



ANZICS Centre for Outcome and Resource Evaluation

# APD Data Dictionary

**ANZICS CORE - ADULT PATIENT DATABASE**  
**Version 5.8**  
**November 2019**

## Contents

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Data Collection Rules.....	7
How to use this data dictionary.....	9
Primary Risk Prediction Model: ANZROD .....	10
Validation Rules and Check .....	10
Summary of changes in Version 5 .....	11
<b>1.0 Data elements held by ANZICS CORE .....</b>	<b>14</b>
Hospital Identifier.....	15
Hospital Type.....	16
<b>2.0 Mandatory Fields (<i>Minimum Data Set</i>) .....</b>	<b>17</b>
Care Unit Identifier.....	18
Patient Identifier .....	19
SLK-581 (Statistical Linkage Key) .....	20
Age.....	21
Sex .....	22
Indigenous Status .....	23
Postcode .....	24
Weight .....	25
Height .....	26
Pregnancy Status .....	27
Hospital Admission Date .....	28
Hospital Admission Time .....	29
Hospital Admission Source .....	30
Hospital Discharge Date .....	31
Hospital Discharge Time .....	32
Hospital Discharge Destination .....	33
ICU Admission Date .....	35
ICU Admission Time.....	36
ICU Admission Source.....	37
Type of Care.....	38
ICU admission following elective surgery.....	39
Planned ICU Admission.....	40
Emergency Response Admission .....	41
Treatment Goals for Admission.....	42
Thromboembolism Prophylaxis Administration.....	43
Cardiac Arrest .....	44
ICU Discharge Decision Date .....	45
ICU Discharge Decision Time .....	46
ICU Discharge Date.....	47
ICU Discharge Time.....	48
ICU Discharge Destination.....	49
Total Glasgow Coma Score .....	50
Glasgow Coma Score Unavailable Due to Sedation .....	52
Eye Opening Component Glasgow Coma Score .....	53
Verbal Component Glasgow Coma Score.....	54
Motor Component Glasgow Coma Score .....	55
Core Temperature .....	56
Heart Rate.....	58
Respiratory Rate .....	60
Invasive Ventilation Status for Respiratory Rate (high) .....	62

Invasive Ventilation Status for Respiratory Rate (low).....	63
Mean Arterial Blood Pressure .....	64
Blood Pressure – Systolic.....	66
Blood Pressure – Diastolic.....	67
Sodium.....	68
Potassium .....	69
Bicarbonate .....	70
Creatinine .....	71
Urea .....	73
Albumin .....	74
Bilirubin .....	75
Glucose .....	76
Urine Output for 24 Hours .....	77
Haematocrit.....	78
White Blood Cell Count .....	79
Haemoglobin .....	80
Platelets .....	81
Fraction of Inspired Oxygen: APACHE III-J.....	82
Partial Pressure of Oxygen: APACHE III-J.....	84
Partial Pressure of Carbon Dioxide using Worst Oxygenation: APACHE III-J .....	85
pH: APACHE III-J.....	86
Intubation .....	88
Fraction of Inspired Oxygen: APACHE II .....	89
Partial Pressure of Oxygen: APACHE II .....	91
Partial Pressure of Carbon Dioxide: APACHE II.....	92
pH: APACHE II .....	93
Invasively Ventilated on Day 1 .....	94
Acute Renal Failure Status.....	95
Chronic Health Evaluation: APACHE II .....	96
Chronic Health Evaluation: APACHE III-J .....	98
Tracheostomy Indicator .....	100
Invasive Ventilation Indicator.....	101
Non-Invasive Ventilation Indicator.....	102
ECMO Indicator .....	103
Renal-Replacement Therapy Indicator.....	104
Inotropes/Vasopressor Indicator .....	105
APACHE III-J Diagnosis (ANZICS Modified) .....	106
APACHE III-J Sub-Diagnosis (ANZICS Modified) .....	108
Thrombolytic Therapy .....	109
CABG REDO.....	110
CABG Grafts.....	111
<b>3.0 Non-Mandatory Fields</b> .....	112
APACHE III-J Score .....	113
Invasive Ventilation Hours.....	114
Non-Invasive Ventilation Hours.....	115
Diabetes Status.....	116
Clinical Frailty Score.....	118
Lactate .....	120
Delirium .....	121
Pressure Injury.....	122

## Appendices

Appendix A: Minimum Data Set Export Summary .....	123
Appendix B: ICU Diagnosis – APACHE III-J non-operative .....	126
Appendix C: ICU Diagnosis – APACHE III-J post-operative .....	128
Appendix D: APACHE III-J Sub-Diagnosis codes.....	130
Appendix E: Rules for Choosing a Diagnosis.....	140

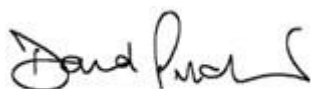
## Introduction

The ANZICS CORE **Adult Patient Database (APD)** receives data submissions from intensive care units (ICUs) throughout Australia, New Zealand and Hong Kong. These provide information about individual episodes of care in ICU. Submitted data includes biochemical, physiological and demographic information required for the calculation of severity of illness scores, together with dates and times of admission and discharge, some data on therapies received during the ICU stay and information about patients' outcomes.

Data is collected using customised software (COMET – CORE Outcome Measurement and Evaluation Tool) supplied by the Australian & New Zealand Intensive Care Society (ANZICS) or using locally designed software.

The information provided is used to benchmark the quality of care provided by contributing ICUs. Dynamic benchmarking reports are available to contributors and jurisdictional review committees via the ANZICS CORE Portal (<https://coreportal.anzics.com.au>). These reports focus on standardised mortality ratios ( $[\text{observed deaths}/\text{predicted deaths}] \times 100$ ), raw mortality, readmissions, afterhours discharges, length of stay and other useful measures. Where performance of a unit falls outside expected norms, further analyses are performed in keeping with the ANZICS CORE Outlier Management Policy, and the ICU and jurisdictional health authorities are notified.

The data dictionary provides detail on the current minimum dataset required for data submission by individual sites, as well as some new fields which are not mandatory at this stage. The dataset is under continual review and development. The format of this data dictionary is based on the format used in the National Health Data Dictionary. This in turn is based on the second edition of the international standard ISO/IEC 11179 Information Technology-Metadata registries in 2003 (ISO/IEC 11179:2003). Management of the dataset is the responsibility of the ANZICS CORE Management Committee.



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## Data Collection Rules

The APD collects data on individual episodes of care in critical care units, and data submitted to the APD must comply with the APD definitions and minimum dataset (refer to Appendix A).

We appreciate that some of the rules/definitions within the APD data dictionary will not comply with all opinions. However, we strongly suggest that it is better to comply with these rules/definitions when collecting APD data, rather than following your own personal interpretations.

### ***What patient episodes are included in the APD Minimum Dataset:***

1. All admissions to ICU (including readmissions)
2. All admissions/readmissions to other units under the care umbrella of ICU (including HDU)

### ***What patient episodes are excluded from the APD Minimum Dataset:***

1. Admissions to units remote from ICU which are not controlled by Intensivists or staff providing intensive care services (e.g. separate neurosurgical HDU or cardiothoracic unit)
2. Coronary care admissions to combined ICU/CCUs
3. Ward admissions
4. All admissions to ICU (or other units under the umbrella of ICU) for solitary procedures (e.g. central line insertion)

Patients coded as Procedure only, Ward-type or CCU-type admissions for 'Type of Care (Admission type)' will not be included when creating the APD Export file within COMET.

### ***What physiological data should be included:***

The data submitted should include physiological data from the first 24 hours of admission to the ICU (or umbrella unit). Data from 1 hour prior to admission may be used when no data is available from the first 24 hours of admission. Where a patient is not in ICU for a full 24 hours, only data from the time in ICU (or 1 hour prior to ICU admission when no data is available from the time in ICU) should be used.

Data that are recorded in any part of the written or electronic medical record may be used. Please note, it is the responsibility of each individual site to have clinical oversight of vital sign data that is extracted into clinical information systems to determine the accuracy of measurements at the time of input.

### ***What constitutes the "first 24 hours"***

The first 24 hours begins when the patient physically enters your ICU.

When a patient is admitted for pre-surgical preparation, the first 24 hours in your unit begins at the time of admission to your unit for the pre-surgical preparation and ends precisely 24 hours later.

When determining when the first 24 hours ends, time spent outside the unit during the first 24 hours (e.g. while undergoing surgery) is included. In this way, even if the patient spends time outside the unit during their first 24 hours of admission, the 24 hours period ends precisely 24 hours following their initial admission to your unit.

Data recorded during the first 24 hours while the patient is outside the unit are only valid while the patient is managed by the intensive care team (e.g. data collected during surgery, after admission to ICU but within the first 24 hours, are excluded).

***Cardiac arrest and/or death – what data is valid:***

In the event of a cardiac arrest during the first 24 hours in your unit, data are valid except during active internal or external cardiac massage. Variables such as heart rate, respiratory rate and mean arterial pressure cannot be recorded as zero.

Patients admitted to the ICU with treatment limitations already in place or admitted to assess for organ donation or for palliative care should have physiology data collected in the same way as patients admitted for active treatment. In the event of brain death tests, data are valid up to and including the time of certification of brain death, physiology data measured and recorded after this time should be disregarded.

In the event of a formal documented decision to withdraw all active treatment after admission to the ICU, data are valid up to the time of this documented decision, physiology data measured and recorded after this time should be disregarded.

In the event of death during the first 24 hours in your unit and, in the absence of either a formal documented decision to withdraw active treatment or testing and certification of brain death, data are valid up to certification of death – agonal values are valid if charted.

***Unknown data***

If data are missing or measurements were not made, no value should be entered. It is accepted that for some patients, certain data elements may not be measured.

***What about patients who move between ICU and HDU levels of care within the same unit:***

Patients transferred between ICU and HDU levels of care within the same unit should be treated as a single admission (only entered once). The ICU admission date and time for such patients will be their initial admission to the unit, whether that be ICU or HDU, and all physiological data will come from the first 24 hours following that initial admission.

***What about patients who move between separate ICU and HDU units within the same hospital:***

If the HDU is separate to the ICU and run by an Intensive Care team, then patients transferred between the ICU and HDU should be coded as transfers to and from “another ICU, same hospital”. Each admission to the ICU or HDU should be treated as a new admission within the Adult Patient Database, with data collected for each admission.

If the HDU is separate to the ICU and **NOT** run by an Intensive Care team then patients transferred to and from the HDU should be coded as transfers to and from “ward”. Data should not be collected for patients admitted to this type of HDU.

***What about CCU admissions:***

Data on coronary care (CCU) admissions may be entered into COMET, ensuring ‘Type of Care (Admission type)’ is coded as CCU. Such admissions are then automatically excluded from the APD export file created within COMET.

***APD submission File:***

Submissions to the ANZICS CORE APD are based on ICU admission dates. All patients admitted to ICU within the required date range should be included in the data sent to ANZICS CORE, regardless of discharge status. It is anticipated that missing discharge dates will be updated during subsequent, overlapping data submissions.



## How to use this data dictionary

Name of this data element	Age							
Basic definition	Definition	The age of a person in years.						
Component of the definition specific to the ANZICS CORE APD. Export file field names are also listed where necessary.	Specific Attributes	Collected at the time of admission to hospital, for the hospital stay that includes the current ICU episode.						
An indication of where this data element may be sourced from.	<b>Data Element Attributes</b>							
	Source	Hospital administration system/ICU discharge summary/Progress notes						
	Context	Required to stratify data based on outcome on discharge from ICU (transfers, deaths etc).						
How the data element is used by the APD/why we collect this data element.	Permissible value(s)	COMET Options	APD Export File Code	APD Options				
		Died	2	Died				
		Home	3	Survived ICU				
		Other	3					
		Ward	3					
		Other hospital – ICU	5	Transferred to other ICU				
		Other ICU, same hospital	5					
		Other hospital – normal ward	6	Transferred to other hospital				
Indicates the allowed range/options for this data element (COMET Options) and their appropriate export codes (APD Export File Code).	Unknown/Null value	Leave blank						
Shows the value that should be entered if no data is available for this data element	Collection method(s)	<ul style="list-style-type: none"><li>ICU discharge destination should be selected from the “Destination on discharge” drop down list.</li><li>Patients who are transferred from ICU to theatre and then subsequently die during surgery should be coded as “died in ICU”.</li><li>Patients who self-discharge from ICU should be coded as ‘3’, survived ICU.</li></ul>						
Provides direction on how this data element should be collected, including any rules relating to the collection of this data element.	Validation rule	This field becomes mandatory if “ICU discharge date” has been entered. Information is required to save message.						
Additional directives for COMET users are provided where necessary.								
APACHE III-J and APACHE II scoring tables. Tables show the weighting of this data element within each scoring system.	APACHE III-J Scoring for Age							
	Age	< 45	45-59.9	60-64.9	65-69.9	70-74.9	75-84.9	≥ 85
	APACHE III-J Score	0	5	11	13	16	17	24
	APACHE II Scoring for Age							
	Age	< 45	45-54.9	55-64.9	65-74.9	≥ 75		
	APACHE II Score	0	2	3	5	6		
For COMET users. Identifies possible Critical error or Warning messages that will appear when entering this data element and provides possible issues and solutions (Data Entry Solution).	<b>COMET Warnings</b>							
	Error Message	Issue			Data Entry Solution			
	Critical	Value <20 or >46			Record cannot be saved. Check the data source. If correct, enter the allowed high or low and report issue to ANZICS CORE			
	Warning	Value outside normal range: 33 – 41			Confirm value. Record can be saved.			
Provides a description of any revisions made or additional information if required.	Additional Comments				2016 Revision: Changed from age on ICU admission to age on hospital admission.			

## Primary Risk Prediction Model: ANZROD

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From April 2015, ANZICS CORE implemented the Australian and New Zealand Risk of Death (ANZROD) model as the primary risk prediction model. This model is derived using components of the APACHE III-J score, with additional data elements added. It has been developed using Australian and New Zealand patient data from the APD. While Apache III-J has two prediction algorithms (CABG and non-CABG), ANZROD has eight different algorithms, based on the major diagnostic categories.

ANZROD is a more accurate predictor of mortality and provides better adjustment for case-mix variation than APACHE III-J. In addition, ANZROD has less exclusions than APACHE III-J. All initial admissions to ICU aged 16 years and over (other than those specifically admitted for organ donation or palliative care) are included when an ANZROD SMR is calculated.

ANZROD will be regularly recalibrated so that the SMR continues to sit around 1 in the years to come. ANZROD provides a single number for each patient which represents the individual's risk of death before hospital discharge.

## Validation Rules and Check

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The validation rules applied within COMET are listed in this data dictionary for relevant fields. If software other than COMET is being used, these rules should be applied before submitting data to the APD.

For non-COMET systems, validation checks provide an indication of where data quality checks or data review would be useful prior to submission of data to the APD. Please refer to the Data Validation Guidelines located at <https://www.anzics.com.au/data-collection-tools/>

## Summary of changes in Version 5

Version 5 of the APD data dictionary marks a major revision of the APD minimum dataset. A number of new fields have been added, existing fields have been revised and a number of fields have been removed. Below is a summary of the major changes in Version 5 of the APD data dictionary. **Please note this is not an exhaustive list as most data elements have had their definition and collection methods reviewed.**

Table 1. New Data Elements		
Data Element	Description	Page Reference
<b>Mandatory (Minimum Data Set)</b>		
ECMO Indicator	Indicates delivery of ECMO during patient's stay in ICU	103
GCS Unavailable Due to Sedation	Indicates GCS components not available due to sedation	52
ICU admission following elective surgery	An ICU admission directly following an elective surgery	39
Inotropes/Vasopressor Indicator	Indicates administration of inotropes or vasopressors during the patient's stay in ICU	105
Invasive Ventilation Status for Respiratory Rate (High)	Indicates invasive ventilation status of a patient at the time of the highest respiratory rate (RR) recorded during their first 24 hours in ICU	62
Invasive Ventilation Status for Respiratory Rate (Low)	Indicates invasive ventilation status of a patient at the time of the lowest respiratory rate (RR) recorded during their first 24 hours in ICU	63
Invasive Ventilation Indicator	Indicates delivery of invasive ventilation during the patient's stay in ICU	101
Invasively Ventilated on Day 1	Identifies whether a patient received invasive ventilation during their first 24 hours in ICU	94
Non-Invasive Ventilation Indicator	Indicates delivery of non-invasive ventilation during the patient's stay in ICU	102
Planned ICU Admission	A planned admission to ICU	40
Renal Replacement Therapy Indicator	Indicator of renal replacement therapy during ICU stay	104
Statistical Linkage Key	To enable data linkage while maintaining patient privacy	20
Tracheostomy Indicator	Indicates tracheostomy performed during the patient's current stay in ICU	100
<b>Non-Mandatory</b>		
Diabetes Status	Diabetes status of a patient at time of Hospital admission	116
Clinical Frailty Score	Patient's frailty assessment at time of Hospital admission	118
Invasive Ventilation Hours	Total invasive ventilation hours during patient's stay in ICU	114
Lactate	Highest lactate value	120
Non-Invasive Ventilation Hours	Total non-invasive ventilation hours during patient's stay in ICU	115
Delirium	An indicator of whether the patient developed delirium during the current episode of ICU care, as represented by a code.	121
Pressure Injury	An indicator of whether the patient developed a pressure injury during the current episode of ICU care, as represented by a code.	122

Table 2. Revised Data Elements

Data Element	Type of Revision	Description of Revision	Page Reference
Age	Definition	Change in calculation, based on hospital admission	21
Albumin	Collection method	Addition of highest albumin value (along with lowest value) to minimum dataset	74
All Fields	NULL values (e.g., 999)	NULL values are no longer required. If no data is available the field should be left blank	
Apache III-J Score	Removed from mandatory fields	This field is no longer mandatory	113
Apache III-J Diagnosis	Collection method	Change in exception for post-operative patients	106
Apache III-J Sub-Diagnosis	Options	New options (Refer to Appendix D)	108
Bicarbonate	Range change	Permissible Range 1– 60 mmol/l	70
Bilirubin	Range change	Permissible Range: 1– 1200 µmol/L	75
Chronic Health Evaluation: Apache II	Collection method	Metastatic carcinoma has been changed to metastatic cancer	96
Core Temperature	Range change	Permissible range: 20 – 46°C	56
Diastolic Blood Pressure	Permissible values	Permissible Range: 1 – 250 mmHg	67
Fraction of Inspired Oxygen: Apache II	Collection method	Change in formula used to calculate the A-a gradient	89
Fraction of Inspired Oxygen: Apache III-J	Collection method	Change in formula used to calculate the A-a gradient	82
Glucose	Range change	Permissible Range: 0 – 90 mmol/L	76
Height	Range change	Permissible Range: 10 – 300 cm	26
Hospital Admission Source	Options	Options updated: · Other Acute Hospital (not ICU/ED) · Nursing home/Chronic care/Palliative care · Rehabilitation · Mental health · Inborn · Other hospital – ED	30
Hospital Discharge Destination	Options	Options updated: · Nursing home/Chronic care/Palliative care · Rehabilitation · Mental health · Hospital in the home · Other	33
ICU Admission Source	Options	Additional option introduced: · Direct ICU admission (from home)	37
MAP	Range change	Permissible Range: 1 – 300 mmHg	64
pH: APACHE II	Range change	Permissible Range: 6.3 – 8.5	93
pH: APACHE III-J	Collection method/ Range change	Must come from the highest scoring blood gas (no longer independent). Permissible Range: 6.3 – 8.5	86
Potassium	Range change	Permissible Range: 0.05 -15 mmol/l	69
Pregnancy Status	Options	Missing/unknown option removed	27
Sex	Options	Addition of Intersex/Indeterminate	22
Systolic Blood Pressure	Range change	Permissible Range: 1 – 350 mmHg	66
Weight	Range change	Permissible Range: 1 – 400 kg	25

Table 3. Obsolete Data Elements – no longer included in APD submission file	
Data Element	Export Field Name
APACHE II Diagnosis	AP2DIAG
Apache II ROD	ROD
APACHE II Score	APACHE2
Insulin-Dependent Diabetes Mellitus Status	IDDM
Length of Stay	ICU_STAY
Respiratory Arrest in Last 24 Hours	RESPARREST
SAPS Score	SAPS
SAPS2 ROD	RODSAPS2
SAPS2 Score	SAPS2
Smoking Intensity	SMOKINGINTENSITY
Smoking Status	SMOKINGSTATUS

### Other changes:

#### Version 5.5 to 5.6

- **Heart Rate** - Permissible range altered
- **Respiratory Rate** - Permissible range altered
- **Mean Arterial Pressure** - Permissible range altered
- **Blood Pressure - Systolic** - Permissible range altered

#### Version 5.6 to 5.7

- **Lactate** – Format changed to include one decimal place N [N.N]
- **APACHE III-J Diagnosis sub codes** – New sub codes added (604.07, 1205.02, 1208.24 and 1802.03)
- **Core temperature** – Data collection for actively cooled patients changed to have no special criteria

#### Version 5.7 to 5.8

- **Type of Care** – Clarification of “Monitor only” admissions
- **Inotropes/Vasopressor Indicator** – Clarification around collection methods
- **ICU Admission Source** – Coding for ‘Out of hospital cardiac arrest’ admissions
- **ICU Discharge Decision Date/Time** – Coding for Organ donation patients
- **ICU Discharge Date/Time** – Coding for Organ donation patients
- **Hospital Discharge Date/Time** – Coding for Organ donation patients
- **APACHE III-J Diagnosis (ANZICS Modified)** – Coding of multivisceral transplants
- **Mean Arterial Pressure** – Clarification of collection method
- **Pathology** – Clarification of collection method to include that venous blood results can be used in the absence of arterial blood results
- **APACHE III-J Diagnosis sub codes** – New sub codes added (1506.13, 1506.14 and 1705.07)
- **Bicarbonate** – Permissible range altered
- **Creatinine** – Permissible range altered

## 1.0 Data elements held by ANZICS CORE

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Provided in this document for information only

## Hospital Identifier

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<b>Definition</b>	A unique identifier for a hospital.
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Data Element Attributes	
Source	ANZICS CORE
Context	Required to identify the hospital at which a patient received treatment.
Permissible value(s)	Numeric string (generated by ANZICS CORE)
Collection method(s)	<ul style="list-style-type: none"> <li>· This data element is used to identify the hospital to which the patient was admitted for the episode of care which includes the current episode of ICU care.</li> <li>· The hospital identifier is generated/assigned by ANZICS CORE.</li> </ul> <p><i>Note: The hospital identifier is not currently included in the submission file sent to ANZICS CORE; this data is held centrally by ANZICS CORE.</i></p>

## Hospital Type

Definition	The type of facility to which the patient was admitted for the current episode of care, as represented by a code.	
Data Element Attributes		
Source	Hospital Administration	
Context	<ul style="list-style-type: none"><li>· Required to stratify data by hospital type (to control for different patient profiles).</li><li>· Necessary to relate different case mix and outcomes to type of hospital.</li></ul>	
Permissible value(s)	COMET Options	APD Export File Code
	Rural/Regional	1
	Metropolitan	2
	Tertiary/Teaching	3
	Private	4
Collection method(s)	<ul style="list-style-type: none"><li>· Hospital type is self-assigned by the submitting institution.</li><li>· At commencement of the data submission process, each site must inform ANZICS CORE of their hospital type.</li><li>· There are four hospital types recognised in Australia and New Zealand based on management type and other demographic attributes; Tertiary, Metropolitan, Rural/Regional and Private.</li><li>· Changes in hospital type over time should be notified to ANZICS CORE by the submitting institution.</li></ul> <p><i>Note: Hospital Type is not currently included in the submission file sent to ANZICS CORE; this data is held centrally by ANZICS CORE.</i></p>	



## 2.0 Mandatory Fields (*Minimum Data Set*)

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These fields are included in the APD submission file generated by COMET. If non-COMET software is being used, these fields must be included in submissions to the APD.

## Care Unit Identifier

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<b>Definition</b>	A unique identifier specific to each critical care unit at an individual site.
<b>Specific Attributes</b>	Identifies the critical care unit to which the patient was admitted for the current episode of ICU care.

Data Element Attributes	
Source	ICU admission summary/Progress notes
Context	Required to stratify data by critical care unit type at an individual site.
Permissible range	<ul style="list-style-type: none"> <li>· Each critical care unit within the institution should be given a numeric identifier (1 – 98).</li> <li>· These identifiers are auto-generated by COMET.</li> </ul>
Collection method(s)	<ul style="list-style-type: none"> <li>· Multiple critical care units can exist within a single institution.</li> <li>· This data element is used to differentiate between units within the same submission file.</li> <li>· Each episode of intensive care is associated with the information about the specific care unit where the episode occurred.</li> <li>· Please contact ANZICS CORE to add new care units.</li> </ul>
Validation rule	This field is mandatory and collected via the “Care Unit Admitted to” field within Unit Admissions.

## Patient Identifier

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<b>Definition</b>	A unique identifier specific to each patient.
<b>Specific Attributes</b>	The same identifier should be used for all episodes of care for a given patient.

Data Element Attributes	
Source	Auto-generated by data collection software such as COMET.
Context	<ul style="list-style-type: none"> <li>· Required for identification of ICU readmissions during the same hospital admission.</li> <li>· Necessary to allow individual sites to identify and check any ICU admission data queried by ANZICS CORE.</li> </ul>
Permissible value(s)	<ul style="list-style-type: none"> <li>· Alphabetic, alphanumeric or numeric string</li> <li>· Maximum length of 12 digits</li> </ul>
Collection method(s)	<ul style="list-style-type: none"> <li>· This unique identifier is auto-generated by COMET.</li> </ul>
Validation Rule	This field is mandatory and is auto-generated by COMET.

## SLK-581 (Statistical Linkage Key)

<b>Definition</b>	A statistical linkage key based on a patient's family name, given name, date of birth and sex.
<b>Data Element Attributes</b>	
Source	Auto-generated by data collection software such as COMET
Context	Required to enable linkage of APD data to other APD and CORE datasets and to external datasets.
Collection method(s)	<ul style="list-style-type: none"> <li>· This data element is used to enable data linkage while maintaining patient privacy.</li> <li>· The SLK-581 is generated automatically by COMET.</li> </ul> <p>The linkage key sequence form is: <b>XXXXXDDMMYYN</b> and should be completed as follows:</p> <p><b>XXX - 2nd, 3rd and 5th letters of the family name.</b> In the first three spaces the agency should record the 2nd, 3rd and 5th letters of the client's family name.</p> <p><b>XX - 2nd and 3rd letters of given name</b> In the fourth and fifth spaces the agency should record the 2nd and 3rd letters of the client's given name.</p> <p><b>DDMMYYY - Date of Birth</b> DD represents the day in the month a person was born MM represents the month in the year a person was born YYYY represents the year a person was born</p> <p><b>N - Sex</b> N represents whether the person is a 1. Male, 2. Female, 3. Intersex/Indeterminate or 9. Unknown</p>
<b>Additional Comments</b>	2016 Revision: New data element

## Age

<b>Definition</b>	The age of a person in years.
<b>Specific Attributes</b>	Collected at the time of admission to hospital, for the hospital stay that includes the current ICU episode.

Data Element Attributes	
Source	Patient admission details (Date of birth)
Context	<ul style="list-style-type: none"> <li>· Important epidemiological information.</li> <li>· Used to determine those patients included in an APACHE III/ANZROD SMR.</li> <li>· Required to calculate APACHE II/III-J scores and predicted risk of deaths, and ANZROD predicted risk of death.</li> </ul>
Permissible range	0 – 110 years
Collection method(s)	Age at the time of hospital admission is calculated automatically by COMET based on the date of birth and hospital admission dates.
Validation rule	DOB is mandatory. Information is required to save record.

APACHE III-J Scoring for Age							
Age	< 45	45-59.9	60-64.9	65-69.9	70-74.9	75-84.9	≥ 85
APACHE III-J Score	0	5	11	13	16	17	24

APACHE II Scoring for Age					
Age	< 45	45-54.9	55-64.9	65-74.9	≥ 75
APACHE II Score	0	2	3	5	6

<b>Additional Comments</b>	2016 Revision: Changed from age on ICU admission to age on hospital admission.
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## Sex

<b>Definition</b>	The biological distinction between male and female.
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Data Element Attributes		
Source	Patient admission details	
Context	<ul style="list-style-type: none"> <li>Required to stratify data on the basis of gender.</li> <li>Used to determine risk of death for certain diagnoses.</li> </ul>	
Permissible value(s)	COMET Options	APD Export File Code
	Male	M
	Female	F
	Intersex/Indeterminate	I
	Unknown	U
Collection method(s)	The data element is collected as Male, Female, Intersex/Indeterminate or Unknown for each patient admitted to the care unit.	
Validation rule	Mandatory – information is required to save record.	

<b>Additional Comments</b>	2016 Revision: The option “Intersex/Indeterminate” was added.
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## Indigenous Status

Definition	Indigenous status of a patient, as represented by a code.	
Data Element Attributes		
Source	Hospital administration system/ICU admission summary/Progress notes	
Context	Required to stratify data based on indigenous status.	
Permissible value(s)	COMET Options	APD Export File Code
	Indigenous	1
	Non-indigenous	2
	Unknown	99
Collection method(s)	<ul style="list-style-type: none"><li>· This data element captures whether a patient identifies as indigenous to the country where they are receiving treatment:<ul style="list-style-type: none"><li>· <b>Indigenous:</b> patient identifies as indigenous to the country where they are receiving treatment.</li><li>· <b>Non-indigenous:</b> patient does not identify as indigenous to the country where they are receiving treatment.</li></ul></li><li>· In Australia a patient who identifies as Aboriginal or Torres Strait Islander should be coded as Indigenous.</li><li>· In New Zealand a patient who identifies as Maori should be coded as Indigenous.</li></ul>	
Validation rule	Mandatory – information is required to save record.	

## Postcode

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<b>Definition</b>	The numeric descriptor for a postal delivery area for an address.
<b>Specific Attributes</b>	Must relate to a patient's <b>residential address</b> at the time of admission to hospital.

Data Element Attributes	
Source	Patient admission details
Context	Required to stratify data on the basis of geographical regions.
Collection method(s)	<ul style="list-style-type: none"> <li>Where a patient has a postal address that is different to their residential address, please use the <u>residential</u> postcode.</li> <li>For patients admitted while on holiday, the home postcode should be entered rather than the postcode of holiday accommodation.</li> <li>The null value of <b>9999</b> should be used for patients where postcode is unknown.</li> </ul>
Validation rule	Mandatory – information is required to save record.



## Weight

<b>Definition</b>	The weight (body mass) of a person measured in kilograms (kg).
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Data Element Attributes	
Source	Patient admission details/Medical history/Progress notes (e.g. dietician/anesthetics)/ICU observation chart
Context	<ul style="list-style-type: none"> <li>Weight is an overall measure of body size that does not distinguish between fat and muscle.</li> <li>Weight is an indicator of nutrition status and health status.</li> <li>It enables the calculation of body mass index which requires the measurement of height and weight for adults.</li> </ul>
Permissible range	1 – 400 kg
Unknown/Null value	Leave blank
Collection method(s)	A continuous data element measured to the nearest 0.1 kg.

COMET Warnings		
Error Message	Issue	Data Entry Solution
Critical	Value <1 or >400	Record cannot be saved. Check the data source. If data correct, enter the closest value in the permissible range and report the issue to ANZICS CORE.

<b>Additional Comments</b>	2016 Revision: Permissible range changed from 1 – 300 kg to 1 – 400 kg.
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## Height

<b>Definition</b>	The height of a person measured in centimetres (cm).
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Data Element Attributes	
Source	Patient admission details /Medical history/Progress notes (e.g. dietician/anesthetics)/ICU observation chart
Context	<ul style="list-style-type: none"> <li>· Stature is a major indicator of general body size, bone length and the nutritional and health status of the individual and the community at large.</li> <li>· It is important in screening for disease or malnutrition, and in the interpretation of weight.</li> <li>· It enables the calculation of body mass index which requires the measurement of height and weight for adults.</li> </ul>
Permissible range	10 – 300 cm
Unknown/Null value	Leave blank
Collection method(s)	A continuous data element measured to the nearest cm.

COMET Warnings		
Error Message	Issue	Data Entry Solution
Critical	Value <10 or >300	Record cannot be saved. Check the data source. If data correct, enter the closest value in the permissible range and report the issue to ANZICS CORE.

<b>Additional Comments</b>	2016 Revision: Permissible range changed from 1 – 300 cm to 10 – 300 cm.
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## Pregnancy Status

<b>Definition</b>	A female patient's pregnancy status, as represented by a code.
<b>Specific Attributes</b>	Collected at the time of admission to ICU for the current episode of care.

Data Element Attributes		
Source	Patient admission details/ICU admission summary	
Context	Required to stratify female patient data based on pregnancy status.	
Permissible value(s)	COMET Options	APD Export File Code
	Currently pregnant	1
	Not pregnant	2
	Postpartum period	3
Null Value	Leave blank	
Collection method(s)	<ul style="list-style-type: none"> <li>· The person's current pregnancy status should be recorded as a code.</li> <li>· This data element describes whether a female patient is pregnant or in the postpartum period at the time of ICU admission.</li> <li>· ANZICS CORE defines the postpartum period as the 42 days after the date of delivery.</li> <li>· The information should be collected on ICU admission for all female patients over the age of 10 and under the age of 61.</li> </ul>	
Validation rule	This field becomes mandatory if patient is female and aged >10 and <61 years. Information is required to save record.	

<b>Additional Comments</b>	2016 Revision: Code 4 Unknown – OBSOLETE
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## Hospital Admission Date

<b>Definition</b>	Date on which the patient was admitted to the hospital for the episode of care which included the current episode of ICU care.
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Data Element Attributes	
Source	Hospital administration system/Hospital admission details/Progress notes
Context	Required to identify the period in which the admitted patient's episode of care and hospital stay occurred and to derive the hospital length of stay.
Permissible value	Valid date in DD/MM/YYYY format
Collection method(s)	<ul style="list-style-type: none"> <li>· Hospital admission date should be collected in DD/MM/YYYY format.</li> <li>· The hospital admission date should be the date on which the acute, inpatient episode of care, that includes the current episode of ICU care, began.</li> <li>· When a patient is admitted via the emergency department, the hospital admission date should be the triage date.</li> </ul>
Validation rule	Mandatory – information is required to save record.

COMET Warnings		
Error Message	Issue	Data Entry Solution
Critical	Hospital Admission Date > Hospital Discharge Date	Record cannot be saved. Check dates and update record.
	Hospital Admission Date < Date of Birth	

## Hospital Admission Time

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<b>Definition</b>	Time at which the patient was admitted to the hospital for the episode of care which included the current episode of ICU care.
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Data Element Attributes	
Source	Hospital administration system/Hospital admission details/Progress notes
Context	Required to identify the time at which the hospital stay commenced, and to derive waiting times and hospital length of stay.
Permissible range	0000 – 2359 (24 hour clock)
Collection method(s)	<ul style="list-style-type: none"> <li>· Hospital admission time should be collected in 24 hour clock format.</li> <li>· The hospital admission time should be the time at which the acute, inpatient episode of care, that includes the current episode of ICU care, began.</li> <li>· When a patient is admitted via the emergency department, the hospital admission time should be the triage time.</li> </ul>
Validation rule	Mandatory – information is required to save record.

## Hospital Admission Source

Definition	The mechanism by which a person was admitted to the hospital for the episode of care which includes the current episode of ICU care, as represented by a code.	
Data Element Attributes		
Source	Hospital administration system/Hospital admission details/Progress notes	
Context	Provides information for analysis of admission patterns and referrals.	
Permissible value(s)	COMET Options	APD Export File Code
	Home	1
	Other acute hospital (not ICU/ED)	2
	Nursing home/Chronic care/Palliative care	3
	Other hospital – ICU	4
	Rehabilitation	5
	Mental health	6
	Inborn	7
Other hospital – ED	8	
Collection method(s)	<ul style="list-style-type: none"><li>· Hospital admission source should be selected from the “hospital admission source” drop down list.</li><li>· For patients brought to hospital from the site of an accident or from a local GP etc., the hospital admission source should be their usual place of residence (home or chronic care hospital).</li><li>· A patient who is homeless should be coded as being admitted from home (unless admitted from another hospital).</li></ul>	
Validation rule	Mandatory – information is required to save record.	
Additional Comments	2016 Revision: New codes added: 5. 6. 7. 8	

## Hospital Discharge Date

<b>Definition</b>	Date on which the patient was separated from the hospital for the episode of care which included the current episode of ICU care.
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Data Element Attributes	
Source	Hospital administration system/Hospital discharge summary/Progress notes
Context	Required to identify the period in which an admitted patient hospital stay or episode occurred and for derivation of hospital length of stay.
Permissible value	Valid date in DD/MM/YYYY format
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>· Hospital Discharge Date should be collected in DD/MM/YYYY format.</li> <li>· Hospital separation includes discharge, death, statistical discharges and transfers to another hospital. <ul style="list-style-type: none"> <li>· <i>Statistical discharge: where the patient is no longer considered an acute care patient. Patient is moved to a separate rehabilitation, palliative care or mental health unit within the same hospital.</i></li> </ul> </li> <li>· For the purposes of APD data collection, if a patient is transferred to hospital-in-the-home (HITH) they should be considered discharged from hospital. The date the patient physically leaves the hospital should be entered as their hospital discharge date.</li> <li>· For <b>Organ Donation Patients</b>, hospital discharge date should be coded as the recorded post-procurement date.</li> </ul>

COMET Warnings		
Error Message	Issue	Data Entry Solution
Critical	Hospital Discharge Date < Hospital Admission Date	Record cannot be saved. Check dates and update record.
	Hospital Discharge Date < ICU Discharge Date	

<b>Additional Comments</b>	2019 Revision: Extra notes added for collection method
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## Hospital Discharge Time

<b>Definition</b>	Time at which the patient was separated from the hospital for the episode of care which included the current episode of ICU care.
<b>Data Element Attributes</b>	
Source	Hospital administration system/Hospital discharge summary/Progress notes
Context	Required to identify the period in which an admitted patient hospital stay or episode occurred and for derivation of hospital length of stay.
Permissible range	0000 – 2359 (24 hour clock)
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>· Hospital discharge time should be collected in 24 hour clock format.</li> <li>· Hospital separation includes discharge, death, statistical discharges and transfers to another hospital.               <ul style="list-style-type: none"> <li>· <i>Statistical discharge: where the patient is no longer considered an acute care patient. Patient is moved to a separate rehabilitation, palliative care or mental health unit within the same hospital.</i></li> </ul> </li> <li>· For the purposes of APD data collection, if a patient is transferred to hospital-in-the-home (HITH) they should be considered discharged from hospital. The time the patient physically leaves the hospital should be entered as their hospital discharge time.</li> <li>· For <b>Organ Donation Patients</b>, hospital discharge time should be coded as the recorded post-procurement date.</li> </ul>
Validation rule	This field becomes mandatory if “Hospital Discharge Date” has been entered. Information is required to save record.
<b>Additional Comments</b>	2019 Revision: Extra notes added for collection method



## Hospital Discharge Destination

<b>Definition</b>	Status at separation of person (discharge/transfer/death) and place to which person was released, as represented by a code.
<b>Specific Attributes</b>	Collected on separation from hospital.

Data Element Attributes		
Source	Hospital administration system/Hospital discharge summary/Progress notes	
Context	<ul style="list-style-type: none"> <li>Outcome measure required to determine SMR for the APACHE II, APACHE III-J and ANZROD.</li> <li>Patients with missing hospital outcome are excluded from the SMR calculations.</li> </ul>	
Permissible value	COMET Options	APD Export File Code
	Died	2
	Home	3
	Nursing home/Chronic care/Palliative care	4
	Other hospital –ICU	5
	Other acute hospital	6
	Rehabilitation	7
	Mental health	8
	Hospital in the home	9
	Other	10
Null value	Leave blank	
Collection method(s)	<ul style="list-style-type: none"> <li>Hospital outcome should be selected from the “Destination on discharge” drop down list.</li> <li>For the purposes of APD data collection, if a patient is transferred to hospital-in-the-home (HITH) they should be considered discharged from hospital. Such patients should be given a hospital outcome of “Hospital in the home”.</li> <li>Discharges to 4, 7, 8 and 9 should include: <ol style="list-style-type: none"> <li>Statistical discharges where care changes from acute to chronic and patient is transferred to a unit that is geographically separate from the acute wards and managed by a different team.</li> <li>Discharges to a nursing home even if it is the patient’s usual place of residence.</li> <li>Transfers to a separate palliative care hospice, rehabilitation facility, or mental health unit either within the same hospital, or at a different location.</li> </ol> </li> </ul> <p><i>Note: Transfer of treatment to a palliative care/mental health/ rehabilitation team while the patient remains in the acute ward is not considered a statistical discharge and should not be considered a discharge from hospital.</i></p>	
Validation rule	This field becomes mandatory if “Hospital Discharge Date” has been entered. Information is required to save record.	

COMET Warnings		
Error Message	Issue	Data Entry Solution
Critical	Discrepancy between Hospital Outcome and ICU Outcome e.g. ICU Outcome = Died and Hospital Outcome = Discharged Home	Record cannot be saved. Check data source and update record.
Additional Comments		2016 Revision: New codes added: 7, 8, 9, 10

## ICU Admission Date

<b>Definition</b>	Date on which the patient was admitted to the intensive care unit for the current episode of ICU care.
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Data Element Attributes	
Source	Hospital administration system/ICU admission summary/Progress notes
Context	Provides information relating to admission patterns and ICU length of stay.
Permissible value	Valid date in DD/MM/YYYY format
Collection method(s)	<ul style="list-style-type: none"> <li>ICU admission date should be collected in DD/MM/YYYY format.</li> <li>ICU admission date should be the date on which the patient physically enters the ICU.</li> </ul>
Validation rule	Mandatory – information is required to save record.

COMET Warnings		
Error Message	Issue	Data Entry Solution
Critical	ICU Admission Date < Hospital Admission Date	Record cannot be saved. Check dates and update record.
	ICU Admission Date > Hospital Discharge Date	
	ICU Admission Date > ICU Discharge Date	
	ICU Admission Date cannot overlap with or duplicate an existing ICU admission	

## ICU Admission Time

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<b>Definition</b>	Time at which the patient was admitted to the intensive care unit for the current episode of ICU care.
<b>Data Element Attributes</b>	
Source	Hospital administration system/ICU admission summary/Progress notes
Context	Provides information relating to admission patterns and ICU length of stay.
Permissible range	0000 – 2359 (24 hr clock)
Collection method(s)	<ul style="list-style-type: none"> <li>· ICU admission time should be collected in 24 hour clock format.</li> <li>· ICU admission time should be the time that the patient physically enters the ICU.</li> </ul>
Validation rule	This field becomes mandatory if “ICU Admission Date” has been entered. Information is required to save record.

## ICU Admission Source

Definition	The mechanism by which a person was admitted to the intensive care unit for the current episode of ICU care, as represented by a code.		
Data Element Attributes			
Source	Hospital administration system/ICU admission summary/Progress notes		
Context	<ul style="list-style-type: none"><li>Provides information for analysis of admission patterns and referrals.</li><li>Used in the calculation of the APACHE II, APACHE III-J scoring and ANZROD predicted risk of death.</li><li>Where applicable, and in conjunction with the elective admission data elements, this data determines the number of chronic health points assigned for chronic conditions at the time of hospital admission (for APACHE III-J).</li></ul>		
Permissible value(s)	COMET Options	APD Export File Code	APD Options
	OT/Recovery	1	OT/Recovery
	Emergency department	2	Emergency department
	Ward	3	Ward
	Coronary care	3	
	Other HDU	3	
	ICU, same hospital	4	ICU, same hospital
	Other hospital	5	Other hospital
	ICU, other hospital	6	ICU, other hospital
	Direct ICU admission (from home)	9	Direct ICU admission (from home)
Collection method(s)	<ul style="list-style-type: none"><li>ICU admission source should be collected as a code.</li><li>For patients that are admitted to ICU from a procedure room (e.g. cathlab/radiology), their location prior to such procedure rooms should be regarded as the source of ICU admission. The only caveat to this rule is if a patient receives a general anaesthetic during their procedure. Patients with a general anaesthetic should be coded with an ICU admission source of OT/Recovery.<ul style="list-style-type: none"><li><b>Exception:</b> ‘Out of hospital cardiac arrest’ patients that go directly from ED to the cathlab whilst intubated and sedated, should be coded as <b>ICU Admission Source</b>= ED and <b>Diagnosis</b>= Cardiac Arrest.</li></ul></li><li>If a patient is admitted to the ICU from the Operating Room/Recovery Room but no surgical procedure was performed (for example, the case was cancelled or the procedure was not initiated), then the patient is considered a Non-Operative patient and the ICU Admission Source should be the patient's location prior to the OT/Recovery. An example would be anaphylaxis following anaesthesia prior to surgery. Once surgery begins the patient is considered a Post-Operative patient.</li><li>Refer to Appendix E</li></ul>		
Validation rule	Mandatory – information is required to save record.		
Additional Comments	2016 Revision: Code 9 added 2019 Revision: Extra Notes added for collection method		

## Type of Care

<b>Definition</b>	The type of care for which a patient was admitted.
<b>Specific Attributes</b>	Changes in care type are not considered and only the type which was planned on the admission to the ICU should be recorded.

Data Element Attributes			
Source	ICU admission summary/Progress notes		
Context	Required to stratify data by type of care intended.		
Permissible value(s)	COMET Options	APD Export File Code	APD Options
	ICU admission	1	ICU admission
	HDU admission	2	HDU admission
	Monitor only in ICU	2	
	CCU	-	
	Ward	-	
	Procedure only in ICU	-	
<i>CCU, ward and procedure only patients are not included in submissions to the APD</i>			
Collection method(s)	<ul style="list-style-type: none"> <li>This data element identifies whether the patient was admitted to the critical care unit for ICU or HDU level of care.</li> <li>Type of care should be coded based on the level of care planned on admission. Changes to the level of care given during an admission should not be considered.</li> <li>ICU admission is defined as a patient under the care of an intensive care team for whom one of the following is needed:               <ul style="list-style-type: none"> <li>invasive ventilation</li> <li>non-invasive ventilation (&gt; 50% of stay or continuously &gt; 6 h)</li> <li>1:1 nursing</li> <li>continuous renal replacement therapy</li> </ul> </li> <li>HDU admission will be all other patients admitted as needing, in the opinion of the treating specialist, the specific expertise of the ICU/HDU environment that do not fit this criteria (excluding coronary care patients, ward patients or those admitted solely for specific procedures within ICU).</li> <li>Monitor only patients will be considered as HDU admissions within the APD.</li> </ul> <p><b>Important:</b> CCU patients, patients admitted to ICU for a solitary procedure or ward type patients (in ICU due to lack of resources on the ward) are not to be included in the data export to be submitted to the APD.</p>		
Validation rule	Mandatory – information is required to save record.		

<b>Additional Comments</b>	2019 Revision: Extra notes added for collection method
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## ICU admission following elective surgery

Definition	An ICU admission directly following an elective surgery.	
Data Element Attributes		
Source	Hospital admission details/ICU admission summary/Progress notes	
Context	Used in the APACHE II and APACHE III-J scoring system algorithms and the calculation of the ANZROD predicted risk of death.	
Permissible value(s)	COMET Options	APD Export File Code
	Elective Surgery	1
	Not Elective Surgery	0
Collection method(s)	<ul style="list-style-type: none"><li>· This data element identifies patients who come to ICU following an elective surgery.</li><li>· Elective surgery is surgery which can be delayed for more than 24 hours.</li><li>· Elective surgical admissions must be admitted to the ICU from OT (or from the OT at another hospital).</li><li>· A patient can be coded as YES to elective surgery even if their admission to ICU is a result of an unplanned intra-operative complication.</li></ul> <p><b>Examples:</b></p> <ul style="list-style-type: none"><li>· <i>A patient admitted to ICU after unexpected bleeding during a routine elective hip replacement = <u>Elective surgery</u></i></li><li>· <i>A patient admitted to ICU in whom the ICU admission was foreseen and planned following emergency surgery for evacuation of an intra-cranial bleed = <u>Not elective surgery</u>.</i></li></ul>	
Validation rule	This field becomes mandatory if “ICU Admission Source” is Operating Theatre or Other Hospital. Information is required to save record.	
Additional Comments	2016 Revision: New data element.	

## Planned ICU Admission

Definition	A planned admission to ICU.	
Data Element Attributes		
Source	Hospital admission details/ICU admission summary/Progress notes	
Context	Used in the APACHE II and APACHE III-J scoring system algorithms and the calculation of the ANZROD predicted risk of death.	
Permissible value(s)	COMET Options	APD Export File Code
	Planned admission to ICU	1
	Unplanned admission to ICU	0
Collection method(s)	<ul style="list-style-type: none"><li>· If following surgery or a procedure, a planned admission to ICU is one where the need for ICU admission was anticipated pre-operatively or prior to induction of anaesthesia.</li><li>· For non-surgical admissions to ICU, a planned admission to ICU should be considered as one that could be postponed for 24 hours with no adverse effect.</li><li>· Planned admissions are common following elective surgery but can also occur when patients are transferred between hospitals or when an ICU admission is anticipated following emergency surgery.</li></ul> <p><b>Examples:</b></p> <ul style="list-style-type: none"><li>· A patient transferred to your ICU following emergency surgery in another hospital = <u>Planned admission to ICU</u></li><li>· A patient admitted to ICU in whom the ICU admission was foreseen and planned following emergency surgery for evacuation of an intra-cranial bleed = <u>Planned admission to ICU</u></li><li>· A patient admitted following emergency cardiac surgery where post-operative ICU admission was anticipated prior to surgery commencing = <u>Planned admission to ICU</u></li><li>· A patient admitted to ICU after an intra-operative complication of surgery which would normally not need ICU = <u>Unplanned admission to ICU</u></li><li>· A patient admitted after deterioration on a ward or following acute presentation to ED = <u>Unplanned admission to ICU</u></li></ul>	
Validation rule	Mandatory – information is required to save record.	
Further Examples	Planned ICU admission	Unplanned ICU admission
<b>Elective surgery</b>	Elective Coronary Bypass Surgery	Intra-operative complication during elective total hip replacement in previously well patient
<b>Emergency surgery</b>	Evacuation of traumatic subdural haemorrhage	Intra-operative complication during operation for incarcerated inguinal hernia in previously well patient
<b>Non-surgical/ Medical</b>	Inter-hospital transfer of patient from another ICU	Acute medical presentations to ED
	ICU admission for administration of chemotherapy and management of potential complications	Patients admitted to ICU following deterioration on the ward
		Admissions following MET calls
Additional Comments	2016 Revision: New data element.	



## Emergency Response Admission

<b>Definition</b>	An ICU admission arising from an emergency response on a general ward, as represented by a code.
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Data Element Attributes		
Source	ICU admission summary/Progress notes	
Context	Required to stratify data based on emergency call information.	
Permissible value(s)	COMET Options	APD Export File Code
	MET/RRT/Code Blue call	1
	No	2
	Unknown	99
Collection method(s)	<ul style="list-style-type: none"> <li>· This data element describes whether a patient is admitted to the ICU as a result of any emergency response made on a general ward.</li> <li>· Emergency response admissions include MET (Medical Emergency Team), RRT (Rapid Response Team) and Code Blue (Cardio-Respiratory Arrest) calls.</li> <li>· The ICU, intensivist-supervised HDUs, operating theatres, post-operative recovery areas and emergency departments are not considered to be general wards.</li> <li>· Any other area within the hospital (including the coronary care unit and procedure room/cath lab) is considered a general ward.</li> </ul>	
Validation rule	Mandatory – information is required to save record.	

<b>Additional Comments</b>	2016 Revision: Code 3 Unknown – OBSOLETE
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## Treatment Goals for Admission

<b>Definition</b>	The treatment goals for a patient at time of admission to ICU, as represented by a code.
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Data Element Attributes		
Source	ICU admission summary/Progress notes	
Context	Determines inclusion in the ANZROD SMR. Required to stratify data based on treatment goals and enables recognition of patients who would not be expected to survive their ICU admission.	
Permissible value(s)	COMET Options	APD Export File Code
	Full active management (w/o treatment limitation)	1
	Treatment limitation order	2
	Palliative care of a dying patient	3
	Potential organ donation	4
	Unknown	99
Collection method(s)	<ul style="list-style-type: none"> <li>This data element describes the treatment goals for a patient at the time of admission to ICU, any changes to treatment goals during an ICU admission should not be considered.</li> <li>This data element should be coded as follows: <ul style="list-style-type: none"> <li><b>Full active treatment:</b> Implies no limitation to treatment when patient was admitted to the ICU. Patients who have limitations to therapy instituted later during their ICU stay should be considered as having “full active treatment” on admission.</li> <li><b>Treatment limitation order:</b> Implies medical treatment would be constrained by patient wishes (e.g. Jehovah’s Witness) or medical futility (not for intubation/CPR) but does not necessarily imply an expectation of death during this ICU admission. Only patients with treatment limitations <u>on admission to ICU</u> should be coded as such.</li> <li><b>Palliative care of a dying patient:</b> Patients admitted to ICU for palliative care, care given to improve the quality of life of patients who have a serious or life-threatening disease from which they are not expected to survive. The goal of palliative care is to prevent or treat as early as possible the symptoms of the disease, side effects caused by treatment of the disease, and psychological, social, and spiritual problems related to the disease or its treatment. It is also referred to as comfort care, supportive care, and symptomatic management.</li> <li><b>Potential Organ Donation:</b> Terminally ill patients admitted to ICU with the intention of organ donation.</li> </ul> </li> </ul>	
Validation rule	Mandatory – information is required to save record.	

<b>Additional Comments</b>	2016 Revision: Code 5 Unknown – OBSOLETE
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## Thromboembolism Prophylaxis Administration

<b>Definition</b>	The administration of appropriate thromboembolism prophylaxis within the first 24 hours of ICU admission, as represented by a code.
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Data Element Attributes		
Source	ICU admission summary/Progress notes	
Context	Required to calculate ACHS ICU Indicator “Thromboembolism Prophylaxis”.	
Permissible value(s)	COMET Options	APD Export File Code
	Yes	1
	No	2
	Contraindicated	3
	Not Indicated	4
	Unknown	99
Collection method(s)	<ul style="list-style-type: none"> <li>· This data element describes whether the patient has received appropriate thromboembolism prophylaxis within the first 24 hours of admission to ICU.</li> <li>· Thromboembolism is also referred to as deep vein thrombosis (DVT) or venous thromboembolism (VTE).</li> <li>· This data element should be coded as follows: <ul style="list-style-type: none"> <li>· <b>Yes:</b> Patients that have received any form of thromboembolism prophylaxis (e.g. heparin, low molecular weight heparin, pneumatic compression devices, compression stocking) <b>OR</b> Patients who are already fully anti-coagulated (e.g. heparin infusion/warfarin prior to admission).</li> <li>· <b>No:</b> Patients that did not receive treatment.</li> <li>· <b>Contraindicated:</b> Patients that are unsuitable for thromboembolism prophylaxis (e.g. trauma patient with severe bleeding and multiple lower limb injuries who cannot have heparin, lower limb compression devices or IVC filter).</li> <li>· <b>Not indicated:</b> Patients that did not receive treatment because it was not required (e.g. patient is ambulant).</li> </ul> </li> </ul>	
Validation rule	Mandatory – information is required to save record.	

## Cardiac Arrest

Definition	The presence of a cardiac arrest in the 24 hours prior to ICU admission, as represented by a code.	
Data Element Attributes		
Source	Ambulance report/Hospital admission details/ICU admission summary/Progress notes	
Context	Required to stratify the data based on patients with a cardiac arrest in the 24 hours prior to ICU admission.	
Permissible value(s)	COMET Options	APD Export File Code
	Cardiac arrest in previous 24 hours (prior to ICU admission)	1
	No cardiac arrest	2
	Unknown	99
Unknown/Null	Leave blank	
Collection method(s)	<ul style="list-style-type: none"><li>· This data element describes whether a patient suffered a cardiac arrest in the 24 hours prior to ICU admission.</li><li>· Cardiac arrest refers to the cessation or sudden reduction of cardiac output leading to loss of effective circulation.</li></ul>	
Additional Comments	2016 Revision: Code 8 Missing – OBSOLETE	

## ICU Discharge Decision Date

<b>Definition</b>	Date on which the patient was ready for separation from the intensive care unit for the current episode of ICU care.
<b>Specific Attributes</b>	As determined by medical staff.

Data Element Attributes	
Source	Hospital administration system/Progress notes
Context	<ul style="list-style-type: none"> <li>Provides information relating to bed block and actual ICU length of stay.</li> <li>Used to calculate ACHS ICU indicator "Bed Block".</li> </ul>
Permissible value	Valid date in DD/MM/YYYY format
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>ICU discharge decision date should be collected in DD/MM/YYYY format.</li> <li>This should be the date which medical staff determine that the patient is ready for discharge from ICU.</li> <li>For patients who are diagnosed as brain dead, the date of certification of brain death should be entered as the date of ICU discharge decision.</li> </ul>

COMET Warnings		
Error Message	Issue	Data Entry Solution
Critical	ICU Discharge Decision Date > ICU Discharge Date	Record cannot be saved. Check dates and update record.

<b>Additional Comments</b>	2019 Revision: Extra notes added for collection method
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## ICU Discharge Decision Time

<b>Definition</b>	Time at which the patient was ready for separation from the intensive care unit for the current episode of ICU care.
<b>Specific Attributes</b>	As determined by medical staff.

Data Element Attributes	
Source	Hospital administration system/Progress notes
Context	<ul style="list-style-type: none"> <li>Provides information relating to bed block and actual ICU length of stay.</li> <li>Used to calculate ACHS ICU indicator "Bed Block".</li> </ul>
Permissible range	0000 – 2359 (24 hr clock)
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>ICU discharge decision time should be collected in 24 hour clock format.</li> <li>This should be the time when medical staff determine that the patient is ready for discharge from ICU.</li> <li>For patients who are diagnosed as brain dead, the time of certification of brain death should be entered as the time of ICU discharge decision.</li> </ul>
Validation rule	This field becomes mandatory if "ICU discharge decision date" has been entered. Information is required to save record.

COMET Warnings		
Error Message	Issue	Data Entry Solution
Critical	ICU Discharge Decision Time > ICU Discharge Time	Record cannot be saved. Check time and update record.

<b>Additional Comments</b>	2019 Revision: Extra notes added for collection method
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## ICU Discharge Date

<b>Definition</b>	Date on which the patient was separated from the intensive care unit for the current episode of ICU care.
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Data Element Attributes	
Source	Hospital administration system/ICU discharge summary/Progress notes
Context	Provides information relating to discharge patterns and ICU length of stay.
Permissible value	Valid date in DD/MM/YYYY format
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>· ICU discharge date should be collected in DD/MM/YYYY format.</li> <li>· For patients discharged alive from ICU, the date on which the patient physically leaves the ICU should be recorded.</li> <li>· For patients who die in ICU, (with the exception of brain dead patients), the date of certification of death should be listed as the discharge date.</li> <li>· For patients who are diagnosed as brain dead, the date of certification of brain death should be entered as the date of ICU discharge decision, not the date of ICU discharge.</li> <li>· If the patient becomes an organ donor, ICU discharge date should be coded as the date when the patient is taken to OT for organ procurement.</li> </ul>

COMET Warnings		
Error Message	Issue	Data Entry Solution
Critical	ICU Discharge Date < ICU Admission Date	Record cannot be saved. Check dates and update record.
	ICU Discharge Date > Hospital Discharge Date	

<b>Additional Comments</b>	2019 Revision: Extra notes added for collection method
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## ICU Discharge Time

<b>Definition</b>	Time at which the patient was separated from the intensive care unit for the current episode of ICU care.
<b>Data Element Attributes</b>	
Source	Hospital administration system/ICU discharge summary/Progress notes
Context	Provides information relating to discharge patterns and ICU length of stay.
Permissible range	0000 – 2359 (24 hr clock)
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>· ICU discharge time should be collected in 24 hour clock format.</li> <li>· For patients discharged alive from ICU, the time at which the patient physically leaves the ICU should be recorded.</li> <li>· For patients who die in ICU (with the exception of brain dead patients), the time of certification of death should be listed discharge time.</li> <li>· For patients who are diagnosed as brain dead, the time of certification of brain death should be entered as the time of ICU discharge decision, not the time of ICU discharge.</li> <li>· If the patient becomes an organ donor, ICU discharge time should be coded as the time when the patient is taken to OT for organ procurement.</li> </ul>
Validation rule	This field becomes mandatory if “ICU discharge date” has been entered. Information is required to save record.
<b>Additional Comments</b>	2019 Revision: Extra notes added for collection method



## ICU Discharge Destination

<b>Definition</b>	Status at separation of person and place to which person was released, as represented by a code.
<b>Specific Attributes</b>	Collected on separation from the intensive care unit.

Data Element Attributes			
Source	Hospital administration system/ICU discharge summary/Progress notes		
Context	Required to stratify data based on outcome on discharge from ICU (transfers, deaths etc).		
Permissible value(s)	COMET Options	APD Export File Code	APD Options
	Died	2	Died
	Home	3	Survived ICU
	Other	3	
	Ward	3	
	Other hospital – ICU	5	Transferred to other ICU
	Other ICU, same hospital	5	
	Other hospital – normal ward	6	Transferred to other hospital
Unknown/Null value	Leave blank		
Collection method(s)	<ul style="list-style-type: none"> <li>ICU discharge destination should be selected from the “Destination on discharge” drop down list.</li> <li>Patients who are transferred from ICU to theatre and then subsequently die during surgery should be coded as “died in ICU”.</li> <li>Patients who self-discharge from ICU should be coded as ‘3’, survived ICU.</li> </ul>		
Validation rule	This field becomes mandatory if “ICU discharge date” has been entered. Information is required to save message.		

## Total Glasgow Coma Score

Definition	The person's total Glasgow Coma Score (GCS).
Specific Attributes	<ul style="list-style-type: none"> <li>For non-sedated patients, enter the lowest GCS during the first 24 hours in ICU.</li> <li>For patients sedated for the first 24 hours in ICU, enter the GCS at the time of/just prior to sedation.</li> </ul>

Data Element Attributes	
Source	ICU observation chart/Progress notes/Transfer, Referral or ED notes/Ambulance report
Context	Used in the calculation of APACHE II score.
Permissible range	3 – 15
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>The total GCS value is automatically calculated by the COMET database when the eye opening/verbal/motor components are entered.</li> <li>The individual GCS components must be recorded to enable APACHE III-J and ANZROD scoring.</li> <li>The lowest GCS during the first 24 hours of the ICU admission should be recorded provided the patient is free from the effects of sedative, paralysing or neuromuscular blocking agents.</li> </ul> <p><b>Important:</b> The pre-sedation GCS may not necessarily be the “lowest” GCS for the patient. The pre-sedation GCS does not need to be from the first 24 hours of ICU admission or 1 hour prior to admission. You should go back as far as necessary to the time at which the patient was sedated and identify the GCS at the time of/just prior to sedation. If you cannot locate the GCS at the time of/just prior to sedation, please leave the GCS fields blank.</p> <ul style="list-style-type: none"> <li>If the total GCS cannot be determined – leave blank. Missing values are treated as normal (no points assigned).</li> <li><b>Paralysed/Sedated patients:</b> the GCS taken <i>at the time of or just prior</i> to sedation should be recorded.</li> <li><b>Post-operative patients:</b> pre-theatre GCS should be recorded.</li> <li><b>Transfer/Retrieval patients:</b> the GCS determined by the medical/paramedical assessment prior to intubation/sedation should be recorded.</li> <li><b>Drug overdose patients:</b> the GCS at the time of/just prior to administration of sedative agents by medical/paramedical/nursing staff should be recorded.</li> <li><b>Seizure patients:</b> the GCS at the time of/just prior to administration of sedative agents by medical/paramedical/nursing staff should be recorded.</li> </ul>
Validation rules	<p>If ICU source = OT/Recovery, and elective surgery = Yes and GCS = 3, check whether patient was sedated.</p> <p>If GCS &lt; 6, check whether patient was sedated.</p>

APACHE II Scoring for GCS	
APACHE II Score	15 minus GCS

APACHE III-J Scoring for GCS if a patient's eyes open spontaneously or to verbal/painful stimulation (GCS eye = 2, 3 or 4)				
Verbal Score Motor Score	Orientated (5)	Confused (4)	Inappropriate words, incomprehensible sounds (3,2)	No response (1)
Obeys commands (6)	0	3	10	15
Localizes (5)	3	8	13	15
Flexion withdrawal/Decorticate flexion (4,3)	3	13	24	24
Extends/ No response (2,1)	3	13	29	29

APACHE III-J Scoring for GCS if a patient's eyes do not open (GCS eye = 1)				
Verbal score Motor score	Orientated (5)	Confused (4)	Inappropriate words, incomprehensible sounds (3,2)	No response (1)
Obeys commands (6)				16
Localizes (5)				16
Flexion withdrawal/Decorticate flexion (4,3)			24	33
Extends/ No response (2,1)			29	48

COMET Warnings		
Error Message	Issue	Data Entry Solution
Warning	GCS component combinations unlikely	Confirm value. Record can be saved.
	GCS is < 6, confirm the GCS was taken prior to administration of sedation	

## Glasgow Coma Score Unavailable Due to Sedation

<b>Definition</b>	An indicator that the patient's GCS was unavailable due to sedation, as represented by a code.
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Data Element Attributes		
Source	ICU observation chart/Progress notes/Transfer, Referral or ED notes/Ambulance report	
Context	Used in the calculation of APACHE III-J scores and ANZROD risk of death calculations.	
Permissible value(s)	COMET Options	APD Export File Code
	Yes, GCS unavailable due to sedation	1
	No, GCS available	0
<i>If coded as 'Yes' – GCS component fields should be left blank</i>		
Collection method(s)	<ul style="list-style-type: none"> <li>This data element can only be coded as 'Yes' if the patient is sedated throughout the first 24 hrs in ICU <b>AND</b> for at least 12 hours prior to ICU admission <b>AND</b> the GCS at the time of sedation (going back as far as needed to the time of sedation) cannot be identified. This should only be selected as a "last resort" if it is not possible to find the GCS prior to intubation and sedation.</li> </ul> <p>In all other situations this field should be coded as 'No'.</p> <p><b>Examples:</b></p> <ul style="list-style-type: none"> <li>Patient is sedated for the first 24 hours in ICU and for the 12 hours prior to admission but the GCS at the time of sedation can be located (going back as far as needed to the time of sedation) – code as 'No' and enter the GCS in the GCS fields.</li> <li>Patient is sedated for first 24 hours in ICU and for less than 12 hours prior to admission – code as 'No'; GCS should be entered if located, otherwise leave GCS fields blank.</li> <li>Patient is not sedated during the first 24 hours of ICU admission – code as 'No'; GCS should be entered if located, otherwise leave GCS fields blank.</li> </ul>	

COMET Warnings		
Error Message	Issue	Data Entry Solution
Warning	GCS = Unavailable due to sedation	Confirm that patient was in fact sedated for 24 hours in ICU and 12 hours prior to ICU admission, and that a pre-sedation GCS cannot be identified. Record can be saved.

<b>Additional Comments</b>	2016 Revision: New data element – GCS_SEDATED
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## Eye Opening Component Glasgow Coma Score

<b>Definition</b>	Eye opening component of the patient's total Glasgow Coma Score (GCS).
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Data Element Attributes		
Source	ICU observation chart/Progress notes/Transfer, Referral or ED notes/Ambulance report	
Context	Used in the calculation of APACHE III-J scores and ANZROD predicted risk of death calculations.	
Permissible value(s)	COMET Options	APD Export File Code
	4 Open spontaneously	4
	3 Open to voice	3
	2 Open to pain	2
	1 Do not open	1
Unknown/Null value	Leave blank	
Collection method(s)	The value entered should be the eye opening component from the patient's total GCS. <b>(Refer to Collection Methods: Total Glasgow Coma Score, page 50).</b>	

COMET Warnings		
Error Message	Issue	Data Entry Solution
Warning	GCS component combination unlikely	Confirm value. Record can be saved.

## Verbal Component Glasgow Coma Score

<b>Definition</b>	Verbal component of the patient's total Glasgow Coma Score (GCS).
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Data Element Attributes		
Source	ICU observation chart/Progress notes/Transfer, Referral or ED notes/Ambulance report	
Context	Used in the calculation of APACHE III-J scores and the ANZROD predicted risk of death calculations.	
Permissible value(s)	COMET Options	APD Export File Code
	5 Orientated	5
	4 Confused	4
	3 Inappropriate Words	3
	2 Incomprehensible Sounds	2
	1 No Response	1
Unknown/Null value	Leave blank	
Collection method(s)	<p>The value entered should be the verbal component from the patient's total GCS. <b>(Refer to Collection Methods: Total Glasgow Coma Score, page 50).</b></p> <p><b>Intubated Non-Sedated Patients</b>            If the patient is intubated but not sedated, please select the verbal GCS score below which best reflects your assumption of the patient's verbal GCS component:</p> <p>5 If the patient appears orientated            3 If the patient's ability to converse in doubt            1 If the patient is generally unresponsive</p>	
Validation rule	If "GCS eye" has been entered, this field becomes mandatory. Information is required to save record.	

COMET Warnings		
Error Message	Issue	Data Entry Solution
Warning	GCS component combination unlikely	Confirm value. Record can be saved.

## Motor Component Glasgow Coma Score

<b>Definition</b>	Motor component of the patient's total Glasgow Coma Score (GCS).
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Data Element Attributes		
Source	ICU observation chart/Progress notes/Transfer, Referral or ED notes/Ambulance report	
Context	Used in the calculation of APACHE III-J scores and ANZROD predicted risk of death calculations.	
Permissible value(s)	COMET Options	APD Export File Code
	6 Obeys commands	6
	5 Localises	5
	4 Flexion-withdrawal	4
	3 Decorticate flexion	3
	2 Extends	2
	1 No response	1
Unknown/Null value	Leave blank	
Collection method(s)	The value entered should be the motor component from the patient's total GCS. <b>(Refer to Collection Methods: Total Glasgow Coma Score, page 50).</b>	
Validation rule	If "GCS eye" has been entered, this field becomes mandatory. Information is required to save record.	

COMET Warnings		
Error Message	Issue	Data Entry Solution
Warning	GCS component combination unlikely	Confirm value. Record can be saved.

## Core Temperature

<b>Definition</b>		The person's core temperature measured in degrees Celsius (°C).
<b>Specific Attributes</b>		2 temperature values are included in the APD minimum dataset.
<b>Field Names</b>	<b>TEMPHI</b>	Highest temp value recorded during the first 24 hours of ICU admission.
	<b>TEMPLO</b>	Lowest temp value recorded during the first 24 hours of ICU admission.

Data Element Attributes	
Source	ICU observation chart
Context	Used in the calculation of APACHE II, APACHE III-J scores and ANZROD predicted risk of death calculations.
Permissible range	20 – 46°C
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>Core temperature sites include oral, tympanic, nasopharyngeal, rectal, oesophageal, pulmonary artery and bladder. (Measurements from a skin sensor or axillary thermometer should only be used if there are no measurements from one of the preferred routes).</li> <li>The highest and lowest core temperature during the first 24 hours in ICU should be collected. If only one temperature value is recorded for the first 24 hours in ICU, it should be entered for the high and low values.</li> <li>If results are not available from the first 24 hours in ICU, then results from 1 hour prior to ICU admission can be recorded.</li> <li>If there are still no results available – leave the temperature fields blank.</li> <li>Missing values are treated as normal (no points assigned).</li> <li>Core temperature needs to be assessed irrespective of whether the patient is under the effects of active cooling.</li> </ul>

APACHE III-J Scoring for Core Temperature							
Core Temperature (°C)	Low Abnormal Range					Normal Range	High Abnormal Range
	< 32.9	33-33.4	33.5-33.9	34-34.9	35-35.9	36-39.9	≥ 40
APACHE III-J Score	20	16	13	8	2	0	4

APACHE II Scoring for Core Temperature								
Core Temperature (°C)	Low Abnormal Range				Normal Range	High Abnormal Range		
	< 30	30-31.9	32-33.9	34-35.9	36-38.4	38.5-38.9	39-40.9	≥ 41
APACHE II Score	4	3	2	1	0	1	3	4



COMET Warnings		
Error Message	Issue	Data Entry Solution
Critical	Value < 20 or > 46	Record cannot be saved. Check the data source. If data is correct, enter the closest value within the permissible range and report issue to ANZICS CORE.
Warning	Value outside normal range: 33 – 41	Confirm value. Record can be saved.
Additional Comments		2016 Revision: Permissible range changed from 25 – 46°C to 20 – 46°C

## Heart Rate

<b>Definition</b>		The person's heart rate (HR) measured in beats per minute (bpm).
<b>Specific Attributes</b>		2 HR values are included in the APD minimum dataset.
<b>Field Names</b>	<b>HRHI</b>	Highest HR value recorded during the first 24 hours of ICU admission.
	<b>HRLO</b>	Lowest HR value recorded during the first 24 hours of ICU admission.

Data Element Attributes	
Source	ICU observation chart/ECG Trace (not pulse rate)
Context	Used in the calculation of APACHE II, APACHE III-J scores and ANZROD predicted risk of death.
Permissible range	1 – 300 bpm
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>· HR refers to the ventricular heart rate.</li> <li>· When there is no underlying intrinsic rate, enter the paced rate.</li> <li>· The highest and lowest HR during the first 24 hours in ICU should be collected.</li> <li>· If only one HR value is recorded for the first 24 hours in ICU, it should be entered for the high and low values.</li> <li>· If results are not available from the first 24 hours in ICU, then results from 1 hour prior to ICU admission can be recorded.</li> <li>· If there are still no results available – leave the HR fields blank.</li> <li>· Missing values are treated as normal (no points assigned).</li> <li>· Patients who suffer a cardio/respiratory arrest or death during the first 24 hours in ICU should not be given a HR = 0. In such cases, and where intermittent recording of physiological values is used, please use values available prior to arrest or death to determine the highest and lowest HR. If a clinical information system with continuous monitoring of physiological values is used, please use values obtained from ICU admission up to one hour before the cardiac arrest.</li> </ul>

APACHE III-J Scoring for Heart Rate (HR)								
HR (bpm)	Low Abnormal Range		Normal Range	High Abnormal Range				
	≤ 39	40-49	50-99	100-109	110-119	120-139	140-154	≥ 155
<b>APACHE III-J Score</b>	8	5	0	1	5	7	13	17

APACHE II Scoring for Heart Rate (HR)							
HR (bpm)	Low Abnormal Range			Normal Range	High Abnormal Range		
	≤ 39	40-54	55-69	70-109	110-139	140-179	≥ 180
<b>APACHE II Score</b>	4	3	2	0	2	3	4

COMET Warnings		
Error Message	Issue	Data Entry Solution
Critical	Value < 1 and > 300	Record cannot be saved. Check the data source. If data is correct, enter the closest value within the permissible range and report issue to ANZICS CORE.
Warning	Value outside normal range: 20 – 180	Confirm value. Record can be saved.

## Respiratory Rate

<b>Definition</b>		The person's respiratory rate (RR) measured in breaths per minute (bpm).
<b>Specific Attributes</b>		2 RR values are included in the APD minimum dataset.
<b>Field Names</b>	<b>RRHI</b>	Highest RR value recorded during the first 24 hours of ICU admission.
	<b>RRLO</b>	Lowest RR value recorded during the first 24 hours of ICU admission.

Data Element Attributes	
Source	ICU observation chart
Context	Used in the calculation of APACHE II and APACHE III-J scores and ANZROD predicted risk of death.
Permissible range	1 – 80 bpm
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>· <b>For Ventilated patients:</b> the RR is the combined total of spontaneous and ventilator/mechanical breaths.</li> <li>· The highest and lowest RR during the first 24 hours in ICU should be collected. Whichever of these produces the highest score (see tables below) is considered the "worst" RR.</li> <li>· If only one RR value is recorded for the first 24 hours in ICU, it should be entered for the high, low and worst values.</li> <li>· If results are not available from the first 24 hours in ICU, then results from 1 hour prior to ICU admission can be recorded.</li> <li>· If there are still no results available – leave the RR fields blank. Missing values are treated as normal (no points assigned).</li> <li>· If there are multiple readings for each lowest and/or highest value (within first 24 hours), select the one with spontaneous breaths. E.g. The lowest RR is 8 for both spontaneous and ventilator assisted breaths, (being recorded within the first 24 hours); record the lowest RR=8 and Inv. Ventilation = No.</li> <li>· Patients who suffer a cardio/respiratory arrest or death during the first 24 hours in ICU should not be given a RR = 0. In such cases, and where intermittent recording of physiological values is used, please use values available prior to arrest or death to determine the highest and lowest RR. If a clinical information system with continuous monitoring of physiological values is used, please use values obtained from ICU admission up to one hour before the cardiac arrest.</li> </ul>

APACHE III-J Scoring for Respiratory Rate (RR)								
RR (bpm)	Low Abnormal Range			Normal Range	High Abnormal Range			
	≤ 5	6-11	12-13	14-24	25-34	35-39	40-49	≥ 50
APACHE III-J Score	17	8	7	0	6	9	11	18

APACHE II Scoring for Respiratory Rate (RR)							
RR (bpm)	Low Abnormal Range			Normal Range	High Abnormal Range		
	≤ 5	6-9	10-11	12-24	25-34	35-49	≥ 50
APACHE II Score	4	2	1	0	1	3	4

COMET Warnings		
Error Message	Issue	Data Entry Solution
Critical	Value < 1 and > 80	Record cannot be saved. Check the data source. If data is correct, enter the closest value within the permissible range and report issue to ANZICS CORE.
Warning	Value outside normal range: 5 – 50	Confirm value. Record can be saved.

## Invasive Ventilation Status for Respiratory Rate (high)

<b>Definition</b>	The invasive ventilation status of a patient.
<b>Specific Attributes</b>	The invasive ventilation status of a patient at the time of the highest respiratory rate (RR) recorded during their first 24 hours in ICU.

Data Element Attributes		
Source	ICU observation chart	
Context	Used in the calculation of APACHE III-J scores and ANZROD predicted risk of death.	
Permissible range	COMET Options	APD Export File Code
	Yes, patient was invasively ventilated at time of highest RR	1
	No, patient was not invasively ventilated at time of highest RR	0
Unknown/Null value	Leave blank	
Collection method(s)	<ul style="list-style-type: none"> <li>The highest respiratory rate should be selected following the instructions on <b>page 60</b>.</li> <li>The invasive ventilation status at the time of the highest respiratory rate should then be recorded.</li> <li>Any form of positive pressure ventilation delivered through an artificial airway such as oral/nasal endo-tracheal tube or tracheostomy is considered invasive ventilation. It includes all modes of mandatory ventilation, spontaneous pressure support ventilation and continuous positive airways pressure (CPAP).</li> <li>For definitions around when ventilation is considered to have started and ended, please see the field "Invasive Ventilation Hours", <b>page 114</b>.</li> </ul>	

COMET Warnings		
Error Message	Issue	Data Entry Solution
Warning	Do not tick if patient had CPAP only at time of highest RR	Confirm value. Record can be saved.

<b>Additional Comments</b>	2016 Revision: New data element – RRHI_VENT
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## Invasive Ventilation Status for Respiratory Rate (low)

<b>Definition</b>	The invasive ventilation status of a patient.
<b>Specific Attributes</b>	The invasive ventilation status of a patient at the time of the lowest respiratory rate (RR) recorded during their first 24 hours in ICU.

Data Element Attributes		
Source	ICU observation chart	
Context	Used in the calculation of APACHE III-J scores and ANZROD predicted risk of death.	
Permissible range	COMET Options	APD Export File Code
	Yes, patient was invasively ventilated at time of lowest RR	1
	No, patient was not invasively ventilated at time of lowest RR	0
Unknown/Null value	N/A	
Collection method(s)	<ul style="list-style-type: none"> <li>The lowest respiratory rate should be selected following the instructions on <b>page 60</b>.</li> <li>The invasive ventilation status at the time of the lowest respiratory rate should then be recorded.</li> <li>Any form of positive pressure ventilation delivered through an artificial airway such as oral/nasal endo-tracheal tube or tracheostomy is considered invasive ventilation. It includes all modes of mandatory ventilation, spontaneous pressure support ventilation and continuous positive airways pressure (CPAP).</li> <li>For definitions around when ventilation is considered to have started and ended, please see the field "Invasive Ventilation Hours", <b>page 114</b>.</li> </ul>	

Error Message	Issue	Data Entry Solution
Warning	Do not tick if patient had CPAP only at time of lowest RR	Confirm value. Record can be saved.

<b>Additional Comments</b>	2016 Revision: New data element – RRLO_VENT
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## Mean Arterial Blood Pressure

<b>Definition</b>		The person's mean arterial blood pressure (MAP) measured in millimeters of mercury (mmHg).
<b>Specific Attributes</b>		2 MAP values are included in the APD minimum dataset.
<b>Field Names</b>	<b>MAPHI</b>	Highest MAP value recorded during the first 24 hours of ICU admission.
	<b>MAPLO</b>	Lowest MAP value recorded during the first 24 hours of ICU admission.

Data Element Attributes	
Source	ICU observation chart
Context	Used in the calculation of APACHE II, APACHE III-J scores and ANZROD predicted risk of death.
Permissible range	1 – 300 mmHg
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>The MAP is obtained from an arterial line transducer (invasive) or other electronic device (non-invasive) e.g. Dinamap. Ideally the highest and lowest MAP should be collected from the same source.</li> <li>Within COMET the MAP can be entered directly <b>OR</b> the MAP will be auto-calculated from the highest/lowest SBP and accompanying DBP values.</li> </ul> <p><b><u>If allowing COMET to calculate the MAP:</u></b></p> <ul style="list-style-type: none"> <li>Follow the SBP and DBP instructions on <b>pages 66 and 67</b>.</li> </ul> <p><b><u>If entering the MAP directly:</u></b></p> <ul style="list-style-type: none"> <li>The highest and lowest MAP during the first 24 hours in ICU should be collected. If MAP is calculated from systolic and diastolic values, use the high and low systolic values and corresponding diastolic and MAP values for submission. MAP is calculated as <math>(\text{SBP} - \text{DBP})/3 + \text{DBP}</math>.</li> <li>If only one MAP value is recorded for the first 24 hours in ICU, it should be entered for the high and low values.</li> <li>If results are not available from the first 24 hours in ICU, then results from 1 hour prior to ICU admission can be recorded.</li> <li>If there are still no results available – leave the MAP fields blank.</li> <li>Missing values are treated as normal (no points assigned).</li> <li>Patients who suffer a cardio/respiratory arrest or death during the first 24 hours in ICU should not be given a MAP = 0. In such cases, and where intermittent recording of physiological values is used, please use values available prior to arrest or death to determine the highest and lowest MAP. If a clinical information system with continuous monitoring of physiological values is used, please use values obtained from ICU admission up to one hour before the cardiac arrest.</li> </ul>

APACHE III-J Scoring for Mean Arterial Blood Pressure (MAP)									
MAP (mmHg)	Low Abnormal Range				Normal Range	High Abnormal Range			
	≤ 39	40-59	60-69	70-79	80-99	100-119	120-129	130-139	≥ 140
<b>APACHE III-J score</b>	23	15	7	6	0	4	7	9	10



APACHE II Scoring for Mean Arterial Blood Pressure (MAP)						
MAP (mmHg)	Low Abnormal Range		Normal Range	High Abnormal Range		
	≤ 49	50-69		110-129	130-159	≥ 160
APACHE II score	4	2	0	2	3	4

COMET Warnings		
Error Message	Issue	Data Entry Solution
Critical	Value < 1 and > 300	Record cannot be saved. Check the data source. If data is correct, enter the closest value within the permissible range and report issue to ANZICS CORE.
Warning	Value outside normal range: 20 – 150	Confirm value. Record can be saved.

Additional Comments	2016 Revision: Permissible range changed from 1 – 250 mmHg to 1 – 300 mmHg 2019 Revision: Extra notes added for data collection.
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## Blood Pressure – Systolic

<b>Definition</b>		The person's systolic blood pressure (SBP) measured in millimetres of mercury (mmHg).
<b>Specific Attributes</b>		2 SBP values are included in the APD minimum dataset.
<b>Field Names</b>	<b>SYSTOLICHI</b>	Highest SBP value recorded during the first 24 hours of ICU admission.
	<b>SYSTOLICLO</b>	Lowest SBP value recorded during the first 24 hours of ICU admission.

Data Element Attributes	
Source	ICU observation chart
Context	Used to calculate the Mean Arterial Pressure (MAP) if no direct measure is available.
Permissible range	1– 350 mmHg
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>· The highest and lowest SBP during the first 24 hours in ICU should be collected.</li> <li>· If only one SBP value is recorded for the first 24 hours in ICU, it should be entered for the high and low values.</li> <li>· If results are not available from the first 24 hours in ICU, then results from 1 hour prior to ICU admission can be recorded.</li> <li>· If there are still no results available – leave the SBP fields blank.</li> <li>· Missing values are treated as normal (no points aligned).</li> <li>· Patients who suffer a cardio/respiratory arrest or death during the first 24 hours in ICU should not be given a SBP = 0. In such cases, and where intermittent recording of physiological values is used, please use values available prior to arrest or death to determine the highest and lowest SBP. If a clinical information system with continuous monitoring of physiological values is used, please use values obtained from ICU admission up to one hour before the cardiac arrest.</li> </ul>

COMET Warnings		
Error Message	Issue	Data Entry Solution
Critical	Value <1 and >350	Record cannot be saved. Check the data source. If data is correct, enter the closest value within the permissible range and report issue to ANZICS CORE.
Warning	Value outside normal range: 60 – 250	Confirm value. Record can be saved.

<b>Additional Comments</b>	2016 Revision: Permissible range changed from 1 – 300 mmHg to 1 – 350 mmHg
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## Blood Pressure – Diastolic

<b>Definition</b>		The person's diastolic blood pressure (DBP) measured in millimetres of mercury (mmHg).
<b>Specific Attributes</b>		2 DBP values are included in the APD minimum dataset.
<b>Field Names</b>	<b>DIASTOLICHI</b>	The DBP value that accompanies the highest SBP value recorded during the first 24 hours of ICU admission.
	<b>DIASTOLICLO</b>	The DBP value with accompanies the lowest SBP value recorded during the first 24 hours of ICU admission.

Data Element Attributes	
Source	ICU observation chart
Context	Used to calculate the Mean Arterial Pressure (MAP) if no direct measure is available.
Permissible range	1 – 250 mmHg
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>The DBP values are those that accompany/pair with the highest and lowest SBP values (the highest and lowest DBP values are irrelevant).</li> <li>If only one SBP reading is recorded in the first 24 hours in ICU, the DBP value accompanying that SBP should be entered as both the high and low values.</li> <li>If results are not available from the first 24 hours in ICU, then results from 1 hour prior to ICU admission can be recorded.</li> <li>If there are still no results available – leave the DBP fields blank.</li> </ul>

COMET Warnings		
Error Message	Issue	Data Entry Solution
Critical	Value <1 and >250	Record cannot be saved. Check the data source. If data is correct, enter the closest value within the permissible range and report issue to ANZICS CORE.
Warning	Value outside normal range: 1 – 180	Confirm value. Record can be saved.

<b>Additional Comments</b>	2016 Revision: Permissible range changed from 1 – 200mmHg to 1 – 250mmHg
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## Sodium

<b>Definition</b>		The person's sodium concentration (Na) measured in mmol/L.
<b>Specific Attributes</b>		2 Na values are included in the APD minimum dataset.
<b>Field Names</b>	<b>NAHI</b>	Highest Na value recorded during the first 24 hours of ICU admission.
	<b>NALO</b>	Lowest Na value recorded during the first 24 hours of ICU admission.

Data Element Attributes	
Source	Pathology results
Context	Used in the calculation of APACHE II, APACHE III-J scores and ANZROD predicted risk of death.
Permissible range	100 – 215 mmol/L
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>Na readings can be taken from serum or plasma samples.</li> <li>Venous blood results can be used in the absence of arterial blood results.</li> <li>The highest and lowest Na during the first 24 hours in ICU should be collected.</li> <li>If only one Na value is recorded for the first 24 hours in ICU, it should be entered for the high and low values.</li> <li>If results are not available from the first 24 hours in ICU, then results from 1 hour prior to ICU admission can be recorded.</li> <li>If there are still no results available – leave the Na fields blank.</li> <li>Missing values are treated as normal (no points assigned).</li> </ul>

APACHE III-J Scoring for Sodium (Na)				
Na (mmol/L)	Low Abnormal Range		Normal Range	High Abnormal Range
	≤ 119	120-134	135-154	≥ 155
<b>APACHE III-J Score</b>	3	2	0	4

APACHE II Scoring for Sodium (Na)								
Na (mmol/L)	Low Abnormal Range			Normal Range	High Abnormal Range			
	≤ 110	111-119	120-129	130-149	150-154	155-159	160-179	≥ 180
<b>Score</b>	4	3	2	0	1	2	3	4

COMET Warnings		
Error Message	Issue	Data Entry Solution
Critical	Value < 100 and > 215	Record cannot be saved. Check the data source. If data is correct, enter the closest value within the permissible range and report issue to ANZICS CORE.
Warning	Value outside normal range: 110 – 170	Confirm value. Record can be saved.

## Potassium

<b>Definition</b>		The person's potassium concentration (K) measured in mmol/L.
<b>Specific Attributes</b>		2 K values are included in the APD minimum dataset.
<b>Field Names</b>	<b>KHI</b>	Highest K value recorded during the first 24 hours of ICU admission.
	<b>KLO</b>	Lowest K value recorded during the first 24 hours of ICU admission.

Data Element Attributes	
Source	Pathology results
Context	Used in the calculation of APACHE II scoring.
Permissible range	0.05 – 15 mmol/L
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>· K readings can be taken from serum or plasma samples.</li> <li>· Venous blood results can be used in the absence of arterial blood results.</li> <li>· The highest and lowest K during the first 24 hours in ICU should be collected.</li> <li>· If only one K value is recorded for the first 24 hours in ICU, it should be entered for the high and low values.</li> <li>· If results are not available from the first 24 hours in ICU, then results from 1 hour prior to ICU admission can be recorded.</li> <li>· If there are still no results available – leave the K fields blank.</li> <li>· Missing values are treated as normal (no points assigned).</li> </ul>

APACHE II Scoring for Potassium (K)							
K (mmol/L)	Low Abnormal Range			Normal Range	High Abnormal Range		
	< 2.5	2.5-2.9	3-3.4	3.5-5.4	5.5-5.9	6-6.9	≥ 7
<b>APACHE II Score</b>	4	2	1	0	1	3	4

COMET Warnings		
Error Message	Issue	Data Entry Solution
Critical	Value < 0.05 and > 15	Record cannot be saved. Check the data source. If data is correct, enter the closest value within the permissible range and report issue to ANZICS CORE.
Warning	Value outside normal range: 2 – 7	Confirm value. Record can be saved.

<b>Additional Comments</b>	2016 Revision: Permissible range changed from 0.05 – 12 mmol/L to 0.05 – 15 mmol/L
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## Bicarbonate

<b>Definition</b>		The person's bicarbonate level ( $\text{HCO}_3$ ) measured in mmol/L.
<b>Specific Attributes</b>		2 $\text{HCO}_3$ values are included in the APD minimum dataset.
<b>Field Names</b>	<b>HCO3HI</b>	Highest $\text{HCO}_3$ value recorded during the first 24 hours of ICU admission.
	<b>HCO3LO</b>	Lowest $\text{HCO}_3$ value recorded during the first 24 hours of ICU admission.

Data Element Attributes	
Source	Pathology results
Context	The highest scoring $\text{HCO}_3$ value is used in the calculation of the APACHE II score when no arterial blood gas (ABG) and pH results are available.
Permissible range	1 – 80 mmol/L
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>· <math>\text{HCO}_3</math> readings can be taken from serum or plasma samples.</li> <li>· Venous blood results can be used in the absence of arterial blood results.</li> <li>· <math>\text{HCO}_3</math> readings should not be taken from ABG results, unless no other source of <math>\text{HCO}_3</math> readings are available.</li> <li>· The highest and lowest <math>\text{HCO}_3</math> during the first 24 hours in ICU should be collected.</li> <li>· If only one <math>\text{HCO}_3</math> value is recorded for the first 24 hours in ICU, it should be entered for the high and low values.</li> <li>· If results are not available from the first 24 hours in ICU, then results from 1 hour prior to ICU admission can be recorded.</li> <li>· If there are still no results available – leave the <math>\text{HCO}_3</math> fields blank.</li> <li>· Missing values are treated as normal (no points assigned).</li> </ul>

APACHE II Scoring for Bicarbonate ( $\text{HCO}_3$ )							
$\text{HCO}_3$ (mmol/L)	Low Abnormal Range			Normal Range	High Abnormal Range		
	< 15	15-17.9	18-21.9	22-31.9	32-40.9	41-51.9	≥ 52
<b>APACHE II Score</b>	4	3	2	0	1	3	4

COMET Warnings		
Error Message	Issue	Data Entry Solution
Critical	Value < 1 and > 80	Record cannot be saved. Check the data source. If data is correct, enter the closest value within the permissible range and report issue to ANZICS CORE.
Warning	Value outside normal range: 10 – 40	Confirm value. Record can be saved.

<b>Additional Comments</b>	2016 Revision: Permissible range changed from 2 – 60 mmol/L to 1 – 60 mmol/L. 2019 Revision: Permissible range changed from 1 – 60 mmol/L to 1 – 80 mmol/L.
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## Creatinine

<b>Definition</b>		The person's creatinine concentration measured in $\mu\text{mol/L}$ .
<b>Specific Attributes</b>		2 creatinine values are included in the APD minimum dataset.
<b>Field Names</b>	<b>CREATHI</b>	Highest creatinine value recorded during the first 24 hours of ICU admission.
	<b>CREATLO</b>	Lowest creatinine value recorded during the first 24 hours of ICU admission.

Data Element Attributes	
Source	Pathology results
Context	Used in the calculation of APACHE II, APACHE III-J scores and ANZROD predicted risk of death.
Permissible range	10 – 2999 $\mu\text{mol/L}$
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>· Creatinine readings can be taken from serum or plasma samples.</li> <li>· Venous blood results can be used in the absence of arterial blood results.</li> <li>· The highest and lowest creatinine during the first 24 hours in ICU should be collected.</li> <li>· If only one creatinine value is recorded for the first 24 hours in ICU, it should be entered for the high and low values.</li> <li>· If results are not available from the first 24 hours in ICU, then results from 1 hour prior to ICU admission can be recorded.</li> <li>· If there are still no results available – leave the creatinine fields blank.</li> <li>· Missing values are treated as normal (no points assigned).</li> </ul>

APACHE III-J Scoring for Creatinine						
Creatinine ( $\mu\text{mol/L}$ )	With acute renal failure		Without acute renal failure			
	$\geq 0-132$	$\geq 133$	$< 44$	44-132	133-171	$\geq 172$
APACHE III-J Score	0	10	3	0	4	7

APACHE II Scoring for Creatinine					
Creatinine ( $\mu\text{mol/L}$ )	Low Abnormal Value	Normal Range	High Abnormal Value		
	$< 53$	53-132	133-176	177-309	$\geq 310$
APACHE II Score	2	0	2	3	4

**Note:** Creatinine points are doubled for APACHE II if the patient has acute renal failure (ARF).  
 ARF is defined as a 24 hour urine output  $<410\text{ml}$ , creatinine  $\geq 133 \mu\text{mol/L}$  and no chronic dialysis.

COMET Warnings		
Error Message	Issue	Data Entry Solution
Critical	Value < 10 and > 2999	Record cannot be saved. Check the data source. If data is correct, enter the closest value within the permissible range and report issue to ANZICS CORE.
Warning	Value outside normal range: 20 – 1000	Confirm value. Record can be saved.

<b>Additional Comments</b>	2019 Revision: Permissible range changed from 10 – 2500 µmol/L to 10 – 2999 µmol/L
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## Urea

<b>Definition</b>	The person's urea concentration measured in mmol/L.
<b>Specific Attributes</b>	The highest urea concentration recorded during the first 24 hours of ICU admission.

Data Element Attributes	
Source	Pathology results
Context	Used in the calculation of APACHE III-J scores and ANZROD predicted risk of death.
Permissible range	0.5 – 100 mmol/L
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>· Urea readings can be taken from serum or plasma samples.</li> <li>· Venous blood results can be used in the absence of arterial blood results.</li> <li>· The highest urea concentration recorded during the first 24 hours in ICU should be collected.</li> <li>· If results are not available from the first 24 hours in ICU, then results from 1 hour prior to ICU admission can be recorded.</li> <li>· If there are still no results available – leave the urea field blank.</li> <li>· Missing values are treated as normal (no points assigned).</li> </ul>

APACHE III-J Scoring for Urea					
Urea (mmol/L)	Normal Range	High Abnormal Range			
	< 6.2	6.2 -7.1	7.2 – 14.3	14.4 – 28.5	≥ 28.6
APACHE III-J Score	0	2	7	11	12

COMET Warnings		
Error Message	Issue	Data Entry Solution
Critical	Value < 0.5 and > 100	Record cannot be saved. Check the data source. If data is correct, enter the closest value within the permissible range and report issue to ANZICS CORE.
Warning	Value outside normal range: 2.5 – 19.9	Confirm value. Record can be saved.

## Albumin

<b>Definition</b>		The person's albumin concentration measured in g/L.
<b>Specific Attributes</b>		2 albumin values are included in the APD minimum dataset.
<b>Field Names</b>	<b>ALBUMHI</b>	Highest albumin concentration recorded during the first 24 hours of ICU admission.
	<b>ALBUMLO</b>	Lowest albumin concentration recorded during the first 24 hours of ICU admission.

Data Element Attributes	
Source	Pathology results
Context	Used in the calculation of APACHE III-J scores and ANZROD predicted risk of death.
Permissible range	5 – 65 g/L
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>Albumin readings must be taken from serum samples.</li> <li>Venous blood results can be used in the absence of arterial blood results.</li> <li>The highest and lowest albumin concentration recorded during the first 24 hours in ICU should be collected.</li> <li>If results are not available from the first 24 hours in ICU, then results from 1 hour prior to ICU admission can be recorded.</li> <li>If there are still no results available – leave the albumin field blank.</li> <li>Missing values are treated as normal (no points assigned).</li> </ul>

APACHE III-J Scoring for Albumin				
Albumin (g/L)	Low Abnormal Range		Normal Range	High Abnormal Range
	≤ 19	20-24	25-44	≥ 45
<b>APACHE III-J Score</b>	11	6	0	4

COMET Warnings		
Error Message	Issue	Data Entry Solution
Critical	Value < 5 and > 65	Record cannot be saved. Check the data source. If data is correct, enter the closest value within the permissible range and report issue to ANZICS CORE.
Warning	Value outside normal range: 15 – 50	Confirm value. Record can be saved.

<b>Additional Comments</b>	2016 Revision: Additional field collected – Albumin High – ALBUMHI
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## Bilirubin

<b>Definition</b>	The person's bilirubin concentration measured in $\mu\text{mol/L}$ .
<b>Specific Attributes</b>	The highest bilirubin concentration recorded during the first 24 hours of ICU admission.

Data Element Attributes	
Source	Pathology results
Context	Used in the calculation of APACHE III-J scores and ANZROD predicted risk of death.
Permissible range	1 – 1200 $\mu\text{mol/L}$
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>· Bilirubin readings can be taken from serum or plasma samples.</li> <li>· Venous blood results can be used in the absence of arterial blood results.</li> <li>· The highest bilirubin concentration recorded during the first 24 hours in ICU should be collected.</li> <li>· If results are not available from the first 24 hours in ICU, then results from 1 hour prior to ICU admission can be recorded.</li> <li>· If there are still no results available – leave the bilirubin field blank.</li> <li>· Missing values are treated as normal (no points assigned).</li> </ul>

APACHE III-J Scoring for Bilirubin					
Bilirubin ( $\mu\text{mol/L}$ )	Normal Range	High Abnormal Range			
	< 35	35-51	52-85	86-135	$\geq 136$
APACHE III-J Score	0	5	6	8	16

COMET Warnings		
Error Message	Issue	Data Entry Solution
Critical	Value < 1 and > 1200	Record cannot be saved. Check the data source. If data is correct, enter the closest value within the permissible range and report issue to ANZICS CORE.
Warning	Value outside normal range: >100	Confirm value. Record can be saved.

<b>Additional Comments</b>	2016 Revision: Permissible range changed from 5 – 1200 $\mu\text{mol/L}$ to 1 – 1200 $\mu\text{mol/L}$
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## Glucose

<b>Definition</b>		The person's glucose concentration measured in mmol/L.
<b>Specific Attributes</b>		2 glucose values are included in the APD minimum dataset.
<b>Field Names</b>	<b>GLUCHI</b>	Highest glucose value recorded during the first 24 hours of ICU admission.
	<b>GLUCLO</b>	Lowest glucose value recorded during the first 24 hours of ICU admission.

Data Element Attributes	
Source	Pathology results/ICU observation chart
Context	Used in the calculation of APACHE II, APACHE III-J scores and ANZROD predicted risk of death.
Permissible range	0 – 90 mmol/L
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>· Glucose readings can be taken from serum or plasma samples.</li> <li>· Venous blood results can be used in the absence of arterial blood results.</li> <li>· Finger prick results may be used when no other results are available.</li> <li>· The highest and lowest glucose during the first 24 hours in ICU should be collected.</li> <li>· If only one glucose value is recorded for the first 24 hours in ICU, it should be entered for the high and low values.</li> <li>· If results are not available from the first 24 hours in ICU, then results from 1 hour prior to ICU admission can be recorded.</li> <li>· If there are still no results available – leave the glucose fields blank.</li> <li>· Missing values are treated as normal (no points assigned).</li> </ul>

APACHE III-J Scoring for Glucose					
Glucose (mmol/L)	Low Abnormal Range		Normal Range	High Abnormal Range	
	< 2.2	2.2-3.3	3.4-11.1	11.2-19.3	≥ 19.4
APACHE III-J Score	8	9	0	3	5

COMET Warnings		
Error Message	Issue	Data Entry Solution
Critical	Value < 0 and > 90	Record cannot be saved. Check the data source. If data is correct, enter the closest value within the permissible range and report issue to ANZICS CORE.
Warning	Value outside normal range: 2 – 40	Confirm value. Record can be saved.

<b>Additional Comments</b>	2016 Revision: Permissible range changed from 0.1 – 90 mmol/L to 0 – 90 mmol/L
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## Urine Output for 24 Hours

<b>Definition</b>	The person's urine output measured in millilitres (ml).
<b>Specific Attributes</b>	Total urine output for the first 24 hours of ICU admission.

Data Element Attributes	
Source	ICU observation chart/Fluid balance sheet
Context	<ul style="list-style-type: none"> <li>Used in the calculation of APACHE III-J scores and ANZROD predicted risk of death.</li> <li>Urine output forms part of the definition for acute renal failure (ARF). ARF influences the weighting of points allocated to the creatinine value in the APACHE II and APACHE III-J scoring systems.</li> </ul>
Permissible range	0 – 30,000 ml
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>The urine output total is for 24 hours. If urine collection is incomplete or patient was in ICU for less than 24 hours, extrapolate volume to 24 hours (e.g. 1700 mls collected in 19 hrs: <math>1700/19 \times 24 =</math> urine output)</li> <li>Only include urine in total (not nasogastric drains etc).</li> <li>Only include urine collected during the first 24 hours of ICU admission (do not include volumes from ED, OT).</li> <li>If urine output is not being collected (patient is free-voiding), leave blank and it will be treated as normal.</li> <li>If patient is anuric, a volume of 0 should be entered.</li> </ul>

APACHE III-J Scoring for Urine Output							
Urine Output (ml)	Low Abnormal Range					Normal Range	High Abnormal Range
	≤ 399	400-599	600-899	900-1499	1500-1999	2000-3999	≥ 4000
<b>APACHE III-J Score</b>	15	8	7	5	4	0	1

COMET Warnings		
Error Message	Issue	Data Entry Solution
Critical	Value < 0 and > 30,000	Record cannot be saved. Check the data source. If data is correct, enter the closest value within the permissible range and report issue to ANZICS CORE.
Warning	Value outside normal range: 500 – 10,000	Confirm value. Record can be saved.

## Haematocrit

<b>Definition</b>		The person's haematocrit (Hct), expressed as a fraction.
<b>Specific Attributes</b>		2 Hct values are included in the APD minimum dataset.
<b>Field Names</b>	<b>HCTHI</b>	Highest Hct value recorded during the first 24 hours of ICU admission.
	<b>HCTLO</b>	Lowest Hct value recorded during the first 24 hours of ICU admission.

Data Element Attributes	
Source	Haematology/Pathology results
Context	Used in the calculation of APACHE II, APACHE III-J scores and ANZROD predicted risk of death.
Permissible range	5 – 75 % <i>Note: For submission to the APD, Hct is exported as a fraction with a permissible range of 0.05 – 0.75. Non-COMET sites may need to collect Hct as a fraction.</i>
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>The highest and lowest Hct during the first 24 hours in ICU should be collected.</li> <li>Venous blood results can be used in the absence of arterial blood results.</li> <li>If only one Hct value is recorded for the first 24 hours in ICU, it should be entered for the high and low value.</li> <li>If results are not available from the first 24 hours in ICU, then results from 1 hour prior to ICU admission can be recorded.</li> <li>If there are still no results available – leave the Hct fields blank.</li> <li>Missing values are treated as normal (no points assigned).</li> </ul>

APACHE III-J Scoring for Haematocrit (Hct)			
Hct (fraction)	Low Abnormal Range	Normal Range	High Abnormal Range
	< 0.41	0.41-0.49	≥ 0.50
APACHE III-J Score	3	0	3

APACHE II Scoring for Haematocrit (Hct)						
Hct (fraction)	Low Abnormal Range		Normal Range	High Abnormal Range		
	< 0.20	0.20-0.29	0.30-0.45	0.46-0.49	0.50-0.59	≥ 0.6
APACHE II Score	4	2	0	1	2	4

COMET Warnings		
Error Message	Issue	Data Entry Solution
Critical	Value < 5 and > 75 (fraction value: < 0.05 and > 0.75)	Record cannot be saved. Check the data source. If data is correct, enter the closest value within the permissible range.
Warning	Value outside normal range: 10 – 46 (fraction value: 0.1 – 0.46)	Confirm value. Record can be saved.

## White Blood Cell Count

<b>Definition</b>		The person's white blood cell count (WCC) measured in $10^9/L$ .
<b>Specific Attributes</b>		2 WCC values are included in the APD minimum dataset.
<b>Field Names</b>	<b>WCCHI</b>	Highest WCC value recorded during the first 24 hours of ICU admission.
	<b>WCCLO</b>	Lowest WCC value recorded during the first 24 hours of ICU admission.

Data Element Attributes	
Source	Haematology/Pathology results
Context	Used in the calculation of APACHE II, APACHE III-J scores and ANZROD predicted risk of death.
Permissible range	0 – 300 x $10^9/L$
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>The highest and lowest WCC during the first 24 hours in ICU should be collected.</li> <li>Venous blood results can be used in the absence of arterial blood results.</li> <li>If only one WCC value is recorded for the first 24 hours in ICU, it should be entered for the high and low value.</li> <li>If results are not available from the first 24 hours in ICU, then results from 1 hour prior to ICU admission can be recorded.</li> <li>If there are still no results available – leave the WCC fields blank.</li> <li>Missing values are treated as normal (no points assigned).</li> </ul>

APACHE III-J Scoring for White Cell Count (WCC)					
WCC (x $10^9/L$ )	Low Abnormal Range		Normal Range	High Abnormal Range	
	< 1	1-2.9	3-19.9	20-24.9	≥ 25
APACHE III-J score	19	5	0	1	5

APACHE II Scoring for White Cell Count (WCC)						
WCC (x $10^9/L$ )	Low Abnormal Range		Normal Range	High Abnormal Range		
	< 1	1-2.9	3-14.9	15-19.9	20-39.9	≥ 40
APACHE II Score	4	2	0	1	2	4

COMET Warnings		
Error Message	Issue	Data Entry Solution
Critical	Value < 0 and > 300 x $10^9/L$	Record cannot be saved. Check the data source. If data is correct, enter the closest value within the permissible range and report issue to ANZICS CORE.
Warning	Value outside normal range: 1 – 30 x $10^9/L$	Confirm value. Record can be saved.

## Haemoglobin

<b>Definition</b>		The person's haemoglobin concentration (Hb) measured in g/dL.
<b>Specific attributes</b>		2 haemoglobin values are included in the APD minimum dataset.
<b>Field names</b>	<b>HMGNHI</b>	Highest haemoglobin value recorded during the first 24 hours of ICU admission.
	<b>HMGNLO</b>	Lowest haemoglobin value recorded during the first 24 hours of ICU admission.

Data Element Attributes	
Source	Haematology/Pathology Results
Context	Important epidemiological information
Permissible range	1 – 25 g/dL
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>· The highest and lowest haemoglobin values during the first 24 hours in ICU should be collected.</li> <li>· Venous blood results can be used in the absence of arterial blood results.</li> <li>· If only one haemoglobin value is recorded for the first 24 hours in ICU, it should be entered for both the high and low value.</li> <li>· If results are not available from the first 24 hours in ICU, then results from 1 hour prior to ICU admission can be recorded.</li> <li>· If there are still no results available – leave the haemoglobin fields blank.</li> </ul>

COMET Warnings		
Error Message	Issue	Data Entry Solution
Critical	Value < 1 and > 25	Record cannot be saved. Check the data source. If data is correct, enter the closest value within the permissible range and report issue to ANZICS CORE.
Warning	Value outside normal range: 5 – 18	Confirm value. Record can be saved.



## Platelets

<b>Definition</b>		The person's platelet count measured in $10^9/L$ .
<b>Specific attributes</b>		2 platelet count values are included in the APD minimum dataset.
<b>Field names</b>	<b>PLATHI</b>	Highest platelet value recorded during the first 24 hours of ICU admission.
	<b>PLATLO</b>	Lowest platelet value recorded during the first 24 hours of ICU admission.

Data Element Attributes	
Source	Haematology/Pathology Results
Context	Important epidemiological information
Permissible range	0 – 1500 x $10^9/L$
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>· The highest and lowest platelet values during the first 24 hours in ICU should be collected.</li> <li>· Venous blood results can be used in the absence of arterial blood results.</li> <li>· If only one platelet value is recorded for the first 24 hours in ICU, it should be entered for both the high and low value.</li> <li>· If results are not available from the first 24 hours in ICU, then results from 1 hour prior to ICU admission can be recorded.</li> <li>· If there are still no results available – leave the platelet fields blank.</li> </ul>

COMET Warnings		
Error Message	Issue	Data Entry Solution
Critical	Value < 0 or > 1500 x $10^9/L$	Record cannot be saved. Check the data source. If data is correct, enter the closest value within the permissible range and report issue to ANZICS CORE.
Warning	Value outside normal range: 15 – 800 x $10^9/L$	Confirm value. Record can be saved.

## Fraction of Inspired Oxygen: APACHE III-J

<b>Definition</b>	The person's fraction of inspired oxygen (FiO <sub>2</sub> ), expressed as a fraction.
<b>Specific Attributes</b>	The FiO <sub>2</sub> from the arterial blood gas taken during the first 24 hours of the ICU admission that produces the highest score using the APACHE III-J scoring algorithm (table below).

Data Element Attributes	
Source	ICU observation chart/Pathology results/Blood Gas machine printouts
Context	Used in the calculation of APACHE III-J scores and ANZROD predicted risk of death for intubated patients with FiO <sub>2</sub> values ≥0.5.
Permissible range	0.21 – 1.00 (expressed as a fraction not %)
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>· All arterial blood gases (ABGs) taken during the first 24 hours in ICU should be entered into COMET and the highest scoring ABG for ANZROD, APACHE III-J and APACHE II will be determined automatically (venous samples cannot be used).</li> <li>· If results are not available from the first 24 hours in ICU, then results from 1 hour prior to ICU admission can be used.</li> <li>· If there are still no results available set 'ABGs available' to no and leave the ABG fields blank.</li> <li>· Missing values are treated as normal (no points assigned).</li> <li>· The ANZROD and APACHE III-J FiO<sub>2</sub>, paO<sub>2</sub>, paCO<sub>2</sub> and pH values must all come from the same ABG.</li> </ul> <p><b>Help determining FiO<sub>2</sub>:</b></p> <ul style="list-style-type: none"> <li>· For patients with assisted breathing, the FiO<sub>2</sub> is read from the controlled oxygen source e.g. Venturi masks, ventilator and CPAP systems with calibrated oxygen blenders.</li> <li>· For patients breathing unassisted i.e. room air, the FiO<sub>2</sub> is recorded as 0.21.</li> <li>· If a patient is on an uncontrolled oxygen source, the table below allows for the conversion of oxygen flow in L/min to FiO<sub>2</sub>.</li> </ul> <p><b>How the highest scoring ABG is determined:</b></p> <ul style="list-style-type: none"> <li>· All ABGs within the first 24 hours in ICU are considered (if no ABGs were taken during the first 24 hours, values from 1 hour prior to admission can be used).</li> <li>· For ABGs where the patient is intubated and the FiO<sub>2</sub> values are ≥ 0.5, the A-a gradient is used to determine the APACHE III-J score.</li> <li>· For ABGs where the patient is not intubated, or for intubated patients with FiO<sub>2</sub> values &lt; 0.5, the paO<sub>2</sub> value is used to determine the APACHE III-J score.</li> <li>· The ABG with the highest APACHE III-J score is considered the worst APACHE III-J ABG.</li> <li>· The formula used to calculate the A-a gradient is:  <math display="block">A-a \text{ gradient} = (713 \times FiO_2) - PaO_2 - (PaCO_2 / 0.8)</math> </li> </ul> <p><i>Note: This formula does not require correction. All data elements used in the calculation of the A-a gradient must come from the same arterial blood gas sample.</i></p>

Conversion Table of Oxygen Flow (L/min) to FiO <sub>2</sub>									
Oxygen (L/min)	1	2	3	4	5	6	8	15	15 *Reservoir Mask
FiO <sub>2</sub> (% ÷ 100)	0.23	0.25	0.27	0.30	0.35	0.40	0.45	0.50	0.70

*\*Reservoir Mask is a mask fitted with a reservoir bag and a non-rebreathing valve*

APACHE III-J Scoring for Arterial Blood Gases (ABGs)									
ABG	Patient not intubated, or intubated and FiO <sub>2</sub> < 0.5 – use paO <sub>2</sub>				Patient intubated and FiO <sub>2</sub> ≥ 0.5 – use A-a gradient				
	paO <sub>2</sub>				A-a gradient				
	≤ 49	50-69	70-79	≥ 80	< 100	100-249	250-349	350-499	≥ 500
APACHE III-J Score	15	5	2	0	0	7	9	11	14

COMET Warnings		
Error Message	Issue	Data Entry Solution
Critical	Value < 0.21 or > 1	Record cannot be saved. Check the data source.

Additional Comments	2016 Review: Change in formula to the A-a gradient – previously A-a gradient = (713 x FiO <sub>2</sub> ) – PaO <sub>2</sub> – PaCO <sub>2</sub>
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## Partial Pressure of Oxygen: APACHE III-J

<b>Definition</b>	The person's partial pressure of oxygen (paO <sub>2</sub> ), measured in millimetres of mercury (mmHg).
<b>Specific Attributes</b>	The paO <sub>2</sub> from the arterial blood gas taken during the first 24 hours of the ICU admission that produces the highest score using the APACHE III-J scoring algorithm ( <b>Refer to page 82 and 83</b> ).

Data Element Attributes	
Source	ICU observation chart/Pathology results/Blood Gas machine printouts
Context	Used in the calculation of APACHE III-J scores and ANZROD predicted risk of death
Permissible range	15 – 720 mmHg
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>· Enter all arterial blood gases (ABGs) taken during the first 24 hours in ICU into COMET, and the paO<sub>2</sub> from the highest scoring ABG for APACHE III-J will be determined automatically (venous samples cannot be used).</li> <li>· If results are not available from the first 24 hours in ICU, then results from 1 hour prior to ICU admission can be used.</li> <li>· If there are still no results available – leave the ABG fields blank.</li> <li>· Missing values are treated as normal (no points assigned).</li> <li>· The APACHE III-J FiO<sub>2</sub>, paO<sub>2</sub>, paCO<sub>2</sub> and pH values must come from the same ABG.</li> </ul>

### APACHE III-J Scoring for Arterial Blood Gases (ABGs)

See the FiO<sub>2</sub> (APACHE III-J) data element on **page 82 and 83**.

COMET Warnings		
Error Message	Issue	Data Entry Solution
Critical	Value < 15 and > 720	Record cannot be saved. Check the data source. If data is correct, enter the closest value within the permissible range.
Warning	Value outside normal range: 40 – 300	Confirm value. Record can be saved.

## Partial Pressure of Carbon Dioxide using Worst Oxygenation: APACHE III-J

<b>Definition</b>	The person's partial pressure of carbon dioxide (paCO <sub>2</sub> ), measured in millimetres of mercury (mmHg).
<b>Specific Attributes</b>	The paCO <sub>2</sub> from the arterial blood gas taken during the first 24 hours of the ICU admission that produces the highest score using the APACHE III-J scoring algorithm ( <b>Refer to page 82 and 83</b> ).

Data Element Attributes	
Source	ICU observation chart/Pathology results/Blood Gas machine printouts
Context	Used in the calculation of APACHE III-J scores and ANZROD predicted risk of death for intubated patients with FiO <sub>2</sub> values ≥0.5.
Permissible range	5 – 250 mmHg
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>· All arterial blood gases (ABGs) taken during the first 24 hours in ICU should be entered into COMET, and the paCO<sub>2</sub> from the highest scoring ABG for ANZROD, APACHE III-J and APACHE II will be determined automatically (venous samples cannot be used).</li> <li>· If results are not available from the first 24 hours in ICU, then results from 1 hour prior to ICU admission can be used.</li> <li>· If there are still no results available set 'ABGs available' to no and leave the ABG fields blank.</li> <li>· Missing values are treated as normal (no points assigned).</li> <li>· The APACHE III-J FiO<sub>2</sub>, paO<sub>2</sub>, paCO<sub>2</sub> and pH values must all come from the same ABG.</li> </ul>

### APACHE III-J Scoring for Arterial Blood Gases (ABGs)

See the FiO<sub>2</sub> (APACHE III-J) data element on **page 82 and 83**.

COMET Warnings		
Error Message	Issue	Data Entry Solution
Critical	Value < 5 and > 250	Record cannot be saved. Check the data source. If data is correct, enter the closest value within the permissible range and report issue to ANZICS CORE.
Warning	Value outside normal range: 25 – 100	Confirm value. Record can be saved.

## pH: APACHE III-J

<b>Definition</b>	The person's arterial pH.
<b>Specific Attributes</b>	The pH from the arterial blood gas taken during the first 24 hours of the ICU admission that produces the highest score using the APACHE III-J oxygenation scoring algorithm ( <b>Refer to page 82 and 83</b> ).

Data Element Attributes	
Source	ICU observation chart/Pathology results/Blood Gas machine printouts
Context	Used in the calculation of APACHE III-J scores and ANZROD predicted risk of death
Permissible range	6.3 – 8.5
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>· All arterial blood gases (ABGs) taken during the first 24 hours in ICU should be entered into COMET, and the pH from the highest scoring ABG for APACHE III-J will be determined automatically (venous samples cannot be used).</li> <li>· If results are not available from the first 24 hours in ICU, then results from 1 hour prior to ICU admission can be used.</li> <li>· If there are still no results available – leave the ABG fields blank.</li> <li>· Missing values are treated as normal (no points assigned).</li> <li>· The APACHE III-J FiO<sub>2</sub>, paO<sub>2</sub>, paCO<sub>2</sub> and pH values must all come from the same ABG.</li> </ul>

APACHE III-J Scoring for Acid-base disturbance (pH/paCO <sub>2</sub> combination)									
<div>PaCO<sub>2</sub></div> <div>pH</div>	≤25	25-<30	30-<35	35-<40	40-<45	45-<50	50-<55	55-<60	≥60
<7.15	12						4		
7.15 - <7.2									
7.20 - <7.25	9		6		3		2		
7.25 - <7.30									
7.30 - <7.35			5		0			1	
7.35 - <7.40									
7.40 - <7.45	0	2							
7.45 - <7.50									
7.50- <7.55	3				12				
7.55 - <7.60									
7.60 - <7.65									0
≥7.65									

COMET Warnings		
Error Message	Issue	Data Entry Solution
Critical	Value < 6.3 and > 8.5	Record cannot be saved. Check the data source. If data is correct, enter the closest value within the permissible range and report issue to ANZICS CORE.
Warning	Value outside normal range: 7 – 7.8	Confirm value. Record can be saved.
Additional Comments		2016 Revision: Permissible range changed from 6.5 – 8.5 to 6.3 – 8.5

## Intubation

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<b>Definition</b>	Intubation status of a patient.
<b>Specific Attributes</b>	The intubation status of a patient at the time of the highest scoring arterial blood gas, using the APACHE III-J oxygenation scoring algorithm ( <b>Refer to page 82</b> ).

Data Element Attributes		
Source	ICU observation chart/Progress notes	
Context	Used in the APACHE III-J scoring system.	
Permissible value(s)	COMET Options	APD Export File Code
	Intubated	1
	Not intubated	0
Unknown/Null value	Leave blank	
Collection method(s)	<ul style="list-style-type: none"> <li>Enter all ABGs and the intubation status at the time of each ABG into COMET.</li> <li>COMET will automatically determine the highest scoring ANZROD and APACHE III-J ABG and will export the intubation status of that ABG.</li> </ul>	



## Fraction of Inspired Oxygen: APACHE II

<b>Definition</b>	The person's fraction of inspired oxygen (FiO <sub>2</sub> ), expressed as a fraction.
<b>Specific Attributes</b>	The FiO <sub>2</sub> from the arterial blood gas taken during the first 24 hours of the ICU admission that produces the highest score using the APACHE II scoring algorithm ( <b>table page 90</b> ).

Data Element Attributes	
Source	ICU observation chart/Pathology results/Blood Gas machine printouts
Context	Used in calculating the oxygenation score within APACHE II when FiO <sub>2</sub> values are $\geq 0.5$ .
Permissible range	0.21 – 1.00 (expressed as a fraction not %)
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>· All arterial blood gases (ABGs) taken during the first 24 hours in ICU should be entered into COMET, and the highest scoring ABG for APACHE II will be determined automatically (venous samples cannot be used).</li> <li>· If results are not available from the first 24 hours in ICU, then results from 1 hour prior to ICU admission can be used.</li> <li>· If there are still no results available – leave the ABG fields blank.</li> <li>· Missing values are treated as normal (no points assigned).</li> <li>· The APACHE II FiO<sub>2</sub>, paO<sub>2</sub> and paCO<sub>2</sub> values must all come from the same ABG.</li> </ul> <p><b>Help determining FiO<sub>2</sub>:</b></p> <ul style="list-style-type: none"> <li>· For patients with assisted breathing, the FiO<sub>2</sub> is read from the controlled oxygen source e.g. Venturi masks, ventilator and CPAP systems with calibrated oxygen blenders.</li> <li>· For patients breathing unassisted i.e. room air, the FiO<sub>2</sub> is recorded as 0.21.</li> <li>· If a patient is on an uncontrolled oxygen source, the table below allows for the conversion of oxygen flow in L/min to FiO<sub>2</sub>.</li> </ul> <p><b>How the highest scoring ABG is determined:</b></p> <ul style="list-style-type: none"> <li>· All ABGs within the first 24 hours in ICU are considered (if no ABGs were taken during the first 24 hours, values from 1 hour prior to admission can be used).</li> <li>· For ABGs where the FiO<sub>2</sub> values are <math>\geq 0.5</math>, the A-a gradient is used to determine the APACHE II score.</li> <li>· For ABGs where the FiO<sub>2</sub> values are <math>&lt; 0.5</math>, the paO<sub>2</sub> value is used to determine the APACHE II score.</li> <li>· The ABG with the highest APACHE II score is considered the worst APACHE II ABG.</li> <li>· The formula used to calculate the A-a gradient is:  <math display="block">\text{A-a gradient} = (713 \times \text{FiO}_2) - \text{PaO}_2 - (\text{PaCO}_2 / 0.8)</math> </li> </ul> <p><i>Note: This formula does not require correction. All data elements used in the calculation of the A-a gradient must come from the same arterial blood gas sample.</i></p>

Conversion Table of Oxygen Flow (L/min) to FiO <sub>2</sub>									
Oxygen (L/min)	1	2	3	4	5	6	8	15	15 *Reservoir Mask
FiO <sub>2</sub> (% ÷ 100)	0.23	0.25	0.27	0.30	0.35	0.40	0.45	0.50	0.70

*\*Reservoir Mask is a mask fitted with a reservoir bag and a non-rebreathing valve*

APACHE II Scoring for Arterial Blood Gases (ABGs)								
ABG	FiO <sub>2</sub> < 0.5, use paO <sub>2</sub>				FiO <sub>2</sub> ≥ 0.5, use A-a gradient			
	paO <sub>2</sub>				A-a gradient			
	< 55	55-60	61-70	≥ 71	< 200	200-349	350-499	≥ 500
APACHE II Score	4	3	1	0	0	2	3	4

COMET Warnings		
Error Message	Issue	Data Entry Solution
Critical	Value < 0.21 and > 1	Record cannot be saved. Check the data source.

Additional Comments	2016 Review: Change in formula to calculate the A-a gradient – previously A-a gradient = (713 x FiO <sub>2</sub> ) – PaO <sub>2</sub> – PaCO <sub>2</sub>
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## Partial Pressure of Oxygen: APACHE II

<b>Definition</b>	The person's partial pressure of oxygen (paO <sub>2</sub> ), measured in millimetres of mercury (mmHg).
<b>Specific Attributes</b>	The paO <sub>2</sub> from the arterial blood gas taken during the first 24 hours of the ICU admission that produces the highest score using the APACHE II scoring algorithm ( <b>Refer to page 89 and 90</b> ).

Data Element Attributes	
Source	ICU observation chart/Pathology results/Blood Gas machine printouts
Context	Used in calculating the oxygenation score within APACHE II for all patients.
Permissible range	15 – 720 mmHg
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>Enter all arterial blood gases (ABGs) taken during the first 24 hours in ICU into COMET, and the paO<sub>2</sub> from the highest scoring ABG for APACHE II will be determined automatically (venous samples cannot be used).</li> <li>If results are not available from the first 24 hours in ICU, then results from 1 hour prior to ICU admission can be used.</li> <li>If there are still no results available – leave the ABG fields blank.</li> <li>Missing values are treated as normal (no points assigned).</li> <li>The APACHE II FiO<sub>2</sub>, paO<sub>2</sub> and paCO<sub>2</sub> values must come from the same ABG.</li> </ul>

### APACHE II Scoring for Arterial Blood Gases (ABGs)

See the FiO<sub>2</sub> (APACHE II) data element, **page 89**.

COMET Warnings		
Error Message	Issue	Data Entry Solution
Critical	Value < 15 or > 720	Record cannot be saved. Check the data source. If data is correct, enter the closest value within the permissible range and report issue to ANZICS CORE.
Warning	Value outside normal range: 40 – 300	Confirm value. Record can be saved.

## Partial Pressure of Carbon Dioxide: APACHE II

<b>Definition</b>	The person's partial pressure of carbon dioxide (paCO <sub>2</sub> ), measured in millimetres of mercury (mmHg).
<b>Specific Attributes</b>	The paCO <sub>2</sub> from the arterial blood gas taken during the first 24 hours of the ICU admission that produces the highest score using the APACHE II scoring algorithm ( <b>Refer to page 89 and 90</b> ).

Data Element Attributes	
Source	ICU observation chart/Pathology results/Blood Gas machine printouts
Context	Used in calculating the oxygenation score within APACHE II when FiO <sub>2</sub> values are ≥ 0.5.
Permissible range	5 – 250 mmHg
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>· Enter all arterial blood gases (ABGs) taken during the first 24 hours in ICU into COMET, and the paCO<sub>2</sub> from the highest scoring ABG for APACHE II will be determined automatically (venous samples cannot be used).</li> <li>· If results are not available from the first 24 hours in ICU, then results from 1 hour prior to ICU admission can be used.</li> <li>· If there are still no results available – leave the ABG fields blank.</li> <li>· Missing values are treated as normal (no points assigned).</li> <li>· The APACHE II FiO<sub>2</sub>, paO<sub>2</sub> and paCO<sub>2</sub> values must come from the same ABG.</li> </ul>

### APACHE II Scoring for Arterial Blood Gases (ABGs)

See the FiO<sub>2</sub> (APACHE II) data element, **page 89**.

COMET Warnings		
Error Message	Issue	Data Entry Solution
Critical	Value < 5 or > 250	Record cannot be saved. Check the data source. If data is correct, enter the closest value within the permissible range and report issue to ANZICS CORE.
Warning	Value outside normal range: 25 – 100	Confirm value. Record can be saved.

## pH: APACHE II

<b>Definition</b>	The person's arterial pH.
<b>Specific Attributes</b>	The pH from the first 24 hours of ICU admission with the highest APACHE II score ( <b>table below</b> ).

Data Element Attributes	
Source	ICU observation chart/Pathology results/Blood Gas machine printouts
Context	Used in the calculation of APACHE II scores.
Permissible range	6.3 – 8.5
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>All arterial blood gases (ABGs) taken during the first 24 hours in ICU should be entered into COMET, and the pH with the highest APACHE II pH score will be determined automatically (venous samples cannot be used).</li> <li>If results are not available from the first 24 hours in ICU, then results from 1 hour prior to ICU admission can be used.</li> <li>If there are still no results available set 'ABGs available' to no and leave the ABG fields blank.</li> <li>Missing values are treated as normal (no points assigned).</li> </ul>

APACHE II Scoring for Arterial pH							
Arterial pH	Low Abnormal Range			Normal Range	High Abnormal Range		
	< 7.15	7.15-7.24	7.25-7.32	7.33-7.49	7.5-7.59	7.6-7.69	≥ 7.7
APACHE II Score	4	3	2	0	1	3	4

COMET Warnings		
Error Message	Issue	Data Entry Solution
Critical	Value < 6.3 or > 8.5	Record cannot be saved. Check the data source. If data is correct, enter the closest value within the permissible range and report issue to ANZICS CORE.
Warning	Value outside normal range: 7 – 7.8	Confirm value. Record can be saved.

<b>Additional Comments</b>	2016 Revision: Permissible range changed from 6.5 – 8.5 to 6.3 – 8.5
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## Invasively Ventilated on Day 1

<b>Definition</b>	An indicator of invasive ventilation delivery, as represented by a code.
<b>Specific Attributes</b>	Identifies whether a patient received invasive ventilation during their first 24 hours in ICU.

Data Element Attributes		
Source	ICU observation chart/Progress notes	
Context	Used in the APACHE IV scoring system.	
Permissible value(s)	COMET Options	APD Export File Code
	Yes, patient invasively ventilated on day 1 in ICU	1
	No, patient not invasively ventilated on day 1 in ICU	0
Unknown/Null value	Leave blank	
Collection method(s)	<ul style="list-style-type: none"> <li>Any form of positive pressure ventilation delivered through an artificial airway such as oral/nasal endo-tracheal tube or tracheostomy is considered invasive ventilation. Possible examples include (but are not limited to) PSV, SIMV, VCV, PCV, ARRV. It also includes all modes of mandatory ventilation, spontaneous pressure support ventilation and continuous positive airway pressure (CPAP/BiPAP) when delivered through an artificial airway.</li> <li>For definitions around when ventilation is considered to have started and ended, please see the field "Invasive Ventilation Hours", <b>page 114</b>.</li> </ul>	

COMET Warnings		
Error Message	Issue	Data Entry Solution
Warning	Do not tick if patient has had CPAP alone as their only form of ventilation during day 1 in ICU	Confirm value. Record can be saved.

<b>Additional Comments</b>	2016 Revision: New data element – INV_DAYONE
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## Acute Renal Failure Status

<b>Definition</b>	The presence of acute renal failure in a patient.
<b>Specific Attributes</b>	Relates to the APACHE definition of acute renal failure: 24 hour urine output is < 410ml <b>AND</b> creatinine > 133 µmol/L <b>AND</b> patient is not receiving chronic dialysis.

Data Element Attributes		
Source	ICU observation chart/Progress notes/Fluid balance sheet	
Context	<ul style="list-style-type: none"> <li>Used in the calculation of APACHE II and III-J scores and APACHE III-J and ANZROD predictive risk of death.</li> <li>When ARF is recorded as Yes, the APACHE II and III-J point score for the worst creatinine value is increased.</li> </ul>	
Permissible value(s)	COMET Options	APD Export File Code
	Acute renal failure	1
	No acute renal failure	0
Unknown/Null value	Leave blank	
Collection method(s)	<ul style="list-style-type: none"> <li>To code a patient as “Yes” ensure all three criteria listed above are met.</li> <li>If a patient meets the criteria for ARF on admission to ICU but then does not meet the criteria after 24 hours in ICU because they received treatment – such patients can be coded as “Yes”.</li> </ul>	

COMET Warnings		
Error Message	Issue	Data Entry Solution
Warning	Please ensure ARF criteria are met: <ul style="list-style-type: none"> <li>Urine &lt; 410 ml (first 24 hrs in ICU)</li> <li>Creatinine &gt;133 µmol/L</li> <li>No chronic dialysis</li> </ul>	Confirm value. Record can be saved.

## Chronic Health Evaluation: APACHE II

Definition	Evidence of organ insufficiency or immunocompromised state <u>PRIOR</u> to the hospital admission.	
Data Element Attributes		
Source	Hospital admission details/Transfer, Referral and/or ED notes/Progress notes	
Context	Used in the calculation of the APACHE II score. Some fields are also used in the ANZROD risk of death calculation.	
Permissible value(s)	COMET Options	APD Export File Code (String of 6 ordered characters)
	Co-morbidity exists Co-morbidity does not exist	Y N
Unknown/Null value	Missing data coded as N	
Collection method(s)	Evidence/existence of the 6 co-morbidities listed below should be recorded at the time of admission to hospital <b>AND</b> must conform to the following 6 criteria;  · <b>Respiratory:</b> Chronic restrictive, obstructive disease resulting in severe exercise restriction (unable to climb stairs or perform household duties); or documented chronic hypoxia, hypercapnia, secondary polycythaemia, severe pulmonary hypertension (mean > 40 mmHg); or ventilator dependency. · <b>Cardiovascular:</b> New York Heart Association Class IV: angina or symptoms at rest or on minimal exertion (whilst getting dressed or during self-care). · <b>Liver: <i>Biopsy proven</i></b> cirrhosis and documented portal hypertension; or episodes of past upper GI bleed attributed to portal hypertension. If the patient has a functioning liver transplant, this chronic health item does not apply. · <b>Renal:</b> Must be receiving chronic haemodialysis or peritoneal dialysis. · <b>Immune Suppressive Disease (Immune disease):</b> The patient has a disease that is sufficiently advanced to suppress resistance to infection: leukaemia, AIDS, lymphoma, severe autoimmune disease or documented diffuse metastatic cancer. · <b>Immunosuppressive Therapy (Immunosuppressed):</b> The patient has received therapy that has suppressed resistance to infection: e.g. immunosuppression, chemotherapy within 4 weeks of admission, radiation, high-dose steroid treatment (e.g. >1.5mg/kg methyl prednisolone or equivalent for ≥5 days), long term treatment with >20 mg/day steroid.	



**APACHE II Scoring Table for chronic co-morbidities****If a patient is coded as YES for one or more chronic co-morbidity, the following scoring is applied**

<b>ICU Admission Source</b>	<b>Where Elect_surg = yes and plan_icu = yes</b>	<b>Emergency admission</b>
OT/Recovery	2	5
All Other	5	5

<b>Additional Comments</b>	2016 Revision: Collection method – Metastatic carcinoma changed to metastatic cancer.
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## Chronic Health Evaluation: APACHE III-J

Definition	Evidence of organ insufficiency or immunocompromised state PRIOR to the hospital admission.	
Data Element Attributes		
Source	Hospital admission details/Transfer, Referral and/or ED notes/Progress notes	
Context	<ul style="list-style-type: none"><li>Used in the calculation of the APACHE III-J score</li><li>Some fields used in the calculation of ANZROD predicted risk of death.</li></ul>	
Permissible value(s)	COMET Options	APD Export File Code (String of 7 ordered characters)
	Co-morbidity exists	Y
	Co-morbidity does not exist	N
Unknown/Null value	Missing data coded as N	
Collection method(s)	<p>Evidence/existence of the 7 co-morbidities listed below should be recorded at the time of the hospital admission <b>AND</b> must conform to the following 7 criteria;</p> <ul style="list-style-type: none"><li><b>AIDS:</b> Clinical syndrome of AIDS-HIV positive with AIDS defining complications e.g. Pneumocystis carinii pneumonia, Kaposi’s sarcoma, lymphoma, tuberculosis or Toxoplasma infection.</li><li><b>Hepatic failure:</b> Episodes of hepatic failure and/or encephalopathy or coma.</li><li><b>Lymphoma:</b> Any type of lymphoma.</li><li><b>Metastatic cancer:</b> Proven distant metastases (not regional lymph nodes or contiguous spread) by surgery, CAT scan or other method.</li><li><b>Leukaemia/Myeloma:</b> Acute leukaemia or multiple myeloma.</li><li><b>Immunosuppressed:</b> The patient has received therapy that has suppressed resistance to infection: e.g. immunosuppression, chemotherapy within 4 weeks of admission, radiation, high-dose steroid treatment (e.g. &gt;1.5mg/kg methyl prednisolone or equivalent for ≥5 days), long term treatment with &gt;20 mg/day steroid.</li><li><b>Cirrhosis: <i>Biopsy proven</i></b> cirrhosis and documented portal hypertension; or episodes of past upper GI bleed attributed to portal hypertension. If the patient has a functioning liver transplant, this chronic health item does not apply.</li></ul> <p><b>Note:</b> If the cancer or haematological malignancy has been in remission for ≥5 years, they are no longer considered co-morbidities and should not be coded as chronic.</p>	

**APACHE III-J Scoring Table for chronic co-morbidities**

If a patient is coded as YES for one or more chronic co-morbidity, they receive the score for the “highest” scoring co-morbidity only

Chronic co-morbidity	APACHE III-J score	
	If elect_surg = YES and plan_icu = yes and ICU source = OT/Recovery	All other admissions
AIDS	0	23
Hepatic failure		16
Lymphoma		13
Metastatic cancer		11
Leukaemia/myeloma		10
Immunosuppressed		10
Cirrhosis		4

## Tracheostomy Indicator

<b>Definition</b>	An indicator of tracheostomy, as represented by a code.
<b>Specific Attributes</b>	Indicates tracheostomy performed during the patient's stay in ICU.

Data Element Attributes		
Source	ICU observation chart/Progress notes	
Context	Used in the APACHE III-J scoring system.	
Permissible value(s)	COMET Options	APD Export File Code
	Yes, Tracheostomy performed during ICU stay	1
	No, Tracheostomy not performed during ICU stay	0
Unknown/Null value	Leave blank	
Collection method(s)	<ul style="list-style-type: none"> <li>Any patient receiving a tracheostomy at any stage during their stay in ICU should be coded yes, tracheostomy performed during ICU stay (1). This includes patients who go from ICU to theatre for a surgical tracheostomy, and then return to ICU.</li> <li>Patients admitted to ICU with a tracheostomy already in-situ should be coded as "No, tracheostomy not performed during ICU stay" (0).</li> <li>Patients where the tracheostomy is not used as an airway (i.e., tracheostomy for suctioning [minitrache]) should be coded as "No" (0).</li> </ul>	

<b>Additional Comments</b>	2016 Revision: New date element – TRACHE_IND
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## Invasive Ventilation Indicator

<b>Definition</b>	An indicator of invasive ventilation delivery, as represented by a code.
<b>Specific Attributes</b>	Indicates delivery of invasive ventilation during the patient's stay in ICU.

Data Element Attributes		
Source	ICU observation chart/Progress notes	
Context	Important epidemiological data	
Permissible value(s)	COMET Options	APD Export File Code
	Yes, patient received invasive ventilation during ICU stay	1
	No, patient did not receive invasive ventilation during ICU stay	0
Unknown/Null value	Leave blank	
Collection method(s)	<ul style="list-style-type: none"> <li>Any patient receiving invasive ventilation at any stage during their stay in ICU should be coded yes (1).</li> <li>Any form of positive pressure ventilation delivered through an artificial airway such as oral/nasal endo-tracheal tube or tracheostomy is considered invasive ventilation. Possible examples include (but are not limited to) PSV, SIMV, VCV, PCV, ARRV. It also includes all modes of mandatory ventilation, spontaneous pressure support ventilation and continuous positive airway pressure (CPAP/BiPAP) when delivered through an artificial airway.</li> <li>For definitions around when ventilation is considered to have started and ended, please see the field "Invasive Ventilation Hours", <b>page 114</b>.</li> </ul>	

<b>Additional Comments</b>	2016 Revision: New data element – INV_IND
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## Non-Invasive Ventilation Indicator

<b>Definition</b>	An indicator of non-invasive ventilation delivery, as represented by a code.
<b>Specific Attributes</b>	Indicates administration of non-invasive ventilation during the patient's stay in ICU.

Data Element Attributes		
Source	ICU observation chart/Progress notes	
Context	Important epidemiological data	
Permissible value(s)	COMET Options	APD Export File Code
	Yes, patient received non-invasive ventilation during ICU stay	1
	No, patient did not receive non-invasive ventilation during ICU stay	0
Unknown/Null value	Leave blank	
Collection method(s)	<ul style="list-style-type: none"> <li>Any patient receiving non-invasive ventilation at any stage during their stay in ICU should be coded yes (1).</li> <li>Any form of positive pressure ventilation delivered through a mask or helmet is considered non-invasive ventilation (E.g. BiPAP alone, CPAP alone, Nasal prongs etc.). Non-invasive ventilation may also include negative pressure ventilation such as using a cuirass. (Please note positive pressure ventilation delivered through a tracheostomy is considered invasive ventilation. High flow nasal oxygen/air should be recorded separately and is not considered as non-invasive ventilation.)</li> <li>For definitions around when ventilation is considered to have started and ended, please see the field "Non-Invasive Ventilation Hours", <b>page 115</b>.</li> </ul>	

<b>Additional Comments</b>	2016 Revision: New data element – NIV_IND
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## ECMO Indicator

Definition	An indicator of ECMO delivery, as represented by a code.	
Specific Attributes	Indicates administration of ECMO during the patient's stay in ICU.	
Data Element Attributes		
Source	ICU observation chart/Progress notes	
Context	Important epidemiological data	
Permissible value(s)	COMET Options	APD Export File Code
	Yes, patient received ECMO during ICU stay	1
	No, patient did not receive ECMO during ICU stay	0
Unknown/Null value	Leave blank	
Collection method(s)	<ul style="list-style-type: none"><li>· All forms of ECMO (e.g. veno-venous, veno-arterial and other combinations) should be included, irrespective of site of cannulation or location where the ECMO was instituted.</li><li>· Any patient receiving ECMO at any stage during their stay in ICU should be coded 'Yes' (1).</li><li>· Patients already on ECMO on admission to ICU should be coded as 'Yes' (1).</li></ul>	
Additional Comments	2016 Revision: New data element – ECMO IND	

## Renal-Replacement Therapy Indicator

<b>Definition</b>	An indicator of renal-replacement therapy delivery, as represented by a code.
<b>Specific Attributes</b>	Indicates administration of renal-replacement therapy during the patient's stay in ICU.

Data Element Attributes		
Source	ICU observation chart/Progress notes	
Context	Important epidemiological data	
Permissible value(s)	COMET Options	APD Export File Code
	Yes, patient received renal-replacement therapy during ICU stay	1
	No, patient did not receive renal-replacement therapy during ICU stay	0
Unknown/Null value	Leave blank	
Collection method(s)	<ul style="list-style-type: none"> <li>Any patient receiving renal-replacement therapy at any stage during their stay in ICU should be coded 'Yes' (1). This includes patients previously on chronic dialysis prior to ICU admission. All forms of renal replacement therapy should be included, irrespective of mode or site.</li> </ul>	

<b>Additional Comments</b>	2016 Revision: New data element – RENAL_IND
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## Inotropes/Vasopressor Indicator

<b>Definition</b>	An indicator of inotrope/vasopressor administration, as represented by a code.
<b>Specific Attributes</b>	Indicates administration of inotropes or vasopressors during the patient's stay in ICU.

Data Element Attributes		
Source	ICU observation chart/Progress notes	
Context	Important epidemiological data	
Permissible value(s)	COMET Options	APD Export File Code
	Yes, patient received inotropes/vasopressors during ICU stay	1
	No, patient did not receive inotropes/vasopressors during ICU stay	0
Unknown/Null value	Leave blank	
Collection method(s)	<ul style="list-style-type: none"> <li>Any patient receiving either inotropes or vasopressors at any stage during their stay in ICU should be coded 'Yes' (1). Examples of include (but are not limited to) noradrenaline, adrenaline, vasopressin, dobutamine and milrinone. Vasodilators such as GTN or Sodium Nitroprusside should not be included.</li> </ul>	

<b>Additional Comments</b>	2016 Revision: New data element – INOTROP_IND
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## APACHE III-J Diagnosis (ANZICS Modified)

Definition	APACHE III-J (ANZICS modified) diagnosis which best describes the reason for the ICU admission, as represented by a code.
<b>Data Element Attributes</b>	
Source	ED notes/ICU admission summary/Progress notes/ICU observation chart
Context	<ul style="list-style-type: none"> <li>Used in the APACHE III-J scoring system algorithm for calculation of predicted risk of death.</li> <li>Patients with a missing APACHE III-J diagnosis are excluded from the APACHE III-J SMR calculations.</li> </ul>
Permissible value(s)	Diagnostic codes listed in Appendix B and C
Collection method(s)	<p><b>Please see Appendix E (Rules for choosing a diagnosis) for a flow chart that summarises the rules below, and examples of how the rules for choosing a diagnosis should be applied in different situations.</b></p> <ul style="list-style-type: none"> <li>The choice of diagnosis is dependent upon whether the patient is a 'post-operative' or 'non-operative' admission (<b>see Appendix B and C</b>).</li> </ul> <p><b>Post-operative admissions:</b></p> <ul style="list-style-type: none"> <li>All patients with an ICU source of OT/Recovery must be given a post-operative diagnosis that corresponds to the surgical procedure that was performed (even if the admission to ICU was due to an intra-operative or post-operative complication).             <ul style="list-style-type: none"> <li><b>Exception:</b> If a patient was admitted to the ICU from the Operating Room/Recovery Room but no surgical procedure was performed (for example, the case was cancelled or the procedure was not completed), then the patient is considered a Non-Operative patient. In such cases, the ICU Admission Source should be the patient's location prior to the OT/Recovery. Such patients would be given a non-operative diagnosis. An example would be anaphylaxis following anaesthesia prior to surgery.</li> </ul> </li> <li>Patients admitted post-endoscopy or bronchoscopy should also be given a post-operative diagnosis based on the procedure performed.</li> <li>Patients admitted from a procedure room (e.g. cath lab/radiology) should be treated as post-operative <b>ONLY</b> if a general anaesthetic was administered. Otherwise such admissions should be treated as non-operative.</li> </ul> <p><b>Non-operative admissions:</b></p> <ul style="list-style-type: none"> <li>Patients with an admission source other than OT/Recovery must be given a non-operative diagnosis that corresponds to what is regarded by the clinician, in the first 24 hours of the ICU admission, as the predominant reason for the ICU admission.</li> <li>In such cases, the APACHE III-J diagnosis is NOT necessarily the discharge diagnosis.</li> <li>The reason for ICU admission may not be the same as the reason for hospital admission.</li> <li>Every effort should be made to determine the cause of an event (such as chest pain, shortness of breath, respiratory failure etc), with the first 24 hours of ICU admission being used to choose a diagnosis.</li> </ul>

	<ul style="list-style-type: none"> <li>• <b>Exception:</b> Patients transferred to ICU directly from the OT/Recovery at another hospital may be given a post-operative diagnosis even though their ICU admission source will be “other hospital” (even if they passed through the emergency department briefly on their way to ICU).</li> </ul> <p><b>Additional considerations when choosing a diagnosis:</b></p> <ul style="list-style-type: none"> <li>• <b>Cardiac arrest:</b> when a non-operative patient is admitted to ICU post-cardiac arrest, the APACHE III-J diagnosis should always be cardiac arrest.</li> <li>• <b>Sepsis:</b> when sepsis is part of the working diagnosis for a non-operative patient it must be selected as the APACHE III-J diagnosis unless definitively ruled out within 24 hours.</li> <li>• <b>Trauma:</b> any patient whose injury or illness is a result of trauma should have a Trauma diagnosis selected. First, identify whether the patient is a post-operative or non-operative admission, then identify all major sites of injury. The selection of a diagnosis should be that which includes as many sites of trauma as possible. ALWAYS select head trauma when the head has been involved.</li> </ul> <p><b>Diagnosis hierarchy:</b> can be used to decide on a diagnosis when the working diagnosis has multiple components.</p> <ol style="list-style-type: none"> <li>1. Cardiac arrest takes priority over all other non-operative diagnosis codes.</li> <li>2. Sepsis is the next non-operative consideration.</li> <li>3. When trauma is present, choose it as the diagnosis, unless cardiac arrest or sepsis is also present.</li> </ol> <p><b>Multivisceral transplants:</b></p> <ul style="list-style-type: none"> <li>• Kidney – Pancreas transplant should be coded as Kidney transplant</li> <li>• Liver – Kidney transplant should be coded as Liver transplant</li> <li>• Heart – Lung transplant should be coded as Lung transplant.</li> <li>• Heart – Kidney transplant should be coded as Heart transplant</li> </ul>
Validation rule	This field becomes mandatory if “Hospital Discharge Date” is entered. Information is required to save record.

Additional Comments	<p>2016 Revision: Collection method – clarification in exception for patient admitted to ICU from OT/Recovery where no surgical procedure was performed.</p> <p>2019 Revision: Extra notes added for collection method.</p>
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## APACHE III-J Sub-Diagnosis (ANZICS Modified)

<b>Definition</b>	APACHE III-J sub-diagnosis (ANZICS modified) which best describes the reason for the ICU admission in detail.
<b>Data Element Attributes</b>	
Source	ED notes/ICU admission summary/Progress notes/ICU observation chart
Context	<ul style="list-style-type: none"> <li>· The sub-diagnosis describes the reason for the ICU admission in greater detail and can assist in selecting the appropriate primary APACHE III-J diagnosis for the predicted risk of death calculation.</li> <li>· The sub-diagnosis does not have any weighting.</li> </ul>
Permissible value(s)	6-7 character diagnostic sub-codes listed in <b>Appendix D</b> . Sub-codes have been updated with the release of version 5 of the data dictionary.
Collection method(s)	The rules used to determine the APACHE III-J diagnosis should also be applied when determining the APACHE III-J sub-diagnosis. <b>(Refer to page 106)</b> .

## Thrombolytic Therapy

<b>Definition</b>	The delivery of thrombolytic therapy to a patient diagnosed with acute myocardial infarct, as represented by a code.
<b>Specific Attributes</b>	Collected for patients with an APACHE III-J diagnosis of AMI (diagnosis code 107).

Data Element Attributes		
Source	ICU observation chart/Progress notes	
Context	Used in the APACHE III-J scoring system algorithm for calculation of predicted risk of death for patients whose APACHE III-J diagnosis is acute myocardial infarct (diagnosis code 107).	
Permissible value(s)	COMET Options	APD Export File Code
	Yes	1
	No	2
Unknown/Null Value	Leave blank	
Collection method(s)	<ul style="list-style-type: none"> <li>· This data element is only collected for patients who are admitted to ICU for this admission with an APACHE III-J diagnosis of AMI (diagnosis code 107).</li> <li>· For such patients, this data element describes whether a patient has received thrombolytic therapy within the 24 hours preceding ICU admission or immediately following ICU admission.</li> <li>· Examples of thrombolytic therapy include: <ul style="list-style-type: none"> <li>· rTPA</li> <li>· Reteplase</li> <li>· Streptokinase</li> <li>· Urokinas</li> </ul> </li> <li>· Patients with an APACHE III-J diagnosis other than AMI (diagnosis code 107) should not be coded (leave blank).</li> </ul>	
Validation rule	This field becomes mandatory if APACHE III-J Diagnosis = AMI (diagnosis code 107). Information is required to save record.	

<b>Additional Comments</b>	2016 Revision: Code 8 Missing – Obsolete
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## CABG REDO

<b>Definition</b>	The identification of a primary or repeat coronary artery bypass graft (CABG) operation, as represented by a code.
<b>Specific Attributes</b>	Collected for patients with an APACHE III-J diagnosis of CABG only (diagnosis code 1207).

Data Element Attributes		
Source	Referral/ICU admission summary/Progress notes/ICU observation chart	
Context	<ul style="list-style-type: none"> <li>Used in the APACHE III-J scoring system algorithm for calculation of predicted risk of death for patients whose APACHE III-J diagnosis is CABG only (diagnosis code 1207).</li> <li>Patients with an APACHE III-J diagnosis of CABG only (diagnosis code 1207) will not receive an APACHE III-J ROD score if this data element is not coded as 1 or 2.</li> </ul>	
Permissible value(s)	COMET Options	APD Export File Code
	First CABG	1
	Repeat CABG	2
Unknown/Null value	Leave blank	
Collection method(s)	<ul style="list-style-type: none"> <li>This data element is only collected for patients who are admitted to ICU for this admission with an APACHE III-J diagnosis of CABG only (diagnosis code 1207).</li> <li>For such patients this data element describes whether the CABG procedure was the first such procedure this patient has undergone (coded as first) or whether the patient has undergone a CABG procedure in the past (coded as repeat).</li> <li>Patients with an APACHE III-J diagnosis other than CABG only (diagnosis code 1207) should not be coded (leave blank).</li> </ul>	
Validation rule	This field becomes mandatory if APACHE III-J Diagnosis = CABG only (diagnosis code 1207). Information is required to save record.	

## CABG Grafts

<b>Definition</b>	The total number of coronary arteries bypassed with a graft during a coronary artery bypass graft (CABG) operation.
<b>Specific Attributes</b>	Collected for patients with an APACHE III-J diagnosis of CABG only (diagnosis code 1207).

Data Element Attributes	
Source	Referral/ICU admission summary/Progress notes/ICU observation chart
Context	Used in the APACHE III-J scoring system algorithm for calculation of predicted risk of death for patients whose APACHE III-J diagnosis is CABG only (diagnosis code 1207).
Permissible range	1 – 8
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>· This data element is only collected for patients who are admitted to ICU for this admission with an APACHE III-J diagnosis of CABG only (diagnosis code 1207).</li> <li>· This data element describes the total number of coronary arteries with a bypass graft in an operation on a patient leading to this admission.</li> <li>· Where the APACHE III-J diagnosis is 1207, a CABG grafts value of 0 is invalid and will be treated as missing. The predicted risk of death for such an admission cannot be calculated.</li> <li>· Patients with an APACHE III-J diagnosis other than CABG only (diagnosis code 1207) should not be coded (leave blank).</li> </ul>
Validation rule	This field becomes mandatory if APACHE III-J Diagnosis = CABG only (diagnosis code 1207). Information is required to save record.

### 3.0 Non-Mandatory Fields

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These fields are included in the APD submission file produced by COMET. At this stage these fields are non-mandatory.



## APACHE III-J Score

<b>Definition</b>	<b>Composite score describing the severity of the patient's condition;</b> generated using the APACHE III-J severity of disease classification system.
<b>Data Element Attributes</b>	
<b>Source</b>	Auto-generated by data collection software such as COMET
Context	<ul style="list-style-type: none"> <li>Standardised and validated measure of severity of illness required to estimate predicted risk of death.</li> <li>The score is validated by a relationship between the score and the predicted risk of death for a diagnosis.</li> <li>Enables comparison/analysis where severity may be a confounding factor.</li> <li>The scoring system was devised using multiple logistic regressions to select data elements that predict hospital mortality risk for critically ill hospitalised adults.</li> <li>Patients with an admission type of CCU, ward type or procedure only in ICU will not generate an APACHE III-J score within COMET.</li> </ul>
Permissible range	0 – 299
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>The point score is generated using the APACHE III-J severity of disease classification by adding together the points scored from:               <ul style="list-style-type: none"> <li>17 Acute physiological data elements</li> <li>Chronic health evaluation at hospital admission</li> <li>Age group</li> </ul> </li> <li>Admissions where no physiology data is collected will not receive an APACHE III-J score.</li> <li>Admissions where 'type of care' is ward, CCU or procedure only in ICU will not receive an APACHE III-J score.</li> </ul>

## Invasive Ventilation Hours

<b>Definition</b>	Total invasive ventilation hours during the patient's stay in ICU.
<b>Data Element Attributes</b>	
Source	ICU observation chart/Progress notes
Context	Important epidemiological data
Permissible range	0 – 9999
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>· All episodes of invasive ventilation should be entered into COMET, the total hours of invasive ventilation will then be calculated automatically and will only include hours within ICU.</li> <li>· Any form of positive pressure ventilation delivered through an artificial airway such as oral/nasal endo-tracheal tube or tracheostomy is considered invasive ventilation. It includes all modes of mandatory ventilation, spontaneous pressure support ventilation and continuous positive airway pressure (CPAP) when delivered through an artificial airway.</li> </ul> <p><b>Start date/time:</b> This is the date and time when the patient with an invasive artificial airway is connected to positive pressure ventilation. It may begin prior to the time of ICU admission.</p> <p><b>End date/time:</b> For patients with an endo-tracheal tube, the end date/time of ventilation is to be recorded as when the patient is extubated. Patients who require re-intubation even if within 24 hours of extubation should be considered to have started a new episode of invasive ventilation.</p> <p>For patients with a tracheostomy, the end date/time of ventilation is to be recorded as when positive pressure ventilation via the tracheostomy discontinued. Any episode of ventilation via a tracheostomy which is re-instituted within 24 hours should be considered as on-going ventilation (with the interim time included in the total hours). If ventilation via the tracheostomy is not re-instituted within 24 hours, then the ventilation end date/time would be the time at which the patient was last on the ventilator.</p> <p>The end date/time may occur after the time of ICU discharge.</p> <p>If a patient is discharged from hospital ventilated, the end date/time should be recorded as the Hospital discharge date/time.</p>

<b>Additional Comments</b>	2016 Review: New data element – INV_HOURS
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## Non-Invasive Ventilation Hours

<b>Definition</b>	Total non-invasive ventilation hours during the patient's stay in ICU.
<b>Data Element Attributes</b>	
Source	ICU observation chart/Progress notes
Context	Important epidemiological data
Permissible range	0 - 9999
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>· All episodes of non-invasive ventilation should be entered into COMET, the total hours of non-invasive ventilation will then be calculated automatically and will only include hours within ICU.</li> <li>· Any form of positive pressure ventilation delivered through a mask or helmet is considered non-invasive ventilation. Non-invasive ventilation may also include negative pressure ventilation such as using a cuirass.</li> </ul> <p><b>Note:</b> positive pressure ventilation delivered through a tracheostomy is considered invasive ventilation. High flow nasal oxygen/air is <b>NOT</b> considered as non-invasive ventilation.</p> <p><b>Start date/time:</b> This is the date and time when the patient is commenced on non-invasive ventilation. It may begin prior to the time of ICU admission. For patients who already receive non-invasive ventilation or continuous positive airways pressure (CPAP) as chronic therapy, the start time should be considered as the time of admission to hospital.</p> <p><b>End date/time:</b> The end date/time of non-invasive ventilation is to be recorded as when ventilation is discontinued. Patients who receive intermittent non-invasive ventilation are considered to have been ceased non-invasive ventilation once the patient has been free from ventilation for more than 24 hours. Any episode of non-invasive ventilation which is re-instituted within 24 hours should be considered as on-going ventilation.</p> <p>The end date/time may occur after the time of discharge from ICU.</p> <p>If a patient is discharged from hospital on non-invasive ventilation, the end date/time should be recorded as the Hospital discharge date/time.</p>
<b>Additional Comments</b>	2016 Review: New data element – NIV_HOURS

## Diabetes Status

<b>Definition</b>	Whether a person has or is at risk of diabetes, as represented by a code.
<b>Specific Attributes</b>	Collected at the time of admission to hospital.

Data Element Attributes		
Source	Hospital admission details/Transfer, Referral and/or ED notes/Progress notes	
Context	<ul style="list-style-type: none"> <li>Required to stratify data based on diabetes status</li> <li>Important epidemiological information</li> </ul>	
Permissible Value(s)	COMET Options	APD Export File Code
	Type 1 diabetes	1
	Type 2 diabetes	2
	Gestational diabetes	3
	Other (secondary diabetes, previous gestational diabetes, impaired fasting glucose/glucose intolerance)	4
	Not diagnosed with diabetes	5
Unknown/Null value	Leave blank	
Collection method(s)	<ul style="list-style-type: none"> <li>This data element identifies the diabetic status of the patient using the definitions outlined below.</li> <li>This information should be collected when the patient is admitted to hospital for the stay that includes the current episode of ICU care.</li> <li>Where there is a gestational diabetes mellitus (GDM) or previous GDM, or any condition falling under code 4 in combination with a current history of Type 2 diabetes then record as code 2, type 2 diabetes.</li> <li>Patients who receive insulin while in ICU to control high blood glucose, but who have no evidence of meeting the definitions for codes 1-4 should be coded as 'not diagnosed with diabetes' (5).</li> </ul> <p><b><u>Type 1 diabetes:</u></b> Beta-cell destruction (either autoimmune or idiopathic), usually leading to absolute insulin deficiency. It does not include those forms of beta-cell destruction or failure to which specific causes can be assigned (e.g. cystic fibrosis, mitochondrial defects).</p> <p><b><u>Type 2 diabetes:</u></b> Type 2 includes the common major form of diabetes, which results from defect(s) in insulin secretion, almost always with a major contribution from insulin resistance.</p> <p><b><u>Gestational diabetes mellitus (GDM):</u></b> GDM is a carbohydrate intolerance resulting in hyperglycaemia with onset or first recognition during pregnancy. The definition applies irrespective of whether or not insulin is used for treatment or the condition persists after pregnancy.</p> <p><b><u>Other (secondary diabetes):</u></b> This includes less common causes of diabetes mellitus, including (for example) genetic defects of beta-cell function, genetic defects in insulin action, diseases of the exocrine pancreas, endocrinopathies, drug or</p>	

	<p>chemical induced, infections, uncommon forms of immune-mediated diabetes, other genetic syndromes sometimes associated with diabetes.</p> <p><b><u>Previous GDM:</u></b> Where the person has a history of GDM.</p> <p><b><u>Impaired fasting glycaemia (IFG):</u></b> IFG refers to fasting glucose concentrations which are lower than those required to diagnose diabetes mellitus but higher than the normal reference range. An individual is considered to have IFG if they have a fasting plasma glucose of 6.1 or greater and less than 7.0 mmol/L AND the 2 hour value in the Oral Glucose Tolerance Test (OGTT) is less than 7.8 mmol/L.</p> <p><b><u>Impaired glucose tolerance (IGT):</u></b> IGT refers to a metabolic state intermediate between normal glucose homeostasis and diabetes. Those individuals with IGT manifest glucose intolerance only when challenged with an oral glucose load. IGT is diagnosed if the 2 hour value in the OGTT is greater than 7.8 mmol/L. and less than 11.1 mmol/L AND the fasting plasma glucose concentration is less than 7.0 mmol/L.</p> <p><b><u>Not diagnosed with diabetes:</u></b> The subject has no known diagnosis of Type 1, Type 2, GDM, Previous GDM, IFG, IGT or Other (secondary diabetes) i.e. includes patients who have tested negative for diabetes and also those who have never been given a diagnosis of diabetes, have no history of diabetes, have not been tested for diabetes or have no awareness of being diabetic.</p>
<b>Additional Comments</b>	2016 Review: New data element – DIABETES

## Clinical Frailty Score

<b>Definition</b>	Patient's frailty assessment.
<b>Specific Attributes</b>	Collected at the time of admission to ICU for the patient's first ICU admission within the hospital stay, based on the patient's level of physical function in the 2 months prior to current hospital admission.

Data Element Attributes		
Source	Progress notes (medical history)	
Context	Used to stratify data based on patient's physical function. This frailty score represents the ANZICS modification of the Dalhousie Clinical Frailty Score.	
Permissible value(s)	COMET Options	APD Export File Code
	1 Very fit	1
	2 Well	2
	3 Managing Well	3
	4 Vulnerable	4
	5 Mildly Frail	5
	6 Moderately Frail	6
	7 Severely Frail	7
	8 Extremely Frail	8
Unknown/Null value	Leave blank	
Collection method(s)	<p>This data element identifies the patient's level of physical function in the two months preceding their first admission to ICU within the hospital stay.</p> <p><b><u>Very fit:</u></b> People who are robust, active, energetic and motivated. These people commonly exercise regularly.</p> <p><b><u>Well:</u></b> People who have no active disease symptoms but exercise less regularly than those in group 1. They exercise or are very active occasionally (e.g., seasonally)</p> <p><b><u>Managing Well:</u></b> People whose medical problems are well controlled but are not regularly active beyond walking.</p> <p><b><u>Vulnerable:</u></b> While not dependent on others for daily help, often symptoms limit activities. A common complaint is being 'slowed up', and/or being tired during the day.</p> <p><b><u>Mildly Frail:</u></b> These people often have more evident slowing, and need help in higher order IADLs (finances, transportation, heavy housework, medications). Typically, mild frailty progressively impairs shopping, walking outside alone, meal preparation and house work.</p> <p><b><u>Moderately Frail:</u></b> People need help with all outside activities and with keeping house. Inside, they often have problems with stairs, need help with bathing and may need minimal assistance with dressing.</p>	

	<p><b>Severely Frail:</b> Completely dependent for personal care (resulting from physical or cognitive issues) but seem stable and not at high risk of dying within the next 6 months.</p> <p><b>Extremely Frail:</b> Completely dependent, approaching end of life. Typically, they could not recover from even a minor illness.</p>
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The APD definitions for frailty are based on the scale shown below:

### Clinical Frailty Scale\*



**1 Very Fit** – People who are robust, active, energetic and motivated. These people commonly exercise regularly. They are among the fittest for their age.



**2 Well** – People who have **no active disease symptoms** but are less fit than category 1. Often, they exercise or are very **active occasionally**, e.g. seasonally.



**3 Managing Well** – People whose **medical problems are well controlled**, but are **not regularly active** beyond routine walking.



**4 Vulnerable** – While **not dependent** on others for daily help, often **symptoms limit activities**. A common complaint is being "slowed up", and/or being tired during the day.



**5 Mildly Frail** – These people often have **more evident slowing**, and need help in **high order IADLs** (finances, transportation, heavy housework, medications). Typically, mild frailty progressively impairs shopping and walking outside alone, meal preparation and housework.



**6 Moderately Frail** – People need help with **all outside activities** and with **keeping house**. Inside, they often have problems with stairs and need **help with bathing** and might need minimal assistance (cuing, standby) with dressing.



**7 Severely Frail** – **Completely dependent for personal care**, from whatever cause (physical or cognitive). Even so, they seem stable and not at high risk of dying (within ~ 6 months).



**8 Very Severely Frail** – Completely dependent, approaching the end of life. Typically, they could not recover even from a minor illness.

### Scoring frailty in people with dementia

The degree of frailty corresponds to the degree of dementia. Common **symptoms in mild dementia** include forgetting the details of a recent event, though still remembering the event itself, repeating the same question/story and social withdrawal.

In **moderate dementia**, recent memory is very impaired, even though they seemingly can remember their past life events well. They can do personal care with prompting.

In **severe dementia**, they cannot do personal care without help.

\* 1. Canadian Study on Health & Aging, Revised 2008.  
2. K. Rockwood et al. A global clinical measure of fitness and frailty in elderly people. CMAJ 2005; 173:489-495.

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### Additional Comments

2016 Review: New data element – FRAILITY

## Lactate

<b>Definition</b>	The person's lactate measured in mmol/L.
<b>Specific attributes</b>	Highest lactate value recorded during the first 24 hours of ICU admission.

Data Element Attributes	
Source	Pathology results
Context	Important epidemiological information, acid-base disturbance is associated with increased mortality.
Permissible range	0 – 50 mmol/L
Unknown/Null value	Leave blank
Collection method(s)	<ul style="list-style-type: none"> <li>· Lactate readings can be taken from biochemistry analysis or from blood gas analysis.</li> <li>· Venous blood results can be used in the absence of arterial blood results.</li> <li>· The highest lactate during the first 24 hours in ICU should be collected.</li> <li>· If results are not available from the first 24 hours in ICU, then results from 1 hour prior to ICU admission can be recorded.</li> <li>· If there are still no results available – leave the lactate field blank.</li> </ul>

COMET Warnings		
Error Message	Issue	Data Entry Solution
Critical	Value < 0 or > 50	Record cannot be saved. Check the data source. If data is correct, enter the closest value within the permissible range and report issue to ANZICS CORE.
Warning	Value outside normal range: > 25	Confirm value. Record can be saved.

<b>Additional Comments</b>	2016 Review: New data element – LACTATE
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## Delirium

Definition	An indicator of whether the patient developed delirium during the current episode of ICU care, as represented by a code.	
Data Element Attributes		
Source	Progress notes	
Context	Important epidemiological information	
Permissible range	COMET Options	APD Export File Code
	Yes, delirium developed	1
	No, delirium did not develop	0
Unknown/Null value	Leave blank	
Collection method(s)	<ul style="list-style-type: none"><li>Delirium is defined as an acute or fluctuating mental state (which represents a change from the patient’s normal baseline) and is characterised by inattention with altered level of consciousness, agitation or disorganised thought processes. It should be diagnosed by standardised assessment tools such as (but not limited to) the Confusion Assessment Method for ICU (CAM-ICU).</li><li>Patients who are admitted to ICU due to delirium or with another diagnosis and are noted to have delirium present at the time of ICU admission, should <b>NOT</b> be included.</li><li>Patients who develop delirium after discharge from ICU should <b>NOT</b> be included.</li></ul>	
Additional Comments	2016 Review: New data element – DELIRIUM	

## Pressure Injury

<b>Definition</b>	An indicator of whether the patient developed a pressure injury during the current episode of ICU care, as represented by a code.
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Data Element Attributes		
Source	Progress notes	
Context	Important epidemiological information	
Permissible range	COMET Options	APD Export File Code
	Yes, pressure injury developed	1
	No, pressure injury did not develop	0
Unknown/Null value	Leave blank	
Collection method(s)	<ul style="list-style-type: none"> <li>Patients who develop pressure injuries as a consequence of their stay in ICU should be coded as 'Yes' (1). Pressure injuries of stage II and above should be included.</li> </ul> <p>The following should be included:</p> <ul style="list-style-type: none"> <li>Stage II (partial thickness skin loss),</li> <li>Stage III (full thickness skin loss),</li> <li>Stage IV (full thickness tissue loss) and</li> <li>Unstageable/suspected deep tissue pressure injuries (where skin is breached but depth is unknown)</li> <li>Pressure injuries at any site which meet the above criteria should be included (e.g. include pressure injuries at mouth due to endotracheal tube securing devices and perineal pressure injuries). Pressure injuries which are noted up to 48 hours after discharge from ICU and are considered to be a consequence of the ICU admission may also be included.</li> <li>A patient who had developed a pressure injury during an earlier stay in ICU, and is then readmitted to ICU, should be coded as YES only if a new pressure injury develops during this second ICU admission.</li> </ul> <p><b>Do NOT include:</b></p> <ul style="list-style-type: none"> <li>Stage I pressure injuries with non-blanchable erythema should <b>NOT</b> be included.</li> <li>Patients who are admitted to ICU with a pre-existing pressure injury or in whom a pressure injury is thought to have developed prior to ICU admission <u>and</u> is diagnosed within 48 hours of ICU admission, should <b>NOT</b> be included.</li> <li>Patients with skin loss due to other conditions (e.g. necrotising soft tissue infections or burns) should <b>NOT</b> be included.</li> </ul>	

<b>Additional Comments</b>	2016 Review: New data element – PRESS_INJ
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## Appendix A: Minimum Data Set Export Summary

*Changes made with the release of COMET highlighted in yellow*

Export Field Name	Description	Units of Measure	Page Reference
AGE	Age	years	21
ALBUMHI	Highest value for albumin concentration	g/L	74
ALBUMLO	Lowest value for albumin concentration		
AP3_SUBCODE	APACHE III-J sub-diagnosis using ANZICS modified list of more detailed description of diagnoses, this is a numeric code assigned to a text diagnosis		108
AP3CO2O	APACHE III-J partial pressure of carbon dioxide (from highest scoring ABG)	mmHg	85
AP3DIAG	APACHE III-J diagnosis using ANZICS modified listing of diagnoses, this is a numeric code assigned to a text diagnosis		106
AP3FIO	APACHE III-J fraction of inspired oxygen	% ÷ 100	82
AP3PH	APACHE III-J pH of arterial blood gas		86
AP3PO2	APACHE III-J partial pressure of oxygen	mmHg	84
APACHE3	Apache III-J score		113
ARF	Is acute renal failure present?		95
BILI	Bilirubin concentration	µmol/L	75
CABG_GRAFT	Number of coronary arteries bypassed with a graft during a CABG procedure		111
CABG_REDO	First or redo CABG procedure?		110
CARDARREST	Cardiac arrest in previous 24 hours?		44
CARETYPE	Type of care on admission		38
CAREUNIT	Care unit identifier		18
CHRON	Chronic health evaluation (APACHE II)		96
COMORB	Chronic health evaluation (APACHE III-J)		98
CREATHI	Highest value for creatinine	µmol/L	71
CREATLO	Lowest value for creatinine		
DELIRIUM	Indicator of Delirium within ICU		121
DIABETES	Patient's diabetes status		116
DIASTOLICHI	Highest value for diastolic blood pressure	mmHg	67
DIASTOLICLO	Lowest value for diastolic blood pressure		
ECMO_IND	Indicator of ECMO during ICU stay		103
ELECT_SURG	ICU admission following elective surgery		39
EMG_RSP_ADM	Is this admission to ICU the result of an emergency response?		41
FIO2	APACHE II fraction of inspired oxygen	% ÷ 100	89
FRAILITY	Patient's frailty assessment		118
GCS	Total GCS score		50
GCSEYE	Eye component of GCS		53
GCSMOTOR	Motor component of GCS		55
GCSVERB	Verbal component of GCS		54
GCS_SEDATED	GCS unavailable due to sedation		52
GLUCHI	Highest value for glucose concentration	mmol/L	76
GLUCLO	Lowest value for glucose concentration		
HCO3HI	Highest value for bicarbonate of blood	mmol/L	70
HCO3LO	Lowest value for bicarbonate of blood		

Export Field Name	Description	Units of Measure	Page Reference
HCTHI	Highest value for haematocrit	% ÷ 100	78
HCTLO	Lowest value for haematocrit		
HEIGHT	Height	cm	26
HMGNHI	Highest value for haemoglobin	g/dL	80
HMGNLO	Lowest value for haemoglobin		
HOSP_AD_DT	Date of hospital admission		28
HOSP_AD_TM	Time of hospital admission		29
HOSP_DS_DT	Date of hospital discharge		31
HOSP_DS_TM	Time of hospital discharge		32
HOSP_OUTCM	Hospital discharge destination		33
HOSP_SRCE	Source of admission to hospital		30
HRHI	Highest value for heart rate	bpm	58
HRLO	Lowest value for heart rate		
ICU_AD_DT	ICU admission date		35
ICU_AD_TM	ICU admission time		36
ICU_DS_DEC_DT	ICU discharge decision date		45
ICU_DS_DEC_TM	ICU discharge decision time		46
ICU_DS_DT	ICU discharge date		47
ICU_DS_TM	ICU discharge time		48
ICU_OUTCM	ICU discharge destination		49
ICU_SRCE	ICU admission source		37
INDIGENOUS	Indigenous status		23
INOTROP_IND	Indicator of inotrope/vasopressor administration during ICU stay		105
INTUBATED	Is the patient intubated?		88
INV_DAYONE	Invasively ventilated on day 1		94
INV_HOURS	Total invasive ventilation hours		114
INV_IND	Indicator of invasive ventilation during ICU stay		101
KHI	Highest value for potassium concentration	mmol/L	69
KLO	Lowest value for potassium concentration		
LACTATE	Highest value for lactate	mmol/L	120
MAPHI	Highest value for mean arterial pressure	mmHg	64
MAPLO	Lowest value for mean arterial pressure		
NAHI	Highest value for sodium concentration	mmol/L	68
NALO	Lowest value for sodium concentration		
NIV_HOURS	Total non-invasive ventilation hours		115
NIV_IND	Indicator of non-invasive ventilation during ICU stay		102
PACO2	APACHE II partial pressure of carbon dioxide	mmHg	92
PAO2	APACHE II partial pressure of oxygen	mmHg	91
PATIENTID	Patient identifier		19
PH	APACHE II pH of arterial blood		93
PLAN_ICU	Planned admission to ICU		40
PLATHI	Highest value for platelets	10 <sup>9</sup> /L	81
PLATLO	Lowest value for platelets		81
POSTCODE	Residential postcode		24

Export Field Name	Description	Units of Measure	Page Reference
PREG_STAT	Pregnancy status of a female patient		27
PRESS_INJ	Indicator of pressure injury within ICU		122
RENAL_IND	Indicator of renal replacement therapy during ICU stay		104
RRHI	Highest value for respiratory rate	bpm	60
RRHI_VENT	Invasive ventilation status for RR high		62
RRLO	Lowest value for respiratory rate	bpm	60
RRLO_VENT	Invasive ventilation status for RR low		63
SEX	Sex		22
SLK581	Statistical linkage key		20
SYSTOLICHI	Highest value for systolic blood pressure	mmHg	66
SYSTOLICLO	Lowest value for systolic blood pressure		
TEMPHI	Highest value for core temperature	° Celsius	56
TEMPLO	Lowest value for core temperature		
THROMB_THERAPY	Thrombolytic therapy status		109
THROMBPRO	Thromboembolism prophylaxis		43
TRACHE_IND	Indicator of tracheostomy performed during ICU stay		100
TREAT_LMT	Treatment goals on admission		42
UREA	Urea concentration	mmol/L	73
URINEOP	Urine output	ml	77
WCCHI	Highest value for white cell count	10 <sup>9</sup> /L	79
WCCLO	Lowest value for white cell count		
WEIGHT	Weight	Kg	25

## Appendix B: ICU Diagnosis – APACHE III-J non-operative

Cardiovascular	
101	Cardiogenic shock
102	Cardiac arrest
103	Aortic aneurysm
104	Congestive heart failure
105	Peripheral vascular disease
106	Rhythm disturbance
107	Acute myocardial infarction
108	Hypertension
109	Other cardiovascular disease
110	Cardiomyopathy
111	Unstable angina
Respiratory	
201	Aspiration pneumonia
202	Respiratory neoplasm including larynx/trachea
203	Respiratory arrest
204	Pulmonary oedema – non-cardiac
206	Chronic obstructive pulmonary disease
207	Pulmonary embolism
208	Mechanical airway obstruction
209	Asthma
210	Parasitic pneumonia
211	Other respiratory diseases
212	Bacterial pneumonia
213	Viral pneumonia
301	Hepatic failure
303	GI bleeding – varices
305	GI bleeding – ulcer/laceration
306	GI bleeding – diverticulosis
307	Other GI disease
308	GI perforation
309	GI obstruction
310	GI vascular insufficiency
311	Pancreatitis
312	GI cancer
313	Other GI inflammatory disease
Neurological	
401	Intracerebral haemorrhage
402	Subarachnoid haemorrhage
403	Stroke
404	Neurologic infection
405	Neurologic neoplasm
406	Neuromuscular disease
407	Seizure
408	Other neurologic disease
409	Epidural haematoma
410	Coma

Sepsis	
501	Sepsis, other than urinary
502	Sepsis of urinary tract origin
503	Sepsis with shock, other than urinary
504	Sepsis of urinary tract origin with shock (ANZICS Addition)
Trauma	
601	Head trauma +/- multi trauma
602	Multiple trauma excluding head
603	Burns (ANZICS Addition)
604	Multi trauma with spinal injury (ANZICS Addition)
605	Isolated cervical spine injury (ANZICS Addition)
701	Metabolic coma
702	Diabetic ketoacidosis
703	Drug overdose
704	Other metabolic disorders
Haematological	
801	Coagulopathy/Neutropaenia/Thrombocytopaenia
802	Other haematologic disorders
Renal/Genitourinary	
901	Renal disorders
902	Pre-eclampsia
903	Haemorrhage, post-partum (female only)
Musculoskeletal/Skin disease	
1101	Musculoskeletal/Skin disease
1102	Cellulitis/Soft tissue infection
Undefined/Unknown	
0	No diagnosis entered

*Note: A patient with missing diagnosis will not receive an APACHE III-J predicted risk of death and will be excluded from APACHE III-J SMR calculations.*

## Appendix C: ICU Diagnosis – APACHE III-J post-operative

Cardiovascular	
1202	Peripheral vascular disease
1203	Peripheral artery bypass graft
1204	Elective AAA
1205	Carotid endarterectomy
1206	Valvular heart surgery
1207	Coronary artery bypass grafts* (ANZICS Addition)
1208	Other cardiovascular diseases
1209	Dissecting aortic aneurysm
1210	Ruptured aortic aneurysm
1211	Aorto-femoral bypass graft
1212	CABG with valve repair/replacement
1213	Endoluminal aortic repair (ANZICS Addition)
Respiratory	
1301	Respiratory infection
1302	Respiratory neoplasm – lung
1303	Respiratory neoplasm – mouth, larynx, sinus, trachea
1304	Other respiratory diseases
Gastrointestinal	
1401	GI perforation/rupture (not peritonitis)
1403	GI bleeding
1404	GI obstruction
1405	GI neoplasm
1406	Cholecystitis/Cholangitis
1407	Liver transplant
1408	Other GI diseases
1409	Fistula/Abscess surgery
1410	GI vascular ischaemia resection surgery
1411	Pancreatitis
1412	Peritonitis
1413	Other GI inflammatory disease
Neurological	
1501	Intracerebral haemorrhage
1502	Subdural/Epidural haematoma
1503	Subarachnoid haemorrhage
1504	Laminectomy/Spinal cord surgery
1505	Craniotomy for neoplasm
1506	Other neurologic disease
Trauma	
1601	Head trauma +/- multi trauma
1602	Multiple trauma excluding head
1603	Burns (ANZICS Addition)
1604	Multi trauma with spinal injury (ANZICS Addition)
1605	Isolated cervical spine injury (ANZICS Addition)

\* Risk of death calculation for CABG only patients (diagnosis code 1207) is based on CABG\_REDO and CABG\_GRAFTS values.



<b>Renal/Genitourinary</b>	
1701	Renal neoplasm
1703	Other renal diseases
1704	Kidney transplant
1705	Genitourinary surgery/procedure
<b>Gynaecological</b>	
1801	Hysterectomy
1802	Pregnancy-related disorder
1803	Other gynaecological disease
<b>Musculoskeletal</b>	
1902	Orthopaedic surgery
1903	Skin surgery
1904	Cellulitis/Soft tissue infection
<b>Haematological</b>	
2101	Haematological disease
<b>Metabolic</b>	
2201	Metabolic disease
<b>Undefined/Unknown</b>	
0	No diagnosis entered

*Note: A patient with missing diagnosis will not receive an APACHE III-J predicted risk of death and will be excluded from APACHE III-J SMR calculations.*

## Appendix D: APACHE III-J Sub-Diagnosis codes

APACHE III-J Diagnostic Code		Description
101	101.01	Shock; cardiogenic
	101.02	Papillary muscle rupture
102	102.01	Cardiac arrest with or without respiratory arrest; for respiratory arrest see Respiratory System
	102.02	Poisoning, carbon monoxide, arsenic and cyanide; non-traumatic coma due to anoxia/ischemia
103	103.01	Aneurysm, dissecting aortic
104	104.01	Congestive heart failure
105	105.01	Aneurysm/pseudoaneurysm, other
	105.02	Thrombus, arterial
106	106.02	rhythm disturbance (conduction defect)
	106.03	Rhythm disturbance (atrial, supraventricular)
	106.04	Rhythm disturbance (ventricular)
107	107.02	Infarction, acute myocardial (MI), ANTERIOR
	107.03	Infarction, acute myocardial (MI), INFEROLATERAL
	107.04	Infarction, acute myocardial (MI), NON Q Wave
	107.05	Infarction, acute myocardial (MI), none of the above
108	108.01	Hypertension, uncontrolled (for cerebrovascular accident see Neurological)
109	109.01	Anaphylaxis
	109.02	Angina, stable (asymptomatic or stable pattern of symptoms with meds)
	109.03	Cardiovascular medical, other
	109.04	Chest pain, atypical (non-cardiac chest pain)
	109.05	Effusion, pericardial
	109.06	Endocarditis
	109.07	Haematomas, cardiac
	109.08	Haemorrhage (for GI bleeding see GI, for trauma see Trauma)
	109.09	Hypovolemia (including dehydration). Do NOT include shock states
	109.10	MI admitted >24 hrs after ischemia onset
	109.11	Monitoring, hemodynamic (pre-operative evaluation)
	109.12	Pericarditis
	109.13	Tamponade, pericardial
	109.14	Thrombosis, vascular (deep vein)
	109.15	Toxicity, drug (e.g. digoxin, theophylline, dilantin, etc.)
	109.16	Vascular medical, other
	109.17	Complications of previous open heart surgery
	109.18	Chest pain, musculoskeletal
	109.19	Chest pain, respiratory
	109.20	Chest pain, unknown origin
110	110.01	Cardiomyopathy
111	111.01	Angina, unstable (angina interferes with quality of life or meds are tolerated poorly)
201	201.01	Pneumonia, aspiration, toxic, chemical pneumonitis
202	202.02	Cancer, laryngeal
	202.03	Cancer, lung
	202.04	Cancer, oral
	202.05	Cancer, tracheal
203	203.01	Arrest, respiratory (without cardiac arrest)

APACHE III-J Diagnostic Code		Description
204	204.01	ARDS-adult respiratory distress syndrome, non-cardiogenic pulmonary edema
206	206.01	Emphysema/bronchitis
207	207.01	Embolus, pulmonary
208	208.01	Obstruction-airway (e.g. acute epiglottitis, post-extubation edema, foreign body, etc.)
209	209.01	Asthma
210	210.01	Pneumonia, fungal
	210.02	Pneumonia, parasitic (e.g. Pneumocystis pneumonia)
211	211.01	Apnea, sleep
	211.02	Atelectasis
	211.03	Effusions, pleural
	211.04	Hemorrhage/haemoptysis, pulmonary
	211.05	Hemothorax
	211.06	Hypertension-pulmonary, primary/idiopathic
	211.07	Near drowning accident
	211.08	Pneumothorax
	211.09	Respiratory-medical, other
	211.10	Restrictive lung diseases (e.g. sarcoidosis, pulmonary fibrosis)
	211.11	Smoke inhalation
	211.12	Weaning from mechanical ventilation (transfer from other unit or hospital only)
212	212.01	Pneumonia, bacterial
	212.02	Pneumonia, other
213	213.01	Pneumonia, viral
301	301.01	Acute hepatic failure
	301.02	Hepatic encephalopathy
	301.03	Hepato-renal syndrome
	301.04	Liver transplant rejection
303	303.01	Bleeding, GI from oesophageal varices/portal hypertension
305	305.01	Bleeding, GI- location unknown
	305.02	Bleeding, upper GI
306	306.01	Bleeding, lower GI
307	307.01	GI medical, other
	307.02	Haemorrhage, intra/retroperitoneal
	307.03	Ulcer disease, peptic
	307.04	Adrenal neoplasm (including pheochromocytoma)
	307.05	Chest pain, epigastric
308	308.01	GI perforation/rupture
309	309.01	GI obstruction
310	310.01	GI vascular insufficiency
311	311.01	Pancreatitis
312	312.01	Cancer of the colon/rectal
	312.02	Cancer of the oesophagus
	312.03	Cancer of the pancreas
	312.04	Cancer of the stomach
	312.05	Cancer of other GI
313	313.01	Cholangitis
	313.02	Diverticular disease
	313.03	GI abscess/cyst
313	313.04	Inflammatory bowel disease
	313.05	Peritonitis

APACHE III-J Diagnostic Code		Description
401	401.01	Haemorrhage/haematoma, intracranial
402	402.01	Subarachnoid haemorrhage/arteriovenous malformation
	402.02	Subarachnoid haemorrhage/intracranial aneurysm
403	403.01	CVA, Cerebrovascular accident/stroke
404	404.01	Abscess, neurologic
	404.02	Encephalitis
	404.03	Meningitis
405	405.01	Neoplasm, neurologic
406	406.01	Amyotrophic lateral sclerosis
	406.02	Guillian-Barre syndrome
	406.03	Myasthenia gravis
	406.04	Neuromuscular medical, other
407	407.01	Seizures (primary-no structural brain disease)
408	408.01	Hydrocephalus, obstructive
	408.02	Neurologic medical, other
	408.03	Palsy, cranial nerve
409	409.01	Haematoma, epidural
	409.02	Haematoma, subdural
410	410.01	Coma/change in level of consciousness (not hepatic, diabetic or CA related)
501	501.01	Sepsis, cutaneous/soft tissue
	501.02	Sepsis, GI
	501.03	Sepsis, gynaecologic
	501.04	Sepsis, other
	501.05	Sepsis, pulmonary
	501.06	Sepsis, unknown
502	502.01	Sepsis, renal/UTI (including bladder)
503	503.01	Sepsis with shock, not urinary tract
504	504.01	Sepsis with shock, urinary tract
601	601.01	Head (CNS) only trauma
	601.02	Head/abdomen trauma
	601.03	Head/chest trauma
	601.04	Head/extremity trauma
	601.05	Head/face trauma
	601.06	Head/multiple trauma
	601.07	Head/pelvis trauma
	601.08	Head/spinal trauma
602	602.01	Abdomen only trauma
	602.02	Abdomen/extremity trauma
	602.03	Abdomen/face trauma
	602.04	Abdomen/multiple trauma
	602.05	Abdomen/pelvis trauma
	602.06	Chest/abdomen trauma
	602.07	Chest/extremity trauma
	602.08	Chest/face trauma
	602.09	Chest/multiple trauma
	602.10	Chest/pelvis trauma
	602.11	Chest/thorax trauma
	602.12	Extremity only trauma
	602.13	Extremity/face trauma
	602.14	Extremity/multiple trauma

APACHE III-J Diagnostic Code		Description
602	602.15	Face only trauma
	602.16	Face/multiple trauma
	602.17	Pelvis/extremity trauma
	602.18	Pelvis/face trauma
	602.19	Pelvis/hip only trauma
	602.20	Pelvis/multiple trauma
	602.21	Trauma medical, other
	602.22	Contusion, myocardial
603	603.01	Burns
604	604.01	Abdomen/spinal trauma
	604.02	Chest/spinal trauma
	604.03	Pelvis/spinal trauma
	604.04	Spinal/extremity trauma
	604.05	Spinal/face trauma
	604.06	Spinal/multiple trauma
	604.07	Hanging
605	605.01	Isolated cervical spine injury
701	701.01	Diabetic hyperglycaemic hyperosmolar non-ketotic coma (HHNC)
	701.02	Encephalopathies (excluding hepatic)
702	702.01	Diabetic ketoacidosis
703	703.01	Alcohol withdrawal
	703.02	Drug withdrawal
	703.04	Overdose, alcohols (ethanol, methanol, ethylene glycol)
	703.05	Overdose, analgesic (aspirin, acetaminophen)
	703.06	Overdose, antidepressants (tricyclic, lithium)
	703.07	Overdose, other toxin, poison or drug
	703.08	Overdose, sedatives, hypnotics, antipsychotics, benzodiazepines
	703.09	Overdose, street drugs (opiates, cocaine, amphetamine)
	703.10	Envenomation by snake
	703.11	Envenomation by jellyfish and other invertebrates
	703.12	Envenomation by other animal
704	704.01	Acid-Base electrolyte disturbance
	704.02	Addison's disease/Hypoadrenal crisis
	704.03	Cushing's Syndrome/Disease
	704.04	Heat exhaustion/stroke
	704.05	Hyperthermia
	704.06	Hyperthyroid storm/crisis
	704.07	Hypoglycaemia
	704.08	Hypothermia
	704.09	Hypothyroid/Myxedema
	704.10	Metabolic/Endocrine medical, other
	704.11	Thyroid neoplasm
801	801.01	Coagulopathy
	801.02	Neutropaenia
	801.03	Pancytopenia
	801.04	Thrombocytopaenia
802	802.01	Anaemia
	802.02	Blood transfusion reaction
802	802.03	Leukaemia; ALL
	802.04	Leukaemia; AML
	802.05	Leukaemia; CLL

APACHE III-J Diagnostic Code		Description
	802.06	Leukaemia; CML
	802.07	Lymphoma, Hodgkins
	802.08	Lymphoma, non-Hodgkins
	802.09	Sickle cell crisis
	802.10	Leukaemia, other
	802.11	Hematologic medical, other
901	901.01	Genitourinary medical, other
	901.02	Renal bleeding
	901.03	Renal failure, acute
	901.04	Renal infection/abscess
	901.05	Renal neoplasm, cancer
	901.06	Renal obstruction
	901.07	Kidney transplant
902	902.01	Pre-eclampsia/Eclampsia (female only)
903	903.01	Haemorrhage, postpartum (female only)
1101	1101.01	Arthritis, rheumatoid
	1101.02	Arthritis, septic
	1101.03	Connective tissue disease (mixed)
	1101.04	Musculoskeletal medical, other
	1101.05	Lupus, systemic
	1101.06	Myositis, viral
	1101.07	Rhabdomyolysis without acute renal failure
	1101.08	Scleroderma
	1101.09	Vasculitis
1102	1102.01	Cellulitis and localized soft tissue infections
1202	1202.01	Dilation (with general anaesthesia)
	1202.02	Dilation (without general anaesthesia)
	1202.03	Embolectomy (with general anaesthesia)
	1202.04	Embolectomy (without general anaesthesia)
	1202.05	Grafts, all other bypass (except renal)
	1202.06	Grafts, all renal bypass
	1202.07	Thrombectomy (with general anaesthesia)
	1202.08	Thrombectomy (without general anaesthesia)
1203	1203.01	Graft, aorto-iliac bypass
	1203.02	Graft, femoral-popliteal bypass
1204	1204.01	Aneurysm, abdominal aortic
	1204.02	Aneurysm, thoracic
1205	1205.01	Endarterectomy, carotid
	1205.02	Carotid Tumour
1206	1206.01	Valve, double; repair/replacement
	1206.05	Valve, triple, repair/replacement
	1206.06	Aortic valve replacement (isolated)
	1206.07	Mitral valve repair
	1206.08	Mitral valve replacement
	1206.09	Pulmonary valve surgery
	1206.10	Tricuspid valve surgery
1207	1207.01	CABG alone, coronary artery bypass grafting
	1207.02	CABG alone, redo
	1207.03	CABG with other operation (not valve repair/replacement)
	1208.01	Ablation or mapping of cardiac conduction pathway
	1208.02	Aneurysm repair, ventricular

APACHE III-J Diagnostic Code	Description	
1208	1208.03	Aneurysms, repair of other (except ventricular)
	1208.05	CABG, Minimally invasive; Mid-CABG
	1208.06	Cardiovascular surgery, other
	1208.07	Complications of previous peripheral vascular surgery
	1208.08	Complications of previous open-heart surgery, surgery for (e.g. bleeding, infection, mediastinal rewire)
	1208.09	Defibrillator, automatic implantable cardiac; insertion of
	1208.10	Endarterectomy (other vessels)
	1208.11	Graft for dialysis, insertion of
	1208.12	Grafts, removal of infected vascular
	1208.13	Pericardial effusion/tamponade
	1208.14	Pericardiectomy (total/subtotal)
	1208.15	Tumour removal, intracardiac
	1208.16	Vascular surgery, other
	1208.17	Vena cava clipping
	1208.18	Vena cava filter insertion
	1208.19	Congenital Defect Repair (Other)
	1208.20	Atrial Septal Defect (ASD) Repair
	1208.21	Ventricular Septal Defect (VSD) Repair
	1208.22	Heart Transplant
	1208.23	Transcatheter aortic valve implantation/replacement (TAVI/TAVR)
	1208.24	Bentall's repair
1209	1209.01	Aneurysm, abdominal aortic; with dissection
	1209.02	Aneurysm, thoracic aortic; with dissection
1210	1210.01	Aneurysm, abdominal aortic; with rupture
	1210.02	Aneurysm, thoracic aortic; with rupture
1211	1211.01	Graft, aorto-femoral bypass
	1211.02	Graft, femoral-femoral bypass
1212	1212.01	CABG redo with valve repair/replacement
	1212.02	CABG with double valve repair/replacement
	1212.04	CABG with aortic valve replacement
	1212.05	CABG with mitral valve repair
	1212.06	CABG with mitral valve replacement
	1212.07	CABG with pulmonic or tricuspid valve repair or replacement.
1213	1213.01	Aneurysm, abdominal aortic endoluminal repair
	1213.02	Aneurysm, thoracic aortic endoluminal repair
1301	1301.01	Infection/abscess, other surgery for
	1301.02	Thoracotomy for thoracic/respiratory infection
1302	1302.01	Thoracotomy for benign tumour (e.g. mediastinal chest wall mass, thymectomy)
	1302.02	Thoracotomy for lung cancer
	1302.03	Thoracotomy for other malignancy in chest
1303	1303.01	Cancer oral/sinus surgery for
	1303.02	Cancer-laryngeal/tracheal, surgery for
1304	1304.01	Apnea-sleep; surgery for (e.g. UPPP-uvulopalatopharyngoplasty)
	1304.02	Biopsy, open lung
	1304.03	Bullectomy
	1304.04	Facial surgery (if related to trauma, see Trauma)
	1304.05	Respiratory surgery, other
	1304.06	Thoracotomy for bronchopleural fistula
	1304.07	Thoracotomy for lung reduction
	1304.08	Thoracotomy for other reasons

APACHE III-J Diagnostic Code		Description
	1304.09	Thoracotomy for pleural disease
	1304.10	Tracheostomy
	1304.11	Lung transplant (including heart/lung)
1401	1401.01	GI Perforation/rupture, surgery for
1403	1403.01	Bleeding-lower GI, surgery for
	1403.02	Bleeding-other GI, surgery for
	1403.03	Bleeding-upper GI, surgery for
	1403.04	Bleeding-variceal, surgery for (excluding vascular shunting-see surgery for portosystemic shunt, 1408.12)
1404	1404.01	GI obstruction, surgery for (including lysis of adhesions)
1405	1405.01	Thoracotomy for oesophageal cancer
	1405.02	Cancer-colon/rectal, surgery for (including abdominoperineal resections)
	1405.03	Cancer - oesophageal, surgery for (abdominal approach)
	1405.04	Cancer-other GI tract, surgery for (e.g. hepatoma, gallbladder etc.)
	1405.05	Cancer-small intestinal, surgery for
	1405.06	Cancer-stomach, surgery for
	1405.07	Whipple surgery for pancreatic cancer
1406	1406.01	Cholecystectomy/Cholangitis, surgery for (gallbladder removal)
1407	1407.01	Liver transplant
1408	1408.01	Appendectomy
	1408.02	CAPD catheter insertion
	1408.03	Complications of previous GI surgery; surgery for anastomotic leak, bleeding, abscess, infection etc
	1408.04	Oesophageal surgery, other
	1408.05	Gastrostomy
	1408.06	GI surgery, other
	1408.07	Hernia-hiatal, oesophageal surgery for
	1408.08	Herniorrhaphy
	1408.09	Obesity-morbid, surgery for (Bariatric surgery)
	1408.10	Peritoneal lavage
	1408.11	Shunt, peritoneal-venous surgery for
	1408.12	Shunt, portosystemic surgery for
	1408.13	Splenectomy
1409	1409.01	Fistula/abscess, surgery for (not inflammatory bowel disease)
	1409.02	GI abscess/cyst-primary, surgery for (for complications of GI surgery, see 1408.03)
1410	1410.01	GI vascular ischaemia, surgery for (resection)
1411	1411.01	Pancreatitis, surgery for
1412	1412.01	Peritonitis, surgery for
1413	1413.01	Diverticular disease, surgery for
	1413.02	Inflammatory bowel disease, surgery for
1501	1501.01	Haemorrhage/Haematoma - intracranial, surgery for
1502	1502.01	Haematoma, extradural, surgery for
	1502.02	Haematoma, subdural, surgery for
1503	1503.01	Arteriovenous malformation, surgery for
	1503.02	Subarachnoid haemorrhage/Intracranial aneurysm, surgery for
1504	1504.01	Complications of previous spinal cord surgery, surgery for
1504	1504.02	Devices for spine fracture/dislocation
	1504.03	Fusion-spinal/Harrington rods
	1504.04	Neoplasm-spinal cord surgery or other related procedures
	1504.05	Spinal cord surgery, other



APACHE III-J Diagnostic Code		Description
	1504.06	Sympathectomy
	1504.07	Laminectomy
	1505	1505.01 Neoplasm-cranial, surgery for (excluding transphenoidal)
	1505.02	Transphenoidal surgery
1506	1506.01	Abscess/Infection-cranial, surgery for
	1506.02	Anastomosis, vascular
	1506.03	Biopsy, brain
	1506.04	Burr hole placement
	1506.05	Cerebrospinal fluid leak, surgery for
	1506.06	Cranioplasty and complications from previous craniotomies
	1506.07	Neurologic surgery, other
	1506.08	Seizures-intractable, surgery for
	1506.09	Shunts and revisions
	1506.10	Stereotactic procedure
	1506.11	Ventriculostomy
	1506.12	Cranial nerve, decompression/ligation
	1506.13	Coiling of aneurysm
	1506.14	Endovascular clot retrieval
1601	1601.01	Head (CNS) only trauma, surgery for
	1601.02	Head/abdomen trauma, surgery for
	1601.03	Head/chest trauma, surgery for
	1601.04	Head/extremity trauma, surgery for
	1601.05	Head/face trauma, surgery for
	1601.06	Head/multiple trauma, surgery for
	1601.07	Head/pelvis trauma, surgery for
	1601.08	Head/spinal trauma, surgery for
1602	1602.01	Abdomen only trauma, surgery for
	1602.02	Abdomen/extremity trauma, surgery for
	1602.03	Abdomen/face trauma, surgery for
	1602.04	Abdomen/multiple trauma, surgery for
	1602.05	Abdomen/pelvis trauma, surgery for
	1602.06	Chest/abdomen trauma, surgery for
	1602.07	Chest/extremity trauma, surgery for
	1602.08	Chest/face trauma, surgery for
	1602.09	Chest/multiple trauma, surgery for
	1602.10	Chest/pelvis trauma, surgery for
	1602.11	Chest/thorax only trauma, surgery for
	1602.12	Extremity only trauma, surgery for
	1602.13	Extremity/face trauma, surgery for
	1602.14	Extremity/multiple trauma, surgery for
	1602.15	Face only trauma, surgery for
	1602.16	Face/multiple trauma, surgery for
	1602.17	Pelvis/extremity trauma, surgery for
	1602.18	Pelvis/face trauma, surgery for
	1602.19	Pelvis/hip trauma, surgery for
	1602.20	Pelvis/multiple trauma, surgery for
	1602.21	Trauma surgery, other
1603	1603.01	Burns
1604	1604.01	Abdomen/spinal trauma, surgery for
	1604.02	Chest/spinal trauma, surgery for
	1604.03	Spinal/extremity trauma, surgery for

APACHE III-J Diagnostic Code		Description
	1604.04	Spinal/face trauma, surgery for
	1604.05	Spinal/multiple trauma, surgery for
	1604.06	Pelvis/spinal trauma, surgery for
1605	1605.01	Spinal cord only trauma, surgery for
1701	1701.01	Cystectomy for neoplasm
	1701.02	Nephrectomy for neoplasm
	1701.03	Prostatectomy, suprapubic: for cancer
	1701.04	TURP, transurethral prostate resection for cancer
	1701.05	Obstruction due to neoplasm, surgery for; (with or without ileal-conduit)
1703	1703.01	Bladder repair for perforation/rupture
	1703.02	Cystectomy (other reasons)
	1703.03	Nephrectomy (other reasons)
	1703.04	Obstruction due to nephrolithiasis, surgery for (with or without ileal-conduit)
	1703.05	Obstruction/other, surgery for (with or without ileal-conduit)
	1703.06	Orchiectomy with/without pelvic lymph node dissection
	1703.07	Prostatectomy, suprapubic; for benign prostatic hypertrophy
	1703.08	TURP, transurethral prostate resection for benign prostatic hypertrophy
1704	1704.01	Kidney transplant
1705	1705.01	Exenteration, pelvic-male
	1705.02	Exenteration, pelvic-female
	1705.03	Genitourinary surgery, other
	1705.04	Lymph node dissection, pelvic or retroperitoneal (female)
	1705.05	Lymph node dissection, pelvic or retroperitoneal (male)
	1705.06	Pelvic relaxation (cystocele, rectocele, etc.)
	1705.07	Peritonectomy and cytoreductive surgery
1801	1801.01	Hysterectomy for cancer with or without lymph node dissection
	1801.02	Hysterectomy for other benign neoplasm/fibroids
1802	1802.01	Caesarean section
	1802.02	Ectopic pregnancy (all)
	1802.03	Other obstetric conditions
1803	1803.01	Cyst, ruptured ovarian
	1803.02	Oophorectomy with/without salpingectomy with/without lymph node dissection
1902	1902.01	Amputation (non-traumatic)
	1902.02	Fracture-pathological, non-union, non-traumatic
	1902.03	Hip replacement (non-traumatic)
	1902.04	Knee replacement (non-traumatic)
	1902.05	Orthopedic surgery, other
1903	1903.01	Cosmetic surgery (all)
	1903.02	Grafting skin (all)
	1903.03	Skin surgery, other
	1903.04	Mastectomy (all)
1904	1904.01	Cellulitis and localized soft tissue infections, surgery for
2101	2101.01	Haematologic surgery, other
	2101.02	Lymphoma, Hodgkins, surgery for (including staging)
	2101.03	Lymphoma, non-Hodgkins, surgery for (including staging)
2201	2201.01	Adrenalectomy
	2201.02	Metabolic/endocrine surgery, other
	2201.03	Parathyroidectomy
	2201.04	Thyroidectomy and parathyroidectomy

APACHE III-J Diagnostic Code	Description	
	2201.05	Thyroidectomy

**Retired APACHE III-J sub-codes – these codes are no longer available within COMET.**

APACHE III-J Diagnostic Code	APACHE III-J Sub-code	Description
106	106.01	Rhythm disturbance (primary, i.e. conductive defect)
107	107.01	AMI
202	202.01	Cancer of laryngeal, lung, oral or tracheal
703	703.03	Overdose, self-inflicted
1002	1002.01	Other medical
1206	1206.02	Valve, redo, single
1206	1206.03	Valve, single; repair/replacement
1208	1208.04	Anomaly, cardiac congenital
1212	1212.03	CABG with single valve repair/replacement



**ICU source and diagnosis examples:**

Complication prior to surgery	<p>Patient is transferred from ward to OT for hip replacement surgery. Once in the OT, prior to anaesthesia being administered the patient has a cardiac arrest and is transferred to ICU.</p> <p><b>ICU admission source:</b> Ward (location prior to OT)  <b>Apache III-J diagnosis:</b> 102.01 (cardiac arrest [non-operative])</p> <p><b>Rule:</b> Where no operation/no anaesthesia is initiated, the patient can be treated as a non-operative admission. The ICU source of admission will be the patient's location prior to OT.</p>
Complication during surgery	<p>Patient is transferred from ward to OT for hip replacement surgery. Once in OT the patient is anaesthetised and then suffers a cardiac arrest. Patient is transferred to ICU.</p> <p><b>ICU admission source:</b> Ward (location prior to OT)  <b>Apache III-J diagnosis:</b> 102.01 (cardiac arrest [non-operative])</p> <p><b>Rule:</b> If the patient received anaesthesia but the surgical procedure was cancelled/not initiated, the patient should be treated as a non-operative admission. The source of admission will be the patient's location prior to OT.</p>
Anaphylaxis during surgery	<p>Patient is transferred from ward to OT for hip replacement surgery. Once in OT the patient is anaesthetised and has an anaphylactic reaction to the anaesthetic. The patient is transferred to ICU.</p> <p><b>ICU admission source:</b> Ward (location prior to OT)  <b>Apache III-J diagnosis:</b> 109.01 (Anaphylaxis [non-operative])</p> <p><b>Rule:</b> If the patient received anaesthesia but the surgical procedure was cancelled/not initiated, the patient should be treated as a non-operative admission. The source of admission will be the patient's location prior to OT.</p>
Complication in Recovery	<p>Patient is transferred from ward to OT for hip replacement surgery. Once in OT the patient is anaesthetised and undergoes the required surgery. Following surgery the patient is transferred to Recovery. In Recovery, the patient suffers a cardiac arrest and is transferred to ICU.</p> <p><b>ICU admission source:</b> OT/Recovery  <b>Apache III-J diagnosis:</b> 1902.03 (hip replacement, non-traumatic [post-operative])</p> <p><b>Rule:</b> All patients with an ICU source of OT/Recovery must be given a post-operative diagnosis that corresponds to the surgical procedure that was performed (even if the admission to ICU was due to an intra-operative or post-operative complication).</p>
Complication on ward	<p>Patient is transferred from ward to OT for hip replacement surgery. Once in OT the patient is anaesthetised and undergoes the required surgery. Following surgery the patient spends time in recovery and is then transferred to a bed on the ward. Within an hour of being transferred to the ward, the patient suffers a cardiac arrest and is transferred to ICU.</p> <p><b>ICU admission source:</b> Ward  <b>Apache III-J diagnosis:</b> 102.01 (cardiac arrest [non-operative])</p> <p><b>Rule:</b> Patients with an admission source other than OT/Recovery must be given a non-operative diagnosis that corresponds to what is regarded by the clinician, in the first 24 hours of the ICU admission, as the predominant reason for the ICU admission.</p>
Surgical transfer from another hospital	<p>Patient undergoes CABG surgery at another hospital. Due to lack of beds in that hospital's ICU the patient is transferred to your ICU immediately following surgery.</p> <p><b>ICU admission source:</b> Other hospital  <b>Apache III-J diagnosis:</b> 1207.01 (CABG [post-operative])</p> <p><b>Rule:</b> Patients transferred to ICU directly from the OT/Recovery at another hospital may be given a post-operative diagnosis even though their ICU admission source will be "other hospital".</p>

Surgical transfer from another hospital	<p>Patient undergoes CABG surgery at another hospital. Due to lack of beds in that hospital's ICU the patient is transferred to your hospital immediately following surgery. The patient passes through the emergency department briefly and is then admitted to ICU.</p> <p><b>ICU admission source:</b> Other Hospital  <b>Apache III-J diagnosis:</b> 1207.01 (CABG [post-operative])</p> <p><b>Rule:</b> Patients transferred to ICU directly from the OT/Recovery at another hospital should be coded as ICU admission source = Other Hospital and can be given a post-operative diagnosis, even if the patient passed through ED briefly on the way to ICU.</p>
Post-surgical transfer from another hospital	<p>Patient undergoes hip replacement surgery at another hospital. Following surgery the patient spends time in recovery and is then transferred to a bed on the ward. Several hours later the patient suffers a cardiac arrest and, due to a lack of beds in the ICU at the original hospital, the patient is transferred to your ICU.</p> <p><b>ICU admission source:</b> Other hospital  <b>Apache III-J diagnosis:</b> 102.01 (cardiac arrest [non-operative])</p> <p><b>Rule:</b> Patient was not transferred directly from OT/Recovery at another hospital, therefore the patient must be given a non-operative diagnosis.</p>
Pre-surgery ICU admission	<p>Patient presents to ED with left rib fractures and splenic lacerations following a motorcycle accident. Is taken from ED to radiology for embolisation of spleen. Is then admitted to ICU for observation prior to going to OT for a splenectomy.</p> <p><b>ICU admission source:</b> ED  <b>Apache III-J diagnosis:</b> 602.06 (trauma - chest/abdomen [non-operative])</p> <p><b>Rules:</b></p> <ul style="list-style-type: none"> <li>Patients admitted to ICU from a procedure room (such as radiology/cathlab) should have their location prior to the procedure room entered as their ICU source.</li> <li>If a patient is admitted to ICU prior to surgery their ICU source will be their location prior to the initial ICU admission, and they must be given a non-operative diagnosis based on reason for admission prior to theatre.</li> </ul>
Multiple reasons for admission	<p>Patient is admitted to a hospital ward with pneumonia. The patient then develops hypotension and oliguria/rising creatinine due to septic shock. The patient is admitted to ICU for intubation, inotropes and renal replacement therapy.</p> <p><b>ICU admission source:</b> Ward  <b>Apache III-J diagnosis:</b> 503.01 (sepsis with shock, not urinary tract [non-operative])</p> <p><b>Rule:</b> When sepsis is part of the working diagnosis for a non-operative patient it must be chosen as the APACHE III-J diagnosis unless ruled out within 24 hours (or unless cardiac arrest is present).</p>
Hanging	<p>Patient is found hanging, no pulse present. The patient is intubated, CPR commenced at the scene, and patient brought to ED. Return of circulation after 30 minutes, patient is transferred to ICU.</p> <p><b>ICU admission source:</b> ED  <b>Apache III-J diagnosis:</b> 102.01 (cardiac arrest [non-operative])</p> <p><b>Rule:</b> When a patient is admitted to ICU post hanging, the APACHE III-J diagnosis should always be trauma with sub code selected for hanging unless cardiac arrest or sepsis is also present (Diagnosis Hierarchy).</p>
Hanging	<p>Patient is found hanging by colleagues. When pulled down the patient is confused and complaining of neck pain with tingling in arms and legs. Patient is admitted to ED where CT shows a C2 "hangman's" fracture and probably an epidural haematoma. Patient is admitted to ICU.</p> <p><b>ICU admission source:</b> ED  <b>Apache III-J diagnosis:</b> 604.07 (Hanging [non-operative])</p> <p><b>Rule:</b> When patient is admitted from ED post hanging, choose trauma as the diagnosis with sub code as hanging.</p>

