DEVELOPMENT AND APPLICATION OF A METHOD FOR ESTIMATING DAILY CASE-MIX ADJUSTED COSTS OF ADULT CRITICAL CARE UNITS

BY

CLARE LOUISE HIBBERT

PHD THESIS

VOLUME II

SCHOOL OF HEALTH & RELATED RESEARCH,
UNIVERSITY OF SHEFFIELD

2007

BEST COPY AVAILABLE.

VARIABLE PRINT QUALITY

PAGE NUMBERING AS ORIGINAL

PAGE NUMBERS CLOSE TO THE EDGE OF THE PAGE. SOME ARE CUT OFF

DEVELOPMENT AND APPLICATION OF A METHOD FOR ESTIMATING DAILY CASE-MIX ADJUSTED COSTS OF ADULT CRITICAL CARE UNITS

BY

CLARE LOUISE HIBBERT

A THESIS SUBMITTED IN FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

SCHOOL OF HEALTH & RELATED RESEARCH, UNIVERSITY OF SHEFFIELD

VOLUME II

AUGUST 2007

LIST OF TABLES, FIGURES AND APPENDICES

Appendix 3.1: Databases Searched

3.1.1 The Cochrane Library

The Cochrane Library encompasses a number of databases[1]:

The search strategies for locating reviews in the Cochrane Library are shown below.

Intensive Care AND Cost	23 studies
Cost* AND method*	33 studies
Critical Care AND Cost	1 study

In addition to the above, the alphabetical list of all titles relating to past issues was screened. None of the studies identified were relevant to the research topic, focusing primarily on the research of effectiveness.

3.1.2 NHS Centre for Reviews and Dissemination

The search strategy for locating reviews in the NHS Centre for Reviews and Dissemination databases (DARE, NHS EED, NCCHTA) is shown below. This search strategy yielded 182 hits and whilst identifying Gyldmark's review did not yield systematic reviews on the subject. The 182 abstracts were retained for consideration in the screening process.

---

[1] **The Cochrane Database of Systematic Reviews** (The Cochrane Collaboration, 2000) contains the full text of completed systematic reviews and brief details of reviews in progress undertaken by the Cochrane Collaboration. The Cochrane Collaboration consists of an international network of individuals and institutions involved in the preparation, maintenance and dissemination of systematic reviews.
The Database of Abstracts of Reviews of Effectiveness (NHS Centre for Reviews and Dissemination, 2000) contains structured abstracts of systematic reviews that have been identified and appraised by the NHS Centre for Reviews and Dissemination. Articles are identified by searches of MEDLINE, CINAHL, BIOSIS, Current Contents Clinical Medicine and PsycLIT.
The Cochrane Controlled Trial Register contains bibliographic details of controlled trials identified by the Cochrane Collaboration through databases and handsearching journals.
The Cochrane Review Methodology Database contains bibliographic details of articles and books relating to the conduct of systematic reviews.
The Health Technology Assessment (HTA) Database (NHS Centre for Reviews and Dissemination, 2000).

Intensive care OR critical care/ All fields AND Cost, Review, Methodology studies

3.1.3 Office of Health Economics

The search strategy for locating reviews in the Office of Health Economics – IFPMA Database is shown below. This search strategy was kept deliberately broad i.e. not including a filter for costs or economics but did specify that the type of article needed to be a review. Despite not identifying the Gyldmark review, it yielded 44 articles for consideration in the screening process.

Intensive care or critical care (Patient type) OR Intensive care or critical care (Article title) AND intensive or critical care (Keywords) AND Review (Type of article)

3.1.4 EMBASE[2]

EMBASE was searched using the search software Ovid, CD Plus. It is estimated that there is a 35% overlap between EMBASE and MEDLINE. The search strategy for identifying existing reviews and other papers is shown below and yielded a total of 768 articles. No systematic reviews were identified however the abstracts were retained for screening.

2 Elsevier Science Publishers BV, The Netherlands; the electronic version of *Excerpta Medica*, EMBASE is a European database covering biomedicine and pharmacology and is often described as the European equivalent to MEDLINE. EMBASE contains citations to articles from around 3500 journals and is particularly strong in its coverage of drug literature. Although EMBASE concentrates on European sources, journals from over 70 countries are indexed.

'Intensive care'/all subheadings OR Intensive care OR Critical care AND 'economics'/all subheadings OR explode 'health economics'/all subheadings OR explode 'economic aspect'/all subheadings OR explode 'health care cost'/all subheadings OR explode 'economic evaluation'/all subheadings OR explode 'fee'/all subheadings OR explode 'budget'/all subheadings OR (cost or costs or costed or costly or costing*) in ti,ab,su OR (economic* or pharmacoeconomics* or pharmaco-economic* or price* or pricing*) in ti,ab,su AND Meta-analysis/all subheadings OR review/all subheadings OR (meta analy* or metaanaly*) in ti,ab OR (systematic with review*) in ti,ab OR (systematic with overview*) in ti,ab NOT editorial in dt NOT letter in dt

3.1.5 MEDLINE[3]

The search in MEDLINE used an economic and review filter on OVID rather than the silver platter filter used by PubMed. The search strategy for MEDLINE in presented below, yielding 68 articles, none of which contained a systematic review.

Critical care/or Intensive care/ OR Intensive care.tw. OR Critical care.tw. AND Meta-analysis/ OR exp review literature / OR (meta-analy$ or meta analy$ or metaanaly$.).tw. OR meta analysis.pt. OR review academic.pt. OR review literature.pt NOT letter.pt OR review of reported cases.pt. OR historical article.pt OR review multicase.pt AND economics/ OR exp "costs and cost analysis"/ economic value of life/ OR exp economics, hospital/ OR exp economics, medical/ OR economics, nursing/ OR economics, pharmaceutical/ OR exp models, economic/ OR exp "fees and charges"/ OR exp budgets/ OR ec.fs. OR (cost or costs or costed or costly or costing$).tw OR (economic$ or pharmacoeconomic$ or price$ or pricing).tw.

---

[3] MEDLINE National Library of Medicine, USA; the electronic version of *Index Medicus*) using the search software OVID, CD Plus. MEDLINE is a primary source for biomedical information. Produced by the National Library of Medicine (NLM) in the United States, MEDLINE includes references to papers from over 3,800 journals. Various types of publication are indexed on MEDLINE, including systematic reviews, randomised controlled trials and guidelines. MEDLINE has international coverage – approximately 75% of the references are English Language. MEDLINE covers January 1, 1966 to the present.

3.1.6 National Research Register[4]

The search terms used were as follows:

((INTENSIVE:TI and CARE:TI) OR (CRITICAL:TI and CARE:TI))

This search strategy in the NRR's 'Ongoing Projects' category yielded 74 records and 252 records in the 'Complete Projects' category, none of which were relevant.

[4] The National Research Register (NRR) – http://www.update-software.com/national/nrr-frame.html is a register of ongoing and recently completed research projects funded by the United Kingdom's National Health Service. The first release contains information on over 28,000 research projects, as well as entries from the Medical Research Council's Clinical Trials Register, and details on reviews in progress collected by the NHS Centre for Reviews and Dissemination.

Appendix 3.2: Scope Of Literature In Field

3.2.1 HMIC[5]

Three different search strategies were employed.

Intensive care AND cost AND resource*

Critical care AND cost*

Intensive care AND cost

3.2.2 Social Science Citation Index (SSCI)[6]

Two different search strategies were employed.

Intensive care AND cost* (all document types)

Intensive care AND resource* (all document types)

3.2.3 Science Citation Index Expanded (SCI-EXPANDED)[7]

The search strategy used was as follows:

(Intensive Care OR Critical Care) AND Cost* (title only)

---

5 The HMIC database encompasses the Department of Health's Library and Information Service, the King's Fund and the Nuffield Institute, University of Leeds and covers UK and overseas health management periodicals, monographs and reports.

6 The SSCI indexes more than 1,725 journals spanning 50 disciplines, as well as covering individually selected, relevant items from over 3,300 of the world's leading scientific and technical journals.

7 SCI-EXPANDED indexes more than 5,700 major journals across 164 scientific disciplines, covering approximately 2,100 more journals than its SCI print and CD-ROM counterparts, with all cited references captured.

3.2.4 EconLit[8]

The search strategy used was as follows:

Intensive Care AND Cost*

3.2.5 RCN Journals Database[9]

The search strategy used was as follows:

Cost* AND (Critical Care OR Intensive Care)

8 EconLit is a bibliographic database of books, journal articles, dissertations and working papers dealing with all aspects of economics. The database provides access to 12,000 journal citations, 7,000 collective volume citations, 1,800 book citations, 900 dissertations and over 1,800 working paper abstracts.

9 The RCN Journals Database covers over 300 British and English language nursing related journals. Subject areas covered include: accident and emergency nursing, breast cancer, history of nursing, learning disabilities, midwifery, nurse practitioner, orthopaedic nursing, perinatal and neonatal mortality, project 2000, reflect practice, student nurses, theatre nursing and wounds.

Appendix 3.3: Bibliographic Details Of Papers Meeting Inclusion Criteria

The list of papers selected for the review is shown in alphabetical order as follows:

1. Byrick RJ, Mindorff C, McKee L, Mudge B (1980). Cost-Effectiveness of intensive care for respiratory failure patients. *Critical Care Medicine*, **8**, 6, 332-337.

2. Chaix C, Durand-Zaleski I, Alberti C, Brun-Buisson C (1999). A model to compute the medical cost of patients in intensive care. *Pharmacoeconomics*, **15**, 6, 573-582.

3. Dickie H, Vedio A, Dundas R, Treacher DF, Leach RM (1998). Relationship between TISS and ICU cost. *Intensive Care Med*, **24**, 10, 1009-1017.

4. Doyle JJ, Casciano JP, Arikian SR, Mauskopf J, Paul JE (1996). Full cost determination of different levels of care in the intensive care unit: An activity-based costing approach. *Pharmacoeconomics*, **10**, 4, 395-408.

5. Edbrooke DL, Stevens VG, Hibbert CL, Mann AJ, Wilson AJ (1997). A new method of accurately identifying cost of individual patients in intensive care: the initial results. *Intensive Care Med*, **26**, 6, 645-650.

6. Edbrooke D, Hibbert C, Ridley S, Long T, Dickie H (1999). The Development of a Method for Comparative Costing of individual Intensive Care Units. *Anaesthesia*, **54**, 2, 110-120.

7. Flaatten H & Kvåle R (2003). Cost of intensive care in a Norwegian University hospital 1997-1999. *Crit Care* **7**, 1, 72-8. Epub 2002 Dec 18.

8. Gilbertson AA, Smith JM, Mostafa SM (1991). The cost of an intensive care unit: a prospective study. *Intensive Care Med*, **17**, 204-208.

9. Graf J, Graf C, Janssens U (2002). Analysis of resource use and cost-generating factors in a German medical intensive care unit employing the Therapeutic Intervention Scoring System (TISS-28). *Intensive Care Med*, **28**, 3, 324-31. Epub 2002 Feb 1.

10. Graf J, Wagner J, Graf C, Koch KC, Janssens U (2005). Five-year survival, quality of life, and individual costs of 303 consecutive medical intensive care patients – a cost-utility analysis. *Crit Care Med,* **33**, 3, 547-55.

11. Griffiths RD, Jones C, Palmer TE (1997). Six-month outcome of critically ill patients given glutamine-supplemented parenteral nutrition. *Nutrition*, **4**, 295-302.

12. Halpern NA, Bettes L, Greenstein R. Federal and Nationwide intensive care units & healthcare costs: 1986-1992. *Crit Care Med,* **22**, 2001-2007.

13. Holt AW, Bersten AD, Fuller S, Piper RK, Worthley LI, Vedig AE (1994). Intensive care costing methodology: cost-benefit analysis of mask continuous positive airway pressure for severe cardiogenic pulmonary oedema. *Anaesth Intensive Care,* **22**, 2, 170-174.

14. Korkeila M, Ruokonen E, Takala J (2000). Cost of care, long-term prognosis and quality of life in patients requiring renal replacement therapy during intensive care. *Intensive Care Med*, **26**, 12, 1824-1831.

15. Løes O, Smith-Erichsen N, Lind B (1987). Intensive Care: Cost and Benefit. *Acta Anaesthesiol Scand*, **31**, S84: 3-19.

16. Malstam J, Lind L (1992). Therapeutic Intervention scoring system (TISS) - A method for measuring workload and calculating costs in the ICU. *Acta Anaesthesiol Scand*, **36**, 758-763.

17. Moran JL, Peisach AR, Solomon PJ, Martin J (2004). Cost calculation and prediction in adult intensive care: a ground-up utilization study. *Anaesth Intensive Care*, **32**, 6, 787-97.

18. Noseworthy TW, Konopad E, Shustack A, Johnston R, Grace M (1996). Cost accounting of adult intensive care: Methods and human and capital inputs. *Crit Care Med*, **24**, 7,1168-1172.

19. Parikh CR, Karnad DR (1999). Quality, cost and outcome of intensive care in 2 public hospitals in Bombay, India. *Crit Care Med*, **27**. 9, 1754-1759.

20. Parviainen I, Herranen A, Holm A, Uusaro A, Ruokonen E (2004). Results and costs of intensive care in a tertiary

university hospital from 1996-2000. *Acta Anaesthesiol Scand*, **48**, 1, 55-60.

21. Rechner IK & Lipman J (2005). The costs of caring for patients in a tertiary referral Australian Intensive Care Unit. *Anaesth Intensive Care*, **33**, 4, 477-82.

22. Ridley SA, Biggam M, Stone P (1991). Cost of Intensive Therapy: A description of methodology & initial results. *Anaesthesia*, **46**, 7, 523-530.

23. Shiell AM, Griffith RD, Short AI, Spiby J (1990). An Evaluation of the cost outcome of adult intensive care in two units in the UK. *Curr Intensive Care*, **1**, 6, 256-262.

24. Slatyer MA, James OF, Moore PG, Leeder SR (1986). Costs, Severity of Illness and Outcome in Intensive Care. *Anaesth Intensive Care*, **14**, 381-389.

25. Sznajder M, Aegerter P, Launois R, Merliere Y, Guidet B, CubRea (2001). A cost-effectiveness analysis of stays intensive care units. *Intensive Care Med*, **27**, 1, 146-153.

26. Sznajder M, Leleu G, Buonamico G, Auvert B, Aegerter P, Merliere Y, Dutheil M, Guidet B, Le Gall Jr (1998). Estimation of direct cost and resource allocation in intensive care: correlation with Omega system. *Intensive Care Med*, **24**, 6, 582-589.

Appendix 3.4: Cost Block Definitions (Edbrooke *et al.*, 1999)

Cost Block Number	Cost Block Name	Cost Block Description
Cost Block 1	**Current Cost of Using Capital Equipment**	**All tangible assets valued at £1000 or greater available within the ICU which are expected to last for more than one year and are less than ten years old.**
Element 1	Linear standard depreciation	10% of the original purchase price per year (zero value after 10 years)
Element 2	Total maintenance	Includes internal and external maintenance contracts
Element 3	Annual lease / hire charges	
Cost Block 2	**Estates**	**The fabric of the building housing the ICU and the cost of upkeep**
Element 1	Building depreciation	Calculated from the district valuer's report using percentage of total floor area. ICU floor area / Total floor area.
Element 2	Water, sewage, waste disposal and energy	Expressed as a percentage of the total floor area.
Element 3	Building maintenance, engineering maintenance and decoration	Expressed as a percentage of the total floor area.
Element 4	Rates	Expressed as a percentage of the total floor area.
Cost Block 3	**Non-Clinical Support Services**	**Services required for the functioning of the ICU which are not specifically related to an individual patient's therapy**
Element 1	Administration and Management	Includes administrative support within the ICU including information clerks and a proportion of the general hospital management costs expressed as a percentage of floor area.
Element 2	Cleaning	Either contract cleaning costs for the ICU or as a percentage of the total hospital cost based on floor area.
Cost Block 4	**Clinical Support Services**	**The support services which are directly related to patient therapy but are not supplied by the ICU**
Element 1*	Pharmacy	The cost of Pharmacy expressed as a percentage of floor area (this does not include the cost of the drugs)
Element 2	Physiotherapy	Either the cost of the contract for ICU or the cost of physiotherapists normally working within the ICU
Element 3	Radiology	The cost includes all x-rays or other radiology costs for ICU that occurs in the ICU and the radiology department.
Element 4*	Dieticians	The proportional cost of the annual salary of a dietician assigned to the ICU for a specified period of time per day.
Element 5	Other (cardiology, renal support from outside the ICU and clinical neuroservices)	The resources used by the ICU in these areas.
Element 6	Laboratory services (bacteriology and virology, clinical chemistry, histopathology, immunology and neuropathology services)	The annual cost applicable to the ICU.

*Elements 1 and 4 subsequently excluded as their contribution were small and difficult to measure accurately.

Cost Block 5	Consumables	Drugs, fluids and disposables used within the ICU
Element 1	Drugs, fluids and nutrition	All enteral and parenteral drugs including intravenous fluids and albumin - blood and blood products are excluded.
Element 2	Blood and blood products	Includes whole blood, platelets in addition to more sophisticated blood products.

Cost Block Number	Cost Block Name	Cost Block Description
Element 3	Disposables	All equipment (sterile and non-sterile) used in patient care which have a limited life span of less than 1 year. Includes annual cost of piped and non-piped gases, costed as 33% of the total hospital bill.
Cost Block 6	**Staff**	**Personnel employed fully or partly within the ICU including both permanent and bank staff. The costs will include expenses such as national insurance, superannuation, sick leave, maternity leave and annual leave.**
Element 1	Medical Staff (Consultants)	Total number of fixed sessions in the ICU + 50% of the remaining flexible sessions x cost per session (£).
Element 2	Medical Staff (Non-Consultants)	Includes all training grades and staff grade posts. The hourly cost (including ADHs) x number of hours spent on the ICU per year.
Element 3	Technicians	Including regular and on-call payments, reflecting the proportion of time working on the ICU. This section should include phlebotomists, if appropriate.
Element 4	Nursing Staff	Senior nursing staff (F to I Grades), Junior nursing staff (A-E Grades) and Bank and Agency Staff.

Appendix 4.1: Configuration Of The Activities Of Care

Activity	Group	Resource Item	Start-up	Point	Interval
Cardiac output monitoring	Consumables	Disposable needle	2	0	0
		Disposable syringe	1	0	0
		Leur lock check-flo sheath catheter	1	0	0
		4-way ramp	1	0	0
		5-lumen swan-ganz criticath	1	0	0
		Introducer 9FR (Swan Ganz)	1	0	0
		Admin set (IVAC) (dd)	1	0	0
		Gown pack	1	0	0
		Large soiled dressing bag	1	0	0
		Stopcock 3-way PVC with luer lock	1	0	0
		Opraflex dressing (various sizes)	1	0	0
		Non-sterile gloves	1	0	0
		Preparation pack (CSSD)	1	0	0
		Surgical blade size 10	1	0	0
		Suture set	1	0	0
		Transducer Kit TAK T15 DAD	2	0	0
		Hypodermic needle	3	0	0
		Close inject system Critikit (Ohmeda)	1	0	0
	Contracts	Chest x-ray	1	0	0
	Staff	Senior Registrar	30	0	0
		Nurse	30	5	1
		Technician	30	0	0
	Drugs	Lignocaine 40mg / 2ml	0	1	0
		5% Dextrose	0	1	0
		Normal saline 500mls	0	1	0
CPAP	Consumables	Ryles tube	1	0	0
		CPAP mask	1	0	0
		Breathing filter (Pall)	1	0	0
		Peep valve	2	0	0
		Naso gastric pack	1	0	0
		ET tube	1	0	0
	Equipment	Humidifier	1	0	1
		Oxygen therapy	1	0	1
	Staff	Technician	15	0	0
ET Tube	Consumables	Connector T005 (Redivac)	1	0	0
		Gentle Flo catheter	1	0	0
		Catheter mount	1	0	0
		Hi Lo ET Tube	1	0	0
		Suction catheter 48cm F/end	1	0	0
		Mouth toilet pack	0	0	1
		Mask	1	0	0
		Swivel connector 360 deg S/R 15mm	1	0	0
		Suction tubing (Pennine)	1	0	0
		Yankauer suction tube 30cm s/tip	1	0	0
		Trache system	1	0	0
		Syringes (various)	1	0	0
		Non-sterile gloves	1	0	0
	Contracts	Chest x-ray	1	0	0
	Equipment	Laryngoscope	1	0	1
	Staff	Senior registrar	10	0	0
		Technician	10	0	0
		Nurse	15	5	1
Epidural procedure	Consumables	Spinal Needle	1	0	0
		Dressing	1	0	0
		Gloves	1	0	0
		Gown Pack	1	0	0
		C-Tip cannula / catheter epidural l/eyes	1	0	0
		Opraflex dressing (various sizes)	1	0	0
		Filter Millex Millipore (epidural)	1	0	0
		Epidural tray	1	0	0
		Disposable needle	2	0	0
		Disposable syringe	1	0	0
	Drug	Lignocaine 40mg/2ml	0	1	0
		Bupivicaine 0.5%	0	1	0
	Staff	Senior Registrar	23	0	0

		Nurse	36	0	5
Activity	**Group**	**Resource Item**	**Start-up**	**Point**	**Interval**
Ventilatory support	Consumables	Oxygen tubing (Lifecare)	1	0	0
		Swivel Connector 360 deg S/R 15mm	1	0	0
		Breathing Filter (Pall)	1	0	0
	Contracts	Blood gas tests	1	0	0
	Equipment	Ventilator	1	0	1
		Humidifier	1	0	1
	Staff	Nurse	15	3	0
		Technician	15	0	1
		Junior doctor	3	0	0
Urine output	Consumables	Urine meter / diuresis set (Kendall)	1	0	0
		Syringe cath tip (bladder syringe)	1	0	0
		Foley catheter latex 5-15ml male	1	0	0
		Gloves	1	0	0
		Catheterisation pack	1	0	0
	Drugs	Water 100mls	0	1	0
	Staff	Nurse	16	2	1
		Junior doctor	10	0	0
Formal tracheostomy	Contracts	Tracheostomy	1	0	0
	Equipment	Monitor	1	0	1
		Ventilator	1	0	1
	Staff	Senior registrar	90	0	0
		Technician	60	0	0
		Nurse	20	0	0
Naso gastric tube	Consumables	Naso gastric pack	1	0	0
		Ryles tube	1	0	0
		50ml syringe (hypo) (Luerslip) (plain)	1	0	0
		Bile bag drain t-tube 350ml	1	0	0
	Staff	Nurse	10	5	0
Arterial line	Consumables	Opraflex dressing (various sizes)	1	0	0
		Cotton wool balls (sterile)	2	0	0
		Basic dressing pack	1	0	0
		Suture set	1	0	0
		IV cannula jelco 20g x 1.25"	1	0	0
		Disposable needle	2	0	0
		Disposable syringe	2	0	0
		Transducer kit TAK T15 DAD	1	0	0
		Non-sterile gloves	1	0	0
		Large soiled dressing bag	1	0	0
		Sharp container PVC disp 6.5 litre	1	0	0
		Radial artery catheter set	1	0	0
	Drugs	Normal saline 500mls	0	1	0
		Lignocaine 40mg / 2ml	0	1	0
	Staff	Senior registrar	10	0	0
		Nurse	17	2	1
CVP line	Consumables	Stopcock 3 way PVC with luer lock	1	0	0
		Large soiled dressing bag	1	0	0
		Abs. dressing (Fenestrd) 10x10cm	1	0	0
		Admin set (IVAC) (dd)	1	0	0
		Gloves	1	1	0
		Gown pack	2	0	0
		Surgical blade size 10	1	0	0
		Sterile scalpel	1	0	0
		Opraflex dressing (various sizes)	1	0	0
		Triple lumen multicatheter 8FG	1	0	0
		IV set saver, 96 hour use (Pall)	1	0	0
		4-way ramp	1	0	0
		Suture set	1	0	0
		Hypodermic needle (various sizes)	3	0	0
		Syringes (various)	1	0	0
		Transducer Kit TAK T15 DAD	1	0	0
		Preparation pack (CSSD)	1	0	0
	Drugs	Lignocaine 40mg / 2ml	0	1	0
		Normal saline 500mls	0	3	0
	Staff	Nurse	25	2	0
		Senior Registrar	17	0	0

Activity	Group	Resource Item	Start-up	Point	Interval
Lumbar puncture	Consumables	Syringes (various)	0	1	0
		Disposable syringe	0	2	0
		Spinal needle	0	1	0
		Gown pack	0	1	0
		Gloves	0	1	0
		Basic dressing pack	0	1	0
		Hypodermic needle (various sizes)	0	1	0
		Opraflex dressing (various sizes)	0	1	0
		Spinal manometer 3 way stopcock rocket	0	1	0
	Drugs	Lignocaine 40mg / 2ml	0	1	0
	Staff	Senior Registrar	0	15	0
		Nurse	0	45	0
CAT scan (body)	Contracts	CT Abdomen	0	1	0
		CT Pelvis	0	1	0
		CT Thorax	0	1	0
	Equipment	Ventilator	1	0	1
		Monitor	1	0	1
	Staff	Technician	0	90	0
		Junior doctor	0	90	0
		Nurse	0	90	0
NMR / MRI scan	Contracts	MRI scan	0	1	0
	Equipment	Ventilator	1	0	1
		Monitor	1	0	1
	Staff	Technician	0	120	0
		Junior doctor	0	120	0
		Nurse	0	120	0
Ultrasound	Contracts	Ultrasound	0	1	0
	Staff	Nurse	0	15	0
ECG	Contracts	ECG	0	1	0
	Staff	Nurse	0	10	0
Ward round (weekend)	Staff	Consultant	0	15	0
		Junior doctor	0	15	0
		Senior registrar	0	15	0
		Nurse	0	15	0
Bronchoscopy	Consumables	Gloves	1	0	0
		Sterile bowl ½ litre	1	0	0
		Suction tubing (Pennine)	1	0	0
		50 ml syringe with luer lock	1	0	0
		Admin solution set (Codan)	1	0	0
		Aprons	2	0	0
		Swivel connector 360 deg S/R 15mm	1	0	0
		Fibre optic connector (bronchoscopy)	1	0	0
		Green theatre drapes	1	0	0
		Trache system	1	0	0
		Yankauer suction tube 30 cm s/tip	1	0	0
		Specimen trap large (Cory Bros) Sherwood	1	0	0
	Contracts	Sputum	1	0	0
	Equipment	Oxygen therapy	1	0	1
		Bronchoscope	1	0	1
	Staff	Technician	30	0	0
		Senior Registrar	30	0	0
		Nurse	30	0	0

Activity	Group	Resource Item	Start-up	Point	Interval
Mini tracheostomy	Consumables	Mini tracheostomy	1	0	0
		Gloves	3	0	0
		Gown pack	2	0	0
		Trach tube	1	0	0
		Dressing	1	0	0
		Surgical blade size 10	1	0	0
		Disposable syringe	1	0	0
		Suction tubing (Pennine)	1	0	0
		Suction catheter 48cm F/end	1	0	0
		Connector T005 (Redivac)	1	0	0
		Hypodermic needle (various sizes)	1	0	0
		Trache set mini	1	0	0
		Suture set	1	0	0
	Contracts	Chest x-ray	1	0	0
		Clotting screen	1	0	0
	Equipment	Oxygen therapy	1	0	1
		Suction	1	0	1
	Drugs	Lignocaine 40mg / 2ml	0	1	0
	Staff	Consultant	25	0	0
		Nurse	35	0	2
Defibrillation	Contracts	ECG	0	1	0
	Equipment	Defibrillator	1	0	1
	Staff	Technician	0	15	0
		Junior doctor	0	10	0
		Nurse	0	10	0
Abdominal drain	Consumables	Non sterile gloves	0	1	0
		Wound container	0	1	0
		Abs. dressing (Fenestrd) 10x10 cm	0	1	0
		Sterile jug polythene 1 litre	0	1	0
		Gamgee pad	0	1	0
		Urine meter / diuresis set (Kendall)	0	1	0
		Syringes (various)	0	1	0
		Preparation pack (CSSD)	0	1	0
	Staff	Nurse	0	5	0
Nursing shifts (morning)	Consumables	Mouth toilet pack	0	0	1
		Preparation pack (CSSD)	1	0	0
		Suction catheter	0	0	1
		Disposable syringe	0	0	1
		Non sterile gloves	0	0	1
		Blood sampling syringe 3ml	1	0	0
	Contracts	Chest x-ray	1	0	0
		Physiotherapy	1	0	0
		U & E	1	0	0
		Blood gas tests	1	0	0
		Calcium	1	0	0
		Clotting screen	1	0	0
		LFT	1	0	0
	Staff	Nurse	40	0	35

Activity	Group	Resource Item	Start-up	Point	Interval
Plasmapheresis HAS	Consumables	Gambro drainage bag	1	0	0
		Multi connect	7	0	0
		Gambro bag	1	0	0
		Gambro adapter	1	0	0
		Dual lumen catheter	1	0	0
		Gloves	1	0	0
		Gown pack	1	0	0
		Surgical blade size 10	1	0	0
		Disposable syringe	6	0	0
		Disposable needle	2	0	0
		Opraflex dressing (various sizes)	1	0	0
		Suture set	1	0	0
		Preparation pack (CSSD)	1	0	0
		Solution line (Gambro)	1	0	0
		Gambro medical line	1	0	0
		Plasma filter (Gambro)	1	0	0
		Blood line (red/blue) Gambro	1	0	0
	Contracts	Electrolytes, LFT, calcium	1	0	0
		Calcium	1	0	0
		Total protein	1	0	0
		Chest x-ray	1	0	0
		Clotting screen	1	0	0
	Staff	Nurse	45	0	5
		Senior Registrar	30	0	0
	Drugs	Lignocaine 40mg / 2ml	1	0	0
		Saline (nebs)	5	0	0
		Heparin	2	0	0
		Normal saline 500ml	4	0	0
		HAS	7	0	0
Gastroscopy	Consumables	Aprons	0	2	0
		Sterile bowl ½ litre	0	1	0
		Specimen trap large (Cory Bros) Sherwood	0	1	0
		Yankauer Suction Tube 30cm s/tip	0	1	0
		50ml syringe with luer lock	0	1	0
		Gloves	0	1	0
		Admin solution set (Codan)	0	1	0
	Equipment	Gastroscope	1	0	1
		Oxygen therapy	1	0	1
	Staff	Senior Registrar	0	30	0
		Nurse	0	30	0
KCl bed	Contracts	KCl Bed	1	0	0
	Staff	Nurse	80	0	0
Venous line	Consumables	IV cannulae (venflon) (various sizes)	1	0	0
		Admin solution	1	0	0
		Opraflex dressing (various sizes)	2	0	0
		Disposable syringe	1	0	0
		Disposable needle	1	0	0
	Staff	Junior doctor	5	0	0
		Nurse	5	0	0
Percutaneous tracheostomy	Consumables	Gloves	2	0	0
		Preparation pack	1	0	0
		Lyofoam dressing	1	0	0
		Sterile scalpel	1	0	0
		Suction catheter 48 cm F/end	1	0	0
		Portex trachy tube 8cm (various sizes)	1	0	0
		Swivel connector 360 deg S/R 15mm	1	0	0
		Hypodermic needle (various sizes)	1	0	0
		Trache system	1	0	0
		Syringes (various)	1	0	0
		Percutaneous tracheostomy set	1	0	0
		Suction tubing (Pennine)	1	0	0
		Surgical blade size 10	1	0	0
		Suture set	1	0	0
		Tracheal dilator	1	0	0
		Yankauer ends mini (Sherwood)	1	0	0
	Contracts	Chest x-ray	1	0	0
		Clotting screen	1	0	0
	Staff	Consultant	60	0	0
		Nurse	60	0	0
Cardiac Echo	Contracts	ECG	0	1	0

Activity	Group	Resource Item	Start-up	Point	Interval
Weekday ward round (biochemistry)	Staff	Dietician	0	10	0
		Senior Registrar	0	10	0
		Junior doctor	0	10	0
		Consultant	0	10	0
Weekday ward round (evening)	Staff	Senior Registrar	0	5	0
		Junior doctor	0	5	0
Weekday ward round (afternoon)		Consultant	0	25	0
		Senior Registrar	0	25	0
		Junior doctor	0	25	0
		Nurse	0	25	0
Weekday ward round (morning)	Staff	Junior doctor	0	16	
		Senior registrar	0	8	0
	Contracts	Physiotherapy	0	1	0
Inspired oxygen	Consumables	Oxygen mask (con) ear loops	1	0	0
		Corr A tubing 72" (Henley)	1	0	0
		Hudson mask 1088 C/W tube Henly	1	0	0
		Nasal oxygen cannula 200cm 14FG	1	0	0
	Equipment	Oxygen therapy	1	0	1
		Suction	1	0	1
	Staff	Technician	15	0	0
		Nurse	10	0	0
Naso jejeunal	Consumables	Naso gastric pack	1	0	0
		50ml syringe (hypo) (Luerslip) (plain)	1	0	0
		Feeding tube 8cm x 110cm (Flocare)	1	0	0
	Staff	Senior Registrar	10	0	0
		Technician	10	0	0
		Nurse	10	0	0
Organ donation	Staff	Senior Registrar	0	180	0
		Technician	0	30	0
		Nurse	0	30	0
Discharge	Consumables	Admin solution set (Codan)	0	1	0
		Face mask trach (Hudson)	0	1	0
		Oxygen tubing (lifecare)	0	1	0
		Nasal oxygen cannula 200cm 14FG	0	1	0
	Staff	Nurse	0	30	0
		Junior doctor	0	15	0
		Nurse	0	45	0
		Ward clerk	0	30	0
Admission	Consumables	Non sterile gloves	0	6	0
		Aprons	0	6	0
		Urine drain bag c/circ	0	1	0
	Contracts	Blood gas tests	0	1	0
		Urine	0	1	0
		U&E	0	1	0
		FBC	0	1	0
		Chest x-ray	0	1	0
		Clotting screen	0	1	0
	Staff	Ward clerk	0	20	0
		Technician	0	55	0
		Senior registrar	0	45	0
		Junior doctor	0	55	0
		Nurse	0	135	0
CAT Scan (Head)	Contracts	CT Head	0	1	0
	Equipment	Ventilator	1	0	1
		Monitor	1	0	1
	Staff	Technician	0	60	0
		Junior doctor	0	60	0
		Nurse	0	60	0
Weekday ward round bacteriologist	Staff	Senior Registrar	0	5	0
		Consultant	0	5	0

Activity	Group	Resource Item	Start-up	Point		Interval
Nursing shift (night)	Consumables	Non sterile gloves	0	1	0	
		Mouth toilet pack	0	1	0	
		Gentle flo catheter	0	1	0	
		Syringes (various)	0	1	0	
	Staff	Nurse	40	0		30
Nursing shift (afternoon)	Consumables	Disposable syringe	0	1		0
		Non-sterile gloves	0	1		0
		Helplock flush	0	1		0
		Mouth t-pack	0	1		0
		Container	0	1		0
		Assay tube	0	1		0
		Vacutainer	0	1		0
		Suction catheter	0	1		0
	Contracts	Physiotherapy	1	0		0
	Staff	Nurse	40	0		30
DDAV-SC	Drug	DDAVP	0	1		0
	Method	Subcutaneous	0	1		0
D/SALINE 4%/0.18%	Drug	D/Saline	0	1		0
	Method	Intravenous infusion	0	1		0
HAS	Drug	HAS	0	1		0
	Method	Intravenous infusion	0	1		0
Haemacel	Drug	Haemaccel	0	1		0
	Method	Intravenous infusion	0	1		0
Hesplan	Drug	Hespan	0	1		0
	Method	Intravenous infusion	0	1		0
TPN	Drug	TPN	0	1		0
	Method	Intravenous infusion	0	1		0
Whole blood	Consumables	Blood warm coil	0	1		0
	Contracts	RBC Unit	0	1		0
	Method	Intravenous	0	1		0
Colostomy	Consumables	Non sterile gloves	0	1		0
		Dressing	0	1		0
		Colostomy bags	0	1		0
	Staff	Nurse	0	5		0
CVVH	Consumables	Blood line (red/blue) Gambro	1	0		0
		Fibre haemofilter (Gambro) (FH66D)	1	1		0
		Gambro adapter	1	0		0
		Medical line (Gambro)	1	0		0
		Extension set IV Dial a Flo	1	0		0
		Gambro drainage bag	7	0		0
		Disposable syringe	8	0		0
		Disposable needle	6	0		0
		Large soiled dressing bag	1	0		0
		Opraflex dressing (Various sizes)	1	1		0
		Gloves	2	1		0
		Solution line (Gambro)	1	0		0
		Surgical blade size 10	1	0		0
		Suture set	1	0		0
		Filtrate line connector	1	0		0
		Dual lumen catheter	1	0		0
	Equipment	CVVH machine	1	0		1
	Contracts	Chest x-ray	1	0		0
		Clotting screen	1	0		0
		KCCT	1	0		0
		Potassium	1	0		0
	Staff	Senior registrar	30	0		0
		Nurse	45	30		5
	Drugs	Normal saline 500ml	4	0		0
		Haemofiltrate	0	7		0
		Heparin	0	1		0
Platelets	Contracts	Platelet concentrate	0	1		0
		Prothombin patient time	2	0		0
	Method	Intravenous infusion	0	1		0

Activity	Group	Resource Item	Start-up	Point	Interval
Packet cells	Contracts	RBC Unit on call	0	1	0
	Method	Intravenous infusion	0	1	0
Nasogastric feed	Drug	N/G feed	0	1	0
	Method	Nasogastric	0	1	0
Chest drain	Consumables	Sterile scalpel	1	0	0
		Disposable needle	2	0	0
		Disposable syringe	1	0	0
		Dressing	1	0	0
		Portex tube	1	0	0
		Gloves	1	0	0
		Gown pack	1	0	0
		Chest drain pack	1	0	0
		Abs. dressing (fenestrd) 10x10 cm	1	0	0
		Basic dressing pack	1	0	0
		Catheter Trocar x-ray (chest drain)	1	0	0
		Suture set	1	0	0
		Pleural drain bottle (Portex)	1	0	0
		Pleural drainage system (Portex)	1	0	0
		Surgical blade size 10	1	0	0
		Dissector x 2	1	0	0
	Drugs	Lignocaine 40mg / 2ml	0	1	0
	Contracts	Chest x-ray	1	0	0
	Staff	Senior registrar	20	0	0
		Nurse	35	5	8
Wound drain	Consumables	Basic dressing pack	1	0	0
		Gamgee pad	1	0	0
		Non sterile gloves	0	1	0
		Abs dressing (Fenstrd) 10x10cm	1	0	0
		Scissor dressing	1	0	0
		Gambro drainage bag	7	0	0
	Staff	Nurse	0	3	0
Illeostomy	Consumables	Dressing	0	1	0
		Non sterile gloves	0	1	0
		Illeostomy bags	0	1	0
	Staff	Nurse	0	3	0
Hartmanns	Drugs	Hartmanns	0	1	0
	Method	Intravenous infusion	0	1	0

Activity	Group	Resource Item	Start-up	Point	Interval
relatives interview	staff	consultant	0	30	0
		nurse	0	30	0
HAS 20%	Method	Intravenous infusion	0	1	0
	Drugs	HAS 20%	0	1	0
Fresh frozen plasma	Contracts	FFP (Plasma)	0	1	0
	Method	Intravenous infusion	0	1	0
CVVH Filter change	Consumables	Multi connect	0	2	0
		Dressing	0	1	0
		Gloves	0	1	0
		Swivel connect	0	2	0
		Gambro medical line	0	1	0
		Gambro adapter	0	1	0
		Blood line (red/blue) Gambro	0	1	0
		Fibre haemofilter (Gambro) (FH66D)	0	1	0
		Solution line (Gambro)	0	1	0
		50ml syringe (hypo) (luerslip) (plain)	0	1	0
		Syringes (various)	0	4	0
		Dual lumen catheter	0	1	0
		Gambro drainage bag	0	7	0
	Drugs	Normal saline 500ml	0	4	0
		Heparin	0	1	0
		Saline (nebs)	0	2	0
	Staff	Nurse	0	65	0
Plasmapheresis FFP	Consumables	Preparation pack (CSSD)	1	0	0
		Gambro adapter	1	0	0
		Gambro bag	1	0	0
		Gambro medical line	1	0	0
		Gambro drainage bag	7	0	0
		Infusion plug	2	0	0
		Multi connect	1	0	0
		Disposable needle	2	0	0
		Disposable syringe	6	0	0
		Surgical blade size 10	1	0	0
		Gown pack	1	0	0
		Gloves	1	0	0
		Dual lumen catheter	1	0	0
		Plasma filter (Gambro)	1	0	0
		Opraflex dressing (Various sizes)	1	0	0
		Blood line (red/ blue) Gambro	1	0	0
		Solution line (Gambro)	1	0	0
		Suture set	1	0	0
	Contracts	Calcium	1	0	0
		Total protein	1	0	0
		FFP (Plasma)	1	0	0
		Electrolytes, LFT, calcium	1	0	0
		Clotting screen	1	0	0
	Drugs	Normal saline 500ml	4	0	0
		Heparin	2	0	0
		Saline (nebs)	5	0	0
		Lignocaine 40mg/2ml	1	0	0
	Staff	Nurse	45	0	5
		Senior registrar	30	0	0

Drug costs

DrugName	Item	PDO Name	Drug_Qty	Dose	UnitName	Description	DiluentItem	Diluent_Qty	CarrierItem	Carrier_Qty	PDOPrice
ACETYLCYSTEINE											
	ACETYLCYSTEINE I	ACETYLCYSTEINE 6	1	6	gram	Intravenous	None	0	GLUCOSE 5% Infusi	1	£3.53
	ACETYLCYSTEINE I	ACETYLCYSTEINE 7	4	2000	milligram	Continuous	None	0	GLUCOSE 5% Infusi	1	£12.02
	ACETYLCYSTEINE I	ACETYLCYSTEINE 1	5	10000	milligram	Short Infusi	None	0	GLUCOSE 5% Infusi	1	£14.71
	ACETYLCYSTEINE I	ACETYLCYSTEINE 3	2	3500	milligram	Short Infusi	None	0	GLUCOSE 5% Infusi	1	£6.21
	ACETYLCYSTEINE I	PARVOLEX 7.5	1	7.5	milligram	Intravenous	None	0	GLUCOSE 5% Infusi	1	£3.53
	ACETYLCYSTEINE I	ACETYLCYSTEINE 7	0	7.5	gram	Intravenous	None	0	GLUCOSE 5% Infusi	0	£0.00
ACICLOVIR											
	ACICLOVIR Injection	ACICLOVIR 750MG	3	750	milligram	Intravenous	None	0	SODIUM CHLORIDE	1	£24.00
	ACICLOVIR (SOLUTI	ACICLOVIR 650MG	1	650	milligram	Intravenous	WATER FOR INJEC	1	None	0	£21.19
	ACICLOVIR Injection	ACICOVIR 800 MG	4	800	milligram	Intravenous	None	0	None	0	£31.02
	ACICLOVIR (SOLUTI	ACICLOVIR 175MG	1	175	milligram	Intravenous	None	0	None	0	£6.86
	ACICLOVIR Injection	ACICLOVIR 250MG I	1	250	milligram	Short Infusi	WATER FOR INJEC	1	SODIUM CHLORIDE	1	£8.60
	ACICLOVIR Injection	ACICLOVIR 1G	2	1	gram	Intravenous	None	0	None	0	£28.20
	ACICLOVIR Injection	ACICLOVIR 500MG/2	1	500	milligram	Intravenous	None	0	SODIUM CHLORIDE	1	£14.83
	ACICLOVIR Injection	ACICLOVIR 700MG I	3	700	milligram	Short Infusi	WATER FOR INJEC	3	SODIUM CHLORIDE	1	£24.35
	ACICLOVIR Injection	ACICLOVIR 350MG I	2	350	milligram	Short Infusi	WATER FOR INJEC	2	SODIUM CHLORIDE	1	£16.48
	ACICLOVIR Injection	ACICLOVIR 900MG	2	0	milligram	Intravenous	None	0	None	0	£28.20
	ACICLOVIR Injection	ACICLOVIR 400MG I	1	400	milligram	Intravenous	None	0	None	0	£14.10
	ACICLOVIR Injection	ACICLOVIR 200MG	1	200	milligram	Intravenous	None	0	SODIUM CHLORIDE	1	£9.36
ADENOSINE											

DrugName	Item	PDO Name	Drug_Qty	Dose	UnitName	Description	DiluentItem	Diluent_Qty	CarrierItem	Carrier_Qty	PDOPrice
	ADENOSINE Injectio	ADENOSINE 6MG IV	1	6	milligram	Intravenous	None	0	None	0	£4.28
	ADENOSINE Injectio	ADENOSINE 3MG	1	3	milligram	Intravenous	None	0	None	0	£4.28
	ADENOSINE Injectio	ADENOSINE 12MG I	2	12	milligram	Intravenous	None	0	None	0	£8.56
ADRENALIN E											
	ADRENALINE Injectio	ADRENALINE 10MG/	2	0	milligram	Intravenous	None	0	GLUCOSE 5% Infusi	1	£3.70
	ADRENALINE Injectio	ADRENALIN 5MG	1	5	milligram	Intravenous	None	0	None	0	£1.05
	ADRENALINE Injectio	ADRENALINE 0.1MG	1	0.1	milligram	Intravenous	None	0	None	0	£0.26
	ADRENALINE 1mg/1	ADRENALINE 1MG I	1	1	milligram	Intravenous	None	0	None	0	£3.09
	ADRENALINE Injectio	ADRENALINE 5MG/5	1	5	milligram	Continuous	None	2	GLUCOSE 5% Infusi	1	£1.67
	ADRENALINE Injectio	ADRENALINE 10 MG	2	10	milligram	Intravenous	None	0	None	0	£2.10
	ADRENALINE Injectio	ADRENALINE 0.45M	1	0.45	milligram	Intravenous	None	0	None	0	£1.05
	ADRENALINE Injectio	ADRENALINE 4MG/5	1	4	milligram	Intravenous	None	0	GLUCOSE 5% Infusi	1	£2.65
	ADRENALINE Injectio	ADRENALINE 0.5MG	1	1	milligram	Intravenous	None	0	None	0	£0.26
	ADRENALINE 1mg/1	ADRENALINE 0.2 M	1	0.2	milligram	Intravenous	None	0	None	0	£3.09
	ADRENALINE Injectio	ADRENALINE 20MG	4	20	milligram	Intravenous	None	0	None	0	£4.20
	ADRENALINE Injectio	ADRENALINE 2MG	2	2	milligram	Intravenous	None	0	None	0	£2.10
ALFACALCIDOL											
	ALFACALCIDOL Solu	ALFACALCIDOL 500	5	500	microgram	Naso-gastri	None	0	None	0	£89.25
ALFENTANIL											
	ALFENTANIL Injectio	ALFENTANIL 5MG	1	5	milligram	Intravenous	None	0	None	0	£2.64
	ALFENTANIL Injectio	ALFENTANIL 1MG IV	1	1	milligram	Intravenous	None	0	None	0	£0.72
	ALFENTANIL Injectio	ALFENTANIL 2 MG	2	2	milligram	Intravenous	None	0	None	0	£1.45
	ALFENTANIL Injectio	ALFENTANIL 25MG/	5	25	milligram	Continuous	None	0	SODIUM CHLORIDE	1	£13.84
	ALFENTANIL Injectio	ALFENTANIL 50MG/	10	50	milligram	Continuous	None	0	SODIUM CHLORIDE	1	£27.06

DrugName	Item	PDO Name	Drug_Qty	Dose	UnitName	Description	DiluentItem	Diluent_Qty	CarrierItem	Carrier_Qty	PDOPrice
	ALFENTANIL Injectio	ALFENTANIL 2.5MG	1	2.5	milligram	Intravenous	None	0	None	0	£2.64
ALTEPLASE											
	ALTEPLASE Injection	TPA 20MG	1	20	milligram	Intravenous	None	0	None	0	£176.25
AMINOPHYLLINE											
	AMINOPHYLLINE Inj	AMINOPHYLLINE 25	1	250	milligram	Continuous	None	0	SODIUM CHLORIDE	1	£1.08
	AMINOPHYLLINE Inj	AMINOPHYLLINE 35	2	350	milligram	Intravenous	None	0	GLUCOSE 5% Infusi	1	£2.52
	AMINOPHYLLINE Inj	AMINOPHYLLINE 50	2	500	milligram	Continuous	None	0	SODIUM CHLORIDE	1	£1.54
	AMINOPHYLLINE Inj	AMINOPHYLLINE 1G	4	1	gram	Intravenous	None	0	None	0	£1.83
	AMINOPHYLLINE Inj	AMINOPHYLLINE 12	5	1250	milligram	Intravenous	None	0	SODIUM CHLORIDE	1	£3.07
	AMINOPHYLLINE Inj	AMINOPHYLLINE 40	2	400	milligram	Intravenous	None	0	SODIUM CHLORIDE	1	£1.65
AMIODARONE											
	AMIODARONE Injecti	AMIODARONE 750M	5	750	milligram	Intravenous	None	0	None	0	£7.93
	AMIODARONE Injecti	AMIODARONE 500M	4	500	milligram	Intravenous	None	0	None	0	£6.34
	AMIODARONE Injecti	AMIODARONE 400M	3	400	milligram	Intravenous	None	0	None	0	£4.76
	AMIODARONE Injecti	AMIODARONE 600M	4	600	milligram	Intravenous	None	0	None	0	£6.34
	AMIODARONE Injecti	AMIODARONE 450M	3	450	milligram	Intravenous	None	0	SODIUM CHLORIDE	1	£5.54
	AMIODARONE Injecti	AMIODARONE 300M	2	300	milligram	Intravenous	None	0	GLUCOSE 5% Infusi	1	£3.90
	AMIODARONE Injecti	AMIODARONE 150M	1	150	milligram	Intravenous	None	0	GLUCOSE 5% Infusi	1	£2.32
	AMIODARONE Injecti	AMIODARONE 1200	8	1200	milligram	Continuous	None	0	GLUCOSE 5% Infusi	1	£13.42
	AMIODARONE Injecti	AMIODARONE 300M	2	300	milligram	Continuous	None	0	GLUCOSE 5% Infusi	1	£3.90
	AMIODARONE Injecti	AMIODARONE 900M	6	900	milligram	Short Infusi	None	0	GLUCOSE 5% Infusi	1	£10.14
	AMIODARONE Injecti	AMIODARONE 450	3	450	milligram	Intravenous	None	0	SODIUM CHLORIDE	1	£5.54
	AMIODARONE Injecti	AMIODARONE 100M	1	100	milligram	Intravenous	None	0	GLUCOSE 5% Infusi	1	£2.32
	AMIODARONE Injecti	AMIODARONE 200M	2	200	milligram	Intravenous	None	0	GLUCOSE 5% Infusi	1	£4.77

DrugName	Item	PDO Name	Drug_Qty	Dose	UnitName	Description	DiluentItem	Diluent_Qty	CarrierItem	Carrier_Qty	PDOPrice
	AMIODARONE Injecti	AMIODARONE 35O	3	350	milligram	Intravenous	None	0	GLUCOSE 5% Infusi	1	£5.38
AMLODIPIN E											
	AMLODIPINE Tablets	AMLODIPINE 5MG	1	5	milligram	Naso-gastri	None	0	None	0	£0.25
AMPHOTERI CIN											
	AMPHOTERICIN B,LI	AMPHOTERICIN LIP	2	100	milligram	Short Infusi	None	0	SODIUM CHLORIDE	1	£280.38
	AMPHOTERICIN Inje	AMPHOTERCIN 35M	1	35	milligram	Intravenous	WATER FOR INJEC	1	GLUCOSE 5% Infusi	1	£4.68
	AMPHOTERACIN B,	AMPHOTERACIN 20	4	200	milligram	Intravenous	WATER FOR INJEC	2	None	0	£447.68
	AMPHOTERACIN B,	AMPHOTERACIN 70	2	70	milligram	Intravenous	None	0	None	0	£223.72
	AMPHOTERICIN Inje	AMPHOTERICIN 100	2	100	milligram	Short Infusi	WATER FOR INJEC	2	GLUCOSE 5% Infusi	1	£8.74
	AMPHOTERICIN Inje	AMPHOTERICIN 50	1	50	milligram	Short Infusi	WATER FOR INJEC	1	GLUCOSE 5% Infusi	1	£4.79
	AMPHOTERACIN B,	AMPHOTERACIN LI	2	55	milligram	Intravenous	WATER FOR INJEC	3	GLUCOSE 5% Infusi	1	£225.67
	AMPHOTERICIN B,LI	AMPHOTERICIN LIP	3	150	milligram	Short Infusi	None	0	SODIUM CHLORIDE	1	£420.21
	AMPHOTERICIN B,LI	AMPHOTERICIN LIP	1	50	milligram	Short Infusi	None	0	SODIUM CHLORIDE	1	£140.56
	AMPHOTERICIN Inje	AMPHOTERICIN 17	1	17	milligram	Intravenous	None	0	None	0	£3.83
	AMPHOTERACIN B,	AMPHOTERACIN 35	1	35	milligram	Intravenous	None	0	None	0	£111.86
	AMPHOTERICIN Inje	AMPHOTERICIN 25	1	25	milligram	Intravenous	None	0	None	0	£3.83
	AMPHOTERICIN B,LI	AMPHOTERCIN 60M	2	60	milligram	Intravenous	None	0	None	0	£279.65
	AMPHOTERACIN B,	AMPHOTERACIN 30	1	30	milligram	Intravenous	None	0	None	0	£111.86
	AMPHOTERACIN B,	AMPHOTERACIN 45	1	45	milligram	Intravenous	None	0	None	0	£111.86
	AMPHOTERICIN B,LI	AMPHOTERICIN LIP	4	200	milligram	Short Infusi	None	0	SODIUM CHLORIDE	1	£560.03
	AMPHOTERICIN Inje	AMPHOTERICIN 80	2	80	milligram	Intravenous	WATER FOR INJEC	1	GLUCOSE 5% Infusi	1	£8.50
	AMPHOTERACIN B,	AMPHOTERACIN A	3	150	milligram	Intravenous	WATER FOR INJEC	3	GLUCOSE 5% Infusi	1	£336.64
	AMPHOTERICIN Inje	AMPHOTERCIN 12.5	1	12.5	milligram	Intravenous	None	0	None	0	£3.83
	AMPHOTERACIN B,	AMPHOTERACIN 13	3	130	milligram	Intravenous	None	0	GLUCOSE 5% Infusi	1	£336.31

DrugName	Item	PDO Name	Drug_Qty	Dose	UnitName	Description	DiluentItem	Diluent_Qty	CarrierItem	Carrier_Qty	PDOPrice
	AMPHOTERICIN Inje	AMPHOTERCIN 1M	1	1	milligram	Intravenous	None	0	None	0	£3.83
AMPICILLIN											
	AMPICILLIN Injection	AMPICILLIN 1000MG	2	1000	milligram	Intravenous	WATER FOR INJEC	2	None	0	£1.01
	AMPICILLIN Injection	AMPICILLIN 500MG I	1	500	milligram	Intravenous	WATER FOR INJEC	1	None	0	£0.51
	AMPICILLIN Injection	AMPICILLIN 2000M	4	2000	milligram	Short Infusi	WATER FOR INJEC	2	SODIUM CHLORIDE	1	£2.54
APROTININ											
	APROTININ Injection	APROTININ 500,000I	1	500000	units	Short Infusi	None	0	None	0	£14.77
ARGIPRESSI N											
	ARGIPRESSIN Injecti	VASOPRESSIN 40U	2	40	units	Continuous	None	0	SODIUM CHLORIDE	1	£30.00
ASILONE											
	ASILONE Suspension	TRANEXAMIC ACID	1	0.5	gram	Intravenous	None	0	None	1	£0.01
ATENOLOL											
	ATENOLOL Injection	ATENOLOL 5MG IV	1	5	milligram	Intravenous	None	0	None	0	£0.94
	ATENOLOL Injection	ATENOLOL 10MGS	2	10	milligram	Intravenous	None	0	None	0	£1.88
	ATENOLOL Injection	ATENOLOL 2MGS	1	2	milligram	Intravenous	None	0	None	0	£0.94
ATRACURIU M BESYLATE											
	ATRACURIUM BESY	ATRACURIUM 20MG	1	20	microgram	Intravenous	None	0	None	0	£1.23
	ATRACURIUM BESY	ATRUCURIUM 150M	3	150	milligram	Intravenous	None	0	None	0	£6.70
	ATRACURIUM BESY	ATRACURIUM 150M	3	150	milligram	Intravenous	None	0	None	0	£6.70
	ATRACURIUM BESY	ATRUCURIUM 30MG	2	30	milligram	Intravenous	None	0	None	0	£2.47
	ATRACURIUM BESY	ATRACURIUM 50MG	1	50	milligram	Intravenous	None	0	None	0	£2.23
	ATRACURIUM BESY	ATRACURIUM 30MG	1	30	milligram	Intravenous	None	0	None	0	£2.23
	ATRACURIUM BESY	ATRACURIUM 5MG	1	5	milligram	Intravenous	None	0	None	0	£1.23

DrugName	Item	PDO Name	Drug_Qty	Dose	UnitName	Description	DiluentItem	Diluent_Qty	CarrierItem	Carrier_Qty	PDOPrice
	ATRACURIUM BESY	ATRACURIUM 25MG	1	25	milligram	Intravenous	None	0	None	0	£1.23
	ATRACURIUM BESY	ATRACURIUM 75MG	3	75	milligram	Intravenous	None	0	None	0	£3.70
	ATRACURIUM BESY	ATRACURIUM 10MG	1	10	milligram	Intravenous	None	0	None	0	£1.23
	ATRACURIUM BESY	ATRACURIUM 40MG	1	40	milligram	Intravenous	None	0	None	0	£2.23
	ATRACURIUM BESY	ATRRCURIUM 80MG	2	80	milligram	Intravenous	None	0	None	0	£4.46
	ATRACURIUM BESY	ATRACURIUM 80MG	2	80	milligram	Intravenous	None	0	None	0	£4.46
	ATRACURIUM BESY	ATRACURIUM 500M	2	500	milligram	Continuous	None	0	None	0	£30.05
	ATRACURIUM BESY	ATRACURIUM 100M	2	100	milligram	Intravenous	None	0	None	0	£4.46
ATROPINE SULPHATE											
	ATROPINE SULPHA	ATROPINE 600MICR	1	600	microgram	Intravenous	None	0	None	0	£0.24
	ATROPINE SULPHA	ATROPINE 1MG IV	1	1	milligram	Intravenous	None	0	None	0	£3.29
	ATROPINE SULPHA	ATROPINE SULPHA	2	2	milligram	Intravenous	None	0	None	0	£6.58
AZATHIOPRINE											
	AZATHIOPRINE Injec	AZATHIOPRINE 50M	1	50	milligram	Intravenous	None	0	None	0	£17.11
AZTREONAM											
	AZTREONAM Injectio	AZTREONAM 2000M	2	1000	milligram	Short Infusi	WATER FOR INJEC	1	SODIUM CHLORIDE	1	£16.68
	AZTREONAM Injectio	AZTREONAM 1000M	1	1000	milligram	Short Infusi	WATER FOR INJEC	1	SODIUM CHLORIDE	1	£8.79
BECLOMETHASONE											
	BECLOMETHASONE	BECLOMETHASONE	2	500	microgram	Inhalation	None	0	None	0	£3.52
BENZYLPENICILLIN											
	BENZYLPENICILLIN	BENZYLPENICILLIN	1	600	milligram	Intravenous	WATER FOR INJEC	1	None	0	£0.58
	BENZYLPENICILLIN	BENZYLPEN 2400M	4	2400	milligram	Intravenous	WATER FOR INJEC	2	SODIUM CHLORIDE	1	£2.80
	BENZYLPENICILLIN	BENZYLPEN 1200M	2	1200	milligram	Intravenous	WATER FOR INJEC	1	None	0	£1.04

DrugName	Item	PDO Name	Drug_Qty	Dose	UnitName	Description	DiluentItem	Diluent_Qty	CarrierItem	Carrier_Qty	PDOPrice
	BENZYLPENICILLIN	BENZYLPENICILLIN	3	1.8	gram	Intravenous	WATER FOR INJEC	3	None	0	£1.66
BUMETANIDE											
	BUMETANIDE Injecti	BUMETANIDE 25MG	5	25	milligram	Continuous	None	0	None	0	£8.55
	BUMETANIDE Injecti	BUMETANIDE 4MG	2	4	milligram	Intravenous	None	0	None	0	£1.45
	BUMETANIDE Injecti	BUMETANIDE 2MG I	1	2	milligram	Intravenous	None	0	None	0	£0.72
	BUMETANIDE Injecti	BUMETANIDE O.5 M	1	0.5	microgram	Intravenous	None	0	None	0	£0.48
	BUMETANIDE Injecti	BUMETANIDE 0.3M	1	0.3	milligram	Intravenous	None	0	None	0	£0.48
	BUMETANIDE Injecti	BUMETANIDE 5 MG	1	5	milligram	Intravenous	None	0	None	0	£1.71
	BUMETANIDE Injecti	BUMETANIDE 1MG I	1	1	milligram	Intravenous	None	0	None	0	£0.48
BUPIVACAINE											
	BUPIVACAINE Injecti	BUPIVACAINE 100M	2	100	milligram	Epidural	SODIUM CHLORIDE	1	None	0	£1.45
	BUPIVACAINE Injecti	BUPIVACAINE 0.25	1	0.25	Ampoules	Epidural	None	0	None	0	£0.59
	BUPIVACAINE Injecti	BUPIVACAINE 0.5M	1	0.5	milligram	Sub-cutano	SODIUM CHLORIDE	1	None	0	£0.80
	BUPIVACAINE Injecti	BUPIVACAINE 0.75M	0	0.75	milligram	Sub-cutano	SODIUM CHLORIDE	1	None	0	£0.16
	BUPIVACAINE Injecti	BUPIVACAINE 140M	3	140	milligram	Epidural	SODIUM CHLORIDE	1	None	0	£2.09
	BUPIVACAINE Injecti	BUPIVACAINE 30MG	1	30	microgram	Epidural	SODIUM CHLORIDE	1	None	0	£0.80
	BUPIVACAINE HCl (	BUPIVACAINE 0.5%	1	10	millilitres	Epidural	None	0	None	0	£1.25
	BUPIVACAINE Injecti	BUPIVACAINE 0.25M	1	0.25	milligram	Sub-cutano	SODIUM CHLORIDE	1	None	0	£0.80
CALCIUM CHLORIDE											
	CALCIUM CHLORID	CALCIUM CHLORID	1	10	millimoles	Intravenous	None	0	SODIUM CHLORIDE	1	£1.98
	CALCIUM CHLORID	CALCIUM CHLORID	2	20	millimoles	Intravenous	None	0	None	0	£2.40
	CALCIUM CHLORID	CALCIUM CHLOR 2.	1	2.5	millimoles	Intravenous	SODIUM CHLORIDE	1	None	0	£1.04
	CALCIUM CHLORID	CALCIUM CHLOR 5	1	5	millimoles	Intravenous	SODIUM CHLORIDE	1	None	0	£1.04
	CALCIUM CHLORID	CALCIUM CHLOR 1.	1	1.25	millimoles	Intravenous	SODIUM CHLORIDE	1	None	0	£1.04

DrugName	Item	PDO Name	Drug_Qty	Dose	UnitName	Description	DiluentItem	Diluent_Qty	CarrierItem	Carrier_Qty	PDOPrice
CALCIUM FOLINATE											
	CALCIUM FOLINATE	FOLINIC ACID 15MG	1	15	milligram	Intravenous	None	0	None	0	£8.89
CALCIUM GLUCONAT											
	CALCIUM GLUCONA	CALCIUM GLUC 1.25	1	1.25	millimoles	Intravenous	SODIUM CHLORIDE	1	None	0	£0.64
	CALCIUM GLUCONA	CALCIUM GLUC 0.55	1	0.55	millimoles	Intravenous	SODIUM CHLORIDE	1	None	0	£0.64
	CALCIUM GLUCONA	CALCIUM GLUCONA	1	10	millilitres	Intravenous	None	0	None	0	£0.48
	CALCIUM GLUCONA	CALCIUM GLUC 5M	1	5	millimoles	Intravenous	SODIUM CHLORIDE	1	None	0	£0.64
	CALCIUM GLUCONA	CALCIUM GLUCONA	1	10	milligram	Intravenous	None	0	None	0	£0.48
CARBAMAZEPINE											
	CARBAMAZEPINE (	CARBAMAZEPINE 5	5	500	milligram	Naso-gastri	None	0	None	0	£0.09
	CARBAMAZEPINE (	CARBAMAZEPINE 2	1	200	milligram	Naso-gastri	None	0	None	0	£0.04
	CARBAMAZEPINE (	CARBAMAZEPINE 2	3	250	milligram	Naso-gastri	None	0	None	0	£0.05
CEFOTAXIME											
	CEFOTAXIME Injecti	CEFOTAXIME 3G	3	3	gram	Intravenous	None	0	SODIUM CHLORIDE	1	£10.42
	CEFOTAXIME Injecti	CEFOTAXIME 2000M	2	2000	milligram	Intravenous	WATER FOR INJEC	1	None	0	£6.57
	CEFOTAXIME Injecti	CEFOTAXIME 1000M	1	1000	milligram	Intravenous	WATER FOR INJEC	1	None	0	£3.35
CEFTAZIDIME											
	CEFTAZIDIME Infusi	CEFTAZIDIME 2000	1	2000	milligram	Short Infusi	None	0	None	0	£16.86
	CEFTAZIDIME Injecti	CEFTAZIDIME 500M	1	500	milligram	Intravenous	WATER FOR INJEC	1	None	0	£2.18
	CEFTAZIDIME Infusi	CEFTAZIDIME 1000	1	1000	milligram	Short Infusi	None	0	None	0	£10.07
CEFUROXIME											
	CEFUROXIME Injecti	CEFUROXIME 1500	1	1500	milligram	Short Infusi	WATER FOR INJEC	1	None	0	£3.82
	CEFUROXIME Injecti	CEFUROXINE 1.5G	1	1.5	gram	Intravenous	WATER FOR INJEC	0	None	0	£3.71

DrugName	Item	PDO Name	Drug_Qty	Dose	UnitName	Description	DiluentItem	Diluent_Qty	CarrierItem	Carrier_Qty	PDOPrice
	CEFUROXIME Injecti	CEFUROXIME 750M	1	750	milligram	Intravenous	None	1	None	1	£1.86
CHLORAL HYDRATE											
	CHLORAL HYDRAT	CHLORAL HYDRAT	1	200	milligram	Naso-gastri	None	0	None	0	£0.01
CHLORAMPHENICOL											
	CHLORAMPHENICO	CHLORAMPHENICO	1	1	gram	Intravenous	None	0	None	0	£1.42
CHLORMETHIAZOLE											
	CHLORMETHIAZOL	CHLORMETHIAZOL	1	4000	milligram	Continuous	None	0	None	0	£5.42
	CHLORMETHIAZOL	CHLORMETHIAZOL	1	0	milligram	Intravenous	None	0	None	0	£5.42
	CHLORMETHIAZOL	CHLORMETHIAZOL	1	8	milligram	Intravenous	None	0	None	0	£5.42
CHLORPHENIRAMINE											
	CHLORPHENIRAMI	PIRITON 10MG	1	10	milligram	Intravenous	None	0	None	0	£0.14
	CHLORPHENIRAMI	CHLORPHENIRAMI	1	5	milligram	Sub-cutano	None	0	None	0	£0.14
	CHLORPHENIRAMI	CHLORPHENIRAMI	1	10	milligram	Intravenous	None	0	None	0	£0.14
CIPROFLOXACIN											
	CIPROFLOXACIN Inf	CIPROFLOXACIN 40	1	400	milligram	Short Infusi	None	0	None	0	£32.09
	CIPROFLOXACIN Inf	CIPROFLOXACIN 20	1	200	milligram	Short Infusi	None	0	None	0	£20.28
CISATRACURIUM											
	CISATRACURIUM Inj	CISATRACURIUM 20	4	20	milligram	Intravenous	None	0	None	0	£101.32
	CISATRACURIUM Inj	CISATRACURIUM 15	1	150	milligram	Continuous	None	0	None	0	£25.33
	CISATRACURIUM Inj	CISATRACURIUM 5	1	5	milligram	Intravenous	None	0	None	0	£25.33
	CISATRACURIUM Inj	CISATRACURIUM 10	2	10	milligram	Intravenous	None	0	None	0	£50.66
CLARITHROMYCIN											
	CLARITHROMYCIN I	CLARITHROMYCIN	1	250	milligram	Intravenous	None	0	SODIUM CHLORIDE	1	£11.43

DrugName	Item	PDO Name	Drug_Qty	Dose	UnitName	Description	DiluentItem	Diluent_Qty	CarrierItem	Carrier_Qty	PDOPrice
	CLARITHROMYCIN I	CLARITHROMYCIN	1	500	milligram	Intravenous	None	0	None	0	£10.70
CLINDAMYCIN											
	CLINDAMYCIN Injecti	CLINDAMYCIN 300M	1	300	milligram	Intravenous	None	0	None	0	£5.40
	CLINDAMYCIN Injecti	CLINDAMYCIN 900M	3	900	milligram	Short Infusi	None	0	SODIUM CHLORIDE	1	£16.94
	CLINDAMYCIN Injecti	CLINDAMYCIN 450M	2	450	milligram	Intravenous	None	0	SODIUM CHLORIDE	1	£11.53
	CLINDAMYCIN Injecti	CLINDAMYCIN 1G	4	1	gram	Intravenous	None	0	None	0	£21.61
	CLINDAMYCIN Injecti	CLINDAMYCIN 600M	2	600	milligram	Intravenous	None	0	None	0	£10.80
	CLINDAMYCIN Injecti	CLINDAMYCIN 1200	4	1200	milligram	Short Infusi	None	0	SODIUM CHLORIDE	1	£22.34
CLONAZEPAM											
	CLONAZEPAM Injecti	CLONAZEPAM 0.5M	1	0.5	milligram	Intravenous	None	0	None	0	£0.82
	CLONAZEPAM Injecti	CLONAZEPAM 1MG	1	1	milligram	Intravenous	None	0	None	0	£0.82
CO-AMOXICLAV											
	CO-AMOXICLAV Inje	CO-AMOXICLAV 120	1	1200	milligram	Intravenous	WATER FOR INJEC	1	None	0	£2.64
CODEINE PHOSPHATE											
	CODEINE PHOSPHA	CODEINE PHOSPHA	1	30	milligram	Intramuscu	None	0	None	0	£2.07
	CODEINE PHOSPHA	CODEINE PHOSPHA	1	60	milligram	Intravenous	None	0	None	0	£2.07
	CODEINE PHOSPHA	CODEINE PHOSPAT	1	60	milligram	Intramuscu	None	0	None	0	£2.07
COLISTIN											
	COLISTIN Injection 1	COLISTIN 2,000,000I	2	2000000	units	Short Infusi	WATER FOR INJEC	1	SODIUM CHLORIDE	1	£4.81
COTRIMOXAZOLE											
	COTRIMOXAZOLE I/	COTRIMOXAZOLE 2.	1	2.4	gram	Intravenous	None	0	GLUCOSE 5% Infusi	1	£1.58
	COTRIMOXAZOLE I/	COTRIMOXAZOLE 1.	1	1.4	gram	Intravenous	None	0	GLUCOSE 5% Infusi	1	£1.47
	COTRIMOXAZOLE I/	COTRIMOXAZOLE I	1	0	milligram	Intravenous	None	0	None	0	£1.73

DrugName	Item	PDO Name	Drug_Qty	Dose	UnitName	Description	DiluentItem	Diluent_Qty	CarrierItem	Carrier_Qty	PDOPrice
	COTRIMOXAZOLE I/	CO-TRIMOXAZOLE	2	960	milligram	Short Infusi	None	0	SODIUM CHLORIDE	1	£4.19
	COTRIMOXAZOLE I/	CO-TRIMOXAZOLE	4	1920	milligram	Short Infusi	None	0	SODIUM CHLORIDE	1	£7.54
	COTRIMOXAZOLE I/	COTRIMOXAZOLE 1.	1	1.9	gram	Intravenous	None	0	GLUCOSE 5% Infusi	1	£2.46
	COTRIMOXAZOLE I/	COTRIMOXAZOLE 1	1	1	gram	Intravenous	None	0	GLUCOSE 5% Infusi	1	£2.45
CYCLIZINE											
	CYCLIZINE Injection	CYCLIZINE 150MGS	3	150	milligram	Sub-cutano	WATER FOR INJEC	1	None	0	£1.88
	CYCLIZINE Injection	CYCLIZINE 50MG IV	1	50	milligram	Intravenous	None	0	None	0	£0.59
CYCLOSPORIN											
	CYCLOSPORIN (NE	CYCLOSPORIN 75M	1	75	milligram	Intravenous	None	0	GLUCOSE 5% Infusi	1	£113.62
DANAPAROID SODIUM											
	DANAPAROID SODI	DANAPARINOID 750	1	750	units	Short Infusi	None	0	None	0	£12.15
	DANAPAROID SODI	DANAPAROID 1500	2	1500	units	Intravenous	None	0	SODIUM CHLORIDE	1	£25.08
DANTROLENE SODIUM											
	DANTROLENE SODI	DANTROLENE SODI	4	70	milligram	Intravenous	WATER FOR INJEC	1	None	0	£95.29
DESMOPRESSIN (DDAVP)											
	DESMOPRESSIN Inj	DESMOPRESSIN 4M	1	4	microgram	Intravenous	None	0	None	0	£1.14
	DESMOPRESSIN Inj	DESMOPRESSIN 0.2	1	0.25	microgram	Sub-cutano	None	0	None	0	£1.14
	DESMOPRESSIN Inj	DESMOPRESSIN 2M	1	2	microgram	Sub-cutano	None	0	None	0	£1.14
	DESMOPRESSIN Inj	DESMOPRESSIN 32	8	32	microgram	Intravenous	None	0	SODIUM CHLORIDE	1	£9.87
DEXAMETHASONE											
	DEXAMETHASONE	DEXAMETHASONE	1	4	microgram	Intravenous	None	0	None	0	£0.88
	DEXAMETHASONE	DEXAMETHASONE	1	8	milligram	Intravenous	None	0	None	0	£0.88
	DEXAMETHASONE	DEXAMETHASONE	3	30	milligram	Intravenous	None	0	GLUCOSE 5% Infusi	1	£3.36

DrugName	Item	PDO Name	Drug_Qty	Dose	UnitName	Description	DiluentItem	Diluent_Qty	CarrierItem	Carrier_Qty	PDOPrice
	DEXAMETHASONE	DEXAMETHASONE	5	50	milligram	Intravenous	None	0	None	0	£4.38
	DEXAMETHASONE	DEXAMETHASONE	1	10	milligram	Intravenous	None	0	None	0	£0.88
	DEXAMETHASONE	DEXAMETHASONE	6	3	milligram	Naso-gastri	None	0	None	0	£0.06
DIAMORPHINE											
	DIAMORPHINE Inject	DIAMORPHINE 7.5M	1	7.5	milligram	Sub-cutano	None	0	None	0	£0.78
	DIAMORPHINE Inject	DIAMORPHINE 1.5M	1	1.5	milligram	Intravenous	None	0	None	0	£0.61
	DIAMORPHINE Inject	DIAMORPHINE 60M	2	60	milligram	Intravenous	None	0	None	0	£1.88
	DIAMORPHINE Inject	DIAMORPHINE 100	1	100	milligram	Intravenous	None		SODIUM CHLORIDE	1	
	DIAMORPHINE Inject	DIAMORPHINE 15M	3	15	milligram	Intravenous	None	0	None	0	£1.84
	DIAMORPHINE Inject	DIAMORPHINE 2.5	1	2.5	milligram	Intravenous	None	0	None	0	£0.61
	DIAMORPHINE Inject	DIAMORPHINE 10M	1	10	milligram	Intravenous	WATER FOR INJEC	1	None	0	£0.90
	DIAMORPHINE Inject	DIAMORPHINE 2 MG	1	2	milligram	Intravenous	None	0	None	0	£0.61
	DIAMORPHINE Inject	DIAMORPHINE 30M	1	30	milligram	Intravenous	WATER FOR INJEC	0	None	0	£0.94
	DIAMORPHINE Inject	DIAMORPHINE 5MG	1	5	milligram	Intravenous	WATER FOR INJEC	0	None	0	£0.61
	DIAMORPHINE Inject	DIAMORPHINE 1MG	1	1	milligram	Intravenous	None	0	None	0	£0.61
DIAZEPAM											
	DIAZEPAM Injection	DIAZEPAM 2.5MG	1	2.5	milligram	Intravenous	None	0	None	0	£0.30
	DIAZEPAM Injection	DIAZEPAM I MGM	1	1	milligram	Intravenous	None	0	None	0	£0.30
	DIAZEPAM Syrup 2	DIAZEPAM 10MG N	25	10	milligram	Naso-gastri	None	0	None	0	£0.38
DIAZEPAM (DIAZEMULS											
	DIAZEPAM Emulsion	DIAZEPAM 10MG IV	1	10	milligram	Intravenous	None	0	None	0	£0.78
	DIAZEPAM Emulsion	DIAZEPAM 5MG IV	1	5	milligram	Intravenous	None	0	None	0	£0.78
DICLOFENAC											
	DICLOFENAC Injecti	DICLOFENAC 50MG	1	50	milligram	Intramuscu	None	0	None	0	£0.60

DrugName	Item	PDO Name	Drug_Qty	Dose	UnitName	Description	DiluentItem	Diluent_Qty	CarrierItem	Carrier_Qty	PDOPrice
DIGOXIN											
	DIGOXIN Injection 50	DIGOXIN 500MICRO	1	500	microgram	Short Infusi	None	0	SODIUM CHLORIDE	1	£1.31
	DIGOXIN Injection 50	DIGOXIN 250MCG IV	1	250	microgram	Intravenous	None	0	None	0	£0.53
	DIGOXIN Injection 50	DIGOXIN 125 MCG I	1	125	microgram	Intravenous	None	0	None	0	£0.53
	DIGOXIN Injection 50	DIGOXIN 25MCG	1	250	microgram	Intravenous	None	0	None	0	£0.53
	DIGOXIN Injection 50	DIGOXIN 750MICRO	2	750	microgram	Short Infusi	None	0	SODIUM CHLORIDE	1	£1.84
	DIGOXIN PAEDIATR	DIGOXIN 0.05MCG	1	0.05	microgram	Intravenous	None	0	None	0	£4.20
	DIGOXIN Injection 50	DIGOXIN 0.8MG 50M	2	0.8	milligram	Intravenous	None	0	SODIUM CHLORIDE	1	£1.84
	DIGOXIN Injection 50	DIGOXIN 1000MICR	1	1000	microgram	Short Infusi	None	0	SODIUM CHLORIDE	0	£0.53
DIHYDROCODEINE											
	DIHYDROCODEINE I	DIHYDROCODEINE	1	50	milligram	Intramuscu	None	0	None	0	£1.44
	DIHYDROCODEINE I	DIHYDROCODEINE	1	50	milligram	Intravenous	None	0	None	0	£1.44
DISODIUM PAMIDRONA											
	DISODIUM PAMIDR	DISODIUM PAMIDR	2	60	milligram	Intravenous	None	0	SODIUM CHLORIDE	1	£94.73
DOBUTAMINE											
	DOBUTAMINE Hcl Inj	DOBUTAMINE 250M	1	250	milligram	Continuous	None	0	SODIUM CHLORIDE	1	£4.60
	DOBUTAMINE Hcl Inj	DOBUTAMINE 1000	4	1000	milligram	Continuous	None	0	SODIUM CHLORIDE	1	£16.67
	DOBUTAMINE HCl In	DOBUTAMINE 500M	2	500	milligram	Intravenous	None	0	SODIUM CHLORIDE	1	£15.80
DOPAMINE											
	DOPAMINE Injection	DOPAMINE 200MG/5	1	200	milligram	Continuous	None	0	SODIUM CHLORIDE	1	£5.18
DOXAPRAM											
	DOXAPRAM Infusion	DOXAPRAM 1000MG	1	1000	milligram	Continuous	None	0	None	0	£20.21
	DOXAPRAM Injection	DOXAPRAM 70MG I	1	70	milligram	Intravenous	None	0	None	0	£1.94

DrugName	Item	PDO Name	Drug_Qty	Dose	UnitName	Description	DiluentItem	Diluent_Qty	CarrierItem	Carrier_Qty	PDOPrice
	DOXAPRAM Injection	DOXAPRAM 105MG I	2	105	milligram	Intravenous	None	0	None	0	£3.87
	DOXAPRAM Injection	DOXAPRAM 50MG I	1	50	milligram	Intravenous	None	0	None	0	£1.94
DROPERIDOL											
	DROPERIDOL Injecti	DROPERIDOL 10MG	1	10	milligram	Intravenous	None	0	None	0	£1.06
	DROPERIDOL Injecti	DROPERIDOL 2.5M	1	2.5	milligram	Intravenous	None	0	None	0	£1.06
	DROPERIDOL Injecti	DROPERIDOL 5MGS	1	5	milligram	Intravenous	None	0	None	0	£1.06
	DROPERIDOL Injecti	DROPERIDOL 7.5M	1	7.5	milligram	Intravenous	None	0	None	0	£1.06
EDROPHONIUM											
	EDROPHONIUM Inje	EDROPHONIUM 50	5	50	milligram	Intravenous	None	0	None	0	£19.47
ENOXAPARIN											
	ENOXAPARIN Injecti	ENOXAPARIN 40MG	1	40	milligram	Sub-cutano	None	0	None	0	£2.35
	ENOXAPARIN Injecti	ENOXAPARIN 20MG	1	20	milligram	Sub-cutano	None	0	None	0	£1.88
EPHEDRINE											
	EPHEDRINE HYDRO	EPHEDRINE HCL 30	1	30	milligram	Intravenous	WATER FOR INJEC	1	None	0	£1.01
EPOPROSTENOL											
	EPOPROSTENOL Inf	PROSTACYCLIN 250	0.5	250	microgram	Continuous	None	0	None	0	£53.70
ERYTHROMYCIN											
	ERYTHROMYCIN Ta	ERYTHROMYCIN 25	1	250	milligram	Naso-gastri	None	0	None	0	£0.07
	ERYTHROMYCIN I/V	ERYTHROMAYCIN 5	1	500	milligram	Intravenous	WATER FOR INJEC	1	SODIUM CHLORIDE	1	£8.14
	ERYTHROMYCIN I/V	ERTYHROMYCIN 12	1	125	milligram	Intravenous	None	0	SODIUM CHLORIDE	1	£8.02
	ERYTHROMYCIN I/V	ERYTHROMYCIN 10	1	1000	milligram	Short Infusi	WATER FOR INJEC	1	SODIUM CHLORIDE	1	£8.14
	ERYTHROMYCIN I/V	ERYTHROMYCIN 2G	2	2	gram	Intravenous	None	0	SODIUM CHLORIDE	1	£15.31
	ERYTHROMYCIN I/V	ERYTHROMYCIN 50	1	500	milligram	Intravenous	None	0	SODIUM CHLORIDE	1	£8.02

DrugName	Item	PDO Name	Drug_Qty	Dose	UnitName	Description	DiluentItem	Diluent_Qty	CarrierItem	Carrier_Qty	PDOPrice
	ERYTHROMYCIN I/V	ERYTHROMYCIN 12	1	125	milligram	Intravenous	None	0	SODIUM CHLORIDE	1	£8.02
ESMOLOL											
	ESMOLOL Injection 1	ESMOLOL 100MG	10	100	milligram	Intravenous	None	0	None	0	£69.32
	ESMOLOL Injection 1	ESMOLOL 70MG	7	70	milligram	Intravenous	None	0	None	0	£48.52
	ESMOLOL Injection 2	ESMOLOL 250MG/25	1	250	milligram	Intravenous	None	0	GLUCOSE 5% Infusi	1	£78.16
	ESMOLOL Injection 2	ESMOLOL 500MG/50	2	500	milligram	Continuous	None	0	SODIUM CHLORIDE	1	£155.48
ETOMIDATE											
	ETOMIDATE Injection	ETOMIDATE 10MG	1	10	milligram	Intravenous	None	0	None	0	£1.62
	ETOMIDATE Injection	ETOMIDATE 5MG IV	1	5	milligram	Intravenous	None	0	None	0	£1.62
	ETOMIDATE Injection	ETOMIDATE 7MG IV	1	7	milligram	Intravenous	None	0	None	0	£1.62
	ETOMIDATE Injection	ETOMIDATE 21MG I	2	7	milligram	Intravenous	None	0	None	0	£3.24
FENTANYL											
	FENTANYL Injection	FENTANYL 50MCG/5	1	50	microgram	Intravenous	None	0	SODIUM CHLORIDE	1	£0.95
	FENTANYL Injection	FENTANYL 2.5MG	5	0	milligram	Intravenous	None	0	None	0	£3.59
FENTANYL 2.5mg/BUPIV											
	FENTANYL 2.5mg/B	FENTANYL/BUPIV 2.	1	2.5	milligram	Epidural	None	0	None	0	£15.00
FILGRASTIM											
	FILGRASTIM Injectio	FILGRASTIM 300	1	300	microgram	Intravenous	None	0	GLUCOSE 5% Infusi	1	£69.29
	FILGRASTIM Injectio	G-CSF	1	30	units	Intravenous	None	0	None	0	£67.69
FLECAINIDE											
	FLECAINIDE Injection	FLECAINIDE 150MG	1	150	milligram	Intravenous	None	0	None	0	£5.82
	FLECAINIDE Injection	FLECAINIDE 100MG	1	100	milligram	Intravenous	None	0	None	0	£5.82
	FLECAINIDE Injection	FLECAINIDE 140MG	1	140	milligram	Intravenous	None	0	None	0	£5.82

DrugName	Item	PDO Name	Drug_Qty	Dose	UnitName	Description	DiluentItem	Diluent_Qty	CarrierItem	Carrier_Qty	PDOPrice
FLUCLOXACILLIN											
	FLUCLOXACILLIN Inj	FLUCLOXACILLIN 50	1	500	milligram	Intravenous	WATER FOR INJEC	1	None	0	£2.28
	FLUCLOXACILLIN Inj	FLUCLOXACILLIN 2	4	2	gram	Intravenous	WATER FOR INJEC	4	None	0	£9.00
	FLUCLOXACILLIN Inj	FLUCLOXACILLIN-IV	4	2	gram	Intravenous	WATER FOR INJEC	4	None	0	£9.00
	FLUCLOXACILLIN Inj	FLUCLOXACILLIN 10	2	1000	milligram	Short Infusi	WATER FOR INJEC	2	SODIUM CHLORIDE	1	£5.29
FLUCONAZOLE											
	FLUCONAZOLE Infu	FLUCONAZOLE 50M	1	50	milligram	Intravenous	None	0	None	0	£27.52
	FLUCONAZOLE Infu	FLUCONAZOLE 200	1	200	milligram	Short Infusi	None	0	None	0	£27.52
	FLUCONAZOLE Infu	FLUCONAZOLE 400	2	400	milligram	Short Infusi	None	0	None	0	£55.04
FLUCYTOSINE											
	FLUCYTOSINE Inject	FLUCYTOSINE 2000	1	2000	milligram	Intravenous	None	0	None	0	£19.34
	FLUCYTOSINE Inject	FLUCYTOSINE 3G	2	3	gram	Intravenous	None	0	None	0	£38.68
FLUMAZENIL											
	FLUMAZENIL Injectio	FLUMAZENIL 1000M	2	1000	microgram	Intravenous	None	0	GLUCOSE 5% Infusi	1	£36.12
FOLIC ACID											
	FOLIC ACID Injection	FOLIC ACID 5MG SC	1	5	milligram	Sub-cutano	None	0	None	0	£1.21
	FOLIC ACID Injection	FOLIC ACID 30MG	2	30	milligram	Intravenous	None	0	None	0	£2.42
FRUSEMIDE											
	FRUSEMIDE Injection	FRUSEMIDE 100 MG	2	100	milligram	Intravenous	None	0	None	0	£0.71
	FRUSEMIDE Injection	FRUSEMIDE 50MG I	3	50	milligram	Intravenous	None	0	None	0	£0.50
	FRUSEMIDE Injection	FRUSEMIDE 80MGS	1	80	milligram	Intravenous	None	0	None	0	£2.70
	FRUSEMIDE Injection	FRUSEMIDE 10 MG	1	10	milligram	Intravenous	None	0	None	0	£0.17
	FRUSEMIDE Injection	FRUSEMIDE 250MG	1	250	milligram	Intravenous	None	0	None	0	£2.00

DrugName	Item	PDO Name	Drug_Qty	Dose	UnitName	Description	DiluentItem	Diluent_Qty	CarrierItem	Carrier_Qty	PDOPrice
	FRUSEMIDE Injection	FRUSEMIDE 20MG I	1	20	milligram	Intravenous	None	0	None	0	£0.17
	FRUSEMIDE Solution	FRUSEMIDE 120MG	3	120	milligram	Intravenous	None	0	None	0	£0.22
	FRUSEMIDE Injection	FRUSEMIDE 40MG I	2	40	milligram	Intravenous	None	0	None	0	£0.33
FUSIDIC ACID											
	FUCIDIN Suspension	FUCIDIN SUSP 750	3	750	microgram	Naso-gastri	None	0	None	0	£0.48
GENTAMICIN											
	GENTAMICIN Injectio	GENTAMICIN 120M	2	120	milligram	Intravenous	None	0	None	0	£0.42
	GENTAMICIN Infusio	GENTAMICIN 80MG	1	80	milligram	Short Infusi	None	0	None	0	£1.40
	GENTAMICIN Injectio	GENTAMICIN 160M	2	160	milligram	Intravenous	None	0	None	0	£0.42
	GENTAMICIN Injectio	GENTAMICIN 360M	5	360	milligram	Short Infusi	None	0	SODIUM CHLORIDE	1	£1.79
	GENTAMICIN Injectio	GENTAMICIN 480M	6	480	milligram	Short Infusi	None	0	SODIUM CHLORIDE	1	£2.00
	GENTAMICIN Injectio	GENTAMICIN 140M	2	140	milligram	Intravenous	None	0	None	0	£0.42
	GENTAMICIN Infusio	GENTAMICIN 100M	2	100	milligram	Intravenous	None	0	None	0	£2.80
	GENTAMICIN Injectio	GENTAMICIN 180M	3	180	milligram	Intravenous	None	0	None	0	£0.64
	GENTAMICIN Injectio	GENTAMICIN 240M	3	240	milligram	Short Infusi	None	0	SODIUM CHLORIDE	1	£1.37
	GENTAMICIN Injectio	GENTAMICIN 40MG	1	40	milligram	Intravenous	None	0	None	0	£0.21
	GENTAMICIN Injectio	GENTAMICIN 200M	3	200	milligram	Intravenous	None	1	GLUCOSE 5% Infusi	1	£1.37
	GENTAMICIN Infusio	GENTAMICIN 280M	4	280	milligram	Intravenous	None	0	None	0	£5.60
GLYCERYL TRINITRATE											
	GLYCERYL TRINITR	GLYCERYL TRINIT 5	1	50	milligram	Continuous	None	0	None	0	£6.76
GLYCOPYRRONIUM											
	GLYCOPYRRONIUM	ROBINUL 600 MCG	3	600	milligram	Intramuscu	None	0	None	0	£1.71
	GLYCOPYRRONIUM	GLYCOPYRRONIUM	1	200	microgram	Intravenous	None	0	None	0	£0.57
	GLYCOPYRRONIUM	ROBINUL 300 MCG I	2	300	microgram	Intravenous	None	0	None	0	£1.14

DrugName	Item	PDO Name	Drug_Qty	Dose	UnitName	Description	DiluentItem	Diluent_Qty	CarrierItem	Carrier_Qty	PDOPrice
	GLYCOPYRRONIUM	GLYCOPYRRONIUM	2	400	microgram	Intravenous	None	0	None	0	£1.14
GLYCOPYRROLATE/NEO											
	GLYCOPYRRONIUM	GLYCOPYRR/NEO 5	1	500	microgram	Intravenous	None	0	None	0	£0.96
GLYCOPYRRONIUM											
	GLYCOPYRRONIUM	GLYCOPYRRONIUM	1	300	microgram	Intravenous	None	0	None	0	£0.96
	GLYCOPYRRONIUM	GLYCOPYRRONIUM	1	600	microgram	Intravenous	None	0	None	0	£0.96
GUANETHIDINE											
	GUANETHIDINE Inje	GUANETHIDINE 10	1	10	milligram	Intravenous	None	0	None	0	£0.27
HALOPERIDOL											
	HALOPERIDOL Inject	HALOPERIDOL 10M	2	10	milligram	Intramuscu	None	0	None	0	£0.31
	HALOPERIDOL Inject	HALOPERIDOL 5MG	1	5	milligram	Intravenous	None	0	None	0	£0.15
	HALOPERIDOL Liqui	HALOPERIDOL 2MG	1	2	milligram	Naso-gastri	None	0	None	0	£0.06
	HALOPERIDOL Inject	HALOPERIDOL 20M	1	20	milligram	Intravenous	None	0	None	0	£0.67
	HALOPERIDOL Inject	HALIPERIDOL 3MG	1	3	milligram	Intravenous	None	0	None	0	£0.15
	HALOPERIDOL Inject	HALOPERIDOL 2.5M	1	2.5	milligram	Intramuscu	None	0	None	0	£0.15
	HALOPERIDOL Inject	HALOPERIDOL 4MG	1	4	milligram	Intravenous	None	0	None	0	£0.15
	HALOPERIDOL Inject	HALOPERIDOL 1MG	1	1	milligram	Intravenous	None	0	None	0	£0.15
HEPARIN (CALCIUM)											
	CALCIUM HEPARIN I	HEPARIN 5000 UNIT	1	5000	units	Sub-cutano	None	0	None	0	£0.59
HEPARIN SODIUM											
	HEPARIN SODIUM (	HEPARIN 1000UNIT	1	1000	units	Intravenous	None	0	None	0	£0.43
	HEPARIN SODIUM (	HEPARIN 1200 UNIT	2	1200	units	Intravenous	None	0	None	0	£0.86
	HEPARIN SODIUM (	HEPARIN 2500IU IV	0.5	2500	units	Intravenous	None	0	None	0	£0.09

DrugName	Item	PDO Name	Drug_Qty	Dose	UnitName	Description	DiluentItem	Diluent_Qty	CarrierItem	Carrier_Qty	PDOPrice
	HEPARIN SODIUM (	HEPARIN 5000IU IV	1	1000	units	Intravenous	None	0	None	0	£0.18
	HEPARIN SODIUM (	HEPARIN 30,000UNI	3	30000	units	Continuous	None	0	None	0	£2.86
	HEPARIN SODIUM (	HEPARIN 5000IU CV	1	5000	units	Continuous	None	0	SODIUM CHLORIDE	0	£0.18
	HEPARIN SODIUM (	HEPARIN 30,000 UNI	2	30000	units	Continuous	None	0	None	0	£1.90
	HEPARIN SODIUM (	HEPARIN FLUSH 10	1	100	units	Intravenous	None	0	None	0	£0.26
	HEPARIN SODIUM (	HEPARIN 500IU IV	0.1	500	units	Intravenous	None	0	None	0	£0.02
HIB VACCINE											
	HAEMOPHILUS INFL	HIB VACINE	1	1	units	Intramuscu	None	0	None	0	£0.00
HUMAN ALBUMIN											
	HUMAN ALBUMIN Inj	ALBUMIN INJECTIO	1	100	millilitres	Short Infusi	None	0	None	0	£32.80
HUMAN SOLUBLE											
	INSULIN NEUTRAL	INSULIN 50UNITS IV	0.05	50	units	Continuous	None	0	SODIUM CHLORIDE	1	£0.84
HYDRALAZINE											
	HYDRALAZINE Inject	HYDRALAZINE 50M	3	50	milligram	Intravenous	None	0	SODIUM CHLORIDE	1	£2.02
	HYDRALAZINE Inject	HYDRALAZINE 15M	1	15	milligram	Intravenous	None	0	GLUCOSE 5% Infusi	1	£2.01
	HYDRALAZINE Inject	HYDRALAZINE 20M	1	20	milligram	Continuous	SODIUM CHLORIDE	1	SODIUM CHLORIDE	1	£1.35
HYDROCORTISONE											
	HYDROCORTISONE	HYDROCORTISONE	1	20	milligram	Intravenous	SODIUM CHLORIDE	1	None	0	£1.14
	HYDROCORTISONE	HYDROCORTISONE	5	500	milligram	Intravenous	WATER FOR INJEC	5	None	0	£5.49
	HYDROCORTISONE	HYDROCORTISONE	1	100	milligram	Intravenous	WATER FOR INJEC	1	None	0	£1.10
	HYDROCORTISONE	HYDROCORTISONE	3	300	milligram	Intravenous	None	0	None	0	£2.94
	HYDROCORTISONE	HYDROCORTISONE	2	150	milligram	Intravenous	WATER FOR INJEC	5	None	0	£2.55
	HYDROCORTISONE	HYDROCORTISONE	1	50	milligram	Intravenous	WATER FOR INJEC	1	None	0	£1.10

DrugName	Item	PDO Name	Drug_Qty	Dose	UnitName	Description	DiluentItem	Diluent_Qty	CarrierItem	Carrier_Qty	PDOPrice
	HYDROCORTISONE	HYDROCORTISONE	1	25	milligram	Intravenous	None	0	None	0	£0.98
	HYDROCORTISONE	HYDROCORTISONE	2	200	milligram	Intravenous	None	0	None	0	£1.96
HYDROXOC ORALAMIN											
	HYDROXOCOBALA	HYDROXOCOBALA	1	1000	microgram	Sub-cutano	None	0	None	0	£1.93
HYOSCINE BUTYLBROM											
	HYOSCINE BUTYLB	HYOSCINE BUTYLB	1	20	milligram	Intravenous	SODIUM CHLORIDE	1	None	0	£0.37
HYOSCINE HYDROBRO											
	HYOSCINE HYDROB	HYOSCINE 200MCG	1	200	microgram	Sub-cutano	None	0	None	0	£2.35
IMIPENEM											
	IMIPENEM 500mg / C	IMIPENEM 500MG IV	1	500	milligram	Short Infusi	None	0	SODIUM CHLORIDE	1	£9.89
IMMUNOGL OBULIN											
	IMMUNOGLOBULIN	IMMUNOGLOBULIN	3	25	gram	Intravenous	None	0	SODIUM CHLORIDE	1	£392.61
IMMUNOGL OBULIN											
	IMMUNOGLOBULIN,	HUM IMMINOGLOBU	12	70	gram	Intravenous	None	0	None	0	£1,095.12
	IMMUNOGLOBULIN,	HUM IMMUNOGLOB	5	30	gram	Short Infusi	None	0	SODIUM CHLORIDE	1	£457.03
	IMMUNOGLOBULIN	HUM IMMUNOGLOB	5	25	gram	Short Infusi	None	0	SODIUM CHLORIDE	1	£375.73
	IMMUNOGLOBULIN,	IMMUNOGLOBULIN	1	6	gram	Intravenous	None	0	None	0	£91.26
INSULIN											
	INSULIN HUMAN AC	INSULIN ACTRAPID	1	0	units	Sub-cutano	None	0	None	0	£4.36
IPRATROPIU M BROMIDE											
	IPRATROPIUM BRO	IPRATPROPIUM BR	5	2.5	milligram	Inhalation	SODIUM CHLORIDE	1	None	0	£1.43
ISOPRENALI NE											
	ISOPRENALINE HCl	ISOPRENALINE 5M	1	5	milligram	Continuous	None	0	GLUCOSE 5% Infusi	1	£1.08

DrugName	Item	PDO Name	Drug_Qty	Dose	UnitName	Description	DiluentItem	Diluent_Qty	CarrierItem	Carrier_Qty	PDOPrice
	ISOPRENALINE HCl	ISOPRENALINE 1M	1	1	milligram	Intravenous	None	0	None	0	£0.46
KETAMINE											
	KETAMINE (100mg/	KETAMINE 100MG	1	100	milligram	Intravenous	None	0	None	0	£7.88
	KETAMINE (50mg/ml	KETAMINE 500MG /5	1	500	milligram	Continuous	None	0	SODIUM CHLORIDE	1	£9.21
	KETAMINE (100mg/	KETAMINE 315MG I	1	315	milligram	Intravenous	None	0	SODIUM CHLORIDE	1	£8.50
	KETAMINE (100mg/	KETAMINE 200MG I	1	200	milligram	Intravenous	None	0	SODIUM CHLORIDE	1	£8.50
	KETAMINE (100mg/	KETAMINE 70MG IV	1	70	milligram	Intravenous	None	0	SODIUM CHLORIDE	1	£8.50
	KETAMINE (50mg/ml	KETAMINE 50MG/50	1	50	milligram	Intravenous	None	0	SODIUM CHLORIDE	1	£9.37
LABETALOL											
	LABETALOL Injection	LABETALOL 5MG	1	5	milligram	Intravenous	None	0	None	0	£2.99
	LABETALOL Injection	LABETALOL 200MG/	2	200	milligram	Continuous	None	0	None	0	£5.99
	LABETALOL Injection	LABETALOL 300MG	3	300	milligram	Intravenous	None	0	None	0	£8.98
LENOGRASTIM											
	LENOGRASTIM Injec	LENOGRASTIM 263	1	263	microgram	Sub-cutano	SODIUM CHLORIDE	1	None	0	£66.23
LIGNOCAINE											
	LIGNOCAINE (20mg/	LIGNOCAINE 20MG/	1	20	milligram	Intravenous	None	0	None	0	£0.15
	LIGNOCAINE 0.4% in	LIGNOCAINE 2000M	1	2000	milligram	Continuous	None	0	None	0	£2.99
	LIGNOCAINE (100m	LIGNOCAINE 100MG	1	100	milligram	Intravenous	None	0	None	0	£0.32
	LIGNOCAINE (40mg/	LIGNOCAINE 40MG/	1	40	milligram	Intravenous	None	0	None	0	£0.17
	LIGNOCAINE (50mg/	LIGNOCAINE 50MG	1	50	milligram	Intravenous	None	0	None	0	£0.19
LIOTHYRONINE											
	LIOTHYRONINE Inje	LIOTHYRONINE 10M	1	10	microgram	Intravenous	None	0	None	0	£37.16
	LIOTHYRONINE Inje	LIOTHYRONINE 5M	1	5	microgram	Intravenous	None	0	None	0	£37.16

DrugName	Item	PDO Name	Drug_Qty	Dose	UnitName	Description	DiluentItem	Diluent_Qty	CarrierItem	Carrier_Qty	PDOPrice
	LIOTHYRONINE Inje	LIOTHYRONINE 20M	1	20	microgram	Intravenous	None	0	None	0	£37.16
	LIOTHYRONINE Inje	LIOTHYRONINE 5M	1	5	microgram	Intravenous	WATER FOR INJEC	1	None	0	£37.25
LORAZEPAM											
	LORAZEPAM Injectio	LORAZEPAM 2MG I	1	2	milligram	Intravenous	WATER FOR INJEC	1	None	0	£0.57
	LORAZEPAM Injectio	LORAZEPAM 1MG I	1	1	milligram	Intravenous	WATER FOR INJEC	1	None	0	£0.57
	LORAZEPAM Injectio	LORAZEPAM 4MG I	1	4	milligram	Intravenous	None	0	None	0	£0.45
MAGNESIUM											
	MAGNESIUM CHLO	MAGNESIUM CHLO	2	40	millimoles	Intravenous	None	0	SODIUM CHLORIDE	1	£4.54
	MAGNESIUM CHLO	MAGNESIUM SULPH	2	25	millimoles	Intravenous	None	0	SODIUM CHLORIDE	1	£4.54
MAGNESIUM											
	MAGNESIUM SULPH	MAGNESIUM SULPH	3	30	millimoles	Intravenous	None	0	None	0	£3.45
	MAGNESIUM SULPH	MAGNESIUM SULPH	3	20	millimoles	Intravenous	None	0	None	0	£3.45
	MAGNESIUM SULPH	MAGNESIUM SULPH	2	4	gram	Intravenous	None	0	GLUCOSE 5% Infusi	1	£3.90
	MAGNESIUM SULPH	MAGNESIUM SULP4	5	40	millimoles	Intravenous	SODIUM CHLORIDE	4	None	0	£6.37
	MAGNESIUM SULPH	MAGNESIUM SULPH	1	8	millimoles	Intravenous	None	0	None	0	£1.15
	MAGNESIUM SULPH	MAGNESIUM SULPH	2	16	millimoles	Intravenous	None	0	SODIUM CHLORIDE	1	£2.92
	MAGNESIUM SULPH	MAGNESIUM SULP	1	4	millimoles	Short Infusi	None	0	SODIUM CHLORIDE	1	£4.94
	MAGNESIUM SULPH	MAGNESIUM SULPH	2	100	millimoles	Intravenous	None	0	None	0	£8.32
	MAGNESIUM SULPH	MAGNESIUM SULPH	2	10	millimoles	Intravenous	None	0	None	0	£2.30
	MAGNESIUM SULPH	MAGNESIUM SULP	1	4	millimoles	Intravenous	None	0	None	0	£1.15
MANNITOL											
	MANNITOL 20% Infu	MANNITOL 100G IV	1	500	milligram	Continuous	None	0	None	0	£4.19
	MANNITOL 10% Infu	MANNITOL 50G IV	1	500	milligram	Continuous	None	0	None	0	£3.20

DrugName	Item	PDO Name	Drug_Qty	Dose	UnitName	Description	DiluentItem	Diluent_Qty	CarrierItem	Carrier_Qty	PDOPrice
MEROPENEM											
	MEROPENEM Injecti	MEROPENEM 2000	2	2000	milligram	Short Infusi	WATER FOR INJEC	1	SODIUM CHLORIDE	1	£43.14
	MEROPENEM Injecti	MEROPENEM 1000	1	1000	milligram	Short Infusi	WATER FOR INJEC	1	SODIUM CHLORIDE	1	£22.00
	MEROPENEM Injecti	MEROPENEM 500M	1	500	milligram	Short Infusi	WATER FOR INJEC	1	SODIUM CHLORIDE	1	£13.19
METHOTRIMEPRAZINE											
	METHOTRIMEPRAZI	METHOTRIMEP 12.5	1	12.5	milligram	Intravenous	None	0	None	0	£1.79
	METHOTRIMEPRAZI	METHOTRIMEPRAZI	1	25	milligram	Intravenous	None	0	None	0	£1.79
METHYLENE BLUE											
	METHYLENE BLUE I	METHYLENE BLUE	1	0	application	Intravenous	None	0	None	0	£4.87
METHYLPREDNISOLONE											
	METHYLPREDNISO	METHYLPRED 250M	1	250	milligram	Intravenous	None	0	None	0	£2.94
	METHYLPREDNISO	METHYPRED 25MG	1	25	milligram	Intravenous	None	0	None	0	£2.79
	METHYLPREDNISO	METHYLPRED 500M	1	500	milligram	Short Infusi	None	0	SODIUM CHLORIDE	1	£3.72
	METHYLPREDNISO	METHYLPRED 1000	1	1000	milligram	Short Infusi	None	0	SODIUM CHLORIDE	1	£7.13
	METHYLPREDNISO	METHYLPRED 80M	1	80	milligram	Intravenous	None	0	None	0	£5.05
	METHYLPREDNISO	METHYLPRED 50M	2	50	milligram	Intravenous	None	0	None	0	£5.58
METOCLOPRAMIDE											
	METOCLOPRAMIDE	METOCLOPRAMIDE	1	5	milligram	Intravenous	None	0	None	0	£0.14
	METOCLOPRAMIDE	METOCLOPRAMIDE	1	10	milligram	Intravenous	None	0	None	0	£0.14
	METOCLOPRAMIDE	MAXOLON 10 MGS I	1	10	milligram	Intravenous	None	0	None	0	£0.14
METRONIDAZOLE											
	METRONIDAZOLE In	METRONIDAZOLE 5	1	500	milligram	Short Infusi	None	0	None	0	£0.75
	METRONIDAZOLE T	METRONIDAZOLE 2	5	2	gram	Naso-gastri	WATER FOR INJEC	1	None	0	£0.20

DrugName	Item	PDO Name	Drug_Qty	Dose	UnitName	Description	DiluentItem	Diluent_Qty	CarrierItem	Carrier_Qty	PDOPrice
MIDAZOLAM											
	MIDAZOLAM Injectio	MIDAZOLAM 7.5MG	1	7.5	milligram	Intravenous	None	0	None	0	£0.90
	MIDAZOLAM Injectio	MIDAZOLAM 100MG/	10	100	milligram	Continuous	None	0	SODIUM CHLORIDE	1	£9.63
	MIDAZOLAM Injectio	MIDAZOLAM 3MG	1	3	milligram	Intravenous	None	0	None	0	£0.90
	MIDAZOLAM Injectio	MIDAZOLAM 5MG	1	5	milligram	Intravenous	None	0	None	0	£0.90
	MIDAZOLAM Injectio	MIDAZOLAM 2.5MG	1	2.5	milligram	Intravenous	None	0	None	0	£0.90
	MIDAZOLAM Injectio	MIDAZOLAM 250MG/	25	250	milligram	Continuous	None	0	None	0	£22.53
	MIDAZOLAM Injectio	MIDAZOLAM 10MG	1	10	milligram	Intravenous	None	0	None	0	£0.90
	MIDAZOLAM Injectio	MIDAZOLAM 0.5MG	1	0.5	milligram	Intravenous	None	0	None	0	£1.07
	MIDAZOLAM Injectio	MIDAZOLAM 1MG	1	1	milligram	Intravenous	None	0	None	0	£0.90
	MIDAZOLAM Injectio	MIDAZOLAM 1 MG	1	1	milligram	Intravenous	None	0	None	0	£1.07
	MIDAZOLAM Injectio	MIDAZOLAM 4MG	1	4	milligram	Intravenous	None	0	None	0	£0.90
	MIDAZOLAM Injectio	MIDAZOLAM 2MG	1	2	milligram	Intravenous	None	0	None	0	£0.90
	MIDAZOLAM Injectio	MIDAZOLAM 50MG/5	5	50	milligram	Continuous	None	0	SODIUM CHLORIDE	1	£5.13
MILRINONE											
	MILRINONE Injection	MILRINONE 10MG/5	1	10	milligram	Continuous	None	0	SODIUM CHLORIDE	1	£19.22
MORPHINE											
	MORPHINE SULPHA	MORPHINE SULPH	1	100	milligram	Continuous	None	0	SODIUM CHLORIDE	1	£2.57
	MORPHINE SULPHA	MORPHINE SULPHA	1	10	milligram	Sub-cutano	WATER FOR INJEC	1	None	0	£0.74
	MORPHINE SULPHA	MORPHINE SULPHA	1	2.5	milligram	Intravenous	WATER FOR INJEC	1	None	0	£0.74
	MORPHINE SULPHA	MORPHINE SULPHA	1	2	milligram	Intramuscu	None	0	None	0	£0.02
	MORPHINE SULPHA	MORPHINE SULPHA	1	50	milligram	Continuous	None	0	SODIUM CHLORIDE	1	£2.07
	MORPHINE SULPHA	MORPHINE 20MG	2	20	milligram	Intravenous	None	0	None	0	£1.24
	MORPHINE SULPHA	MORPHINE SULPH	2	200	milligram	Continuous	None	0	SODIUM CHLORIDE	1	£4.52

DrugName	Item	PDO Name	Drug_Qty	Dose	UnitName	Description	DiluentItem	Diluent_Qty	CarrierItem	Carrier_Qty	PDOPrice
	MORPHINE SULPHA	MORPHINE 3MG	1	3	milligram	Intravenous	None	0	None	0	£0.62
	MORPHINE SULPHA	MORPHINE 4MG	1	4	milligram	Intravenous	None	0	None	0	£0.62
	MORPHINE SULPHA	MORPHINE 2.5MG	1	2.5	milligram	Intravenous	None	0	None	0	£0.62
	MORPHINE SULPHA	MORPHINE SULPHA	1	1	milligram	Intravenous	None	0	None	0	£0.62
	MORPHINE SULPHA	MORPHINE SULPHA	1	5	milligram	Intravenous	WATER FOR INJEC	1	None	0	£0.74
MUCILAGE RHH											
	MUCILAGE RHH	MUCILAGE	1	0	units	Naso-gastri	None	0	None	0	£0.00
NALOXONE											
	NALOXONE Injection	NALOXONE 400MIC	1	400	microgram	Intravenous	None	0	None	0	£0.74
NEOSTIGMINE											
	NEOSTIGMINE Inject	NEOSTIGMINE 1MG	1	1	milligram	Sub-cutano	None	0	None	0	£0.28
	NEOSTIGMINE Inject	NEOSTIGMINE 2.5M	1	2.5	milligram	Intravenous	None	0	None	0	£0.28
NORADRENALINE											
	NORADRENALINE (	NORADRENALINE 2	10	20	milligram	Intravenous	None	0	GLUCOSE 5% Infusi	1	£13.50
	NORADRENALINE (	NORADRENALIN 10	5	10	milligram	Continuous	None	0	GLUCOSE 5% Infusi	1	£6.57
	NORADRENALINE (	NORADRENALINE 5	3	5	milligram	Continuous	None	0	GLUCOSE 5% Infusi	1	£4.19
OCTREOTIDE											
	OCTREOTIDE Injecti	OCTREOTIDE 50MI	1	50	microgram	Sub-cutano	None	0	None	0	£3.07
	OCTREOTIDE Injecti	OCTREOTIDE 1MG/	1	1	milligram	Continuous	SODIUM CHLORIDE	6	None	0	£54.86
	OCTREOTIDE Injecti	OCTREOTIDE 500M	1	500	microgram	Intravenous	None	0	SODIUM CHLORIDE	1	£28.75
OLSALAZINE											
	OLSALAZINE Capsul	OLSALAZINE 250MG	1	250	milligram	Naso-gastri	WATER FOR INJEC	1	None	0	£0.39
OMEPRAZOLE											

DrugName	Item	PDO Name	Drug_Qty	Dose	UnitName	Description	DiluentItem	Diluent_Qty	CarrierItem	Carrier_Qty	PDOPrice
	OMEPRAZOLE Infusi	OMEPRAZOLE 42.6	1	40	milligram	Short Infusi	None	0	None	0	£5.88
	OMEPRAZOLE Caps	OMEPRAZOLE 40M	2	40	milligram	Naso-gastri	None	0	None	0	£0.94
ONDANSETRON											
	ONDANSETRON Inje	ONDANSETRON 8M	1	8	milligram	Intravenous	None	0	None	0	£9.96
	ONDANSETRON Inje	ONDANSETRON 4M	1	4	milligram	Intravenous	None	0	None	0	£4.98
	ONDANSETRON Inje	ONDANSETRON 24	6	24	milligram	Intravenous	SODIUM CHLORIDE	5	None	0	£60.56
	ONDANSETRON Inje	ONDANSETRON 8M	1	8	milligram	Intravenous	None	0	None	0	£9.96
PABRINEX											
	PABRINEX IV HIGH	PABRINEX HIGH PO	2	2	Ampoules	Short Infusi	None	0	SODIUM CHLORIDE	1	£4.86
PAROXETINE											
	PAROXETINE Tablet	PAROXETINE 20MG	1	20	milligram	Naso-gastri	None	0	None	0	£0.32
PETHIDINE											
	PETHIDINE Injection	PETHIDINE 25MGS I	1	25	milligram	Intravenous	None	0	None	0	£0.34
	PETHIDINE Injection	PETHIDINE PCA	10	1000	milligram	Intravenous	SODIUM CHLORIDE	4	None	0	£4.20
	PETHIDINE Injection	PETHIDINE 50MGS	1	50	milligram	Intravenous	None	0	None	0	£0.34
	PETHIDINE Injection	PETHIDINE 100MG I	1	100	milligram	Intravenous	None	0	None	0	£0.36
	PETHIDINE Injection	PETHIDINE 20MG IV	1	20	milligram	Intravenous	None	0	None	0	£0.34
PHENOBARBITONE											
	PHENOBARBITONE	PHENOBARBITONE	2	100	milligram	Intravenous	None	0	SODIUM CHLORIDE	1	£3.03
	PHENOBARBITONE	PHENOBARBITONE	3	500	milligram	Intravenous	None	0	None	0	£3.48
	PHENOBARBITONE	PHENOBARBITONE	5	1	gram	Intravenous	None	0	SODIUM CHLORIDE	1	£6.58
	PHENOBARBITONE	PHENOBARBITONE	6	80	milligram	Naso-gastri	None	0	None	0	£0.06
	PHENOBARBITONE	PHENOBARBITONE	2	120	milligram	Naso-gastri	WATER FOR INJEC	1	None	0	£0.13

DrugName	Item	PDO Name	Drug_Qty	Dose	UnitName	Description	DiluentItem	Diluent_Qty	CarrierItem	Carrier_Qty	PDOPrice
	PHENOBARBITONE	PHENOBARBITONE	3	550	milligram	Intravenous	None	0	None	0	£3.48
	PHENOBARBITONE	PHENOBARBITONE	10	150	milligram	Naso-gastri	None	0	None	0	£0.09
	PHENOBARBITONE	PHENOBARBITONE	1	200	milligram	Intravenous	None	0	SODIUM CHLORIDE	1	£1.94
	PHENOBARBITONE	PHENOBARBITONE	1	50	milligram	Intravenous	None	0	SODIUM CHLORIDE	1	£1.90
	PHENOBARBITONE	PHENOBARBITONE	2	250	milligram	Intravenous	SODIUM CHLORIDE	3	None	0	£2.78
	PHENOBARBITONE	PHENOBARBITONE	4	750	milligram	Intravenous	None	0	None	0	£4.64
PHENYLEPHRINE											
	PHENYLEPHRINE Inj	PHENYLEPHRINE 3	1	300	microgram	Intravenous	None	0	None	0	£2.82
PHENYTOIN											
	PHENYTOIN Injection	PHENYTOIN 1G/250	4	1	gram	Intravenous	None	0	SODIUM CHLORIDE	1	£14.36
	PHENYTOIN Injection	PHENYTOIN 500MG	2	500	milligram	Intravenous	None	0	SODIUM CHLORIDE	1	£7.55
	PHENYTOIN Injection	PHENYTOIN 1.2G/10	5	1.2	gram	Intravenous	None	0	SODIUM CHLORIDE	1	£17.77
	PHENYTOIN Injection	PHENYTOIN 4OOM	2	400	milligram	Intravenous	None	0	None	0	£6.82
	PHENYTOIN Injection	PHENYTOIN 200MG	1	200	milligram	Intravenous	None	0	None	0	£3.41
	PHENYTOIN Suspen	PHENYTOIN 700MG	24	700	milligram	Naso-gastri	None	0	None	0	£0.18
	PHENYTOIN Injection	PHENYTOIN 1G	4	1	gram	Intravenous	None	0	None	0	£13.63
	PHENYTOIN Injection	PHENYTOIN 750MG/	3	750	milligram	Intravenous	None	0	SODIUM CHLORIDE	1	£10.95
	PHENYTOIN Injection	PHENYTOIN 300MG	2	300	milligram	Intravenous	None	0	SODIUM CHLORIDE	1	£7.55
	PHENYTOIN Injection	PHENYTOIN 125MG	1	125	milligram	Intravenous	None	0	None	0	£3.41
	PHENYTOIN (Epanuti	PHENYTOIN 500MG	5	500	milligram	Naso-gastri	None	0	None	0	£0.09
	PHENYTOIN Injection	PHENYTOIN SODIU	1	100	milligram	Short Infusi	None	0	None	0	£3.41
	PHENYTOIN Injection	PHENYTOIN 800MG	4	800	milligram	Intravenous	None	0	None	0	£13.63
PHOSPHATES											
	PHOSPHATES Infusi	PHOSPHATE 50MM	1	50	millimoles	Continuous	None	0	None	0	£4.17

DrugName	Item	PDO Name	Drug_Qty	Dose	UnitName	Description	DiluentItem	Diluent_Qty	CarrierItem	Carrier_Qty	PDOPrice
PHYTOMENADIONE											
	PHYTOMENADIONE	PHYTOMENADIONE	1	10	milligram	Intravenous	None	0	None	0	£0.53
	PHYTOMENADIONE	PHYTOMENADIONE	1	1	milligram	Intravenous	None	0	None	0	£0.26
PIPERACILLIN											
	PIPERACILLIN Injecti	PIPERCILLIN 2G	1	2	gram	Intravenous	WATER FOR INJEC	1	GLUCOSE 5% Infusi	1	£7.56
	PIPERACILLIN Infusi	PIPERACILLIN 4000	1	4000	milligram	Intravenous	None	0	None	0	£9.60
PIPERACILLIN/TAZOBACT											
	PIPERACILLIN 4G/T	TAZOCIN 4.5G	1	4.5	gram	Intravenous	WATER FOR INJEC	2	SODIUM CHLORIDE	1	£1.02
PNEUMOVAX											
	PNEUMOCOCCAL V	PNEUMOCOCCAL V	1	1	units	Intramuscu	None	0	None	0	£10.53
POTASSIUM CANRENOAT											
	POTASSIUM CANRE	POTASSIUM CANRE	1	200	milligram	Intravenous	None	0	None	0	£0.83
	POTASSIUM CANRE	POTASSIUM CANRE	1	100	milligram	Intravenous	None	0	None	0	£0.83
POTASSIUM CHLORIDE											
	POTASSIUM CHLOR	POTASSIUM 10MMO	1	10	millimoles	Intravenous	None	0	None	0	£0.16
	POTASSIUM CHLOR	POTASSIUM 20MM	1	20	millimoles	Intravenous	SODIUM CHLORIDE	4	None	0	£0.79
	POTASSIUM CHLOR	POTASSIUM CL 100	5	100	millimoles	Continuous	None	0	None	0	£0.82
	POTASSIUM CHLOR	POTASSIUM 60MMO	3	60	millimoles	Intravenous	None	0	None	0	£0.49
	POTASSIUM CHLOR	POTASSIUM CHLOR	2	40	millimoles	Intravenous	None	0	None	0	£0.33
PROCHLORPERAZINE											
	PROCHLORPERAZI	PROCHLORPERAZI	1	12.5	milligram	Intramuscu	None	0	None	0	£0.23
PROMETHAZINE											
	PROMETHAZINE Inj	PROMETHAZINE 50	1	50	milligram	Intravenous	None	0	None	0	£0.49

DrugName	Item	PDO Name	Drug_Qty	Dose	UnitName	Description	DiluentItem	Diluent_Qty	CarrierItem	Carrier_Qty	PDOPrice
PROPOFOL											
	PROPOFOL Injection	PROPOFOL 100MGS	1	100	milligram	Intravenous	None	0	None	0	£4.23
	PROPOFOL Injection	PROPOFOL 50MG	1	50	milligram	Intravenous	None	0	None	0	£4.23
	PROPOFOL Injection	PROPOFOL 30MG	1	30	milligram	Intravenous	None	0	None	0	£4.23
	PROPOFOL Injection	PROPOFOL 200MG	1	200	milligram	Intravenous	None	0	None	0	£4.23
	PROPOFOL Injection	PROPOFOL 500MG/	1	500	milligram	Continuous	None	0	None	0	£10.87
	PROPOFOL Injection	PROPOFOL 60MG IV	1	60	milligram	Intravenous	None	0	None	0	£4.23
	PROPOFOL Injection	PROPOFOL 70MG	1	70	milligram	Intravenous	None	0	None	0	£4.23
	PROPOFOL Injection	PROPOFOL 300MG I	2	300	milligram	Intravenous	None	0	None	0	£8.46
	PROPOFOL Injection	PROPOFOL 600MG I	3	600	milligram	Intravenous	None	0	None	0	£12.69
PROTAMINE SULPHATE											
	PROTAMINE SULPH	PROTAMINE 50MG	1	50	milligram	Intravenous	None	0	None	0	£0.60
	PROTAMINE SULPH	PROTAMINE 5MG	1	5	milligram	Intravenous	None	0	None	0	£0.60
RANITIDINE											
	RANITIDINE Injection	RANITIDINE 50MG I	1	50	milligram	Intravenous	SODIUM CHLORIDE	2	None	0	£0.72
	RANITIDINE Injection	RANITIDINE 25MG/2	1	25	milligram	Intravenous	SODIUM CHLORIDE	2	None	0	£0.72
REMIFENTANYL											
	REMIFENTANYL Inje	REMIFENTANYL 2M	1	2	milligram	Intravenous	None	0	SODIUM CHLORIDE	1	£13.71
RIFAMPICIN											
	RIFAMPICIN Injection	RIFAMPICIN 300MG	1	300	milligram	Intravenous	None	0	GLUCOSE 5% Infusi	1	£9.90
	RIFAMPICIN Injection	RIFAMPICIN 600MG	1	0	milligram	Intravenous	None	0	GLUCOSE 5% Infusi	1	£9.90
	RIFAMPICIN Injection	RIFAMPICIN 1200M	2	1200	milligram	Intravenous	None	0	None	0	£18.34
	RIFAMPICIN Injection	RIFAMPICIN 450MG	1	450	milligram	Intravenous	None	0	GLUCOSE 5% Infusi	1	£9.79

DrugName	Item	PDO Name	Drug_Qty	Dose	UnitName	Description	DiluentItem	Diluent_Qty	CarrierItem	Carrier_Qty	PDOPrice
SALBUTAMOL											
	SALBUTAMOL Soluti	SALBUTAMOL 5MG/	1	5	milligram	Continuous	None	1	SODIUM CHLORIDE	1	£1.22
SODIUM NITROPRUS											
	SODIUM NITROPRU	SOD NITROPRUSSI	1	50	milligram	Continuous	None	0	None	0	£5.36
	SODIUM NITROPRU	SOD NITROPRUSSI	1	50	milligram	Short Infusi	None	0	SODIUM CHLORIDE	1	£5.98
SODIUM VALPROATE											
	SODIUM VALPROAT	SOD VALPROATE 5	2	500	milligram	Intravenous	None	0	None	0	£18.54
	SODIUM VALPROAT	SOD VALPROATE 7	2	700	milligram	Intravenous	None	0	None	0	£18.54
	SODIUM VALPROAT	SODIUM VALPROAT	1	300	milligram	Intravenous	None	0	None	0	£9.27
	SODIUM VALPROAT	SODIUM VALPROAT	6	1500	milligram	Intravenous	None	0	None	0	£55.62
	SODIUM VALPROAT	SODIUM VALPROAT	1	400	milligram	Intravenous	None	0	None	0	£9.27
	SODIUM VALPROAT	SOD VALPROATE 6	1	400	milligram	Intravenous	None	0	SODIUM CHLORIDE	1	£9.89
	SODIUM VALPROAT	SODIUM VALPROAT	2	800	milligram	Intravenous	None	0	None	0	£18.54
	SODIUM VALPROAT	SODIUM VALPROAT	5	1700	milligram	Intravenous	SODIUM CHLORIDE	5	None	0	£47.13
SOTALOL											
	SOTALOL Injection 4	SOTALOL 80MG/100	2	80	milligram	Intravenous	None	0	SODIUM CHLORIDE	1	£4.87
STREPTOKINASE											
	STREPTOKINASE Inj	STREPTOKINASE 2	1	250000	units	Intravenous	SODIUM CHLORIDE	1	None	0	£18.16
STREPTOMYCIN											
	STREPTOMYCIN Inj	STREPTOMYCIN 75	1	750	milligram	Intramuscu	None	0	None	0	£6.60
SUXAMETHONIUM											
	SUXAMETHONIUM I	SUXAMETHONIUM 2	1	20	milligram	Intravenous	None	0	None	0	£0.59
	SUXAMETHONIUM I	SUXAMETHONIUM 1	1	100	milligram	Intravenous	None	0	None	0	£0.59

DrugName	Item	PDO Name	Drug_Qty	Dose	UnitName	Description	DiluentItem	Diluent_Qty	CarrierItem	Carrier_Qty	PDOPrice
	SUXAMETHONIUM I	SUXAMETHONIUM 1	1	100	milligram	Intravenous	None	0	None	0	£0.59
	SUXAMETHONIUM I	SUXAMETHONIUM 5	1	50	milligram	Intravenous	None	0	None	0	£0.59
TEICOPLANIN											
	TEICOPLANIN Injecti	TEICOPLANIN 400M	1	400	milligram	Intravenous	WATER FOR INJEC	1	None	0	£55.22
	TEICOPLANIN Injecti	TEICOPLANIN 200M	1	200	milligram	Intravenous	None	0	None	0	£55.10
	TEICOPLANIN Injecti	TEICOPLANIN 100M	1	100	milligram	Intravenous	WATER FOR INJEC	1	GLUCOSE 5% Infusi	1	£56.82
TENOXICAM											
	TENOXICAM Injectio	TENOXICAM 20MG	1	20	milligram	Intravenous	None	0	None	0	£0.82
	TENOXICAM Injectio	TENOXICAM 20MG I	1	20	milligram	Intravenous	None	0	None	0	£0.82
TERBUTALINE											
	TERBUTALINE Injecti	TERBUTALINE 5MG	2	5	milligram	Intravenous	None	0	None	0	£2.98
TETRACOSACTRIN											
	TETRACOSACTRIN	TETRACOSACTRIN	1	250	microgram	Intravenous	None	0	None	0	£1.21
	TETRACOSACTRIN	TETRACOSACTRIN	1	250	microgram	Sub-cutano	None	0	None	0	£1.21
	TETRACOSACTRIN	SYNATHCIN 250 MI	1	250	milligram	Intravenous	None	0	None	0	£1.21
THIAMINE											
	THIAMINE Tablets 10	THIAMINE 100MG	1	100	milligram	Naso-gastri	None	0	None	0	£0.03
THIOPENTONE SODIUM											
	THIOPENTONE SOD	THIOPENTONE 500	1	500	milligram	Intravenous	None	0	None	0	£1.80
	THIOPENTONE SOD	THIOPENTONE 330	1	330	milligram	Intravenous	None	0	None	0	£1.80
	THIOPENTONE SOD	THIOPENTONE 25M	1	25	milligram	Intravenous	None	0	None	0	£1.80
TOBRAMYCIN											
	TOBRAMYCIN Injecti	TOBRAMYCIN 60MG	1	60	milligram	Intravenous	None	0	SODIUM CHLORIDE	1	£3.60

DrugName	Item	PDO Name	Drug_Qty	Dose	UnitName	Description	DiluentItem	Diluent_Qty	CarrierItem	Carrier_Qty	PDOPrice
TRAMADOL											
	TRAMADOL Capsule	TRAMADOL 50MG	1	50	milligram	Naso-gastri	None	0	None	0	£0.19
TRANEXAMIC ACID											
	TRANEXAMIC ACID I	TRANEXAMIC ACID	1	0.5	gram	Intravenous	None	0	None	0	£1.40
	TRANEXAMIC ACID I	TRANEXAMIC ACID	2	1	gram	Intravenous	None	0	None	0	£2.79
TRIMETHOPRIM											
	TRIMETHOPRIM Inje	TRIMETHOPRIM 200	2	200	milligram	Intravenous	None	0	None	0	£0.95
VANCOMYCIN											
	VANCOMYCIN Injecti	VANCOMYCIN 1.75G	2	1.75	gram	Intravenous	WATER FOR INJEC	1	SODIUM CHLORIDE	1	£24.70
	VANCOMYCIN Injecti	VANCOMYCIN 1G	2	1	gram	Intravenous	WATER FOR INJEC	2	SODIUM CHLORIDE	1	£12.73
	VANCOMYCIN Injecti	VANCOMYCIN 1.25G	2	1.25	gram	Intravenous	WATER FOR INJEC	2	GLUCOSE 5% Infusi	2	£25.20
	VANCOMYCIN Injecti	VANCOMYCIN 500M	1	500	milligram	Short Infusi	WATER FOR INJEC	1	SODIUM CHLORIDE	1	£6.73
	VANCOMYCIN Injecti	VANCOMYCIN 750M	2	750	milligram	Short Infusi	WATER FOR INJEC	1	SODIUM CHLORIDE	1	£12.50
	VANCOMYCIN Injecti	VANCOMYCIN 1.5G	3	1.5	gram	Intravenous	None	0	None	0	£17.64
	VANCOMYCIN Injecti	VANCOMYCIN 1000	2	1000	milligram	Short Infusi	WATER FOR INJEC	1	SODIUM CHLORIDE	1	£12.50
VECURONIUM BROMIDE											
	VECURONIUM BRO	VECURONIUM 100M	10	100	milligram	Continuous	None	0	SODIUM CHLORIDE	1	£45.44
	VECURONIUM BRO	VECURONIUM 10M	1	10	milligram	Intravenous	None	0	None	0	£4.48
	VECURONIUM BRO	VECURONIUM 14M	2	14	milligram	Intravenous	None	0	None	0	£8.96
VERAPAMIL											
	VERAPAMIL Injection	VERAPAMIL 5MG IV	1	5	milligram	Intravenous	None	0	None	0	£1.11
	VERAPAMIL Injection	VERAPAMIL 10MG I	2	10	milligram	Intravenous	None	0	None	0	£2.22
VIGABATRIN											

DrugName	Item	PDO Name	Drug_Qty	Dose	UnitName	Description	DiluentItem	Diluent_Qty	CarrierItem	Carrier_Qty	PDOPrice
	VIGABATRIN Sachet	VIGABATRIN 500MG	1	500	milligram	Naso-gastri	WATER FOR INJEC	1	None	0	£0.63
	VIGABATRIN Sachet	VIGABATRIN 1G	2	1	gram	Naso-gastri	WATER FOR INJEC	1	None	0	£1.15
XYLOMETAZOLINE	XYLOMETAZOLINE	ORVINE NASAL DR	1	0.1	drop	Inhalation	None	0	None	0	£1.58

Appendix 5.1: Publication By Hibbert *et al.*, (2003).

ARTICLES

Funding Critical Care – the Way Forward

Clare L Hibbert

Joint DH / MRC Special Training Fellow
in Health Services Research
Sheffield Health Economics Group
School of Health and Related Research
University of Sheffield
Regent Court
30 Regent Street
Sheffield
S1 3DA

Tel: 0114 222 0713
e-mail: Chibbert1@aol.com

John Morris

Consultant Anaesthetist & Chair of the
Critical Care Information Advisory
Group (CCIAG)
Critical Care Unit
William Harvey Hospital
East Kent Hospitals NHS Trust
Ashford
Kent

Tel: 01233 633 331 ext. 86744
e-mail: JOHN.MORRIS@ekht.nhs.uk

Sinead Partridge

Project Manager
PHSMI
NHS Information Authority
Hexagon House
Pynes Hill
Exeter
EX2 5SE

Tel: 01392 687 070
e-mail: sinead.partridge@nhsia.nhs.uk

What's going on and why?

When it's all going to happen? and importantly

What will it all mean in terms of the day-to-day running of a critical care unit?

Introduction

The publication of 'Comprehensive Critical Care' (2000) [1] marked the beginning of a period of considerable organisational change within our specialty; starting with the formation of networks, followed by the setting up of outreach services and a rapidly growing data collection culture emanating from a need to obtain routine information on critical care activity, outcomes and costs.

Revisions to the Augmented Care Period (ACP) data set, resulting in a new critical care minimum data set, and the development of Healthcare Resource Groups (HRGs) are next on the critical care agenda. These will feed into Financial Flows, a transition from the standard 'block contracts' between Primary Care commissioners and Trusts, to 'commissioning' on a case-mix basis.

The purpose of this paper is to try to shed some light on:

- What's going on and why?
- When it's all going to happen? and importantly
- What will it all mean in terms of the day-to-day running of a critical care unit?

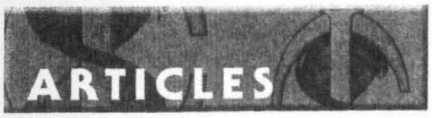
Development of a Critical Care Minimum Data Set

The Critical Care Information Advisory Group (CCIAG) formed by the DoH and the NHS Modernisation Agency have been charged with managing the process of review, consultation and change that will be required to introduce a new minimum data set for critical care. This data set will effectively replace the existing ACP data set, following approval by the Dataset Standards Board, and will be called the Critical Care Minimum Dataset (CCMDS). Part of CCIAG's strategy is to harmonise NHS datasets, wherever possible, with other major critical care databases such as the Intensive Care National Audit and Research Centre's Case-Mix Programme.

Development of HRGs for Critical Care

HRGs are best explained as 'a way of describing the health service workload in terms of the mix of treatments undertaken and the resources used to provide them'. HRGs have already been developed for a number of specialties and have been in use within the NHS for the past ten years. They are also used as a means to collect reference costs, which enable cost comparisons across Trusts.

Unlike other specialties, where patients have been grouped in terms of their diagnoses or



reason for in-patient care, critical care patients are different. They do not lend themselves as easily to homogenous groups in terms of their clinical and cost characteristics [2]. So, a cost per day weighted by patients' organ system support(s) is our proposed solution to this problem, thus getting away from this notion of costing by diagnosis or so-called diagnosis-related group (DRG) methods– which is where other countries have fallen foul.

The HRG national pilot study is scheduled for February 2003. The aim of this study is to develop a cost model upon which HRGs can be further developed, before implementation at a national level. To achieve this aim, we are hoping to collect data on patients consecutively admitted to a representative sample of units over a three month period. The data set, collected on a daily basis, will consist of a list of activities of care, taken from the System of Patient Related Activities (SOPRA) data set, and some organ system support descriptors. Most of the data will be routinely available, requiring staff working within the units to merely tick those items that correspond to the care received by their patients. Data collection forms will be made available for ease of completion. A separate study will estimate the costs of each activity [3], from which individual patient costs will then be determined. The proportion of costs captured using this method will be calculated by comparing data on the expenditure of the critical care unit incurred – estimated using the cost block method [4]. This study has now been approved by MREC and information packs will be sent to interested units shortly.

Financial Flows

Essentially, the term 'financial flows' refers to the process whereby trusts will be paid on a casemix basis for the care that they provide to patients, as opposed to what largely happens at the moment whereby services are commissioned through block agreements [5]. Over the next four years, PCTs will increasingly commission activity from providers on the basis of a standard national price tariff. The tariff will be adjusted for regional variations. So, what's known as Service Level Agreements (SLAs) will become the key driving force between the linking of resources to service delivery. Major swings in financial flows will not, however, be allowed to de-stabilise vital services such as critical care.

The benefits of using Casemix adjusted Commissioning

Casemix adjusted funding is being used in a number of countries already. Using casemix adjusted funding improves patient choice as it enables funding to move with the patient. Additionally, funding based upon a standard national tariff ensures equitable funding without the excessive transaction costs that arose with previous mechanisms such as the internal market. Trusts will be able to increase capacity knowing what additional funding will flow from doing so.

Timescale

Within the Financial Flows document, an incremental increase in the use of casemix adjusted funding over the next four years is planned. In 2003/04, it is planned to introduce a national tariff for activity above baseline for 15 high volume/high expenditure HRGs that are critical to waiting time targets. These include hip and knee replacements, arthroscopies, cataract extractions with lens implants, varicose vein procedures, some breast surgery and some cardiac procedures. In addition to this, six specialties have been selected as the minimum for where Service Level Agreements should reflect casemix adjusted volumes. There is no plan to change the way in which critical care is commissioned, or its costs paid for, in 2003/4. However, because critical care forms an important part of two of the HRGs to be commissioned in 2003/4, it is planned to include within the national tariff the cost of the critical care that would normally be expected.

Implications for critical care units

Critical care should benefit from securing a work-related income for their services but, because of the large emergency component, will need to negotiate a number of safeguards to combat the risk of below baseline activity. The success of these changes will depend heavily on the quality of data collected. Critical care managers who have been unable to find resources to complete the existing ACP datasets must begin to find a solution before NHS data linked financial flows become the norm. As soon as consensus is obtained on the content of the CCMDS and related HRGs, critical care staff will need to assess the impact on historical budgets. Networks will need to monitor the frequency of HRGs delivered to their hospitals and access the impact of other service regional changes on financial flows.

Acknowledgements

We wish to acknowledge and thank Anne Kennedy, Jeri Coates, Keith Young, Evanna Rees, Jason Bradley, Tracy Jones and Dean White for their review of previous drafts. ■

References

1. Department of Health. Comprehensive Critical Care: A review of adult critical care services. Department of Health: London, May 2000.

2. Stevens VG, Hibbert CL, Edbrooke DL. Evaluation of proposed case-mix criteria as a basis for costing patients in the adult general Intensive Care Unit. Anaesthesia 1998; 53:944-950.

3. Edbrooke DL, Stevens VG, Hibbert CL, Mann AJ, Wilson AJ. A new method of accurately identifying costs of individual patients in intensive care: the initial results. Intensive Care Medicine 1997; 23:645-650

4. Edbrooke DL, Hibbert CL, Ridley S, Long T, Dickie H. The development of a method for comparative costing of individual intensive care units. Intensive Care Working Group on Costs. Anaesthesia 1999; 54:110-121.

5. Department of Health. Reforming NHS Financial Flows – Introducing payment by results. Department of Health: London, October 2002.

Appendix 5.2: Poster For Data Collectors

Critical Care National Pilot Study for the Development of Healthcare Resource Groups (HRGs)

Instructions for data collection

Data collection Saturday 1st March - 31st May 2003

The aim of this study is to develop a costing method reflective of the case mix of patients for commissioning purposes and for informing funding decisions.

When should we start filling out the data collection booklets?

From **Saturday 1st March 2003**, data collection booklets should be completed on a daily basis for all patients admitted to the unit. For those patients admitted before this time, please complete the forms as if they had been admitted on 1st March 2003, but remember to record their actual date of admission on page 1.

When should the data collection booklets be filled in?

The data collection booklets should be filled in on a daily basis following a patient's admission to the unit. *Please complete the booklets when* other routine data collection takes place.

When should we stop completing the data collection booklets?

Data collection should be stopped at 23:59 on **Saturday 31st May 2003**.

What should we do with the data collection booklets once they have been filled in?

Once the patient has been discharged from the unit, you should pop the completed booklet(s) in the data collection box provided ('Completed Booklets').

Where are the data collection booklets stored?

Blank data collection booklets for days 1-21 (pale blue covers) and for days 22-92 (pale yellow covers) will be stored in labelled boxes on the unit.

What should we do if we run out of data collection booklets?

Batches of data collection booklets will be delivered to your unit periodically. If you run out please telephone **Clare Hibbert** on (0114) 222 0713 or email CHibbert1@aol.com

What should we do if a patient stays in the unit for more than 21 days?

Please complete the data collection booklet for days 22-92 (pale yellow cover).

What should we do if we forget to fill in a data collection booklet for a patient?

It is important that you complete the data collection booklets on a daily basis for every patient (even if the patient is in the unit for a very short period of time). If you forget to complete the booklet, please enter the relevant data from the patient's medical records

What should we do if a patient's relative objects to us using their data?

You are not required to do anything. Relatives have been asked to complete a 'Data Withdrawal Form' if they have any objections to the study. These forms will be returned to the data co-ordinating centre along with the respective data collection booklets where these patients' data will be removed from the analysis.

What should we do if we experience any problems with the data collection booklets or have any questions about the study?

Please contact **Clare Hibbert** on (0114) 222 0713 or email CHibbert1@aol.com

The named person responsible for this study in your unit is:

Helpline
(0114) 222 0713

NHS Information Authority

MRC Medical Research Council

This study has approval from Trent Multi-Centre Research Ethics Committee (study reference: MREC/02/4/088). Your Local Research Ethics Committee has been notified.

Appendix 5.3: Data Collection Booklet

Please complete

Patient Initials ☐☐

Hospital Number ☐☐☐☐☐☐☐☐

Local Critical Care Identifier ☐☐☐☐☐☐☐☐

Date of critical care unit admission

☐☐/0☐/2003 ☐☐:☐☐

Time of admission

Date of critical care unit discharge

☐☐/0☐/2003 ☐☐:☐☐

Time of discharge

Critical Care HRG Study

Bed Number: _____

Please tick one box only: (✓)

Planned admission ☐

Unplanned admission ☐

Data Collection Booklet Days 1-21

Study Helpline Telephone Number is 0114 222 0713
CHibbert1@aol.com

Instructions for completion

Please complete these booklets for EVERY patient admitted to your unit between 1st March 2003 and 31st May 2003. The booklets need to be completed on a daily basis until the patient has been discharged from the Unit. After day 21, please complete the booklet for days 22-92.

LEVELS OF CARE

Level 3 care

For patients requiring one or more of the following:

- Advanced respiratory system monitoring and support alone.
- Two or more organ systems being monitored and supported, one of which may be advanced respiratory support.
- Patients with chronic impairment of one or more organ systems sufficient to restrict daily activity (co-morbidity) and who require support for an acute reversible failure of another organ.

Level 2 care

For patients requiring one of more of the following:

- Single organ system monitoring and support, excluding advanced respiratory support.
- General observation and monitoring: more detailed observation and the use of monitoring equipment that cannot safely be provided on a general ward. This may include extended post-operative monitoring for high-risk patients.
- Step-down care: patients who no longer need intensive care but who are not well enough to be returned to a general ward.

ORGAN SYSTEM SUPPORT

Basic respiratory support

Indicated by one or more of the following:

- More than 50% oxygen by fixed performance mask.
- The potential for deterioration to the point of needing advanced respiratory support.
- Physiotherapy to clear secretions at least two hourly, whether via tracheostomy, minitracheostomy, or in the absence of an artificial airway.
- Patients recently extubated after a prolonged period of intubation and mechanical ventilation
- Mask CPAP or non-invasive ventilation.
- Patients who are intubated to protect the airway but needing no ventilatory support and who are otherwise stable.

Advanced respiratory support

Indicated by:

- Mechanical ventilatory support (excluding mask (CPAP) by non-invasive methods e.g. mask ventilation).

Basic cardiovascular support

Indicated by one or more of the following:

- Treatment of circulatory instability due to hypovolaemia from any cause, (modified ACP)
- Use of a CVP line for basic monitoring or central venous access
- Use of an arterial line for basic monitoring of arterial pressures or sampling of arterial blood.
- An hourly record made of pulse rate, blood pressure and pulse oximetry
- Single vasoactive drug used to support arterial pressure, cardiac output or organ perfusion (modified ACP)
- Intravenous drugs to control cardiac arrhythmias
- Non-invasive measurement of cardiac output, (e.g. echocardiography, thoracic impedance).

Advanced cardiovascular support

Indicated by one or more of the following:

- Multiple vasoactive and/or rhythm controlling drugs used to support arterial pressure, cardiac output or organ perfusion.
- Patients resuscitated after cardiac arrest where intensive therapy is considered clinically appropriate (ACP)
- Invasive observation of cardiac output and derived indices, (e.g. pulmonary artery catheter, Lithium dilution, pulse contour analyses, oesophageal doppler).
- Intra aortic balloon pumping. (ACP)
- Insertion of temporary cardiac pacemaker
- Placement of a gastrointestinal tonometer

Renal support

Indicated by:

- Acute renal replacement therapy (haemodialysis, haemofiltration etc.)

Neurological support

Indicated by one or more of the following:

- Central nervous system depression, from whatever cause, sufficient to prejudice the airway and protective reflexes.
- Invasive neurological monitoring e.g. ICP, jugular bulb sampling.

Gastro intestinal support

Indicated by:

- Feeding with parenteral or enteral nutrition.

Dermatological support

Indicated by one or more of the following

- Patients with major skin rashes or burns.
- Use of trauma dressings.

Liver support

Indicated by:

- Extracorporeal liver replacement device i.e. MARS (Teraklin, Rostock, Germany), Bioartificial liver or charcoal haemoperfusion

ECMO

- Extracorporeal Membrane Oxygenation.

LOCATION OF CARE

- According to where the patient is being treated.

ACTIVITIES OF CARE

Nursing / Observations

Bladder irrigation

- Continuous irrigation, or repeated bladder washouts, via urethral or suprapubic catheter. Include bladder washouts only if required three or more times in an eight hour period.

Care off your unit (intermediate)

- Patient transferred to another part of the same hospital for a surgical, diagnostic or radiological procedure and who is cared for by staff from your unit during this time.
- Recognises loss of personnel from your unit for periods less than half an hour.

Care off your unit (complex)

- Patient transferred to another part of the same hospital for a surgical, diagnostic or radiological procedure and who is cared for by staff from your unit during this time.
- Recognises loss of personnel from your unit for periods more than half an hour.

Convulsions

- Caring for a patient who has more than one generalised convulsion in an eight hour period.
- Does not include myoclonic jerks.
- Recognises extra work because of repeated major seizure activity which is not yet fully controlled.

Drains / Stomas (intermediate)

- Care of simple wound drains (with or without suction) and care of dressings and drainage bag changes.

Drains / Stomas (complex)

- Care of problematic surgical drains (with or without suction) and urinary or gastrointestinal stomas because of blockage, leakage or drainage of large volumes.
- Includes pancreatic irrigation and high output fistulae.

Dressings (intermediate)

- Dressings requiring the attention of one or two nurses continuously for at least half an hour but no more than one hour.

Dressings (complex)

- Dressings requiring the attention of two or more nurses continuously for more than one hour.
- Recognises lengthy dressing times because of the large size, nature or number of dressings, for example, large or complex burns, exfoliative dermatitis, multiple or frequently soiled sites or the need for packing, debridement and irrigation, etc.

Multiple bedding changes

- Need to change bedding four or more times per 24 hours due to urinary or faecal incontinence, vomiting, bleeding, leaking wounds or other body fluids.

Observations (demanding)

- An unstable patient who requires frequent adjustment of infusions, ventilator settings, etc.
- Demands presence of an extra nurse, continuously at the bedside, for more than one hour.

Week 1

Critical Care HRG Study

A day = A calendar day

Please record the following data on a daily basis until the patient is discharged from the critical care unit

Day number **Date**	**1** / /	**2** / /	**3** / /	**4** / /	**5** / /	**6** / /	**7** / /
Level of care: ***Only one box should be ticked for each day of stay, and the highest level of care within a day should be recorded.***	✓	✓	✓	✓	✓	✓	✓
Level 3 (Intensive care)[1]	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1
Level 2 (High dependency care)[2]	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2
Organ system support: ***More than one organ support can be recorded.*** **Please tick the relevant boxes.**	✓	✓	✓	✓	✓	✓	✓
Basic respiratory support[1]	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1
Advanced respiratory support[2]	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2
Basic cardiovascular support[3]	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3
Advanced cardiovascular support[4]	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4
Renal support[5]	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5
Neurological support[6]	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6
Gastro-intestinal support[7]	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7
Dermatological support[8]	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8
Liver support[9]	☐ 9	☐ 9	☐ 9	☐ 9	☐ 9	☐ 9	☐ 9
Extracorporeal Membrane Oxygenation (ECMO)[10]	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10
Location of care. Please tick the relevant box.	✓	✓	✓	✓	✓	✓	✓
Intensive Care Unit (ICU)[1]	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1
High Dependency Unit (HDU)[2]	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2
Combined ICU / HDU[3]	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3
Coronary Care Unit[4]	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4
Combined ICU / HDU / Coronary Care Unit[5]	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5
Cardiothoracic ICU[6]	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6
Neurological ICU[7]	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7
Burns / Plastic Surgery Unit[8]	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8
Theatre Recovery Area[9]	☐ 9	☐ 9	☐ 9	☐ 9	☐ 9	☐ 9	☐ 9
Other[10] (please state).....	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10
Activities of care received on a daily basis. Please tick the relevant boxes.	✓	✓	✓	✓	✓	✓	✓
Nursing / Observations							
Bladder irrigation[1]	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1
Care off your unit (intermediate)[2]	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2
Care off your unit (complex)[3]	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3
Convulsions[4]	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4
Drains / stomas (intermediate)[5]	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5
Drains / stomas (complex)[6]	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6
Dressings (intermediate)[7]	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7
Dressings (complex)[8]	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8
Multiple bedding changes[9]	☐ 9	☐ 9	☐ 9	☐ 9	☐ 9	☐ 9	☐ 9
Observations (demanding)[10]	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10

Nursing / Observations (continued)

Observations (neurological)
- Examination of the pupils, more frequently than hourly, with a formal Glasgow Coma Score assessment.
- Recognises care over and above routine hourly observations because of impaired neurological function.

Patient Isolation
- Formal barrier or reverse-barrier nursing of a patient.
- Recognises the loss of circulating staff from the general unit who are not easily available to provide assistance to others and to whom it is not easy to provide assistance.

Patient Positioning (complex)
- When four or more staff are required to move a patient, for example, prone positioning.

Physiotherapy (standard)
- Standard physiotherapy that can be done by one or two people, for example, passive movements and deep breathing.
- Includes easy patient positioning and recruitment manoeuvres.

Physiotherapy (complex)
- Physiotherapy which requires three or more people to perform.
- Includes moving patient between chair and bed or mobilising patient.

Communications

Communications (demanding)
- Protracted, complicated and demanding multidisciplinary and/or multi-professional discussion of patient management including organisational problems.
- Removes nurse from bedside care for a total period of more than one hour.
- Recognises discussion with medical or nursing colleagues, in relation to investigation and management, that is time-consuming.

Psychological support (intermediate)
- Psychologically disturbed patient, demanding attention, or having trouble communicating, such that one nurse must remain at the bedside continuously for more than one hour.
- Patient is not necessarily a danger to themselves but one who requires a great deal of support.

Psychological support (complex)
- Psychologically disturbed patient, demanding attention such that two or more nurses must remain at the bedside continuously for more than one hour to assure the patient's safety.
- Patient, due to confused state, is a potential danger to themselves, for example, constantly pulling out lines, vigorous attempts at self-extubation, climbing out of bed, etc.

Relatives (intermediate)
- Relatives, family and friends who require more than normal support, including explanations of the presenting problem or progress to date.
- Removes nurse from bedside care for a total cumulative period of up to one hour in an eight hour period.

Relatives (complex)
- Relatives, family and friends who require significantly increased levels of support, including detailed explanations of the presenting problem or progress to date.
- Removes nurse from bedside care for a total cumulative period of more than one hour in an eight hour period.
- Includes those patients of interest to the media or relatives who are aggressive, hostile or very distressed.
- Implies prolonged discussions that make large demands on staff time.

Ventilation

Oxygenation
- Supplemental oxygen via mask and/or nasal cannulae (less than 50%).

Oxygenation (intermediate)
- Supplemental oxygen via mask and/or nasal cannulae (50% or more).

Oxygenation (complex)
- Includes intravenous oxygenator, extracorporeal techniques and partial liquid ventilation.

Ventilation (non-invasive)
- Use of non-invasive techniques to assist ventilation.
- Includes positive pressure ventilation using a face-mask or nasal device.
- Includes negative pressure (cuirass) ventilation in a non-intubated patient.

Ventilation (CPAP)
- Use of CPAP in a spontaneously breathing patient.
- CPAP may be given via a face-mask system or, equivalently, as continuous negative extrathoracic pressure, for example, by the Hayek oscillator.
- Does not include pressure support.
- Patient may still have a tracheal tube.

Ventilation (invasive)
- A mechanical device gives partial or full ventilatory support to the intubated patient by providing some or all of the energy required to increase lung volume during inspiration.
- Includes airway pressure release ventilation / bipositive airway pressure, continuous positive airway pressure with pressure support and high frequency techniques.
- Includes negative pressure (cuirass) ventilation only if the patient has a tracheal tube.

Nitric oxide therapy
- Use of inhaled nitric oxide to improve oxygenation or decrease pulmonary artery pressure.

Monitoring Procedures

Abdominal pressure measurement
- Set-up of system and measurement of intra-abdominal pressure, for example, by transducing intravesical or intragastric pressure.
- A combination of set-up and measurement counts once.

Arterial cannulation
- Insertion, continuing use and removal of an arterial cannula, sheath or catheter for direct pressure recording with or without therapeutic infusions.
- Includes use of Paratrend 7® monitor, or similar.
- A combination of insertion, continuing use and removal counts once.

Cardiac output assessment (not PAC)
- Insertion, repeat calibrations, continuing use and removal of methods (not PAC) for estimating cardiac output, extra-vascular lung water and/or blood volume, for example, oesophageal Doppler, PiCCO, LiDCO etc.
- A combination of insertion, repeat calibrations, continuing use and removal counts once.

Cardiac output assessment (with PAC)
- Insertion, repeat calibrations, continuing use and removal of a pulmonary artery catheter (use includes any or all of the following: measurement of cardiac filling pressures; cardiac output; mixed venous oxygen saturation).
- A combination of insertion, repeat calibrations, continuing use and removal counts once.

Central venous cannulation
- Insertion, continuing use and removal of a central venous cannula, sheath or catheter for direct venous pressure recording with or without therapeutic infusions.
- Includes access for dialysis.
- Includes femoral route and left atrial catheter placed during surgery.
- A combination of insertion, continuing use and removal counts once.

Cerebral monitoring
- Set-up, calibration and continuing use of non-invasive monitoring of cerebral activity, blood flow, or oxygenation.
- Includes all indirect methods of measurement, for example, processed EEG, indirect cerebral oximetry, Doppler cerebral artery blood flow.
- A combination of set-up, calibration, continuing use counts once.

Intracranial pressure monitoring
- Insertion, continuing use and removal of any invasive device for monitoring intracranial pressure.
- Includes Richmond screw, ventriculostomy, Camino catheter, Codman microtransducer, etc.
- Includes removal of cerebrospinal fluid from spinal or ventricular catheter/drain.
- A combination of insertion, continuing use and removal counts once.

Jugular venous monitoring
- Insertion, continuing use and removal of jugular venous catheter.
- Includes direct oximetry, measurement of lactate and invasive estimates of cerebral blood flow.
- A combination of insertion, continuing use and removal counts once.

Tonometer
- Insertion, continuing use and removal of a gastrointestinal tonometer.
- Includes continuous as well as intermittent techniques.
- A combination of insertion, continuing use and removal counts once.

Urinary catheter
- Insertion, continuing use and removal of a suprapubic or urethral catheter.
- A combination of insertion, continuing use and removal counts once.

Drugs

Nebulized drugs (frequent)
- Nebulized medication given more frequently than every four hours.
- Includes epoprostenol, surfactant and other unusual drugs, for example polymyxin B or pentamidine.

Sedation (inhaled agents)
- Use of an inhaled agent, for example, nitrous oxide, isoflurane, etc.
- Include if used to treat severe acute asthma.
- Do not include if used as an anaesthetic for procedures.

Feeding / Nutrition

Gastric / Jejunal tube
- Insertion and continuing use of a gastric or jejunal tube.
- Includes a tube, via whatever route, in the upper gastrointestinal tract for aspiration, enteral feeding or washouts.

Parenteral nutrition
- Administration of intravenous nutrient solutions by central or specialised peripheral venous catheter.
- Includes the sterile procedure of connecting bags prepared in pharmacy or aseptic preparation and administration of similar nutrient solutions, for example, "Vitrimix" or "Nutriflex".

Week 1

A day = A calendar day

Critical Care HRG Study

Please record the following data on a daily basis until the patient is discharged from the critical care unit

Day number / Date	1 / /	2 / /	3 / /	4 / /	5 / /	6 / /	7 / /
Activities of care received on a daily basis. Please tick the relevant box.	✓	✓	✓	✓	✓	✓	✓
Nursing / Observations (Continued)....							
Observations (neurological)[11]	☐ 11	☐ 11	☐ 11	☐ 11	☐ 11	☐ 11	☐ 11
Patient isolation[12]	☐ 12	☐ 12	☐ 12	☐ 12	☐ 12	☐ 12	☐ 12
Patient positioning (complex)[13]	☐ 13	☐ 13	☐ 13	☐ 13	☐ 13	☐ 13	☐ 13
Physiotherapy (standard)[14]	☐ 14	☐ 14	☐ 14	☐ 14	☐ 14	☐ 14	☐ 14
Physiotherapy (complex)[15]	☐ 15	☐ 15	☐ 15	☐ 15	☐ 15	☐ 15	☐ 15
Communications	✓	✓	✓	✓	✓	✓	✓
Communications (demanding)[1]	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1
Psychological support (intermediate)[2]	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2
Psychological support (complex)[3]	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3
Relatives (intermediate)[4]	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4
Relatives (complex)[5]	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5
Ventilation	✓	✓	✓	✓	✓	✓	✓
Oxygenation[1]	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1
Oxygenation (intermediate)[2]	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2
Oxygenation (complex)[3]	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3
Ventilation (non-invasive)[4]	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4
Ventilation (CPAP)[5]	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5
Ventilation (invasive)[6]	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6
Nitric oxide therapy[7]	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7
Monitoring Procedures	✓	✓	✓	✓	✓	✓	✓
Abdominal pressure measurement[1]	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1
Arterial cannulation[2]	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2
Cardiac output assessment (not PAC)[3]	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3
Cardiac output assessment (with PAC)[4]	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4
Central venous cannulation[5]	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5
Cerebral monitoring[6]	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6
Intracranial pressure monitoring[7]	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7
Jugular venous monitoring[8]	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8
Tonometer[9]	☐ 9	☐ 9	☐ 9	☐ 9	☐ 9	☐ 9	☐ 9
Urinary catheter[10]	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10
Drugs	✓	✓	✓	✓	✓	✓	✓
Nebulized drugs (frequent)[1]	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1
Sedation (inhaled agents)[2]	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2
Feeding / Nutrition	✓	✓	✓	✓	✓	✓	✓
Gastric / Jejunal tube[1]	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1
Parenteral nutrition[2]	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2

Dialysis / Perfusion

Blood Purification
- Set-up and continuing use of automated or non-automated systems to perform peritoneal dialysis, haemodialysis, haemofiltration, plasmapheresis or isolated haemoperfusion.
- Procedures carried out to remove products of metabolism normally excreted by the kidney or to remove toxins, drugs or mediators.

Blood Purification complex
- Set-up and continuing use of haemoperfusion techniques, for example, Molecular Adsorbents Recirculating System (MARS) therapy, in addition to use of automated or non-automated systems to perform peritoneal dialysis, haemodialysis, haemofiltration or plasmapheresis.
- Indicates an unusually complicated, or time-consuming procedure, for example, need for continual interventions to keep a peritoneal dialysis or haemodialysis / veno-venous haemofiltration / continuous veno-venous haemodiafiltration system running because of technical problems.
- Recognises the requirement for extra nurse(s) to re-circulate, change circuit, replace filter, etc. more than once daily.
- Procedures carried out to remove products of metabolism normally excreted by the kidney or to remove toxins, drugs or mediators.

Events

Analgesia (regional)
- Insertion, continuing use and removal of a catheter for infusion of a local anaesthetic with or without opioid.
- Includes epidural and spinal techniques, with or without patient controlled analgesia, plexus and intrapleural analgesia and wound irrigation.
- A combination of insertion, continuing use and removal counts once.

Blood products
- Transfusion of fresh frozen plasma, platelets, cryoprecipitate, etc. for an acute bleeding disorder.
- There must be a documented coagulopathy or severe thrombocytopenia causing bleeding that clinically requires correction.
- Prophylaxis against bleeding not included.

Blood Transfusion (massive)
- Transfusion of ten or more units of blood or equivalent (estimated normal blood volume – male 70ml-1 kg-1, - female 60ml-1 kg-1 on a per weight basis).

Bronchoscopy
- Diagnostic or therapeutic bronchoscopy on your unit via oral or nasal route, or through an endotracheal or tracheostomy tube.

Cardiac resuscitation
- Cardiac arrest, or severe fall in cardiac output, that required bolus doses of vasoactive drugs, cardiac massage or defibrillation.
- Does not include the need for bolus doses of drugs simply due to syringe changes.

Cardioversion
- Synchronised direct current cardioversion for treatment of cardiac arrhythmia.
- Does not include defibrillation during a cardiac arrest.

Chest drain
- Insertion, continuing use and removal of an intra-pleural drain.
- Includes use of ultrasound guidance.
- A combination of insertion, continuing use and removal counts once.

Endoscopy
- Diagnostic or therapeutic gastrointestinal or genitourinary endoscopy on your unit, for example, for haematemesis, percutaneous endoscopic gastronomy, nasojejunal tube placement, colonoscopy, flexible sigmoidoscopy, cystoscopy or ureteroscopy.

Fluid therapy (resuscitation)
- Rapid infusion of 1000ml (or 20% estimated normal blood volume on a per weight basis) of any fluid within twenty minutes to reverse a significant deterioration in haemodynamic status.

Hypothermia (active warming)
- Active warming of patient whose initial core temperature is less than 35oC.
- Does not include treatment of mild hypothermia (core temperature is greater than or equal to 35oC).
- Includes electric blankets, hot air blowers, radiant heaters, peritoneal dialysis with warm fluids, warm gastric lavage, extracorporeal circuit or other intravascular techniques.
- Does not include normal prevention of hypothermia.

Hypothermia (induced)
- Active treatment to cool patient for therapeutic reasons with either invasive or external methods of cooling.
- Does not include simple antipyretic measures, for example, administration of paracetamol/non-steroidal anti-inflammatory drugs.
- Includes active efforts to reduce the temperature of a patient with malignant hyperpyrexia.

Lumbar puncture
- Diagnostic subarachnoid puncture.
- Includes other approaches, for example, cisternal.
- Does not include catheter techniques or fluid withdrawal from an indwelling catheter.

Mechanical circulatory support
- Insertion, continuing use and removal of a mechanical circulatory assist device, for example, an intra-aortic balloon pump.
- Includes all mechanical circulatory assist devices, that is, all devices that supply some or all of the energy to drive the circulation that is normally provided by the patient's heart.
- A combination of insertion, continuing use and removal counts once.

Minitracheostomy
- Insertion, continuing use and removal of a minitracheostomy tube.
- A combination of insertion, continuing use and removal counts once.

Pacemaker
- Insertion, continuing use and removal of a cardiac pacemaker.
- Includes transvenous, transthoracic and transoesophageal routes.
- A combination of insertion, continuing use and removal counts once.

Paracentesis
- Insertion, continuing use and removal of a drain from the abdominal cavity.
- Includes use of ultrasound guidance and peritoneal dialysis catheters.
- A combination of insertion, continuing use and removal counts once.

Percutaneous tracheostomy
- Insertion, continuing use and removal of a percutaneous tracheostomy on your unit.
- A combination of insertion, continuing use and removal counts once.

Pericardiocentesis
- Insertion, continuing use and removal of a drain from the pericardial space.
- Includes use of ultrasound guidance.
- A combination of insertion, continuing use and removal counts once.

Thoracocentesis
- Needle aspiration of fluid and/or air from the pleural space.
- Includes the use of ultrasound guidance.

Transfer (within your unit)
- Patient moved to another bed space or onto a different bed.

Variceal tamponade
- Insertion, continuing use and removal of tube designed to reduce upper gastrointestinal bleeding from varices by tamponade, for example, the Linton, Minnesota and Sengstaken-Blakemore tubes.
- A combination of insertion, continuing use and removal counts once.

Transfers

Transfer (within your hospital)
- Patient transported, even if temporarily, to another area in the same hospital accompanied by nursing/medical staff from your unit.
- Recognises loss of personnel from your unit for short periods of time – staff will return to your unit having handed over the patient.

Transfer (other hospital)
- Patient transported, even if temporarily, to another hospital accompanied by nursing/medical staff from your unit.
- Recognises loss of personnel from your unit for a prolonged period.
- Includes the sending of a retrieval team (unless this has its own dedicated staff not responsible for current patient management in your unit).

Discharge / Death

Patient discharge (alive)
- Recognises the extra work incurred, for example, administration and hand-over. Includes cleaning and restocking of bed space after a patient discharge.

Patient discharge (death)
- Laying out of a body and provision of normal support necessary for the bereaved. Recognises the extra work over and above that normally involved in discharging a patient.
- Includes cleaning and restocking of bed space after a patient discharge.

Brain stem death
- Completion of first and/or second formal tests confirming brain stem death.

Brain stem death (complex)
- Care of organ donor after confirmation of brain stem death. Process of organising organ donation including discharge of patient to theatre for organ retrieval.
- May include return of patient to your unit.

Week 1

Critical Care HRG Study

A day = A calendar day

Please record the following data on a daily basis until the patient is discharged from the critical care unit

Day number / Date	1 / /	2 / /	3 / /	4 / /	5 / /	6 / /	7 / /
Dialysis / Perfusion	✓	✓	✓	✓	✓	✓	✓
Blood purification[1]	1	1	1	1	1	1	1
Blood purification (complex)[2]	2	2	2	2	2	2	2
Events: Please state the NUMBER of times the event occurred on a daily basis.							
Analgesia (regional)[1]	1	1	1	1	1	1	1
Blood products[2]	2	2	2	2	2	2	2
Blood transfusion (massive)[3]	3	3	3	3	3	3	3
Bronchoscopy[4]	4	4	4	4	4	4	4
Cardiac resuscitation[5]	5	5	5	5	5	5	5
Cardioversion[6]	6	6	6	6	6	6	6
Chest drain[7]	7	7	7	7	7	7	7
Endoscopy[8]	8	8	8	8	8	8	8
Fluid therapy (resuscitation)[9]	9	9	9	9	9	9	9
Hypothermia (active warming)[10]	10	10	10	10	10	10	10
Hypothermia (induced)[11]	11	11	11	11	11	11	11
Lumbar puncture[12]	12	12	12	12	12	12	12
Mechanical circulatory support[13]	13	13	13	13	13	13	13
Minitracheostomy[14]	14	14	14	14	14	14	14
Pacemaker[15]	15	15	15	15	15	15	15
Paracentesis[16]	16	16	16	16	16	16	16
Percutaneous tracheostomy[17]	17	17	17	17	17	17	17
Pericardiocentesis[18]	18	18	18	18	18	18	18
Thoracocentesis[19]	19	19	19	19	19	19	19
Transfer (within your unit)[20]	20	20	20	20	20	20	20
Variceal tamponade[21]	21	21	21	21	21	21	21
Transfers	✓	✓	✓	✓	✓	✓	✓
Transfer (within your hospital)[1]	1	1	1	1	1	1	1
Transfer (other hospital)[2]	2	2	2	2	2	2	2
Discharge / Death	✓	✓	✓	✓	✓	✓	✓
Patient discharge (alive)[1]	1	1	1	1	1	1	1
Patient discharge (death)[2]	2	2	2	2	2	2	2
Brain stem death[3]	3	3	3	3	3	3	3
Brain stem death (complex)[4]	4	4	4	4	4	4	4

LEVELS OF CARE

Level 3 care

For patients requiring one or more of the following:

- Advanced respiratory system monitoring and support alone.
- Two or more organ systems being monitored and supported, one of which may be advanced respiratory support.
- Patients with chronic impairment of one or more organ systems sufficient to restrict daily activity (co-morbidity) and who require support for an acute reversible failure of another organ.

Level 2 care

For patients requiring one or more of the following:

- Single organ system monitoring and support, excluding advanced respiratory support.
- General observation and monitoring: more detailed observation and the use of monitoring equipment that cannot safely be provided on a general ward. This may include extended post-operative monitoring for high-risk patients.
- Step-down care: patients who no longer need intensive care but who are not well enough to be returned to a general ward.

ORGAN SYSTEM SUPPORT

Basic respiratory support

Indicated by one or more of the following:

- More than 50% oxygen by fixed performance mask.
- The potential for deterioration to the point of needing advanced respiratory support.
- Physiotherapy to clear secretions at least two hourly, whether via tracheostomy, minitracheostomy, or in the absence of an artificial airway.
- Patients recently extubated after a prolonged period of intubation and mechanical ventilation
- Mask CPAP or non-invasive ventilation.
- Patients who are intubated to protect the airway but needing no ventilatory support and who are otherwise stable.

Advanced respiratory support

Indicated by:

- Mechanical ventilatory support (excluding mask (CPAP) by non-invasive methods e.g. mask ventilation).

Basic cardiovascular support

Indicated by one or more of the following:

- Treatment of circulatory instability due to hypovolaemia from any cause, (modified ACP)
- Use of a CVP line for basic monitoring or central venous access
- Use of an arterial line for basic monitoring of arterial pressures or sampling of arterial blood.
- An hourly record made of pulse rate, blood pressure and pulse oximetry
- Single vasoactive drug used to support arterial pressure, cardiac output or organ perfusion (modified ACP)
- Intravenous drugs to control cardiac arrhythmias
- Non-invasive measurement of cardiac output, (e.g. echocardiography, thoracic impedance).

Advanced cardiovascular support

Indicated by one or more of the following:

- Multiple vasoactive and/or rhythm controlling drugs used to support arterial pressure, cardiac output or organ perfusion.
- Patients resuscitated after cardiac arrest where intensive therapy is considered clinically appropriate (ACP)
- Invasive observation of cardiac output and derived indices, (e.g. pulmonary artery catheter, Lithium dilution, pulse contour analyses, oesophageal doppler).
- Intra aortic balloon pumping. (ACP)
- Insertion of temporary cardiac pacemaker
- Placement of a gastrointestinal tonometer

Renal support

Indicated by:

- Acute renal replacement therapy (haemodialysis, haemofiltration etc.)

Neurological support

Indicated by one or more of the following:

- Central nervous system depression, from whatever cause, sufficient to prejudice the airway and protective reflexes.
- Invasive neurological monitoring e.g. ICP, jugular bulb sampling.

Gastro intestinal support

Indicated by:

- Feeding with parenteral or enteral nutrition.

Dermatological support

Indicated by one or more of the following

- Patients with major skin rashes or burns.
- Use of trauma dressings.

Liver support

Indicated by:

- Extracorporeal liver replacement device i.e. MARS (Teraklin, Rostock, Germany), Bioartificial liver or charcoal haemoperfusion

ECMO

- Extracorporeal Membrane Oxygenation.

LOCATION OF CARE

- According to where the patient is being treated.

ACTIVITIES OF CARE

Nursing / Observations

Bladder irrigation

- Continuous irrigation, or repeated bladder washouts, via urethral or suprapubic catheter. Include bladder washouts only if required three or more times in an eight hour period.

Care off your unit (intermediate)

- Patient transferred to another part of the same hospital for a surgical, diagnostic or radiological procedure and who is cared for by staff from your unit during this time.
- Recognises loss of personnel from your unit for periods less than half an hour.

Care off your unit (complex)

- Patient transferred to another part of the same hospital for a surgical, diagnostic or radiological procedure and who is cared for by staff from your unit during this time.
- Recognises loss of personnel from your unit for periods more than half an hour.

Convulsions

- Caring for a patient who has more than one generalised convulsion in an eight hour period.
- Does not include myoclonic jerks.
- Recognises extra work because of repeated major seizure activity which is not yet fully controlled.

Drains / Stomas (intermediate)

- Care of simple wound drains (with or without suction) and care of dressings and drainage bag changes.

Drains / Stomas (complex)

- Care of problematic surgical drains (with or without suction) and urinary or gastrointestinal stomas because of blockage, leakage or drainage of large volumes.
- Includes pancreatic irrigation and high output fistulae.

Dressings (intermediate)

- Dressings requiring the attention of one or two nurses continuously for at least half an hour but no more than one hour.

Dressings (complex)

- Dressings requiring the attention of two or more nurses continuously for more than one hour.
- Recognises lengthy dressing times because of the large size, nature or number of dressings, for example, large or complex burns, exfoliative dermatitis, multiple or frequently soiled sites or the need for packing, debridement and irrigation, etc.

Multiple bedding changes

- Need to change bedding four or more times per 24 hours due to urinary or faecal incontinence, vomiting, bleeding, leaking wounds or other body fluids.

Observations (demanding)

- An unstable patient who requires frequent adjustment of infusions, ventilator settings, etc.
- Demands presence of an extra nurse, continuously at the bedside, for more than one hour.

Week 2

Critical Care HRG Study

A day = A calendar day

Please record the following data on a daily basis until the patient is discharged from the critical care unit

Day number **Date**	**1** / /	**2** / /	**3** / /	**4** / /	**5** / /	**6** / /	**7** / /
Level of care: ***Only one box should be ticked for each day of stay, and the highest level of care within a day should be recorded.***	✓	✓	✓	✓	✓	✓	✓
Level 3 (Intensive care)[1]	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1
Level 2 (High dependency care)[2]	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2
Organ system support: ***More than one organ support can be recorded.*** **Please tick the relevant boxes.**	✓	✓	✓	✓	✓	✓	✓
Basic respiratory support[1]	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1
Advanced respiratory support[2]	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2
Basic cardiovascular support[3]	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3
Advanced cardiovascular support[4]	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4
Renal support[5]	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5
Neurological support[6]	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6
Gastro-intestinal support[7]	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7
Dermatological support[8]	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8
Liver support[9]	☐ 9	☐ 9	☐ 9	☐ 9	☐ 9	☐ 9	☐ 9
Extracorporeal Membrane Oxygenation (ECMO)[10]	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10
Location of care. Please tick the relevant box.	✓	✓	✓	✓	✓	✓	✓
Intensive Care Unit (ICU)[1]	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1
High Dependency Unit (HDU)[2]	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2
Combined ICU / HDU[3]	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3
Coronary Care Unit[4]	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4
Combined ICU / HDU / Coronary Care Unit[5]	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5
Cardiothoracic ICU[6]	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6
Neurological ICU[7]	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7
Burns / Plastic Surgery Unit[8]	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8
Theatre Recovery Area[9]	☐ 9	☐ 9	☐ 9	☐ 9	☐ 9	☐ 9	☐ 9
Other[10] (please state).....	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10
Activities of care received on a daily basis. Please tick the relevant boxes.	✓	✓	✓	✓	✓	✓	✓
Nursing / Observations							
Bladder irrigation[1]	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1
Care off your unit (intermediate)[2]	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2
Care off your unit (complex)[3]	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3
Convulsions[4]	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4
Drains / stomas (intermediate)[5]	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5
Drains / stomas (complex)[6]	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6
Dressings (intermediate)[7]	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7
Dressings (complex)[8]	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8
Multiple bedding changes[9]	☐ 9	☐ 9	☐ 9	☐ 9	☐ 9	☐ 9	☐ 9
Observations (demanding)[10]	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10

Nursing / Observations (continued)

Observations (neurological)
- Examination of the pupils, more frequently than hourly, with a formal Glasgow Coma Score assessment.
- Recognises care over and above routine hourly observations because of impaired neurological function.

Patient Isolation
- Formal barrier or reverse-barrier nursing of a patient.
- Recognises the loss of circulating staff from the general unit who are not easily available to provide assistance to others and to whom it is not easy to provide assistance.

Patient Positioning (complex)
- When four or more staff are required to move a patient, for example, prone positioning.

Physiotherapy (standard)
- Standard physiotherapy that can be done by one or two people, for example, passive movements and deep breathing.
- Includes easy patient positioning and recruitment manoeuvres.

Physiotherapy (complex)
- Physiotherapy which requires three or more people to perform.
- Includes moving patient between chair and bed or mobilising patient.

Communications

Communications (demanding)
- Protracted, complicated and demanding multidisciplinary and/or multi-professional discussion of patient management including organisational problems.
- Removes nurse from bedside care for a total period of more than one hour.
- Recognises discussion with medical or nursing colleagues, in relation to investigation and management, that is time-consuming.

Psychological support (intermediate)
- Psychologically disturbed patient, demanding attention, or having trouble communicating, such that one nurse must remain at the bedside continuously for more than one hour.
- Patient is not necessarily a danger to themselves but one who requires a great deal of support.

Psychological support (complex)
- Psychologically disturbed patient, demanding attention such that two or more nurses must remain at the bedside continuously for more than one hour to assure the patient's safety.
- Patient, due to confused state, is a potential danger to themselves, for example, constantly pulling out lines, vigorous attempts at self-extubation, climbing out of bed, etc.

Relatives (intermediate)
- Relatives, family and friends who require more than normal support, including explanations of the presenting problem or progress to date.
- Removes nurse from bedside care for a total cumulative period of up to one hour in an eight hour period.

Relatives (complex)
- Relatives, family and friends who require significantly increased levels of support, including detailed explanations of the presenting problem or progress to date.
- Removes nurse from bedside care for a total cumulative period of more than one hour in an eight hour period.
- Includes those patients of interest to the media or relatives who are aggressive, hostile or very distressed.
- Implies prolonged discussions that make large demands on staff time.

Ventilation

Oxygenation
- Supplemental oxygen via mask and/or nasal cannulae (less than 50%).

Oxygenation (intermediate)
- Supplemental oxygen via mask and/or nasal cannulae (50% or more).

Oxygenation (complex)
- Includes intravenous oxygenator, extracorporeal techniques and partial liquid ventilation.

Ventilation (non-invasive)
- Use of non-invasive techniques to assist ventilation.
- Includes positive pressure ventilation using a face-mask or nasal device.
- Includes negative pressure (cuirass) ventilation in a non-intubated patient.

Ventilation (CPAP)
- Use of CPAP in a spontaneously breathing patient.
- CPAP may be given via a face-mask system or, equivalently, as continuous negative extrathoracic pressure, for example, by the Hayek oscillator.
- Does not include pressure support.
- Patient may still have a tracheal tube.

Ventilation (invasive)
- A mechanical device gives partial or full ventilatory support to the intubated patient by providing some or all of the energy required to increase lung volume during inspiration.
- Includes airway pressure release ventilation / bipositive airway pressure, continuous positive airway pressure with pressure support and high frequency techniques.
- Includes negative pressure (cuirass) ventilation only if the patient has a tracheal tube.

Nitric oxide therapy
- Use of inhaled nitric oxide to improve oxygenation or decrease pulmonary artery pressure.

Monitoring Procedures

Abdominal pressure measurement
- Set-up of system and measurement of intra-abdominal pressure, for example, by transducing intravesical or intragastric pressure.
- A combination of set-up and measurement counts once.

Arterial cannulation
- Insertion, continuing use and removal of an arterial cannula, sheath or catheter for direct pressure recording with or without therapeutic infusions.
- Includes use of Paratrend 7® monitor, or similar.
- A combination of insertion, continuing use and removal counts once.

Cardiac output assessment (not PAC)
- Insertion, repeat calibrations, continuing use and removal of methods (not PAC) for estimating cardiac output, extra-vascular lung water and/or blood volume, for example, oesophageal Doppler, PiCCO, LiDCO etc.
- A combination of insertion, repeat calibrations, continuing use and removal counts once.

Cardiac output assessment (with PAC)
- Insertion, repeat calibrations, continuing use and removal of a pulmonary artery catheter (use includes any or all of the following: measurement of cardiac filling pressures; cardiac output; mixed venous oxygen saturation).
- A combination of insertion, repeat calibrations, continuing use and removal counts once.

Central venous cannulation
- Insertion, continuing use and removal of a central venous cannula, sheath or catheter for direct venous pressure recording with or without therapeutic infusions.
- Includes access for dialysis.
- Includes femoral route and left atrial catheter placed during surgery.
- A combination of insertion, continuing use and removal counts once.

Cerebral monitoring
- Set-up, calibration and continuing use of non-invasive monitoring of cerebral activity, blood flow, or oxygenation.
- Includes all indirect methods of measurement, for example, processed EEG, indirect cerebral oximetry, Doppler cerebral artery blood flow.
- A combination of set-up, calibration, continuing use counts once.

Intracranial pressure monitoring
- Insertion, continuing use and removal of any invasive device for monitoring intracranial pressure.
- Includes Richmond screw, ventriculostomy, Camino catheter, Codman microtransducer, etc.
- Includes removal of cerebrospinal fluid from spinal or ventricular catheter/drain.
- A combination of insertion, continuing use and removal counts once.

Jugular venous monitoring
- Insertion, continuing use and removal of jugular venous catheter.
- Includes direct oximetry, measurement of lactate and invasive estimates of cerebral blood flow.
- A combination of insertion, continuing use and removal counts once.

Tonometer
- Insertion, continuing use and removal of a gastrointestinal tonometer.
- Includes continuous as well as intermittent techniques.
- A combination of insertion, continuing use and removal counts once.

Urinary catheter
- Insertion, continuing use and removal of a suprapubic or urethral catheter.
- A combination of insertion, continuing use and removal counts once.

Drugs

Nebulized drugs (frequent)
- Nebulized medication given more frequently than every four hours.
- Includes epoprostenol, surfactant and other unusual drugs, for example polymyxin B or pentamidine.

Sedation (inhaled agents)
- Use of an inhaled agent, for example, nitrous oxide, isoflurane, etc.
- Include if used to treat severe acute asthma.
- Do not include if used as an anaesthetic for procedures.

Feeding / Nutrition

Gastric / Jejunal tube
- Insertion and continuing use of a gastric or jejunal tube.
- Includes a tube, via whatever route, in the upper gastrointestinal tract for aspiration, enteral feeding or washouts.

Parenteral nutrition
- Administration of intravenous nutrient solutions by central or specialised peripheral venous catheter.
- Includes the sterile procedure of connecting bags prepared in pharmacy or aseptic preparation and administration of similar nutrient solutions, for example, "Vitrimix" or "Nutriflex".

Week 2

A day = A calendar day

Critical Care HRG Study

Please record the following data on a daily basis until the patient is discharged from the critical care unit

Day number / Date	1 / /	2 / /	3 / /	4 / /	5 / /	6 / /	7 / /
Activities of care received on a daily basis. Please tick the relevant box.	✓	✓	✓	✓	✓	✓	✓
Nursing / Observations (Continued)....							
Observations (neurological)[11]	11	11	11	11	11	11	11
Patient isolation[12]	12	12	12	12	12	12	12
Patient positioning (complex)[13]	13	13	13	13	13	13	13
Physiotherapy (standard)[14]	14	14	14	14	14	14	14
Physiotherapy (complex)[15]	15	15	15	15	15	15	15
Communications	✓	✓	✓	✓	✓	✓	✓
Communications (demanding)[1]	1	1	1	1	1	1	1
Psychological support (intermediate)[2]	2	2	2	2	2	2	2
Psychological support (complex)[3]	3	3	3	3	3	3	3
Relatives (intermediate)[4]	4	4	4	4	4	4	4
Relatives (complex)[5]	5	5	5	5	5	5	5
Ventilation	✓	✓	✓	✓	✓	✓	✓
Oxygenation[1]	1	1	1	1	1	1	1
Oxygenation (intermediate)[2]	2	2	2	2	2	2	2
Oxygenation (complex)[3]	3	3	3	3	3	3	3
Ventilation (non-invasive)[4]	4	4	4	4	4	4	4
Ventilation (CPAP)[5]	5	5	5	5	5	5	5
Ventilation (invasive)[6]	6	6	6	6	6	6	6
Nitric oxide therapy[7]	7	7	7	7	7	7	7
Monitoring Procedures	✓	✓	✓	✓	✓	✓	✓
Abdominal pressure measurement[1]	1	1	1	1	1	1	1
Arterial cannulation[2]	2	2	2	2	2	2	2
Cardiac output assessment (not PAC)[3]	3	3	3	3	3	3	3
Cardiac output assessment (with PAC)[4]	4	4	4	4	4	4	4
Central venous cannulation[5]	5	5	5	5	5	5	5
Cerebral monitoring[6]	6	6	6	6	6	6	6
Intracranial pressure monitoring[7]	7	7	7	7	7	7	7
Jugular venous monitoring[8]	8	8	8	8	8	8	8
Tonometer[9]	9	9	9	9	9	9	9
Urinary catheter[10]	10	10	10	10	10	10	10
Drugs	✓	✓	✓	✓	✓	✓	✓
Nebulized drugs (frequent)[1]	1	1	1	1	1	1	1
Sedation (inhaled agents)[2]	2	2	2	2	2	2	2
Feeding / Nutrition	✓	✓	✓	✓	✓	✓	✓
Gastric / Jejunal tube[1]	1	1	1	1	1	1	1
Parenteral nutrition[2]	2	2	2	2	2	2	2

Dialysis / Perfusion

Blood Purification
- Set-up and continuing use of automated or non-automated systems to perform peritoneal dialysis, haemodialysis, haemofiltration, plasmapheresis or isolated haemoperfusion.
- Procedures carried out to remove products of metabolism normally excreted by the kidney or to remove toxins, drugs or mediators.

Blood Purification complex
- Set-up and continuing use of haemoperfusion techniques, for example, Molecular Adsorbents Recirculating System (MARS) therapy, in addition to use of automated or non-automated systems to perform peritoneal dialysis, haemodialysis, haemofiltration or plasmapheresis.
- Indicates an unusually complicated, or time-consuming procedure, for example, need for continual interventions to keep a peritoneal dialysis or haemodialysis / veno-venous haemofiltration / continuous veno-venous haemodiafiltration system running because of technical problems.
- Recognises the requirement for extra nurse(s) to re-circulate, change circuit, replace filter, etc. more than once daily.
- Procedures carried out to remove products of metabolism normally excreted by the kidney or to remove toxins, drugs or mediators.

Events

Analgesia (regional)
- Insertion, continuing use and removal of a catheter for infusion of a local anaesthetic with or without opioid.
- Includes epidural and spinal techniques, with or without patient controlled analgesia, plexus and intrapleural analgesia and wound irrigation.
- A combination of insertion, continuing use and removal counts once.

Blood products
- Transfusion of fresh frozen plasma, platelets, cryoprecipitate, etc. for an acute bleeding disorder.
- There must be a documented coagulopathy or severe thrombocytopenia causing bleeding that clinically requires correction.
- Prophylaxis against bleeding not included.

Blood Transfusion (massive)
- Transfusion of ten or more units of blood or equivalent (estimated normal blood volume – male 70ml-1 kg-1, - female 60ml-1 kg-1 on a per weight basis).

Bronchoscopy
- Diagnostic or therapeutic bronchoscopy on your unit via oral or nasal route, or through an endotracheal or tracheostomy tube.

Cardiac resuscitation
- Cardiac arrest, or severe fall in cardiac output, that required bolus doses of vasoactive drugs, cardiac massage or defibrillation.
- Does not include the need for bolus doses of drugs simply due to syringe changes.

Cardioversion
- Synchronised direct current cardioversion for treatment of cardiac arrhythmia.
- Does not include defibrillation during a cardiac arrest.

Chest drain
- Insertion, continuing use and removal of an intra-pleural drain.
- Includes use of ultrasound guidance.
- A combination of insertion, continuing use and removal counts once.

Endoscopy
- Diagnostic or therapeutic gastrointestinal or genitourinary endoscopy on your unit, for example, for haematemesis, percutaneous endoscopic gastronomy, nasojejunal tube placement, colonoscopy, flexible sigmoidoscopy, cystoscopy or ureteroscopy.

Fluid therapy (resuscitation)
- Rapid infusion of 1000ml (or 20% estimated normal blood volume on a per weight basis) of any fluid within twenty minutes to reverse a significant deterioration in haemodynamic status.

Hypothermia (active warming)
- Active warming of patient whose initial core temperature is less than 35oC.
- Does not include treatment of mild hypothermia (core temperature is greater than or equal to 35oC).
- Includes electric blankets, hot air blowers, radiant heaters, peritoneal dialysis with warm fluids, warm gastric lavage, extracorporeal circuit or other intravascular techniques.
- Does not include normal prevention of hypothermia.

Hypothermia (induced)
- Active treatment to cool patient for therapeutic reasons with either invasive or external methods of cooling.
- Does not include simple antipyretic measures, for example, administration of paracetamol/non-steroidal anti-inflammatory drugs.
- Includes active efforts to reduce the temperature of a patient with malignant hyperpyrexia.

Lumbar puncture
- Diagnostic subarachnoid puncture.
- Includes other approaches, for example, cisternal.
- Does not include catheter techniques or fluid withdrawal from an indwelling catheter.

Mechanical circulatory support
- Insertion, continuing use and removal of a mechanical circulatory assist device, for example, an intra-aortic balloon pump.
- Includes all mechanical circulatory assist devices, that is, all devices that supply some or all of the energy to drive the circulation that is normally provided by the patient's heart.
- A combination of insertion, continuing use and removal counts once.

Minitracheostomy
- Insertion, continuing use and removal of a minitracheostomy tube.
- A combination of insertion, continuing use and removal counts once.

Pacemaker
- Insertion, continuing use and removal of a cardiac pacemaker.
- Includes transvenous, transthoracic and transoesophageal routes.
- A combination of insertion, continuing use and removal counts once.

Paracentesis
- Insertion, continuing use and removal of a drain from the abdominal cavity.
- Includes use of ultrasound guidance and peritoneal dialysis catheters.
- A combination of insertion, continuing use and removal counts once.

Percutaneous tracheostomy
- Insertion, continuing use and removal of a percutaneous tracheostomy on your unit.
- A combination of insertion, continuing use and removal counts once.

Pericardiocentesis
- Insertion, continuing use and removal of a drain from the pericardial space.
- Includes use of ultrasound guidance.
- A combination of insertion, continuing use and removal counts once.

Thoracocentesis
- Needle aspiration of fluid and/or air from the pleural space.
- Includes the use of ultrasound guidance.

Transfer (within your unit)
- Patient moved to another bed space or onto a different bed.

Variceal tamponade
- Insertion, continuing use and removal of tube designed to reduce upper gastrointestinal bleeding from varices by tamponade, for example, the Linton, Minnesota and Sengstaken-Blakemore tubes.
- A combination of insertion, continuing use and removal counts once.

Transfers

Transfer (within your hospital)
- Patient transported, even if temporarily, to another area in the same hospital accompanied by nursing/medical staff from your unit.
- Recognises loss of personnel from your unit for short periods of time – staff will return to your unit having handed over the patient.

Transfer (other hospital)
- Patient transported, even if temporarily, to another hospital accompanied by nursing/medical staff from your unit.
- Recognises loss of personnel from your unit for a prolonged period.
- Includes the sending of a retrieval team (unless this has its own dedicated staff not responsible for current patient management in your unit).

Discharge / Death

Patient discharge (alive)
- Recognises the extra work incurred, for example, administration and hand-over. Includes cleaning and restocking of bed space after a patient discharge.

Patient discharge (death)
- Laying out of a body and provision of normal support necessary for the bereaved. Recognises the extra work over and above that normally involved in discharging a patient.
- Includes cleaning and restocking of bed space after a patient discharge.

Brain stem death
- Completion of first and/or second formal tests confirming brain stem death.

Brain stem death (complex)
- Care of organ donor after confirmation of brain stem death. Process of organising organ donation including discharge of patient to theatre for organ retrieval.
- May include return of patient to your unit.

Week 2

Critical Care HRG Study

A day = A calendar day

Please record the following data on a daily basis until the patient is discharged from the critical care unit

Day number Date	1 / /	2 / /	3 / /	4 / /	5 / /	6 / /	7 / /
Dialysis / Perfusion	✓	✓	✓	✓	✓	✓	✓
Blood purification[1]	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1
Blood purification (complex)[2]	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2
Events: Please state the NUMBER of times the event occurred on a daily basis.							
Analgesia (regional)[1]	☐☐ 1	☐☐ 1	☐☐ 1	☐☐ 1	☐☐ 1	☐☐ 1	☐☐ 1
Blood products[2]	☐☐ 2	☐☐ 2	☐☐ 2	☐☐ 2	☐☐ 2	☐☐ 2	☐☐ 2
Blood transfusion (massive)[3]	☐☐ 3	☐☐ 3	☐☐ 3	☐☐ 3	☐☐ 3	☐☐ 3	☐☐ 3
Bronchoscopy[4]	☐☐ 4	☐☐ 4	☐☐ 4	☐☐ 4	☐☐ 4	☐☐ 4	☐☐ 4
Cardiac resuscitation[5]	☐☐ 5	☐☐ 5	☐☐ 5	☐☐ 5	☐☐ 5	☐☐ 5	☐☐ 5
Cardioversion[6]	☐☐ 6	☐☐ 6	☐☐ 6	☐☐ 6	☐☐ 6	☐☐ 6	☐☐ 6
Chest drain[7]	☐☐ 7	☐☐ 7	☐☐ 7	☐☐ 7	☐☐ 7	☐☐ 7	☐☐ 7
Endoscopy[8]	☐☐ 8	☐☐ 8	☐☐ 8	☐☐ 8	☐☐ 8	☐☐ 8	☐☐ 8
Fluid therapy (resuscitation)[9]	☐☐ 9	☐☐ 9	☐☐ 9	☐☐ 9	☐☐ 9	☐☐ 9	☐☐ 9
Hypothermia (active warming)[10]	☐☐ 10	☐☐ 10	☐☐ 10	☐☐ 10	☐☐ 10	☐☐ 10	☐☐ 10
Hypothermia (induced)[11]	☐☐ 11	☐☐ 11	☐☐ 11	☐☐ 11	☐☐ 11	☐☐ 11	☐☐ 11
Lumbar puncture[12]	☐☐ 12	☐☐ 12	☐☐ 12	☐☐ 12	☐☐ 12	☐☐ 12	☐☐ 12
Mechanical circulatory support[13]	☐☐ 13	☐☐ 13	☐☐ 13	☐☐ 13	☐☐ 13	☐☐ 13	☐☐ 13
Minitracheostomy[14]	☐☐ 14	☐☐ 14	☐☐ 14	☐☐ 14	☐☐ 14	☐☐ 14	☐☐ 14
Pacemaker[15]	☐☐ 15	☐☐ 15	☐☐ 15	☐☐ 15	☐☐ 15	☐☐ 15	☐☐ 15
Paracentesis[16]	☐☐ 16	☐☐ 16	☐☐ 16	☐☐ 16	☐☐ 16	☐☐ 16	☐☐ 16
Percutaneous tracheostomy[17]	☐☐ 17	☐☐ 17	☐☐ 17	☐☐ 17	☐☐ 17	☐☐ 17	☐☐ 17
Pericardiocentesis[18]	☐☐ 18	☐☐ 18	☐☐ 18	☐☐ 18	☐☐ 18	☐☐ 18	☐☐ 18
Thoracocentesis[19]	☐☐ 19	☐☐ 19	☐☐ 19	☐☐ 19	☐☐ 19	☐☐ 19	☐☐ 19
Transfer (within your unit)[20]	☐☐ 20	☐☐ 20	☐☐ 20	☐☐ 20	☐☐ 20	☐☐ 20	☐☐ 20
Variceal tamponade[21]	☐☐ 21	☐☐ 21	☐☐ 21	☐☐ 21	☐☐ 21	☐☐ 21	☐☐ 21
Transfers	✓	✓	✓	✓	✓	✓	✓
Transfer (within your hospital)[1]	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1
Transfer (other hospital)[2]	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2
Discharge / Death	✓	✓	✓	✓	✓	✓	✓
Patient discharge (alive)[1]	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1
Patient discharge (death)[2]	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2
Brain stem death[3]	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3
Brain stem death (complex)[4]	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4

LEVELS OF CARE

Level 3 care

For patients requiring one or more of the following:

- Advanced respiratory system monitoring and support alone.
- Two or more organ systems being monitored and supported, one of which may be advanced respiratory support.
- Patients with chronic impairment of one or more organ systems sufficient to restrict daily activity (co-morbidity) and who require support for an acute reversible failure of another organ.

Level 2 care

For patients requiring one or more of the following:

- Single organ system monitoring and support, excluding advanced respiratory support.
- General observation and monitoring: more detailed observation and the use of monitoring equipment that cannot safely be provided on a general ward. This may include extended post-operative monitoring for high-risk patients.
- Step-down care: patients who no longer need intensive care but who are not well enough to be returned to a general ward.

ORGAN SYSTEM SUPPORT

Basic respiratory support

Indicated by one or more of the following:

- More than 50% oxygen by fixed performance mask.
- The potential for deterioration to the point of needing advanced respiratory support.
- Physiotherapy to clear secretions at least two hourly, whether via tracheostomy, minitracheostomy, or in the absence of an artificial airway.
- Patients recently extubated after a prolonged period of intubation and mechanical ventilation
- Mask CPAP or non-invasive ventilation.
- Patients who are intubated to protect the airway but needing no ventilatory support and who are otherwise stable.

Advanced respiratory support

Indicated by:

- Mechanical ventilatory support (excluding mask (CPAP) by non-invasive methods e.g. mask ventilation).

Basic cardiovascular support

Indicated by one or more of the following:

- Treatment of circulatory instability due to hypovolaemia from any cause, (modified ACP)
- Use of a CVP line for basic monitoring or central venous access
- Use of an arterial line for basic monitoring of arterial pressures or sampling of arterial blood.
- An hourly record made of pulse rate, blood pressure and pulse oximetry
- Single vasoactive drug used to support arterial pressure, cardiac output or organ perfusion (modified ACP)
- Intravenous drugs to control cardiac arrhythmias
- Non-invasive measurement of cardiac output, (e.g. echocardiography, thoracic impedance).

Advanced cardiovascular support

Indicated by one or more of the following:

- Multiple vasoactive and/or rhythm controlling drugs used to support arterial pressure, cardiac output or organ perfusion.
- Patients resuscitated after cardiac arrest where intensive therapy is considered clinically appropriate (ACP)
- Invasive observation of cardiac output and derived indices, (e.g. pulmonary artery catheter, Lithium dilution, pulse contour analyses, oesophageal doppler).
- Intra aortic balloon pumping. (ACP)
- Insertion of temporary cardiac pacemaker
- Placement of a gastrointestinal tonometer

Renal support

Indicated by:

- Acute renal replacement therapy (haemodialysis, haemofiltration etc.)

Neurological support

Indicated by one or more of the following:

- Central nervous system depression, from whatever cause, sufficient to prejudice the airway and protective reflexes.
- Invasive neurological monitoring e.g. ICP, jugular bulb sampling.

Gastro intestinal support

Indicated by:

- Feeding with parenteral or enteral nutrition.

Dermatological support

Indicated by one or more of the following

- Patients with major skin rashes or burns.
- Use of trauma dressings.

Liver support

Indicated by:

- Extracorporeal liver replacement device i.e. MARS (Teraklin, Rostock, Germany), Bioartificial liver or charcoal haemoperfusion

ECMO

- Extracorporeal Membrane Oxygenation.

LOCATION OF CARE

- According to where the patient is being treated.

ACTIVITIES OF CARE

Nursing / Observations

Bladder irrigation

- Continuous irrigation, or repeated bladder washouts, via urethral or suprapubic catheter. Include bladder washouts only if required three or more times in an eight hour period.

Care off your unit (intermediate)

- Patient transferred to another part of the same hospital for a surgical, diagnostic or radiological procedure and who is cared for by staff from your unit during this time.
- Recognises loss of personnel from your unit for periods less than half an hour.

Care off your unit (complex)

- Patient transferred to another part of the same hospital for a surgical, diagnostic or radiological procedure and who is cared for by staff from your unit during this time.
- Recognises loss of personnel from your unit for periods more than half an hour.

Convulsions

- Caring for a patient who has more than one generalised convulsion in an eight hour period.
- Does not include myoclonic jerks.
- Recognises extra work because of repeated major seizure activity which is not yet fully controlled.

Drains / Stomas (intermediate)

- Care of simple wound drains (with or without suction) and care of dressings and drainage bag changes.

Drains / Stomas (complex)

- Care of problematic surgical drains (with or without suction) and urinary or gastrointestinal stomas because of blockage, leakage or drainage of large volumes.
- Includes pancreatic irrigation and high output fistulae.

Dressings (intermediate)

- Dressings requiring the attention of one or two nurses continuously for at least half an hour but no more than one hour.

Dressings (complex)

- Dressings requiring the attention of two or more nurses continuously for more than one hour.
- Recognises lengthy dressing times because of the large size, nature or number of dressings, for example, large or complex burns, exfoliative dermatitis, multiple or frequently soiled sites or the need for packing, debridement and irrigation, etc.

Multiple bedding changes

- Need to change bedding four or more times per 24 hours due to urinary or faecal incontinence, vomiting, bleeding, leaking wounds or other body fluids.

Observations (demanding)

- An unstable patient who requires frequent adjustment of infusions, ventilator settings, etc.
- Demands presence of an extra nurse, continuously at the bedside, for more than one hour.

Week 3

Critical Care HRG Study

A day = A calendar day

Please record the following data on a daily basis until the patient is discharged from the critical care unit

Day number **Date**	**1** / /	**2** / /	**3** / /	**4** / /	**5** / /	**6** / /	**7** / /
Level of care: ***Only one box should be ticked for each day of stay, and the highest level of care within a day should be recorded.***	✓	✓	✓	✓	✓	✓	✓
Level 3 (Intensive care)[1]	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1
Level 2 (High dependency care)[2]	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2
Organ system support: ***More than one organ support can be recorded.*** **Please tick the relevant boxes.**	✓	✓	✓	✓	✓	✓	✓
Basic respiratory support[1]	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1
Advanced respiratory support[2]	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2
Basic cardiovascular support[3]	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3
Advanced cardiovascular support[4]	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4
Renal support[5]	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5
Neurological support[6]	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6
Gastro-intestinal support[7]	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7
Dermatological support[8]	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8
Liver support[9]	☐ 9	☐ 9	☐ 9	☐ 9	☐ 9	☐ 9	☐ 9
Extracorporeal Membrane Oxygenation (ECMO)[10]	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10
Location of care. Please tick the relevant box.	✓	✓	✓	✓	✓	✓	✓
Intensive Care Unit (ICU)[1]	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1
High Dependency Unit (HDU)[2]	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2
Combined ICU / HDU[3]	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3
Coronary Care Unit[4]	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4
Combined ICU / HDU / Coronary Care Unit[5]	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5
Cardiothoracic ICU[6]	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6
Neurological ICU[7]	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7
Burns / Plastic Surgery Unit[8]	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8
Theatre Recovery Area[9]	☐ 9	☐ 9	☐ 9	☐ 9	☐ 9	☐ 9	☐ 9
Other[10] (please state).....	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10
Activities of care received on a daily basis. Please tick the relevant boxes.	✓	✓	✓	✓	✓	✓	✓
Nursing / Observations							
Bladder irrigation[1]	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1
Care off your unit (intermediate)[2]	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2
Care off your unit (complex)[3]	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3
Convulsions[4]	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4
Drains / stomas (intermediate)[5]	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5	☐ 5
Drains / stomas (complex)[6]	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6	☐ 6
Dressings (intermediate)[7]	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7	☐ 7
Dressings (complex)[8]	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8	☐ 8
Multiple bedding changes[9]	☐ 9	☐ 9	☐ 9	☐ 9	☐ 9	☐ 9	☐ 9
Observations (demanding)[10]	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10	☐ 10

Nursing / Observations (continued)

Observations (neurological)
- Examination of the pupils, more frequently than hourly, with a formal Glasgow Coma Score assessment.
- Recognises care over and above routine hourly observations because of impaired neurological function.

Patient Isolation
- Formal barrier or reverse-barrier nursing of a patient.
- Recognises the loss of circulating staff from the general unit who are not easily available to provide assistance to others and to whom it is not easy to provide assistance.

Patient Positioning (complex)
- When four or more staff are required to move a patient, for example, prone positioning.

Physiotherapy (standard)
- Standard physiotherapy that can be done by one or two people, for example, passive movements and deep breathing.
- Includes easy patient positioning and recruitment manoeuvres.

Physiotherapy (complex)
- Physiotherapy which requires three or more people to perform.
- Includes moving patient between chair and bed or mobilising patient.

Communications

Communications (demanding)
- Protracted, complicated and demanding multidisciplinary and/or multi-professional discussion of patient management including organisational problems.
- Removes nurse from bedside care for a total period of more than one hour.
- Recognises discussion with medical or nursing colleagues, in relation to investigation and management, that is time-consuming.

Psychological support (intermediate)
- Psychologically disturbed patient, demanding attention, or having trouble communicating, such that one nurse must remain at the bedside continuously for more than one hour.
- Patient is not necessarily a danger to themselves but one who requires a great deal of support.

Psychological support (complex)
- Psychologically disturbed patient, demanding attention such that two or more nurses must remain at the bedside continuously for more than one hour to assure the patient's safety.
- Patient, due to confused state, is a potential danger to themselves, for example, constantly pulling out lines, vigorous attempts at self-extubation, climbing out of bed, etc.

Relatives (intermediate)
- Relatives, family and friends who require more than normal support, including explanations of the presenting problem or progress to date.
- Removes nurse from bedside care for a total cumulative period of up to one hour in an eight hour period.

Relatives (complex)
- Relatives, family and friends who require significantly increased levels of support, including detailed explanations of the presenting problem or progress to date.
- Removes nurse from bedside care for a total cumulative period of more than one hour in an eight hour period.
- Includes those patients of interest to the media or relatives who are aggressive, hostile or very distressed.
- Implies prolonged discussions that make large demands on staff time.

Ventilation

Oxygenation
- Supplemental oxygen via mask and/or nasal cannulae (less than 50%).

Oxygenation (intermediate)
- Supplemental oxygen via mask and/or nasal cannulae (50% or more).

Oxygenation (complex)
- Includes intravenous oxygenator, extracorporeal techniques and partial liquid ventilation.

Ventilation (non-invasive)
- Use of non-invasive techniques to assist ventilation.
- Includes positive pressure ventilation using a face-mask or nasal device.
- Includes negative pressure (cuirass) ventilation in a non-intubated patient.

Ventilation (CPAP)
- Use of CPAP in a spontaneously breathing patient.
- CPAP may be given via a face-mask system or, equivalently, as continuous negative extrathoracic pressure, for example, by the Hayek oscillator.
- Does not include pressure support.
- Patient may still have a tracheal tube.

Ventilation (invasive)
- A mechanical device gives partial or full ventilatory support to the intubated patient by providing some or all of the energy required to increase lung volume during inspiration.
- Includes airway pressure release ventilation / bipositive airway pressure, continuous positive airway pressure with pressure support and high frequency techniques.
- Includes negative pressure (cuirass) ventilation only if the patient has a tracheal tube.

Nitric oxide therapy
- Use of inhaled nitric oxide to improve oxygenation or decrease pulmonary artery pressure.

Monitoring Procedures

Abdominal pressure measurement
- Set-up of system and measurement of intra-abdominal pressure, for example, by transducing intravesical or intragastric pressure.
- A combination of set-up and measurement counts once.

Arterial cannulation
- Insertion, continuing use and removal of an arterial cannula, sheath or catheter for direct pressure recording with or without therapeutic infusions.
- Includes use of Paratrend 7® monitor, or similar.
- A combination of insertion, continuing use and removal counts once.

Cardiac output assessment (not PAC)
- Insertion, repeat calibrations, continuing use and removal of methods (not PAC) for estimating cardiac output, extra-vascular lung water and/or blood volume, for example, oesophageal Doppler, PiCCO, LiDCO etc.
- A combination of insertion, repeat calibrations, continuing use and removal counts once.

Cardiac output assessment (with PAC)
- Insertion, repeat calibrations, continuing use and removal of a pulmonary artery catheter (use includes any or all of the following: measurement of cardiac filling pressures; cardiac output; mixed venous oxygen saturation).
- A combination of insertion, repeat calibrations, continuing use and removal counts once.

Central venous cannulation
- Insertion, continuing use and removal of a central venous cannula, sheath or catheter for direct venous pressure recording with or without therapeutic infusions.
- Includes access for dialysis.
- Includes femoral route and left atrial catheter placed during surgery.
- A combination of insertion, continuing use and removal counts once.

Cerebral monitoring
- Set-up, calibration and continuing use of non-invasive monitoring of cerebral activity, blood flow, or oxygenation.
- Includes all indirect methods of measurement, for example, processed EEG, indirect cerebral oximetry, Doppler cerebral artery blood flow.
- A combination of set-up, calibration, continuing use counts once.

Intracranial pressure monitoring
- Insertion, continuing use and removal of any invasive device for monitoring intracranial pressure.
- Includes Richmond screw, ventriculostomy, Camino catheter, Codman microtransducer, etc.
- Includes removal of cerebrospinal fluid from spinal or ventricular catheter/drain.
- A combination of insertion, continuing use and removal counts once.

Jugular venous monitoring
- Insertion, continuing use and removal of jugular venous catheter.
- Includes direct oximetry, measurement of lactate and invasive estimates of cerebral blood flow.
- A combination of insertion, continuing use and removal counts once.

Tonometer
- Insertion, continuing use and removal of a gastrointestinal tonometer.
- Includes continuous as well as intermittent techniques.
- A combination of insertion, continuing use and removal counts once.

Urinary catheter
- Insertion, continuing use and removal of a suprapubic or urethral catheter.
- A combination of insertion, continuing use and removal counts once.

Drugs

Nebulized drugs (frequent)
- Nebulized medication given more frequently than every four hours.
- Includes epoprostenol, surfactant and other unusual drugs, for example polymyxin B or pentamidine.

Sedation (inhaled agents)
- Use of an inhaled agent, for example, nitrous oxide, isoflurane, etc.
- Include if used to treat severe acute asthma.
- Do not include if used as an anaesthetic for procedures.

Feeding / Nutrition

Gastric / Jejunal tube
- Insertion and continuing use of a gastric or jejunal tube.
- Includes a tube, via whatever route, in the upper gastrointestinal tract for aspiration, enteral feeding or washouts.

Parenteral nutrition
- Administration of intravenous nutrient solutions by central or specialised peripheral venous catheter.
- Includes the sterile procedure of connecting bags prepared in pharmacy or aseptic preparation and administration of similar nutrient solutions, for example, "Vitrimix" or "Nutriflex".

Week 3

A day = A calendar day

Critical Care HRG Study

Please record the following data on a daily basis until the patient is discharged from the critical care unit

Day number / Date	1 / /	2 / /	3 / /	4 / /	5 / /	6 / /	7 / /
Activities of care received on a daily basis. Please tick the relevant box.	✓	✓	✓	✓	✓	✓	✓
Nursing / Observations (Continued)....							
Observations (neurological)[11]	11	11	11	11	11	11	11
Patient isolation[12]	12	12	12	12	12	12	12
Patient positioning (complex)[13]	13	13	13	13	13	13	13
Physiotherapy (standard)[14]	14	14	14	14	14	14	14
Physiotherapy (complex)[15]	15	15	15	15	15	15	15
Communications	✓	✓	✓	✓	✓	✓	✓
Communications (demanding)[1]	1	1	1	1	1	1	1
Psychological support (intermediate)[2]	2	2	2	2	2	2	2
Psychological support (complex)[3]	3	3	3	3	3	3	3
Relatives (intermediate)[4]	4	4	4	4	4	4	4
Relatives (complex)[5]	5	5	5	5	5	5	5
Ventilation	✓	✓	✓	✓	✓	✓	✓
Oxygenation[1]	1	1	1	1	1	1	1
Oxygenation (intermediate)[2]	2	2	2	2	2	2	2
Oxygenation (complex)[3]	3	3	3	3	3	3	3
Ventilation (non-invasive)[4]	4	4	4	4	4	4	4
Ventilation (CPAP)[5]	5	5	5	5	5	5	5
Ventilation (invasive)[6]	6	6	6	6	6	6	6
Nitric oxide therapy[7]	7	7	7	7	7	7	7
Monitoring Procedures	✓	✓	✓	✓	✓	✓	✓
Abdominal pressure measurement[1]	1	1	1	1	1	1	1
Arterial cannulation[2]	2	2	2	2	2	2	2
Cardiac output assessment (not PAC)[3]	3	3	3	3	3	3	3
Cardiac output assessment (with PAC)[4]	4	4	4	4	4	4	4
Central venous cannulation[5]	5	5	5	5	5	5	5
Cerebral monitoring[6]	6	6	6	6	6	6	6
Intracranial pressure monitoring[7]	7	7	7	7	7	7	7
Jugular venous monitoring[8]	8	8	8	8	8	8	8
Tonometer[9]	9	9	9	9	9	9	9
Urinary catheter[10]	10	10	10	10	10	10	10
Drugs	✓	✓	✓	✓	✓	✓	✓
Nebulized drugs (frequent)[1]	1	1	1	1	1	1	1
Sedation (inhaled agents)[2]	2	2	2	2	2	2	2
Feeding / Nutrition	✓	✓	✓	✓	✓	✓	✓
Gastric / Jejunal tube[1]	1	1	1	1	1	1	1
Parenteral nutrition[2]	2	2	2	2	2	2	2

Dialysis / Perfusion

Blood Purification
- Set-up and continuing use of automated or non-automated systems to perform peritoneal dialysis, haemodialysis, haemofiltration, plasmapheresis or isolated haemoperfusion.
- Procedures carried out to remove products of metabolism normally excreted by the kidney or to remove toxins, drugs or mediators.

Blood Purification complex
- Set-up and continuing use of haemoperfusion techniques, for example, Molecular Adsorbents Recirculating System (MARS) therapy, in addition to use of automated or non-automated systems to perform peritoneal dialysis, haemodialysis, haemofiltration or plasmapheresis.
- Indicates an unusually complicated, or time-consuming procedure, for example, need for continual interventions to keep a peritoneal dialysis or haemodialysis / veno-venous haemofiltration / continuous veno-venous haemodiafiltration system running because of technical problems.
- Recognises the requirement for extra nurse(s) to re-circulate, change circuit, replace filter, etc. more than once daily.
- Procedures carried out to remove products of metabolism normally excreted by the kidney or to remove toxins, drugs or mediators.

Events

Analgesia (regional)
- Insertion, continuing use and removal of a catheter for infusion of a local anaesthetic with or without opioid.
- Includes epidural and spinal techniques, with or without patient controlled analgesia, plexus and intrapleural analgesia and wound irrigation.
- A combination of insertion, continuing use and removal counts once.

Blood products
- Transfusion of fresh frozen plasma, platelets, cryoprecipitate, etc. for an acute bleeding disorder.
- There must be a documented coagulopathy or severe thrombocytopenia causing bleeding that clinically requires correction.
- Prophylaxis against bleeding not included.

Blood Transfusion (massive)
- Transfusion of ten or more units of blood or equivalent (estimated normal blood volume – male 70ml-1 kg-1, - female 60ml-1 kg-1 on a per weight basis).

Bronchoscopy
- Diagnostic or therapeutic bronchoscopy on your unit via oral or nasal route, or through an endotracheal or tracheostomy tube.

Cardiac resuscitation
- Cardiac arrest, or severe fall in cardiac output, that required bolus doses of vasoactive drugs, cardiac massage or defibrillation.
- Does not include the need for bolus doses of drugs simply due to syringe changes.

Cardioversion
- Synchronised direct current cardioversion for treatment of cardiac arrhythmia.
- Does not include defibrillation during a cardiac arrest.

Chest drain
- Insertion, continuing use and removal of an intra-pleural drain.
- Includes use of ultrasound guidance.
- A combination of insertion, continuing use and removal counts once.

Endoscopy
- Diagnostic or therapeutic gastrointestinal or genitourinary endoscopy on your unit, for example, for haematemesis, percutaneous endoscopic gastronomy, nasojejunal tube placement, colonoscopy, flexible sigmoidoscopy, cystoscopy or ureteroscopy.

Fluid therapy (resuscitation)
- Rapid infusion of 1000ml (or 20% estimated normal blood volume on a per weight basis) of any fluid within twenty minutes to reverse a significant deterioration in haemodynamic status.

Hypothermia (active warming)
- Active warming of patient whose initial core temperature is less than 35oC.
- Does not include treatment of mild hypothermia (core temperature is greater than or equal to 35oC).
- Includes electric blankets, hot air blowers, radiant heaters, peritoneal dialysis with warm fluids, warm gastric lavage, extracorporeal circuit or other intravascular techniques.
- Does not include normal prevention of hypothermia.

Hypothermia (induced)
- Active treatment to cool patient for therapeutic reasons with either invasive or external methods of cooling.
- Does not include simple antipyretic measures, for example, administration of paracetamol/non-steroidal anti-inflammatory drugs.
- Includes active efforts to reduce the temperature of a patient with malignant hyperpyrexia.

Lumbar puncture
- Diagnostic subarachnoid puncture.
- Includes other approaches, for example, cisternal.
- Does not include catheter techniques or fluid withdrawal from an indwelling catheter.

Mechanical circulatory support
- Insertion, continuing use and removal of a mechanical circulatory assist device, for example, an intra-aortic balloon pump.
- Includes all mechanical circulatory assist devices, that is, all devices that supply some or all of the energy to drive the circulation that is normally provided by the patient's heart.
- A combination of insertion, continuing use and removal counts once.

Minitracheostomy
- Insertion, continuing use and removal of a minitracheostomy tube.
- A combination of insertion, continuing use and removal counts once.

Pacemaker
- Insertion, continuing use and removal of a cardiac pacemaker.
- Includes transvenous, transthoracic and transoesophageal routes.
- A combination of insertion, continuing use and removal counts once.

Paracentesis
- Insertion, continuing use and removal of a drain from the abdominal cavity.
- Includes use of ultrasound guidance and peritoneal dialysis catheters.
- A combination of insertion, continuing use and removal counts once.

Percutaneous tracheostomy
- Insertion, continuing use and removal of a percutaneous tracheostomy on your unit.
- A combination of insertion, continuing use and removal counts once.

Pericardiocentesis
- Insertion, continuing use and removal of a drain from the pericardial space.
- Includes use of ultrasound guidance.
- A combination of insertion, continuing use and removal counts once.

Thoracocentesis
- Needle aspiration of fluid and/or air from the pleural space.
- Includes the use of ultrasound guidance.

Transfer (within your unit)
- Patient moved to another bed space or onto a different bed.

Variceal tamponade
- Insertion, continuing use and removal of tube designed to reduce upper gastrointestinal bleeding from varices by tamponade, for example, the Linton, Minnesota and Sengstaken-Blakemore tubes.
- A combination of insertion, continuing use and removal counts once.

Transfers

Transfer (within your hospital)
- Patient transported, even if temporarily, to another area in the same hospital accompanied by nursing/medical staff from your unit.
- Recognises loss of personnel from your unit for short periods of time – staff will return to your unit having handed over the patient.

Transfer (other hospital)
- Patient transported, even if temporarily, to another hospital accompanied by nursing/medical staff from your unit.
- Recognises loss of personnel from your unit for a prolonged period.
- Includes the sending of a retrieval team (unless this has its own dedicated staff not responsible for current patient management in your unit).

Discharge / Death

Patient discharge (alive)
- Recognises the extra work incurred, for example, administration and hand-over. Includes cleaning and restocking of bed space after a patient discharge.

Patient discharge (death)
- Laying out of a body and provision of normal support necessary for the bereaved. Recognises the extra work over and above that normally involved in discharging a patient.
- Includes cleaning and restocking of bed space after a patient discharge.

Brain stem death
- Completion of first and/or second formal tests confirming brain stem death.

Brain stem death (complex)
- Care of organ donor after confirmation of brain stem death. Process of organising organ donation including discharge of patient to theatre for organ retrieval.
- May include return of patient to your unit.

Week 3

Critical Care HRG Study

A day = A calendar day

Please record the following data on a daily basis until the patient is discharged from the critical care unit

Day number / Date	1 / /	2 / /	3 / /	4 / /	5 / /	6 / /	7 / /
Dialysis / Perfusion	✓	✓	✓	✓	✓	✓	✓
Blood purification[1]	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1
Blood purification (complex)[2]	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2
Events: Please state the NUMBER of times the event occurred on a daily basis.							
Analgesia (regional)[1]	☐☐ 1	☐☐ 1	☐☐ 1	☐☐ 1	☐☐ 1	☐☐ 1	☐☐ 1
Blood products[2]	☐☐ 2	☐☐ 2	☐☐ 2	☐☐ 2	☐☐ 2	☐☐ 2	☐☐ 2
Blood transfusion (massive)[3]	☐☐ 3	☐☐ 3	☐☐ 3	☐☐ 3	☐☐ 3	☐☐ 3	☐☐ 3
Bronchoscopy[4]	☐☐ 4	☐☐ 4	☐☐ 4	☐☐ 4	☐☐ 4	☐☐ 4	☐☐ 4
Cardiac resuscitation[5]	☐☐ 5	☐☐ 5	☐☐ 5	☐☐ 5	☐☐ 5	☐☐ 5	☐☐ 5
Cardioversion[6]	☐☐ 6	☐☐ 6	☐☐ 6	☐☐ 6	☐☐ 6	☐☐ 6	☐☐ 6
Chest drain[7]	☐☐ 7	☐☐ 7	☐☐ 7	☐☐ 7	☐☐ 7	☐☐ 7	☐☐ 7
Endoscopy[8]	☐☐ 8	☐☐ 8	☐☐ 8	☐☐ 8	☐☐ 8	☐☐ 8	☐☐ 8
Fluid therapy (resuscitation)[9]	☐☐ 9	☐☐ 9	☐☐ 9	☐☐ 9	☐☐ 9	☐☐ 9	☐☐ 9
Hypothermia (active warming)[10]	☐☐ 10	☐☐ 10	☐☐ 10	☐☐ 10	☐☐ 10	☐☐ 10	☐☐ 10
Hypothermia (induced)[11]	☐☐ 11	☐☐ 11	☐☐ 11	☐☐ 11	☐☐ 11	☐☐ 11	☐☐ 11
Lumbar puncture[12]	☐☐ 12	☐☐ 12	☐☐ 12	☐☐ 12	☐☐ 12	☐☐ 12	☐☐ 12
Mechanical circulatory support[13]	☐☐ 13	☐☐ 13	☐☐ 13	☐☐ 13	☐☐ 13	☐☐ 13	☐☐ 13
Minitracheostomy[14]	☐☐ 14	☐☐ 14	☐☐ 14	☐☐ 14	☐☐ 14	☐☐ 14	☐☐ 14
Pacemaker[15]	☐☐ 15	☐☐ 15	☐☐ 15	☐☐ 15	☐☐ 15	☐☐ 15	☐☐ 15
Paracentesis[16]	☐☐ 16	☐☐ 16	☐☐ 16	☐☐ 16	☐☐ 16	☐☐ 16	☐☐ 16
Percutaneous tracheostomy[17]	☐☐ 17	☐☐ 17	☐☐ 17	☐☐ 17	☐☐ 17	☐☐ 17	☐☐ 17
Pericardiocentesis[18]	☐☐ 18	☐☐ 18	☐☐ 18	☐☐ 18	☐☐ 18	☐☐ 18	☐☐ 18
Thoracocentesis[19]	☐☐ 19	☐☐ 19	☐☐ 19	☐☐ 19	☐☐ 19	☐☐ 19	☐☐ 19
Transfer (within your unit)[20]	☐☐ 20	☐☐ 20	☐☐ 20	☐☐ 20	☐☐ 20	☐☐ 20	☐☐ 20
Variceal tamponade[21]	☐☐ 21	☐☐ 21	☐☐ 21	☐☐ 21	☐☐ 21	☐☐ 21	☐☐ 21
Transfers	✓	✓	✓	✓	✓	✓	✓
Transfer (within your hospital)[1]	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1
Transfer (other hospital)[2]	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2
Discharge / Death	✓	✓	✓	✓	✓	✓	✓
Patient discharge (alive)[1]	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1
Patient discharge (death)[2]	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2
Brain stem death[3]	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3
Brain stem death (complex)[4]	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4	☐ 4

Appendix 5.4: Poster For Relatives

DEVELOPMENT OF HEALTHCARE RESOURCE GROUPS FOR CRITICAL CARE: A NATIONAL PILOT STUDY

Clare Hibbert[1], Elizabeth Coates[2], John Morris[3], John Brazier[1], Gareth Parry[4]

[1]Sheffield Health Economics Group, University of Sheffield; [2]Medical Economics and Research Centre, Sheffield, [3]William Harvey Hospital, Ashford, [4]Medical Care Research Unit, University of Sheffield

The University of Sheffield ScHARR School of Health and Related Research

INTRODUCTION

We are studying all patients admitted to the critical care unit in this hospital between 1st February 2003 and 30th April 2003, as part of a national research study funded by the Information Authority of the NHS Executive and the Medical Research Council. As we're not able to ask your relative whether they would allow us to analyse some of their data (that is collected by staff whilst they are treated in the critical care unit) – we would like to ask you to read this poster on their behalf.

Please take time to read the following information carefully and discuss it with others if you wish.

Thank you for reading this.

All of the information collected on your relative will be given to us in the strictest of confidence. It will NOT be possible for anyone to know their identity (i.e. their name or any other personal information).

All we will know is the types of treatments that they may have received during their stay in the critical care unit on a daily basis.

This study does not change any treatment that your relative is receiving.

WHAT IS THE PURPOSE OF THIS STUDY?

Patients treated in a critical care unit are very ill, often needing life-support until they recover. There are a lot of experienced nurses looking after patients in critical care, as the care that they receive is more intensive than they would receive if they were being looked after on a normal hospital ward. This means that the cost of critical care tends to be much higher than other services in the hospital.

This research study is trying to find a way of working out how much it costs to treat different types of critical care patients in different hospitals. The reason why this study is so important, is because we need to have a better understanding of how much money is needed on an annual basis, to treat patients in critical care units. At the moment, we don't know how much money is needed in advance to treat patients – we only know how much money we have spent over the year. This means that it is difficult for critical care units to plan ahead on a financial basis.

The study will last for three months and is being done in other critical care units, as well as this one, all over the country.

WHY HAS YOUR RELATIVE BEEN CHOSEN?

The only reason for us collecting data on your relative is because they are receiving critical care during this 3-month study period.

DOES MY RELATIVE HAVE TO TAKE PART IN THIS STUDY?

No. It is entirely up to you to decide whether your relative would be happy for us to use some of their data (that is already being collected) for the purposes of this study. If you think that they wouldn't be happy, then we would like to ask you to sign a form, which will prevent the staff working on the critical care unit from submitting your relative's data for analysis. If however you think that your relative would be happy to participate in this study, you do not need to do anything.

YOUR DECISION, EITHER WAY, WILL NOT AFFECT THE STANDARD OF CARE THAT YOUR RELATIVE RECEIVES.

WHAT WILL HAPPEN IF I AGREE THAT MY RELATIVE CAN TAKE PART IN THIS STUDY?

All that will happen is that a form, completed by the nurses looking after your relative, describing the types of treatments that they may have had during their stay in the critical care unit, will be sent to us for analysis.

WILL THE FACT THAT MY RELATIVE IS TAKING PART IN THIS STUDY BE KEPT CONFIDENTIAL?

Yes. All information collected about your relative during the course of the research will be kept strictly confidential. Any information about them which leaves the hospital will have their name and address removed, so that they cannot be recognised from it.

WHAT WILL HAPPEN TO THE RESULTS OF THE RESEARCH STUDY?

The results of this study will be analysed at the University of Sheffield by Clare Hibbert, who is conducting the study as part of a Joint Department of Health / Medical Research Council Special Training Fellowship in Health Services Research. The results of this study will be used to decide how critical care patients should be best described in terms of their resource use. The findings from this study will be published in a peer-reviewed medical journal. Your relative will not be identified in any report or publication.

WHO IS ORGANISING AND FUNDING THE RESEARCH?

The research is being funded by the Information Authority of the NHS Executive and the Medical Research Council. The hospitals are not receiving any payment for their participation in this study.

WHO HAS REVIEWED THE STUDY?

The study has been reviewed and approved by the Trent Multi-Centre Research Ethics Committee.

THANK YOU VERY MUCH FOR SUPPORTING THIS STUDY!

ACKNOWLEDGEMENTS

We are very grateful to the nursing staff working in the participate centres and the North Trent Critical Care Network for their help with this study. Particular thanks to the research advisory group - Professor J Brazier, Professor J Nichol, Professor M Campbell, Professor M Mugford, Dr. N Coad, Mr. C McCabe, Ms S Partridge, Ms E Rees, Mr J Bradley, Ms. Jeri Coates, K Rowan and Dr. D Edbrooke. The following nurses have been extremely helpful. Sr. D Bainbridge, Sr. S Cockbill-Black, Sr. F Cockburn, Sr. G Faulkner and Sr. S Reynolds.

Appendix 5.5: Declaration of Non-Participation Form

Hospital Name: Royal Berkshire Hospital
Study Number: MREC/02/4/088

Please complete this form if you would prefer your relatives' data NOT to be included in this study

DECLARATION OF NON-PARTICIPATION

TITLE OF PROJECT:

"DEVELOPMENT OF HEALTHCARE RESOURCE GROUPS FOR CRITICAL CARE PATIENTS"

Please tick **both** boxes (✓)

1. I confirm that I have read and understand the poster displayed in the relatives waiting area for the above study and have had the opportunity to ask questions ☐

2. I would prefer it however if my relatives' data was not used for this research study ☐

_____

Name of your relative:
(IN CAPITAL LETTERS)

_____ _____ _____

Your name (IN CAPITAL LETTERS) | Date | Your signature

Please place this form in the envelope provided and seal it

Thank you

Appendix 5.6: Study Methods Questionnaire

Critical Care HRG Study

Study Methods Questionnaire

Hospital Name

Please complete and return to:

Clare Hibbert,
MRC Fellow in Health Services Research,
Sheffield Health Economics Group,
University of Sheffield
Regent Court
30 Regent Street
Sheffield S1 4DA

How were the data collection booklets completed?

Tick one box only ✓

Prospective completion of booklets at the bedside (ticking activities as and when they occurred) ☐

Retrospective completion at the bedside (ticking activities to reflect the care delivered over the previous 24 hour period) ☐

Retrospective completion away from the bedside (ticking activities to reflect the care delivered as documented in the patient's care records) ☐

Other (specify) ☐

.....

.....

.....

Who completed the data collection booklets?

Tick those boxes that apply ✓

Bedside nurses looking after the patients ☐

Medical staff ☐

Audit nurses ☐

Research nurses ☐

Ward clerks ☐

Information assistants ☐

Audit clerks ☐

Other (specify) ☐

.....

What did you do if you missed a patient from the study?

Tick one box only ✓

Completed the data collection booklet using data from the patients' medical records ☐

Did not complete a booklet for the said patient(s) ☐

Other (state) ☐

.....

.....

.....

Not applicable ☐

What were the reasons for missing patients?

Tick those boxes that apply ✓

Ran out of data collection booklets ☐

Could not locate data collection booklets ☐

Patient in for such a short period of time in the unit that it didn't seem worth it ☐

Unit really busy therefore did not have time and forgot to complete booklet retrospectively ☐

Other ☐

_____

_____

_____

How many people were involved in completing the booklets?

Tick one box only ✓

- One person alone ☐
- >1 < 5 ☐
- >5 <10 ☐
- >10 <15 ☐
- >15 <20 ☐
- >20 ☐

When were the data collection booklets completed?

Tick one box only ✓

- Midnight ☐
- As and when the activities of care occurred ☐
- At the end of each nursing shift ☐
- At the beginning of each nursing shift ☐
- At discharge from the ICU ☐
- Other (specify) ☐

.....

.....

.....

.....

Views on the study data set continued….

What did you think about the data set used for this study? i.e. strengths and weaknesses

Transfer of data into the booklets

✓ One box only

	Yes	No
Were the booklets used, as the primary method of data entry for the study?	☐	☐
Was any data transferred into the booklet after the patient was discharged i.e. using data from a database?	☐	☐
Was any SOPRA data (not the version used for this study) used to complete the booklets retrospectively?	☐	☐
Was any TISS data used to complete the booklets retrospectively?	☐	☐
Were any of the organ support fields completed retrospectively using ACP data (and organ support definitions)?	☐	☐

Views on the study data set

What did you think about the data set used for this study? i.e. strengths and weaknesses

e.g. Coverage of care items, ease of completion, quality of definitions etc.

Appendix 5.7: Expenditure Questionnaires

Critical Care HRG Study

Questionnaire on Clinical and Biomedical Scientists

Hospital Name

Please complete and return to:

Clare Hibbert
MRC Fellow in Health Services Research,
Sheffield Health Economics Group,
University of Sheffield,
Regent Court,
30 Regent Street,
Sheffield S1 4DA

Acknowledgements to the Critical Care National Working Group on Costing.
This questionnaire is based in part on the Cost Block Methodology

Expenditure on clinical scientists

Expenditure on clinical scientists relates to such specific services provided to the unit by individuals or a team of staff. If applicable, the salaried costs of the clinical scientist normally working in the unit can be used, taking into account the amount of time that they spent in the unit (including overheads).

March '03 (£) Rounded to nearest £	April '03 (£) Rounded to nearest £	May '03 (£) Rounded to nearest £
☐☐,☐☐☐	☐☐,☐☐☐	☐☐,☐☐☐

Please provide in this box a description of the nature of service provided for critical care and/or outreach care and if applicable, how the above costs were determined.

Expenditure on biomedical scientists

Expenditure on biomedical scientists relates to such specific services provided to the unit by individuals or a team of staff. If applicable, the salaried cost of the biomedical scientist normally working in the unit can be used, taking into account the amount of time that they spent in the unit (including overheads).

March '03 (£) Rounded to nearest £	April '03 (£) Rounded to nearest £	May '03 (£) Rounded to nearest £
□□,□□□	□□,□□□	□□,□□□

Please provide in this box a description of the nature of service provided for critical care and/or outreach care and if applicable, how the above costs were determined.

Critical Care HRG Study

Questionnaire on blood and blood products

Hospital Name

Please complete and return to:

Clare Hibbert
MRC Fellow in Health Services Research,
Sheffield Health Economics Group,
University of Sheffield,
Regent Court,
30 Regent Street,
Sheffield S1 4DA

Acknowledgements to the Critical Care National Working Group on Costing.
This questionnaire is based in part on the Cost Block Methodology

Expenditure on blood and blood products

Monthly expenditure on blood and blood products used by the unit should include expenditure on whole blood and other blood products, but EXCLUDE albumin, as this is collected within the drugs and fluids section.

March '03 (£) Rounded to nearest £	April '03 (£) Rounded to nearest £	May '03 (£) Rounded to nearest £
☐☐,☐☐☐	☐☐,☐☐☐	☐☐,☐☐☐

C Hibbert & E Coates. Sheffield Health Economics Group
July 2003

Critical Care HRG Study

Questionnaire on IT Professionals (database managers etc).

Hospital Name

Please complete and return to:

Clare Hibbert
MRC Fellow in Health Services Research,
Sheffield Health Economics Group,
University of Sheffield,
Regent Court,
30 Regent Street,
Sheffield S1 4DA

Acknowledgements to the Critical Care National Working Group on Costing.
This questionnaire is based in part on the Cost Block Methodology

Expenditure on IT Professionals (database managers etc)

Expenditure on IT Professionals (database managers etc) relates to such specific services provided to the unit. If applicable, the salaried costs of such professionals normally working in the unit can be used, taking into account the amount of time that they spent in the unit (including overheads).

March '03 (£) Rounded to nearest £	April '03 (£) Rounded to nearest £	May '03 (£) Rounded to nearest £
☐☐,☐☐☐	☐☐,☐☐☐	☐☐,☐☐☐

Please provide in this box a description of the nature of service provided for critical care and/or outreach care and if applicable, how the above costs were determined.

Critical Care HRG Study

Questionnaire on Disposable Equipment

Hospital Name

Please complete and return to:

Clare Hibbert
MRC Fellow in Health Services Research,
Sheffield Health Economics Group,
University of Sheffield,
Regent Court,
30 Regent Street,
Sheffield S1 4DA

Acknowledgements to the Critical Care National Working Group on Costing.
This questionnaire is based in part on the Cost Block Methodology

Expenditure on Disposable Equipment

Monthly expenditure on disposable equipment used by the unit. Disposable equipment refers to all equipment used for patient care in the unit (sterile and non-sterile) for single or very limited use. Examples would include syringes, gloves, CVVH bloodlines and dressings (including medicated dressings). Expenditure on disposable equipment should be available from either your budget statement or from the Supplies Department within your hospital. Costs should include Value Added Tax (VAT).

March '03 (£) Rounded to nearest £	April '03 (£) Rounded to nearest £	May '03 (£) Rounded to nearest £
☐☐,☐☐☐	☐☐,☐☐☐	☐☐,☐☐☐

Critical Care HRG Study

Questionnaire on Directorate Accountants

Hospital Name

Please complete and return to:

Clare Hibbert
MRC Fellow in Health Services Research,
Sheffield Health Economics Group,
University of Sheffield,
Regent Court,
30 Regent Street,
Sheffield S1 4DA

Acknowledgements to the Critical Care National Working Group on Costing.
This questionnaire is based in part on the Cost Block Methodology

Expenditure on Directorate Accountants

Expenditure on Directorate Accountants relates to such specific services provided to the unit. If applicable, the salaried costs of such professionals working for the unit can be used, taking into account the amount of time spent working with the unit (including overheads).

March '03 (£) Rounded to nearest £	April '03 (£) Rounded to nearest £	May '03 (£) Rounded to nearest £
□□,□□□	□□,□□□	□□,□□□

Please provide in this box a description of the nature of service provided for critical care and/or outreach care and if applicable, how the above costs were determined.

Critical Care HRG Study

Questionnaire on Dietetic staff

Hospital Name

Please complete and return to:

Clare Hibbert
MRC Fellow in Health Services Research,
Sheffield Health Economics Group,
University of Sheffield,
Regent Court,
30 Regent Street,
Sheffield S1 4DA

Acknowledgements to the Critical Care National Working Group on Costing.
This questionnaire is based in part on the Cost Block Methodology

Expenditure on dieticians during the study period

Expenditure on dieticians relates to services provided to the unit. A contract may be held with the Dietetics department. If so, the expenditure incurred by the unit should be stated. Alternatively, if not, the salaried cost of the dieticians normally working in the unit can be used, taking into account the amount of time that they spent in the unit (including overheads).

March '03 (£) Rounded to nearest £	April '03 (£) Rounded to nearest £	May '03 (£) Rounded to nearest £
☐☐,☐☐☐	☐☐,☐☐☐	☐☐,☐☐☐

Please provide in this box a description of the nature of service provided for critical care and/or outreach care and if applicable, how the above costs were determined.

Critical Care HRG Study

Questionnaire on Medical Staff

Hospital Name

Please complete and return to:

Clare Hibbert
MRC Fellow in Health Services Research,
Sheffield Health Economics Group,
University of Sheffield,
Regent Court,
30 Regent Street,
Sheffield S1 4DA

Acknowledgements to the Critical Care National Working Group on Costing.
This questionnaire is based in part on the Cost Block Methodology

Expenditure during study period

Please provide the salaried costs of each Consultant working on the Unit during the study period. The salaried costs should include their basic salary and all overheads, plus merit awards (where applicable), daytime intensity payments, night-time intensity payments and any discretionary points.

Consultant Medical Staff	March '03 (£) Rounded to nearest £	April '03 (£) Rounded to nearest £	May '03 (£) Rounded to nearest £
Consultant medical staff 1	,	,	,
Consultant medical staff 2	,	,	,
Consultant medical staff 3	,	,	,
Consultant medical staff 4	,	,	,
Consultant medical staff 5	,	,	,
Consultant medical staff 6	,	,	,
Consultant medical staff 7	,	,	,
Consultant medical staff 8	,	,	,

Expenditure during study period

Fixed daytime sessions are defined as those with clinical commitments (such as ward rounds on the unit. Flexible sessions are those without clinical commitments, which would include sessions designated for management, administration, teaching or research, regardless of whether they are allocated for work related to the unit. Outreach sessions are those dedicated to the care of outreach patients, and should be included within the Outreach section and not in the fixed / other fixed sessions section.

	Total number of sessions worked per week	Fixed clinical sessions spent on the unit	Total number of sessions dedicated to outreach	Other Fixed sessions	Flexible Sessions (teaching, Research etc
Consultant medical staff 1					
Consultant medical staff 2					
Consultant medical staff 3					
Consultant medical staff 4					
Consultant medical staff 5					
Consultant medical staff 6					
Consultant medical staff 7					
Consultant medical staff 8					

Other Medical Staff

	March '03 Average number of hours worked per month in the unit	March '03 Average number of hours on-call per month relating to the unit	March '03 Average number of hours worked per month On outreach
All Senior House Officers			
All SPR1 and SPR2 (Registrars)			
All SPR3, SPR4 and SPR5 (Senior Registrars			
All Staff Grade (or equivalent)			

	April '03 Average number of hours worked per month in the unit	April '03 Average number of hours on-call per month relating to the unit	April '03 Average number of hours worked per month On outreach
All Senior House Officers			
All SPR1 and SPR2 (Registrars)			
All SPR3, SPR4 and SPR5 (Senior Registrars			
All Staff Grade (or equivalent)			

	May '03 Average number of hours worked per month in the unit	May '03 Average number of hours on-call per month relating to the unit	May '03 Average number of hours worked per month On outreach
All Senior House Officers			
All SPR1 and SPR2 (Registrars)			
All SPR3, SPR4 and SPR5 (Senior Registrars			
All Staff Grade (or equivalent)			

Critical Care HRG Study

Questionnaire on Laboratory Services including Medical Laboratory Assistants and Cytoscreeners

Hospital Name

Please complete and return to:

Clare Hibbert
MRC Fellow in Health Services Research,
Sheffield Health Economics Group,
University of Sheffield,
Regent Court,
30 Regent Street,
Sheffield S1 4DA

Acknowledgements to the Critical Care National Working Group on Costing.
This questionnaire is based in part on the Cost Block Methodology

Expenditure on medical laboratory assistants

Expenditure on medical laboratory assistants relates to such specific services provided to the unit. If applicable, the salaried costs of the medical laboratory assistant normally working in the unit can be used, taking into account the amount of time that they spent in the unit (including overheads).

March '03 (£) Rounded to nearest £	April '03 (£) Rounded to nearest £	May '03 (£) Rounded to nearest £
□□,□□□	□□,□□□	□□,□□□

Please provide in this box a description of the nature of service provided for critical care and/or outreach care and if applicable, how the above costs were determined.

Expenditure on Cytoscreeners (where applicable)

Expenditure on cytoscreeners relates to such specific services provided to the unit. If applicable, the salaried cost of the cytoscreeners normally working in the unit can be used, taking into account the amount of time that they spent in the unit (including overheads).

March '03 (£) Rounded to nearest £	April '03 (£) Rounded to nearest £	May '03 (£) Rounded to nearest £
☐☐,☐☐☐	☐☐,☐☐☐	☐☐,☐☐☐

Please provide in this box a description of the nature of service provided for critical care and/or outreach care and if applicable, how the above costs were determined.

Expenditure on laboratory services

Please provide the monthly expenditure on laboratory services incurred by the unit. These services would typically include:

- ❑Bacteriology
- ❑Virology
- ❑Clinical chemistry
- ❑Immunology
- ❑Haematology
- ❑Neuropathology
- ❑Histopathology

March '03 (£) Rounded to nearest £	April '03 (£) Rounded to nearest £	May '03 (£) Rounded to nearest £
☐☐,☐☐☐	☐☐,☐☐☐	☐☐,☐☐☐

Please provide in this box a description of the nature of service provided for critical care and/or outreach care and if applicable, how the above costs were determined.

Critical Care HRG Study

Questionnaire on Psychology input

Hospital Name

Please complete and return to:

Clare Hibbert
MRC Fellow in Health Services Research,
Sheffield Health Economics Group,
University of Sheffield,
Regent Court,
30 Regent Street,
Sheffield S1 4DA

Acknowledgements to the Critical Care National Working Group on Costing.
This questionnaire is based in part on the Cost Block Methodology

Expenditure on psychology input during the study period

Expenditure on psychology relates to such services provided to the unit. A contract may be held with the psychology department. If so, the expenditure incurred by the unit should be stated. Alternatively, if not, the salaried cost of the psychologist normally working in the unit can be used, taking into account the amount of time that they spent in the unit (including overheads).

March '03 (£) Rounded to nearest £	April '03 (£) Rounded to nearest £	May '03 (£) Rounded to nearest £
☐☐,☐☐☐	☐☐,☐☐☐	☐☐,☐☐☐

Please provide in this box a description of the nature of service provided for critical care and/or outreach care and if applicable, how the above costs were determined.

Critical Care HRG Study

Questionnaire on Personnel Officers

Hospital Name

Please complete and return to:

Clare Hibbert
MRC Fellow in Health Services Research,
Sheffield Health Economics Group,
University of Sheffield,
Regent Court,
30 Regent Street,
Sheffield S1 4DA

Acknowledgements to the Critical Care National Working Group on Costing.
This questionnaire is based in part on the Cost Block Methodology

Expenditure on Personnel Officers

Expenditure on Personnel Officers relates to such specific services provided to the unit. If applicable, the salaried costs of such professionals working for the unit can be used, taking into account the amount of time spent working with the unit (including overheads).

March '03 (£) Rounded to nearest £	April '03 (£) Rounded to nearest £	May '03 (£) Rounded to nearest £
☐☐,☐☐☐	☐☐,☐☐☐	☐☐,☐☐☐

Please provide in this box a description of the nature of service provided for critical care and/or outreach care and if applicable, how the above costs were determined.

Critical Care HRG Study

CONFIDENTIAL

Questionnaire on Clinical pharmacists, expenditure on drugs and fluids, top 20 drugs and fluids and nutritional feeds

Hospital Name

Please complete and return to:

Clare Hibbert
MRC Fellow in Health Services Research,
Sheffield Health Economics Group,
University of Sheffield,
Regent Court,
30 Regent Street,
Sheffield S1 4DA

Acknowledgements to the Critical Care National Working Group on Costing.
This questionnaire is based in part on the Cost Block Methodology

Expenditure on clinical pharmacists during the study period

Expenditure on clinical pharmacists relates to such specific services provided to the unit. A contract may be held with the pharmacy department. If so, the expenditure incurred by the unit should be stated. Alternatively, if not, the salaried cost of the clinical pharmacist normally working in the unit can be used, taking into account the amount of time that they spent in the unit (including overheads).

March '03 (£) Rounded to nearest £	April '03 (£) Rounded to nearest £	May '03 (£) Rounded to nearest £
□□,□□□	□□,□□□	□□,□□□

Please provide in this box a description of the nature of service provided for critical care and/or outreach care and if applicable, how the above costs were determined.

Expenditure on top 20 drugs and fluids

Please provide the generic (i.e. non-proprietary) names of the most expensive (in terms of volume of units used x unit cost) drugs and fluids used by your unit. Nutritional products (including Total Parenteral Nutrition) should NOT appear in this list. Disposable equipment products (including glucose test strips) should also NOT be included. Data should be entered whereby all different forms/preparations of the same drugs are added together to form one entry.

	March '03 (£) Rounded to nearest £
1	□□,□□□
2	□□,□□□
3	□□,□□□
4	□□,□□□
5	□□,□□□
6	□□,□□□
7	□□,□□□
8	□□,□□□
9	□□,□□□
10	□□,□□□
11	□□,□□□
12	□□,□□□
13	□□,□□□
14	□□,□□□
15	□□,□□□

Expenditure on top 20 drugs and fluids continued....

	March '03 (£) Rounded to nearest £
16	
17	
18	
19	
20	

Expenditure on top 20 drugs and fluids

Please provide the generic (i.e. non-proprietary) names of the most expensive (in terms of volume of units used x unit cost) drugs and fluids used by your unit. Nutritional products (including Total Parenteral Nutrition) should NOT appear in this list. Disposable equipment products (including glucose test strips) should also NOT be included. Data should be entered whereby all different forms/preparations of the same drugs are added together to form one entry.

	April '03 (£) Rounded to nearest £
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	

Expenditure on top 20 drugs and fluids continued….

	April '03 (£) Rounded to nearest £
16	,
17	,
18	,
19	,
20	,

Expenditure on top 20 drugs and fluids

Please provide the generic (i.e. non-proprietary) names of the most expensive (in terms of volume of units used x unit cost) drugs and fluids used by your unit. Nutritional products (including Total Parenteral Nutrition) should NOT appear in this list. Disposable equipment products (including glucose test strips) should also NOT be included. Data should be entered whereby all different forms/preparations of the same drugs are added together to form one entry.

	May '03 (£) Rounded to nearest £
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	

Expenditure on top 20 drugs and fluids continued….

	May '03 (£) Rounded to nearest £
16	□□,□□□
17	□□,□□□
18	□□,□□□
19	□□,□□□
20	□□,□□□

Expenditure on drugs and fluids

Monthly expenditure on drugs and fluids incurred by the unit should include albumin but exclude nutritional products and blood and blood products.

March '03 (£) Rounded to nearest £	April '03 (£) Rounded to nearest £	May '03 (£) Rounded to nearest £
□□,□□□	□□,□□□	□□,□□□

Expenditure on nutritional products

Monthly expenditure on nutritional products used by the unit should include expenditure on all enteral and parenteral feeds, and special nutritional products that are administered orally.

March '03 (£) Rounded to nearest £	April '03 (£) Rounded to nearest £	May '03 (£) Rounded to nearest £
□□,□□□	□□,□□□	□□,□□□

Critical Care HRG Study

Questionnaire on Occupational therapy

Hospital Name

Please complete and return to:

Clare Hibbert
MRC Fellow in Health Services Research,
Sheffield Health Economics Group,
University of Sheffield,
Regent Court,
30 Regent Street,
Sheffield S1 4DA

Acknowledgements to the Critical Care National Working Group on Costing.
This questionnaire is based in part on the Cost Block Methodology

Expenditure on occupational therapy during the study period

Expenditure on occupational therapy relates to services provided to the unit. A contract may be held with the Occupational Therapy department. If so, the expenditure incurred by the unit should be stated. Alternatively, if not, the salaried cost of the occupational therapists normally working in the unit can be used, taking into account the amount of time that they spent in the unit (including overheads).

March '03 (£) Rounded to nearest £	April '03 (£) Rounded to nearest £	May '03 (£) Rounded to nearest £
☐☐,☐☐☐	☐☐,☐☐☐	☐☐,☐☐☐

Please provide in this box a description of the nature of service provided for critical care and/or outreach care and if applicable, how the above costs were determined.

Critical Care HRG Study

Questionnaire on Medical Technical Officers (MTOs) and Assistant MTOs

Hospital Name

Please complete and return to:

Clare Hibbert
MRC Fellow in Health Services Research,
Sheffield Health Economics Group,
University of Sheffield,
Regent Court,
30 Regent Street,
Sheffield S1 4DA

Acknowledgements to the Critical Care National Working Group on Costing.
This questionnaire is based in part on the Cost Block Methodology

Expenditure on medical technical officers (MTOs)

Expenditure on medical technical officers (MTOs) relates to such specific services provided to the unit. If applicable, the salaried costs of the MTOs normally working in the unit can be used, taking into account the amount of time that they spent in the unit (including overheads).

March '03 (£) Rounded to nearest £	April '03 (£) Rounded to nearest £	May '03 (£) Rounded to nearest £
☐☐,☐☐☐	☐☐,☐☐☐	☐☐,☐☐☐

Please provide in this box a description of the nature of service provided for critical care and/or outreach care and if applicable, how the above costs were determined.

Expenditure on Assistant MTOs

Expenditure on Assistant MTOs relates to such specific services provided to the unit. If applicable, the salaried cost of the Assistant MTOs normally working in the unit can be used, taking into account the amount of time that they spent in the unit (including overheads).

March '03 (£) Rounded to nearest £	April '03 (£) Rounded to nearest £	May '03 (£) Rounded to nearest £
☐☐,☐☐☐	☐☐,☐☐☐	☐☐,☐☐☐

Please provide in this box a description of the nature of service provided for critical care and/or outreach care and if applicable, how the above costs were determined.

Critical Care HRG Study

Questionnaire on Radiology

Hospital Name

Please complete and return to:

Clare Hibbert
MRC Fellow in Health Services Research,
Sheffield Health Economics Group,
University of Sheffield,
Regent Court,
30 Regent Street,
Sheffield S1 4DA

Acknowledgements to the Critical Care National Working Group on Costing.
This questionnaire is based in part on the Cost Block Methodology

Expenditure on diagnostic radiography during the study period

Expenditure on diagnostic radiography relates to such specific services provided to the unit by an individual or team of staff. If applicable, the salaried costs of the diagnostic radiographer normally working in the unit can be used, taking into account the amount of time that they spent in the unit (including overheads). Note – this section should only be completed if the salaried costs of the radiographers are NOT included in the costs of radiology tests

March '03 (£) Rounded to nearest £	April '03 (£) Rounded to nearest £	May '03 (£) Rounded to nearest £
□□,□□□	□□,□□□	□□,□□□

Please provide in this box a description of the nature of service provided for critical care and/or outreach care and if applicable, how the above costs were determined.

Expenditure on radiology tests during the study period

Expenditure on radiology includes all x-ray and other radiology costs by the critical care unit in question.

March '03 (£) Rounded to nearest £	April '03 (£) Rounded to nearest £	May '03 (£) Rounded to nearest £
☐☐,☐☐☐	☐☐,☐☐☐	☐☐,☐☐☐

C Hibbert & E Coates. Sheffield Health Economics Group
October 2003

Critical Care HRG Study

Questionnaire on monthly lease / hire charges for specialised bed therapy

Hospital Name

Please complete and return to:

Clare Hibbert
MRC Fellow in Health Services Research,
Sheffield Health Economics Group,
University of Sheffield,
Regent Court,
30 Regent Street,
Sheffield S1 4DA

Acknowledgements to the Critical Care National Working Group on Costing.
This questionnaire is based in part on the Cost Block Methodology

Expenditure on specialised bed therapy during the study period

Monthly expenditure on specialised bed therapy relates to the monthly lease or hire charges incurred by the unit.

March '03 (£) Rounded to nearest £	April '03 (£) Rounded to nearest £	May '03 (£) Rounded to nearest £
☐☐,☐☐☐	☐☐,☐☐☐	☐☐,☐☐☐

Critical Care HRG Study

Questionnaire on Speech and language therapy

Hospital Name

Please complete and return to:

Clare Hibbert
MRC Fellow in Health Services Research,
Sheffield Health Economics Group,
University of Sheffield,
Regent Court,
30 Regent Street,
Sheffield S1 4DA

Acknowledgements to the Critical Care National Working Group on Costing.
This questionnaire is based in part on the Cost Block Methodology

Expenditure on speech and language therapy

Expenditure on speech and language therapy relates to such specific services provided to the unit by an individual or team of staff. If applicable, the salaried cost of the speech and language therapist normally working in the unit can be used, taking into account the amount of time that they spent in the unit (including overheads).

March '03 (£) Rounded to nearest £	April '03 (£) Rounded to nearest £	May '03 (£) Rounded to nearest £
☐☐,☐☐☐	☐☐,☐☐☐	☐☐,☐☐☐

Please provide in this box a description of the nature of service provided for critical care and/or outreach care and if applicable, how the above costs were determined.

Appendix 5.8: Unit Characteristics Questionnaires

Critical Care HRG Study

Unit Characteristics Questionnaire

Period of HRG data collection

From ☐☐ Date ☐ Month To ☐☐ Date ☐ Month

Number of complete months (2 or 3) ☐ Months

Hospital Name

Please complete and return to:

Clare Hibbert
MRC Fellow in Health Services Research,
Sheffield Health Economics Group,
University of Sheffield,
Regent Court,
30 Regent Street,
Sheffield S1 4DA

Location

NHS regional Health authority where unit belongs

	✓
Northern and Yorkshire	
Trent	
Eastern	
London	
South East	
South West	
West Midlands	
North West	
Wales	
Scotland	
Northern Ireland	

Network affiliation

Critical care network to which the unit belongs

	✓
North East Cumbria	
Tees Valley	
Lancashire & South Cumbria	
North Yorkshire & Humberside	
West Yorkshire	
Greater Manchester	
Merseyside & Cheshire	
Avon & Gloucestershire	
Thames Valley	
Herts & Beds	
North Central London	
North West London	
South West London	
Surrey Wide	
North East London	
South East London	
North West Midlands	
The Black Country	
Central England	
Heart of England	
Anglian	
Cambridgeshire	
Essex	
Kent	
Sussex	
Central Southern	
South West Peninsula	
North Trent	
Mid Trent	

Unit size

Number of established / staffed beds during the study period

☐☐ Number of beds

Were all patients admitted to the above sized unit studied?
(This relates to scenarios whereby some beds are not for Critical care patients)

✓

☐☐ Yes ☐☐ No

If no, how many beds were used for the purposes of the study i.e. are Critical Care beds?

☐☐ Number of beds

Did the number of beds change during the study period?
i.e. did the unit increase / decrease in size?

✓

☐☐ Yes ☐☐ No

When did this change occur?

From ☐☐ Number of beds To ☐☐ Number of beds ☐☐ Date ☐ Month

From ☐☐ Number of beds To ☐☐ Number of beds ☐☐ Date ☐ Month

Throughput characteristics

Number of patients admitted during the study period is the number of patients admitted to the unit between 1st March and 31st May 2003 (for the March starters) and the number of patients admitted between 1st April and 31st May 2003 for the April starters.

☐☐☐ Number of patients admitted to the unit during the study period

Hospital type

✓ One box only

	Yes	No
1. Medical school within the hospital	☐	☐
2. Tertiary referral centre	☐	☐

If answer Yes to both questions, tick Yes:

	Yes	No
3. University hospital	☐	☐

Unit type

Description of the type of unit during the study period

✓

Adult General ICU	☐	Adult Coronary Care Unit	☐
Adult General HDU	☐	Adult Burns / Plastic Surgery Unit	☐
Adult General ICU / HDU	☐	Adult / Paediatric Burns Unit	☐
Adult Surgical ICU	☐	Adult Neurological ICU	☐
Adult Surgical HDU	☐	Adult Neurological ICU / HDU	☐
Adult Cardiothoracic ICU	☐	Adult Combined ICU / HDU / CCU	☐
		Other_____	☐

Did the unit type change at any point during the study period? Yes ☐ No ☐

If Yes, when did this happen? ☐☐ Date ☐ Month

And what type of unit did it become?

✓

Adult General ICU	☐	Adult Coronary Care Unit	☐
Adult General HDU	☐	Adult Burns / Plastic Surgery Unit	☐
Adult General ICU / HDU	☐	Adult / Paediatric Burns Unit	☐
Adult Surgical ICU	☐	Adult Neurological ICU	☐
Adult Surgical HDU	☐	Adult Neurological ICU / HDU	☐
Adult Cardiothoracic ICU	☐	Adult Combined ICU / HDU / CCU	☐
		Other_____	☐

Financial Reporting of new services

Has the unit established an outreach team? ✓ ☐ Yes ☐ No

Has the unit established a follow-up clinic? ✓ ☐ Yes ☐ No

Has the unit established a bereavement service? ✓ ☐ Yes ☐ No

Description of resources used for the outreach service

Nature of the outreach service
Skill-mix configuration

Financial Reporting of new services

Description of the resources used for the follow-up clinic

Nature of the follow-up clinics
Skill-mix configuration

Financial Reporting of new services

Description of resources used for the bereavement service

Nature of the bereavement service
Skill-mix configuration

Financial Reporting

Does the outreach service have it's own budget or does it come from within the unit's budget?

1. Outreach has it's own budget ☐☐ Yes ☐☐ No £☐☐,☐☐☐
2. Outreach is covered within the unit's own budget ☐☐ Yes ☐☐ No
3. Outreach costs are met by the hospital ☐☐ Yes ☐☐ No
4. Not applicable (no outreach service provided) ☐☐ Yes ☐☐ No

Does the follow-up clinic have it's own budget or does it come from within the unit's budget?

1. The Follow-Up Clinic has it's own budget ☐☐ Yes ☐☐ No £☐☐,☐☐☐
2. The Follow-Up is covered within the unit's own budget ☐☐ Yes ☐☐ No ,
3. The follow up clinic costs are met by the hospital ☐☐ Yes ☐☐ No
4. Not applicable (no Follow-Up clinic is provided) ☐☐ Yes ☐☐ No

Does the unit's bereavement service have it's own budget or does it come from within the unit's budget?

1. The bereavement service has it's own budget ☐☐ Yes ☐☐ No £☐☐,☐☐☐
2. The bereavement service is covered within the unit's own budget ☐☐ Yes ☐☐ No
3. The costs of the bereavement service are met by the hospital ☐☐ Yes ☐☐ No
4. Not applicable (no bereavement service is provided) ☐☐ Yes ☐☐ No

Data collection on level 1 care

How is level 1 information collected?

	✓ Yes	No
a) Recorded by activity only (i.e. 3 visits made to wards but no patient identifiable information)	☐	☐
b) Recorded by patient (with patient identifiable information obtained)	☐	☐
c) No information on Level 1 care is collected	☐	☐

If information on Level 1 care is collected, is the information held....

	✓ Yes	No
a) On the Patient Administration System (PAS)?	☐	☐
b) On another computer system? (please state which one) _____	☐	☐
c) On paper records?	☐	☐

If the information is held on paper records, is the information written in....

	✓ Yes	No
a) The patients' medical records?	☐	☐
b) Another form of documentation? (Please describe below) _____	☐	☐

How is level 1 care managed?

	✓ Yes	No
a) By outreach teams alone	☐	☐
b) By ward staff alone or	☐	☐
c) By a combination of both	☐	☐

	✓ Yes	No
Does the unit have a critical care strategic plan?	☐	☐
Is it network-led?	☐	☐

Appendix 6.1: Summary Of DoCDat Criteria

	Level 1	Level 2	Level 3	Level 4
A. Extent to which the eligible population is representative of the country	No evidence or unlikely to be representative	Some evidence eligible population is representative	Good evidence eligible population is representative	Total population of country included
B. Completeness of recruitment of eligible population	Few (<80%) or unknown	Many (80-89%)	Most (90-97%)	All or almost all (>97%)
C. Variables included in the database	• Identifier • Admin info • Condition **or** intervention	• Identifier • Admin info • Condition **or** intervention • Short-term outcome **or** long-term outcome	• Identifier • Admin info • Condition **or** intervention • Short-term outcome **or** long-term outcome • Major known confounders	• Identifier • Admin info • Condition **or** intervention • Short-term outcome **or** long-term outcome • Major known confounders
D. Completeness of data (percentage of variables at least 95% complete)	Few (<50%) **or** unknown	Some (50-79%)	Most (80-97%)	All or almost all (>97%)
E. Form in which continuous data (excluding dates) are collected	Few (<70%) **or** unknown	Some (70-89%)	Most (90-97%)	All or almost all (>97%) **or** no continuous data collected
F. Use of explicit definitions for variables	None	Some (<50%)	Most (50-97%)	All or almost all (>97%)
G. Use of explicit rules for deciding how variables are recorded	None	Some (<50%)	Most (50-97%)	All or almost all (>97%)
H. Reliability of coding of conditions and interventions	Not tested	Poor	Fair	Good
I. Independence of observations of primary outcome	Outcome not included **or** independence unknown	Observer neither independent nor blinded to intervention	Independent observer not blinded to intervention	Independent observer blinded to intervention **or** not necessary as objective outcome (e.g. death or lab test)
J. Extent to which data are validated	No validation	Range **or** consistency checks	Range **and** consistency checks	Range and consistency checks plus external validation using alternative sources

Source: Directory of Clinical Databases' criteria for assessing the coverage and accuracy of a clinical database (adapted from Black *et al* (2003) and the Directory of Clinical Databases)

Appendix 6.2: Summary Of Queries

Hospital	Number of patients*	Inconsistent data	Missing date of admission	Missing time of admission	Missing date of discharge	Missing time of discharge	Missing type of admission	Missing outcome status	Sum of missing queries	% Overall	Number of query responses provided	% Overall answered
1	182	3	0	3	42	40	17	74	176	0.16%	168	95%
2	171	0	0	2	2	12	8	7	31	0.03%	31	100%
3	43	0	0	0	0	0	0	0	0	0.00%	0	0%
4	171	3	0	10	78	106	22	96	312	0.30%	312	100%
5	130	6	0	0	0	4	11	11	26	0.03%	26	100%
6	75	2	0	5	1	38	7	19	70	0.16%	70	100%
7	11	0	0	0	0	0	2	4	6	0.09%	0	0%
8	145	12	0	8	2	14	8	18	50	0.06%	47	94%
9	104	2	0	4	3	4	8	57	76	0.12%	75	99%
10	164	4	0	0	0	1	5	3	9	0.01%	9	100%
11	218	4	0	0	1	2	2	1	6	0.00%	6	100%
12	47	0	0	0	1	2	2	1	6	0.02%	6	100%
13	73	6	0	1	0	7	4	1	13	0.03%	13	100%
14	75	0	0	0	0	1	0	39	40	0.09%	0	0%
15	180	2	0	1	1	2	4	1	9	0.01%	9	100%
16	109	1	0	5	1	20	6	14	46	0.07%	46	100%
17	139	1	0	0	0	3	1	4	8	0.01%	8	100%
18	147	15	0	2	0	1	33	106	142	0.16%	0	0%
19	42	0	0	0	0	0	3	17	20	0.08%	20	100%
20	79	0	0	0	0	1	3	3	7	0.01%	7	100%
21	99	0	0	1	0	4	0	2	7	0.01%	7	100%
22	91	1	0	1	1	1	0	35	38	0.07%	38	100%
23	143	2	0	1	5	7	4	53	70	0.08%	0	0%
24	93	0	4	19	58	68	17	53	219	0.39%	213	97%
25	66	0	0	0	0	0	3	30	33	0.08%	0	0%
26	95	2	0	0	0	1	4	46	51	0.09%	51	100%
27	113	0	0	0	0	0	0	1	1	0.00%	1	100%
28	66	2	0	0	0	0	0	18	18	0.05%	18	100%

Hospital	Number of patients	Inconsistent data	Missing date of admission	Missing time of admission	Missing date of discharge	Missing time of discharge	Missing type of admission	Missing outcome status	Sum of missing queries	% Overall	Number of query responses provided	% Overall answered
29	75	0	0	0	0	0	3	1	4	0.01%	4	100%
30	233	19	0	9	1	34	23	26	93	0.07%	93	100%
31	87	2	0	0	0	2	0	3	5	0.01%	5	100%
32	70	0	0	6	4	36	4	41	91	0.22%	0	0%
33	61	0	0	1	0	0	7	12	20	0.05%	20	100%
34	121	0	0	0	0	2	1	0	3	0.00%	3	100%
35	171	2	0	0	1	3	2	14	20	0.02%	20	100%
36	41	0	0	0	0	0	0	2	2	0.01%	2	100%
37	103	0	0	0	0	2	7	5	14	0.02%	13	93%
38	31	0	0	1	1	1	0	4	7	0.04%	7	100%
39	74	2	0	0	3	7	0	2	12	0.03%	12	100%
40	77	1	0	0	0	2	4	0	6	0.01%	6	100%
41	11	0	0	2	0	6	4	7	19	0.29%	13	68%
42	38	0	0	9	0	31	11	19	70	0.31%	65	93%
43	243	3	0	0	0	5	2	9	16	0.01%	16	100%
44	99	2	0	0	0	0	0	0	0	0.00%	0	0%
45	99	0	0	1	0	1	0	4	6	0.01%	6	100%
46	24	0	0	0	0	0	0	20	20	0.14%	20	100%
47	110	0	0	1	0	3	16	4	24	0.04%	24	100%
48	136	1	0	0	0	3	2	2	7	0.01%	7	100%
49	108	0	0	0	0	7	0	2	9	0.01%	9	100%
50	209	9	1	9	27	58	16	105	216	0.17%	205	95%
51	237	2	0	1	0	2	4	114	121	0.09%	121	100%
52	108	0	0	0	1	6	1	0	8	0.01%	8	100%
53	126	6	0	13	13	24	14	67	131	0.17%	131	100%
54	143	2	0	0	0	0	5	0	5	0.01%	5	100%
55	94	5	0	7	1	49	16	21	94	0.17%	94	100%
56	44	1	0	2	1	2	1	1	7	0.03%	7	100%
57	134	1	0	0	0	0	4	1	5	0.01%	5	100%
58	139	0	0	0	0	0	3	3	6	0.01%	6	100%

Hospital	Number of patients	Inconsistent data	Missing date of admission	Missing time of admission	Missing date of discharge	Missing time of discharge	Missing type of admission	Missing outcome status	Sum of missing queries	% Overall	Number of query responses provided	% Overall answered
59	64	1	0	0	4	4	1	17	26	0.07%	26	100%
60	36	0	0	0	0	0	0	0	0	0.00%	0	0%
61	92	0	0	1	0	0	3	12	16	0.03%	16	100%
62	107	0	0	5	7	33	10	38	93	0.14%	71	76%
63	44	1	0	2	7	16	4	15	44	0.17%	35	80%
64	49	0	0	8	8	19	17	19	71	0.24%	64	90%
65	138	10	0	0	0	10	4	3	17	0.02%	17	100%
66	50	0	0	0	1	0	4	7	12	0.04%	12	100%
67	105	1	0	0	1	3	0	2	6	0.01%	6	100%
68	167	1	0	2	1	19	14	8	44	0.04%	43	98%
69	105	1	0	0	0	1	1	4	6	0.01%	6	100%
70	30	1	0	0	0	0	1	1	2	0.01%	2	100%
Total	**7304**	**142**	**5**	**143**	**278**	**730**	**383**	**1329**	**2868**	**4.97%**	**2406**	**84%**

Appendix 7.1: Descriptive Statistics of the HRG Cluster Analysis

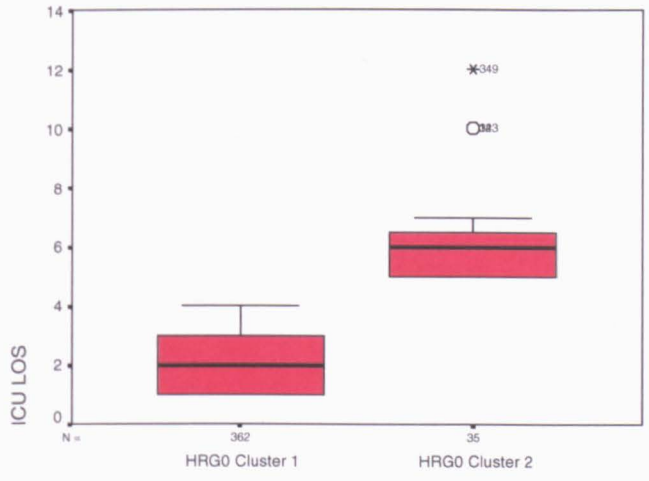
				Length of stay (in calendar days)						Total cost (£)					
HRG Cluster	**N**	**% of HRG occupied by the clusters**	**% of total sample** (7,094 patients)	**Minimum**	**Mean (SD)**	**95% Confidence Intervals**	**Median**	**Interquartile Range**	**Maximum**	**Minimum**	**Mean (SD)**	**95% Confidence Intervals**	**Median**	**Interquartile Range**	**Maximum**
HRG 0 Cluster 1	362	91.2	5.1	1	2.03 (0.87)	1.94 – 2.12	2	1-3	4	522.50	1059.43 (453.31)	1012.58-1106.29	1045.00	522.50-1567.50	2090.00
HRG 0 Cluster 2	35	8.8	0.5	5	6.11 (1.62)	5.56 – 6.67	6	5-7	12	2612.50	3194.71 (847.93)	2903.44-3485.99	3135.00	2612.50-3396.25	6270.00
HRG 1 Cluster 1	1214	82.2	17.1	1	2.13 (0.91)	2.08 – 2.18	2	1-3	5	573.20	1735.62 (656.40)	1698.66-1772.58	1500.93	1098.22-2196.44	3052.68
HRG 1 Cluster 2	236	16.0	3.3	3	5.34 (1.44)	5.16-5.53	5	4-6	10	3068.43	4377.21 (960.20)	4254.07-4500.35	3913.72	3712.95-4892.15	7438.08
HRG 1 Cluster 3	26	1.8	0.4	8	11.65 (3.45)	10.26-13.05	10	9-13	20	7827.44	10918.75 (3032.63)	9693.85-12143.66	9834.14	8805.87-12080.42	19568.60
HRG 2 Cluster 1	2088	77.1	29.4	1	2.27 (1.01)	2.23-2.32	2	2-3	7	793.29	2522.89 (1001.57)	2479.90-2565.87	2397.04	1840.81-3159.12	4795.59
HRG 2 Cluster 2	55	18.6	7.1	4	6.27 (1.73)	6.12-6.42	6	5-7	14	4833.06	6927.78 (1711.95)	6778.11-7077.45	6371.46	5440.11-6371.46	11360.00
HRG 2 Cluster 3	115	4.2	1.6	7	13.07 (3.74)	12.38-13.76	12	10-14	26	11382.63	15421.00 (3740.59)	14730.01-16111.99	14499.18	12405.22-17465.94	24825.57
HRG 3 Cluster 1	1239	63.5	17.5	1	3.00 (1.33)	2.93-3.07	3	2-4	7	1249.22	3826.75 (1477.76)	3744.39-3909.12	3646.26	2738.02-5010.67	6856.85
HRG 3 Cluster 2	429	22.0	6.0	4	7.90 (1.85)	7.72-8.07	8	6-9	16	6890.22	9789.43 (1961.83)	9603.26-9975.60	9627.14	8088.74-11255.07	6821.37
HRG 3 Cluster 3	198	10.1	2.8	8	13.78 (2.45)	13.44-14.13	13	12-16	19	13759.44	17457.99 (2468.06)	17112.09-17803.89	17455.44	15124.21-19681.11	21711.30
HRG 3 Cluster 4	85	4.4	1.2	12	20.09 (2.99)	19.45-20.74	20	19-22	26	21800.97	25858.40 (2870.02)	25239.36-26477.45	25591.84	23370.21-27564.72	35867.86

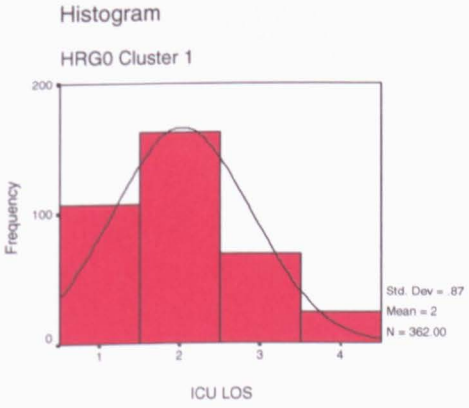
				Length of stay (in calendar days)						Total cost (£)					
HRG Cluster	**N**	**% of HRG occupied by the clusters**	**% of total sample** (7,094 patients)	**Minimum**	**Mean (SD)**	**95% Confidence Interval**	**Median**	**Interquartile Range**	**Maximum**	**Minimum**	**Mean (SD)**	**95% Confidence Interval**	**Median**	**Interquartile Range**	**Maximum**
HRG 4 Cluster 1	245	48.1	3.5	1	4.30 (1.97)	4.05-4.55	4.00	3-6	9	1639.02	5796.60 (2454.77)	5487.69-6105.51	5420.50	3793.76-7840.65	10531.92
HRG 4 Cluster 2	167	32.8	2.4	6	11.37 (2.95)	10.93-11.83	11.00	9-13	19	10575.58	15020.52 (3197.54)	14531.99-15509.04	14622.92	12258.33-17746.64	21242.11
HRG 4 Cluster 3	97	19.1	1.4	13	20.22 (4.47)	19.32-21.12	20.00	17-22	37	21639.68	27361.44 (4398.47)	26474.95-28247.93	26156.39	23852.16-29526.77	41569.79
HRG 5 Cluster 1	21	42.9	0.3	3	8.62 (2.87)	7.311-9.93	9.00	7-11	13	4941.58	12829.79 (4370.82)	10840.22-14819.36	14208.40	9466.08-16471.30	18189.23
HRG 5 Cluster 2	19	38.8	0.3	12	18.21 (2.46)	17.02-19.40	19.00	17-20	22	20388.88	25956.89 (4006.79)	24025.68-27888.10	25555.07	22842.11-28425.55	34361.46
HRG 5 Cluster 3	9	18.4	0.1	27	29.55 (2.51)	27.63-31.48	29.00	27-31	33	37977.16	44700.25 (4310.29)	41387.07-48013.44	46132.50	41770.43-46514.26	50181.79
HRG 6 Cluster 1	2	50.0	0.0	9	11.50 (3.54)	-20.27-43.27	11.50	9-14	14	12491.50	16448.19 (5595.60)	-33826.26-66722.64	16448.18	12491.50-20404.87	20404.87
HRG 6 Cluster 2	2	50.0	0.0	26	27.00 (1.41)	14.29-39.71	27.00	26-28	28	34087.12	36005.97 (2713.66)	11624.67-60387.27	36005.97	34087.12-37924.82	37924.82

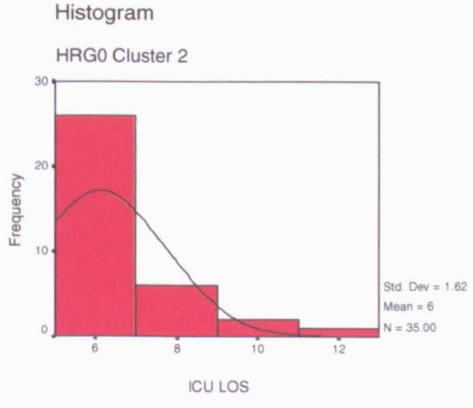
Appendix 7.2: Box Plots and Histograms For The Cluster Analysis

No organ supported – Length of stay profiles

HRG Code	Calendar Length of Stay
HRG 0 Cluster 1	≥ 1 day ≤ 4 days
HRG 0 Cluster 2	≥ 5 days ≤ 12 days

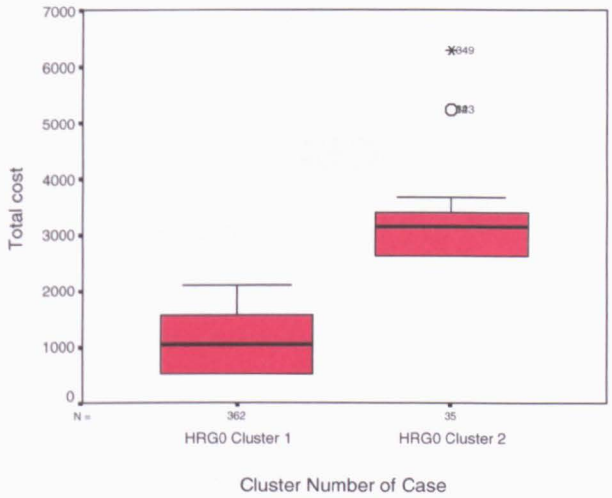


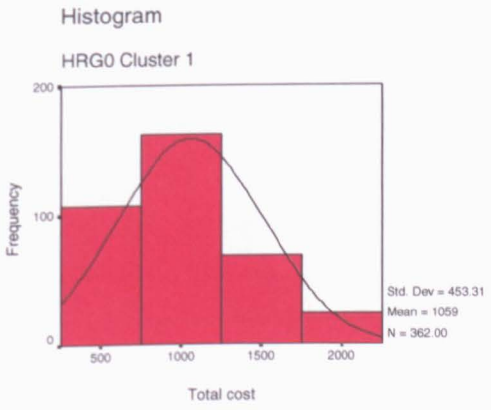


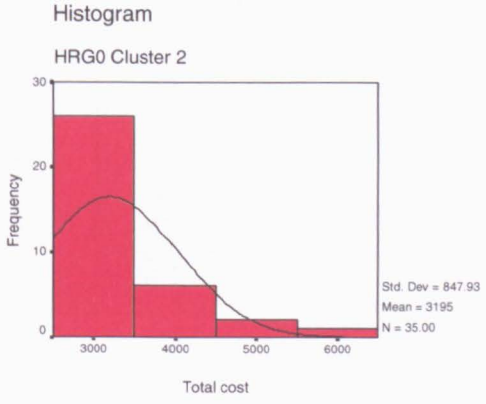


No organs supported – Total cost profiles

HRG Code	Mean Total cost (95% Confidence Intervals) (£)
HRG 0 Cluster 1	1059.43 (1012.58-1106.29)
HRG 0 Cluster 2	3194.71 (2903.44-3485.99)

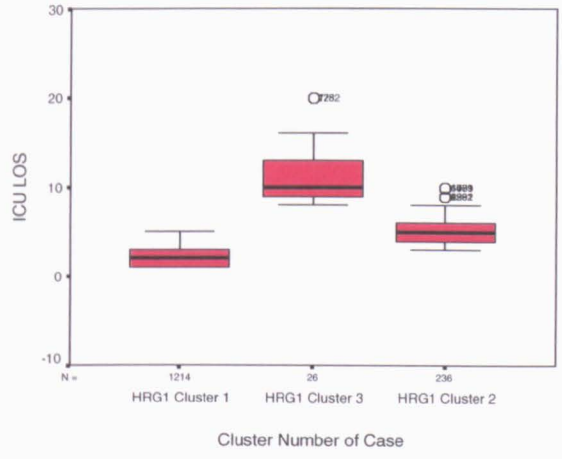


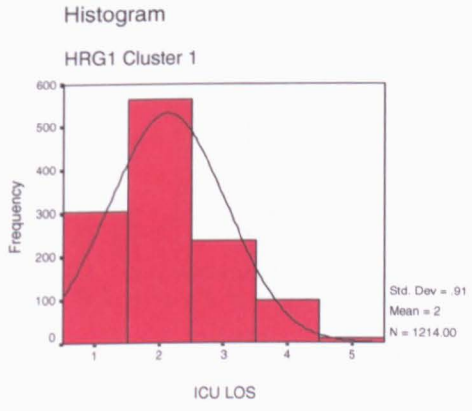


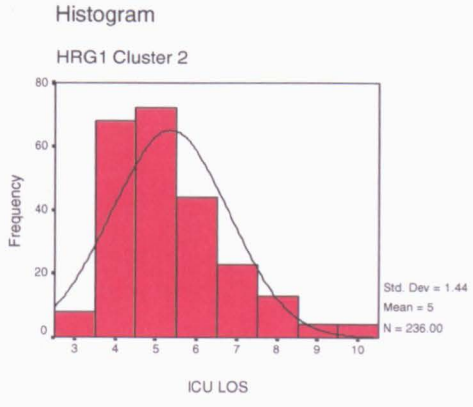


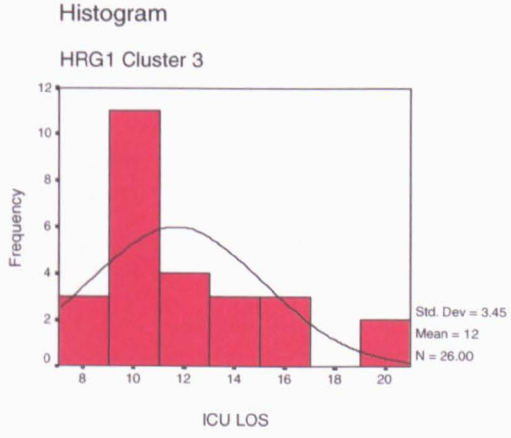
One organ supported – Length of stay profiles

HRG Code	Calendar Length of Stay
HRG 1 Cluster 1	≥ 1 day ≤ 3 days
HRG 1 Cluster 2	≥ 4 days ≤ 8 days
HRG 1 Cluster 3	≥ 9 days ≤ 20 days



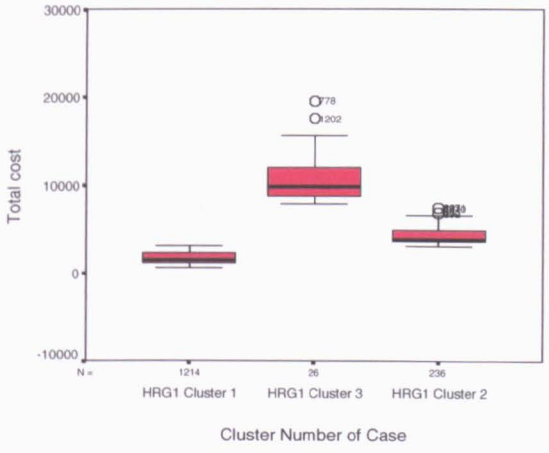


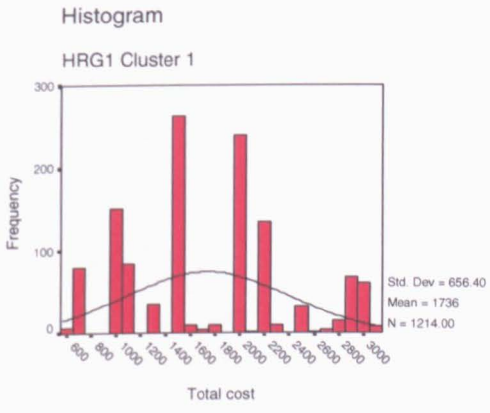


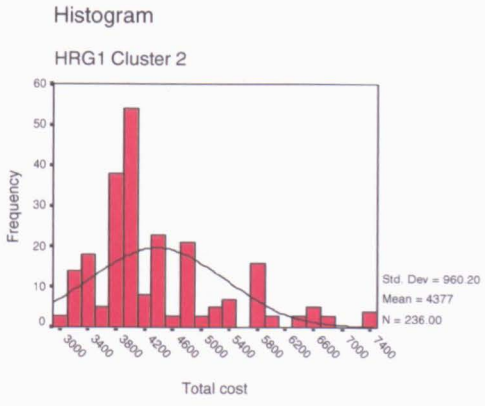


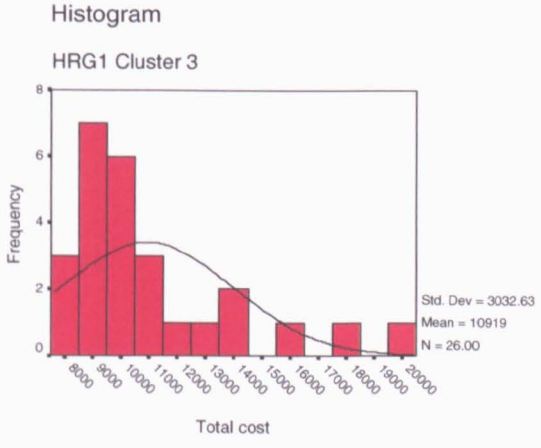
One organ supported – Total cost profiles

HRG Code	Mean Total cost (95% Confidence Intervals) (£)
HRG 1 Cluster 1	1735.62 (1698.66-1772.58)
HRG 1 Cluster 2	4377.21 (4254.07-4500.35)
HRG 1 Cluster 3	10918.75 (9693.85-12143.66)



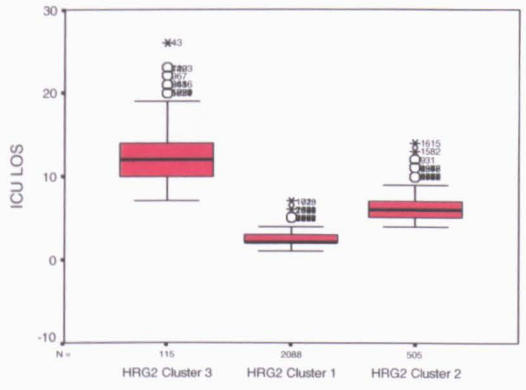


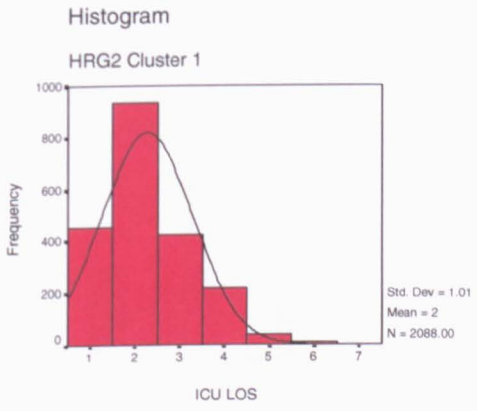


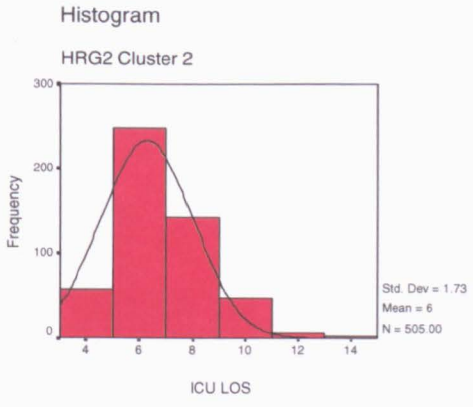


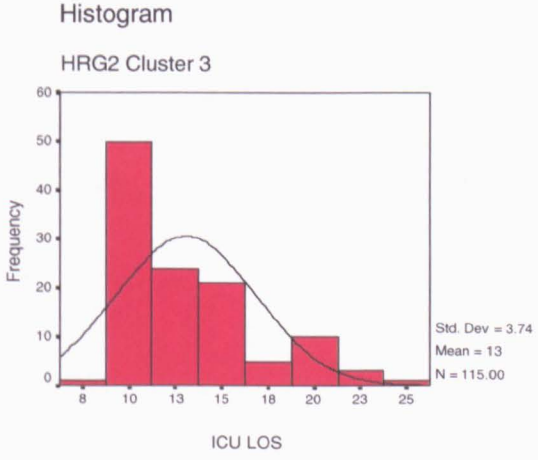
Two organs supported – Length of stay profiles

HRG Code	Calendar Length of Stay
HRG 2 Cluster 1	≥ 1 day ≤ 4 days
HRG 2 Cluster 2	≥ 5 days ≤ 10 days
HRG 2 Cluster 3	≥ 11 days ≤ 25 days



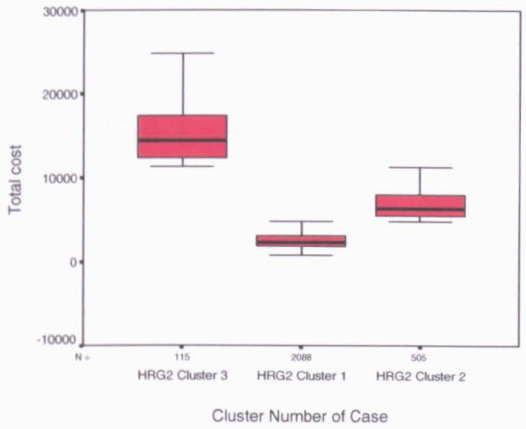


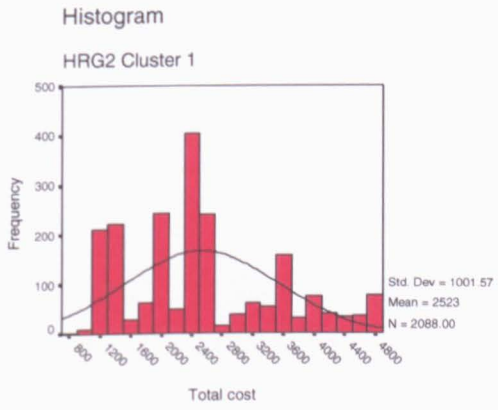


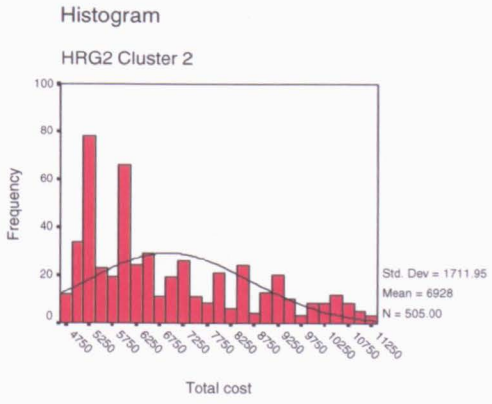


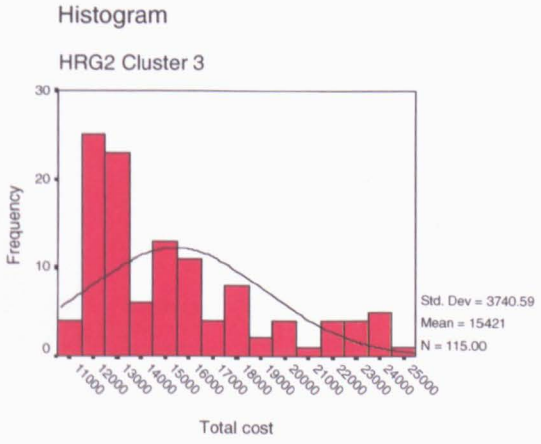
Two organs supported – Total cost profiles

HRG Code	Mean Total cost (95% Confidence Intervals) (£)
HRG 2 Cluster 1	2522.89 (2479.90-2565.87)
HRG 2 Cluster 2	6927.78 (6778.11-7077.45)
HRG 2 Cluster 3	15421.00 (14730.01-16111.99)



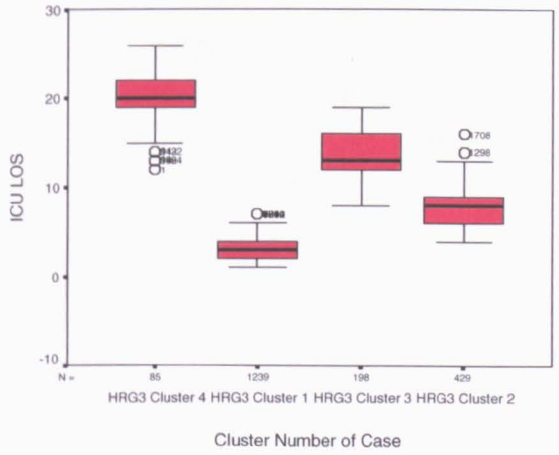


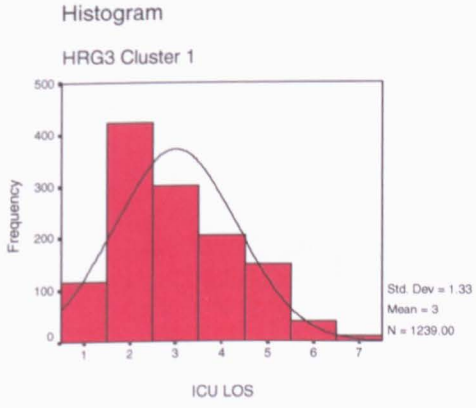


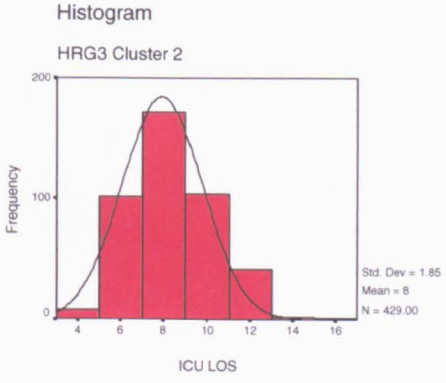


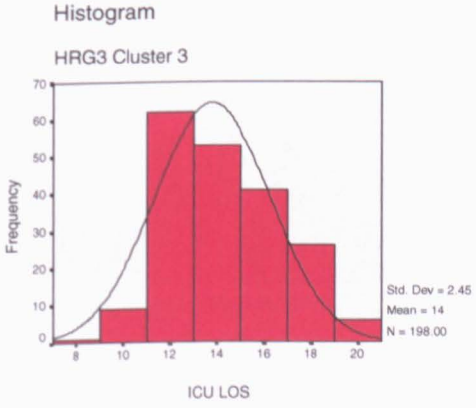
Three organs supported – Length of stay profiles

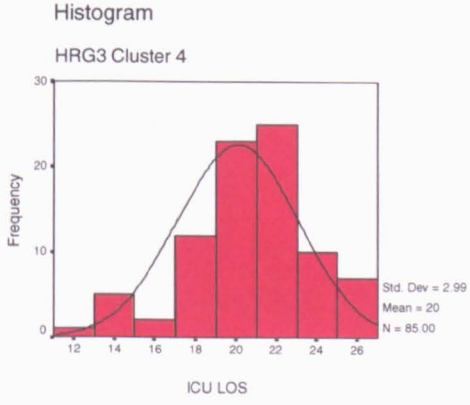
HRG Code	Calendar Length of Stay
HRG 3 Cluster 1	≥ 1 day ≤ 5 days
HRG 3 Cluster 2	≥ 6 days ≤ 10 days
HRG 3 Cluster 3	≥ 11 days ≤ 16 days
HRG 3 Cluster 4	≥ 17 days ≤ 26 days





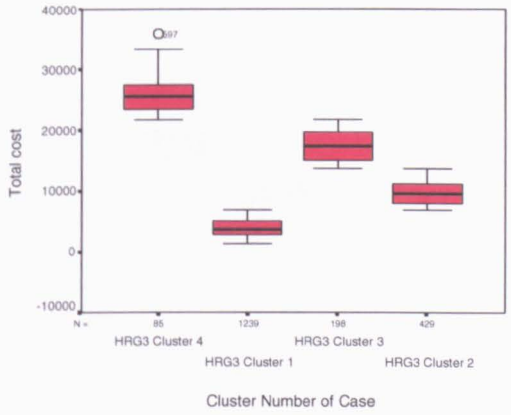


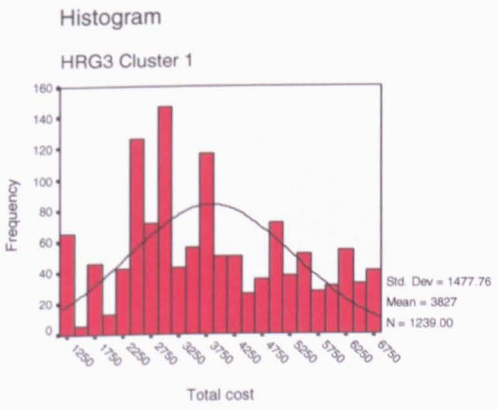


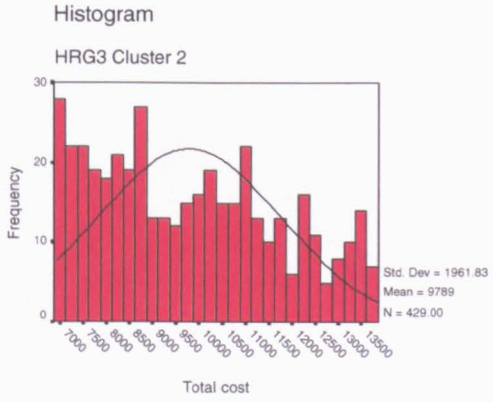


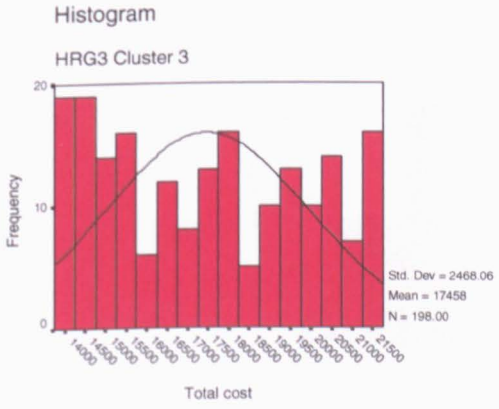
Three organs supported – Total cost profiles

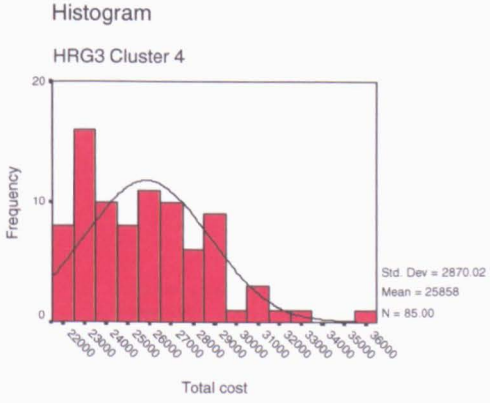
HRG Code	Mean Total cost (95% Confidence Intervals) (£)
HRG 3 Cluster 1	3826.75 (3744.39-3909.12)
HRG 3 Cluster 2	9789.43 (9603.26-9975.60)
HRG 3 Cluster 3	17457.99 (17112.09-17803.89)
HRG 3 Cluster 4	25858.40 (25239.36-26477.45)





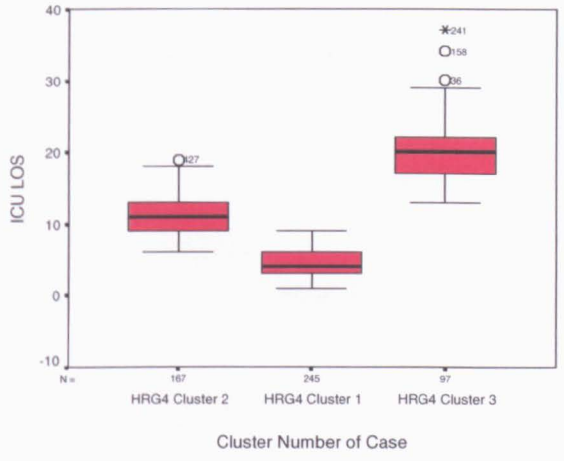


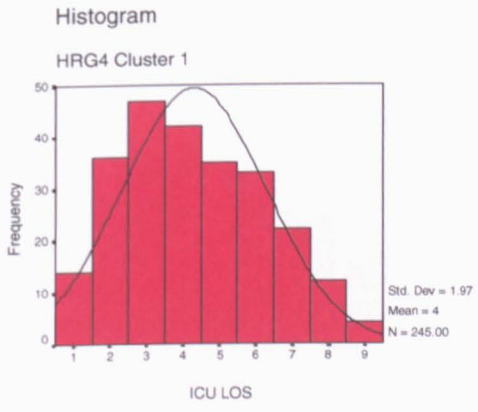


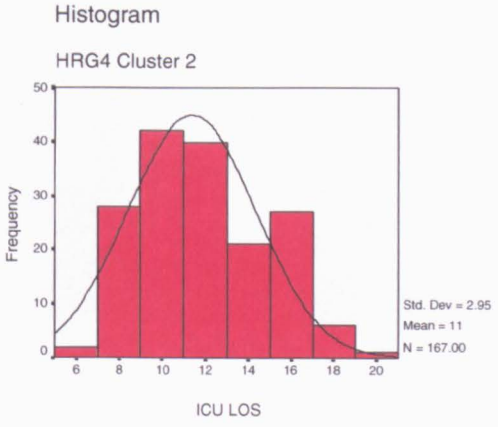


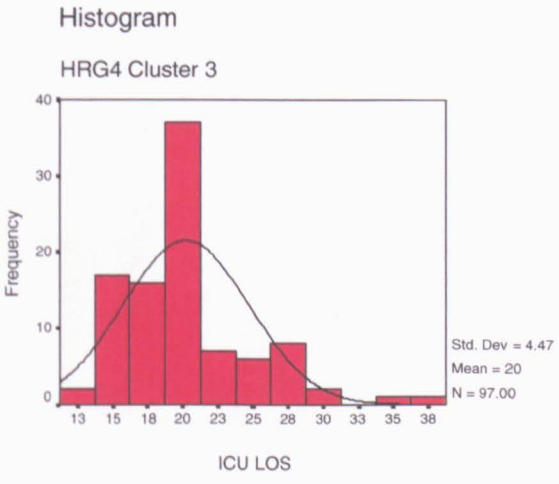
Four organs supported – Length of stay profiles

HRG Code	Calendar Length of Stay
HRG 4 Cluster 1	≥ 1 day ≤ 8 days
HRG 4 Cluster 2	≥ 9 days ≤ 16 days
HRG 4 Cluster 3	≥ 17 days ≤ 37 days



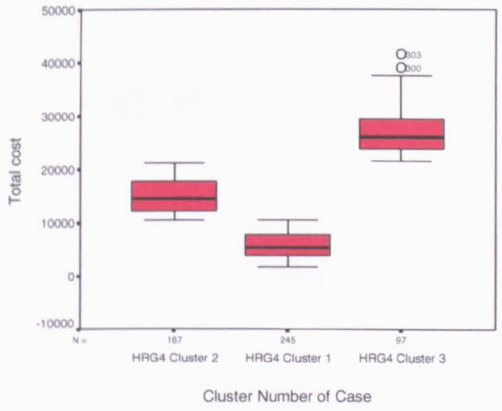


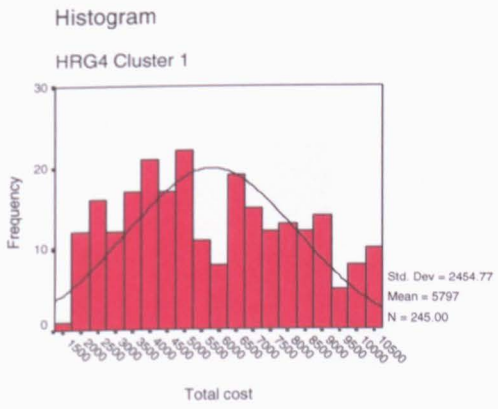


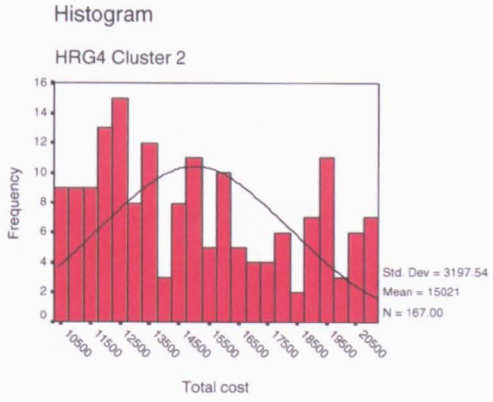


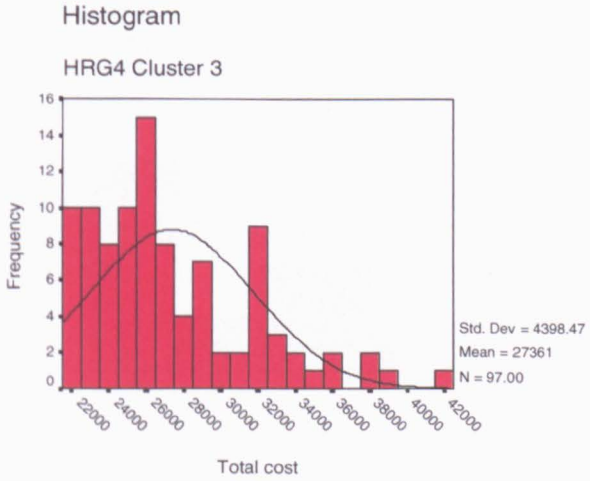
Four organs supported – Total cost profiles

HRG Code	Mean Total cost (95% Confidence Intervals) (£)
HRG 4 Cluster 1	5796.60 (5487.69-6105.51)
HRG 4 Cluster 2	15020.52 (14531.99-15509.04)
HRG 4 Cluster 3	27361.44 (26474.95-28247.93)



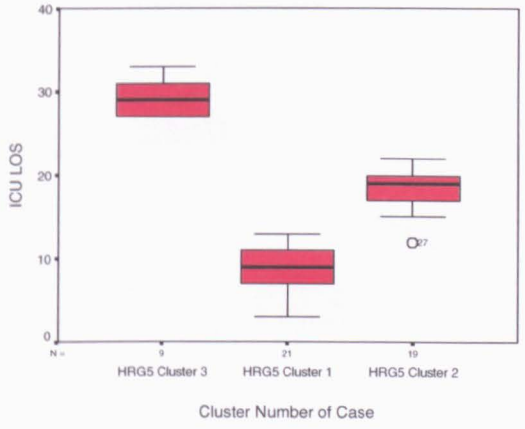


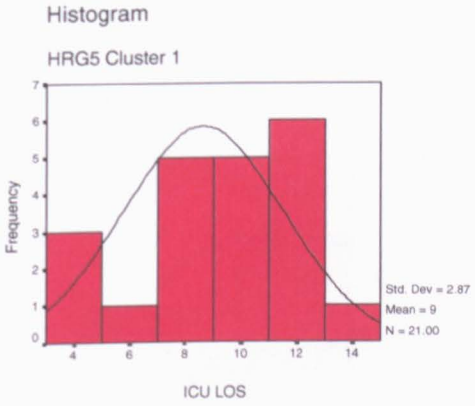


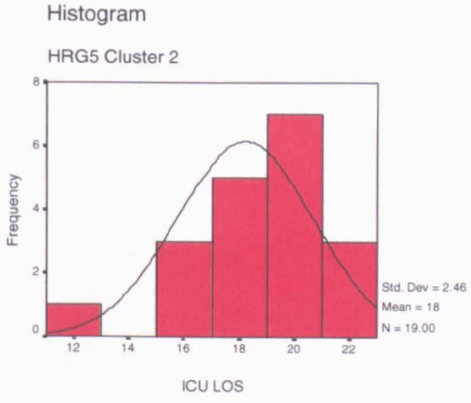


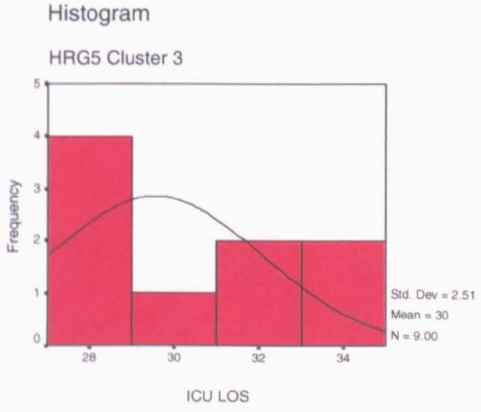
Five organs supported – Length of stay profiles

HRG Code	Calendar Length of Stay
HRG 5 Cluster 1	≥ 1 day ≤ 11 days
HRG 5 Cluster 2	≥ 12 day ≤ 22 days
HRG 5 Cluster 3	≥ 23 days ≤ 33 days



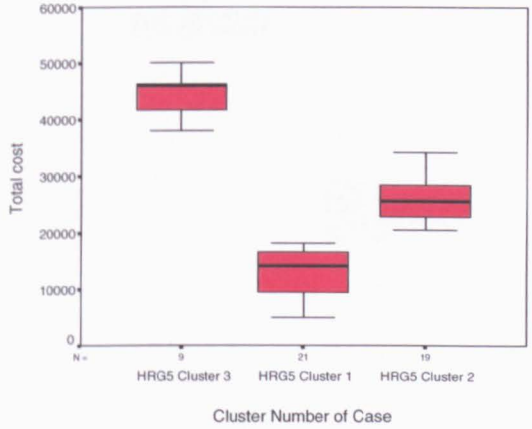


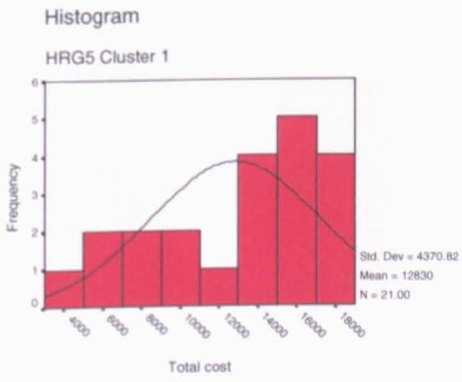


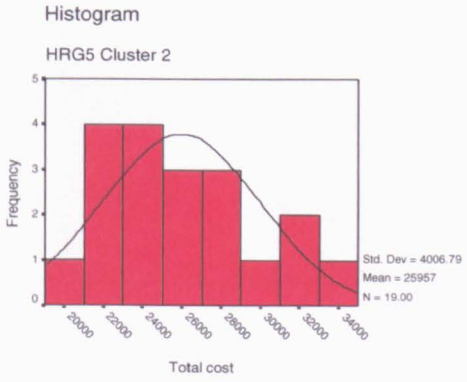


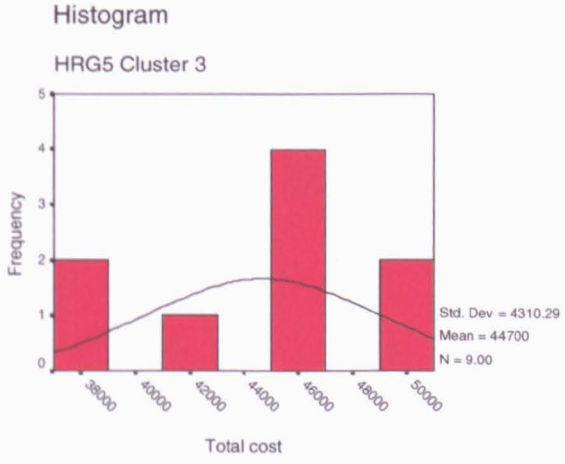
Five organs supported – Total cost profiles

HRG Code	Mean Total cost (95% Confidence Intervals) (£)
HRG 5 Cluster 1	12829.79 (10840.22-14819.36)
HRG 5 Cluster 2	25956.89 (24025.68-27888.10)
HRG 5 Cluster 3	44700.25 (41387.07-48013.44)



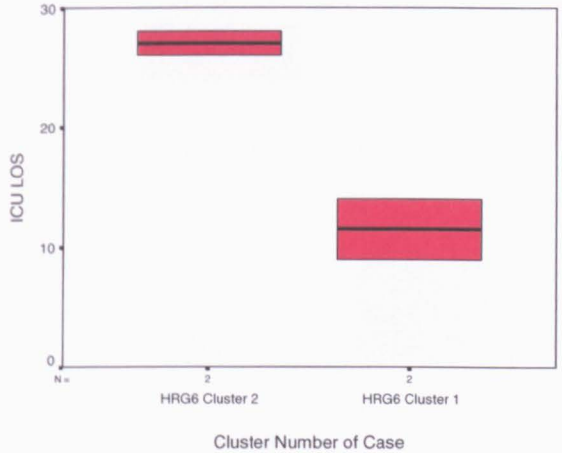


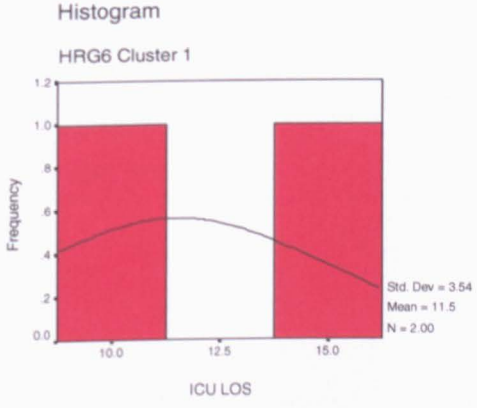


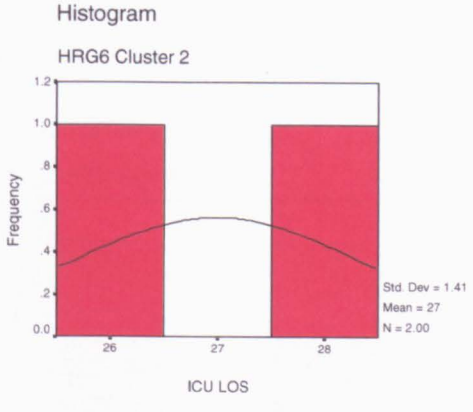


Six organs supported – Length of stay profiles

HRG Code	Calendar Length of Stay
HRG 6 Cluster 1	≥ 1 day ≤ 20 days
HRG 6 Cluster 2	≥ 21 day ≤ 28 days

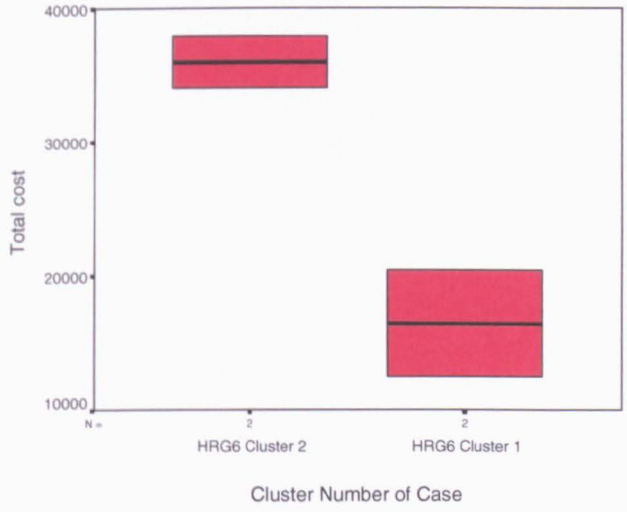


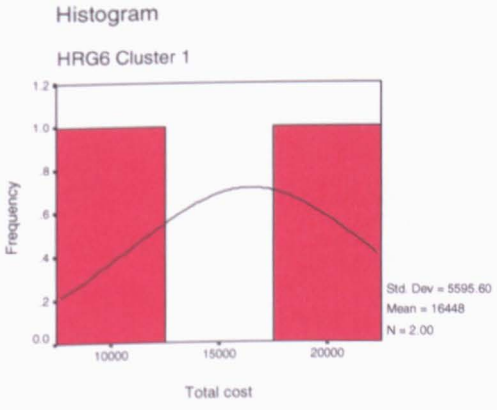


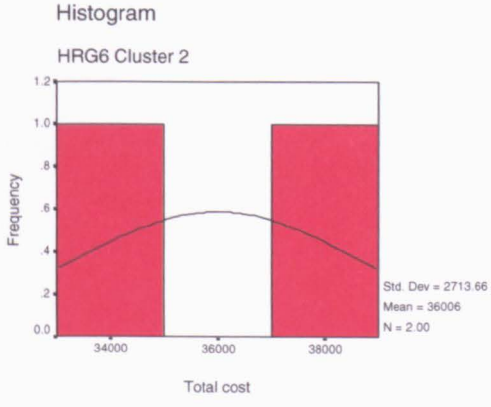


Six organs supported – Total cost profiles

HRG Code	Mean Total cost (95% Confidence Intervals) (£)
HRG 6 Cluster 1	16448.19 (-33826.26-66722.64)
HRG 6 Cluster 2	36005.97 (11624.67-60387.27)







Appendix 7.3: Approval Letter From The Information Standards Board (4th March 2005)

NHS
Information Standards Boards

4th March 2005

Ian Hughes
c/o Barbara Carstens
NHS Information Authority
King's Court
The Broadway
Winchester
S023 9BE

Dear Ian

HRGs Adult Critical Care Levels 2 & 3 Full Standard Submission to NHS Information Standards Board

I am enclosing the output response of the NHS Information Standards Board to the requirement you submitted for approval. For your information, it was considered by the Information Standards Board (ISB) on 16 February 2005.

The output from the ISB meeting was that 'conditional approval' was granted, as detailed in the attached output document.

The NHS Information Standards Board will be publishing this document on the 18th March 2005, on our website (www.isb.nhs.uk). In the interim, we are happy to discuss any points for clarification/accuracy to ensure the service is informed accurately.

Yours sincerely

Professor Martin Severs
Chairman NHS Information Standards Boards

Enc

Copy;
Chris Watson, Head of Payment by Results
Virginia Jordan

Appendix 8.1: Organ Support Data Collection Proforma

Conventional Ventilation or
ECMO for
Severe
Adult
Respiratory Failure

CESAR

Level of Care and Organ Support Data Collection Sheet Days 1-7

1. Hospital name:________________________	5. Date of birth: ☐☐/☐☐/☐☐☐☐ (dd / mm / yyyy)
2. **CESAR** trial hospital code: ☐☐☐☐	
3. Study number: ☐☐☐☐☐	6. Date of randomisation: ☐☐/☐☐/☐☐☐☐ (dd / mm / yyyy)
4. Patient initials: ☐☐	7. Time of randomisation: ☐☐:☐☐ 24 hour

N.B. Data collection should begin on the day that the patient is randomised.

Please record the following data on a daily basis until the patient is discharged from the critical care unit

Day number / Date	1 / /	2 / /	3 / /	4 / /	5 / /	6 / /	7 / /
Level of care: only 1 box should be ticked for each day of stay, and the highest level of care within a day should be recorded: Level 3: Intensive Care[1*] Level 2: High Dependency Care[2*]	☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐
Organ system support: more than one organ system support can be recorded: **See page 14 for organ support definitions** 1. Basic respiratory support 2. Advanced respiratory support 3. Circulatory support 4. Neurological support 5. Renal Support 6. ECMO 7. Liver support	☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐
Location of care: only one box should be ticked for each day of stay. If a patient moves location (e.g. from the ICU to the HDU) please tick the box for the location where the patient has spent $\geq$ 50% of the day: Intensive Care Unit (ICU) High Dependency Unit (HDU) Combined ICU/HDU Combined ICU/HDU/Coronary Care Unit Cardiothoracic ICU Neurological ICU Theatre recovery area Other (please state)...........................	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
Was a low volume ventilation strategy adhered to?[3*]	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐

For definitions *1-3 please see Page 14.
NB: Level of care is not the same as the location of care.

During days 1-7 in critical care has the patient required any of the following:

	Yes	No
1. Use of high frequency/oscillation/jet ventilation	☐	☐
2. Use of nitric oxide	☐	☐
3. Use of prone position	☐	☐

If the patient is still receiving critical care **after day 7** please return the pages for Days 1-7 by fax to the CESAR Data Co-ordinating Centre on **020 7637 2853** and continue recording data on page 3, Critical Care – Days 8-14.

If the patient has been transferred, has died or has been discharged during Days 1-7, please complete the outcome page (page 13) and return this datasheet in full by fax to the CESAR Data Co-ordinating Centre on **020 7637 2853** with **Days 1-7 completed.**

Please keep the original form in the patient's notes.

N.B. If it is easier for you to post a copy of this datasheet back to the CESAR Data Co-ordinating Centre please use the freepost envelope which is in the trial folder. Please remember to photocopy this form, send the copy to the CESAR Data Co-ordinating Centre and keep the original in the patient's notes.

Level of Care and Organ Support Data Collection Sheet Days 8-14

1.	Hospital name:_____	2.	**CESAR** trial hospital code: ☐☐☐☐
3.	Study number: ☐☐☐☐☐	4.	Patient initials: ☐☐

N.B. Data collection should begin on the day that the patient is randomised.

Please record the following data on a daily basis until the patient is discharged from the critical care unit

Day number Date	8 / /	9 / /	10 / /	11 / /	12 / /	13 / /	14 / /
Level of care: only 1 box should be ticked for each day of stay, and the highest level of care within a day should be recorded: Level 3: Intensive Care[1*] Level 2: High Dependency Care[2*]	☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐
Organ system support: more than one organ system support can be recorded: **See page 14 for organ support definitions** 1. Basic respiratory support 2. Advanced respiratory support 3. Circulatory support 4. Neurological support 5. Renal Support 6. ECMO 7. Liver support	☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐
Location of care: only one box should be ticked for each day of stay. If a patient moves location (e.g. from the ICU to the HDU) please tick the box for the location where the patient has spent ≥ 50% of the day: Intensive Care Unit (ICU) High Dependency Unit (HDU) Combined ICU/HDU Combined ICU/HDU/Coronary Care Unit Cardiothoracic ICU Neurological ICU Theatre recovery area Other (please state).....	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
Was a low volume ventilation strategy adhered to?[3*]	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐

For definitions *1-3 please see Page 14.
NB: Level of care is not the same as the location of care.

During days 8-14 in critical care has the patient required any of the following:

		Yes	No
1.	Use of high frequency/oscillation/jet ventilation	☐	☐
2.	Use of nitric oxide	☐	☐
3.	Use of prone position	☐	☐

If the patient is still receiving critical care **after day 14** please return the pages for Days 8-14 by fax to the CESAR Data Co-ordinating Centre on **020 7637 2853** and continue recording data on page 5, Critical Care – Days 15-21.

If the patient has been transferred, has died or has been discharged during Days 8-14, please complete the outcome page (page 13) and return this datasheet in full by fax to the CESAR Data Co-ordinating Centre on **020 7637 2853** with **Days 8-14 completed.**

Please keep the original form in the patient's notes.

N.B. If it is easier for you to post a copy of this datasheet back to the CESAR Data Co-ordinating Centre please use the freepost envelope which is in the trial folder. Please remember to photocopy this form, send the copy to the CESAR Data Co-ordinating Centre and keep the original in the patient's notes.

Please fax a copy of this form to:

CESAR Data Co-ordinating Centre, Medical Statistics Unit, London School of Hygiene & Tropical Medicine, Keppel Street, London WC1E 7HT

If the patient is still receiving critical care **after day 14** please return the pages for Days 8-14 by fax to the CESAR Data Co-ordinating Centre on **020 7637 2853** and continue recording data on page 5, Critical Care – Days 15-21.

If the patient has been transferred, has died or has been discharged during Days 8-14, please complete the outcome page (page 13) and return this datasheet in full by fax to the CESAR Data Co-ordinating Centre on **020 7637 2853** with **Days 8-14 completed.**

Please keep the original form in the patient's notes.

N.B. If it is easier for you to post a copy of this datasheet back to the CESAR Data Co-ordinating Centre please use the freepost envelope which is in the trial folder. Please remember to photocopy this form, send the copy to the CESAR Data Co-ordinating Centre and keep the original in the patient's notes.

Please fax a copy of this form to:

CESAR Data Co-ordinating Centre, Medical Statistics Unit, London School of Hygiene & Tropical Medicine, Keppel Street, London WC1E 7HT

If the patient is still receiving critical care **after day 21** please return the pages for Days 15-21 by fax to the CESAR Data Co-ordinating Centre on **020 7637 2853** and continue recording data on page 7, Critical Care – Days 22-28.

If the patient has been transferred, has died or has been discharged during Days 15-21, please complete the outcome page (page 13) and return this datasheet in full by fax to the CESAR Data Co-ordinating Centre on **020 7637 2853** with **Days 15-21 completed.**

Please keep the original form in the patient's notes.

N.B. If it is easier for you to post a copy of this datasheet back to the CESAR Data Co-ordinating Centre please use the freepost envelope which is in the trial folder. Please remember to photocopy this form, send the copy to the CESAR Data Co-ordinating Centre and keep the original in the patient's notes.

Please fax a copy of this form to:
CESAR Data Co-ordinating Centre, Medical Statistics Unit, London School of Hygiene & Tropical Medicine, Keppel Street, London WC1E 7HT

Level of Care and Organ Support Data Collection Sheet Days 22-28

1. Hospital name:_____ 2. **CESAR** trial hospital code: ☐☐☐☐
3. Study number: ☐☐☐☐☐ 4. Patient initials: ☐☐

N.B. Data collection should begin on the day that the patient is randomised.

Please record the following data on a daily basis until the patient is discharged from the critical care unit

Day number / Date	22 / /	23 / /	24 / /	25 / /	26 / /	27 / /	28 / /
Level of care: only 1 box should be ticked for each day of stay, and the highest level of care within a day should be recorded: Level 3: Intensive Care[1*] Level 2: High Dependency Care[2*]	☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐
Organ system support: more than one organ system support can be recorded: **See page 14 for organ support definitions** 1. Basic respiratory support 2. Advanced respiratory support 3. Circulatory support 4. Neurological support 5. Renal Support 6. ECMO 7. Liver support	☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐
Location of care: only one box should be ticked for each day of stay. If a patient moves location (e.g. from the ICU to the HDU) please tick the box for the location where the patient has spent ≥ 50% of the day: Intensive Care Unit (ICU) High Dependency Unit (HDU) Combined ICU/HDU Combined ICU/HDU/Coronary Care Unit Cardiothoracic ICU Neurological ICU Theatre recovery area Other (please state).....	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
Was a low volume ventilation strategy adhered to?[3*]	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐

For definitions *1-3 please see Page 14.
NB: Level of care is not the same as the location of care.

During days 22-28 in critical care has the patient required any of the following:

	Yes	No
1. Use of high frequency/oscillation/jet ventilation	☐	☐
2. Use of nitric oxide	☐	☐
3. Use of prone position	☐	☐

If the patient is still receiving critical care **after day 28** please return the pages for Days 22-28 by fax to the CESAR Data Co-ordinating Centre on **020 7637 2853** and continue recording data on page 9, Critical Care – Days 29-35.

If the patient has been transferred, has died or has been discharged during Days 22-28, please complete the outcome page (page 13) and return this datasheet in full by fax to the CESAR Data Co-ordinating Centre on **020 7637 2853** with **Days 22-28 completed.**

Please keep the original form in the patient's notes.

N.B. If it is easier for you to post a copy of this datasheet back to the CESAR Data Co-ordinating Centre please use the freepost envelope which is in the trial folder. Please remember to photocopy this form, send the copy to the CESAR Data Co-ordinating Centre and keep the original in the patient's notes.

Please fax a copy of this form to:
CESAR Data Co-ordinating Centre, Medical Statistics Unit, London School of Hygiene & Tropical Medicine, Keppel Street, London WC1E 7HT

Level of Care and Organ Support Data Collection Sheet Days 29-35

1. Hospital name:________________		
2. **CESAR** trial hospital code:	☐☐☐☐
3. Study number:	☐☐☐☐☐
4. Patient initials:	☐☐

N.B. Data collection should begin on the day that the patient is randomised.

Please record the following data on a daily basis until the patient is discharged from the critical care unit

Day number Date	29 / /	30 / /	31 / /	32 / /	33 / /	34 / /	35 / /
Level of care: only 1 box should be ticked for each day of stay, and the highest level of care within a day should be recorded: Level 3: Intensive Care[1*] Level 2: High Dependency Care[2*]	☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐
Organ system support: more than one organ system support can be recorded: **See page 14 for organ support definitions** 1. Basic respiratory support 2. Advanced respiratory support 3. Circulatory support 4. Neurological support 5. Renal Support 6. ECMO 7. Liver support	☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐
Location of care: only one box should be ticked for each day of stay. If a patient moves location (e.g. from the ICU to the HDU) please tick the box for the location where the patient has spent ≥ 50% of the day: Intensive Care Unit (ICU) High Dependency Unit (HDU) Combined ICU/HDU Combined ICU/HDU/Coronary Care Unit Cardiothoracic ICU Neurological ICU Theatre recovery area Other (please state).........................	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
Was a low volume ventilation strategy adhered to?[3*]	Yes No ☐ ☐	Yes No ☐ ☐	Yes No ☐ ☐	Yes No ☐ ☐	Yes No ☐ ☐	Yes No ☐ ☐	Yes No ☐ ☐

For definitions *1-3 please see Page 14.
NB: Level of care is not the same as the location of care.

During days 29-35 in critical care has the patient required any of the following:	Yes	No
1. Use of high frequency/oscillation/jet ventilation	☐	☐
2. Use of nitric oxide	☐	☐
3. Use of prone position	☐	☐

If the patient is still receiving critical care **after day 35** please return the pages for Days 29-35 by fax to the CESAR Data Co-ordinating Centre on **020 7637 2853** and continue recording data on page 11, Critical Care – Days 36-42.

If the patient has been transferred, has died or has been discharged during Days 29-35, please complete the outcome page (page 13) and return this datasheet in full by fax to the CESAR Data Co-ordinating Centre on **020 7637 2853** with **Days 29-35 completed.**

Please keep the original form in the patient's notes.

N.B. If it is easier for you to post a copy of this datasheet back to the CESAR Data Co-ordinating Centre please use the freepost envelope which is in the trial folder. Please remember to photocopy this form, send the copy to the CESAR Data Co-ordinating Centre and keep the original in the patient's notes.

Please fax a copy of this form to:
CESAR Data Co-ordinating Centre, Medical Statistics Unit, London School of Hygiene & Tropical Medicine, Keppel Street, London WC1E 7HT

Level of Care and Organ Support Data Collection Sheet Days 36-42

N.B. If the patient is still receiving critical after day 42 the CESAR data co-ordinating centre will send additional data collection sheets as necessary.

1. Hospital name:____________________		**2.** **CESAR** trial hospital code:	☐☐☐☐
3. Study number:	☐☐☐☐☐	**4.** Patient initials:	☐☐

N.B. Data collection should begin on the day that the patient is randomised.

Please record the following data on a daily basis until the patient is discharged from the critical care unit							
Day number Date	36 / /	37 / /	38 / /	39 / /	40 / /	41 / /	42 / /
Level of care: only 1 box should be ticked for each day of stay, and the highest level of care within a day should be recorded: Level 3: Intensive Care[1*] Level 2: High Dependency Care[2*]	☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐
Organ system support: more than one organ system support can be recorded: **See page 14 for organ support definitions** 1. Basic respiratory support 2. Advanced respiratory support 3. Circulatory support 4. Neurological support 5. Renal Support 6. ECMO 7. Liver support	☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐
Location of care: only one box should be ticked for each day of stay. If a patient moves location (e.g. from the ICU to the HDU) please tick the box for the location where the patient has spent ≥ 50% of the day: Intensive Care Unit (ICU) High Dependency Unit (HDU) Combined ICU/HDU Combined ICU/HDU/Coronary Care Unit Cardiothoracic ICU Neurological ICU Theatre recovery area Other (please state)...........................	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
Was a low volume ventilation strategy adhered to?[3*]	Yes No ☐ ☐	Yes No ☐ ☐	Yes No ☐ ☐	Yes No ☐ ☐	Yes No ☐ ☐	Yes No ☐ ☐	Yes No ☐ ☐

For definitions *1-3 please see Page 14.

NB: Level of care is not the same as the location of care.

During days 36-42 in critical care has the patient required any of the following:

	Yes	No
1. Use of high frequency/oscillation/jet ventilation	☐	☐
2. Use of nitric oxide	☐	☐
3. Use of prone position	☐	☐

If the patient is still receiving critical care **after day 42** please return the pages for Days 36-42 by fax to the CESAR Data Co-ordinating Centre on **020 7637 2853** and continue recording data on the new datasheet pages which have been sent to you.

If the patient has been transferred, has died or has been discharged during Days 36-42, please complete the outcome page (page 13) and return this datasheet in full by fax to the CESAR Data Co-ordinating Centre on **020 7637 2853** with **Days 36-42 completed**.

Please keep the original form in the patient's notes.

N.B. If it is easier for you to post a copy of this datasheet back to the CESAR Data Co-ordinating Centre please use the freepost envelope which is in the trial folder. Please remember to photocopy this form, send the copy to the CESAR Data Co-ordinating Centre and keep the original in the patient's notes.

Please fax a copy of this form to:
CESAR Data Co-ordinating Centre, Medical Statistics Unit, London School of Hygiene & Tropical Medicine, Keppel Street, London WC1E 7HT

Outcome Page

1. Hospital name:_____ 2. CESAR trial hospital code: ☐☐☐☐

3. Study number: ☐☐☐☐☐ 4. Patient initials: ☐☐

Date of admission to this unit: ☐☐ / ☐☐ / ☐☐☐☐ (dd / mm / yyyy) Date patient left this unit: ☐☐ / ☐☐ / ☐☐☐☐ (dd / mm / yyyy)

Name of transport provider (if applicable):_____

Name of contact:_____ Contact Telephone number:_____

Please give details of where the patient has been transferred to:

		Yes	No
1a.	Has the patient been transferred to a different intensive care or high dependency unit in another hospital?	☐	☐

If YES, please give the following details:

Name of unit (e.g. HDU):_____ Tel. number:_____

Hospital:_____ Contact doctor (if known):_____

		Yes	No
1b.	Has the patient been discharged to a department other than intensive care or the high dependency unit, in this hospital or a different hospital, to continue their treatment?	☐	☐

If YES, please give the following details:

Name of unit (e.g. ward):_____ Tel. number:_____

Hospital:_____ Contact doctor (if known):_____

2. If the patient has been transferred please describe the reason for the transfer (please tick **one** box only):
   - Clinical ☐
   - Non-clinical (e.g. due to bed pressures in existing critical care unit) ☐

3. Has the patient died? Yes ☐ No ☐

If YES, please give cause of death:_____

Was a post mortem carried out? Yes ☐ No ☐

On completion of this outcome page, please fax this form to:

CESAR Data Co-ordinating Centre, Medical Statistics Unit, London School of Hygiene & Tropical Medicine, Keppel Street, London WC1E 7HT

Level of care and organ support definitions

1 **Level 3 care** is for patients requiring one or more of the following:
- Advanced respiratory system monitoring and support alone
- Two or more organ systems being monitored and supported, one of which may be advanced respiratory support
- Patients with chronic impairment of one or more organ systems sufficient to restrict daily activity (co-morbidity) and who require support for an acute reversible failure of another organ.

2 **Level 2** care is for patients requiring one or more of the following:
- Single organ system monitoring and support, excluding advanced respiratory support
- General observation and monitoring: more detailed observation and the use of monitoring equipment that cannot safely be provided on a general ward. This may include extended post-operative monitoring for high-risk patients
- Step-down care: patients who no longer need intensive care but who are not well enough to be returned to a general ward.

3 A low volume ventilation strategy as defined in the NIH ARDS Network Study as **TV ≥ 6 ml/Kg, PIP ≥ 30 cm/H_2O.**

Organ support

* For the purposes of this data collection sheet Organ Support will be defined using the Department of Health's Augmented Care Period (ACP) set of definitions as follows:

1. **Basic respiratory system monitoring/support** (indicated by one or more of the following)
   - More than 50% oxygen by fixed performance mask
   - The potential for deterioration to the point of needing advanced respiratory support
   - Physiotherapy to clear secretions at least two hourly, whether via tracheostomy, minitracheostomy, or in the absence of an artificial airway
   - Patients recently extubated after a prolonged period of intubation and mechanical ventilation
   - Mask CPAP or non-invasive ventilation
   - Patients who are intubated to protect the airway but needing no ventilatory support and who are otherwise stable

2. **Advanced respiratory system monitoring/support** (indicated by one or more of the following)
   - Mechanical ventilatory support (excluding mask (CPAP) by non-invasive methods e.g. mask ventilation)

3. **Circulatory system monitoring/support** (indicated by one or more of the following)
   - Vasoactive drugs used to support arterial pressure or cardiac output
   - Circulatory instability due to hypovolaemia from any cause
   - Patients resuscitated following cardiac arrest where intensive care is considered clinically appropriate
   - Intra aortic balloon pumping

4. **Neurological system monitoring/support** (indicated by one or more of the following)
   - Central nervous system depression, from whatever cause, sufficient to prejudice the airway and protective reflexes
   - Invasive neurological monitoring e.g. ICP, jugular bulb sampling

5. **Renal system monitoring/support** (indicated by)
   - Acute renal replacement therapy (haemodialysis, haemofiltration etc.)

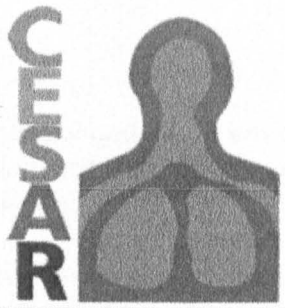
6. **ECMO**
   - Extracorporeal Membrane Oxygenation (Glenfield Hospital Only)

7. **Liver support** (indicated by)
   - extracorporeal liver replacement device i.e. MARS (Teraklin, Rostock, Germany), Bioartificial liver or charcoal haemoperfusion

Appendix 8.2: Covering Letter Sent To Accompany Cost Questionnaire

CESAR Economics Group
Sheffield Health Economics Group, School of Health & Related Research
University of Sheffield
Regent Court, 30 Regent Street
Sheffield, S1 4DA

tel: 0114 222 0713 fax: 0114 272 4095 website: www.cesar-trial.org



ISRCTN47279827

Conventional Ventilation or ECMO for Severe Adult Respiratory Failure

[Finance Director Name]
[Finance Director Job Title]
[Hospital]
[Address 1]
[Address 2]
[Address 3]
[Postcode]

Date

Dear [Director of Finance Name],

CESAR Trial (Conventional Ventilation or ECMO for Severe Adult Respiratory Failure) Economic Evaluation – Collection of Critical Care Costs

The [unit name] within [hospital name] is currently participating in the CESAR trial. This is a randomised controlled trial comparing extracorporeal membrane oxygenation (ECMO) with conventional ventilation in adult critical care patients with severe respiratory failure. ECMO is provided in one centre; Glenfield Hospital in Leicester; and the conventional treatment centres are located across the country; the [unit name] in your hospital is just one. The consultant collaborator in your hospital is [consultant collaborator name]. This trial is funded by the Health Technology Assessment Programme (HTA) and has been approved by Trent Multi-centre Research Ethics Committee.

An economic evaluation is being undertaken alongside the trial, for which I share responsibility with researchers from the University of East Anglia. As part of the economic evaluation, the costs of care are being compared between the two trial arms (ECMO and conventional therapy), for example; critical care and other hospital ward costs, travel costs and post-discharge costs such as prescription medicines. I have enclosed a copy of the 'Summary Protocol' and 'Summary of Economic Evaluation' documents for your further information.

I am one of the Principal Investigators on the trial and am based at Sheffield Health Economics Group within the University of Sheffield. I am writing to you because the [unit name] within your hospital trust cared for a CESAR trial patient from [date recruited], within the financial year [financial year dates]. As such, the costs of this critical care episode (including any high dependency care) need to be captured for the purposes of the trial and I am writing to you to request this information.

The method I am applying to cost the CESAR trial patients uses their organ system support as a proxy for resource use and requires the collection of key cost components. This information must be collected for both

critical care units (e.g. ICU, combined ICU/HDU etc.), and any separate high dependency unit where critical care patients may receive treatment either prior to, or following their critical care admission. I would therefore, be extremely grateful if you could complete the enclosed questionnaire(s), which is divided into two sections:

1. Annual critical care expenditure on consumables, staff, clinical support services and professionals allied to medicine
2. Status of capital equipment records

Once you have completed the questionnaire(s), please return this to me in the post using the envelope provided.

If however, you feel that it would be more straightforward and convenient to send me the budget statement for the financial year in question, from which I can extract some of the necessary data, this would be gratefully received and may reduce the workload burden on your department. Please specify this within the questionnaire, then complete the rest of section 1 and section 2 and return all items to me using the envelope provided.

If you are unable to provide this financial information it is still important for me to be made aware of this and therefore I would be grateful if you could please indicate this within the questionnaire, and return it to me anyway. It would also be helpful if you could provide any details of why these data are not available and perhaps give contact details of someone who may have access to this information, e.g. critical care manager. In addition, it would be very helpful if you could still provide information about capital equipment (in section 2 of the questionnaire).

I would be thankful for your assistance in this matter and if you could respond to this request before **1st November 2004**. If you have any questions about the collection of critical care expenditure data or the trial's economic evaluation more broadly, please do not hesitate to telephone me on 0114 222 0713 or email on CHibbert1@aol.com. Further information about the trial can also be obtained via the website www.cesar-trial.org.

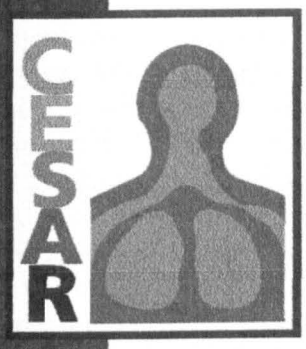
Yours sincerely,

Clare L Hibbert
MRC Senior Research Fellow

Cc. [CESAR Collaborator]

Enc. Summary Protocol, Summary of Economic Evaluation, Cost Questionnaire and return envelope.

Appendix 8.3: Copy Of Economic Evaluation Proposal



Conventional Ventilation or
ECMO for
Severe
Adult
Respiratory Failure

Summary of Economic Evaluation

Background to the trial

Approximately 350 adults develop severe, but potentially reversible, respiratory failure in the UK every year. Whilst intensive care of these patients is improving in specialist centres the mortality for the majority of these severely ill patients has changed little in the last 20 years, and is approximately 70%. Extra corporeal membrane oxygenation (ECMO) provides gas exchange whilst the lungs are rested and allowed to recover, thereby reducing the effects of ventilator lung injury, an approach proven to result in improved survival in the NIH ARDS Network study. ECMO is an evidence-based treatment in severe *neonatal* respiratory failure [1] resulting in improved outcome compared to conventional ventilation. The Glenfield Hospital group has treated over 200 adults with ECMO since 1989. A detailed study of the first 50 patients revealed a hospital mortality of 34% for patients with a mean PaO_2/FIO_2 ratio of 65 mmHg and Murray score of 3.4 [2].

Currently, there is no good evidence from randomised controlled trials (RCTs) to compare ECMO against conventional management for important clinical or economic outcomes for adults. The CESAR trial aims to bridge this gap by conducting an RCT where adults with severe, but potentially reversible, respiratory failure are randomised for consideration of ECMO or continuing conventional ventilation and by conducting an economic evaluation alongside the trial.

The trial is being funded by the NHS Executive Research and Development Health Technology Assessment programme and treatment costs are provided by the National Specialist Commissioning Advisory Group (NSCAG) and has ethical approval for all participating centres.

Primary hypotheses

For patients with severe, but potentially reversible, respiratory failure, ECMO:

(a) Will increase the rate of survival without severe disability by six months post randomisation.
(b) Will be cost effective from the viewpoints of the NHS and society.

Economic Evaluation

The economic evaluation will be co-ordinated by the Health Economics Group at the University of East Anglia, Norwich and the Sheffield Health Economics Group at the University of Sheffield.

The main objective is to assess the incremental cost-effectiveness of ECMO in terms of additional survival with and without severe disability at 6 months post-randomisation. Incremental cost-effectiveness is estimated as the ratio of differences in cost to differences in chosen outcome between the two treatment options (ECMO and conventional ventilation).

Costs of different treatment options will arise at the initial provision of care and as a consequence of health needs following initial intervention. The economic evaluation will assess and report separately the costs that fall upon all the different agencies such as the NHS, social services and households and will assess cost-effectiveness from the viewpoint of the NHS and society.

Data will be collected within the trial on ICU-specific resource use, other in-patient hospital resource use and ambulance resource use. Use of resources after discharge will be collected through a questionnaire-based patient interview at 6-months following trial entry.

The costs of intensive and high dependency care will be determined using a 'top-down' costing method, namely, the cost block method [3]. The average daily cost in each recruiting unit will be severity / case-mix adjusted using either the patient's level of care data or by the type of organ system support received. These weights will be produced using level of care and organ system support data collected as part of the Critical Care National Healthcare Resource Group (HRG) Study[4]. The cost of in-patient hospital care following discharge from critical care will be calculated using NHS Reference Costs[5].

Cost for each item of resource used by each patient will be calculated as the quantity of resource used by that patient multiplied by the unit cost for that item of resource. Unit costs for health and social care will be based on nationally available data [6].

Total costs for each arm of the trial will be estimated as the summation of the products of quantity and unit costs for each item of service for each patient. This will allow variations in cost within and between randomised groups to be investigated.

Cost-effectiveness analysis will be conducted by combining the above total cost estimates together with clinical outcomes to obtain a cost-effectiveness ratio. A sensitivity analysis will also be conducted to investigate the effects of varying key assumptions in the costing process on the cost-effectiveness analysis results.

Two sub-studies on other aspects of ICU costs are also being planned: (1) a study on the costs of visiting adult ICU patients by family members and relatives and (2) a study on the costs to the NHS of patients who die in hospital.

Finally, the implication of the trial for efficient provision of ECMO services in the UK will be considered. Analysis will be done to assess sensitivity of the cost-effectiveness ratio to transport and local volume of service in the ICU and ECMO units in order to predict the best configuration of ECMO services, if the treatment is found to be effective.

References

1. UK Collaborative randomised trial of neonatal extracorporeal membrane oxygenation. UK Collaborative ECMO Trial Group. Lancet 1996; 348: 75-82.

2. Peek GJ, Moore HM, Moore N, Sosnowski AW, Firmin RK. Extracorporeal Membrane Oxygenation for Adult Respiratory Failure. Chest 1997;112:759-764.

3. Edbrooke DL, Hibbert CL, Ridley S, Long T, Dickie H. The development of a method for comparative costing of individual intensive care units. Intensive Care Working Group on Costs. Anaesthesia 1999; 54: 110-121.

4. Hibbert CL, Morris J, Partridge S. Funding critical care – the way forward. Journal of the Intensive Care Society 2003; 4: 9-10.

5. http://www.doh.gov.uk/nhsexec/refcosts.htm

6. Netten A & Curtis L (2000). Unit Costs of Health and Social Care. Personal Social Services Research Unit, University of Kent at Canterbury.

Contacting the Economic Evaluation team:

Professor Miranda Mugford
Professor of Health Economics
School of Health Policy and Practice
University of East Anglia
Norwich
NR4 7TJ
Tel: 01603 593 583
Email: m.mugford@uea.ac.uk

Mrs Mariamma Thalanany
Economics Researcher
School of Health Policy & Practice
University of East Anglia
Norwich
NR4 7TJ
Tel: 01603 591 107
Email: m.thalanany@uea.ac.uk

Miss Clare Hibbert
MRC Fellow in Health Services Research
ScHARR
University of Sheffield
Regent Court
30 Regent Street
Sheffield
S1 4DA
Tel: 0114 222 0713
Email: CHibbert1@aol.com

Miss Lizzie Coates
Department of Sociology
University of Surrey
Guildford
Surrey GU2 7XH
United Kingdom
Telephone:
UK: 01483 689365
Email: e.coates@surrey.ac.uk

Note that Clare is relocating on 1st August 2005 to RTI Health Solutions where she will continue her work on the CESAR trial:

RTI Health Solutions
Williams House
Lloyd Street North
Manchester, M15 6SE
United Kingdom
Phone: 0161-232-3400
Fax: 0161-232-3409
e-mail: chibbert1@aol.com

Further information about the CESAR trial is available from our website
www.cesar-trial.org

Appendix 8.4: Cost Questionnaire

Background information and completion instructions

The critical care unit at your hospital has recruited patients to a Randomised Controlled Trial (RCT) of conventional therapy or Extracorporeal Membrane Oxygenation (ECMO). The acronym for this study is CESAR. This is a multi-centre, collaborative study funded by the National Co-ordinating Centre for Health Technology Assessment.

I am conducting an economic evaluation of the two treatments for the purposes of informing which of the two is the most cost-effective for adult critical care patients with severe, but potentially reversible, respiratory failure.

In order to do this, I need to estimate an average daily cost for nursing staff, drugs and fluids and disposable equipment for each participating critical care unit. Weights will be assigned to these average daily costs according to the type of organ system support received by patients on a daily basis. This clinical information on organ system support has been collected by staff working in the critical care units. The critical care unit has been sent an additional questionnaire that asks for information on patients' throughput characteristics with which the data on expenditure can be apportioned.

This questionnaire covers the costs of other components of critical care including consultant medical staff, junior medical staff, administrative staff, blood and blood products, laboratory and radiology tests, and professionals allied to medicine which will be assigned as an average daily 'overhead' cost to the costs of nursing staff, drugs and fluids and disposable equipment.

All of the information requested in this questionnaire should be available from the critical care unit's budget statement for the month of March 2002 or from other financial records held in your, or the relevant hospital department. It is very important that the definitions provided in the questionnaire are adhered to so as to avoid any methodological bias of the cost estimates.

- Section 1 covers annual expenditure on consumables (1A), staff (1B), clinical support services (1C) and professionals allied to medicine (1D).
- Section 2 covers capital equipment with some questions relating to availability of data on this within the critical care unit.

If it is easier for you to send me a copy of the critical care unit's budget statement for the end of the financial year 2001-2002 (i.e. for the month of March) then I am happy to extract data from the statement myself in order to complete some of Section 1 of the questionnaire. Please indicate this in the table at the start of Section 1.

This questionnaire relates to expenditure incurred by the critical care unit.

If you do have any questions or queries about the questionnaire or the study, please do not hesitate to contact me.

Clare L Hibbert
MRC Senior Research Fellow
Email: CHibbert1@aol.com Telephone: 0114 222 0713

Section 1: Critical Care Expenditure

RESPONDENT CONTACT DETAILS

Please provide <u>your</u> name and contact details:

Name	
Job Title	
Department	
Phone Number	
Email	

RETURN OF BUDGET STATEMENTS

For several components of critical care expenditure, you have the option of returning unit budget statements in place of completing that section of the questionnaire. Please tick each box if you have chosen to do this for any of the following resources:

- ☐ Clinical Nursing Staff
- ☐ Administrative Staff
- ☐ Disposable Equipment
- ☐ Drugs & Fluids
- ☐ Other (please state).....
- ☐ Other (please state).....
- ☐ Other (please state).....
- ☐ Other (please state).....
- ☐ I am unable to complete this questionnaire & suggest that you contact the following person:

Name	
Job Title	
Department	
Phone Number	
Email	

DISPOSABLE EQUIPMENT

Annual expenditure on disposable equipment used by the critical care unit. Disposable equipment refers to all equipment used for patient care in the unit (sterile and non-sterile) for single or very limited use. Examples would include syringes, gloves, CVVH bloodlines and dressings (including medicated dressings). Costs should include Value Added Tax (VAT).

What was the total expenditure on disposable equipment incurred by the critical care unit during the financial year 2001-02?

£ | | | | | | | | . | | |

DRUGS AND FLUIDS

Annual expenditure on drugs and fluids incurred by the critical care unit should include albumin but exclude nutritional products and blood and blood products.

What was the total expenditure on drugs and fluids incurred by the critical care unit during the financial year 2001-02?

£ | | | | | | | | . | | |

NUTRITIONAL PRODUCTS

Annual expenditure on nutritional products used by the critical care unit should include expenditure on all enteral and parenteral feeds, and special nutritional products that are administered orally.

What was the total expenditure on nutritional products incurred by the critical care unit during the financial year 2001-02?

£ | | | | | | | | . | | |

BLOOD AND BLOOD PRODUCTS

Annual expenditure on blood and blood products used by the critical care unit should include expenditure on whole blood and other blood products, but exclude albumin.

What was the total expenditure on blood and blood products incurred by the critical care unit during the financial year 2001-02?

£ | | | | | | | | . | | |

OTHER MEDICAL STAFF

For each level of other medical staff, please state the total number of hours worked on the critical care unit, the total number of hours spent on-call per week and the total number of hours dedicated to Outreach per week. A cost per hour relating to the grade of staff and type of hours will be used to calculate the annual cost of other medical staff to the unit. You do not need to provide details of other medical staff pay.

	Average number of hours worked per week on the unit	Average number of hours on-call per week relating to the unit	Average number of hours worked per week on Outreach
All Senior House Officers			
All SPR1 and SPR2 (Registrars)			
All SPR3, SPR4 and SPR5 (Senior Registrars)			
All Staff Grade (or equivalent)			

CLINICAL NURSING STAFF

Annual expenditure on all clinical nursing staff working on the critical care unit. This applies to all grades of nurses (A to I), and also includes, all bank, agency and outreach nursing staff funded by the unit.

What was the total expenditure on clinical nursing staff incurred by the critical care unit during the financial year 2001-02?

£ _____ . __

Please provide the number of whole time equivalents for each nursing grade, and the total expenditure for each grade in the table below:

	Number of whole time equivalents	Total annual expenditure on each grade / group of clinical nursing staff
A Grade	_____ . __	£ _____ . __
B Grade	_____ . __	£ _____ . __
C Grade	_____ . __	£ _____ . __
D Grade	_____ . __	£ _____ . __
E Grade	_____ . __	£ _____ . __
F Grade	_____ . __	£ _____ . __
G Grade	_____ . __	£ _____ . __
H Grade	_____ . __	£ _____ . __
I Grade	_____ . __	£ _____ . __
Nurse Consultant	_____ . __	£ _____ . __
Outreach nurses	_____ . __	£ _____ . __
Bank nurses	_____ . __	£ _____ . __
Agency nurses	_____ . __	£ _____ . __
Other (please specify)	_____ . __	£ _____ . __

ADMINISTRATIVE STAFF

Annual expenditure on all administrative staff that provides support to the critical care unit, for example, managers, secretarial or audit/research staff.

What was the total expenditure on administrative staff incurred by the critical care unit during the financial year 2001-02?

£ . .

Please provide the number of whole time equivalents for each type of administrative staff, and the total expenditure for each in the table below:

	Number of whole time equivalents	Total annual expenditure on each grade / group of clinical nursing staff
Secretaries	.	£ .
Administrative Officers	.	£ .
Personal Assistants	.	£ .
Ward Clerks	.	£ .
Research/Audit Nurse	.	£ .
Research/Audit Clerk	.	£ .
Research/Audit Secretary	.	£ .
General Manager	.	£ .
Business Manager	.	£ .
Nurse Manager	.	£ .
Other (please specify)	.	£ .

DIRECTORATE ACCOUNTANTS

Expenditure on Directorate Accountants relates to such specific services provided to the critical care unit. If applicable, the salaried costs of such professionals working for the unit can be used, taking into account the amount of time spent working with the unit (including overheads).

What was the total expenditure on Directorate Accountants incurred by the critical care unit during the financial year 2001-02?

£ . .

PERSONNEL OFFICERS

Expenditure on Personnel Officers relates to such specific services provided to the critical care unit. If applicable, the salaried costs of such professionals working for the unit can be used, taking into account the amount of time spent working with the unit (including overheads).

What was the total expenditure on Personnel Officers incurred by the critical care unit during the financial year 2001-02?

£ . .

LABORATORY SERVICES

Annual expenditure on laboratory services incurred by the critical care unit. These services would typically include:

- ❑ Bacteriology
- ❑ Virology
- ❑ Clinical chemistry
- ❑ Immunology
- ❑ Haematology
- ❑ Neuropathology
- ❑ Histopathology

What was the total expenditure on laboratory services incurred by the critical care unit during the financial year 2001-02?

£ | | | | | | | | . | | |

RADIOLOGY

Annual expenditure on radiology includes all x-ray and other radiology costs by the critical care unit.

What was the total expenditure on radiology incurred by the critical care unit during the financial year 2001-02?

£ | | | | | | | | . | | |

SPECIALISED BED THERAPY

Annual expenditure on specialised bed therapy relates to the monthly lease or hire charges incurred by the critical care unit.

What was the total expenditure on specialised bed therapy incurred by the critical care unit during the financial year 2001-02?

£ | | | | | | | | . | | |

PHYSIOTHERAPY

Annual expenditure on physiotherapy relates to services provided to the critical care unit. A contract may be held with the physiotherapy department. If so, the expenditure incurred by the unit should be stated. Alternatively, if not, the salaried cost of the physiotherapists normally working in the unit can be used, taking into account the amount of time that they spent in the unit (including overheads).

What was the total expenditure on physiotherapy incurred by the critical care unit during the financial year 2001-02?

£ | | | | | | | | . | | |

OCCUPATIONAL THERAPY

Annual expenditure on occupational therapy relates to services provided to the critical care unit. A contract may be held with the Occupational Therapy department. If so, the expenditure incurred by the unit should be stated. Alternatively, if not, the salaried cost of the occupational therapists normally working in the unit can be used, taking into account the amount of time that they spent in the unit (including overheads).

What was the total expenditure on occupational therapy incurred by the critical care unit during the financial year 2001-02?

£ | | | | | | | | . | | |

SPEECH AND LANGUAGE THERAPY

Annual expenditure on speech and language therapy relates to such specific services provided to the critical care unit by an individual or team of staff. If applicable, the salaried cost of the speech and language therapist normally working in the unit can be used, taking into account the amount of time that they spent in the unit (including overheads).

What was the total expenditure on speech and language therapy incurred by the critical care unit during the financial year 2001-02?

£ | | | | | | | | . | | |

DIETICIANS

Annual expenditure on dieticians relates to services provided to the critical care unit. A contract may be held with the Dietetics department. If so, the expenditure incurred by the unit should be stated. Alternatively, if not, the salaried cost of the dieticians normally working in the unit can be used, taking into account the amount of time that they spent in the unit (including overheads).

What was the total expenditure on dieticians incurred by the critical care unit during the financial year 2001-02?

£ | | | | | | | | . | | |

PSYCHOLOGY

Annual expenditure on psychology relates to such services provided to the critical care unit. A contract may be held with the psychology department. If so, the expenditure incurred by the unit should be stated. Alternatively, if not, the salaried cost of the psychologist normally working in the unit can be used, taking into account the amount of time that they spent in the unit (including overheads).

What was the total expenditure on psychology incurred by the critical care unit during the financial year 2001-02?

£ | | | | | | | | . | | |

MEDICAL TECHNICAL OFFICERS

Annual expenditure on Medical Technical Officers (MTOs) relates to such specific services provided to the critical care unit. If applicable, the salaried costs of the MTOs normally working in the unit can be used, taking into account the amount of time that they spent in the unit (including overheads).

What was the total expenditure on medical technical officers incurred by the critical care unit during the financial year 2001-02?

£ | | | | | | | | . | | |

ASSISTANT MEDICAL TECHNICAL OFFICERS

Annual expenditure on Assistant MTOs relates to such specific services provided to the critical care unit. If applicable, the salaried cost of the Assistant MTOs normally working in the unit can be used, taking into account the amount of time that they spent in the unit (including overheads).

What was the total expenditure on assistant medical technical officers incurred by the critical care unit during the financial year 2001-02?

£ | | | | | | | | . | | |

CLINICAL PHARMACISTS

Annual expenditure on clinical pharmacists relates to such specific services provided to the critical care unit. A contract may be held with the pharmacy department. If so, the expenditure incurred by the unit should be stated. Alternatively, if not, the salaried cost of the clinical pharmacist normally working in the unit can be used, taking into account the amount of time that they spent in the unit (including overheads).

What was the total expenditure on clinical pharmacists incurred by the critical care unit during the financial year 2001-02?

£ | | | | | | | | . | | |

Section 2: Capital Equipment

Studies seeking to estimate the costs of capital equipment have been very difficult to perform in recent years, due to the lack of availability of data (in electronic form) held on items of capital equipment used by critical care units. It is important for the economic evaluation, that an estimate of daily cost relating to capital equipment is produced. In order to do this, I need to know the date when equipment was purchased, the acquisition cost and some information about the maintenance of the equipment.

I would be very grateful if you would complete the following questions below. This information will help tremendously in informing the feasibility of collecting more detailed information on capital equipment (if indeed this is possible).

Is an asset register maintained for items of capital equipment used by the critical care unit, for the financial year 2001-02?

Yes ☐ No ☐ Don't Know ☐

Would it be possible to obtain a print-out of this register for the financial year 2001-02, detailing the items of equipment in use by the critical care unit?

Yes (attached with this response) ☐ No ☐ Don't Know ☐

Would it be possible to obtain a print-out of the expenditure incurred on maintenance contracts for the capital equipment used by the critical care unit for the financial year 2001-02?

Yes ☐ No ☐ Don't Know ☐

If some items of your capital equipment are leased instead of purchased, would it be possible to obtain a print-out of the expenditure incurred on these lease / hire charges for the financial year 2001-02?

Yes ☐ No ☐ Don't Know ☐

Thank you for your assistance in completing this questionnaire!

Comments

Please use this space to provide comments about this questionnaire or the information provided therein:

☐ Please tick this box if you would like to be informed of the trial results (✓)

critical care units (e.g. ICU, combined ICU/HDU etc.), and any separate high dependency unit where critical care patients may receive treatment either prior to, or following their critical care admission. I would therefore, be extremely grateful if you could complete the enclosed questionnaire(s), which is divided into two sections:

1. Annual critical care expenditure on consumables, staff, clinical support services and professionals allied to medicine
2. Status of capital equipment records

Once you have completed the questionnaire(s), please return this to me in the post using the envelope provided.

If however, you feel that it would be more straightforward and convenient to send me the budget statement for the financial year in question, from which I can extract some of the necessary data, this would be gratefully received and may reduce the workload burden on your department. Please specify this within the questionnaire, then complete the rest of section 1 and section 2 and return all items to me using the envelope provided.

If you are unable to provide this financial information it is still important for me to be made aware of this and therefore I would be grateful if you could please indicate this within the questionnaire, and return it to me anyway. It would also be helpful if you could provide any details of why these data are not available and perhaps give contact details of someone who may have access to this information, e.g. critical care manager. In addition, it would be very helpful if you could still provide information about capital equipment (in section 2 of the questionnaire).

I would be thankful for your assistance in this matter and if you could respond to this request before **1st November 2004**. If you have any questions about the collection of critical care expenditure data or the trial's economic evaluation more broadly, please do not hesitate to telephone me on 0114 222 0713 or email on CHibbert1@aol.com. Further information about the trial can also be obtained via the website www.cesar-trial.org.

Yours sincerely,

Clare L Hibbert
MRC Senior Research Fellow

Cc. [CESAR Collaborator]

Enc. Summary Protocol, Summary of Economic Evaluation, Cost Questionnaire and return envelope.