

NORTH TRENT CRITICAL CARE NETWORK AUDIT PROGRAMME



DEFINITIONS MANUAL 2007

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Chesterfield & North Derbyshire Royal Infirmary
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INTRODUCTION

This booklet is designed as a practical guide for the user. All the definitions required for the North Trent Audit Programme and Critical Care Minimum Data Set are included.

The guide will be upgraded annually taking into consideration Audit Working Group opinion and the changing requirements of the network audit process.

The guide is divided into six main sections

1. Critical Care Minimum Data Set (CCMDS)
2. Additional Network Patient Data
3. Daily General Data North Trent Audit data set
4. Transfers
5. Monthly Data North Trent Audit data set
6. Annual Data North Trent Audit data set
7. Payment by Results

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1. CRITICAL CARE MINIMUM DATA SET

“The full 34 item CCMDS is considered the minimum dataset that organisations should collect consistent, unified information for benchmarking and quality assurance purposes.It is designed to provide a standard data framework for critical care clinical networks and providers of critical care services to use for local clinical or quality audit arrangements.” DSC 02/2005

The Critical Care Healthcare Resource Groups (HRGs) subset is contained within the full Critical Care Minimum Data Set (CCMDS) and is highlighted in Lilac in this document. The subset is mandatory from 1st April 2007 and will be used for the generation of Adult Critical Care HRGs for Commissioning, Payment by Results and case mix analysis.

The number on the right hand side of the title band indicates the item number within the full CCMDS

1.1 NHS NUMBER CCMDS 1

Unique identifier for transferable patient records and other NHS data sets. Usually available from hospital PAS system.

1.2. LOCAL PATIENT IDENTIFIER CCMDS 2

Unique identifier for other patient data held within a hospital e.g. hospital number

1.3. SITE CODE (OF TREATMENT) CCMDS 3

Unique identifier for hospital to allow Network and commissioning analysis. This allows the hospital to be identified if there is more than one hospital with critical care facilities in the Trust. This is hidden on the North Trent Audit data collection software however on the CCMDS extracts it is shown.

1.4. CODE OF GP PRACTICE (REGISTERED GMP) CCMDS 4

Registered GP from the patient medical record system. (Note that patients now register with a practice rather than an individual GP). If this is not known please insert 000000.

1.5. TREATMENT FUNCTION CODE CCMDS 5

The treatment function of the consultant with primary responsibility for the patient **at the beginning of the hospital episode** that contains the critical care period. (NB this is not the same as the original ACPSPEF, which referred to the speciality of the critical care team). This will capture a more precise speciality function for the reason for admission in the majority of cases, e.g. the consultant may be registered as a general surgeon, but may be providing a vascular, or gastro-intestinal treatment function.

Note that treatment function is the particular speciality that the patient is treated under and not necessarily the main speciality of the consultant e.g. colorectal surgery compared to general surgery.

1.6. PERSON BIRTH DATE CCMDS 6

To provide age and an additional patient identifier. If date of birth is missing, the audit software allows age (months and years) to be entered.

1.7. POSTCODE OF USUAL ADDRESS CCMDS 7

Postcode of patient's address, to track source of patient in relation to PCTs, networks and SHAs

1.8. CRITICAL CARE LOCAL IDENTIFIER HRG 1, CCMDS 8

This locally defined variable should as a minimum include sequential numerical component that can discriminate two or more critical care periods occurring on the same calendar day for the same patient.

The North Trent Audit database will generate a unique number for each new patient entered; this will be a combination of the Site Code, Local Hospital ID and a sequential number. (This was agreed at the NTCCN working group meeting 22/11/05)

1.9. CRITICAL CARE START DATE HRG 2 CCMDS 9

The calendar date expressed as CCYY-MM-DD. Entered as dd/mm/yy.

The data in the CCMDS primarily relates to any part of the patient's hospital spell that requires care in a designated critical care bed. These are conventionally grouped into Critical Care Areas, e.g. ICU, ITU, HDU, PICU or level 2 and 3 beds (this will cover POSU) but may include a temporary (e.g. greater than four hours), non-standard location (PACU) i.e. care that would ideally have been provided in a designated critical care area if there had been sufficient capacity.

Note that as with the ACP data set, neonatal units are not expected to collect this data in view of the planned development of neonatal data sets. However, the activity for children treated on adult critical care units should be recorded.

Designated critical care bed definitions can be found in the Guidelines on Admission and Discharge for Intensive and High Dependency Care, DoH 1996.

Coronary Care Units are currently excluded from collection of CCMDS.

Data collection should commence from the date and time that the patient first occupies the designated critical care bed.

If there are repeated admissions to the same unit or transfers to different critical care areas within the same hospital, these should produce separate CCMDS data sets identified by different start dates or locations.

As the focus is on the patient's illness, changes of consultant, or brief transfers for investigations and treatment should be ignored and a single CCMDS kept running until the patient is transferred to a non-critical care area or dies. This is different from ACP data set.

Outreach activity, although part of critical care, should not be recorded in a CCMDS record. However if the outreach service **managed a patient** with level 2 or 3 care on a ward for more than four hours they should have a CCMDS record using the temporary code '90'. e.g. If the outreach or critical care staff were supporting ward based care for a patient with a recently inserted CVP line and receiving 50% supplementary oxygen who has been waiting for a critical care bed for more than four hours, then this is reasonably viewed as an 'out-of-unit' critical care episode. Clearly, there is not the intention to capture all level 2 care throughout the hospital that is not part of the critical care service.

Resuscitation conducted outside designated critical care areas e.g. as part of conventional care in operating theatres and emergency medicine departments should not be recorded in a CCMDS even though many aspects of the care given may satisfy level 2 or 3 critical care definitions.

Examples: If patients are routinely kept in a post-operative recovery ward for more than four hours e.g. to stabilise after major vascular surgery they should generate a CCMDS record using the code 91.

If a patient moves between the HDU and ICU within a combined unit they do not need to generate a new CCMDS record however if they move to a separate unit they do.

Can a CCMDS be generated while a patient is in an Accident department – In some circumstances, yes? If the patient has received organ support delivered by critical care staff and has stayed for more than four hours pending admission to designated critical care bed or transfer out. Use temporary code '90'. Thus for example, a patient in cardiac failure on greater than 55% inspired oxygen who has been seen by the A&E team and subsequently admitted to an acute medical ward does NOT require a CCMDS.

Do Burn patients in a Burn centre generate a CCMS? Yes use code 08 in 'Critical Care Unit Function'.

In a major incident or a need to escalate capacity, can patients in these short term beds generate a CCMDS? Yes, if these beds can be classified as temporary '90' or '91'. Note that for critical care re-imbursement to occur, defined organ support would need to be provided. There is also the assumption that these patients should be moved to a designated critical care bed at the earliest opportunity.

1.10. CRITICAL CARE START TIME CCMDS 10

The time should be expressed as HH:MM

1.11. CRITICAL CARE UNIT FUNCTION HRG 3 CCMDS 11

The permutations of different types of critical care area are based on descriptions contained in 'Comprehensive Critical Care' but are enhanced by condensing the previous ACP list into a flexible series of two linked codes; critical care (unit) function and unit bed configuration.

The options from 90 onwards are available to retain compatibility with the ACP format that permitted non-standard locations to be recorded as a separate period of critical care. Temporary (e.g. greater than four hours) delivery of level 2 and 3 care to patients in non-designated critical care areas may be recorded here i.e. care that would have ideally have been provided in a designated critical care area if there had been sufficient capacity.

DEFINITIONS:

Type of critical care area to which the patient was admitted. Options available should reflect the principle clinical service provided within the area;

- 01** non-specific, general adult critical care.
- 02** surgical adult patients (unspecified specialty)
- 03** medical adult patients (unspecified specialty)
- 04** paediatric critical care (includes infants >28 days on NICU)
- 05** neurosciences patients predominate
- 06** cardiac surgical patients predominate
- 07** thoracic surgical patients predominate
- 08** burns and plastic surgery patients predominate
- 09** spinal patients predominate
- 10** renal patients predominate
- 11** liver patients predominate
- 12** obstetric patients predominate
- 90** non-standard location using a ward area, (temporary)
- 91** non-standard location using the operating department temporary (e.g. greater than four hours).

This is a hidden field within the North Trent Audit database.

1.12. UNIT BED CONFIGURATION CCMDS 12

The composition of bed types for your unit based on maximum funded and intended use, e.g. some units plan to use staff and beds flexibly, others are organised to take full complement of level 3 patients or only 'HDU' patients.

02 = level 2 beds only

03 = level 3 beds only

05 = flexible, mixed level 2 and 3 beds

90 = non-critical care bed (as for 90+ codes for Unit Function)

This is a hidden field within the North Trent Audit database.

1.13. CRITICAL CARE ADMISSION SOURCE CCMDS 13

Admission sequences are captured in two stages, i.e. there are **two** variables collected before unit admission, the critical care admission source and the location associated with the source.

DEFINITIONS:

01 Same NHS hospital site

02 Other NHS hospital site (can be same Trust or a different NHS Trust) If this is ticked buttons will appear for you to identify whether within Network; UTG or non-UTG. This is to allow us to automatically track all transfers.

03 Independent Hospital Provider in the UK

04 Non-hospital source within the UK (e.g. home as coded in Location)

05 Non United Kingdom source (e.g. repatriation or foreign national)

1.14. CRITICAL CARE LOCATION SOURCE CCMDS 14

Specific location in the admission source

DEFINITIONS:

01 Theatre and Recovery (following surgical and /or anaesthetic procedure)

02 Recovery only (when used to provide temporary critical care facility)

03 Ward

04 Imaging department

05 Emergency Medicine Department, (Accident and Emergency)

06 Other intermediate care or specialist treatment areas including endoscopy, and catheter suites. POSU will be included in this definition.

07 Obstetrics area

08 Clinic

09 Home or other residence (e.g. nursing home, H.M. Prison, residential care)

10 Adult level 3 critical care bed (e.g. in a flexibly configured unit). If this is ticked buttons will appear for you to identify from an ICU or combined unit.

11 Adult level 2 critical care bed (e.g. in a flexibly configured unit). If this is ticked buttons will appear for you to identify from an HDU or combined unit.

12 Paediatric critical care area (neonatal and paediatric care). If this is ticked buttons will appear for you to identify from an ICU or HDU or a combined unit.

1.15. CRITICAL CARE ADMISSION TYPE**CCMDS 15****DEFINITIONS:**

01 UNPLANNED LOCAL ADMISSION. All emergency or urgent patients assumed to have been referred to the unit only as a result of an unexpected acute illness occurring either within your hospital or prior to admission to your hospital from a non-hospital location. (No differentiation is made between medical, surgical, or other specialty).

Example: What if an anaesthetist requests a critical care bed for a patient who has significant risk factors that have only been identified a few hours before theatre? If the surgery is urgent then it would be reasonable to record this as an unplanned admission, it is probably the combination of the surgery and any significant co morbidity that counts as 'unexpected acute illness' as stated in the definition. Alternatively, if this represents optimal care in a scheduled patient with significant co morbidity but who has not been previously notified to the unit, then the criteria would be; could the patient be reasonably deferred if there was no bed? If yes, but fortuitously there is a bed, then this would be planned. If 'no' and a lot of trouble is taken to accommodate rather than cancel, then as far as the unit is concerned this is unplanned. Patients transferred from ICU to HDU would fall into this group

02 UNPLANNED TRANSFER IN. All emergency or urgent patients referred to the unit only as a result of an unexpected acute illness initially managed at another location and transferred to your unit because of a lack of capacity at the source location.

03 PLANNED TRANSFER IN (tertiary referral). Patients transferred to your unit after treatment or initial stabilization at another hospital but requiring specialist or higher-level care provided in your hospital that cannot be provided at source hospital.

04 PLANNED LOCAL SURGICAL ADMISSION, A surgical, pre-arranged admission to the unit

Acceptance by unit must have occurred prior to start of the surgical procedure (specifically, the induction of anaesthesia) and the procedure will usually be of an elective or scheduled nature. e.g.

- a) following a major procedure.
- b) for a high risk medical condition associated with any level of surgery.
- c) admitted prior to elective surgery for optimisation.
- d) admitted for monitoring of pain control e.g. epidurals.
- e) obstetric surgical cases admitted on a planned basis

05 PLANNED LOCAL MEDICAL ADMISSION, A booked medical admission, e.g. planned investigation or high-risk medical treatment.

06 REPATRIATION. The patient is returning to your unit from another hospital after being transferred there for either medical or non-medical reasons.

Repatriation should be viewed as a type of planned re-admission which is different from other forms of re-admission (e.g. that due to relapse in the patient's condition). It is best to be pragmatic with this definition and a view has been taken that it is reasonable to include patients who have originated from your hospital or area and not just your unit (as stated in the data standard) DoH Q&As.

1.16. ADVANCED RESPIRATORY SUPPORT DAYS HRG 4 CCMDS 16

Indicated by;

- Invasive mechanical ventilatory support (excluding mask CPAP or non-invasive methods e.g. mask ventilation but including BiPAP or CPAP applied via a tracheal tube). (Tracheal tube is taken to mean via the trans-laryngeal route). Please see algorithm lower down the page.
- Extracorporeal respiratory support (ECMO)

Note: Basic respiratory support is likely to occur simultaneously with the above both ARS and BRS being recorded during the same calendar day. For the HRG calculation however, DSC 1/2005 states in calculating the number of organs supported 'if Advanced Respiratory support is identified then it is assumed that Basic would also apply therefore ARS counts as TWO organs'. The NTCCN Audit Working Group decided to use this definition and the MERCS database calculation will reflect this.

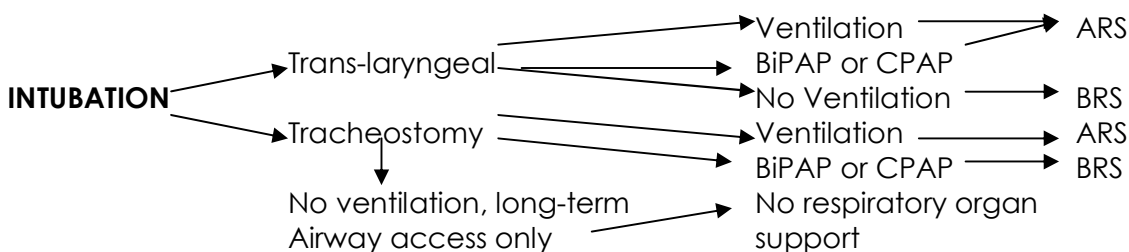
DEFINITION:

Three-digit code for up to 998 days of advanced respiratory support, e.g.

- 000 none
- 001 occurred during one calendar day
- 030 occurred on 30 calendar days

NB

- 998 998 or more days of advanced respiratory support
- 999 support occurred but number of days not known



1.17. BASIC RESPIRATORY SUPPORT DAYS HRG 5 CCMDS 17

Indicated by one or more of the following:

- More than 50% oxygen delivered by facemask. (Although the criteria stated more than 50%. In practice, most delivery and measurement systems are not that accurate, so if a delivery device was set at 50%, it is quite likely that fractionally more than 50% would actually be delivered for part of the time).
- Close observation due to the potential for acute deterioration to the point of needing advanced respiratory support (e.g. severely compromised airway or deteriorating respiratory muscle function).
- Physiotherapy or suction 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, (e.g. more than 24 hours of tracheal intubation).

Recently extubated category should not be for longer than one calendar day after the day of extubation.

Mask CPAP or non-invasive ventilation.

Patients who are intubated to protect the airway but needing no ventilatory support and who are otherwise stable e.g. A patient who has a tracheostomy for long-term airway access will not satisfy this particular criteria and are thus a level one patient.

Q. Do patients receiving NIV on a ward generate a CCMDS? **A.** No, because the ward bed is not a designated critical care bed. It might be possible to collect a CCMDS if this is seen as critical care episode with defined organ support in a temporary location prior to admission to a critical care bed. If this is a frequent occurrence, consideration should be given to configuring such beds as a properly resourced respiratory support unit.

If Basic Respiratory occurs with Basic Cardiovascular on any one day (when Advanced has not superseded it) then this will count as ONLY one organ support and therefore be a LEVEL 2 day. If it occurs by itself with i.e. Neurological support then it is counted as an organ in it's own right and the day will be recorded as Level 3

Three digit code for up to 998 days of basic respiratory support, e.g.

000 none
 001 occurred during one calendar day
 030 occurred on 30 calendar days

NB

998 998 or more days of basic respiratory support
 999 support occurred but number of days not known

1.18. ADVANCED CARDIOVASCULAR SUPPORT DAYS HRG 6 CCMDS 18

Indicated by one or more of the following:

- Multiple intravenous vasoactive and/or rhythm controlling drugs used to support arterial pressure, cardiac output or organ perfusion. (e.g. inotropes, amiodarone, nitrates)
- Patients resuscitated after cardiac arrest where intensive therapy is considered clinically appropriate (e.g. the intention of this criteria is as a catch-all for patients who have survived initial advanced life support and where a decision has been made to continue close observation within a critical care environment. Some of these patients may be admitted to a critical care area, conscious, with an IVI and supplementary oxygen and for full monitoring, but little else. It is suggested that this criterion would not normally be expected for longer than one calendar day in most critical care areas. Clearly, if the post-arrest patient remains ventilated or has invasive monitoring, other organ support criteria assume greater importance).
- Observation of cardiac output and derived indices (e.g. pulmonary artery catheter, lithium dilution, pulse contour analyses, oesophageal Doppler) (e.g. Pulse contour analysis whilst designed not to be very invasive requiring an only an arterial line has been classed as advanced

cardiovascular support because it requires not only an arterial line, but more expensive equipment and trained staff to interpret the data).

- Intra aortic balloon pumping
- Insertion of a temporary cardiac pacemaker (criteria valid for each day of connection to a functioning external pacemaker unit).
- Placement of a gastrointestinal tonometer

Note: Basic CVS support is likely to occur simultaneously with the above but should not lead to both ACVS and B CVS being recorded at the same calendar day. ACVS supersede B CVS where this occurs.

Three digit code for up to 998 days of advanced cardiovascular support, e.g.

000 none

001 occurred during one calendar day

030 occurred on 30 calendar days

NB

998 998 or more days of advanced cardiovascular support

999 support occurred but number of days not known

1.19. BASIC CARDIOVASCULAR SUPPORT DAYS HRG 7 CCMDS 19

Indicated by one or more of the following:

- Treatment of circulatory instability due to hypovolaemia from any cause
- Use of a CVP line for basic monitoring or central venous access to deliver therapeutic agents
- Use of an arterial line for basic monitoring of arterial pressure or sampling of arterial blood (e.g. this cannot be intermittent arterial stabs to qualify for this level of support there must be an indwelling arterial line).
- Single intravenous vasoactive drug used to support arterial pressure, cardiac output or organ perfusion (e.g. even if a patient was receiving only a very high dose rate of intravenous noradrenaline this would still remain by definition basic cardiovascular support; drugs given intravenously to control high blood pressure would count in this category this interprets the phrase 'supporting blood pressure, cardiac output and organ perfusion' in a more general sense)
- Intravenous drugs to control cardiac arrhythmias
- Non-invasive measurement of cardiac output (e.g. echocardiography, thoracic impedance)

Anti-platelet drugs, anticoagulants and thrombolytic treatment do NOT count as cardiovascular support.

Examples: Critically ill obstetric patients with eclampsia may need magnesium infusions and/or labetalol, intravenous labetalol would definitely satisfy 'intravenous drugs to control cardiac arrhythmias', therefore a B CVS criterion, (you can expect tachyarrhythmia in uncontrolled hypertension). Single intravenous vasoactive drug used to support arterial pressure, cardiac output, or organ perfusion' could be interpreted liberally in that it is definitely an IV vasoactive drug and although support is primarily taken to mean keeping BP up, it could be argued as supporting/providing a normal BP.

If Basic Cardiovascular occurs with Basic Respiratory on any one day (when Advanced has not superseded it) then this will count as ONLY one organ support and therefore be a LEVEL 2 day. If it occurs by itself with i.e. Neurological support then it is counted as an organ in it's own right and the day will be recorded as Level 3

Three digit code for up to 998 days of basic cardiovascular support, e.g.

000 none

001 occurred during one calendar day

030 occurred on 30 calendar days

NB

998 998 or more days of basic cardiovascular support

999 support occurred but number of days not known

1.20. RENAL SUPPORT DAYS HRG 8 CDMDS 20

Indicated by: Acute renal replacement therapy (e.g. haemodialysis, haemofiltration etc.)

Example: A patient on emergency haemodialysis does require CCMDS to be collected. For the purposes of the CCMDS, renal support is defined as acute renal replacement therapy and if this is delivered in any designated critical care bed then a CCMDS should be completed.

Q. Can routine dialysis of chronic renal failure patients be recorded via the CCMDS? **A.** If the renal replacement therapy is a regular treatment for a patient in chronic renal failure, e.g. within a dialysis unit, this must not be captured in a CCMDS. If however, a patient with pre-existing chronic renal failure is receiving treatment for another illness in a critical care unit, any RRT provided using the unit's resources will be captured as renal support within the CCMDS.

Three digit code for up to 998 days of renal support, e.g.

000 none

001 occurred during one calendar day

030 occurred on 30 calendar days

NB

998 or more days of renal support

999 support occurred but number of days not known

1.21. NEUROLOGICAL SYSTEM SUPPORT DAYS HRG 9 CCMDS 21

Indicated by one or more of the following:

- Central nervous system depression sufficient to prejudice the airway and protective reflexes, excepting that caused by (therapeutic) sedation prescribed to facilitate mechanical ventilation.
- Invasive neurological monitoring e.g. ICP, jugular bulb sampling.
- Severely agitated or epileptic patients requiring constant nursing attention and/or heavy sedation.

Example: 'severely agitated or epileptic patients requiring constant nursing attention and/or heavy sedation' It may be stretching the definition a little but, the administration of magnesium (in patients with

eclampsia) to prevent severe fitting that could occur if untreated would also be acceptable.

Q. If a head injured patient is being ventilated and sedated there is obviously advanced respiratory support but you can also count neurological support? **A.** Yes, but only if you can justify at least one specific element of neurological support being provided to the patient, e.g. active cooling, cerebral function monitoring, nimodipine infusion. Two further examples may help to illustrate this point: a) A brain injured patient who is ventilated and has an ICP measuring device in situ on day one would accrue both ARS and neurological support, but if the ICP device was removed on day two, would only have ARS. B) a patient with Guillian Barre syndrome on day one is managed with mask bi-level pressure support but may also have a prejudiced airway would accrue neurological in addition to respiratory support. On the next day intubation and mechanical ventilation is required and thus reverts to single organ support.

Q. If a neurological patient is ventilated but has to be sedated because of agitation is this two organ support? **A.** If the agitation is a result of the neurological disorder, then this would be neurological support, if the patient is simply resisting intubation and mechanical ventilation to the point of requiring sedation then this is part and parcel of advanced respiratory support and would not meet the neurological criteria.

Q. Some patients in coma take many days to show any improvement in their GCS, when should the neurological organ support stop being counted? **A.** Neurological support ceases when specific neurological interventions are withdrawn, e.g. ICP monitoring, CFAM cooling, nimodipine infusion, intravenous sedation to control agitation.

Q. What do we mean by a severely agitated patient? **A.** As a rule of thumb, a patient who is so agitated that a nurse needs to be in close attendance for 95% of the time to prevent the patient self harming or disrupting treatment.

Q. Can a patient in a level 2 unit for management of an epidural generate a CCMDS? **A.** Yes, if the patient is in a designated bed a CCMDS can be generated but unless there is documented organ support as defined in the CCMDS, the re-imburement is likely to be at ward care level.

Three digit code for up to 998 days of neurological system support, e.g.

000 none
001 occurred during one calendar day
030 occurred on 30 calendar days

NB

998 998 or more days of neurological system support
999 support occurred but number of days not known

1.22. GASTRO-INTESTINAL SYSTEM SUPPORT DAYS **CCMDS 22**

Indicated by:

Feeding with parenteral or enteral nutrition (implies methods of feeding other than normal oral intake).

Q. What is the purpose of collecting this data item, surely feeding is part of standard care? **A.** True, all patients should be fed one way or another! However, it is not counted in the currently proposed HRGs and also CCIAG takes the view that it should not be used as an organ support deriving levels of care. This data item is used to note the number of cases where supplementary methods are used, e.g. enteral feeds and TPN, bearing in mind that there are some units where the patient will be on normal oral intake for a period of time. Enteral and parenteral methods therefore imply an additional resource usage. At present, it has not been found to be statistically very valuable, but it is easier to leave the variable in place than to add a whole new category later.

Three digit code for up to 998 days of gastrointestinal system support, e.g.

- 000 none
- 001 occurred during one calendar day
- 030 occurred on 30 calendar days

NB

- 998 998 or more days of gastrointestinal system support
- 999 support occurred but number of days not known

1.23. DERMATOLOGICAL SYSTEM SUPPORT DAYS **HRG 10** **CCMDS 23**

Indicated by one or more of the following

- Patients with major skin rashes, exfoliation or burns (e.g. greater than 30% body surface area affected).
- Use of multiple large trauma dressings (e.g. multiple limb or limb and head dressings)
- Use of complex dressings (e.g. open abdomen or large skin area greater than 30% of body surface area)

Q. what is a complex dressing? **A.** There is no totally prescriptive answer but as a guide this would include vacuum system dressings for large areas of debridement or barrier materials applied over a wide area.

Three digit code for up to 998 days of dermatological system support, e.g.

- 000 none
- 001 occurred during one calendar day
- 030 occurred on 30 calendar days

NB

- 998 998 or more days of dermatological system support
- 999 support occurred but number of days not known

1.24. LIVER SUPPORT DAYS **HRG 11** **CCMDS 24**

Indicated by:

Extracorporeal liver replacement device (e.g.. MARS as manufactured by Teraklin, Rostock, Germany), bioartificial liver or charcoal haemoperfusion.

Q. If a patient is having charcoal haemoperfusion via a haemofiltration machine, is this liver support? **A.** Yes, if this is being used to replace liver function.

Q. Liver support days – the only definition for this type of organ support relates to extracorporeal artificial liver systems. This does not capture the high intensity of other aspects of specialist liver care? **A.** CCIAG concluded that for the majority of cases, the modalities of treatment for liver failure patients would be covered by components listed for the other major areas of organ support such as mechanical ventilation, inotropes and renal replacement therapy. The only item that may be a high cost predictor that was not listed and tested is the use of high volume of blood components, this may be addressed in later releases as it applies to other examples of high cost care.

Three digit code for up to 998 days of liver support, e.g.

000 none

001 occurred during one calendar day

030 occurred on 30 calendar days

NB

998 998 or more days of liver support

999 support occurred but number of days not known

Liver is not counted in the organ maximum support, as this will be funded separately.

1.25. ORGAN SUPPORT MAXIMUM

CCMDS 25

DEFINITION:

Maximum number of organ systems supported at any one time, at any point in the critical care period. (NB Advanced Respiratory Support counts as 2 whilst with Basic Cardiovascular Support and Advanced Cardiovascular Support both categories cannot be counted at the same time). This may not be the same as the total number of organs supported throughout the critical care admission. The minimum for this variable is 00 and the maximum is **06 (for the HRG subset Liver is not counted, as this will be funded separately).**

Q. Is there a required period of time that any of the individual organ support criteria are provided before they can be counted? **A.** No, in nearly all cases it is sufficient for the procedure or care activity to have occurred only once within the calendar day. Clearly, on a 'swings and roundabouts' principle some elements of care will vary from a matter of minutes to the full 24 hours. There are a few exceptions where it has been necessary to give some guidance, e.g. with 'recently extubated' it is reasonable to advise a minimum intubated period of 24 hours indicating that the BRS category becomes relevant in this sort of scenario. If there is a concern that organ support numbers can be inflated by briefly introducing an intervention (e.g. 50% oxygen) this will become apparent by comparison across units and will be counter-productive in the pricing of tariffs.

Q. Can the variable 'organ support maximum' be used to derive the HRGs? **A.** No, see full definition, this is why it is not part of the HRG subset.

Q. If one aspect of organ support is removed from the patient's care following a morning ward round; does this reduce the total for the day? **A.** No, if this aspect of treatment has been present at any time within the calendar day, then it remains in that day's total.

Q. the definition states that organ support is assessed at ‘any one time’ but in other parts the data set the emphasis is on any occurrence within a calendar day, which is correct? **A.** the intention is to accept the maximum number of organs supported within one calendar day. To take an extreme example, it might be possible for basic respiratory followed by basic cardiovascular, followed by renal etc to occur in sequence, but not all at the same time within one calendar day of observation. The maximum organ support on this day would be ‘1’ using the ‘at any one time’ criteria, but ‘2 or more’ using the calendar day principle. It is the latter approach which should be adopted. Note that the basic and advanced categories of the same type **must not be counted** as two organ supports if they occur on the same calendar day.

Q. Is it correct that a patient can only have ONE Respiratory (Advanced superseding Basic) and similarly ONE cardiovascular, but may also have renal, neurological, dermatological, liver or combination of these organs supported regardless of where they are being treated? **A.** Yes, advanced forms of cardiovascular and respiratory organ support subsume the basic levels during any calendar day but the other organ support categories can be added during the same period.

1.26. CRITICAL CARE LEVEL 2 DAYS HRG 12 CCMDS 26

Total calendar days during which level 2 care alone was provided during the period. This replaces DEPDAYS from ACP but will continue to need daily evaluation rather than numerical derivation from organ support data because levels are not always simply related to organ support count, e.g. routine post-operative ventilation for some cardiac surgery patients is regarded as level 2 and not 3. (See *Levels of Critical Care for Adults, Intensive Care Society, 2002 a summary can be found in Appendix C*).

A level 2 day is recorded if:

- Any single organ is supported or if Basic Respiratory and Basic Cardiovascular are supported together
- Advanced Respiratory Support but is classed as “Short term”

Note: The Audit software will calculate this field automatically. It is displayed but cannot be changed.

Note: “Other contributory level 2/3 factor” is counted as an organ in the calculation even though it is not part of the CCMDS. This is to cater for “daily evaluation” and allows the user to raise the level of day from 0 or 1 to a level 2 day.

- 1) It was agreed by NTCCN working Group that, in the above calculations, **Liver Support is NOT used in any calculation** (as it is will not be used in HRG calculations even though it is a mandated item in the subset).
- 2) It was agreed by all that, in the above calculations, Gastro-Intestinal Support is NOT used in any calculation (as it is not required in the mandated CCMDS subset).

FORMAT; 000 TO 998 DAYS

998 998 or more level two days

999 one more level two days occurred but number is not known

Q. It seems possible to have a CCMDS with level 2 care but no organ support, e.g. level 2 indicated by 'needing a greater degree of observation and monitoring that cannot be safely provided at level 1 or below' **A.** Yes, that is correct, especially if there is no invasive monitoring or requirement for high concentration oxygen therapy.

Q. Are the level of care criteria taken to reflect the type of bed the patient occupies? **A.** No, the principle is that the levels of care express the needs of the patients, not the beds they occupy, although one would hope that in most cases where beds are so designated, needs would equate to provision.

Q. There has been an increase in the number of organ systems available to count within the CCMDS, this makes many patients who intuitively are Level 2 become level 3 by definition, is this correct? **A.** More emphasis has been placed in the CCMDS on organ support compared to levels of care. However the direct answer to the question is yes but probably only a small section of the critical care population. CCIAG has tried to increase sensitivity by enhancing the organ support information and this is an evolving process. The levels of care are being reviewed.

Q. How can you record level 1 care on an HDU or ICU, there is no place in the CCMDS? **A.** the CCMDS only requires level 2 and level 3 data. There are issues around the definitions for level 1 care which make these data less robust. The assumption is that any days spent in a designated critical care bed that amount to more than those recorded as level 2 or 3, are by default level 1 or 0. It is likely that only level 2 and 3 days will be recognised from CCMDS data for reimbursement at critical care tariffs.

Q. What happens to patients who arrive on the unit post operatively, who have no organ support count but who meet level 2 criteria for post operative care, e.g. increased risk of post operative complications requiring close monitoring? **A.** If none of the basic aspects of critical care organ support are being provided, e.g. arterial lines, CVP, and then such patients have to be given zero organ support in the CCMDS. This will reduce funding but not the level of care classification. Some would argue that the hospital needs to look at how its critical care beds are being used in these circumstances.

Q. The levels of care guidance implies that routine elective post-op ventilation for less than 24 hours does not meet the criteria for level 3 care. However, such patients are likely to have at least basic respiratory support and probably basic cardiovascular support (arterial line) on the day of operation and the first post-op day (after midnight). This would automatically be level 3 for two days, - does this contradict the earlier guidance? **A.** No. there are two issues here, firstly note that CCMDS translates into HRGs and funding via organ support data, not levels of care. This approach superseded previous attempts to classify everything based on levels of care criteria which are under review by CCIAG. Secondly, the detail of the exclusion for routine post operative ventilation in the ICS guidance does emphasise that such patients are otherwise well implying no need for any other form of organ support. If this is not the case, then simply classify as level 3 with the relevant organ support categories. In the specific case of cardiac surgery, further guidance is awaited as to whether the critical care component will remain in the cardiac surgery HRG tariff. In conclusion, for the time being,

record organ support as actually provided and derive levels of care based on this.

Q. The ICS levels of care has a table in the introduction which has a different definition for the level three care compared to their expanded definitions and also to the CCMDS. **A.** The correct definition is as found in the CCMDS and the expanded definitions table of the ICS document. There was a 'typo' in the original *Comprehensive Critical Care* document which was unfortunately copied to the introduction to the ICS document (and subsequently many others!). Level three care is correctly defined as: patients needing monitoring or support for two or more organ support systems, one of which may be basic or advanced respiratory support.

Q. What level of care are basic respiratory and basic cardiovascular together?

A. By definition, these are two separate organ systems and therefore would merit level 3 care and two organ support HRGs. This may be changed in the future but some would argue that the current rules are reasonable, i.e. some combinations of the basic respiratory and cardiovascular criteria would describe significant resources usage for a seriously ill patient.

1.27. CRITICAL CARE LEVEL 3 DAYS HRG 13 CCMDS 27

Total calendar days during which level 3 care was provided during the period (replaces INTDAYS from ACP but will continue to need daily evaluation rather than numerical derivation from organ support data, as above).

A level 3 day is recorded if:

- Two or more organs are supported (except when the two organs are Basic Respiratory and Basic Cardiovascular when they count as only one organ and are therefore a Level 2 day)
- Respiratory Support is "Advanced" (and NOT classed as "Short term")

Note: The Audit software will calculate this field automatically. It is displayed but cannot be changed.

Note: "Other contributory level 2/3 factor" is counted as an organ in the calculation even though it is not part of the CCMDS. This is to cater for "daily evaluation" and allows the user to raise the level of day from a level 2 to a level 3 day.

- 3) It was agreed by NTCCN working Group that, in the above calculations, **Liver Support is NOT used in any calculation** (as it is will not be used in HRG calculations even though it is a mandated item in the subset).
- 4) It was agreed by all that, in the above calculations, Gastro-Intestinal Support is NOT used in any calculation (as it is not required in the mandated CCMDS subset).

FORMAT; 000 TO 998 DAYS

998 = 998 or more days of advanced respiratory support

999 = one more level three days occurred but number is not known

1.28. CRITICAL CARE DISCHARGE STATUS**CCMDS 28****DEFINITIONS;**

- 01** fully ready for discharge
- 02** discharge for palliative care
- 03** early discharge due to shortage of beds (e.g. to ward within same hospital)
- 04** delayed discharge due to shortage of ward beds (but fully ready for discharge)
- 05** current level of care continuing in another location (e.g. transfer to another unit due to shortage of beds in your unit)
- 06** more specialised care in another location
- 07** self discharge against medical advice.
- 08** patient died (no organs donated)
- 09** patient died and became heart beating organ donor for heart, lungs, kidneys, liver or other solid internal organ.
- 10** patient died and provided cadaveric tissue donation.

Q. What about the non heart-beating donor? **A.** Use the option for cadaveric tissue donation, this covers both non-heart beating major organ donation and other donation such as corneas and heart valves. As experience is gained, the options for this field may be amended.

Q. If the patient dies on the unit, how do you record data in the discharge ready date and time fields? **A.** It could be argued that the patient became ready for discharge from the unit at the time of death, so rather than recording a null or the same date as the time the body was removed, record the date and time of death here. If there are considerable period of time from death the removal of the body, this would become apparent in the data, especially when the outcome code for 'patient died' is included in the CCMDS.

Q. when does the CCMDS episode end if a patient is transferred from your ICU to another taking a nurse with them? In these circumstances the bed is effectively out of action until they return. Should the date and time of discharge now not be better given as the time the nurse returns? **A.** No, the CCMDS episode ends when the patient physically leaves the Unit.

Q. Can we include transfer time in the 4 hours needed to generate a CCMDS for patients care for outside of the critical care e.g. A&E? **A.** No, the justification being that there is not a location for this aspect of care.

Q. when does a CCMDS finish if a patient dies in a unit but stays on the unit for some time? **A.** the discharge date and time has to be when the body is removed from the unit. It could be assumed that there may still be elements of care being provided such as to grieving relatives in this situation.

Q. Following brain stem death testing the official time of death is after the first set of tests. When does the CCMDS episode end? **A.** The CCMDS does not contain date and time of death. Because of the resource implications the CCMDS episode should end when the body finally leaves the unit. Depending on local practice this may be before or after organ donation. *It will be important to check that the time of death entered on PAS does not override the CCMDS field.*

Q. Does the ready for discharge date and time start when organ support has ceased? **A.** No, because it is quite possible for a patient to be discharged or transferred to another unit with continuing organ support. Organ support days

could therefore exceed the period from start date to ready for discharge date, especially if there was a significant delay in moving the patient out.

1.29. CRITICAL CARE DISCHARGE DESTINATION CCMDS 29

DEFINITIONS:

- 01** Same NHS hospital site
- 02** Other NHS hospital site (can be same Trust or a different NHS Trust). If ticked a box will come up with Within Network, UTG; Non UTG due to requirement for transfer details;
- 03** Independent Hospital Provider in the UK
- 04** Non-hospital destination within the UK (e.g. home as coded in Location)
- 05** Non United Kingdom destination (e.g. repatriation)
- 06** No discharge destination, patient died in unit.

1.30. CRITICAL CARE DISCHARGE LOCATION CCMDS 30

DEFINITIONS:

The principle location that the patient is being discharged to for further care.

- 01** Ward
- 02** Recovery only (when used to provide temporary critical care facility)
- 03** Other intermediate care or specialised treatment area but excluding temporary visits en route, e.g. imaging, endoscopy, catheter suites and operating departments.
- 04** Adult level 3 critical care bed (e.g. in a flexibly configured unit)
- 05** Adult level 2 critical care bed (e.g. in a flexibly configured unit)
- 06** No discharge destination, patient died in unit
- 07** Obstetrics area
- 08** Paediatric critical care area (neonatal and paediatric care)
- 09** Home or other residence (e.g. nursing home, H.M. Prison, residential care).
- 10** Other non-hospital location.

1.31. CRITICAL CARE DISCHARGE READY DATE CCMDS 31

DEFINITION:

The discharge period begins when the following conditions have been met:

- The patient has been declared clinically ready for discharge or transfer.
- **AND** a formal request has been made to the hospital bed management system, (or appropriate staff with authority to admit at the intended destination).
- **AND** the date and time of this status is recorded as such in the clinical record. (It may facilitate data collection if there is a recognized place for recording the request date and time either in the patient's notes or within the data collection system for the CCMDS). Note that discharge planning may occur in advance of and in the expectation that a patient will become fit for discharge at a certain time in the future. For the purposes of these data, the start time will remain the point at which both conditions are fully satisfied.

For information the discharge period is the number of hours between the start of the period and the actual time of departure from your unit as recorded elsewhere in the dataset.

FORMAT; CCYY/MM/DD but entered as dd/mm/yy

1.32. CRITICAL CARE DISCHARGE READY TIME CCMDS 32

FORMAT; HH:MM

1.33. CRITICAL CARE DISCHARGE DATE HRG 14 CCMDS 33

Discharge date from the unit. (The NTCCN Audit have agreed that when a patient dies on the Critical Care Unit this date is the date which the body is removed from the Unit).

FORMAT; CCYY/MM/DD but entered as dd/mm/yy

1.34. CRITICAL CARE DISCHARGE TIME CCMDS 34

Discharge time from unit (The NTCCN Audit have agreed that when a patient dies on the Critical Care Unit this time is the time which the body is removed from the Unit).

FORMAT; HH:MM

2. ADDITIONAL NETWORK DATA

2.1. LOCATION

The principle location in which the patient is being cared for.

DEFINITIONS:

- 01 Intensive Care Unit
- 05 High Dependency Unit
- 12 Combined Unit
- 98 PACU
- 99 POSU

2.2. PATIENT SURNAME

This is purely for local identification and is not extracted with the North Trent Audit dataset for confidentiality reasons

2.3. PATIENT SEX

Record Male or Female from the drop down buttons. This is required for the NTCCN Audit only

2.4. AGE

If Date of Birth supplied age in MM/YY will be calculated (this will be to 2 decimal places to allow for babies). However, if DOB unknown age in MM/YY can be recorded for the NTCCN Audit.

2.5. HOSPITAL ADMISSION DATE

Record the date of admission to **your** hospital as an in-patient, which includes this critical care stay. (e.g. if transferred from another hospital straight to your unit the date will be the same as Critical Care Start Date).

2.6. SPECIALITY FUNCTION CODE

The Specialty Function Code (taken from DSC 10/2005 Treatment Function Code names and descriptions) is the main specialty of the Consultant clinically managing the overall hospital care of the patient.

Listed below are the most commonly used codes:

- 190 Anaesthesia
- 300 General Medicine
- 320 Cardiology
- 340 Thoracic Medicine
- 150 Neurosurgery
- 170 Cardio thoracic Surgery
- 420 Paediatrics
- 100 General Surgery
- 104 Colorectal Surgery
- 106 Upper Gastro-intestinal
- 105 Hepato-Biliary & Pancreatic Surgery
- 107 Vascular
- 110 Trauma and Orthopaedics
- 110.1 Spinal (this is not a national code and has been added at the request of the Network).
- 180 A & E

The full list of specialty function codes can be found in the North Trent Network Audit Programme data entry programme.

In some circumstances it will be difficult to identify a single specialty for the care period e.g.

- Single team care

Where a patient is cared for on a daily basis by a team of consultants within a departmental rota. In this case, specialty of the clinical director of the team should be recorded.

- Multiple specialties

Where more than one consultant team regularly shares the clinical management and where no single consultant takes a major co-ordinating role, typically seen in the immediate post-operative care of paediatric cardiac surgery patients.

In this case the specialty of the consultant admitting the patient to the critical care location must be recorded.

2.7. CRITICAL CARE DISCHARGE TYPE

This has been added to the North Trent Network Audit Programme to facilitate the automatic calculation of transferred patients.

02 UNPLANNED TRANSFER OUT. Patients who are not deemed fit for discharge from Critical Care but because of a lack of capacity within the unit are transferred out to allow a less stable patient or a patient requiring specialist care available at your unit, to be admitted to your unit.

03 PLANNED TRANSFER OUT (tertiary referral). Patients transferred out from your unit after treatment or initial stabilization to another hospital, as they require specialist or higher-level care, which your hospital cannot provide.

06 REPATRIATION. The patient is returning to a unit at another hospital after being transferred from there originally (or to a unit nearer the patient's home) for either medical or non-medical reasons.

2.8. HOSPITAL OUTCOME

In the North Trent Network Audit Programme this means either survived or died at **ultimate** hospital discharge. This is the last hospital from which they were discharged in this critical care treatment period.

2.9. HOSPITAL DISCHARGE DATE

The date on which the patient treated in your unit is discharged from hospital. If a patient was transferred directly from your unit to a ward in another hospital, the hospital discharge date should be the date they are discharged from the ward at the other hospital.

3. DAILY GENERAL DATA

North Trent Audit Data Set

3.1. Number of staffed beds

Total number of staffed beds in your unit.

3.2. Cancelled operations

Operations cancelled due to the lack of general ICU or HDU beds. An operation would still be counted as cancelled if it was carried out within a week of being cancelled. If a cancelled operation is re-booked and cancelled a second time, this would be counted as a separate cancelled operation.

3.3. Diverted admissions (formerly 'refused admissions')

Cancelled on the day due to no critical care bed available these include from Other hospital; Wards; Scheduled Surgery (patients when a bed was requested and no beds available however surgery went still went ahead and the patient returned to the ward).

3.4. Unplanned (Emergency) Admissions

All emergency or urgent patients assumed to have been referred to the unit only as a result of an unexpected acute illness occurring either within your hospital or prior to admission to your hospital from a non-hospital location. (No differentiation is made between medical, surgical, or other specialty).

This field is calculated by the Audit programme based on patient admission data. It is displayed for information purposes and cannot be changed by the user.

3.5. Planned (Elective) Admission

Patients transferred to your unit after treatment or initial stabilization at another hospital but requiring specialist or higher-level care provided in your hospital that cannot be provided at source hospital.

A surgical, pre-arranged admission to the unit. Acceptance by unit must have occurred prior to start of the surgical procedure (specifically, the induction of anaesthesia) and the procedure will usually be of an elective or scheduled nature. e.g.

- a) Following a major procedure.
- b) For a high-risk medical condition associated with any level of surgery.
- c) Admitted prior to elective surgery for optimisation.
- d) Admitted for monitoring of pain control e.g. epidurals.
- e) Obstetric surgical cases admitted on a planned basis

A booked medical admission e.g. planned investigation or high-risk medical treatment.

This field is calculated by the Audit programme based on patient admission data. It is displayed for information purposes and cannot be changed by the user.

4. TRANSFERS

North Trent Audit Data Set

Note: The Audit software calculates all transfers automatically. They are displayed for information purposes but cannot be amended by the user

4.1. Repatriation transfers

Transfers taking place for the purpose of locating the patient closer to their home.

4.2. Clinical transfers

Transfers to/from critical care units occurring because the referring hospital does not provide the appropriate clinical service thus allowing more specialised care to continue in another unit. If a district general hospital was capable of providing CVVH but did not have a CVVH machine available, this would be classified as a clinical transfer.

Clinical transfers have been expanded to include Clinical and Clinical Renal this is to identify those patients who are being transferred to the Renal Unit.

Transfers can occur in/out of the unit from/to critical care units as follows:

4.2.1. Within the Network (North Trent)

- Barnsley District General Hospital
- Bassetlaw District General Hospital
- Chesterfield & North Derbyshire Royal Infirmary
- Doncaster Royal Infirmary
- Northern General Hospital
- Rotherham District General Hospital
- Royal Hallamshire Hospital

Within network (North Yorkshire and Humberside) transfers for Scunthorpe hospital include:

- York
- Scarborough
- Hull Royal
- Castle Hill
- Grimsby
- Harrogate

4.2.2. Unique Transfer Group (UTG) includes Other ICUs outside the North Trent Network to which ICUs in North Trent Network can refer ICU patients without the transfer being defined as a transfer outside of the Network:

- UTG for Bassetlaw: Kings Mill
- UTG for Doncaster: Scunthorpe
- UTG for Rotherham: Scunthorpe
- UTG for Chesterfield: Kings Mill
Derby Royal
- UTG for Barnsley: Dewsbury & District
Pinderfield
Huddersfield
- UTG for Scunthorpe: Rotherham
Lincoln
Doncaster

5. MONTHLY DATA

North Trent Audit Data Set

5.1. NURSING DATA

5.1.1. Total whole time nurse consultants

If your unit has a nurse consultant, enter their details here. If the nurse consultant works in other units in addition to yours, only include the proportion of time allocated for your hospital. E.g. a nurse consultant is shared between the Northern General Hospital and the Royal Hallamshire Hospital; therefore each hospital would enter 0.5 whole time equivalent.

This is the only piece of information requested about the nurse consultant(s). Do not record any information on sickness, maternity/paternity leave etc. for nurse consultants.

5.1.2. Other nurses

This field is designed to capture the number of nurses in post who do not work clinically. Examples of these members of staff include:

- Nurse manager
- Education/Staff Development nurse
- Research nurse

Do not record data on maternity/paternity, sick/study leave etc. for these nurses.

Problems:

The nurse manager works occasional clinical shifts, where should I put them?

You may find that these nurses spend a proportion of their time working in a clinical role and the remainder working in a non-clinical role. If this is the case, you should only include the proportion of time spent working non-clinically in this section. The remainder of time should be recorded under the appropriate grade within the clinical nursing staff breakdown. If the proportion of time spent working on each area is not routine (i.e. they cover shifts haphazardly), please ask the nurse to estimate the proportion of time spent working in each role.

As the nurse manager works occasional shifts, what should I do about sick leave etc.?

If members of staff are recorded as partly 'other nurses' and partly on a nursing grade as a clinical nurse, apply the same proportional split to data on overtime, sick leave, maternity/paternity leave, study leave etc.

5.1.3. Qualified Nurses

The number of RGN nurses in post, expressed in whole time equivalents taken on the last day of the calendar month (if your unit uses another regular date for calculation i.e. the first day of the month then this can be used).

Only include nurses that work in a clinical role in the count of qualified nurses, for over 50% of their time.

5.1.4. Whole Time Equivalent (w.t.e.)

One whole time equivalent works 37.5 hours per week. Taken on the last day of the month the number of wte working on your unit (if your unit uses another regular date for calculation i.e. the first day of the month then this can be used).

5.1.5. Number of hours of certified sick leave

The number of hours of certified sick leave taken during the calendar month by nurses at each grade.

5.1.6. Number of hours of un-certified sick leave

The number of hours of self-certified sick leave taken during the calendar month by nurses at each nursing grade.

5.1.7. Number of nurses on maternity or paternity leave

The number of whole time equivalents that were on maternity/paternity leave during the calendar month.

To work out the number of whole time equivalents in a month that were on maternity leave/paternity:

1. Add up the total number of hours spent on maternity/paternity leave by an individual
2. Divide this number by the total hours one whole time equivalent should work in the month.
3. Repeat this process for each nurse on maternity/paternity leave and sum

5.1.8. Number of days of study leave

The number of days of study leave taken by nurses at each grade during the calendar month. Any part of a day taken as study leave counts as one full day study leave.

5.1.9. Number of newly appointed nurses

The number of newly appointed nurses expressed in whole time equivalents during the calendar month at each grade.

E.g. An E Grade was appointed on the 8th May to work as a 0.8 whole time equivalent. On 16th May a D Grade was appointed full time.

E Grade appointments = 0.8w.t.e

D Grade appointments = 1w.t.e

The exact date that they were appointed/ is not required. Please only include nurses that are appointed to a clinical role. Do not record data on 'other nurses' that are appointed.

5.1.10. Number of nurses that have left

The number of nurses who have left expressed in whole time equivalents during the calendar month at each grade.

E.g. An E Grade left on the 8th May who worked as a 0.8 whole time equivalent. On 16th May a D Grade left who had worked full time.

E Grade appointments = 0.8w.t.e

D Grade appointments = 1w.t.e

The exact date that they left is not required. Please only include nurses that leave a clinical role. Do not record data on 'other nurses' that are appointed.

5.2. INFECTION CONTROL

5.2.1. Clostridium Difficile

How many patient episodes had positive tests for Clostridium Difficile (C Difficile) during the last calendar month? This should be separated into the number of patients who had the infection on admission and the number of patients who acquired infection during their stay in the unit.

Definition for collection:

Admission *C. difficile* is defined as the detection of *C. difficile* toxin in any stool sample taken prior to admission or in the first 48 hours following admission to your unit or in a sample taken after 48 hours if the diarrhoea was present on admission
Unit-acquired *C. difficile* is defined as the detection of *C. difficile* toxin in any stool sample taken after 48 hours following admission to your unit and related to a new episode of diarrhoea

5.2.2. Methicillin Resistant Staphylococcus (MRSA) rate

How many patient episodes had positive infections (not colonisation) with MRSA during the last calendar month? This should be separated into the number of patients who had the infection on admission and the number of patients who acquired infection during their stay in the unit.

Definition for collection:

Admission MRSA is defined as the presence of MRSA (Methicillin resistant *Staphylococcus aureus*) in any sample taken for microbiological examination either prior to admission or known to be MRSA positive in the first 48 hours following admission to your unit.

Unit-acquired MRSA is defined as the presence of MRSA in any sample taken for microbiological examination after 48 hours following admission to your unit

5.2.3. Sepsis

To be arranged at a later date

5.2.4. Bed Closure

How many bed days were lost due to bed closure for infection control during the last calendar month?

5.3. BRAIN STEM DEATH

5.3.1. Number of Patients fulfilling Brain stem death criteria

How many patients fulfilled brain stem death criteria in your critical care unit during the calendar month?

5.3.2. Next of Kin asked about Organ donation

Of these patients, how many patients' next of kin were asked specifically about organ donation during the calendar month?

5.3.3. Next of Kin agreed to Organ donation

Of these patients, how many next of kin agreed to organ donation during the calendar month?

5.3.4. Number of patients that Donated Organs

Of these patients, how many actually patients donated organs?

6. ANNUAL DATA

North Trent Audit Data Set

Please complete this data in MARCH each year

6.1. Number of consultants on the on-call rota

This refers to the total number of Consultants who are on the on-call rota to cover Critical Care.

6.2. Is the on-call rota ICU specialities only?

Do the Consultants cover only ICU or do they cover other areas (e.g. theatres) at the same time.

6.3. Number of funded beds

The number of beds that are present and equipped and funding is available to adequately staff them. If there have been any major changes during the year please let MERCS know the exact date of change

6.4. Number of physical beds

The number of beds that are present and equipped for patient care.

6.5. Funded nurses

The total number of nurses expressed in whole time equivalents for which funding exists.

Nurse consultants will be considered as funded nurses for audit purposes.

6.6. Readmissions

This item is not collected by the audit programme but is in the Annual Report and is calculated from the data received.

The definition is under revue.

Readmission of a patient previously discharged from your unit within the same hospital stay and within 6 weeks of the unit discharge date. Discharge does not include temporary transfer from your unit, for example either for surgery, radiology, and other investigation or to the recovery room due to pressure on beds in the expectation of a return to your unit.

7. PAYMENT BY RESULTS

7.1. Questions and Answers

Q1. When does Payment by Results start for critical care?

A1. Payment by Results is operating in shadow form for critical care during 2006/07 and 2007/08 as set out in the PbR 'Implementation Support Guidance'. Full roll out will not commence before April 2008

Q2. How is the local tariff produced?

A2. Generally, the national tariff is based on the reported average cost provided by NHS providers from Trust. Reference Costs. These are uplifted to take account of pay and price increases along with some other specific adjustments that need to be taken account of e.g. NICE recommendations etc. The income a Trust receives is determined by the tariff adjusted by the local 'market forces factor' (MFF). Cost data for adult critical care using the mandated CCMDS and HRGs as the basis for activity will be collected for 2006/07 although earlier collections have used the same activity categories. As the Critical Care tariffs will be based upon the collected Reference Cost data, it is important that the Reference Cost data collected by Trusts is of a good quality.

Q3. What if early CCMDS returns are of poor quality; will the tariff then be erroneous?

A3. Possibly; this is why the CCMDS training days have stressed that every effort should be made to ensure that good quality data is provided. Artificially inflating critical care activity e.g. by generating excessive numbers of Code 90 episodes, may be counterproductive for future re-imburement.

Q4. What about specialist units? How will, for instance, burns and liver units be funded?

A4. The CCMDS is collected in all adult units. The HRGs that have been developed were not able to adequately take account of these specialist units and it has been recognised that further work may be needed to ensure that these units are funded appropriately.

Q5. What about outliers e.g. Gullain-Barré patients who may initially require level 3 care but could stay on the ICU for months at a lower level?

A5. At the current time, when PbR is running concurrently prior to going live in 2008, critical care is expected to operate on a per diem basis in line with the HRGs. Where a patient has a protracted and unusual stay then local commissioners and providers may want to ensure that the reimbursement level to cover this care is appropriate and does not impose an undue level of risk on one or other. Although the tariffs are based upon a per diem rate, it is important to build in trim points to signal unusual lengths of stay to commissioners; trim points could be utilised to 'trigger' local discussions.

Q6. What if a long stay patient on a per diem rate deteriorates to requiring level 3 care again?

A6. The level of reimbursement will be determined by the HRG which in turn is determined by the number of organs supported over the course of an episode in critical care. Any local commissioning arrangements designed to manage risk around patients with very prolonged stays would need to take account of the circumstances that may occur e.g.. a subsequent deterioration in a patient's condition.

Q7. What about delayed discharges?

A.7 It is expected that the HRG payment for critical care will stop once a patient has reached level 1 care.

Q8. Will we need to keep doing bottom up costing on our Unit?

A8. Trusts will be required to submit Reference Costs for critical care as they have done for a number of years. The costing principles are set out in the Costing Manual and it remains important for Trusts to submit information that is as reliable and robust as possible. The costing that is undertaken will undoubtedly benefit from the input of critical care physicians into the costing process.

Q9. How can we afford to replace our old monitoring equipment?

A9. The costs of re-equipping high tech areas need to be incorporated into the Trust's financial planning strategy. The revenue implications of capital costs are included in Reference Costs; the tariff will therefore provide reimbursement to cover capital charges associated with any equipment or other capital investment. Trusts will need to undertake the necessary financial planning to ensure they have a sustainable process for reinvesting in necessary equipment.

Q10. How will we contract with our Commissioners?

A10. Your Trust may currently have a Service Level Agreement to provide a certain number of level 2 and level 3 days for your expected case mix based on historical data. The contract should operate in the future at the level of total case mix weighted activity so that variance between activity and HRGs will be offset within the contract.

Q11. If we admit an excess of emergencies and our number of elective cases decrease will we be penalised?

A11. Under PbR providers are paid for the activity they undertake. This will be determined by the overall case mix weighted activity; the precise mix of electives and non-electives will impact on the bottom line if one group is generally more complex (as reflected in the HRGs) than the other. It will be necessary to discuss such trends with your Commissioners at regular contract monitoring meetings.

Q12. If we over perform on any part of our SLA what happens?

A12. See answer to question above. However, Commissioners will want to discuss and understand the reasons for over performance. The "Code of Conduct for Payment by Results" sets out the framework in which these discussions can take place.

http://www.dh.gov.uk/PolicyAndGuidance/OrganisationPolicy/FinanceAndPlanning/NHSFinancialReforms/NHSFinancialReformsArticle/fs/en?CONTENT_ID=4127046&chk=0VbUZZ

Q13. Will those units with more consultants providing the on-call cover be disadvantaged?

A13. Any hospital that tried to reduce the level of critical care cover is likely to jeopardise the quality of care in the unit and produce unsustainable working practices. This is an issue that Commissioners will want to influence in the contracting process with reference to national guidance (Standards for Intensive Care Units, Intensive Care Society, May 1997) the relevant section of which is currently being updated.

Q14. Outreach and level 1 funding is as an overhead to critical care. However, the % reimbursement/tariff will be an average. How are, therefore, we expected

to improve the quality of our outreach services since units with a good service will have to dumb down although units with little outreach may now have some funding available? How do we measure quality?

A14. Commissioners will want to ensure a high quality service and outreach services are a key part of this. Identifying and using relevant indicators to monitor the quality of service will provide an important mechanism in ensuring there is support for good quality approaches to service delivery in line with the ICS standards document. Outreach services are being reviewed by ICNARC and guidance for the care of the acutely unwell patient is being produced by NICE; in time units will be expected to demonstrate their compliance with its guidance. In future, when an activity measure is established to reflect outreach services, it will be possible, in principle, to move toward an activity based funding mechanism.

Q15. Are specialist units involved in the CCMDS HRG programme?

A15. All adult units, except stand-alone Coronary Care Units, are collecting the CCMDS.

Q16. Are we using FCEs or spells?

A16. Critical care activity is reimbursed on a per diem basis but the relevant HRG is determined by the critical care episode. Several critical care episodes may occur within a single admitted patient spell.

Q17. What about children in adult units or to children treated in a unit taking both adults and children?

A17. A child in an adult unit would be assigned an adult critical care HRG.

Q18. If your coronary care unit routinely uses CPAP, balloon pumps, vasoactive agents, how will they be reimbursed?

A18. Coronary Care Units are funded through the relevant (cardiac) HRGs. The CCMDS is not collected in these units.

Q19. We are using midnight count for reference costs but calendar days for HRGs. Will this be a problem?

A19. The reference costs have this year attempted to collect both data items to ensure that the bed days are consistent with the HRGs.

Q20. Will the removal of the critical care element from some surgical HRGs result in relative under funding of the previously established pattern of ward care?

A20. Yes, but the funding will still come to the Trust via the critical care route. It may be that some ward areas can be designated as a Unit, using the Department of Health's 1996 definitions, if organ support is being undertaken; in which case the CCMDS could be collected and generate a HRG.

Q21. Will there be two HRGs recorded now for some admitted patient care episodes?

A21. Yes, one for the admitted patient spell and one, or more, for any associated critical care episodes.

Q22. Is the HRG for critical care attached to the whole hospital spell and if so, which one if there is more than one episode of critical care within the spell?

A22. More than one critical care episode can be attached to the dominant hospital spell and each will generate a HRG.

Q23. Using the current definitions it seems very likely that there will be a large increase in level 3 care based on more than two organs supported, how will this affect re-imburement?

A.23 The tariff will reflect the activity and costs that are reported. Any increase in activity will reduce the average cost unless the service incurs higher costs in delivering this activity. The CCMDS should result in improved data quality that will give a better indication of the workload and case mix within critical care. Every care should be taken to ensure that the data is good quality. There should also be regard to the PbR Code of Conduct which sets out the principles that commissioners and providers should adhere to (see web reference in Q13).

Q24. Are Foundation Trusts being mandated to collect the whole CCMDS or the subset?

A24. For all NHS and Foundation Trusts the subset has been mandated. However, CCIAG and the ICS strongly recommend that the full set be collected to provide additional explanatory data.

Q25. Some patients may be level 2 by virtue of their need for additional observation, but who do not attract any organ support as defined in the CCMDS. Will this give rise to inappropriate low funding? (e.g. post-op epidural HDU admissions)?

A25. The HRGs do cover zero organ support so these patients will be recorded as such. The levels of care reflect the dependency of patients but the HRGs determine reimbursement based only on organ support data.

Q26. Will there be a paediatric CCMDS for PICUs?

A26. Yes - work is underway to develop a neonatal and paediatric dataset and appropriate HRGs

Q27. Is re-imburement related to the length of stay times the maximum numbers of organs supported?

A27. No - the HRGs are generated according to the **total** number of organs supported times the number of level 2/3 days

Q28. Are the critical care HRGs influenced by the number of days of organ support?

A28. No; the grouper detects whether one or more days of a relevant organ system group has been recorded.

Q29. If a patient is in A&E and is receiving some level of organ support, can a CCMDS record be recorded?

A29. No; in most cases, the patient must be in a designated level 2/3 critical care bed. However, some resuscitation units have designated critical care beds and so a CCMDS record would be generated if the patient is receiving appropriate organ support. In order to avoid inflation of the data, the designation of beds will be an issue that commissioners and providers (and networks) will need to agree. The only other situation where a CCMDS could be generated would be use of a temporary location code 90, and where the patient was managed by critical care staff for more than 4 hours, and then subsequently admitted to the hospital.

8. APPENDIX

ALPHABETICAL LIST OF FULL CCMDS	CCMDS NUMBER
Advanced Cardiovascular Support days	1
Advanced Respiratory Support days	2
Basic Cardiovascular Support days	3
Basic Respiratory Support days	4
Code of GP practice (registered GMP)	5
Critical care admission source	6
Critical care admission type	7
Critical care discharge date	8
Critical care discharge destination	9
Critical care discharge location	10
Critical care discharge ready date	11
Critical care discharge ready time	12
Critical care discharge status	13
Critical care discharge time	14
Critical care level 2 days	15
Critical care level 3 days	16
Critical care local identifier	17
Critical care location source	18
Critical care start date	19
Critical care start time	20
Critical care unit function	21
Dermatological system support days	22
Gastro-intestinal system support days	23
Liver Support days	24
Local patient identifier	25
Neurological system support days	26
NHS number	27
Organ support maximum	28
Person birth date	29
Postcode of usual address	30
Renal support days	31
Site code (of treatment)	32
Treatment function code	33
Unit bed configuration	34

The full references for the above can be found in these manual pages 7-24

APPENDIX B

MANDATED SUBSET OF CRITICAL CARE MINIMUM DATA SET	HRG/CCMDS NO.
Critical Care Local Identifier	1/8
Critical Care Start Date	2/9
Critical Care Unit Function	3/11
Advanced Respiratory Support Days	4/16
Basic Respiratory Support Days	5/17
Advanced Cardiovascular Support Days	6/18
Basic Cardiovascular Support Days	7/19
Renal Support Days	8/20
Neurological System Support Days	9/21
Dermatological System Support Days	10/23
Liver Support Days	11/24
Critical Care Level 2 Days	12/26
Critical Care Level 3 Days	13/27
Critical Care Discharge Date	14/33

With the exception of 'critical care local identifier' this is the HRG subset that is part of the Critical Care commissioning dataset. (DSCN 01/2005; DSCN 13/2005)

THE INTENSIVE CARE SOCIETY, LEVELS OF CRITICAL CARE FOR ADULT PATIENTS (2002)

Ward, Outreach, HDU and ICU care

These levels of care are taken from the Intensive Care Society Levels of critical care for adult patients – Standards and Guidelines (2002). These are used within the Critical Care Minimum Data Set.

Level 0: Ward care

Patients whose needs can be best met through normal ward care in an acute hospital e.g. Oral medication, Bolus i.v. medication, Patient controlled Analgesia (PCA) Observations required less frequently than 4 hourly.

Level 1: Outreach

Patients at risk of their condition deteriorating, or those recently relocated from higher levels of care, whose needs can be met on an acute ward with additional advice and support from the critical care team. Patients requiring staff with special expertise and/or additional facilities for at least one aspect of critical care delivered in the general ward environment e.g. Renal replacement therapy (stable chronic renal failure), Epidural analgesia, Tracheostomy care.

Level 2: HDU care

Patients requiring more detailed observation or intervention including support for a single failing organ system or pre-operative optimisation, extended post-operative care, and those 'stepping down' from higher levels of care. Patients with major uncorrected physiological abnormalities.

Examples: Respiratory – Needing more than 50% inspired oxygen; within 24 hours of tracheostomy insertion; Requiring non-invasive ventilation or CPAP; Requiring physiotherapy or suctioning at least every 2 hours. **Cardiovascular** – Unstable, requiring continuous ECG and invasive pressure monitoring; Haemodynamic instability due to hypovolaemia/haemorrhage/sepsis; Requiring single infusion of vasoactive drug with appropriate monitoring. **Central Nervous System** – CNS depression sufficient to prejudice airway and protective reflexes; Invasive neurological monitoring. **Other** – Acute impairment of renal, electrolyte or metabolic function. **Pre-operative optimisation** – Haemodynamic/respiratory resuscitation or optimisation, Insertion of invasive monitoring. **Procedure** – Major elective surgery, Emergency surgery in unstable or high-risk patient, Increased risk of postoperative complications/interventions/ monitoring. **Patient** – Intermediate surgery in patient >70 years or ASA III or IV (severe system disease with functional limitation or worse). **Physiological abnormalities** – Respiratory rate >40 breaths/min or >30 breaths/min for >6 hours, Heart rate >120 beats/min, Temperature <35°C for >1 hour, Hypotension, e.g. systolic BP <80mmHg for >1 hour, Glasgow Coma Score (GCS)<10 and at risk of deterioration.

Level 3: ICU care

Patients requiring advanced respiratory support alone or basic respiratory support together with support of at least one organ systems. This level includes all complex patients requiring support for multi-organ failure.

Patients needing advanced respiratory monitoring and support. **Excluded** from this group would be patients needing short term, i.e. less than 24 hours, routine postoperative ventilation who are otherwise well with no other organ dysfunction, e.g. fast track cardiac surgery patients. If ventilatory support exceeds 24 hours, or other significant organ dysfunction develops, these patients now need level 3 care. **Included** Respiratory failure from any cause that requires invasive, positive pressure mechanical ventilatory support, BIPAP via any form of tracheal tube or Extracorporeal respiratory support (ECMO).

Patients needing monitoring and support for two or more organ systems one of which may be basic or advanced respiratory support e.g. SIMV or CMV and continuous vasoactive drugs, SIMV or CMV and haemofiltration, High risk patients undergoing major surgery who are likely to require advanced respiratory support and monitoring/support of other organ systems, Continuous intravenous medication to control seizures and supplementary oxygen/airway monitoring.

Patients with chronic impairment of one or more organ systems sufficient to restrict daily activities (co-morbidity) and who require support for an acute reversible failure of another organ system e.g. Severe ischaemic heart disease and major perioperative haemorrhage, COPD requiring home oxygen presenting with sepsis relating to immunosuppression. Angina on mild exercise and broncho-pneumonia requiring CPAP.

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8. REFERENCES:

Guidelines on Admission and Discharge for Intensive and High Dependency Care, DoH 1996