(5)	2	(2)	6	(6)	0	(0)	17	(18)	13	(13)	97	(11.5)
L	0	(0)	0	(0)	0	(0)	3	(18)	1	(6)	0	(0)	12	(71)	1	(6)	17	(2.0)
M	0	(0)	0	(0)	1	(10)	1	(10)	2	(20)	0	(0)	6	(60)	0	(0)	10	(1.2)
N	4	(29)	0	(0)	0	(0)	0	(0)	2	(14)	1	(7)	2	(14)	5	(36)	14	(1.7)
O	32	(84)	0	(0)	0	(0)	1	(3)	0	(0)	0	(0)	5	(13)	0	(0)	38	(4.5)
P	9	(43)	2	(10)	0	(0)	1	(5)	1	(5)	1	(5)	2	(10)	5	(24)	21	(2.5)
Q	0	(0)	3	(20)	1	(7)	0	(0)	1	(7)	0	(0)	8	(53)	2	(13)	15	(1.8)
R	15	(17)	18	(20)	1	(1)	3	(3)	5	(6)	1	(1)	12	(14)	33	(38)	88	(10.4)
S	1	(7)	0	(0)	0	(0)	0	(0)	3	(21)	0	(0)	4	(29)	6	(43)	14	(1.7)
T	1	(5)	2	(9)	0	(0)	2	(9)	5	(23)	5	(23)	4	(18)	3	(14)	22	(2.6)
U	1	(14)	0	(0)	1	(14)	0	(0)	1	(14)	0	(0)	3	(43)	1	(14)	7	(0.8)
W	8	(24)	0	(0)	1	(3)	0	(0)	8	(24)	0	(0)	12	(36)	4	(12)	33	(3.9)
X	208	(89)	1	(0)	6	(3)	2	(1)	1	(0)	2	(1)	11	(5)	2	(1)	233	(27.6)
Total	387	(45.9)	45	(5.3)	22	(2.6)	20	(2.4)	67	(7.9)	23	(2.7)	158	(18.7)	122	(14.5)	844 ¹	

Note: ¹ Full data were not provided by Trust E. Therefore no data from this trust has been included in this table.

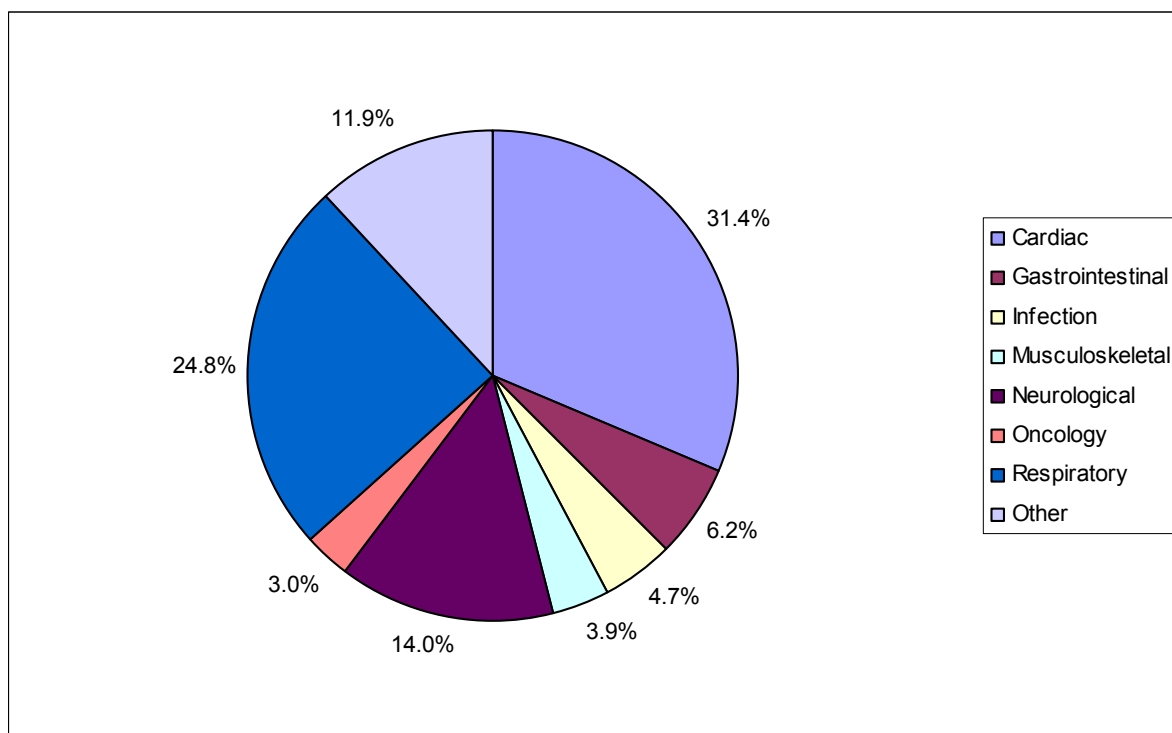
Table 6.5.8 Admissions (unplanned – other) by primary diagnostic group by NHS trust

NHS trust	Diagnostic group																Total	
	Cardiac		Gastrointestinal		Infection		Musculoskeletal		Neurological		Oncology		Respiratory		Other		n	%
	n	%	n	%	n	%	n	%	n	%	n	%	n	%				
A	9	(4)	17	(7)	17	(7)	6	(2)	86	(34)	14	(6)	68	(27)	34	(14)	251	(3.8)
B	3	(3)	3	(3)	7	(7)	0	(0)	21	(20)	0	(0)	42	(40)	29	(28)	105	(1.6)
C	10	(5)	1	(1)	22	(11)	1	(1)	53	(27)	3	(2)	86	(44)	21	(11)	197	(3.0)
D	26	(7)	2	(1)	42	(11)	9	(2)	104	(26)	4	(1)	174	(44)	37	(9)	398	(6.1)
F	136	(23)	2	(0)	46	(8)	0	(0)	140	(23)	1	(0)	215	(36)	64	(11)	604	(9.2)
G	5	(7)	1	(1)	7	(9)	1	(1)	30	(40)	0	(0)	25	(33)	6	(8)	75	(1.1)
H	2	(2)	9	(9)	6	(6)	4	(4)	39	(39)	1	(1)	30	(30)	10	(10)	101	(1.5)
I	45	(10)	11	(3)	31	(7)	4	(1)	99	(23)	2	(0)	185	(43)	55	(13)	432	(6.6)
J	1	(2)	3	(7)	0	(0)	1	(2)	13	(28)	0	(0)	20	(43)	8	(17)	46	(0.7)
K	59	(15)	39	(10)	41	(11)	5	(1)	65	(17)	3	(1)	113	(29)	65	(17)	390	(6.0)
L	13	(8)	1	(1)	17	(10)	1	(1)	45	(27)	0	(0)	77	(47)	11	(7)	165	(2.5)
M	11	(6)	7	(4)	7	(4)	4	(2)	73	(37)	2	(1)	79	(40)	17	(9)	200	(3.1)
N	21	(13)	0	(0)	13	(8)	4	(3)	38	(24)	0	(0)	70	(44)	12	(8)	158	(2.4)
O	93	(72)	1	(1)	2	(2)	0	(0)	5	(4)	0	(0)	28	(22)	0	(0)	129	(2.0)
P	77	(17)	11	(2)	29	(6)	13	(3)	84	(19)	10	(2)	177	(39)	49	(11)	450	(6.9)
Q	11	(3)	18	(5)	26	(8)	1	(0)	67	(20)	5	(1)	143	(42)	69	(20)	340	(5.2)
R	42	(14)	18	(6)	19	(6)	5	(2)	68	(23)	5	(2)	106	(35)	37	(12)	300	(4.6)
S	0	(0)	2	(2)	4	(3)	1	(1)	39	(31)	0	(0)	59	(46)	22	(17)	127	(1.9)
T	2	(1)	11	(6)	11	(6)	1	(1)	29	(17)	20	(12)	75	(44)	22	(13)	171	(2.6)
U	11	(3)	1	(0)	45	(12)	1	(0)	97	(26)	1	(0)	183	(48)	39	(10)	378	(5.8)
V	92	(15)	69	(11)	46	(7)	1	(0)	107	(17)	5	(1)	205	(33)	98	(16)	623	(9.5)
W	93	(22)	7	(2)	26	(6)	6	(1)	82	(19)	12	(3)	154	(37)	41	(10)	421	(6.4)
X	110	(23)	27	(6)	36	(8)	3	(1)	68	(14)	6	(1)	163	(35)	56	(12)	469	(7.2)
Total	872	(13.4)	261	(4.0)	500	(7.7)	72	(1.1)	1452	(22.2)	94	(1.4)	2477	(37.9)	802	(12.3)	6530¹	

Note: ¹Full data were not provided by Trust E. Therefore no data from this trust has been included in this table.

6.6 Admissions by primary diagnostic group

Figure 6.6.1 Admissions by primary diagnostic group



Eight broad diagnostic groups have been defined to enable easy comparison between trusts. The classification is based on Clinical Terms 3 (The Read Codes). The groups are mutually exclusive:

- Infection excludes any respiratory / gastrointestinal infection but includes meningitis.
- Neurological disorders include neuro-vascular complications.
- Oncology includes neuro-oncology.
- Other includes those diagnoses not covered by the other seven groups.

Table 6.6.1 Breakdown of 'Other' diagnoses

	n	%
Bodywall/cavity	277	(16.8)
Oral	17	(1.0)
Eye	1	(0.1)
Skin	33	(2.0)
Multisystem	10	(0.6)
Trauma, accident and poisoning	238	(14.4)
Blood and lymphatics	86	(5.2)
Endocrine and metabolic	200	(12.1)
Congenital	44	(2.7)
No code	187	(11.3)
Other	556	(33.7)
Total	1649	

Table 6.6.2 Admissions by primary diagnostic group / age

Diagnostic group	Age (years)								Total	
	<1		1-4		5-10		11-15			
	n	%	n	%	n	%	n	%	n	%
Cardiac	2510	(58)	928	(21)	516	(12)	378	(9)	4332	(31.4)
Gastrointestinal	545	(63)	145	(17)	79	(9)	91	(11)	860	(6.2)
Infection	232	(36)	237	(37)	96	(15)	80	(12)	645	(4.7)
Musculoskeletal	50	(9)	96	(18)	134	(25)	258	(48)	538	(3.9)
Neurological	460	(24)	675	(35)	457	(24)	342	(18)	1934	(14.0)
Oncology	53	(13)	147	(35)	113	(27)	108	(26)	421	(3.0)
Respiratory	1986	(58)	840	(25)	371	(11)	229	(7)	3426	(24.8)
Other	721	(44)	388	(24)	239	(14)	301	(18)	1649	(11.9)
Total	6557	(47.5)	3456	(25.0)	2005	(14.5)	1787	(12.9)	13805	

Table 6.6.3 Admissions by primary diagnostic group by NHS trust

NHS trust	Diagnostic group																Total	
	Cardiac		Gastrointestinal		Infection		Musculoskeletal		Neurological		Oncology		Respiratory		Other		n	%
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%		
A	9	(2)	36	(9)	17	(4)	13	(3)	114	(30)	40	(10)	86	(22)	71	(18)	386	(2.8)
B	10	(5)	28	(13)	8	(4)	2	(1)	22	(10)	0	(0)	58	(27)	84	(40)	212	(1.5)
C	13	(4)	10	(3)	26	(9)	36	(12)	59	(20)	5	(2)	111	(38)	35	(12)	295	(2.1)
D	34	(6)	17	(3)	48	(9)	22	(4)	128	(24)	18	(3)	211	(39)	62	(11)	540	(3.9)
E	719	(41)	133	(8)	44	(3)	57	(3)	192	(11)	49	(3)	388	(22)	178	(10)	1760	(12.7)
F	447	(43)	2	(0)	46	(4)	27	(3)	145	(14)	1	(0)	232	(22)	150	(14)	1050	(7.6)
G	6	(7)	2	(2)	7	(9)	1	(1)	30	(37)	2	(2)	27	(33)	6	(7)	81	(0.6)
H	7	(3)	42	(20)	10	(5)	9	(4)	58	(28)	5	(2)	48	(23)	29	(14)	208	(1.5)
I	308	(33)	55	(6)	38	(4)	26	(3)	125	(13)	38	(4)	228	(25)	110	(12)	928	(6.7)
J	1	(1)	15	(19)	1	(1)	2	(3)	16	(20)	0	(0)	25	(31)	20	(25)	80	(0.6)
K	248	(29)	73	(9)	71	(8)	30	(3)	97	(11)	37	(4)	174	(20)	128	(15)	858	(6.2)
L	23	(10)	3	(1)	18	(8)	16	(7)	56	(24)	0	(0)	102	(44)	13	(6)	231	(1.7)
M	13	(3)	37	(9)	9	(2)	62	(16)	95	(24)	33	(8)	122	(31)	28	(7)	399	(2.9)
N	110	(33)	12	(4)	14	(4)	25	(7)	51	(15)	12	(4)	86	(26)	27	(8)	337	(2.4)
O	475	(85)	5	(1)	5	(1)	3	(1)	5	(1)	3	(1)	55	(10)	8	(1)	559	(4.0)
P	427	(41)	55	(5)	39	(4)	66	(6)	101	(10)	37	(4)	219	(21)	104	(10)	1048	(7.6)
Q	14	(3)	65	(12)	29	(5)	41	(8)	88	(16)	20	(4)	171	(31)	117	(21)	545	(3.9)
R	199	(33)	63	(10)	21	(3)	25	(4)	83	(14)	11	(2)	127	(21)	81	(13)	610	(4.4)
S	2	(1)	3	(2)	4	(2)	8	(5)	42	(26)	1	(1)	71	(44)	31	(19)	162	(1.2)
T	6	(2)	41	(14)	15	(5)	10	(3)	41	(14)	54	(18)	91	(31)	38	(13)	296	(2.1)
U	13	(3)	6	(1)	47	(11)	2	(0)	102	(24)	1	(0)	206	(49)	45	(11)	422	(3.1)
V	427	(41)	76	(7)	46	(4)	17	(2)	112	(11)	17	(2)	216	(21)	137	(13)	1048	(7.6)
W	336	(45)	21	(3)	29	(4)	11	(1)	95	(13)	21	(3)	181	(24)	57	(8)	751	(5.4)
X	485	(49)	60	(6)	53	(5)	27	(3)	77	(8)	16	(2)	191	(19)	90	(9)	999	(7.2)
Total	4332	(31.4)	860	(6.2)	645	(4.7)	538	(3.9)	1934	(14.0)	421	(3.0)	3426	(24.8)	1649	(11.9)	13805	

Figure 6.6.2 Admissions (aged 16 years and above) by primary diagnostic group

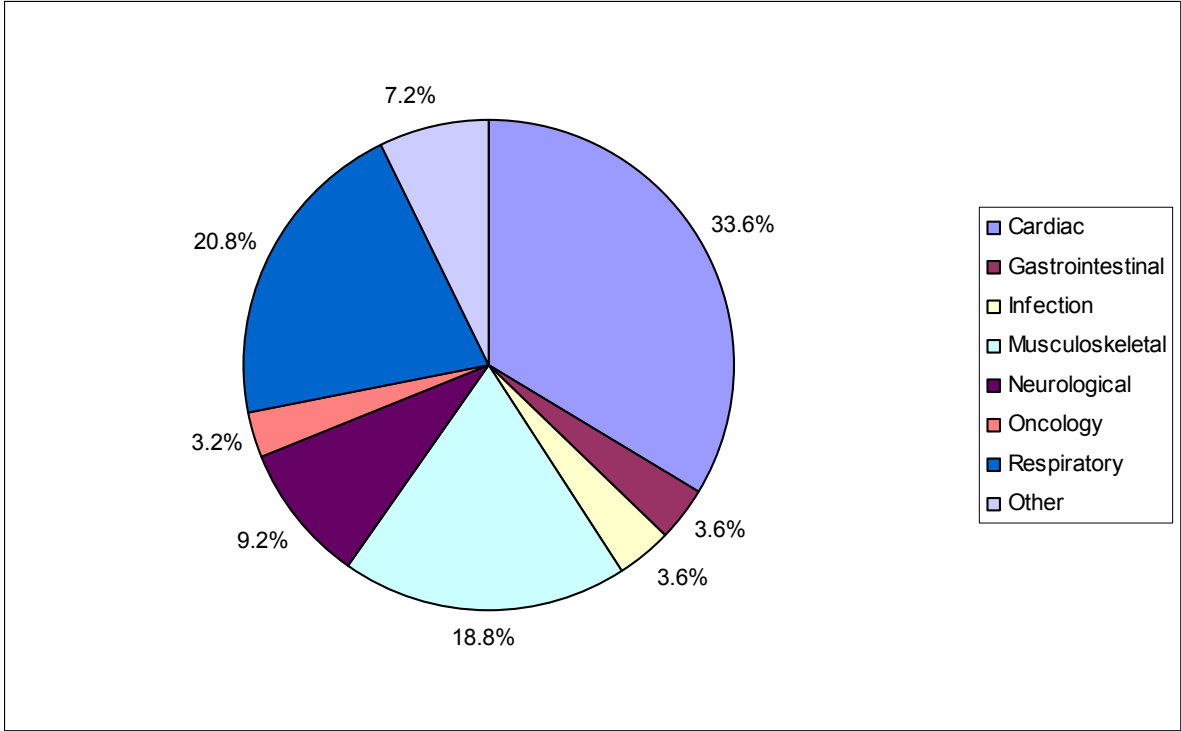


Table 6.6.4 Breakdown of 'Other' diagnoses (aged 16 years and above)

	n	%
Other	6	(35.3)
Blood and lymphatics	6	(35.3)
Bodywall/cavity	2	(11.8)
Trauma, accident and poisoning	2	(11.8)
No code	1	(5.9)
Total	17	

Table 6.6.5 Most common primary reasons for admission
(Top twenty reasons: March 2003 – February 2004)

Clinical Code	Description	Diagnostic Group	n	(%)
XM07z	Respiratory distress	Respiratory	353	(2.6)
P54..	Ventricular septal defect	Cardiac	335	(2.4)
P52..	Tetralogy of Fallot	Cardiac	302	(2.2)
X77vY	Atrial septal defect	Cardiac	274	(2.0)
P51..	Discordant ventriculoarterial connection	Cardiac	263	(1.9)
XM09V	Respiratory failure	Respiratory	263	(1.9)
X007B	Status epilepticus	Neurological	253	(1.8)
H0615	Acute bronchiolitis due to respiratory syncytial virus	Respiratory	240	(1.7)
X100E	Pneumonia	Respiratory	240	(1.7)
P71..	Aortic coarctation	Cardiac	233	(1.7)
A362.	Meningococcal septicaemia	Infection	229	(1.7)
P70..	Patent ductus arteriosus	Cardiac	200	(1.4)
H061.	Acute bronchiolitis	Respiratory	198	(1.4)
X70VZ	Sepsis	Infection	184	(1.3)
N373z	Kyphoscoliosis or scoliosis NOS	Musculoskeletal	178	(1.3)
H590.	Acute respiratory failure	Respiratory	164	(1.2)
14N6.	H/O cardiac surgery	Cardiac	156	(1.1)
P67..	Hypoplastic left heart syndrome	Cardiac	152	(1.1)
XA004	Head injury NOS	Neurological	140	(1.0)
XaEHZ	Seizure	Neurological	137	(1.0)

Note: Top 20 diagnoses account for 4494 (33%) of all admissions.

Table 6.6.6 Most common primary reasons for admission (Unplanned – other admissions)
(Top twenty reasons: March 2003 – February 2004)

Clinical Code	Description	Diagnostic Group	n	(%)
XM07z	Respiratory distress	Respiratory	303	(4.5)
XM09V	Respiratory failure	Respiratory	242	(3.6)
X007B	Status epilepticus	Neurological	240	(3.6)
X100E	Pneumonia	Respiratory	224	(3.3)
H0615	Acute bronchiolitis due to respiratory syncytial virus	Respiratory	223	(3.3)
A362.	Meningococcal septicaemia	Infection	212	(3.1)
H061.	Acute bronchiolitis	Respiratory	169	(2.5)
X70VZ	Sepsis	Infection	166	(2.5)
XaEHZ	Seizure	Neurological	128	(1.9)
XA004	Head injury NOS	Neurological	124	(1.8)
H590.	Acute respiratory failure	Respiratory	120	(1.8)
Xa0IW	Acute laryngotracheobronchitis	Respiratory	120	(1.8)
X76Gw	Apnoea	Respiratory	105	(1.6)
XA003	Injury of head region	Neurological	100	(1.5)
Q480.	Convulsions in newborn	Neurological	94	(1.4)
X000H	Meningitis	Neurological	79	(1.2)
X102D	Status asthmaticus	Respiratory	78	(1.2)
XM05Q	Respiratory obstruction	Respiratory	77	(1.1)
XE0UX	Cardiovascular disorder	Cardiac	72	(1.1)
XM03I	Febrile convulsion	Neurological	72	(1.1)

Note: Top 20 unplanned diagnoses account for 2948 (44%) of all admissions.

7 RETRIEVAL DATA

In this section, we present retrieval data for the period March 2003 – February 2004. All data are based on admissions aged 0 – 15 years of age unless clearly specified otherwise.

Footnotes have been added to identify particular characteristics of the data.

Definitions:

Own team identifies that your own retrieval team collected the child from the referring hospital.

Other PICU specialist team identifies that another PICU retrieval team transferred the child to your unit.

Other specialist team identifies that another transport team, not a PICU team (e.g. A&E, theatres or neonatal teams), transported the child to your unit.

Non-specialist team identifies that a non-PICU, non-specialist team transported the child to your unit. This could be ward staff transferring the child to your unit.

7.1 Retrievals by team type

Figure 7.1.1 Retrievals by team type

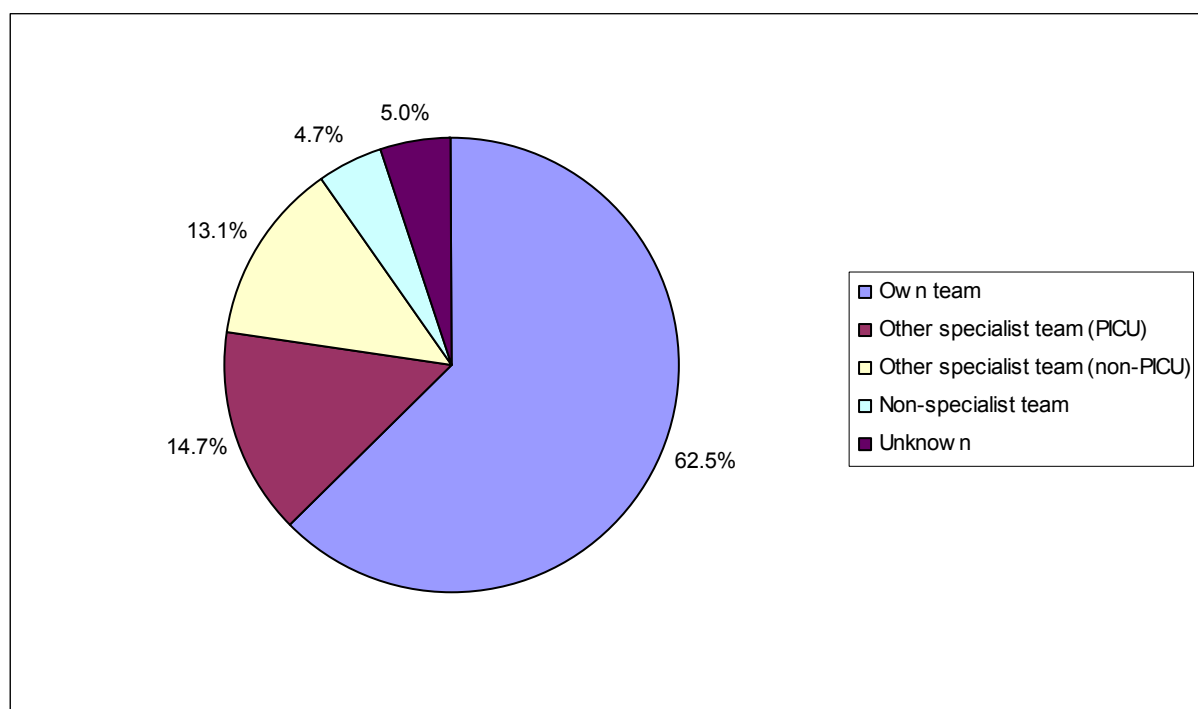


Table 7.1.1 Retrievals by team type / age

Type of retrieval team	Age group (years)								Total	
	<1		1-4		5-10		11-15		n	%
	n	%	n	%	n	%	n	%		
Own team	1303	(49)	774	(29)	302	(11)	267	(10)	2646	(62.5)
Other specialist team (PICU)	351	(56)	140	(23)	68	(11)	63	(10)	622	(14.7)
Other specialist team (non-PICU)	388	(70)	61	(11)	41	(7)	63	(11)	553	(13.1)
Non-specialist team	108	(54)	32	(16)	28	(14)	32	(16)	200	(4.7)
Unknown	157	(74)	32	(15)	14	(7)	9	(4)	212	(5.0)
Missing	0	(0)	1	(100)	0	(0)	0	(0)	1	(0.0)
Total	2307	(54.5)	1040	(24.6)	453	(10.7)	434	(10.3)	4234	

Table 7.1.2 Retrievals by team type by NHS Trust

NHS trust	Type of retrieval team												Total	
	Own team		Other specialist team (PICU)		Other specialist team (non-PICU)		Non-specialist team		Unknown		Missing			
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
A	49	(43)	13	(11)	40	(35)	3	(3)	8	(7)	1	(1)	114	(2.9)
B	2	(33)	1	(17)	3	(50)	0	(0)	0	(0)	0	(0)	6	(0.2)
C	124	(91)	4	(3)	5	(4)	3	(2)	0	(0)	0	(0)	136	(3.4)
D	254	(74)	23	(7)	58	(17)	9	(3)	0	(0)	0	(0)	344	(8.7)
F	466	(78)	0	(0)	0	(0)	0	(0)	133	(22)	0	(0)	599	(15.1)
G	0	(0)	0	(0)	0	(0)	1	(100)	0	(0)	0	(0)	1	(0.0)
H	8	(9)	58	(65)	9	(10)	4	(4)	10	(11)	0	(0)	89	(2.2)
I	194	(73)	20	(8)	40	(15)	10	(4)	1	(0)	0	(0)	265	(6.7)
J	3	(17)	14	(78)	1	(6)	0	(0)	0	(0)	0	(0)	18	(0.5)
K	92	(34)	33	(12)	129	(48)	13	(5)	4	(1)	0	(0)	271	(6.8)
L	98	(93)	2	(2)	3	(3)	2	(2)	0	(0)	0	(0)	105	(2.6)
M	32	(42)	24	(31)	17	(22)	4	(5)	0	(0)	0	(0)	77	(1.9)
N	60	(86)	3	(4)	1	(1)	6	(9)	0	(0)	0	(0)	70	(1.8)
O	1	(2)	20	(39)	2	(4)	1	(2)	27	(53)	0	(0)	51	(1.3)
P	157	(70)	14	(6)	44	(20)	9	(4)	1	(0)	0	(0)	225	(5.7)
Q	133	(73)	16	(9)	24	(13)	5	(3)	5	(3)	0	(0)	183	(4.6)
R	180	(72)	2	(1)	57	(23)	11	(4)	0	(0)	0	(0)	250	(6.3)
S	6	(19)	4	(13)	18	(56)	4	(13)	0	(0)	0	(0)	32	(0.8)
T	1	(1)	72	(61)	2	(2)	31	(26)	13	(11)	0	(0)	119	(3.0)
U	212	(75)	62	(22)	1	(0)	2	(1)	6	(2)	0	(0)	283	(7.1)
V	135	(60)	0	(0)	91	(40)	0	(0)	0	(0)	0	(0)	226	(5.7)
W	221	(100)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	221	(5.6)
X	210	(74)	61	(22)	6	(2)	1	(0)	4	(1)	0	(0)	282	(7.1)
Total	2638	(66.5)	446	(11.2)	551	(13.9)	119	(3.0)	212	(5.3)	1	(0.0)	3967^a	

Note: ^aFull data has not been provided by Trust E. Therefore they are not included in this table.

8 INTERVENTION DATA

In this section, we present summary data on interventions, and more detailed data on ventilation (invasive and non-invasive) for the period March 2003 – February 2004. All data are based on admissions aged 0 – 15 years of age unless clearly specified otherwise.

Footnotes have been added to identify particular characteristics of the data.

Definitions:

To enable comparison with duration of ventilation, length of stay has been calculated as the count of whole/part days that a child spent on the unit. Thus if they were admitted at 22:00 and discharged at 07:00 the following day, they would have been counted as staying for 2 days.

8.1 Interventions performed

Table 8.1.1 Admissions receiving interventions by NHS trust

NHS trust	Intervention															
	Invasive ventilation		Non-invasive ventilation		Tracheostomy		ECMO		IV vasoactive therapy		LVAD		ICP device		Renal support	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
A	166	(43)	25	(6)	6	(2)	0	(0)	39	(10)	0	(0)	28	(7)	0	(0)
B	53	(25)	26	(12)	4	(2)	1	(0)	14	(7)	1	(0)	2	(1)	2	(1)
C	220	(75)	18	(6)	7	(2)	0	(0)	41	(14)	0	(0)	7	(2)	6	(2)
D	457	(85)	31	(6)	25	(5)	1	(0)	114	(21)	0	(0)	23	(4)	17	(3)
F	829	(79)	86	(8)	13	(1)	0	(0)	288	(27)	1	(0)	0	(0)	0	(0)
G	54	(67)	9	(11)	3	(4)	1	(1)	25	(31)	0	(0)	4	(5)	0	(0)
H	150	(72)	10	(5)	5	(2)	0	(0)	30	(14)	2	(1)	12	(6)	16	(8)
I	572	(62)	50	(5)	19	(2)	3	(0)	291	(31)	1	(0)	32	(3)	65	(7)
J	23	(29)	6	(8)	2	(3)	0	(0)	3	(4)	0	(0)	0	(0)	1	(1)
K	491	(57)	52	(6)	17	(2)	27	(3)	273	(32)	2	(0)	52	(6)	49	(6)
L	144	(62)	43	(19)	12	(5)	0	(0)	31	(13)	0	(0)	3	(1)	2	(1)
M	211	(53)	39	(10)	15	(4)	1	(0)	47	(12)	1	(0)	22	(6)	7	(2)
N	258	(77)	37	(11)	10	(3)	0	(0)	98	(29)	0	(0)	24	(7)	9	(3)
P	855	(82)	9	(1)	10	(1)	1	(0)	311	(30)	2	(0)	1	(0)	1	(0)
Q	248	(46)	54	(10)	20	(4)	5	(1)	71	(13)	2	(0)	32	(6)	16	(3)
R	469	(77)	63	(10)	11	(2)	0	(0)	183	(30)	1	(0)	14	(2)	24	(4)
S	62	(38)	28	(17)	2	(1)	1	(1)	19	(12)	0	(0)	3	(2)	1	(1)
V	955	(91)	231	(22)	21	(2)	1	(0)	599	(57)	1	(0)	31	(3)	54	(5)
W	595	(79)	76	(10)	1	(0)	2	(0)	351	(47)	0	(0)	23	(3)	56	(7)
X	486	(49)	204	(20)	19	(2)	44	(4)	245	(25)	0	(0)	1	(0)	24	(2)
Total	7298		1097		222		88		3073		14		314		350	

Notes:

Full data has not been provided by Trust E, Trust O, Trust T and Trust U. Therefore they are not included in this table.

In this table all percentages relate to the proportion of admissions receiving the intervention at that trust.

Admissions could receive multiple interventions.

8.2 Ventilation status

Table 8.2.1 Admissions by ventilation / age

Ventilation	Age group (years)								Total	
	<1		1-4		5-10		11-15		n	% ^a
	n	%	n	%	n	%	n	%		
Invasive	4066	(51)	1945	(24)	1036	(13)	969	(12)	8016	(58.1)
Non-invasive	809	(62)	221	(17)	140	(11)	137	(10)	1307	(9.5)
Both	626	(64)	167	(17)	91	(9)	90	(9)	974	(7.1)
Neither	1476	(38)	1091	(28)	709	(18)	604	(16)	3880	(28.1)

^aThe total percentage relates to the proportion of all admissions receiving the given mode of ventilation (i.e. the denominator used here is 13 805).

Table 8.2.2 Ventilation by NHS trust

NHS trust	Number of admissions				Median ventilation duration (days)				Median length of stay (days)							
	IV	NIV	IV & NIV	NV	IV		NIV		IV		NIV		NV		All admissions	
					Median	(IQR)	Median	(IQR)	Median	(IQR)	Median	(IQR)	Median	(IQR)	Median	(IQR)
A	166	25	18	213	4	(2-6)	1	(1-2)	4	(3-8)	6	(4-10)	2	(2-3)	3	(2-5)
B	53	26	10	143	1	(1-1)	1	(1-3)	1	(1-2)	3	(2-4)	2	(1-2)	2	(1-2)
C	220	18	6	63	2	(1-5)	1	(1-3)	3	(2-7)	4	(3-6)	2	(2-3)	3	(2-6)
D	457	31	16	68	3.5	(2-6)	2	(1-4)	4	(2-7)	7	(3-11)	2	(1-2)	4	(2-7)
F	829	86	68	203	2	(1-4)	-	-	3	(2-5)	6	(4-11)	2	(2-3)	3	(2-5)
G	54	9	5	23	3	(2-6)	1	(1-1)	2	(2-7)	6	(2-7)	2	(1-2)	2	(2-5)
H	150	10	6	54	1	(1-5)	1	(1-1)	3	(2-8)	5.5	(2-6)	2	(1-3)	3	(2-6)
I	572	50	35	341	2	(1-5)	1	(1-4)	4	(2-7)	7	(5-13)	2	(2-2)	3	(2-5)
J	23	6	2	53	1	(1-1)	1	(1-1)	1	(1-2)	1.5	(1-2)	2	(1-2)	2	(1-2)
K	491	52	34	349	3	(1-5)	2	(1-3.5)	2	(2-7)	6	(3-13.5)	2	(2-3)	3	(2-5)
L	144	43	18	62	3	(2-5)	2	(2-3)	4	(2-4)	4	(2-11)	2	(1-2)	3	(2-5)
M	211	39	27	176	2	(2-5)	3	(1-4)	4	(3-7)	8	(5-12)	2	(2-2)	3	(2-5)
N	258	37	28	70	2	(1-5)	1	(1-2)	3	(2-7)	8	(3-12)	2	(1-2)	3	(2-5)
P	855	9	6	190	3	(1-6)	4	(2-5)	4	(2-7)	7	(4-21)	2	(1-2)	3	(2-6)
Q	248	54	33	276	4	(2-7)	2	(1-4)	5	(3-9)	7	(4-14)	2	(2-3)	3	(2-6)
R	469	63	50	128	2	(1-4)	1	(1-2)	3	(2-5)	4	(3-9)	2	(1-2)	2	(2-4)
S	62	28	13	85	3	(2-5)	2	(1-3.5)	5	(2-7)	5	(3-7)	2	(2-3)	3	(2-5)
V	955	231	227	89	2	(1-5)	2	(1-3)	3	(2-6)	7	(4-14)	2	(1-2)	3	(2-6)
W	595	76	63	143	2	(1-5)	2	(1-3)	4	(3-7)	7.5	(4-22)	2	(2-3)	3	(2-6)
X	486	204	160	469	2	(1-5)	2	(1-2)	3	(2-7)	3	(2-6)	1	(1-2)	2	(1-4)

Note: Full data has not been provided by Trust E, Trust O, Trust T and Trust U. Therefore they are not included in this table.

Key: IV: Invasive Ventilation, NIV: Non-Invasive Ventilation, NV: Not Ventilated, IQR: Inter-Quartile Range.

9 OCCUPANCY DATA

In this section, we present occupancy data for the period March 2003 – February 2004. All data are based on admissions aged 0 – 15 years of age unless clearly specified otherwise.

The box and whisker plots used in this section provide information on the median (the middle line of the box) and the interquartile ranges (the top and bottom of the box and the IQR). The whiskers denote the lower and upper adjacent values (defined as $X_{[75]} + 1.5 \times \text{IQR}$ and $X_{[25]} - 1.5 \times \text{IQR}$ respectively) and extreme outliers are individually plotted [12]. The size of the box indicates the number of observations.

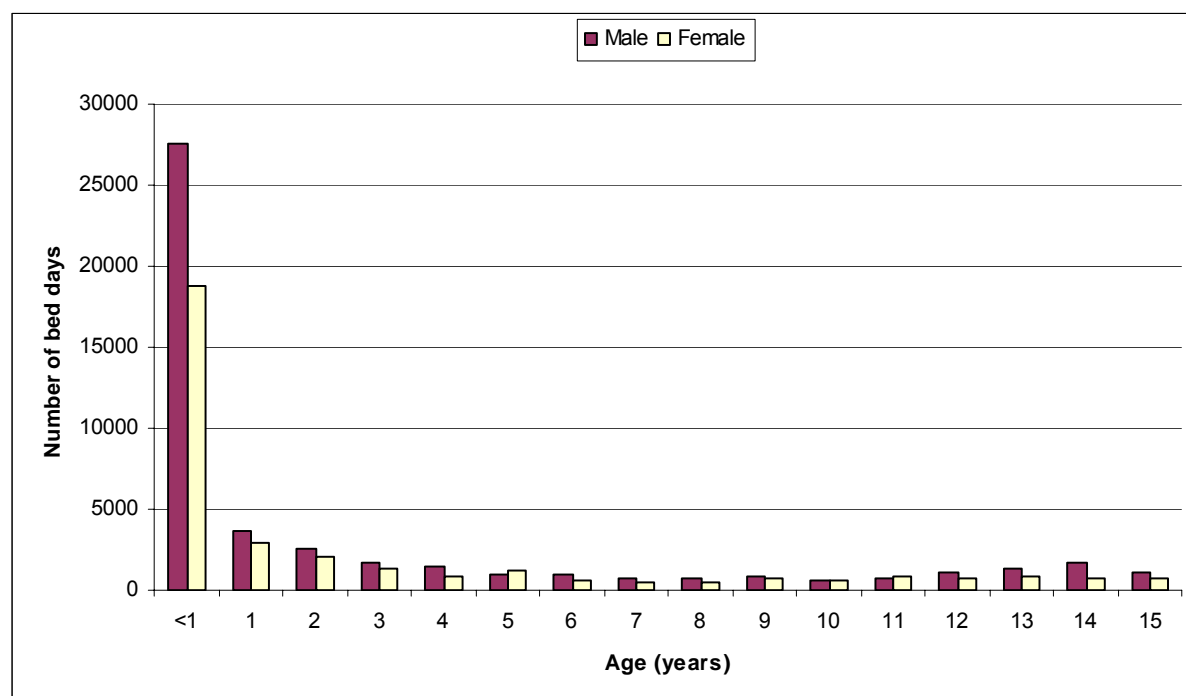
Footnotes have been added to identify particular characteristics of the data.

Definition:

Length of stay has been calculated to the minute for those children who had a date and time recorded for admission and discharge (n=13 316). The values presented are days and fraction of days.

9.1 Total number of bed days delivered

Figure 9.1.1 Total number of bed days delivered by age / sex



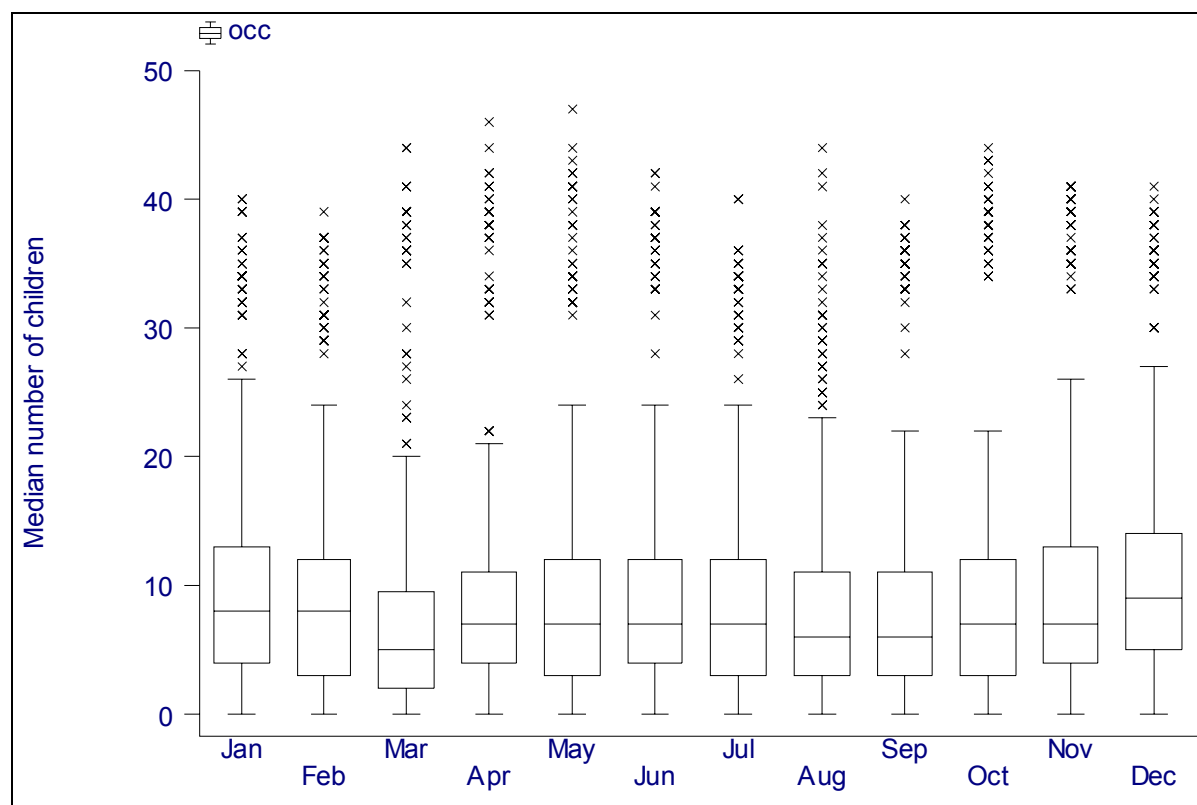
Note: Ambiguous 42 bed days.
Unknown 136 bed days.
Missing 5 bed days.

Table 9.1.1 Total number of bed days delivered by NHS trust

NHS trust	Age (years)								Total	
	<1		1-4		5-10		11-15		n	%
	n	%	n	%	n	%	n	%		
A	951	(41)	529	(23)	609	(26)	249	(11)	2338	(2.8)
B	1179	(64)	229	(12)	224	(12)	219	(12)	1851	(2.3)
C	738	(50)	251	(17)	146	(10)	345	(23)	1480	(1.8)
D	1907	(49)	1055	(27)	293	(7)	667	(17)	3922	(4.8)
E	8178	(64)	2261	(18)	1195	(9)	1128	(9)	12762	(15.5)
F	2799	(65)	811	(19)	433	(10)	266	(6)	4309	(5.3)
G	82	(26)	133	(42)	65	(20)	39	(12)	319	(0.4)
H	707	(56)	188	(15)	211	(17)	165	(13)	1271	(1.5)
I	2520	(51)	1460	(30)	564	(11)	374	(8)	4918	(6.0)
J	77	(52)	45	(30)	15	(10)	12	(8)	149	(0.2)
K	2833	(61)	1075	(23)	423	(9)	307	(7)	4638	(5.7)
L	390	(24)	754	(46)	176	(11)	321	(20)	1641	(2.0)
M	563	(32)	430	(24)	322	(18)	463	(26)	1778	(2.2)
N	729	(34)	400	(19)	569	(27)	416	(20)	2114	(2.6)
O	2493	(71)	585	(17)	320	(9)	134	(4)	3532	(4.3)
P	4339	(63)	1365	(20)	522	(8)	690	(10)	6916	(8.4)
Q	2773	(59)	519	(11)	458	(10)	923	(20)	4673	(5.7)
R	1907	(60)	368	(11)	391	(12)	539	(17)	3205	(3.9)
S	296	(28)	135	(13)	132	(12)	512	(48)	1075	(1.3)
T	655	(43)	459	(30)	155	(10)	251	(17)	1520	(1.9)
U	1478	(55)	614	(23)	431	(16)	178	(7)	2701	(3.3)
V	3545	(60)	1211	(21)	633	(11)	498	(8)	5887	(7.2)
W	2888	(60)	889	(19)	441	(9)	564	(12)	4782	(5.8)
X	2402	(56)	1004	(23)	404	(9)	482	(11)	4292	(5.2)
Total	46429	(56.6)	16770	(20.4)	9132	(11.1)	9742	(11.9)	82073	

9.2 Daily occupancy levels

Figure 9.2.1 Median daily occupancy levels by month



Note: This figure indicates median daily occupancy levels across all units on a daily basis.

Table 9.2.1 Daily occupancy levels by month

Year	Month	Occupancy (days)		
		Median	IQR	
2003	March	5	(2-10)	
	April	7	(4-11)	
	May	7	(3-12)	
	June	7	(4-12)	
	July	7	(3-12)	
	August	6	(3-11)	
	September	6	(3-11)	
	October	7	(3-12)	
	November	7	(4-13)	
	December	9	(5-14)	
	2004	January	8	(4-13)
		February	8	(3-12)

Figure 9.2.2 Median daily occupancy levels by NHS trust

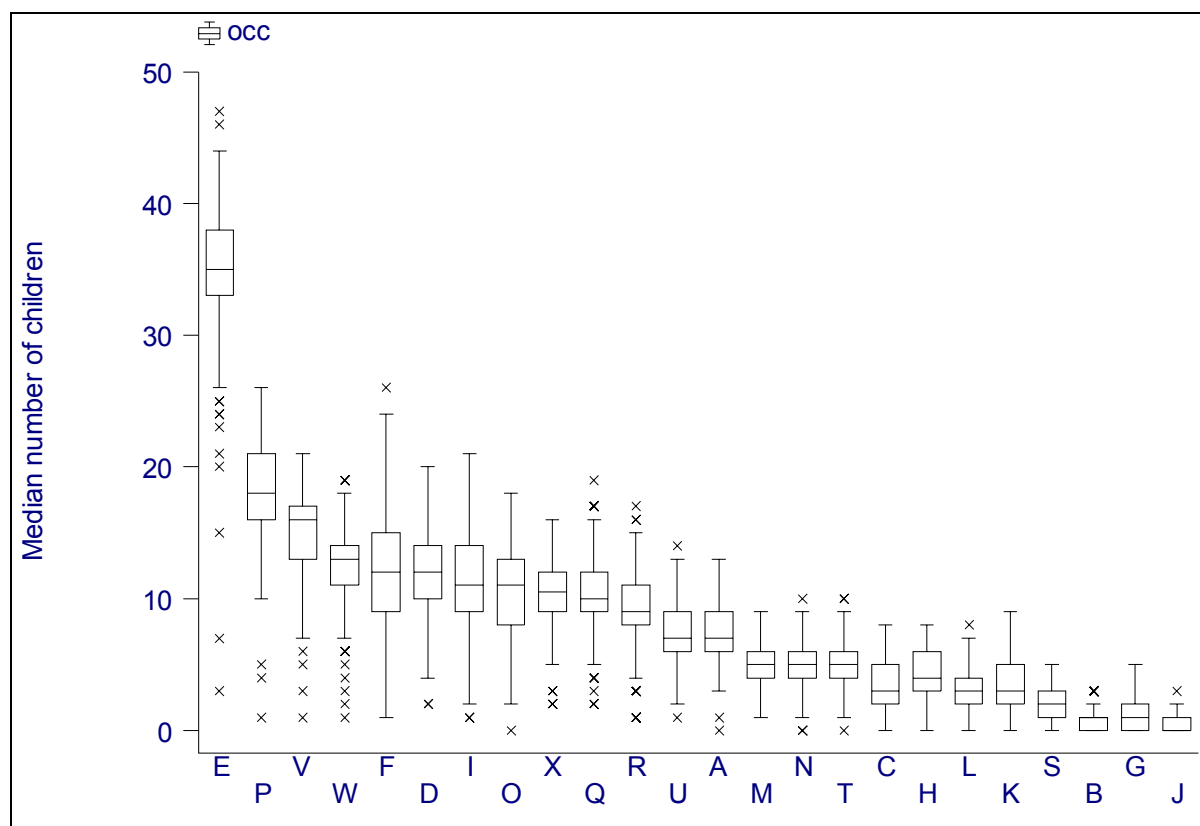


Table 9.2.2 Daily occupancy levels by NHS trust

NHS trust	Occupancy (days)	
	Median	IQR
A	5	(4-6)
B	1	(0-2)
C	3	(2-5)
D	11	(8-13)
E	35	(33-38)
F	12	(10-14)
G	1	(0-1)
H	3	(2-4)
I	11	(9-14)
J	0	(0-1)
K	12	(9-15)
L	3	(2-5)
M	5	(4-6)
N	5	(4-6)
O	11	(9-12)
P	18	(16-21)
Q	9	(8-11)
R	7	(6-9)
S	2	(1-3)
T	4	(3-6)
U	7	(6-9)
V	16	(13-17)
W	13	(11-14)
X	10	(9-12)

Table 9.2.3 Length of stay (days) by age by NHS trust

NHS trust	Age group (years)									
	<1		1 - 4		5 - 10		11 - 15		All ages (0 - 15)	
	Median	IQR	Median	IQR	Median	IQR	Median	IQR	Median	IQR
A	2.5	(1.0 - 5.8)	1.8	(0.8 - 4.9)	1.3	(0.7 - 3.0)	1.1	(0.7 - 2.4)	1.7	(0.8 - 4.7)
B	0.5	(0.1 - 1.6)	0.8	(0.3 - 1.7)	0.7	(0.3 - 1.1)	1.0	(0.7 - 1.6)	0.7	(0.2 - 1.3)
C	3.0	(1.0 - 6.3)	1.5	(0.8 - 3.7)	1.2	(0.7 - 3.4)	1.1	(0.8 - 3.2)	1.8	(0.9 - 4.7)
D	3.9	(1.2 - 6.8)	2.2	(0.9 - 4.4)	1.4	(0.7 - 4.6)	2.7	(0.9 - 6.4)	2.9	(0.9 - 5.9)
E	4.0	(1.9 - 7.8)	2.5	(1.1 - 5.4)	2	(1.0 - 6.0)	1.5	(0.9 - 4.7)	3.2	(1.2 - 6.9)
F	2.3	(1.1 - 4.3)	1.5	(0.9 - 2.7)	1.4	(0.9 - 2.9)	1.1	(0.8 - 2.0)	1.9	(1.0 - 3.7)
G	2.0	(0.4 - 5.8)	1.3	(0.7 - 4.8)	0.7	(0.4 - 1.5)	1.6	(0.5 - 2.6)	1.3	(0.5 - 4.3)
H	2.3	(1.0 - 8.0)	1.3	(0.7 - 3.1)	1.6	(1.0 - 5.9)	1.6	(0.9 - 3.6)	1.7	(0.9 - 5.0)
I	2.7	(1.0 - 5.1)	1.0	(0.8 - 3.4)	1	(0.8 - 2.9)	1.1	(0.9 - 2.7)	1.8	(0.8 - 4.3)
J	0.8	(0.3 - 1.4)	0.5	(0.3 - 0.9)	0.9	(0.5 - 1.4)	0.2	(0.2 - 0.8)	0.6	(0.3 - 1.2)
K	2.9	(1.0 - 5.5)	1.0	(0.7 - 2.9)	0.9	(0.6 - 2.0)	0.9	(0.7 - 2.4)	1.7	(0.8 - 4.3)
L	3.0	(1.3 - 4.9)	1.4	(0.7 - 3.3)	1.3	(0.7 - 2.9)	1.0	(0.7 - 2.5)	1.8	(0.9 - 4.0)
M	2.5	(0.9 - 5.1)	1.8	(0.9 - 4.0)	1.1	(0.8 - 2.9)	1.1	(0.8 - 3.0)	1.7	(0.8 - 3.8)
N	2.2	(1.1 - 5.5)	1.2	(0.9 - 3.8)	1.1	(0.9 - 1.9)	1.4	(0.9 - 4.8)	1.7	(0.9 - 4.2)
O	3.7	(1.5 - 7.8)	1.8	(1.0 - 3.6)	1.1	(0.9 - 2.0)	1.0	(0.9 - 1.6)	2.0	(1.0 - 4.9)
P	3.5	(1.1 - 6.7)	1.3	(0.9 - 3.9)	1.2	(0.8 - 2.9)	1.5	(0.8 - 2.6)	2.0	(0.9 - 5.2)
Q	2.7	(1.0 - 5.4)	1.1	(0.7 - 3.8)	1.1	(0.7 - 3.6)	1.3	(0.8 - 2.8)	1.8	(0.8 - 4.5)
R	1.9	(0.8 - 3.8)	0.8	(0.5 - 1.9)	0.9	(0.5 - 1.7)	1.3	(0.9 - 4.0)	1.3	(0.7 - 3.3)
S	1.9	(1.0 - 4.6)	0.9	(0.7 - 2.1)	1.6	(0.8 - 3.0)	1.2	(0.8 - 3.4)	1.6	(0.8 - 3.7)
T	1.8	(1.0 - 5.2)	1.8	(0.9 - 4.1)	1.3	(0.9 - 2.9)	2.0	(1.0 - 5.1)	1.8	(0.9 - 4.4)
U	3.7	(2.1 - 7.0)	1.8	(0.7 - 5.7)	1.8	(1.0 - 4.4)	2.9	(1.0 - 5.9)	2.7	(1.0 - 5.9)
V	2.8	(1.1 - 6.0)	1.1	(0.8 - 3.0)	1.1	(0.9 - 3.1)	1.0	(0.7 - 3.4)	1.9	(0.9 - 4.8)
W	3.3	(1.9 - 6.2)	1.7	(0.9 - 3.0)	1.8	(1.0 - 3.1)	2.0	(1.1 - 4.7)	2.3	(1.1 - 5.2)
X	1.9	(0.5 - 4.9)	0.8	(0.1 - 1.8)	0.7	(0.0 - 1.1)	0.8	(0.0 - 1.6)	1.0	(0.2 - 2.9)

Table 9.2.4 Length of stay (days) by primary diagnostic group by NHS trust

NHS trust	Diagnostic group															
	Neurological		Cardiac		Respiratory		Oncology		Infection		Musculoskeletal		Gastrointestinal		Other	
	Median	IQR	Median	IQR	Median	IQR	Median	IQR	Median	IQR	Median	IQR	Median	IQR	Median	IQR
A	1.7	(0.8 - 3.5)	6.0	(1.3 - 13.0)	3.0	(1.0 - 7.0)	1.8	(0.9 - 3.3)	4.6	(2.5 - 6.3)	0.8	(0.7 - 1.6)	1.7	(0.7 - 3.5)	1.0	(0.4 - 2.0)
B	0.5	(0.3 - 1.1)	0.1	(0.0 - 0.2)	0.8	(0.3 - 1.9)	-	-	1.0	(0.5 - 1.9)	1.1	(0.1 - 1.1)	1.0	(0.5 - 1.9)	0.7	(0.2 - 1.1)
C	1.5	(0.8 - 3.5)	1.9	(0.6 - 4.9)	2.8	(1.1 - 5.8)	1.6	(0.7 - 2.0)	4.3	(1.7 - 7.5)	1.0	(0.9 - 1.1)	0.8	(0.5 - 2.8)	1.2	(0.8 - 2.9)
D	1.5	(0.8 - 3.7)	2.8	(1.0 - 10.9)	4.2	(2.3 - 7.9)	0.9	(0.6 - 2.1)	3.7	(1.0 - 5.4)	1.0	(0.8 - 4.8)	0.9	(0.6 - 3.5)	2.0	(0.8 - 4.7)
E	2.1	(1.0 - 5.3)	3.0	(1.3 - 6.9)	4.4	(2.0 - 8.0)	2.7	(0.8 - 5.9)	3.5	(1.4 - 5.4)	0.9	(0.8 - 1.9)	4.6	(2.0 - 8.4)	2.8	(1.1 - 7.7)
F	1.3	(0.7 - 2.3)	2.0	(1.1 - 3.2)	3.3	(1.6 - 5.1)	2.6	(2.6 - 2.6)	2.1	(1.0 - 4.7)	0.9	(0.8 - 1.0)	1.1	(1.1 - 1.2)	1.1	(0.7 - 2.5)
G	1.1	(0.7 - 3.9)	0.7	(0.3 - 1.3)	1.9	(0.5 - 7.2)	0.7	(0.3 - 1.1)	3.2	(0.4 - 4.2)	2.9	(2.9 - 2.9)	1.8	(0.5 - 3.0)	1.2	(0.2 - 2.6)
H	1.4	(0.7 - 2.3)	1.9	(1.2 - 5.0)	2.9	(1.0 - 7.1)	0.9	(0.9 - 1.6)	2.6	(1.7 - 5.9)	0.8	(0.6 - 2.1)	1.0	(0.5 - 1.7)	1.8	(1.1 - 7.7)
I	1.0	(0.6 - 2.8)	1.8	(0.9 - 3.6)	3.9	(1.5 - 7.0)	0.8	(0.2 - 1.0)	2.2	(0.9 - 4.9)	0.9	(0.7 - 1.0)	1.7	(0.9 - 3.2)	1.6	(0.8 - 3.2)
J	0.4	(0.2 - 0.8)	0.5	(0.5 - 0.5)	0.6	(0.4 - 1.2)	-	-	1.3	(1.3 - 1.3)	0.8	(0.6 - 0.9)	0.6	(0.4 - 1.5)	0.7	(0.2 - 1.5)
K	1.0	(0.6 - 2.5)	2.5	(0.8 - 4.8)	2.5	(0.9 - 4.7)	0.8	(0.4 - 1.0)	1.4	(0.6 - 3.5)	0.8	(0.7 - 1.0)	2.8	(0.9 - 4.8)	1.9	(0.7 - 5.4)
L	0.8	(0.6 - 2.3)	1.8	(0.8 - 3.7)	2.4	(1.0 - 4.8)	-	-	3.2	(1.4 - 4.9)	1.4	(0.8 - 2.0)	0.7	(0.6 - 1.2)	1.0	(0.8 - 1.5)
M	1.4	(0.8 - 4.0)	0.6	(0.3 - 0.8)	2.7	(1.0 - 5.4)	1.1	(0.8 - 1.8)	2.3	(0.9 - 5.9)	1.6	(0.9 - 2.9)	1.9	(0.8 - 3.0)	1.6	(0.6 - 3.0)
N	1.7	(0.9 - 3.8)	1.7	(1.0 - 3.9)	2.4	(0.9 - 7.6)	0.9	(0.7 - 1.3)	5.9	(1.8 - 8.9)	0.9	(0.8 - 1.1)	1.3	(0.9 - 2.4)	1.9	(0.9 - 4.2)
O	1.5	(1.1 - 2.7)	2.1	(0.7 - 5.0)	1.4	(0.5 - 4.9)	1.0	(1.0 - 2.0)	1.0	(0.9 - 1.0)	0.6	(0.2 - 2.1)	1.2	(0.7 - 1.8)	2.1	(1.0 - 7.8)
P	1.8	(0.9 - 4.6)	1.9	(1.0 - 5.2)	1.8	(4.1 - 7.7)	1.0	(0.8 - 4.6)	1.3	(0.6 - 2.3)	1.0	(0.8 - 1.8)	1.9	(0.7 - 4.4)	1.7	(0.7 - 4.0)
Q	1.7	(0.7 - 4.2)	1.0	(0.8 - 6.9)	2.9	(1.0 - 6.0)	0.9	(0.7 - 1.8)	1.9	(0.8 - 4.7)	0.9	(0.7 - 1.7)	1.7	(0.8 - 3.3)	1.8	(0.8 - 4.0)
R	1.2	(0.6 - 2.6)	1.1	(0.8 - 2.9)	3.0	(1.3 - 4.9)	0.8	(0.2 - 1.9)	4.8	(1.8 - 7.5)	0.8	(0.5 - 1.0)	1.0	(0.7 - 2.7)	0.6	(0.2 - 1.9)
S	1.1	(0.8 - 2.2)	1.7	(1.1 - 11.7)	2.0	(1.0 - 4.3)	0.9	(0.9 - 0.9)	1.9	(0.6 - 1.9)	1.8	(1.1 - 3.8)	1.1	(0.6 - 1.8)	1.4	(0.7 - 3.0)
T	1.9	(0.9 - 5.2)	0.4	(0.2 - 0.9)	3.1	(1.2 - 8.0)	1.8	(0.9 - 3.1)	2.4	(0.9 - 6.1)	2.1	(1.1 - 5.0)	1.4	(0.9 - 2.2)	1.0	(0.6 - 1.7)
U	1.4	(0.8 - 2.6)	0.7	(0.5 - 1.9)	3.7	(1.8 - 7.4)	0.1	(0.1 - 0.1)	4.5	(2.5 - 10.3)	0.7	(0.7 - 0.7)	1.5	(0.2 - 1.9)	2.7	(1.3 - 7.0)
V	0.9	(0.6 - 3.0)	1.7	(1.0 - 3.9)	3.2	(1.5 - 7.2)	0.8	(0.4 - 2.2)	2.7	(1.2 - 5.0)	0.8	(0.6 - 0.9)	2.5	(1.1 - 5.0)	1.7	(0.8 - 4.0)
W	1.4	(0.8 - 4.3)	2.1	(1.2 - 4.1)	3.5	(1.7 - 7.0)	2.1	(0.9 - 5.8)	3.7	(2.0 - 6.5)	2.3	(0.6 - 4.0)	2.1	(1.0 - 4.4)	1.5	(0.8 - 4.5)
X	0.8	(0.2 - 1.8)	0.4	(0.0 - 1.1)	4.5	(1.1 - 8.6)	1.3	(0.5 - 2.0)	1.8	(0.7 - 5.0)	1.2	(0.9 - 2.0)	2.3	(1.1 - 3.9)	1.0	(0.4 - 2.6)

10 OUTCOME DATA

In this section, we present the outcome data available for the period March 2003 – February 2004. All data are based on admissions aged 0 – 15 years of age unless clearly specified otherwise. The letters used here to indicate particular trusts differ from previous sections (i.e. they have been scrambled) to maintain anonymity.

Both crude and standardised mortality data are shown (risk adjustment is required due to the wide variation in case-mix seen both within and between different units). In this report mortality rates have been standardised using PIM (Paediatric Index of Mortality) [7]. PIM is a logistic regression model (based on eight variables) that can be used to calculate expected mortality. The expected and observed mortality can then be compared to give a standardised mortality rate (SMR). PIM has now been revised and updated to adjust for improvement in the outcome of paediatric intensive care [10]. This recalibrated model (PIM2) will be used in future reports.

Mortality control charts are presented here to provide a visual means of comparing unadjusted and adjusted mortality rates between trusts without imposing the ranking observed in league tables. These charts have been used to examine mortality rates following surgery for congenital heart surgery [13] and their effectiveness highlighted when applied to upper gastrointestinal surgery [14] and a reanalysis of emergency re-admission rates following treatment for stroke [15].

The control charts (also known as funnel plots) plot standardised mortality ratios as a function of the total number of admissions. An approximation to the exact binomial distribution is used to construct control limits at 99.9% intervals. These control limits indicate whether a unit's performance differs significantly from the mean. Higher mortality rates are represented by points plotted above the control limits, lower mortality rates are represented by points plotted below the control limits.

Two charts are presented: one for unadjusted SMRs and one adjusted using the Paediatric Index of Mortality (PIM) [7]. The effect of using risk-adjustment on the SMR is clear with Trust X dropping back within the control limits after adjustment. It should also be noted that the majority of units seem to have lower mortality than the standard PIM mean – most probably a function of the need to use an updated risk-adjustment model such as PIM2.

Differences between units may be due to the variable nature of the casemix which the risk-adjustment tool used has not fully accounted for.

Footnotes have been added to identify particular characteristics of the data.

10.1 Outcome at PICU discharge

Table 10.1.1 Outcome at PICU discharge by age / sex

Outcome	Age (years) / sex																Total	
	<1		1-4				5-10				11-15				All ages (0-15) Ambiguous, missing, unknown			
	Male n	Female n	Male n	Female n	Male n	Female n	Male n	Female n	Male n	Female n	Male n	Female n	Male n	Female n	n	%	n	%
Alive	3639	2473	1850	1432	1116	808	924	754	24	(0)	13020	(94.3)						
Dead	248	171	93	71	36	39	51	50	0	(0)	759	(5.5)						
Unknown	2	0	1	2	0	0	0	1	0	(0)	6	(0.0)						
Missing	4	7	2	1	1	1	3	1	0	(0)	20	(0.1)						
Total	3893	2651	1946	1506	1153	848	978	806	24	(0.2)	13805							

Table 10.1.2 Outcome at PICU discharge by age (age less than 1 year) / sex

Outcome	Age (months) / sex																Total	
	<1		1-2				3-5				6-11				All ages (0-11 months) Ambiguous, missing, unknown			
	Male n	Female n	Male n	Female n	Male n	Female n	Male n	Female n	Male n	Female n	Male n	Female n	Male n	Female n	n	%	n	%
Alive	1382	824	854	595	667	517	736	537	13	(0)	6125	(93.4)						
Dead	119	87	36	23	35	31	58	30	0	(0)	419	(6.4)						
Unknown	0	0	0	0	1	0	1	0	0	(0)	2	(0.0)						
Missing	2	1	1	1	0	3	1	2	0	(0)	11	(0.2)						
Total	1503	912	891	619	703	551	796	569	13	(0.2)	6557							

Table 10.1.3 Outcome at PICU discharge by NHS trust

NHS trust	Outcome at unit discharge								Total	
	Alive		Dead		Unknown		Missing			
	n	%	n	%	n	%	n	%	n	%
A	372	(96)	12	(3)	0	(0)	2	(1)	386	(2.8)
B	204	(96)	1	(0)	0	(0)	7	(3)	212	(1.5)
C	273	(93)	22	(7)	0	(0)	0	(0)	295	(2.1)
D	482	(89)	57	(11)	0	(0)	1	(0)	540	(3.9)
E	1621	(92)	139	(8)	0	(0)	0	(0)	1760	(12.7)
F	999	(95)	49	(5)	2	(0)	0	(0)	1050	(7.6)
G	77	(95)	4	(5)	0	(0)	0	(0)	81	(0.6)
H	189	(91)	19	(9)	0	(0)	0	(0)	208	(1.5)
I	868	(94)	59	(6)	0	(0)	1	(0)	928	(6.7)
J	80	(100)	0	(0)	0	(0)	0	(0)	80	(0.6)
K	823	(96)	34	(4)	0	(0)	1	(0)	858	(6.2)
L	219	(95)	11	(5)	0	(0)	1	(0)	231	(1.7)
M	378	(95)	21	(5)	0	(0)	0	(0)	399	(2.9)
N	319	(95)	18	(5)	0	(0)	0	(0)	337	(2.4)
O	527	(94)	32	(6)	0	(0)	0	(0)	559	(4.0)
P	989	(94)	58	(6)	0	(0)	1	(0)	1048	(7.6)
Q	517	(95)	28	(5)	0	(0)	0	(0)	545	(3.9)
R	591	(97)	17	(3)	0	(0)	2	(0)	610	(4.4)
S	157	(97)	4	(2)	0	(0)	1	(1)	162	(1.2)
T	290	(98)	6	(2)	0	(0)	0	(0)	296	(2.1)
U	394	(93)	27	(6)	1	(0)	0	(0)	422	(3.1)
V	977	(93)	70	(7)	0	(0)	1	(0)	1048	(7.6)
W	712	(95)	35	(5)	2	(0)	2	(0)	751	(5.4)
X	962	(96)	36	(4)	1	(0)	0	(0)	999	(7.2)
Total	13020	(94.3)	759	(5.5)	6	(0.0)	20	(0.1)	13805	

Figure 10.1.1 PICU mortality by NHS trust (unadjusted) with 99.9% control limits

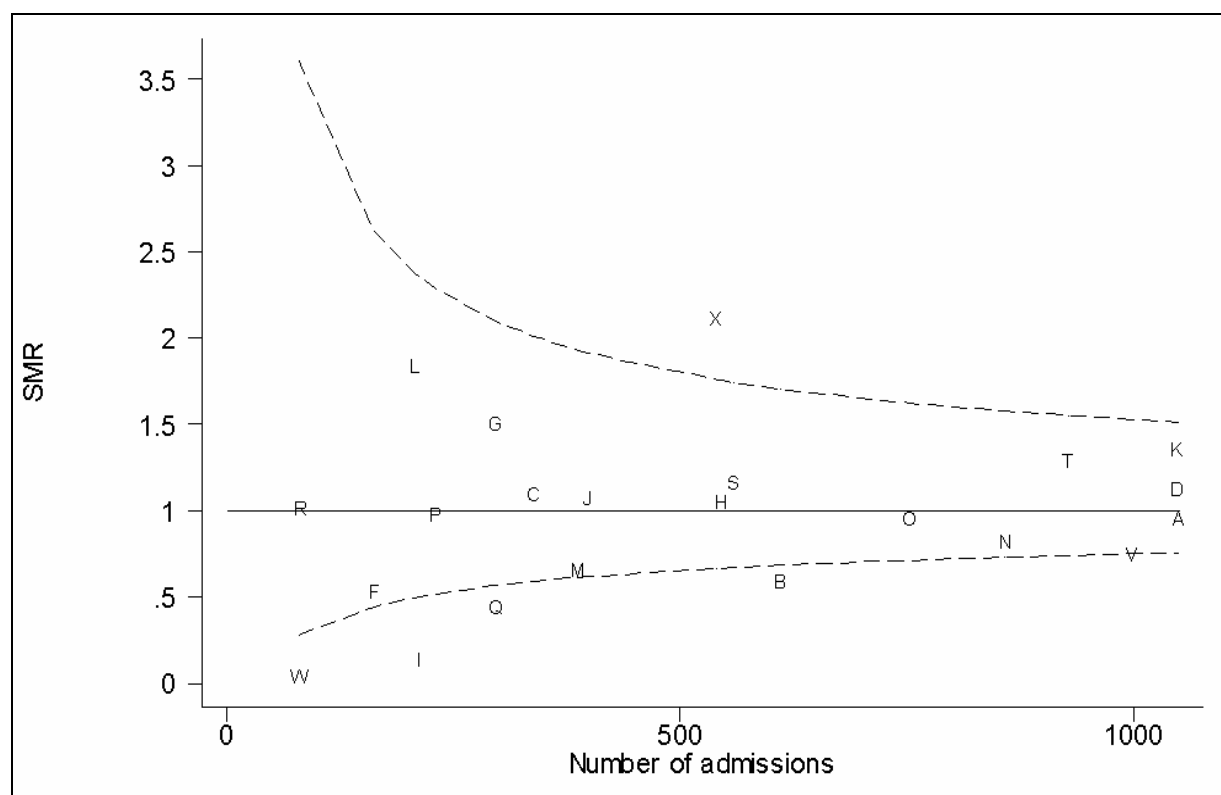


Figure 10.1.2 PICU mortality by NHS trust (PIM adjusted) with 99.9% control limits

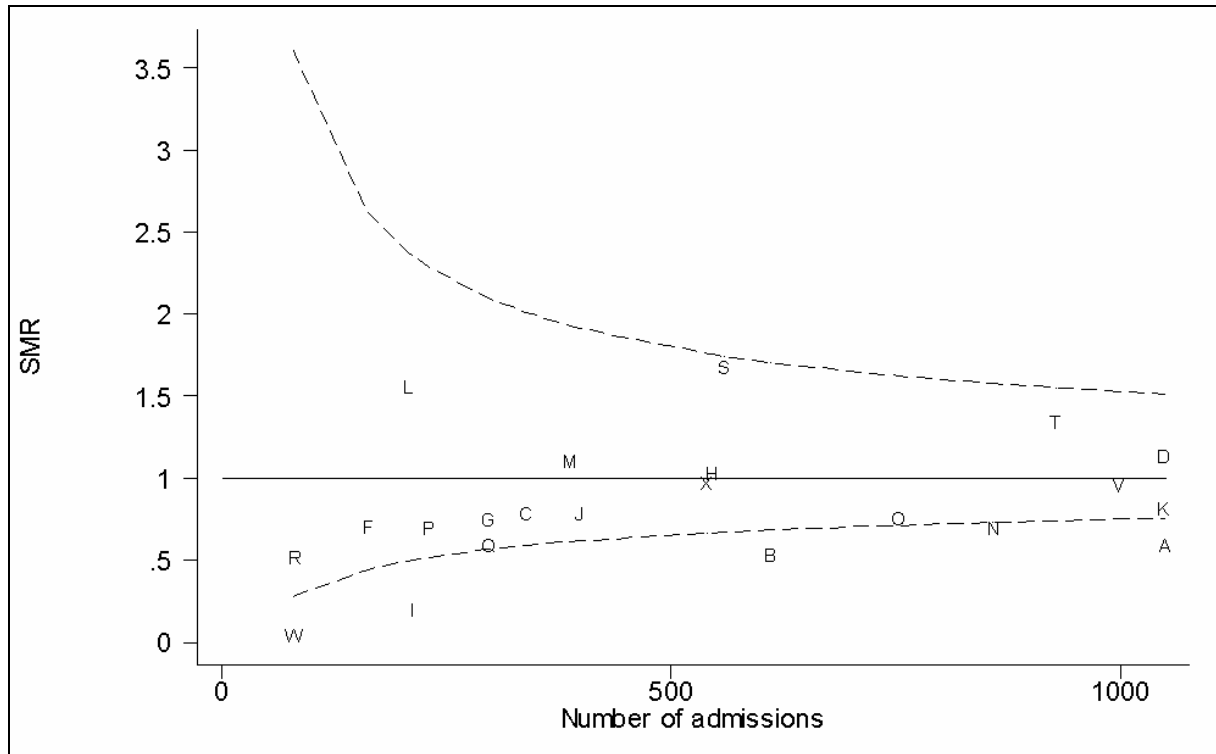


Table 10.1.4 PICU mortality by NHS trust (PIM adjusted)

NHS trust	Standardised Mortality Ratio					
	Unadjusted (95% CI)			Adjusted (95% CI)		
	SMR	Lower	Upper	SMR	Lower	Upper
A	0.48	0.13	1.21	0.65	0.18	1.64
B	0.97	0.27	2.39	0.47	0.13	1.16
C	0.78	0.54	1.08	0.65	0.45	0.9
D	0.93	0.47	1.64	0.65	0.33	1.14
F	1.12	0.77	1.57	1.63	1.13	2.28
G	1.05	0.63	1.63	0.74	0.44	1.14
H	0.4	0.15	0.85	0.55	0.2	1.18
I	0.55	0.32	0.87	0.49	0.28	0.77
J	0.61	0.32	1.05	1.06	0.55	1.83
K	0.71	0.5	0.97	0.91	0.64	1.4
L	1.01	0.67	1.44	0.98	0.66	1.4
M	0.91	0.68	1.2	0.54	0.41	1.4
N	1.31	1.03	1.64	0.77	0.6	1.4
O	0	0	0.88	0	0	1.4
P	1.79	1.1	2.72	1.52	0.93	1.4
Q	1.25	0.96	1.59	1.29	0.99	1.4
R	1.46	0.93	2.17	0.7	0.44	1.4
S	0.91	0.64	1.26	0.71	0.5	1.4
T	0.09	0	0.51	0.15	0	1.4
V	2.07	1.59	2.64	0.93	0.71	1.4
W	1.03	0.64	1.55	0.74	0.46	1.4
X	1.08	0.83	1.39	1.09	0.83	1.4

Notes:

Full data has not been provided by Trust E and Trust U. Therefore they are not included in this table.

Key: CI: Confidence Interval.

Table 10.1.5 PICU mortality by primary diagnostic group (PIM adjusted)

Diagnostic group	Standardised Mortality Ratio					
	Unadjusted (95% CI)			Adjusted (95% CI)		
	SMR	Lower	Upper	SMR	Lower	Upper
Cardiac	1	0.87	1.15	0.85	0.73	0.98
Gastrointestinal	0.79	0.53	1.12	0.98	0.66	1.39
Infection	2.23	1.73	2.81	1.12	0.87	1.4
Musculoskeletal	0.08	0.01	0.29	0.16	0.02	0.56
Neurological	1.16	0.95	1.4	0.77	0.63	0.93
Oncology	0.85	0.49	1.35	1.62	0.93	2.59
Respiratory	0.94	0.79	1.11	0.58	0.49	0.69
Other	0.91	0.71	1.15	0.82	0.64	1.03

10.2 Follow-up

Table 10.2.1 Status at 30 days post discharge from PICU by age / sex

Status	Age (years) / sex																		Total	
	<1				1-4				5-10				11-15				All ages (0-15) Ambiguous, missing, unknown		n	%
	Male n	Female n	Male %	Female %	Male n	Female n	Male %	Female %	Male n	Female n	Male %	Female %	Male n	Female n	Male %	Female %	n	%		
Alive	1342	906	(26)	(18)	752	602	(15)	(12)	461	319	(9)	(6)	423	344	(8)	(7)	6	(0)	5155	(39.6)
Dead	50	26	(37)	(19)	14	11	(10)	(8)	17	8	(13)	(6)	7	1	(5)	(1)	0	(0)	134	(1.0)
Unknown	946	573	(32)	(19)	420	316	(14)	(11)	231	176	(8)	(6)	187	152	(6)	(5)	15	(0)	3016	(23.2)
Missing	1301	968	(28)	(21)	664	503	(14)	(11)	407	305	(9)	(6)	307	257	(7)	(5)	3	(0)	4715	(36.2)
Total	3639	2473	(0.3)	(19.0)	1850	1432	(14.2)	(11.0)	1116	808	(8.6)	(6.2)	924	754	(7.1)	(5.8)	24	(0.2)	13020 ^a	

Note: ^aBased on children discharged alive from PICU.

Table 10.2.2 Status at 30 days post discharge from PICU by age (age less than 1 year) / sex

Status	Age (months) / sex																		Total	
	<1				1-2				3-5				6-11				All ages (0-11 months) Ambiguous, missing, unknown		n	%
	Male n	Female n	Male %	Female %	Male n	Female n	Male %	Female %	Male n	Female n	Male %	Female %	Male n	Female n	Male %	Female %	n	%		
Alive	461	272	(21)	(12)	321	244	(14)	(11)	289	191	(13)	(8)	271	199	(12)	(9)	3	(0)	2251	(36.8)
Dead	27	10	(36)	(13)	10	4	(13)	(5)	7	6	(9)	(8)	6	6	(8)	(8)	0	(0)	76	(1.2)
Unknown	359	205	(24)	(13)	224	133	(15)	(9)	170	116	(11)	(8)	193	119	(13)	(8)	8	(1)	1527	(24.9)
Missing	535	337	(24)	(15)	299	214	(13)	(9)	201	204	(9)	(9)	266	213	(12)	(9)	2	(0)	2271	(37.1)
Total	1382	824	(22.6)	(13.5)	854	595	(14.0)	(9.7)	667	517	(10.9)	(8.5)	736	537	(12.0)	(8.8)	13	(0.2)	6125 ^b	

Note: ^bBased on children discharged alive from PICU.

Table 10.2.3 Status at 30 days post discharge from PICU by NHS trust

NHS trust	Status at 30 day follow-up								Total	
	Alive		Dead		Unknown		Missing		n	%
	n	%	n	%	n	%	n	%		
A	0	(0)	0	(0)	1	(0)	371	(100)	372	(2.9)
B	28	(14)	4	(2)	12	(6)	160	(78)	204	(1.6)
C	200	(73)	4	(1)	0	(0)	69	(25)	273	(2.1)
D	449	(93)	13	(3)	4	(1)	16	(3)	482	(3.7)
E	0	(0)	0	(0)	0	(0)	1621	(100)	1621	(12.5)
F	0	(0)	0	(0)	999	(100)	0	(0)	999	(7.7)
G	73	(95)	4	(5)	0	(0)	0	(0)	77	(0.6)
H	7	(4)	0	(0)	181	(96)	1	(1)	189	(1.5)
I	836	(96)	31	(4)	1	(0)	0	(0)	868	(6.7)
J	68	(85)	3	(4)	1	(1)	8	(10)	80	(0.6)
K	113	(14)	6	(1)	17	(2)	687	(83)	823	(6.3)
L	191	(87)	1	(0)	0	(0)	27	(12)	219	(1.7)
M	358	(95)	2	(1)	3	(1)	15	(4)	378	(2.9)
N	9	(3)	0	(0)	1	(0)	309	(97)	319	(2.5)
O	492	(93)	6	(1)	29	(6)	0	(0)	527	(4.0)
P	734	(74)	16	(2)	3	(0)	236	(24)	989	(7.6)
Q	436	(84)	9	(2)	51	(10)	21	(4)	517	(4.0)
R	488	(83)	7	(1)	68	(12)	28	(5)	591	(4.5)
S	127	(81)	4	(3)	0	(0)	26	(17)	157	(1.2)
T	0	(0)	0	(0)	289	(100)	1	(0)	290	(2.2)
U	0	(0)	0	(0)	268	(68)	126	(32)	394	(3.0)
V	0	(0)	0	(0)	0	(0)	977	(100)	977	(7.5)
W	0	(0)	0	(0)	712	(100)	0	(0)	712	(5.5)
X	546	(57)	24	(2)	376	(39)	16	(2)	962	(7.4)
Total	5155	(39.6)	134	(1.0)	3016	(23.2)	4715	(36.2)	13020^c	

Note: ^cBased on children discharged alive from PICU.

11 STAFFING INFORMATION

Paediatric intensive care is labour intensive, requiring relatively high numbers of specialised nurses. In the past 15 years the speciality has grown and there has been evidence that the supply of paediatric intensive care staff has not always kept pace with the increasing demand for more nurses with the relevant skills. In 1997 a report by the Chief Nursing Officers Taskforce [11] looked into the status of the nursing workforce within PICUs at that time by utilising a “snap shot” survey on two separate occasions (May 1996 and January 1997).

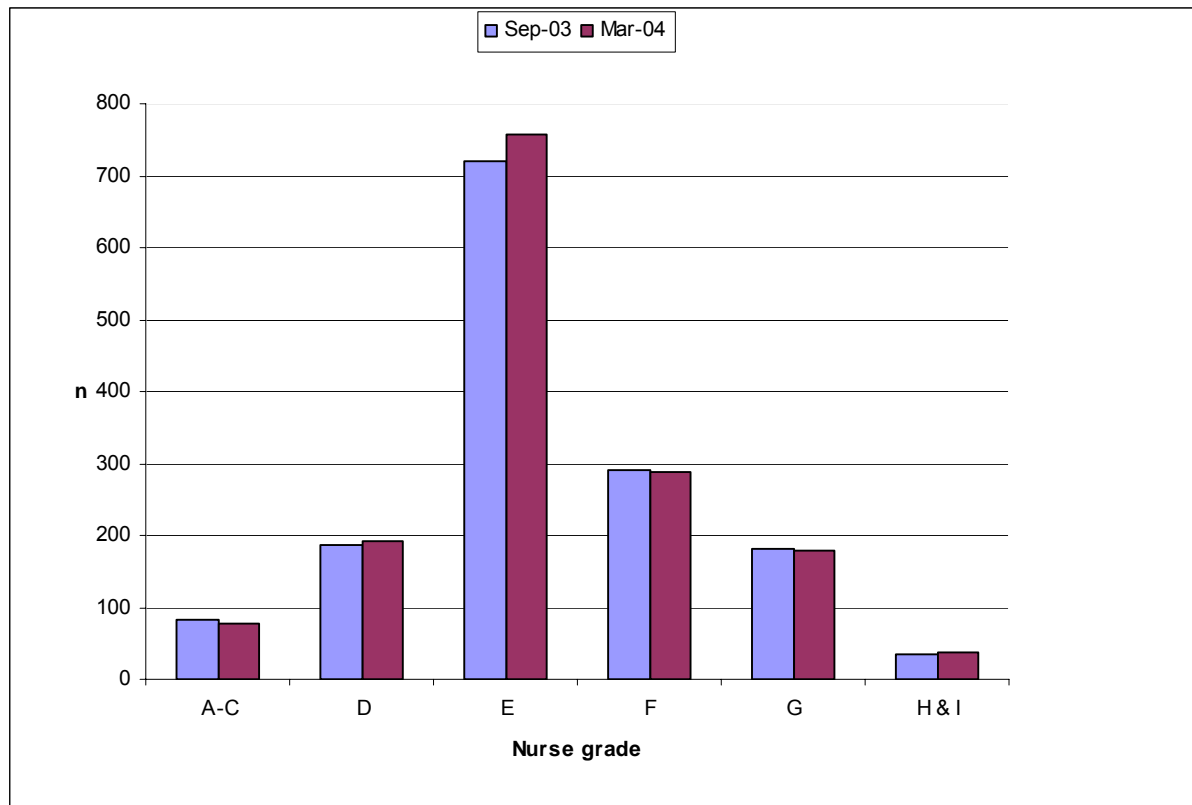
PICANet used a similar approach to gain information about staffing levels within those units participating in PICANet, sending out census forms in September 2003 and March 2004.

11.1 Nurse staffing

In September 2003, 24 trusts were contacted. Of these, 22 (92%) returned completed forms on nurse staffing (although one trust's form was unusable as PICU staff were not separately identified). Of the 21 trusts who returned usable data in September, only 18 also returned data in March.

In March 2004, the same 24 trusts were contacted. Of these, 19 (79%) returned completed forms. Of the 19 trusts who returned data in March, 18 had also returned data in September. Therefore the analysis for nursing data in this section is based on these 18 NHS trusts.

Figure 11.1.1 Nursing staff by grade



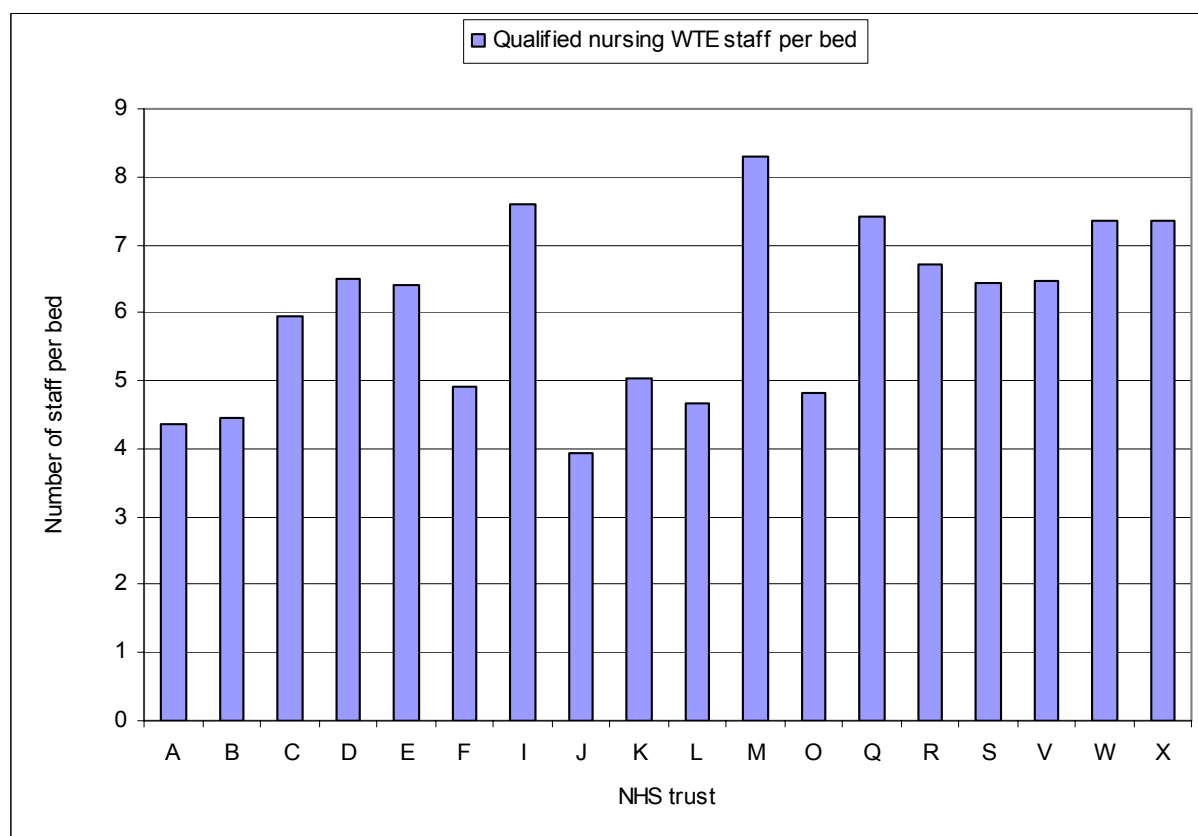
In addition to receiving information on traditional nursing grades, data was also returned on other positions incorporated within the nursing establishment. These included ECMO specialists, Nurse consultants, Clinical educators, Health care assistants, Medical technical officers, Ward receptionists, Secretaries and Housekeepers

Table 11.1.1 Nursing staff by grade by NHS trust

NHS trust	Nursing grade (%)											
	A-C		D		E		F		G		H&I	
	Sep-03	Mar-04	Sep-03	Mar-04	Sep-03	Mar-04	Sep-03	Mar-04	Sep-03	Mar-04	Sep-03	Mar-04
A	0	0	5	7	51	57	27	23	15	11	2	2
B	0	0	20	17	27	33	40	42	7	8	7	0
D	5	5	14	16	43	42	18	19	16	15	4	3
E	5	3	6	4	49	52	27	25	12	13	2	3
F	6	8	23	23	35	34	12	16	19	16	4	4
I	10	4	6	5	54	59	18	16	11	14	1	1
J	0	0	0	0	0	0	80	60	20	40	0	0
K	9	10	15	14	51	49	12	14	11	11	2	1
L	9	10	19	17	44	48	14	12	12	12	2	2
M	5	5	5	10	53	49	19	20	17	15	2	2
O	3	4	0	0	65	68	17	16	12	11	3	1
Q	4	4	10	10	46	49	22	22	11	8	7	7
R	6	6	14	12	54	56	16	16	9	8	1	3
S	3	0	15	9	53	59	24	25	6	6	0	0
T	14	14	19	21	42	34	11	17	8	7	6	7
V	5	5	24	28	42	39	17	16	10	9	2	2
W	0	0	15	13	63	65	14	14	7	7	1	1
X	9	7	14	13	27	41	28	21	18	16	3	2

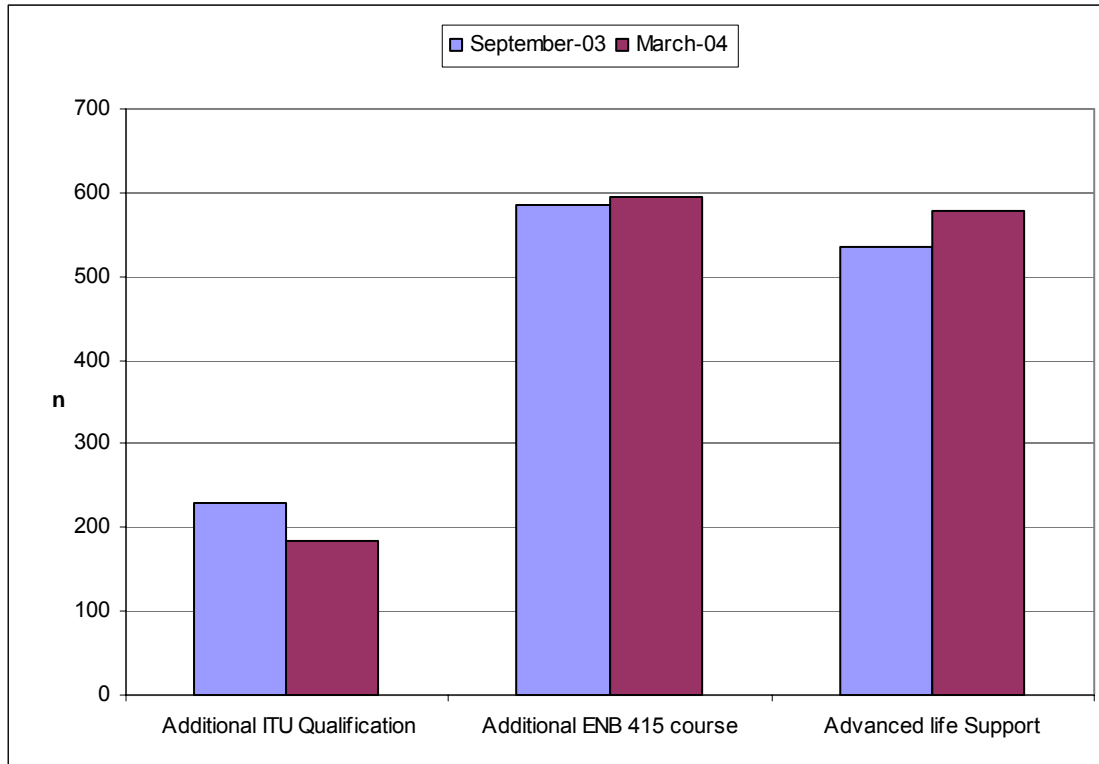
Note: In this table the percentages shown are as a proportion of each trust's total numbers of nursing staff.

Figure 11.1.2 Nursing staff (WTE) per unit bed



The graph above shows the distribution of whole time equivalent nursing staff per funded bed within each paediatric intensive care unit in March 2004. The numbers displayed may include staff such as education staff, audit staff and bereavement facilitators who are not working as clinical nurses.

Figure 11.1.3 Additional qualifications for qualified nursing staff



Note: Additional ITU qualifications include the following courses:

- ENB 405 Special & Intensive Care of the Newborn course
- ENB 100 Adult Intensive Care course
- ENB 160 Paediatric Cardiothoracic course
- ENB 920 Shortened PIC course
- ENB 124 Coronary Care course
- ENB 148 Neuro medical & neuro surgical nursing course
- ENB 904 Short NICU course
- ENB 402 Old style NICU course

Advanced Life Support includes the following courses:

- Advanced Paediatric Life Support Course (APLS)
- Paediatric Advanced Life Support Course (PALS)
- In-house advanced life support courses

It is important to clarify that one nurse may have more than one additional ITU qualification. The above figure therefore represents the total number of courses held by nursing staff working in PICUs and not the number of nurses with these additional qualifications. The same applies for advanced life support courses. This figure represents the total number of advanced life support courses held by paediatric intensive care nursing staff and not the total number of nursing staff with these courses.

In 2003 the Paediatric Intensive Care Society Standards recommended that all Lead Centre PICUs should be staffed with at least 75% of its nurses being fully trained in paediatric intensive care. Outside of these lead centres at least 50% of the nurses caring for children in intensive care should hold the ENB 415 course or equivalent and the remaining 50% should

hold an advanced paediatric life support qualification [6]. In order to look at these recommendations a more detailed survey would be required.

11.2 Medical staffing

Table 11.2.1 Medical staff (consultant & middle grade) working in PICU in September 2003

NHS trust	PICU consultants in post September 2003	Middle grades in post September 2003
A	5	9
B	1	no data
D	6	12
E	11	27
F	7	10
G	1	no data
H	2.5	3
I	5	5
K	19	17
L	5	7
M	4	3
N	5	6
O	3.5	4
P	6	15
Q	10	7
R	4	6
S	6	5
T	2	7
U	3	6
V	6	6
W	8	11
X	5	7

Medical staff received census forms at the same time as the nursing staff (September 2003 and March 2004). Of the 24 trusts contacted in September 2003, 22 trusts (92%) returned usable data for consultants and 20 trusts (83%) returned completed forms for middle grade medical staff. The data returned is shown in Table 11.2.1.

In March 2004 the same 24 trusts were contacted. Of these, only 15 trusts (62%) returned data on consultants and 14 trusts (58%) returned middle grade data. Due to the poor response rate, no analysis has been performed on this set of data.

12 DISCUSSION

PICANet have successfully collected a high quality set of information on paediatric intensive care activity across England and Wales and this report is the first comprehensive documentation of this area of care within the NHS. The report gives baseline information for national benchmarks as well as presenting NHS trust level information. We anticipate this new and up-to-date report will provide essential material for strategic and resource planners, points of reference for those delivering paediatric intensive care and general information for all health care professionals as well as children and their families who are receiving care. This first PICANet annual report is available on our website www.picanet.org.uk.

12.1 Data collection

PICANet provide the tools for the all PICUs to collect the required dataset. However, the individuals who take responsibility for data collection vary a great deal by unit. The distribution of the staff involved is detailed in Table 12.1.1

Table 12.1.1 Staff involved with data collection and entry in 29 PICUs

Staff member	Number of units
PICU consultant	9
Other PICU doctor	13
Audit nurse (non clinical but with PICU experience)	5
Clinical PICU nurse	8
Audit / data clerk	11
Ward receptionist / clerk	3

From the site visits undertaken and the data received, the PICANet team note that the data collection process is more efficient in those units where there is a single person dedicated to the role. This person does not necessarily need to have a clinical background, although we would recommend regular clinical support for those with no clinical experience.

The PICANet dataset includes a follow up section that requires the location and status of the child to be recorded at 30 days post discharge from the PICU. Local resource issues have affected the completeness of these data items as a consequence of the time and effort

required. There are also ethical issues about the release of named data once the child has been discharged from PICU. To enable the accurate collection of follow up data specific resources would be required.

It has been suggested that there would be benefits in the collection of specific variables on a daily basis (e.g. interventions), but this would also have a major impact on local resources.

12.2 IT issues

Overall, there have been fewer problems with data entry and data transfer in those units using the customised PICANet software. Some units have successfully integrated PICANet data collection with existing in-house databases but the process has been a protracted one and very resource intensive for PICANet. Where data have not been submitted in the correct format, it has required manipulation by the PICANet team, an exercise which been extremely time consuming.

One of the major difficulties for PICANet has been the local problems experienced by units with respect to their IT infrastructure. Problems have included:

- Lack of local permissions, low specification equipment and lack of network access
- System compatibility
- NHSnet connectivity

Despite preliminary mailings to IT managers, the response to a survey on IT infrastructure was poor and many units reported difficulties in obtaining IT support. It was our experience that local IT personnel were very helpful when they could be contacted, however, their IT services are severely overstretched. These difficulties need to be addressed in the future if nationwide data collection for clinical audit using electronic data transmission is to become a reality in the NHS.

12.3 Key findings

This report is based on 13 805 admissions aged 0 – 15 years and 250 admissions aged 16 years and above. It identifies that the majority of children (94%) admitted to paediatric intensive care are discharged alive.

Children under 1 year of age accounted for 48% of admissions. Of these, 59% were male.

Analysis of admissions by month showed few differences, although August 2003 was the quietest month and March 2003 and January 2004 were the busiest months. Of the primary diagnostic groups examined, only respiratory showed any significant seasonal variation. Cardiac was the most common primary diagnostic group (31%), followed by respiratory (25%).

The prominence of unplanned admissions (59%) highlights the difficulties for resource allocation within paediatric intensive care.

The majority of retrievals undertaken (63%) were by the unit's own retrieval team.

Over half of all children admitted to paediatric intensive care (58%) were invasively ventilated.

Median daily occupancy levels vary in accordance with unit size. The monthly occupancy levels do not vary significantly but do reflect the winter peak.

12.4 Staffing data

Difficulties were experienced in obtaining and utilising completed census forms from participating PICUs, in particular data from medical staff. Two trusts (S and X) included middle grade medical staff who did not work exclusively on PICU. It was, therefore, problematic to establish true middle grade staffing figures for these units in March 2004. No specific information was requested on whether staff working hours would reflect the forthcoming changes under the European Working Time Directive, the provisions of which will apply to doctors in training from 1st August 2004. In light of the poor response rate to the survey any future data collection in this area may need to be more labour intensive e.g. one to one interviews with senior medical staff, which would require additional resources.

12.5 Refused admissions

At the time of this report, there is no nationwide mechanism for the collection of data regarding refused admissions to PICU despite the importance of this type of data being

recognised by the Paediatric Intensive Care Society [6]. Primarily, children are refused admission to a PICU when all of the intensive care beds on that unit are full and are unable to accommodate a further intensive care patient or there is insufficient nursing or medical staff to provide the appropriate level of care that child requires. The refusal of a patient implies that unit is already working to its maximum capacity. To expect overstretched staff to collect and later track the refused child is inappropriate without ensuring the availability of local resources to ensure this is done in a robust way throughout the country.

12.6 Future developments

The risk adjustment tool used is the first version of the Paediatric Index of Mortality (PIM). We are aware that this measure has been superseded by PIM2 and that further recalibration has been suggested by UK PICOS. At the time the PICANet dataset was being finalised PIM2 had not been published and it was felt more appropriate to use a measure with which everyone was familiar and which could provide comparative data.

We propose to investigate the calibration of risk-adjustment in the future, based on this large and comprehensive dataset.

13 RECOMMENDATIONS

- It is important to maintain PICANet as an essential audit tool for clinical governance in paediatric intensive care. This national data collection scheme will provide the necessary evidence base for the delivery of the service.
- Data collection within units is proven to be most efficient and effective when undertaken by a dedicated member of staff. Regular clinical support is essential if this person does not have a clinical background.
- Resources for clinical audit in paediatric intensive care should be clearly identified and made accessible within NHS trusts.
- Multi-centre collections of data such as PICANet require greater flexibility in local NHS IT structures and resources.
- Access to the NHSNet should become a reality for all units to optimise the efficient transfer of data.
- Comprehensive collection of nursing and medical staffing data, ideally by means of a survey every 6 months, would be of strategic benefit to planners and providers of paediatric intensive care services. In order to ensure appropriate levels of staffing across all units, the future collection of this type of data should be prioritised within trusts.

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