National Casemix Office

NHS Digital

Chapter Summaries

HRG4+ 2018/19 Reference Costs Grouper

RC 18/19

Published March 2019

Information and technology
for better health and care

Contents

Introduction

This document provides an overview of the scope, composition and relevant grouping logic of individual HRG subchapters, and highlights the most significant changes that have been implemented in the latest HRG design.

As well as the changes highlighted in each subchapter summary, there are cross-chapter changes implemented in the HRG4+ 2018/19 Reference Costs design that may have an impact on multiple subchapters. Likewise, some changes to individual subchapters could have a significant impact on HRG grouping within other subchapters. Changes affecting multiple subchapters are described here.

Amendments to Accommodate NICE Guidance

National Institute for Health and Clinical Excellence (NICE) guidance is reviewed annually to assess whether it is appropriate to amend the HRG design to accommodate new technology and innovation. Where appropriate, the design has been amended to accommodate clinical coding guidance as per national coding rules and as issued by NICE. Where an HRG subchapter has been amended to accommodate NICE guidance, this is noted in the changes section of the relevant subchapter summary.

Clinical Classifications Review

There is a continued requirement to ensure that the HRG design is supported by and supportive of national clinical coding guidance. For the 2018/19 Reference Costs design, a review of coding guidance and rules has been undertaken, with a particular focus on OPCS-4 procedure coding. Where an HRG subchapter has been amended as a result of the clinical coding review, this is noted in the changes section of the relevant subchapter summary.

Updated Logic and Lists

Update to procedure hierarchy values

The HRG grouper uses procedure hierarchy (PH) values to determine the highest resource procedure in a patient record during grouping. As a result of the redesign of several subchapters and the remapping of various clinical codes, the PH value of some OPCS-4.8 codes has been amended. Changes to a PH value are noted in the changes section of the relevant subchapter summary where the PH value has been intentionally amended for design reasons.

Updated Interventions list

The **Interventions** list has been updated to include all procedure codes to which maximum length of stay logic has been applied and to delete those codes from which length of stay logic has been removed.

Update to multiple-procedure escalation lists

As a result of the redesign of several subchapters and the remapping of various clinical codes, the list membership of various lists used in multiple-procedure logic has been amended. Typically, the creation of new HRGs or combination codes or changes to code mappings will result in amendments to the list membership of associated lists. Changes to list membership are only in the changes section of the relevant subchapter summary where amending the list is the primary reason for the change.

Subchapter AA – Nervous System Procedures and Disorders

Subchapter **AA Nervous System Procedures and Disorders** covers procedures for patients of all ages and the treatment of disorders in adults relating to the nervous system.

It includes activity undertaken in inpatient, day case and non-admitted care settings.

It does not include percutaneous procedures on the nervous system: these map to **YA Neurological Imaging Interventions**.

All diagnosis-driven activity relating to the treatment of children (aged 18 years and under) groups to an HRG in Chapter **P Diseases of Childhood and Neonates**, in line with the requirements of the Casemix Design Framework.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	101	101
Total HRG Roots	29	29
Procedure-driven HRGs	51	51
Diagnosis-driven HRGs	50	50
Age Splits	Yes	Yes
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	Yes	Yes
Procedure Combination Codes	Yes	Yes
Diagnosis-qualified	Yes	Yes
Subsidiary Procedure-qualified	Yes	Yes
Length of Stay-qualified	Yes	Yes

The neurosurgery HRGs in this subchapter are split into a maximum of seven levels of complexity (minimal, minor, intermediate, major, very major, complex and very complex).

In addition, there are HRGs for specific high-cost specialised activity, such as the insertion of neurostimulators and intrathecal drug delivery pumps, and stereotactic radiosurgery.

The neurophysiology HRGs are split into neuropsychology, EEG, EMG and nerve conduction studies and sleep studies.

The adult diagnosis-driven HRGs are differentiated by disorder type.

Many of the procedure-driven HRG roots in this subchapter employ ages splits: there are specific HRGs for adult activity (19 years and over) and others for paediatric activity (18 years and under).

Interactive CC splits are employed within the majority of both diagnosis-driven and procedure-driven HRG roots within this subchapter – up to a maximum of six levels – to more appropriately differentiate expected resource usage between routine and complex patients.

Multiple-procedure logic is employed by many of the procedure-driven HRGs in this subchapter to escalate activity to an HRG with a higher expected resource usage (up to a maximum of two complexity levels) where significant additional procedures have been recorded in the patient record. Escalation to an HRG with a higher expected resource use also occurs where there is advanced monitoring, e.g. EPR during surgery, or where a procedure is revisional.

This subchapter also includes escalation logic whereby activity escalates to an HRG with a higher expected resource use where the treatment of subdural haematomas is undertaken via craniotomy approach and where there is a primary diagnosis of a mid-brain tumour.

This subchapter includes specificl logic to ensure that where the primary diagnosis relates to a complication or adjustment of neurostimulator but a secondary diagnosis indicates that the device has been inserted for the treatment of faecal or urinary incontinence or for pain management, activity will map to the appropriate HRGs in Subchapters **FF Digestive System Open and Laparoscopic Procedures**, **LB Urological and Male Reproductive System Procedures and Disorders** and **AB Pain Management** rather than defaulting to the **AA60* Insertion of Neurostimulator for Treatment of Neurological Conditions** HRGs.

In certain other scenarios, activity with a dominant procedure or primary diagnosis mapped to an HRG root in this subchapter will group to an HRG in another subchapter. Where either Treatment Function Code (TFC) **191 Pain Management** or TFC **241 Paediatric Pain Management** is recorded in the patient record alongside certain procedures, activity will group to an HRG in Subchapter **AB Pain Management**. Where a secondary diagnosis indicating foot ulcer is recorded alongside a primary diagnosis of diabetes with neurological complications, activity will group to an HRG in Subchapter **KB Diabetic Medicine**.

Several of the less resource-intensive HRGs within this subchapter have maximum length of stay logic to ensure that minor procedures, such as a neuropsychology test or nerve conduction studies, are not used to determine the HRG for a long-stay medical patient, for example, a person who has suffered a stroke.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter AB – Pain Management

Subchapter **AB Pain Management** relates to services for pain management and covers activity for patients of all ages.

It includes activity undertaken in inpatient, day case and non-admitted care settings.

The HRGs within this subchapter are procedure-specific rather than being separated by complexity level. Therefore, there are HRGs specific to high-volume pain management procedures, for example joint injections or acupuncture. There are also HRGs for specific high-cost specialised activity, such as the insertion of neurostimulators, the insertion of intrathecal drug delivery pumps, and radiofrequency ablation or cryoablation, for pain management.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**16**	**14**
Total HRG Roots	**16**	**14**
Procedure-driven HRGs	16	14
Diagnosis-driven HRGs	0	0
Age Splits	No	No
Complications and Comorbidities Splits	No	No
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	Yes	Yes
Diagnosis-qualified	Yes	Yes
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	Yes	Yes

The vast majority of the HRGs within this subchapter are derived with a primary diagnosis or Treatment Function Code (TFC) indicating pain management. This is to distinguish the activity grouping to these HRGs from activity where the same procedures are undertaken for the treatment of other conditions.

Pain logic applied to Subchapter **AA Nervous System Procedures and Disorders** ensures that where the primary diagnosis relates to a complication or adjustment of neurostimulator but a secondary diagnosis indicates that the device has been inserted for pain management, activity will map to the appropriate HRG in Subchapter **AB Pain Management** rather than defaulting to the **AA60* Insertion of Neurostimulator for Treatment of Neurological Conditions** HRGs.

Where either Treatment Function Code (TFC) **191 Pain Management** or TFC **241 Paediatric Pain Management** is recorded in the patient record alongside specific procedures otherwise mapped to Subchapters **AA Nervous System Procedures and Disorders**, **HC Spinal Procedures and Disorders** or **HN Orthopaedic Non-Trauma Procedures**, activity will group to an HRG in Subchapter **AB Pain Management**.

The majority of the HRGs within this subchapter have maximum length of stay logic to ensure that minor procedures, such as injection into joint, are not used to determine the HRG for a long-stay medical patient, for example, a person who has suffered a stroke.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

HRGs have been created

The existing two HRGs for nerve block / destruction of nerve and injection of therapeutic substance into joint have been deleted and replaced with four new HRGs that differentiate between whether or not the intervention was undertaken using image control:

- **AB25Z Nerve Block or Destruction of Nerve, Under Image Control, for Pain Management**

- **AB26Z Nerve Block or Destruction of Nerve, for Pain Management**
- **AB27Z Injection of Therapeutic Substance into Joint Under Image Control for Pain Management**
- **AB28Z Injection of Therapeutic Substance into Joint for Pain Management**

The new HRGs specific to interventions performed under image control have been created to differentiate the expected resource usage involved with the use of image control, used to maximise the clinical outcome of treatment for the patient.

Subchapter BZ – Eyes and Periorbita Procedures and Disorders

Subchapter **BZ Eyes and Periorbita Procedures and Disorders** covers procedures for patients of all ages and diagnoses for adults relating to the eyes and periorbita, delivered in inpatient, day case and non-admitted care settings.

All diagnosis-driven activity relating to the treatment of children (aged 18 years and under) groups to an HRG in Chapter **P Diseases of Childhood and Neonates**, in line with the requirements of the Casemix Design Framework.

Most of the procedure-driven HRG roots in this subchapter are separated based on the type of eye surgery – e.g. cataract or lens, ocular motility etc. – with related HRGs split into up to six levels of complexity (minor, intermediate, major, very major, complex and very complex).

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**93**	**94**
Total HRG Roots	**48**	**48**
Procedure-driven HRGs	89	90
Diagnosis-driven HRGs	4	4
Age Splits	Yes	Yes
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	Yes	Yes
Multiple Procedures	Yes	Yes
Procedure Combination Codes	Yes	Yes
Diagnosis-qualified	Yes	Yes
Subsidiary Procedure-qualified	Yes	Yes
Length of Stay-qualified	Yes	Yes

There are also a number of HRG roots that relate to specific high-volume procedures, such as phacoemulsification cataract extraction and lens implantation, and retinal tomography.

Many of the HRG roots in this subchapter employ age splits: There are specific HRGs for adult activity (19 years and over) and others for paediatric activity (18 years and under) within many of the BZ HRG roots. There are also age-specific HRG roots that separate adult and paediatric activity at the root level. In addition, some HRG roots in Subchapter BZ employ paediatric age splits, which enable HRGs specific to the treatment of young children (0 to 3 years of age).

Interactive CC splits are employed within some of the procedure-driven HRG roots – up to a maximum of three levels – to more appropriately differentiate expected resource usage between routine and complex patients.

The one diagnosis-driven HRG root in this subchapter, **BZ24 Non-Surgical Ophthalmology**, which is exclusively for adult activity, has both interactive CC and intervention splits. The former enables differentiation in expected resource usage between routine and complex patients, while the latter enables “minor interventions” to be used as proxies indicating additional resource usage.

Multiple-procedure logic is employed by the majority of procedure-driven HRGs in this subchapter to escalate activity to an HRG with a higher expected resource usage (up to a maximum of two complexity levels) where significant additional procedures have been recorded in the patient record. Escalation to an HRG with a higher expected resource use also occurs in this subchapter, where appropriate, when procedures are undertaken under general anaesthetic, are performed bilaterally or are revisional.

This subchapter also includes escalation logic whereby activity escalates to an HRG with a higher expected use where an excision of lesion of eyelid is recorded with a primary diagnosis of eyelid cancer.

The majority of minor procedure HRG roots within this subchapter employ maximum length of stay logic to ensure that minor procedures, such as irrigation of tear duct, are not used to determine the HRG for a long-stay medical patient, e.g. a person who has suffered a stroke.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

HRGs have been created/deleted

The age split within HRG root **BZ74 Minor Ocular Motility Procedures** has been deleted because the paediatric HRG within this root no longer met HRG design criteria in terms of required volume. **BZ74A Minor Ocular Motility Procedures, 19 years and over** and **BZ74B Minor Ocular Motility Procedures, 18 years and under** have been deleted from the HRG design and replaced by a single all-age HRG, **BZ74Z Minor Ocular Motility Procedures**.

Remapping of OPCS-4 codes to more appropriately reflect resource usage

OPCS-4 procedure codes classifying prosthetic replacement of eyeball and removal of foreign body from eye have been remapped to better reflect expected resource use. These procedures are expected to be undertaken in an outpatient setting and should therefore not map to an expected high-resource HRG root.

- ***C03.2 Insertion of prosthetic replacement for eyeball*** and ***C04.2 Revision of prosthetic replacement for eyeball*** have been remapped from HRG root **BZ54 Major, Orbit or Lacrimal Procedures, 19 years and over** and **BZ53 Very Major, Orbit or Lacrimal Procedures, 19 years and over**, respectively, to HRG root **BZ56 Intermediate, Orbit or Lacrimal Procedures** to more appropriately reflect the expected resource usage of these procedures
- ***C48.8 Other specified removal of foreign body from cornea*** and ***C48.9 Unspecified removal of foreign body from cornea*** have been remapped from HRG root **BZ63 Major, Cornea or Sclera Procedures** to **BZ65 Minor, Cornea or Sclera Procedures** to more appropriately reflect the expected resource usage of these procedures.

Changes to grouping logic

New grouping logic (**BZ_Tomog_LoS_0**) has been introduced to ensure retinal tomography evaluations continue to drive grouping when recorded alongside digital retinal tomography.

List membership of list **BZ_Proc_List**, which supports escalation logic across Subchapter BZ, has been updated to ensure escalation to a higher resource HRG performs as intended.

Changes to procedure hierarchy values

The procedure hierarchy (PH) value of 14 OPCS-4 codes classifying ophthalmic tests have been reduced to ensure these ophthalmic tests do not drive grouping when recorded alongside another minor ophthalmic procedure. Further details can be found in the Excel Code to Group workbook, on the Hierarchy Lists tab.

Subchapter CA – Ear, Nose, Mouth, Throat and Neck Procedures

Subchapter **CA Ear, Nose, Mouth, Throat and Neck Procedures** covers ear, nose, mouth, throat and neck procedures for patients of all ages.

It does not include percutaneous procedures on the neck: these map to **YC Neck Imaging Interventions**.

It includes activity undertaken in inpatient, day case and non-admitted care settings.

The HRG roots within this subchapter are generally divided based on the site of surgery – e.g. neck, ear, nose etc. – but there are also HRG roots specific to maxillofacial and audiology procedures.

Related HRG roots are divided into a maximum of seven levels of complexity (minimal, minor, intermediate, major, very major, complex and very complex), although HRG roots at the high end of the complexity range are not employed for some sites or types of procedures.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**122**	**122**
Total HRG Roots	**70**	**70**
Procedure-driven HRGs	122	122
Diagnosis-driven HRGs	0	0
Age Splits	Yes	Yes
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	Yes	Yes
Procedure Combination Codes	Yes	Yes
Diagnosis-qualified	Yes	Yes
Subsidiary Procedure-qualified	Yes	Yes
Length of Stay-qualified	Yes	Yes

There are also procedure-specific HRG roots for high-volume procedures, e.g. tonsillectomy, nasal polypectomy and reduction of fracture of nasal bone, and for specialised procedures, such as cochlear implants.

Many of the HRG roots in this subchapter employ age splits: There are specific HRGs for adult activity (19 years and over) and others for paediatric activity (18 years and under). There are also HRGs specific to the treatment of infants (0 to 1 year of age) as well as those for older children (2 to 18 years). For some audiology activity, there are HRGs specific to preschool-aged children (4 years and under) and school-aged children (5 to 18 years).

Interactive CC splits are employed within many of the more complex HRG roots within this subchapter – up to a maximum of three levels – to more appropriately differentiate expected resource usage between routine and complex patients.

Multiple-procedure logic is employed by the majority of HRGs in this subchapter to escalate activity to an HRG with a higher expected resource usage (up to a maximum of two complexity levels) where significant additional procedures have been recorded in the patient record. Escalation to an HRG root with a higher expected resource use also occurs in this subchapter, where appropriate, when procedures are performed bilaterally; where the patient is being treated for vascular nasal tumours; or where an examination is undertaken under general anaesthetic.

CA70Z Diagnostic Examination of Upper Respiratory Tract and Upper Gastrointestinal Tract can be reached when a diagnostic examination of the pharynx or larynx is undertaken alongside a diagnostic examination of the upper gastrointestinal tract, activity that would otherwise map to an HRG within Subchapter **FE Digestive System Endoscopic Procedures**.

Most of the minor and minimal procedure HRG roots within this subchapter have maximum length of stay logic to ensure that minor procedures, such as drainage of ear wax, are not used to determine the HRG for a long-stay medical patient, e.g. a person who has suffered a stroke.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

Remapping of OPCS-4 codes to more appropriately reflect resource usage

Updated clinical coding guidance clarifies that there are four ways to code a sialendoscopy (examination of the ducts of the salivary glands) depending on what is being done. A combination code has been created for each of these four methods, and each combination code has been mapped to HRG root **CA84 Intermediate, Mouth or Throat Procedures**. While the new combination codes – ***F51.1+Y76.3 Endoscopic extraction of calculus from parotid duct***; ***F51.2+Y76.3 Endoscopic extraction of calculus from submandibular duct***; ***F55.1+Y76.3 Endoscopic dilation of parotid duct***; and ***F55.2+Y76.3 Endoscopic dilation of submandibular duct*** – are mapped to HRG root **CA84**, the driving procedure codes, when coded without ***Y76.3 Endoscopic approach to other body cavity***, will continue to map to HRG root **CA85 Minor, Mouth or Throat Procedures**.

A review of maxillofacial surgery procedure code mappings has been undertaken, resulting in OPCS-4 procedure codes classifying various maxillofacial surgery procedures being remapped to better reflect expected resource use.

- ***V14.2 Extensive excision of mandible NEC*** has been remapped from HRG root **CA92 Very Major Maxillofacial Procedures** to HRG root **CA91 Complex Maxillofacial Procedures** to more appropriately reflect the expected resource usage of this procedure.
- ***V10.6 Osteotomy of bones of face and translocation of orbit*** and ***V10.7 Subcranial U-osteotomy of bones of face and translocation of orbit*** have been remapped from HRG root **CA92 Very Major Maxillofacial Procedures** to HRG root **CA91 Complex Maxillofacial Procedures** to ensure these highly complex paediatric procedures are mapped to the same HRG root as similarly complex maxillofacial surgery procedures
- ***V14.3 Partial excision of mandible NEC*** and ***V20.1 Total prosthetic replacement of temporomandibular joint*** have been remapped from HRG root **CA93 Major Maxillofacial Procedures** to HRG root **CA92 Very Major Maxillofacial Procedures** to more appropriately reflect the expected resource usage of these procedures
- ***V19.1 Reconstruction of mandible*** has been remapped from HRG root **CA94 Intermediate Maxillofacial Procedures** to HRG root **CA93 Major Maxillofacial Procedures** to better reflect the complexity of reconstructive surgery.
- ***V07.3 Excision of lesion of bone of face*** and ***V07.8 Other specified excision of bone of face*** have been remapped from HRG root **CA93 Major Maxillofacial Procedures** to HRG root **CA94 Intermediate Maxillofacial Procedures** to more appropriately reflect the expected resource usage of these procedures
- .9 Unspecified codes ***V07.9 Unspecified excision of bone of face*** and ***V10.9 Unspecified division of bone of face*** have been remapped from HRG root **CA93 Major Maxillofacial Procedures** to HRG root **CA94 Intermediate Maxillofacial**

Procedures to ensure these unspecified codes are not mapped to a higher resource HRG root than more specific codes in the same OPCS-4 code category.

Subchapter CB – Ear, Nose, Mouth, Throat and Neck Disorders

Subchapter **CB Ear, Nose, Mouth, Throat and Neck Disorders** include all ear, nose, mouth, throat and neck disorders for adults only. It includes activity undertaken in inpatient and day case settings.

All diagnosis-driven activity relating to the treatment of children (aged 18 years and under) groups to an HRG in Chapter **P Diseases of Childhood and Neonates**, in line with the requirements of the Casemix Design Framework.

The HRGs within this subchapter are separated into two HRG roots, malignant and non-malignant ear, nose, mouth, throat and neck disorders.

Interactive CC splits are employed within both of the HRG roots within this subchapter – up to a maximum of three levels – to more appropriately differentiate expected resource usage between routine and complex patients.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**12**	**12**
Total HRG Roots	**2**	**2**
Procedure-driven HRGs	0	0
Diagnosis-driven HRGs	12	12
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	Yes	Yes
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	No	No

Both HRG roots also employ intervention splits to acknowledge where “minor interventions” undertaken during a patient admission are expected to result in additional resource usage.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter CD – Dental and Orthodontic Procedures

Subchapter **CD Dental and Orthodontic Procedures** covers dental and orthodontic procedures for patients of all ages. It includes activity undertaken in inpatient, day case and non-admitted care settings.

Other mouth, throat and maxillofacial procedures are covered alongside head, neck and ear procedures within Subchapter **CA Ear, Nose, Mouth, Throat and Neck Procedures**.

Dental disorders are covered in Subchapter **CB Ear, Nose, Mouth, Throat and Neck Disorders**.

The HRG roots within this subchapter are divided based on the type of procedure – e.g. tooth extractions, orthodontic appliance procedures. Related HRG roots are further divided based on up to three levels of complexity (minor, intermediate and major).

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**23**	**23**
Total HRG Roots	**12**	**12**
Procedure-driven HRGs	23	23
Diagnosis-driven HRGs	0	0
Age Splits	Yes	Yes
Complications and Comorbidities Splits	No	No
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	Yes	Yes
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	Yes	Yes

Most HRG roots within this subchapter employ age splits: there are specific HRGs for adult activity (19 years and over) and others for paediatric activity (18 years and under).

All the HRG roots within this subchapter have maximum length of stay logic to ensure that minor procedures, such as tooth extraction, are not used to determine the HRG for a long-stay medical patient, e.g. a person who has suffered a stroke.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter DZ – Respiratory System Procedures and Disorders

Subchapter **DZ Respiratory System Procedures and Disorders** covers both adult respiratory diagnoses and thoracic and respiratory procedures for patients of all ages. The subchapter includes activity undertaken in inpatient, day case and non-admitted care settings.

It does not include percutaneous procedures on the respiratory system: these map to Subchapter **YD Thoracic Imaging Interventions**.

All diagnosis-driven activity relating to the treatment of children (aged 18 years and under) groups to an HRG in Chapter **P Diseases of Childhood and Neonates**, in line with the requirements of the Casemix Design Framework.

The surgical HRGs within this subchapter are split into five levels of complexity (minor, intermediate, major, complex and very complex). There is also an HRG specific to lung transplantation.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**176**	**176**
Total HRG Roots	**52**	**52**
Procedure-driven HRGs	46	46
Diagnosis-driven HRGs	130	130
Age Splits	Yes	Yes
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	Yes	Yes
Multiple Procedures	Yes	Yes
Procedure Combination Codes	Yes	Yes
Diagnosis-qualified	Yes	Yes
Subsidiary Procedure-qualified	Yes	Yes
Length of Stay-qualified	Yes	Yes

There are HRGs specific to bronchoscopic procedures that are split into three levels of complexity for therapeutic procedures, and there are specific HRGs for diagnostic procedures. The latter are split into adult (19 years and over) and paediatric (18 years and under) HRGs.

There are also HRGs specific to respiratory physiology procedures, several of which are split into adult- and paediatric-specific HRGs.

The adult diagnosis-driven HRGs for respiratory system disorders are disease-specific.

Many of the HRG roots in this subchapter employ age splits: There are specific HRGs for adult activity (19 years and over) and others for paediatric activity (18 years and under). There are also HRGs specific to the treatment of infants (0 to 1 year of age) and those for older children (2 to 18 years).

Interactive CC splits are employed within the majority of HRG roots within this subchapter – up to a maximum of five levels – to more appropriately differentiate expected resource usage between routine and complex patients.

Intervention splits, including those that differentiate between whether a single “minor intervention” or multiple “minor interventions” have been undertaken, are employed within the majority of the diagnosis-driven HRG roots in this subchapter to acknowledge where “minor interventions” undertaken during a patient admission are expected to result in additional resource usage.

DZ51Z Complex Tuberculosis is generated for patients with a primary diagnosis of tuberculosis and a length of stay of 29 days or more. Where the length of stay is less than 29 days, activity maps to HRG root **DZ14 Pulmonary, Pleural or Other Tuberculosis**.

Multiple-procedure logic is employed by the majority of HRGs in this subchapter to escalate activity to an HRG with a higher expected resource usage (up to a maximum of two complexity levels) where significant additional procedures have been recorded in the patient record. Escalation to an HRG root with a higher expected resource use also occurs in this subchapter when procedures are performed bilaterally.

Some activity with a dominant procedure mapped to an HRG root in this subchapter will group to an HRG in another subchapter in certain scenarios. Where a disarticulation of bone of rib is performed on a patient with a primary diagnosis indicating a vascular disorder, activity will group to the amputation of single limb HRGs within Subchapter **YQ Vascular Open Procedures and Disorders**.

All the minor procedure HRGs within this subchapter, including the respiratory physiology procedure HRGs and the majority of bronchoscopic HRGs, have maximum length of stay logic to ensure that minor procedures, such as oxygen assessment, are not used to determine the HRG for a long-stay medical patient, e.g. a person who has lung cancer.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

Remapping of codes to more appropriately reflect resource usage

Due to updated clinical coding guidance, three existing combination codes for insertion of endobronchial coils/valves have been deleted and replaced by two new combination codes for these procedures, ***E54.6+Y36.2 Reduction of lung volume using introduction of therapeutic implant into organ*** and ***E54.6+Y02.2 Reduction of lung volume using introduction of therapeutic implant into organ***. The procedures continue to map to the same HRG root, **DZ66 Complex Therapeutic Bronchoscopy**.

Subchapter EB – Cardiac Disorders

Subchapter **EB Cardiac Disorders** covers all diagnoses for adults within the Cardiac specialty. It includes activity undertaken in inpatient and day case settings.

All diagnosis-driven activity relating to the treatment of children (aged 18 years and under) groups to an HRG in **Chapter P Diseases of Childhood and Neonates**, in line with the requirements of the Casemix Design Framework.

The HRGs within this subchapter are split based on disorder type.

Interactive CC splits are employed within the majority of HRG roots within this subchapter – up to a maximum of three levels – to more appropriately differentiate expected resource usage between routine and complex patients.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**48**	**48**
Total HRG Roots	**13**	**13**
Procedure-driven HRGs	0	0
Diagnosis-driven HRGs	48	48
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	No	No

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper

Subchapter EC – Open and Interventional Procedures for Congenital Heart Disease

Subchapter **EC Open and Interventional Procedures for Congenital Heart Disease** covers all paediatric (18 years or under) procedure-driven cardiac activity, with the exception of transplant surgery, as well as cardiac surgery carried out as a result of adult patients having congenital heart disease. Subchapter EC includes activity undertaken in inpatient, day case and non-admitted care settings.

All other cardiac surgery activity is covered within Subchapters **ED Open Cardiac Procedures for Acquired Conditions** or **EY Interventional Cardiology for Acquired Conditions**.

The therapeutic congenital cardiac procedure HRGs are split into six levels of complexity (minor, intermediate, major, very major, complex, and very complex).

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**21**	**21**
Total HRG Roots	**9**	**9**
Procedure-driven HRGs	21	21
Diagnosis-driven HRGs	0	0
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	Yes	Yes
Procedure Combination Codes	Yes	Yes
Diagnosis-qualified	Yes	Yes
Subsidiary Procedure-qualified	Yes	Yes
Length of Stay-qualified	Yes	Yes

There are also HRGs specific to diagnostic congenital cardiac procedures and tests.

Interactive CC splits are employed within the majority of HRG roots within this subchapter – up to a maximum of three levels – to more appropriately differentiate expected resource usage between routine and complex patients.

Multiple-procedure logic is employed by the majority of HRGs in this subchapter to escalate activity to an HRG with a higher expected resource usage (up to a maximum of two complexity levels) where significant additional procedures have been recorded in the patient record. Escalation to an HRG with a higher expected resource use also occurs where there is active cooling during surgery, when percutaneous procedures are undertaken under general anaesthetic or if a procedure is revisional.

The congenital cardiac physiology HRGs have maximum length of stay logic to ensure that minor procedures such as ECGs are not used to determine the HRG for a long-stay medical patient, e.g. a person who has suffered a heart attack.

The majority of procedures will only map to HRGs within this subchapter where the patient is a child or where an adult patient has a primary diagnosis of congenital heart disease recorded; however, some procedures that are inherently almost exclusively used to treat congenital heart disease, e.g. procedures to repair tetrology of Fallot, map directly to HRGs within this subchapter.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter ED – Open Cardiac Procedures for Acquired Conditions

Subchapter **ED Open Cardiac Procedures for Acquired Conditions** covers open cardiac procedures for acquired heart disease for adult patients. It includes activity undertaken in inpatient, day case and non-admitted care settings.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	50	50
Total HRG Roots	26	26
Procedure-driven HRGs	50	50
Diagnosis-driven HRGs	0	0
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	Yes	Yes
Procedure Combination Codes	Yes	Yes
Diagnosis-qualified	Yes	Yes
Subsidiary Procedure-qualified	Yes	Yes
Length of Stay-qualified	No	No

Percutaneous cardiac procedures map to Subchapter **EY Interventional Cardiology for Acquired Heart Disease**.

With the exception of seven HRGs specific to transplantation (covered by the HRGs **ED01Z Heart and Lung Transplant** to **ED09Z Standard Insertion of Long-Term Bridge to Transplant Ventricular Assist Device** inclusive), procedures that are either carried out on children (patients 18 years or under) or are carried out as a result of adult patients having congenital heart disease are covered within Subchapter **EC Open and Interventional Procedures for Congenital Heart Disease**.

Also, procedures that are inherently almost exclusively used to treat congenital heart disease, e.g. procedures to repair tetrology of Fallot, map directly to HRGs within Subchapter **EC Open and Interventional Procedures for Congenital Heart Disease**, irrespective of patient age or primary diagnosis.

This subchapter consists of HRGs specific to transplant surgery, thoracic aortic surgery, coronary artery bypass and valve replacement / repair procedures and other open procedures on the heart or pericardium.

Varying levels of complexity of surgery are reflected in these HRGs, often through the creation of standard and complex equivalent HRGs.

Several of the HRGs within this subchapter are specific to high-cost, specialised activity, such as complex aortic aneurysm surgery.

Interactive CC splits are employed within the majority of HRG roots within this subchapter – up to a maximum of three levels – to more appropriately differentiate expected resource usage between routine and complex patients.

Multiple-procedure logic is employed by the majority of HRGs in this subchapter to escalate activity to an HRG with a higher expected resource usage where significant additional procedures have been recorded in the patient record. In addition, for complex open surgery, escalation to an HRG with higher expected resource use also occurs where there is active cooling during surgery, if a procedure is revisional or if the primary diagnosis is a heart infection or constricted pericarditis.

For transplant surgery, escalation from the Standard to Complex HRGs occurs where the primary diagnosis is congenital heart disease, where any diagnosis of amyloidosis is recorded or where the patient has had a mechanical assistance device.

Some activity with a dominant procedure mapped to an HRG root in this subchapter will group to an HRG in another subchapter in certain scenarios. Where an abdominal aorta procedure is undertaken in addition to a repair of descending thoracic aorta or aortic arch, activity will group to the thoracoabdominal repair HRGs within Subchapter **YQ Vascular Open Procedures and Disorders**.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter EY – Interventional Cardiology for Acquired Conditions

Subchapter **EY Interventional Cardiology for Acquired Conditions** covers interventional cardiology procedures for acquired conditions for adult patients. It includes activity undertaken in inpatient, day case and non-admitted care settings.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**73**	**69**
Total HRG Roots	**29**	**28**
Procedure-driven HRGs	73	69
Diagnosis-driven HRGs	0	0
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	Yes	Yes
Procedure Combination Codes	Yes	Yes
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	Yes	Yes
Length of Stay-qualified	Yes	Yes

Open procedures for acquired heart disease map to Subchapter **ED Open Cardiac Procedures for Acquired Heart Disease**.

Procedures that are either carried out on patients 18 years or under or are carried out as a result of patients having congenital heart disease are covered within Subchapter **EC Open and Interventional Procedures for Congenital Heart Disease**.

This subchapter consists of HRGs specific to pacemaker and defibrillator procedures, transcatheter aortic valve implantation (TAVI), complex percutaneous repairs, cardiac ablation, electrophysiology studies, coronary angioplasty, cardiac catheterisation and cardiac physiological tests.

Varying levels of complexity of surgery are reflected in these HRGs, often through the creation of standard and complex equivalent HRGs.

Several of the HRGs within this subchapter identify high-cost, specialised activity, such as the insertion of implantable cardiac defibrillators and TAVI.

Interactive CC splits are employed within the majority of HRG roots within this subchapter – up to a maximum of six levels – to more appropriately differentiate expected resource usage between routine and complex patients.

Multiple-procedure logic is employed by the majority of HRGs in this subchapter to escalate activity to an HRG with a higher expected resource usage where significant additional procedures have been recorded in the patient record. Escalation to an HRG with higher expected resource use also occurs if specified imaging or other assistance procedures are used to support the undertaking of the procedure, e.g. intravascular ultrasound (IVUS) or fractional flow reserve (FFR).

In addition, for the percutaneous coronary intervention HRGs, escalation to a higher resource HRG occurs where the primary diagnosis indicates chronic total occlusion.

Pacemaker and defibrilator extraction is differentiated from pacemaker explantation via the presence of a diagnosis code indicating pacemaker related infection or complication, or the presence of procedure codes indicating transoesophageal echocardiography or general anaesthetic.

The cardiac physiology HRGs have maximum length of stay logic to ensure that minor procedures such as ECGs are not used to determine the HRG for a long-stay medical patient, e.g. a person who has suffered a heart attack.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

HRGs have been created

One new HRG root **EY44 Very Complex Percutaneous Transluminal Coronary Angioplasty** comprising four new HRGs has been created to accommodate multiple complex percutaneous coronary interventions (PCI). Activity will escalate to these HRGs based on multiple-procedure logic, which has been expanded to include multiple PCI procedures, use of IVUS, OCT or FFR, rotablation and use of intra-aortic balloon pump. In addition, activity will escalate to this HRG where a diagnosis indicating chronic total occlusion is recorded.

Remapping of codes to more appropriately reflect resource usage

Nine new combination codes classifying PCI procedures, including three involving biodegradable stents, have been created and mapped to HRG root **EY44 Very Complex Percutaneous Transluminal Coronary Angioplasty** in support of NICE guidance.

Changes made to CC logic

Logic has been amended such that all CC scores for the HRGs within this subchapter now appropriately use only the **EDEY_CC** list, rather than using a combination of the **EDEY_CC** list and the **EC_CC** list.

Subchapter FD – Digestive System Disorders

Subchapter **FD Digestive System Disorders** covers gastroenterology medicine for adults, delivered in admitted patient care settings.

All diagnosis-driven activity relating to the treatment of children (aged 18 years and under) groups to an HRG in Chapter **P Diseases of Childhood and Neonates**, in line with the requirements of the Casemix Design Framework.

There are several disease-specific HRG roots within Subchapter FD, but the majority of digestive system disorders are mapped to either the Malignant Gastrointestinal Tract Disorders HRG root or the Non-Malignant Gastrointestinal Tract Disorders HRG root.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**54**	**54**
Total HRG Roots	**7**	**7**
Procedure-driven HRGs	0	0
Diagnosis-driven HRGs	54	54
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	Yes	Yes
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	No	No

Interactive CC splits are employed within six of the seven HRG roots within this subchapter – up to a maximum of four levels – to differentiate the expected resource usage of routine and complex patients.

Certain diagnoses that map to HRG roots within this subchapter have an inherent complication within the primary diagnosis code, e.g. ulcer with haemorrhage or diverticular disease with perforation and abscess. In order to appropriately reflect expected resource usage, and unlike standard grouping, HRG roots **FD03 Gastrointestinal Bleed** and **FD10 Non-Malignant Gastrointestinal Tract Disorders** employ logic that takes into account the primary diagnosis when calculating the CC score for a patient episode.

In addition, intervention splits, including at times those that differentiate between whether a single “minor intervention” or multiple “minor interventions” have been undertaken, are employed within all of the HRG roots in this subchapter to acknowledge where “minor interventions” undertaken during a patient admission are expected to result in additional resource usage.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter FE – Digestive System Endoscopic Procedures

Subchapter **FE Digestive System Endoscopic Procedures** covers endoscopic digestive system procedures for patients of all ages, delivered in admitted or non-admitted care settings.

It does not include open surgical or percutaneous procedures on the digestive system as these map to Subchapters **FF Digestive System Open and Laparoscopic Procedures** and **YF Gastrointestinal Imaging Interventions**, respectively.

It also does not include procedures on the hepatobiliary and pancreatic system, which are found within Chapter **G Hepatobiliary and Pancreatic System** and Subchapter **YG Hepatobiliary and Pancreatic Imaging Interventions**.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	41	41
Total HRG Roots	27	27
Procedure-driven HRGs	41	41
Diagnosis-driven HRGs	0	0
Age Splits	Yes	Yes
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	Yes	Yes
Procedure Combination Codes	Yes	Yes
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	Yes	Yes
Length of Stay-qualified	Yes	Yes

The endoscopic procedure HRG roots within Subchapter FE are differentiated based on the type of scope used and whether the intervention is diagnostic, diagnostic with biopsy, or therapeutic. The therapeutic HRG roots are further differentiated based on complexity.

Many of the HRG roots in this subchapter employ age splits, and several employ paediatric age splits: there are specific HRGs for adult activity (19 years and over), others for paediatric activity (18 years and under), and still others specific to infants (1 year and under). There are also age-specific HRG roots that separate adult and paediatric activity at the root level.

Some non-endoscopic intermediate gastrointestinal procedures group to HRGs in this subchapter when undertaken on paediatric patients, but when undertaken on adults these same procedures group to an HRG in Subchapter **FF Digestive System Open and Laparoscopic Procedures**. For this type of activity, the fact that the patient is a child is more indicative of expected resource use than the method of operation, and by combining this activity with clinically similar endoscopic activity that is expected to consumes a similar level of resource, it is possible to maintain paediatric-specific HRGs that meet the criteria set out in the Casemix Design Framework.

Interactive CC splits are employed within several HRG roots within this subchapter – up to a maximum of four levels – to differentiate the expected resource usage of routine and complex patients.

Multiple-procedure logic is employed by many of the HRGs in this subchapter, with some activity escalating to HRGs in Subchapter **FF Digestive System Open and Laparoscopic Procedures**. Escalation to the combined upper and lower gastrointestinal tract endoscopy HRGs occurs when a lower gastrointestinal tract endoscopic procedure is combined with an upper gastrointestinal tract endoscopic procedure, and vice versa.

The less-resource intensive HRG roots within this subchapter have maximum length of stay logic to ensure that minor procedures, such as diagnostic colonoscopy, are not used to

determine the HRG for a long-stay medical patient, e.g. a person who has a gastrointestinal tract bleed.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

Remapping of OPCS-4 codes to more appropriately reflect resource usage

OPCS-4 procedure ***H62.6 Proctoscopy*** has been remapped from HRG root **FE35 Diagnostic Flexible Sigmoidoscopy, 19 years and over** to **FE36 Diagnostic or Therapeutic, Rigid Sigmoidoscopy, 19 years and over** to ensure this procedure is mapped to the same HRG root as clinically similar procedures.

Combination code ***J61.1+Y76.4 Endoscopic ultrasonic cystogastrostomy of pancreas*** has been created according to clinical coding guidance and mapped to HRG root **FE02 Major Therapeutic Endoscopic, Upper or Lower Gastrointestinal Tract Procedures** to ensure EUS cystogastrostomy groups to an endoscopic procedure HRG.

Subchapter FF – Digestive System Open and Laparoscopic Procedures

Subchapter **FF Digestive System Open and Laparoscopic Procedures** covers both laparoscopic and open surgical digestive system procedures for patients of all ages, delivered in admitted or non-admitted care settings.

With some exceptions, it does not include endoscopic digestive system procedures as these map to Subchapter **FE Digestive System Endoscopic Procedures**, and it does not include percutaneous procedures on the digestive system as these map to Subchapter **YF Gastrointestinal Imaging Interventions**.

It also does not include procedures on the hepatobiliary and pancreatic system, which are found within Chapter **G Hepatobiliary and Pancreatic System** and Subchapter **YG Hepatobiliary and Pancreatic Imaging Interventions**.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**115**	**113**
Total HRG Roots	**37**	**36**
Procedure-driven HRGs	115	113
Diagnosis-driven HRGs	0	0
Age Splits	Yes	Yes
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	Yes	Yes
Procedure Combination Codes	Yes	Yes
Diagnosis-qualified	Yes	Yes
Subsidiary Procedure-qualified	Yes	Yes
Length of Stay-qualified	Yes	Yes

The surgical HRG roots within this subchapter are divided based on the site of surgery – e.g. oesophagus and stomach, small intestine, large intestine, etc. – with related HRGs separated by level of complexity (minor, intermediate, major, very major, complex and very complex). Not all complexity levels are relevant to each body area, with a maximum of five levels of complexity applicable to any body area.

There are also procedure-specific HRG roots for high-volume procedures such as hernia repair or appendicectomy, and for specialised procedures such as bariatric surgery or insertion of a neurostimulator for the treatment of faecal incontinence.

Some endoscopic procedures have been mapped to Subchapter **FF Digestive System Open and Laparoscopic Procedures** as their expected resource use is more akin to clinically similar digestive system procedures performed laparoscopically than to other endoscopic procedures. Additionally, some endoscopic procedures group to this subchapter in order to keep clinically similar activity within the same subchapter, e.g. procedures undertaken to treat obesity.

Many of the HRG roots in this subchapter employ age splits, and several employ paediatric age splits: there are specific HRGs for adult activity (19 years and over), others for paediatric activity (18 years and under), and still others specific to infants (1 year and under). There are also age-specific HRG roots that separate adult and paediatric activity at the root level.

Some open and laparoscopic intermediate gastrointestinal procedures group to HRGs in this subchapter when undertaken on adults but not when undertaken on paediatric patients. For this type of activity, the fact that the patient is a child is more indicative of expected resource use than the method of operation, and by combining this activity with clinically similar endoscopic activity that consumes a similar level of resource, it is possible to maintain paediatric-specific HRGs that meet the criteria set out in the Casemix Design Framework.

These combined endoscopic/non-endoscopic HRGs are found in Subchapter **FE Digestive System Endoscopic Procedures**.

Interactive CC splits are employed within the majority of HRG roots within this subchapter – up to a maximum of five levels – to differentiate the expected resource usage of routine and complex patients.

There are procedures that map to HRG roots within this subchapter that treat certain diagnoses that have an inherent complication within the primary diagnosis code, e.g. hernia with gangrene or appendicitis with generalized peritonitis. In order to appropriately reflect resource use, HRG roots **FF37 Appendicectomy Procedures**, **FF51 Major General Abdominal Procedures Tract Disorders**, **FF60 Complex Hernia Procedures**, **FF61 Abdominal Hernia Procedures** and **FF62 Inguinal, Umbilical or Femoral Hernia Procedures** employ logic that takes into account the primary diagnosis when calculating the CC score, unlike standard grouping logic for recognising CCs.

Multiple-procedure logic is employed by many of the HRGs in this subchapter to escalate activity to an HRG with a higher expected resource use (up to a maximum of two complexity levels) where significant additional procedures have been recorded in the patient record. Escalation to an HRG with a higher expected resource use also occurs when certain procedures, e.g. hernia repair, are performed bilaterally or are revisional; where anorectal surgery is robotically-assisted; or where a code indicating long-term parenteral nutrition has been recorded.

Several procedures that group to this subchapter will group to different HRGs depending on the primary diagnosis recorded, e.g. to differentiate procedures that can be performed to treat either gastrointestinal cancers or obesity. Additionally, for certain procedures, where a diagnosis of intestinal fistula is recorded in any position, activity will escalate to an HRG with a higher expected resource use.

Some activity with a dominant procedure mapped to an HRG root in this subchapter will group to an HRG in another subchapter in certain scenarios. Where a procedure is undertaken on the peritoneum of a female patient with a gynaecological primary diagnosis or on a patient with a diagnosis of endometriosis in any position, activity will group to an HRG in Subchapter **MA Female Reproductive System Procedures**. Where an abdominal wall transplant is performed with certain other transplants, or where the patient has a primary diagnosis indicating pancreatic disease, activity will group to an HRG in Subchapter **GA Hepatobiliary and Pancreatic System Open Procedures**.

Incontinence logic applied to procedure codes and combination codes for the insertion or renewal of neurostimulator or the insertion or renewal of neurostimulator electrodes ensures that where these procedures are coded alongside a primary diagnosis relating to a complication or adjustment of neurostimulator and a secondary diagnosis indicating that the device has been inserted for faecal incontinence, activity groups to the appropriate HRG in this subchapter rather than grouping to HRG roots **AA60 Insertion of Neurostimulator for Treatment of Neurological Conditions** or **LB15 Minor Bladder Procedures**.

The less-resource intensive HRG roots within this subchapter have maximum length of stay logic to ensure that minor procedures, such as rubber band ligation of haemorrhoid, are not used to determine the HRG for a long-stay medical patient, e.g. a person who has a gastrointestinal tract bleed.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

HRGs have been created/deleted

New HRG root **FF70 Multiple Very Complex Gastrointestinal Tract Procedures** has been created to enable escalation of highly complex activity from the oesophageal, stomach or duodenum; small intestine; and large intestine HRGs to a higher expected resource HRG. The HRG root is comprised of the following HRGs: **FF70A Multiple Very Complex Gastrointestinal Tract Procedures, 19 years and over, with CC Score 7+**; **FF70B Multiple Very Complex Gastrointestinal Tract Procedures, 19 years and over, with CC Score 0-6**; **and FF70C Multiple Very Complex Gastrointestinal Tract Procedures, 18 years and under**.

The age split within HRG root **FF42 Minor Anal Procedures** has been deleted because the paediatric HRG within this root no longer met HRG design criteria in activity terms. **FF42A Minor Anal Procedures, 19 years and over** and **FF42B Minor Anal Procedures, 18 years and under** have been deleted from the HRG design and replaced by a single all-age HRG, **FF42Z Minor Anal Procedures**.

Remapping of OPCS-4 codes to more appropriately reflect resource usage

OPCS-4 code ***H32.1 Resiting of colostomy*** has been remapped from HRG root **FF36 Intermediate Large Intestine Procedures, 19 years and over** to HRG root **FF34 Major Large Intestine Procedures, 19 years and over** to more appropriately reflect the expected resource usage of this procedure.

The combination code for implantation of a duodenal–jejunal bypass sleeve for managing obesity has been deleted from the HRG design following a change in NICE guidance.

Changes made to logic

New complex gastrointestinal surgery logic has been created and applied to 11 HRG roots for major–very complex upper or lower gastrointestinal surgery to ensure the HRG design acknowledges the added complexity resulting from the presence of an intestinal fistula (ICD-10), long-term parenteral nutrition status (OPCS-4) or the patient undergoing multiple very complex gastrointestinal procedures.

New lists **FF_Fistula**, **FF_TPN** and **FF_VeryComplex** have been created to support this new complex gastrointestinal surgery logic, and existing lists **FF_Complex** and **FF_Major** have been amended to ensure the new logic functions as intended.

Existing sleeve gastrectomy logic (**FF_SleeveGastrec**) has been applied to OPCS-4 codes classifying repair of hernia to ensure that a sleeve gastrectomy contributes to multiple-procedure escalation where appropriate.

Existing bariatric surgery escalation logic has been amended to ensure that “part and parcel procedures” such as stomach partitioning do not contribute to multiple-procedure escalation.

Length of stay logic has been added to existing incontinence logic to ensure that patients treated for faecal incontinence group to a faecal incontinence HRG only when the patient length of stay is 1 day or less.

Changes made to list membership

OPCS-4 code ***G28.5 Sleeve gastrectomy*** has been added to list **FF_Major** to ensure this procedure contributes to multiple-procedure escalation when recorded alongside a major gastrointestinal procedure.

OPCS-4 codes ***G30.2 Partitioning of stomach NEC***, ***G30.4 Partitioning of stomach using staples***, ***G30.8 Other specified plastic operation on stomach*** and ***G30.9 Unspecified plastic operation on stomach*** have been removed from lists **FF_Major_Obesity** and **FF_Major** to ensure these procedures do not contribute to multiple-procedure escalation when done as part and parcel of a more complex procedure.

Changes to procedure hierarchy values

The procedure hierarchy (PH) value of OPCS-4 codes classifying stomach partitioning procedures has been reduced to ensure these procedures do not drive grouping when performed as part and parcel of a more complex procedure.

Subchapter GA – Hepatobiliary and Pancreatic System Open and Laparoscopic Procedures

Subchapter **GA Hepatobiliary and Pancreatic System Open Procedures** includes hepatobiliary and pancreatic system surgery for patients of all ages. It includes activity undertaken in inpatient, day case and non-admitted care settings.

It does not include endoscopic hepatobiliary and pancreatic system procedures, which map to Subchapter **GB Hepatobiliary and Pancreatic System Endoscopic Procedures**, or percutaneous hepatobiliary and pancreatic system procedures, which map to Subchapter **YG Hepatobiliary and Pancreatic Imaging Interventions**.

The more general hepatobiliary and pancreatic procedures HRG roots within this subchapter are divided into six levels of complexity (minor, intermediate, major, very major, complex and very complex).

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**27**	**27**
Total HRG Roots	**11**	**11**
Procedure-driven HRGs	27	27
Diagnosis-driven HRGs	0	0
Age Splits	Yes	Yes
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	Yes	Yes
Procedure Combination Codes	Yes	Yes
Diagnosis-qualified	Yes	Yes
Subsidiary Procedure-qualified	Yes	Yes
Length of Stay-qualified	No	No

There are also procedure-specific HRG roots for high-volume procedures such as cholecystectomy, and for specialised procedures such as hepatobiliary transplants or pancreatic necrosectomy.

The transplant HRGs are separated into liver tranplant HRGs; a pancreas transplant HRG (which includes pancreas + kidney transplants); and an HRG for multiple transplants, including where multiple transplants of the same organ have been undertaken.

The cholecystectomy HRG root is split based on whether the surgery was open or laparoscopic and has age splits: there are several HRGs specifically for adult activity (19 years and over) and one HRG specifically for paediatric activity (18 years and under).

The liver transplant HRG root has a paediatric age split in addition to a standard age split: there is a specific HRG for adult activity (aytipically defined as 18 years and over) and HRGs specific to the treatment of infants (0 to 1 year of age) and older children (2 to 17 years), respectively.

Interactive CC splits are employed within the majority of HRG roots within this subchapter – up to a maximum of three levels – to more appropriately differentiate expected resource usage between routine and complex patients.

Multiple-procedure logic is employed by the majority of HRGs in this subchapter to escalate activity to an HRG with a higher expected resource use (up to a maximum of two complexity levels) where significant additional procedures have been recorded in the patient record. Escalation to an HRG with a higher expected resource use also occurs, where appropriate, for patients with a diagnosis of acute pancreatitis.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

Changes to list membership

OPCS-4 code ***G28.5 Sleeve gastrectomy*** has been added to list **FF_Major** to ensure this procedure contributes to multiple-procedure escalation logic when recorded alongside a major gastrointestinal procedure.

Subchapter GB – Hepatobiliary and Pancreatic System Endoscopic Procedures

Subchapter **GB Hepatobiliary and Pancreatic System Endoscopic Procedures** covers hepatobiliary and pancreatic system endoscopic procedures. It includes activity undertaken in inpatient, day case and non-admitted care settings for patients of all ages.

It does not include open surgical procedures, which map to Subchapter **GA Hepatobiliary and Pancreatic System Open and Laparoscopic Procedures**, or percutaneous procedures, which map to Subchapter **YG Hepatobiliary and Pancreatic Imaging Interventions**.

The HRG roots within this subchapter are split into endoscopic retrograde cholangiopancreatography (ERCP) procedures and endoscopic ultrasound procedures.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**14**	**14**
Total HRG Roots	**7**	**7**
Procedure-driven HRGs	14	14
Diagnosis-driven HRGs	0	0
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	Yes	Yes
Procedure Combination Codes	Yes	Yes
Diagnosis-qualified	Yes	Yes
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	Yes	Yes

There are three therapeutic ERCP HRG roots (intermediate, major and complex) and two diagnostic ERCP HRG roots (with biopsy or cytology and without biopsy or cytology).

Interactive CC splits are employed within many of the more complex HRG roots within this subchapter – up to a maximum of four levels – to more appropriately differentiate expected resource usage between routine and complex patients.

Multiple-procedure logic is employed by some of the HRGs in this subchapter to escalate activity to an HRG with a higher expected resource use (up to a maximum of two complexity levels) where significant additional procedures have been recorded in the patient record. Escalation to an HRG with a higher expected resource use also occurs, where appropriate, for patients with a diagnosis of acute pancreatitis.

The less-resource intensive HRG roots within this subchapter have maximum length of stay logic to ensure that minor procedures, such as diagnostic ERCP, are not used to determine the HRG for a long-stay medical patient, e.g. a person who has liver failure.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

Remapping of OPCS-4 codes to more appropriately reflect resource usage

Combination code ***J36.2+Y76.4 Endoscopic ultrasonic biopsy of lesion of ampulla of Vater*** has been created and mapped to HRG root **GB12 Endoscopic Ultrasound Examination, of Hepatobiliary or Pancreatic Duct, with Biopsy or Cytology**.

Subchapter GC – Hepatobiliary and Pancreatic System Disorders

Subchapter **GC Hepatobiliary and Pancreatic System Disorders** covers all adult liver, biliary and pancreatic system disorders. It includes activity undertaken in inpatient and day case settings.

All diagnosis-driven activity relating to the treatment of children (aged 18 years and under) groups to an HRG in **Chapter P Diseases of Childhood and Neonates**, in line with the requirements of the Casemix Design Framework.

The HRGs within this subchapter are spread across four HRG roots, two of which are disease-specific – for liver failure and non-obstructive jaundice – and two of which contain all other hepatobiliary and pancreatic system disorders – one for malignant disorders and one for non-malignant disorders.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**24**	**24**
Total HRG Roots	**4**	**4**
Procedure-driven HRGs	0	0
Diagnosis-driven HRGs	24	24
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	Yes	Yes
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	No	No

Interactive CC splits are employed within all of the HRG roots within this subchapter – up to a maximum of four levels – to more appropriately differentiate expected resource usage between routine and complex patients.

Intervention splits, including those that differentiate between whether a single “minor intervention” or multiple “minor interventions” have been undertaken, are employed within three of the four HRG roots in this subchapter to acknowledge where “minor interventions” undertaken during a patient admission are expected to result in additional resource usage.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter HC – Spinal Procedures and Disorders

Subchapter **HC Spinal Procedures and Disorders** includes spinal surgery for patients of all ages and treatment for adult spinal disorders, undertaken as inpatient, day case or outpatient activity.

The majority of percutaneous spinal procedures map to Subchapter **YH Musculoskeletal Imaging Interventions**.

All diagnosis-driven activity relating to the treatment of children (aged 18 years and under) groups to an HRG in **Chapter P Diseases of Childhood and Neonates**, in line with the requirements of the Casemix Design Framework.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	74	74
Total HRG Roots	23	23
Procedure-driven HRGs	39	39
Diagnosis-driven HRGs	35	35
Age Splits	Yes	Yes
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	Yes	Yes
Multiple Procedures	Yes	Yes
Procedure Combination Codes	Yes	Yes
Diagnosis-qualified	Yes	Yes
Subsidiary Procedure-qualified	Yes	Yes
Length of Stay-qualified	Yes	Yes

The procedure-driven HRGs within this subchapter are specific to spinal reconstruction, including instrumented correction of spinal deformity. There are also extradural spinal surgery HRGs with six levels of complexity (minor, intermediate, major, very major, complex and very complex), HRGs specific to intradural spinal surgery with two levels of complexity (major and complex), and HRGs specific to diagnostic spinal puncture.

The adult diagnosis-driven HRGs are differentiated by disorder type.

Many of the HRG roots in this subchapter employ age splits: There are specific HRGs for adult activity (19 years and over) and others for paediatric activity (18 years and under). For the diagnostic spinal puncture HRGs, paediatric activity is further disaggregated into splits for young children (0 to 5 years of age) and older children (6 to 18 years of age).

Interactive CC splits are employed within the majority of both diagnosis-driven and procedure-driven HRG roots within this subchapter – up to a maximum of four levels – to more appropriately differentiate expected resource usage between routine and complex patients.

Intervention splits are employed within several diagnosis-driven HRG roots within this subchapter to acknowledge where “minor interventions” undertaken during a patient admission are expected to result in additional resource usage.

Multiple-procedure logic is employed by the majority of procedure-driven HRGs in this subchapter to escalate activity to an HRG with a higher expected resource usage (up to a maximum of two complexity levels) where significant additional procedures have been recorded in the patient record. Escalation to an HRG with a higher expected resource use also occurs, where appropriate, when procedures are performed bilaterally; where the patient is being treated for a spinal tumour or infection; or where there is advanced monitoring – e.g. EPR during surgery.

Some activity with a dominant procedure mapped to an HRG root in this subchapter will group to an HRG in another subchapter in certain scenarios. Where either Treatment Function Code (TFC) **191 Pain Management** or TFC **241 Paediatric Pain Management** is

recorded in the patient record alongside certain procedures, activity will group to an HRG in Subchapter **AB Pain Management**.

HRGs **HC65Z Minor Extradural Spinal Procedures** and **HC72* Diagnostic Spinal Puncture** employ maximum length of stay logic to ensure that minor procedures, such as diagnostic lumbar puncture, are not used to determine the HRG for a long-stay medical patient, e.g. a child who has meningitis.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter HD – Musculoskeletal and Rheumatological Disorders

Subchapter **HD Musculoskeletal and Rheumatological Disorders** covers musculoskeletal and rheumatological disorders for adult patients. It includes activity undertaken in an inpatient and day case setting.

All diagnosis-driven activity relating to the treatment of children (aged 18 years and under) groups to an HRG in **Chapter P Diseases of Childhood and Neonates**, in line with the requirements of the Casemix Design Framework.

The HRGs within this subchapter are differentiated by disorder type.

Interactive CC splits are employed within all of the HRG roots within this subchapter – up to a maximum of six levels – to more appropriately differentiate expected resource usage between routine and complex patients.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**35**	**35**
Total HRG Roots	**7**	**7**
Procedure-driven HRGs	0	0
Diagnosis-driven HRGs	35	35
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	No	No

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter HE – Orthopaedic Disorders

Subchapter **HE Orthopaedic Disorders** covers trauma and non-trauma orthopaedic diagnoses for adult patients only. It includes activity undertaken in inpatient and day case settings.

Adult spinal disorder HRGs can be found in Subchapter **HC Spinal Procedures and Disorders**.

Adult rheumatological and other musculoskeletal disorders can be found in Subchapter **HD Musculoskeletal and Rheumatological Disorders**.

All diagnosis-driven activity relating to the treatment of children (aged 18 years and under) groups to an HRG in **Chapter P Diseases of Childhood and Neonates**, in line with the requirements of the Casemix Design Framework.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	84	84
Total HRG Roots	15	15
Procedure-driven HRGs	0	0
Diagnosis-driven HRGs	84	84
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	Yes	Yes
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	No	No

In this subchapter, there are HRGs for injuries based on the site of the injury. These are further split into HRGs for fracture injuries and HRGs for other injuries. There are also HRGs specific to complications of trauma and orthopaedic treatment.

Interactive CC splits are employed within all of the HRG roots within this subchapter – up to a maximum of five levels – to more appropriately differentiate expected resource usage between routine and complex patients.

Intervention splits, including those that differentiate between whether a single “minor intervention” or multiple “minor interventions” have been undertaken, are employed within the majority of the HRG roots in this subchapter to acknowledge where “minor interventions” undertaken during a patient admission are expected to result in additional resource usage.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter HN – Orthopaedic Non-Trauma Procedures

Subchapter **HN Orthopaedic Non-Trauma Procedures** covers non-trauma orthopaedic procedures for patients of all ages. It includes activity undertaken in inpatient, day case and non-admitted care settings.

Trauma procedure activity can be found in Subchapter **HT Orthopaedic Trauma Procedures**.

Spinal activity can be found in Subchapter **HC Spinal Procedures and Disorders**.

Adult orthopaedic disorders can be found in Subchapter **HE Orthopaedic Disorders**.

Adult musculoskeletal and rheumatological disorders can be found in Subchapter **HD Musculoskeletal and Rheumatological Disorders**.

Composition and Concepts		
	RC18/19	**RC17/18**
Total HRGs	**111**	**111**
Total HRG Roots	**36**	**36**
Procedure-driven HRGs	111	111
Diagnosis-driven HRGs	0	0
Age Splits	Yes	Yes
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	Yes	Yes
Procedure Combination Codes	Yes	Yes
Diagnosis-qualified	Yes	Yes
Subsidiary Procedure-qualified	Yes	Yes
Length of Stay-qualified	Yes	Yes

Subchapter HN does not include percutaneous spinal procedures, with the exception of OPCS-4 code ***W35.5 Therapeutic percutaneous puncture of bone***. Instead, these map to Subchapter **YH Musculoskeletal Imaging Interventions**.

Activity will map to HRGs within Subchapterr **HT Orthopaedic Trauma Procedure** where a primary diagnosis of trauma from list **H_Trauma** is recorded, with the exception of procedures that are inherently almost exclusive to the treatment of non-trauma conditions, e.g. carpal tunnel release, plantar fasciectomy, which will map to HRGs within this subchapter irrespective of primary diagnosis.

To reflect the clinical care and high costs associated with the treatment of infected internal orthopaedic prosthetics, HRG roots **HN80 Very Complex, Hip or Knee Procedures for Non-Trauma** and **HN85 Very Complex, Foot, Hand, Shoulder or Elbow Procedures for Non-Trauma** have been created. These HRGs can only be derived for specific revisional and end-stage limb salvage procedures, indicated by a diagnosis code indicating infected internal orthopaedic prosthetics.

Many of the HRG roots in this subchapter employ age splits, and several employ paediatric age splits: There are specific HRGs for adult activity (19 years and over) and others for paediatric activity (18 years and under). There are also HRGs specific to the treatment of young children (0 to 5 years of age) and those for older children (6 to 18 years).

Interactive CC splits are employed within the majority of HRG roots within this subchapter – up to a maximum of six levels – to more appropriately differentiate expected resource usage between routine and complex patients.

Multiple-procedure logic is employed by the majority of procedure-driven HRGs in this subchapter to escalate activity to an HRG with a higher expected resource usage (up to a maximum of two complexity levels) where significant additional procedures have been recorded in the patient record. Escalation to an HRG with a higher expected resource use also occurs, where appropriate, when procedures are performed bilaterally (or on multiple

digits of hands or feet), or where the patient is being treated for bone malignancy or an infected orthopaedic prosthesis.

Some activity with a dominant procedure mapped to an HRG root in this subchapter will group to an HRG in another subchapter in certain scenarios. Where either Treatment Function Code (TFC) **191 Pain Management** or TFC **241 Paediatric Pain Management** is recorded in the patient record alongside certain procedures, activity will group to an HRG in Subchapter **AB Pain Management**. Where certain amputation or disarticulation of bone procedures are performed on a patient with a primary diagnosis of vascular disorder, activity will group to an HRG in Subchapter **YQ Vascular Open Procedures and Disorders**.

All the minor and minimal procedure HRGs within this subchapter have maximum length of stay logic to ensure that minor procedures, such as joint injections, are not used to determine the HRG for a long-stay medical patient, e.g. a person who has bone cancer.

Multiple site codes

Where multiple site codes are recorded relating to the same dominant procedure, the sequencing of sites per the following site hierarchy is applied when grouping activity:

Spine > Hip > Knee > Shoulder > Elbow > Hand > Foot

For example, if ***A59.2 Total sacrifice of peripheral nerve NEC*** were recorded with subsidiary site codes of ***Z09.5 Posterior interosseous nerve*** (ELBOW) and ***Z09.2 Median nerve*** (HAND), the combination code ***A59.2+ELBOW*** would be derived and would drive grouping.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter HT – Orthopaedic Trauma Procedures

Subchapter **HT Orthopaedic Trauma Procedures** covers trauma orthopaedic procedures for patients of all ages. It includes activity undertaken in inpatient, day case and non-admitted care settings.

Non-trauma procedure activity can be found in Subchapter **HN Orthopaedic Non-Trauma Procedures**.

Spinal activity can be found in Subchapter **HC Spinal Procedures and Disorders**.

Adult orthopaedic disorders can be found in Subchapter **HE Orthopaedic Disorders**.

Adult musculoskeletal and rheumatological disorders can be found in Subchapter **HD Musculoskeletal and Rheumatological Disorders**.

Composition and Concepts		
	RC18/19	**RC17/18**
Total HRGs	**87**	**87**
Total HRG Roots	**26**	**26**
Procedure-driven HRGs	87	87
Diagnosis-driven HRGs	0	0
Age Splits	Yes	Yes
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	Yes	Yes
Procedure Combination Codes	Yes	Yes
Diagnosis-qualified	Yes	Yes
Subsidiary Procedure-qualified	Yes	Yes
Length of Stay-qualified	Yes	Yes

Subchapter HT does not include percutaneous spinal procedures, with the exception of OPCS-4 code ***W35.5 Therapeutic percutaneous puncture of bone*.** The remainder map to Subchapter **YH Musculoskeletal Imaging Interventions**.

The orthopaedic procedures for trauma HRGs are based on the site of surgery – e.g. hip, knee, hand etc. – and are now split into five levels of complexity (minor, intermediate, major, very major and complex), with some sites combined at the higher complexity level.

Activity will map to HRGs within this subchapter rather than to HRGs in Subchapter **HN Orthopaedic Non-Trauma Procedure** where a primary diagnosis of trauma from list **H_Trauma** is recorded, with the exception of procedures that are inherently almost exclusive to the treatment of non-trauma conditions, e.g. carpal tunnel release, plantar fasciectomy, which will map to HRGs within Subchapter **HN Orthopaedic Non-Trauma Procedure** irrespective of primary diagnosis.

Many of the HRG roots in this subchapter employ age splits, and several employ paediatric age splits: There are specific HRGs for adult activity (19 years and over) and others for paediatric activity (18 years and under). There are also HRGs specific to the treatment of young children (0 to 5 years of age) and those for older children (6 to 18 years).

Interactive CC splits are employed within the majority of HRG roots within this subchapter – up to a maximum of five levels – to more appropriately differentiate expected resource usage between routine and complex patients.

Multiple-procedure logic is employed by the majority of procedure-driven HRGs in this subchapter to escalate activity to an HRG with a higher expected resource usage (up to a maximum of two complexity levels) where significant additional procedures have been recorded in the patient record. Escalation to an HRG with a higher expected resource use also occurs, where appropriate, when procedures are performed bilaterally (or on multiple digits of hands or feet), or where the patient is being treated for bone malignancy.

Multiple site codes

Where multiple site codes are recorded relating to the same dominant procedure, the sequencing of sites per the following site hierarchy is applied when grouping activity:

Spine > Hip > Knee > Shoulder > Elbow > Hand > Foot

For example, if ***A59.2 Total sacrifice of peripheral nerve NEC*** were recorded with subsidiary site codes of ***Z09.5 Posterior interosseous nerve*** (ELBOW) and ***Z09.2 Median nerve*** (HAND), the combination code ***A59.2+ELBOW*** would be derived and would drive grouping.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter JA – Breast Procedures and Disorders

Subchapter **JA Breast Procedures and Disorders** covers breast procedures for patients of all ages and adult breast disorders. It includes activity undertaken in inpatient, day case and non-admitted care settings.

It does not include percutaneous breast imaging intervention procedures; these map to Subchapter **YJ Breast Imaging Interventions**.

All diagnosis-driven activity relating to the treatment of children (aged 18 years and under) groups to an HRG in **Chapter P Diseases of Childhood and Neonates**, in line with the requirements of the Casemix Design Framework.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	35	35
Total HRG Roots	20	20
Procedure-driven HRGs	24	24
Diagnosis-driven HRGs	11	11
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	Yes	Yes
Multiple Procedures	Yes	Yes
Procedure Combination Codes	Yes	Yes
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	Yes	Yes
Length of Stay-qualified	Yes	Yes

The breast procedure HRGs within this subchapter are split based on three levels of complexity (minor, intermediate and major). In addition, there are HRGs specific to breast surgery with lymph node clearance and therapeutic mammoplasty.

There are also HRGs specific to reconstructive surgery that are split based on the type of reconstruction employed and whether the surgery is performed immediately or at a later date.

Multiple-procedure logic is employed by some of procedure-driven HRGs in this subchapter to escalate activity to an HRG with a higher expected resource usage where significant additional procedures have been recorded in the patient record.

All the procedure-driven HRGs are also split into unilateral and bilateral HRGs – the latter can include either the identical procedure performed on both breasts, i.e. bilateral reduction mammoplasty, or procedures of the equivalent resource usage being performed on both breasts, i.e. lumpectomy of left breast with oncoplasty of right breast.

The diagnosis-driven HRGs for adult breast disorders are split based on whether the disorder is malignant or non-malignant.

Interactive CC splits, up to a maximum of five levels, are employed within the majority of both diagnosis-driven and procedure-driven HRG roots to more appropriately differentiate expected resource usage between routine and complex patients.

Intervention splits are employed within both diagnosis-driven HRG roots within this subchapter to acknowledge where “minor interventions” undertaken during a patient admission are expected to result in additional resource usage.

All the minor procedure HRGs within this subchapter have maximum length of stay logic to ensure that minor procedures, such as injection into breast, are not used to determine the HRG for a long-stay medical patient, e.g. a person who has breast cancer.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter JB – Burns Procedures and Disorders

Subchapter **JB Burns Procedures and Disorders** covers all aspects of burns care for both adults and children. It includes activity undertaken in inpatient, day case and non-admitted care settings.

The majority of HRGs within this subchapter are differentiated by the severity score of the burn, derived after evaluating a combination of factors such as the total body surface area (TBSA) affected, the degree of burn, the location of burn, inhalation injury, the patient age and complications and comorbidities. These HRGs are further differentiated by the number and type of intervention recorded in the form of an intervention score.

All diagnosis-driven activity relating to the treatment of children (aged 18 years and under) for burns care groups to an HRG within Subchapter **JB Burns Procedures and Disorders**, rather than to an HRG in Chapter **P Diseases of Childhood and Neonates**. This is an exception to the requirements of the Casemix Design Framework, undertaken on clinical advisement

Composition and Concepts		
	RC18/19	**RC17/18**
Total HRGs	**38**	**38**
Total HRG Roots	**23**	**23**
Procedure-driven HRGs	4	4
Diagnosis-driven HRGs	34	34
Age Splits	Yes	Yes
Complications and Comorbidities Splits*	No	No
Intervention Splits#	No	No
Multiple Procedures	Yes	Yes
Procedure Combination Codes	No	No
Diagnosis-qualified	Yes	Yes
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	Yes	Yes

* Although this subchapter does not have CC splits, CCs are built into the severity score logic

Many HRGs in this subchapter have intervention score splits ?(see flow diagram), however these are not generated via the Interventions List, as with other subchapters

The updated burns design incorporates new Core 7 (Burns) logic, developed to ensure that patients with a 2nd or 3rd degree burn diagnosis code, in any position, map to a burns HRG, irrespective of any procedure recorded.

Records with a primary diagnosis of a 1st degree burn, unspecified degree burn, or burn of respiratory or genitourinary tract (which are classed as equivalent to a 2nd/3rd degree burn for the purpose of the HRG design, but as internal burns do not require TBSA to be recorded) will only map to a burns HRG where no significant procedure is recorded.

However, records with a dominant procedure specific to the treatment of burns (OPCS-4 rubrics **S54.-** and **S55.-**) will also map to a burns HRG. There are also procedure-specific HRGs for the treatment of burns – debridement of burn and cleansing and dressing of burn – where the activity does not map to the severity category HRGs, i.e. in an outpatient procedure setting, where diagnosis is not utilised in grouping.

With the exception of internal burns, the absence of a diagnosis code indicating TBSA of burn will generate the U group HRG, **UZ01Z Data Invalid for Grouping**, as this is required to appropriately determine resource usage.

There are specific HRGs for unspecified degree of burn, split into one HRG for adult (16 years and over) activity and one HRG for paediatric activity (15 years and under). It is hoped that the activity reported against these HRGs will reduce over time as more appropriate coding of the severity of burn is captured.

There are also specific HRGs for patients receiving treatment for 2nd or 3rd degree burns that are either transferred out from a provider (using discharge destination) or die (using discharge method) within 2 days or less, to reflect that the resource use associated with these patients is very different to that of patients undergoing long term treatment, often for very severe burns.

All other treatment of burns will map to one of the different levels of severity category HRGs, which are also split by age (adult/child) and/or intervention score, e.g. skin grafts.

In order to simplify the design, dummy HRG roots are used to map records via Core 7 (Burns) logic for 2nd and 3rd degree burns, or via Core 1 (standard) logic for 1st degree and internal burns to a base severity category HRG root as below:

- **JB89 Treatment of Burn, with Severity Score 1** – Enables direct mapping to JB49 and JB58
- **JB90 Treatment of Burn, with Severity Score 2** – Enables direct mapping to JB48 and JB57 (For First Degree Burns)
- **JB91 Treatment of Burn, with Severity Score 2** – Enables direct mapping to JB48, JB55 and JB57 (For Second and Third Degree Burns)
- **JB92 Treatment of Burn, with Severity Score 3** – Enables direct mapping to JB47, JB55 and JB56
- **JB93 Treatment of Burn, with Severity Score 4** – Enables direct mapping to JB46, JB52 and JB54
- **JB94 Treatment of Burn, with Severity Score 5** – Enables direct mapping to JB43, JB45, JB52 and JB53
- **JB95 Treatment of Burn, with Severity Score 6** – Enables direct mapping to JB43, JB44 and JB51
- **JB96 Treatment of Burn, with Severity Score 7** – Enables direct mapping to JB42 and JB51
- **JB97 Treatment of Burn, with Severity Score 8-9** – Enables direct mapping to JB41 and JB50
- **JB98 Treatment of Burn, with Severity Score 10+** – Enables direct mapping to JB40 and JB50

For 2nd or 3rd degree burns (external burns only), grouped via Core 7 (Burns) logic, Core 3 “escalation” logic is then used to determine the final severity category dummy HRG root, and then the final HRG is determined using age and intervention criteria.

The base severity category HRG is determined by a combination of the depth of the burn, i.e. degree, and the TBSA.

The TBSA diagnosis codes are in bands representing 10% TBSA, e.g. ***T31.0 Burns involving less than 10% of body surface*** and ***T31.1 Burns involving 10-19% of body surface***. However, there is a significant resource difference between a patient with a burn of 1% TBSA compared to a patient with a burn of 9% TBSA.

Therefore, for patients with a TBSA of <20%, a proxy measure of calculating TBSA has been devised using the average % TBSA burned of each region of the body, as shown in the table below:

Body Site (as per ICD-10 codes)	Proxy % TBSA (where <10% TBSA overall)	Proxy % TBSA (where <20% TBSA overall)
Head and Neck	1.5	3

Trunk	3	9
Upper Limb	1	2
Hand and Wrist	1	2
Lower Limb	2	4
Foot and Ankle	2	4
Multiple Areas	3	9
Unspecified Area	1	2

If, for example, a patient has a TBSA <10% code recorded and they have a diagnosis code of a burn of hand, this has a proxy TBSA of 1%, whereas a burn of trunk has a proxy TBSA of 3%. If a patient has both, the total proxy TBSA is 4%. Likewise, if a patient has a TBSA of 10-19% code recorded and they have a diagnosis code of burn of head, trunk and foot, their proxy TBSA would be 16%.

Note that only unique burns diagnosis codes (including primary diagnosis) contribute to proxy TBSA scoring, e.g. a primary and secondary diagnosis of ***T20.2 Burn of second degree of head and neck*** will only count as 1 area when determining proxy TBSA.

For information, in order for this to be implemented in the design database, each of these values has been multiplied by a value of 10, e.g. a Head and Neck value of 1.5 becomes 15. Therefore, the check at flag level for 1-4% TBSA proxy will check for a minimum value of 15, and the check at flag level for 15-19% TBSA will check for a minimum value of 150.

This enables differentiation of expected resource usage between patients with <1% (the 1% proxy TBSA are assumed to be <1% for the HRG derivation), 1-4% (which would actually start at 1.5%), 5-9%, 10-14% and 15-19% TBSA. Therefore, records which map to a burns HRG will map to the following base severity category HRG roots:

% TBSA / Degree of burn	Start Severity Category
1st degree <20%	1
1st degree >20%, or 2nd/3rd degree <1%	2
2nd/3rd degree 1-4%	3
2nd/3rd degree 5-9%	4
2nd/3rd degree 10-14%	5
2nd/3rd degree 15-19%	6
2nd/3rd degree 20-29%	7
2nd/3rd degree 30-39%	8
2nd/3rd degree 40%+	9

Escalation to a higher severity category HRG – up to a maximum of 1 severity category for 1st degree burns (enabled via Core 1 standard grouping logic) and 3 severity categories for 2nd / 3rd degree burns (enabled via Core 3 escalation logic) – will then take place depending on other relevant information such as age, complications and comorbidities (CC), burns to face, hands or feet – i.e. burns that are more resource intensive due to location, i.e. inability

to walk, feed themselves etc., and whether patient has an inhalation injury or combination thereof.

Escalation to the various severity categories can occur based on the criteria laid out in the table below:

Complicating factor	No escalation	Up 1 Severity Category	Up 2 Severity Categories	Up 3 Severity Categories
Age	<60	60-79	80 or above	-
CC Score	<3	3-5	6-8	9+
Burn involving face, hands or feet	0 or 1 of these areas	2 of these areas e.g. face and hand	3 of these areas e.g. face, hands and feet	-
Inhalation Injury requiring invasive ventilation	-	-	-	Yes

Note that only unique burns diagnosis codes (including primary diagnosis) contribute to severity escalation logic, e.g. a primary and secondary diagnosis of ***T20.2 Burn of second degree of head and neck*** will only count as 1 area when determining severity escalation.

A patient may qualify for a combination of these factors, but for 1st degree burns the maximum escalation will be up 1 severity category – from JB89 Severity Category 1 to JB90 Severity Category 2, via Core 1 standard logic.

For 2nd and 3rd degree burns, the maximum escalation will be up 3 severity categories, e.g. from JB92 Severity Category 3 to JB95 Severity Category 6, via Core 3 escalation logic.

For example, if a record derives a base dummy HRG root of JB91 Severity Category 2 (from Core 7 or Core 1 logic) and has an age of 65 years old, burns of face and feet and unique secondary diagnoses that sum to a CC score of 3, then as each of these complicating factors would escalate the patient up one severity category level, the combination of these factors escalates the patient up 3 severity categories to a JB94 Severity Category 5 dummy HRG root.

If a record derives a base dummy HRG root of JB93 Severity Category 4 and has an age of 85 years old, unique secondary diagnoses that sum to a CC score of 7 and an inhalation injury requiring invasive ventilation, then although these complicating factors combined would result in an escalation value of 7, noting that the maximum escalation is 3 severity categories, the activity would only escalate to dummy HRG root JB96 Severity Category 7.

As the maximum severity category HRG is 8+ for children and 10+ for adults, patients cannot escalate beyond these HRGs.

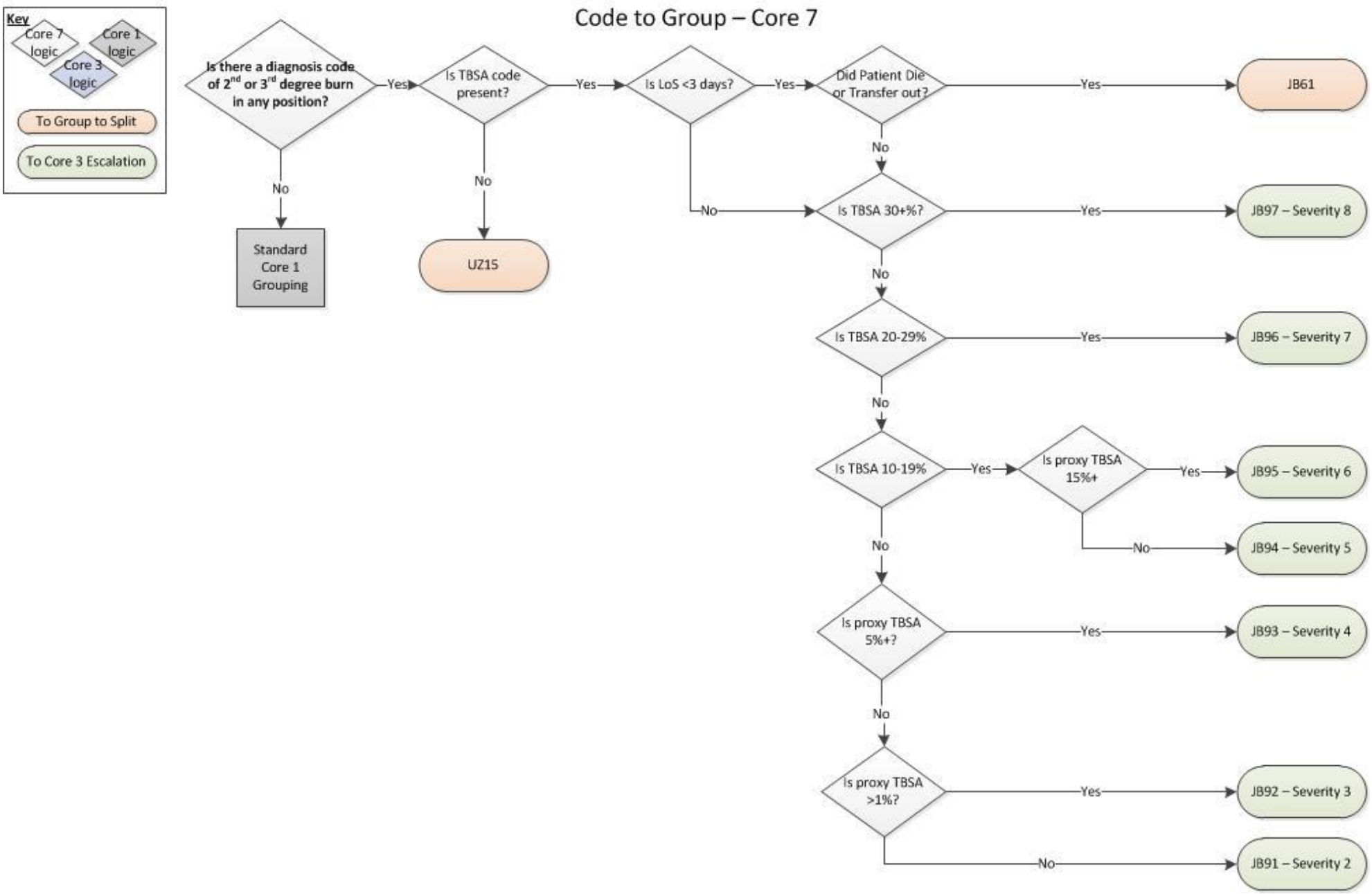
The actual HRG is then derived using patient age (adult – >15 years / child <16 years) and intervention score.

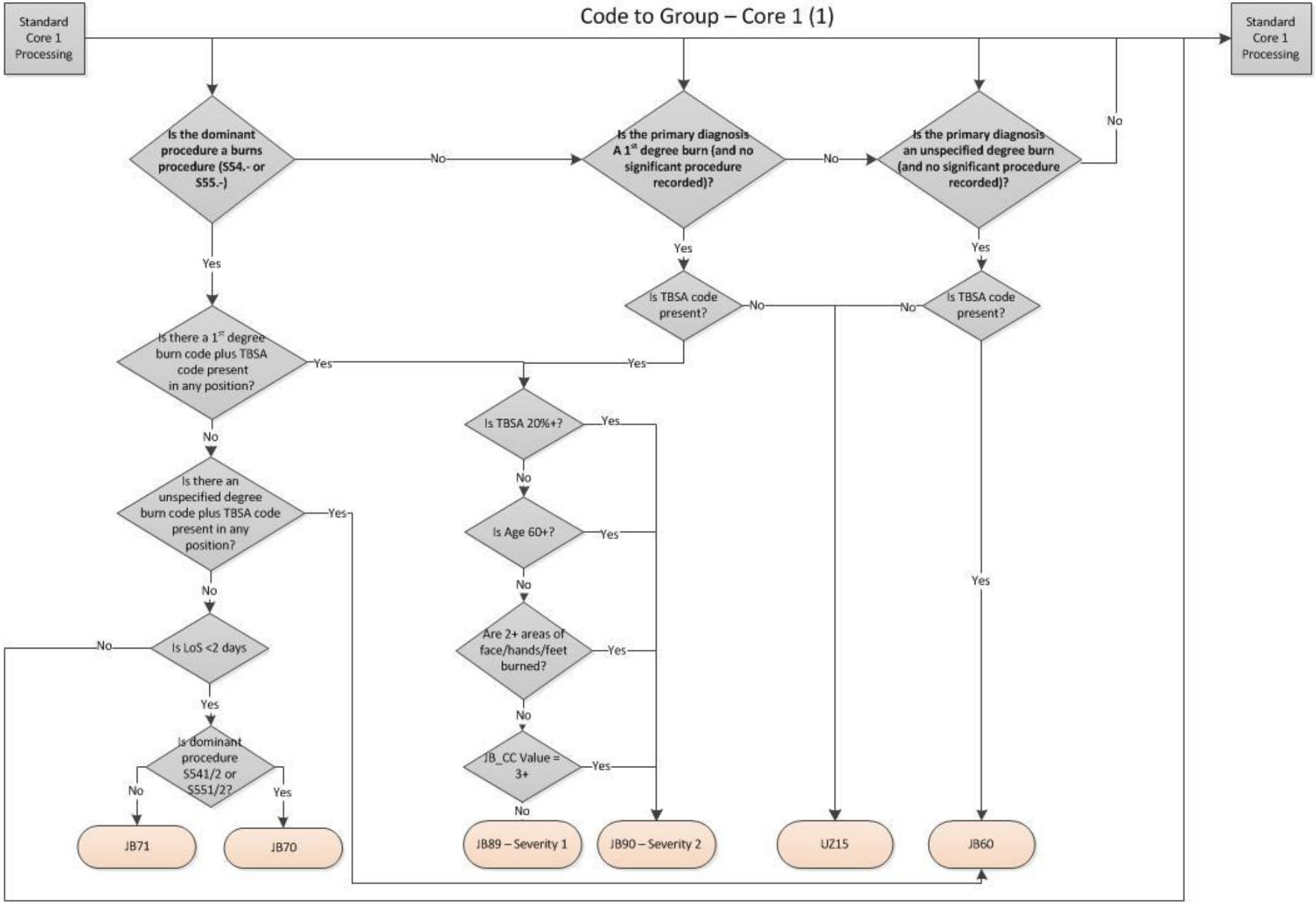
Interventions scores are either 0 – no significant burns related intervention, 1 – a major burn intervention (e.g. skin graft) or 2 – a complex burn intervention (e.g. amputation of limb). Therefore, an intervention score of 2 can be derived from one complex procedure or 2 major procedures.

Below is a flow diagram that shows how the new burns HRGs can be generated, as explained above, either using Core 7 (Burns) logic or Core 1 (standard) logic to determine

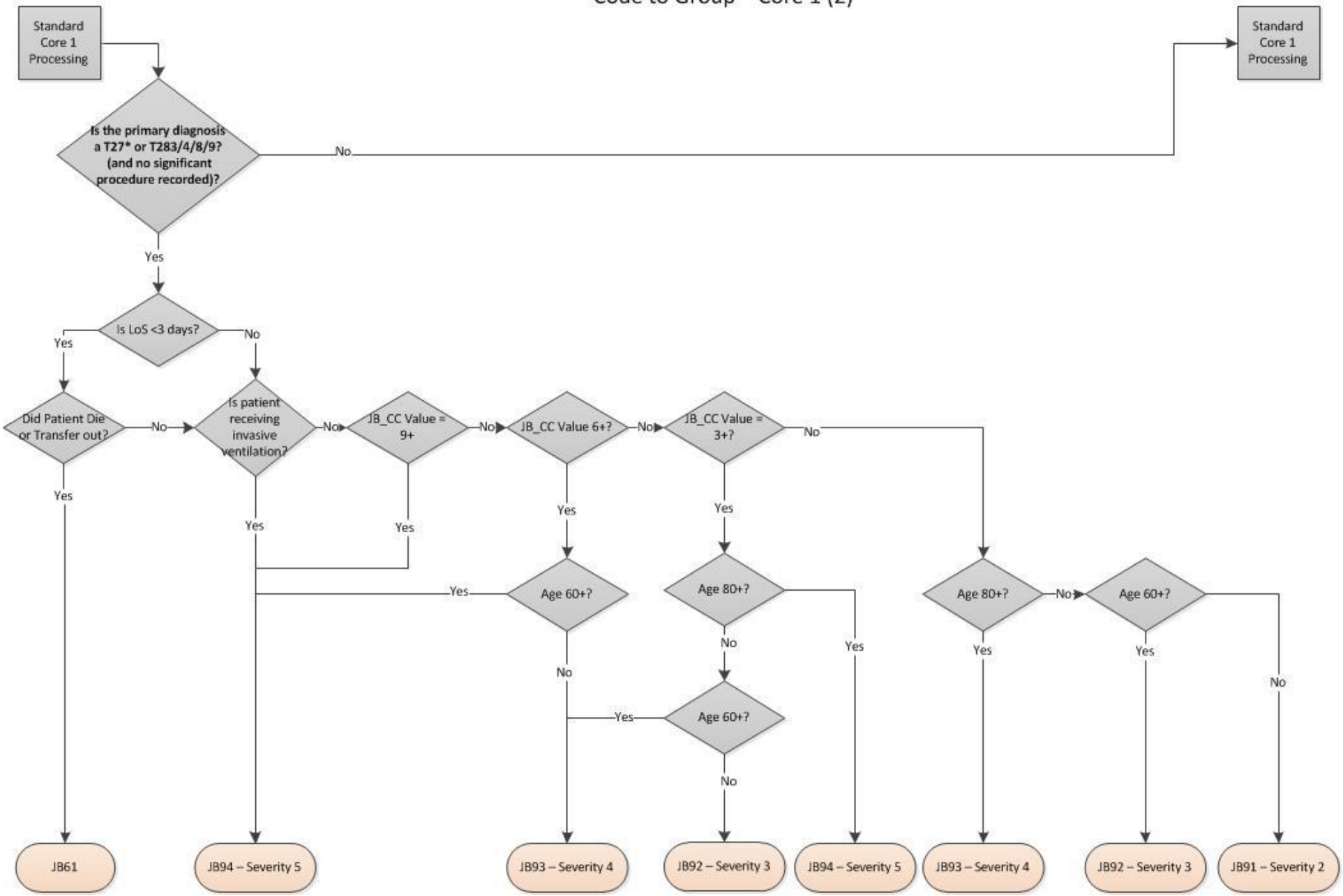
whether the activity should generate a burns HRG, and if so which specific HRG or base severity category dummy HRG based on degree of burn and TBSA. Where appropriate, Core 3 and standard escalation logic are then used to determine the appropriate severity category of the dummy HRG root.

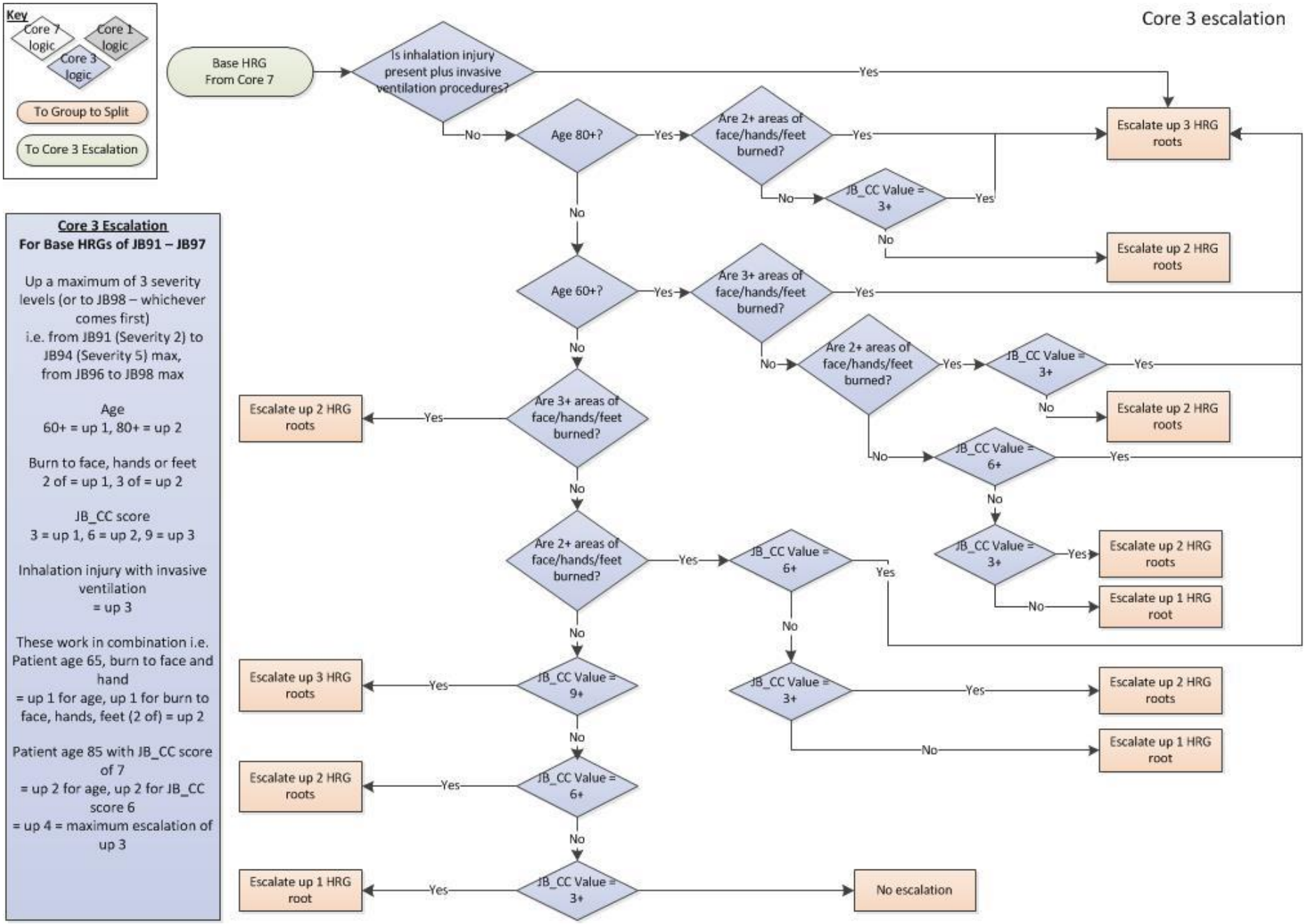
From the dummy HRG root, group to split logic (as identified in the Group to Split tab in the Code to Group Excel workbook) is used to determine the mapping of these dummy HRG roots to final HRGs based on the patient's age and intervention score.

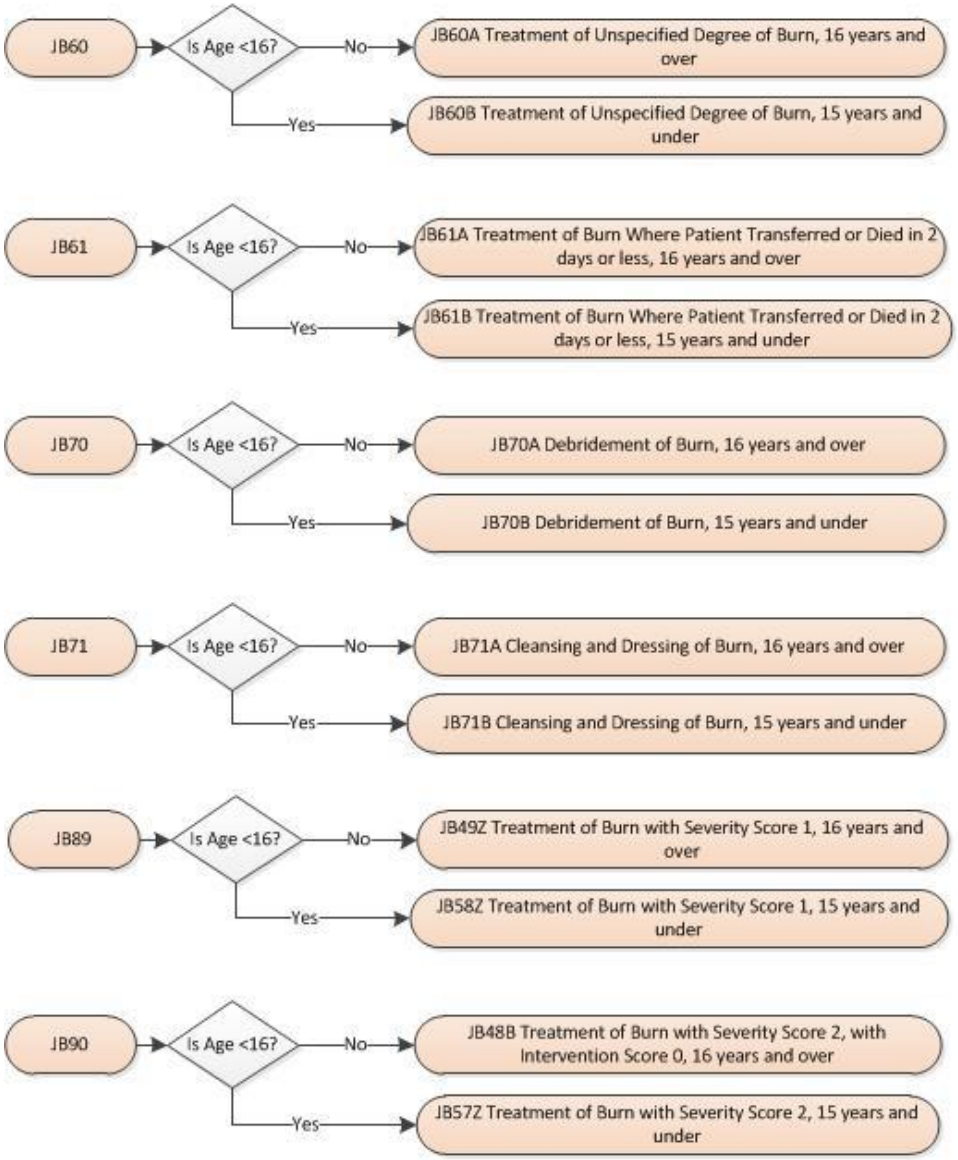


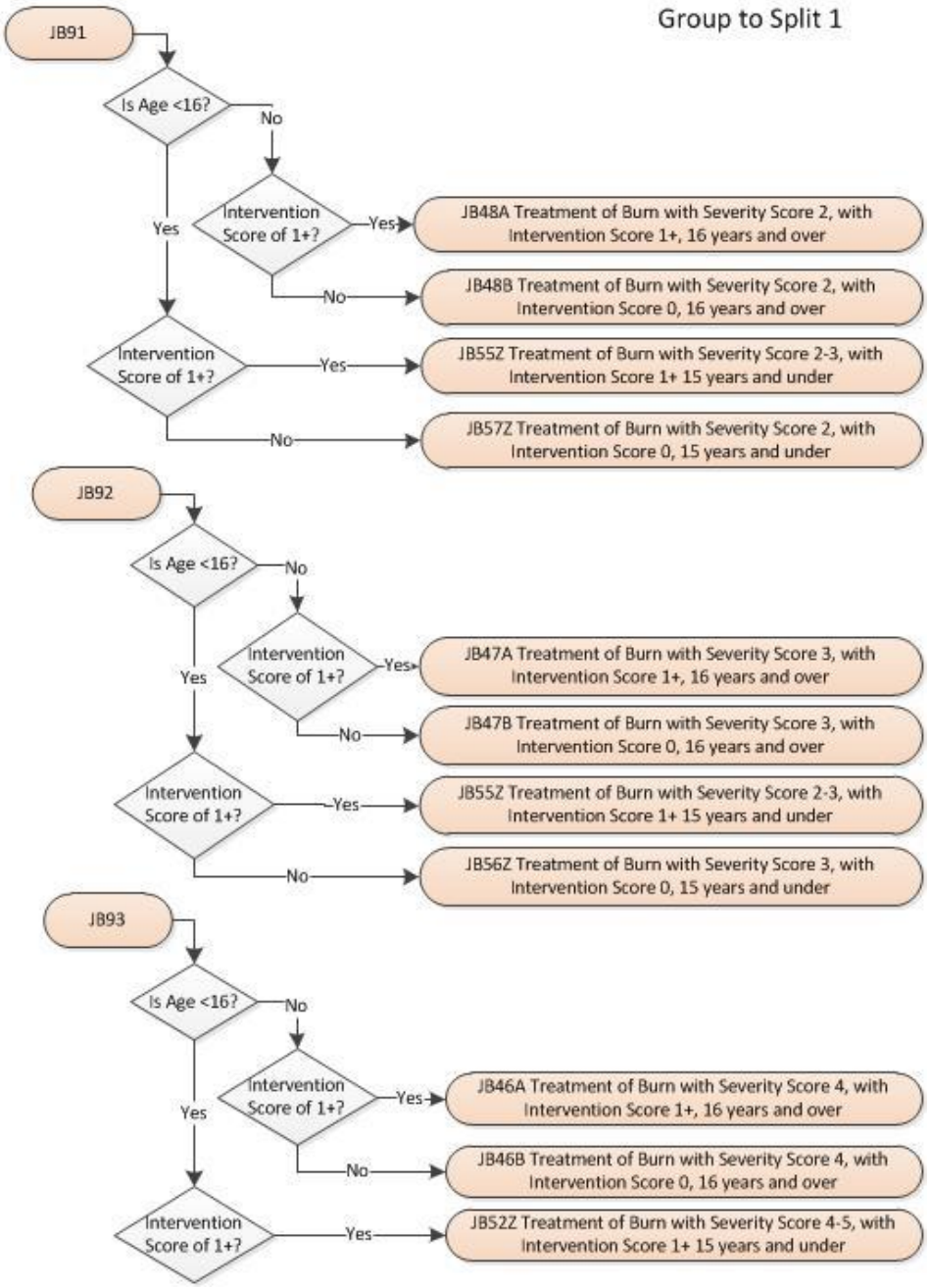


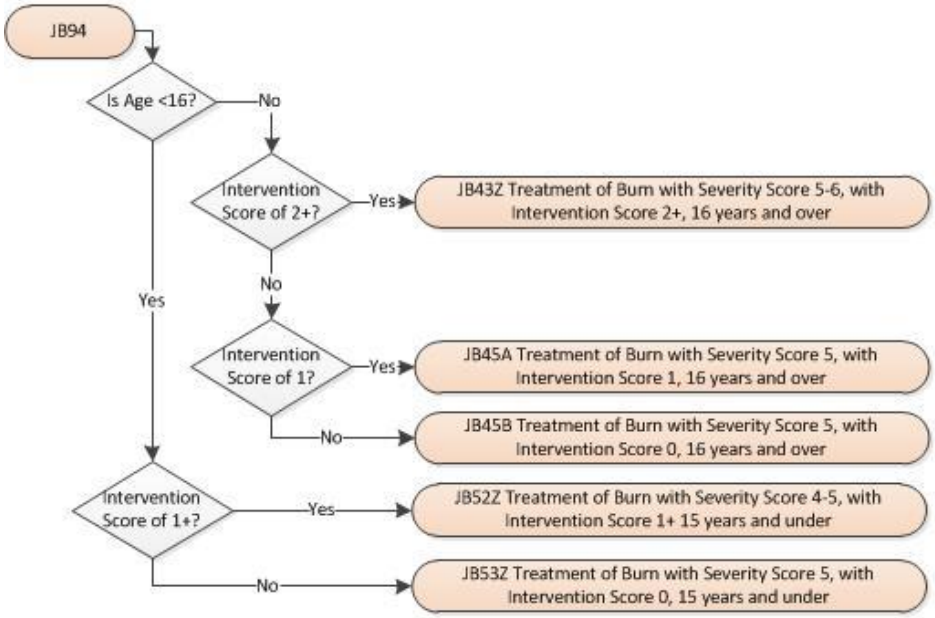
Code to Group – Core 1 (2)

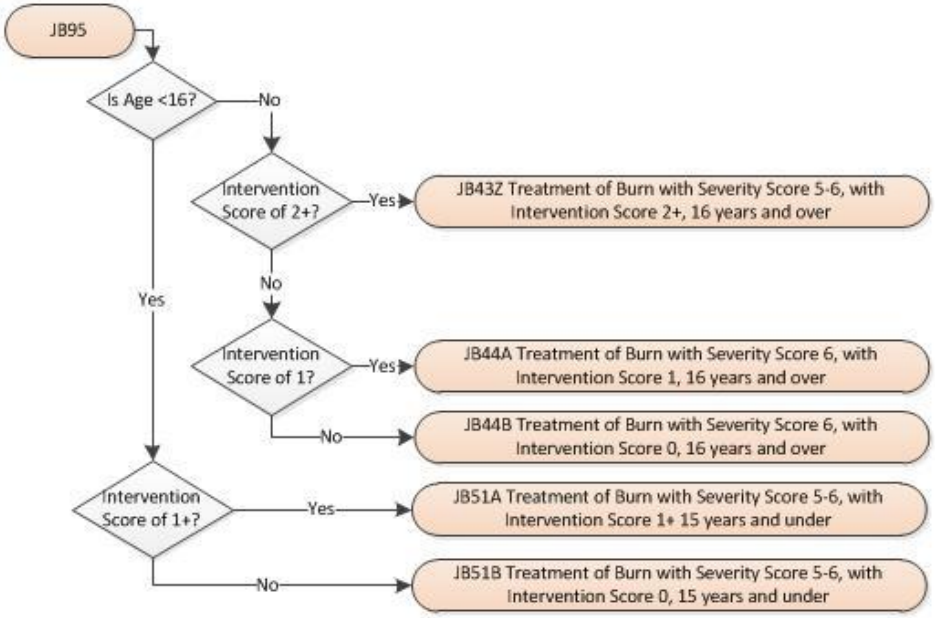




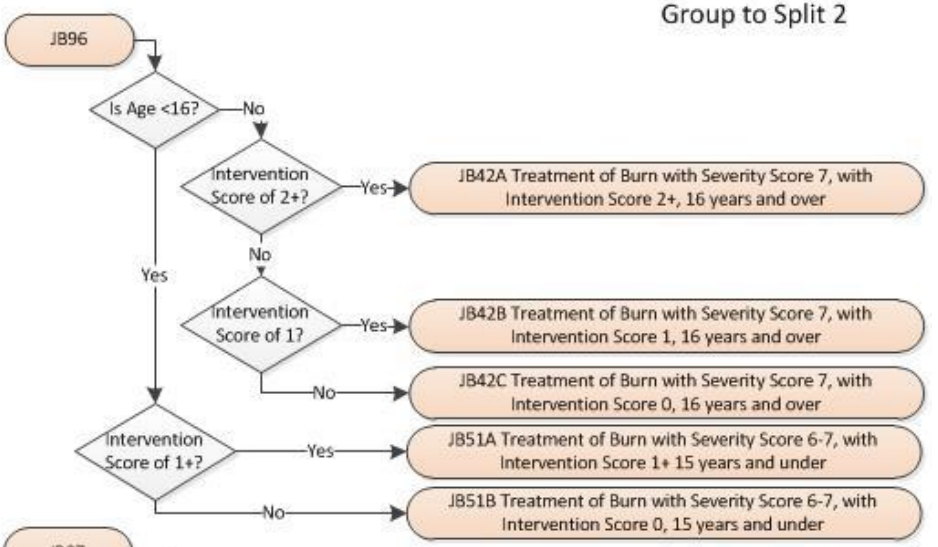


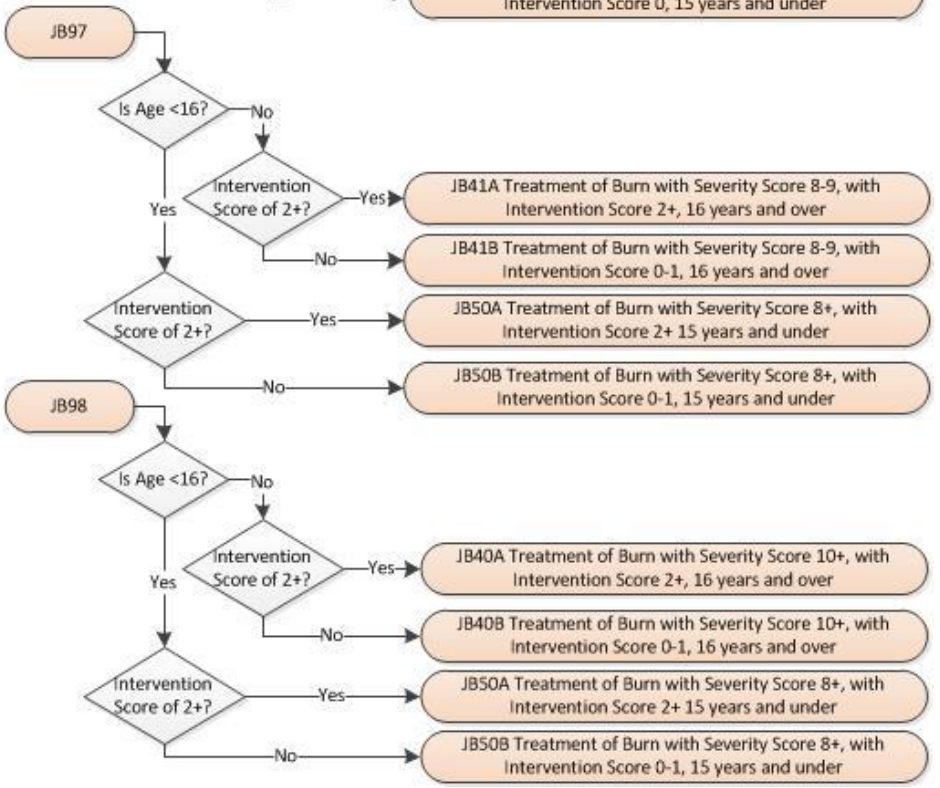






Group to Split 2





Differences from the HRG4+ 2017/18 Reference Costs Grouper

Changes made to logic

New logic has been added to the escalation used to determine the burns severity score to take into account the complex nature of electric burns, which might have a small total body surface area of contact skin site but typically result in severe internal organ damage. Where a diagnosis of effects of electric current or lightning is recorded, this will escalate the activity to a minimum severity category 5 (for 1st or unspecified degree of burns) and up three severity categories, e.g. from base severity category of 3 to 6, for 2nd or 3rd degree burns.

Subchapter JC – Skin Procedures

Subchapter **JC Skin Procedures** covers all skin procedures for patients of all ages, delivered in admitted or non-admitted care settings.

The skin procedure HRGs within this subchapter are split based on the complexity of surgery (Minor, Intermediate, Major and Multiple Major).

There are also HRGs specific to high volume procedures, e.g. patch testing, split into complex and standard; photodynamic therapy; and phototherapy or photochemotherapy.

Several of the HRG roots in this subchapter employ age splits There are specific HRGs for adult activity (19 years and over) and others for paediatric activity (18 years and under). The HRG root for patch tests includes an age split that separates post-adolescent patients (13 years and over) from pre-adolescent patients (12 years and under).

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**11**	**11**
Total HRG Roots	**8**	**8**
Procedure-driven HRGs	11	11
Diagnosis-driven HRGs	0	0
Age Splits	Yes	Yes
Complications and Comorbidities Splits	No	No
Intervention Splits	No	No
Multiple Procedures	Yes	Yes
Procedure Combination Codes	Yes	Yes
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	Yes	Yes

Multiple-procedure logic is employed by the major skin procedure HRGs to escalate activity, where appropriate, to the multiple major skin procedure HRGs.

All the minor and intermediate procedure HRGs within this subchapter have maximum length of stay logic to ensure that minor procedures, such as dressing of bed sore, are not used to determine the HRG for a long-stay medical patient, e.g. a person who has suffered a stroke.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter JD – Skin Disorders

Subchapter **JD Skin Disorders** covers all skin disorders in adult patients. It includes activity undertaken in an inpatient and day case setting.

All diagnosis-driven activity relating to the treatment of children (aged 18 years and under) groups to an HRG in **Chapter P Diseases of Childhood and Neonates**, in line with the requirements of the Casemix Design Framework.

The adult diagnosis-driven HRGs within this subchapter are all within a single HRG root, **JD07 Skin Disorders**, and have both interactive CC splits – up to a maximum of six levels – and intervention splits, to more appropriately differentiate expected resource usage between routine and complex patients.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**10**	**10**
Total HRG Roots	**1**	**1**
Procedure-driven HRGs	0	0
Diagnosis-driven HRGs	10	10
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	Yes	Yes
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	No	No

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter KA – Endocrine System Disorders

Subchapter **KA Endocrine System Disorders** covers endocrine system disorders for adult patients and endocrine procedures for patients of all ages, with the exception of diabetes, which is covered in Subchapter **KB Diabetic Medicine**.

It does not include percutaneous procedures on the neck: these map to **YC Neck Imaging Interventions**.

It includes activity undertaken in an inpatient, day case and non-admitted care setting.

All diagnosis-driven activity relating to the treatment of children (aged 18 years and under) groups to an HRG in **Chapter P Diseases of Childhood and Neonates**, in line with the requirements of the Casemix Design Framework.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**18**	**18**
Total HRG Roots	**7**	**7**
Procedure-driven HRGs	7	7
Diagnosis-driven HRGs	11	11
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	Yes	Yes
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	No	No

The procedure-driven HRG roots within this subchapter are divided based on the site of surgery; thus there are HRGs for thyroid, parathyroid and adrenal procedures, respectively.

The adult diagnosis-driven HRG roots within this subchapter are divided based on disorder type.

In certain scenarios, activity with a primary diagnosis mapped to an HRG root in this subchapter will group to an HRG in another subchapter. Where a secondary diagnosis indicating diabetes is recorded alongside a primary diagnosis hypoglycaemia, activity will group to an HRG in Subchapter **KB Diabetic Medicine**.

Interactive CC splits are employed within all of the procedure-driven and diagnosis-driven HRG roots within this subchapter – up to a maximum of three levels – to more appropriately differentiate expected resource usage between routine and complex patients.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter KB – Diabetic Medicine

Subchapter **KB Diabetic Medicine** covers all diabetic disorders in adult patients and one diabetes-related procedure for patients of all ages. It includes activity undertaken in an inpatient, day case and non-admitted care setting.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	12	12
Total HRG Roots	4	4
Procedure-driven HRGs	1	1
Diagnosis-driven HRGs	11	11
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	Yes	Yes
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	No	No

All diagnosis-driven activity relating to the treatment of children (aged 18 years and under) groups to an HRG in **Chapter P Diseases of Childhood and Neonates**, in line with the requirements of the Casemix Design Framework.

The adult diagnosis-driven HRG roots within the subchapter are divided based on the type of diabetic complication, i.e. hypoglycaemia, hyperglycaemia and lower limb complications.

In certain scenarios, activity with a primary diagnosis mapped to an HRG root in another subchapter will group to an HRG in this subchapter, e.g. where a secondary diagnosis indicating diabetes is recorded alongside a primary diagnosis hypoglycaemia (from Subchapter **KA Endocrine System Disorders**) and where a secondary diagnosis of ulcer of lower limb is recorded alongside a primary diagnosis of diabetes with neurological complications (from Subchapter **AA Nervous System Procedures and Disorders**).

Interactive CC splits are employed within all of the diagnosis-driven HRG roots within this subchapter – up to a maximum of four levels – to more appropriately differentiate expected resource usage between routine and complex patients.

There is a single procedure-driven HRG within this subchapter, **KB04Z Continuous Subcutaneous Insulin Infusion**. This HRG has been designed specifically to accommodate the insertion of insulin pumps for patients of all ages.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter KC – Metabolic Disorders

Subchapter **KC Metabolic Disorders** covers all metabolic disorders in adults aged 19 years and over. It includes activity undertaken in an inpatient and day case setting.

All diagnosis-driven activity relating to the treatment of children (aged 18 years and under) groups to an HRG in **Chapter P Diseases of Childhood and Neonates**, in line with the requirements of the Casemix Design Framework.

There are two HRG roots within this subchapter, one for inborn errors of metabolism and one for fluid or electrolyte disorders.

Interactive CC splits are employed within both of the HRG roots within this subchapter – up to a maximum of five levels – to more appropriately differentiate expected resource usage between routine and complex patients.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**9**	**9**
Total HRG Roots	**2**	**2**
Procedure-driven HRGs	0	0
Diagnosis-driven HRGs	9	9
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	Yes	Yes
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	No	No

An intervention split is employed within HRG root **KC05 Fluid or Electrolyte Disorders** to acknowledge where “minor interventions” undertaken during a patient admission are expected to result in additional resource usage.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter LA – Renal Procedures and Disorders

Subchapter **LA Renal Procedures and Disorders** includes specific renal procedures for patients of all ages and all adult non-malignant renal disorders. It includes activity undertaken in an inpatient, day case and non-admitted care setting.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	48	48
Total HRG Roots	14	14
Procedure-driven HRGs	14	14
Diagnosis-driven HRGs	34	34
Age Splits	Yes	Yes
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	Yes	Yes
Multiple Procedures	No	No
Procedure Combination Codes	Yes	Yes
Diagnosis-qualified	Yes	Yes
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	Yes	Yes

The HRGs for dialysis for chronic kidney disease are only generated from the National Renal Data Set (NRD) and sit in Subchapter **LD Renal Dialysis for Chronic Kidney Disease**.

HRGs for renal dialysis for acute kidney injury are unbundled, and these sit in Subchapter **LE Renal Dialysis for Acute Kidney Injury**.

HRGs covering non-transplant kidney procedures and the treatment of renal neoplasms sit within Subchapter **LB Urological and Male Reproductive System Procedures and Disorders** and Subchapter **YL Urological Imaging Interventions**.

All diagnosis-driven activity relating to the treatment of children (aged 18 years and under) groups to an HRG in **Chapter P Diseases of Childhood and Neonates**, in line with the requirements of the Casemix Design Framework.

Within this subchapter there are procedure-specific HRGs for renal transplants and related care that are split based on age: there are HRGs for adult (19 years and over) activity and others for paediatric (18 years and under) activity.

There is also an HRG specific to peritoneal dialysis-associated procedures.

The adult renal disorder HRGs are split by disorder type.

Logic is applied to the glomerular disease diagnosis codes to group activity to HRG roots **LA07 Acute Kidney Injury** and **LA08 Chronic Kidney Disease** where a secondary diagnosis of acute kidney injury or chronic kidney disease is recorded, respectively.

Interactive CC splits, up to a maximum of five levels, are employed within all of the adult diagnosis-driven HRG roots in this subchapter to more appropriately differentiate expected resource usage between routine and complex patients.

Intervention splits are also employed within all of the adult diagnosis-driven HRG roots to acknowledge where “minor interventions” undertaken during a patient admission are expected to result in additional resource usage.

All of the minor procedure HRGs within this subchapter have maximum length of stay logic to ensure that minor procedures, such as the insertion of a peritoneal dialysis catheter, are not used to determine the HRG for a long-stay medical patient, e.g. a person with an acute kidney injury.

The specific logic required to derive the HRG root **LA97 Same Day Dialysis Admission or Attendance** requires a length of stay of 0 days and either a procedure or diagnosis code indicating that a patient of any age has been specifically admitted for dialysis for the treatment of chronic kidney disease or acute kidney injury. However, it should be noted that patients receiving treatment solely for chronic kidney disease should only be reported via the NRD; it would not be expected for this HRG to be generated often for chronic kidney disease patients.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter LB – Urological and Male Reproductive System Procedures and Disorders

Subchapter **LB Urological and Male Reproductive System Procedures and Disorders** covers urological and male reproductive system procedures for patients of all ages and adult disorders, with the exception of renal conditions and procedures relating to renal failure, which are covered in Subchapters **LA Renal Procedures and Disorders**, **LD Renal Dialysis for Chronic Kidney Disease** and **LE Renal Dialysis for Acute Kidney Injury**.

Subchapter LB includes activity undertaken in an inpatient, day case and non-admitted care setting.

It does not include urological interventional radiology procedures, which are included in Subchapter **YL Urological Imaging Interventions**.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	149	148
Total HRG Roots	62	61
Procedure-driven HRGs	93	92
Diagnosis-driven HRGs	56	56
Age Splits	Yes	Yes
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	Yes	Yes
Multiple Procedures	Yes	Yes
Procedure Combination Codes	Yes	Yes
Diagnosis-qualified	Yes	Yes
Subsidiary Procedure-qualified	Yes	Yes
Length of Stay-qualified	Yes	Yes

All diagnosis-driven activity relating to the treatment of children (aged 18 years and under) groups to an HRG in **Chapter P Diseases of Childhood and Neonates**, in line with the requirements of the Casemix Design Framework.

The urological procedure HRGs within this subchapter are split based on whether they are open, laparoscopic, or endoscopic; on the organ operated on, e.g. bladder, kidney / ureter, penis; and on the complexity of surgery.

There are also a handful of HRGs specific to high-volume procedures, e.g. diagnostic flexible cystoscopy and prostate biopsies, as well as specific HRGs for procedures that use high-cost devices, including HRGs specific to the insertion of neurostimulators and neurostimulator electrodes for the treatment of urinary incontinence.

The adult diagnosis-driven urological disorder HRGs within this subchapter are disorder-specific.

Many of the HRG roots in this subchapter employ age splits: There are specific HRGs for adult activity (19 years and over) and others for paediatric activity (18 years and under). There are also HRGs specific to the treatment of infants (0 to 1 year of age) and those for older children (2 to 18 years).

Interactive CC splits, up to a maximum of five levels, are employed within the majority of both diagnosis-driven and procedure-driven HRG roots to more appropriately differentiate expected resource usage between routine and complex patients.

Intervention splits are also employed within the majority of adult diagnosis-driven HRG roots to acknowledge where “minor interventions” undertaken during a patient admission are expected to result in additional resource usage.

Multiple-procedure logic is employed by many of the HRGs in this subchapter to escalate activity to an HRG with a higher expected resource use (up to a maximum of two complexity

levels) where significant additional procedures have been recorded in the patient record. Escalation to an HRG with a higher expected resource use also occurs when certain procedures, e.g. on paired organs such as the kidney, are performed bilaterally or are robotically-assisted.

Logic is also employed by the endoscopic bladder procedures to escalate activity to an HRG with a higher expected resource use where a subsidiary procedure code indicating the use of photodynamic fluorescence is recorded.

New HRG **LB81Z Complex Open Urethra Procedures** can be reached via escalation logic where additional procedure codes indicate urethroplasties have used complex grafts, e.g. distant grafts using buccal mucosa, vulval grafts and full thickness grafts, or where the primary diagnosis is a a urethral injury. In addition it is reached where there is excision of urethral diverticulum, as indicated via primary diagnosis code.

Some activity with a dominant procedure mapped to an HRG root in this subchapter will group to an HRG in another subchapter in certain scenarios. Where a drainage of ascites procedures is undertaken in addition to implantation of prosthesis into bladder, activity will group to an HRG in Subchapter **FF Digestive System Open and Laparoscopic Procedures**. Where a vaginal vault repair is undertaken in addition to a female bladder or urethra procedure, activity will group to an HRG in Subchapter **MA Female Reproductive System Procedures**, and for some injury of genital organs disorders, activity undertaken on female patients will group to an HRG in Subchapter **MB Female Reproductive System Disorders**.

This subchapter also includes logic to ensure that where the primary diagnosis relates to a complication or adjustment of neurostimulator but the secondary diagnosis indicates that the device has been inserted for the treatment of faecal or urinary incontinence, activity will map to the appropriate HRGs in Subchapters **FF Digestive System Open and Laparoscopic Procedures** or **LB Urological and Male Reproductive System Procedures and Disorders** rather than defaulting to HRG root **AA60 Insertion of Neurostimulator for Treatment of Neurological Conditions**.

All minor procedure HRGs within this subchapter have maximum length of stay logic to ensure that minor procedures, such as urinary catheterisation, are not used to determine the HRG for a long-stay medical patient, e.g. a person who has suffered a stroke.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

HRGs have been created

A new HRG, **LB81Z Complex Open Urethra Procedures**, has been created using escalation logic to accommodate urethroplasties that involve complex grafts, e.g. distant grafts using buccal mucosa, vulval grafts and full thickness grafts, or are due to urethral injuries. Excision of urethral diverticulum, identified via primary diagnosis, also escalates to this HRG.

Remapping of OPCS-4 codes to more appropriately reflect resource usage

Combination code ***M70.8+Y11.8 Other specified destruction of outlet of male bladder*** has been created as per NICE guidance to classify transurethral water vapour ablation and mapped to HRG root **LB70 Complex Endoscopic, Prostate or Bladder Neck Procedures (Male and Female)**.

Changes made to logic

Logic applied to combination code ***M70.8+Y36.1 Insertion of gold seeds into prostate*** has been amended to match the logic applied to the other codes mapped to the same base HRG root, **LB26 Intermediate Endoscopic, Prostate or Bladder Neck Procedures (Male and Female)**.

The documentation flag description of **LB_2Int_End** has been amended to ensure the description accurately describes the logic applied.

Subchapter LD – Renal Dialysis for Chronic Kidney Disease

Subchapter **LD Renal Dialysis for Chronic Kidney Disease** captures all renal dialysis activity for patients of all ages recorded within the National Renal Data Set (NRD), which is specific to renal dialysis for chronic kidney disease.

HRGs specific to dialysis for acute kidney injury can be found in the unbundled subchapter **LE Renal Dialysis for Acute Kidney Injury**.

The HRGs in this subchapter are only generated using data from the NRD, rather than the Commissioning Data Sets (CDS).

The haemodialysis HRGs are differentiated based on location (e.g. hospital, satellite or home), age (adult or child), vascular access type (e.g. catheter or fistula) and whether the patient has a blood-borne virus (that would require isolation).

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	26	26
Total HRG Roots	13	13
Procedure-driven HRGs	26	26
Diagnosis-driven HRGs	0	0
Age Splits	Yes	Yes
Complications and Comorbidities Splits	N/A	N/A
Intervention Splits	N/A	N/A
Multiple Procedures	N/A	N/A
Procedure Combination Codes	N/A	N/A
Diagnosis-qualified	N/A	N/A
Subsidiary Procedure-qualified	N/A	N/A
Length of Stay-qualified	N/A	N/A

The peritoneal dialysis HRGs are split into continuous ambulatory peritoneal dialysis (CAPD) and automated peritoneal dialysis (APD), with the latter further split based on whether the intervention is automated or assisted.

The HRGs in Subchapter LD are derived per session from the following data items [item reference in brackets] in the NRD:

Renal Care

[1] Renal Treatment Modality – e.g. Haemodialysis, CAPD

[6] Renal Treatment Supervision Code – e.g. home, hospital

[75] Person Observation (Blood Test HBV Surface Antigen) – e.g. negative, positive

[77] Person Observation (Blood Test HCV) – e.g. negative, positive

[79] Person Observation (Blood Test HIV) – e.g. negative, positive

Dialysis

[182] Dialysis Access Type – e.g. AV fistula, haemodialysis catheter

Patient age (in years derived from date of session – date of birth)

Annex A is a flow diagram that demonstrates how each HRG is derived.

The grouper validates against allowable values only for renal treatment modality and renal treatment supervision code. However, for dialysis access type, blank values are accepted and, if used, will group to the “via haemodialysis catheter” HRG split. The three blood-borne

virus fields also allow for blank values, and if these are left blank the activity will group to the “without blood-borne viruses” HRG split.

Annex B demonstrates the acceptable values for each field required for grouping and where validation is applicable.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter LD: Worked Examples

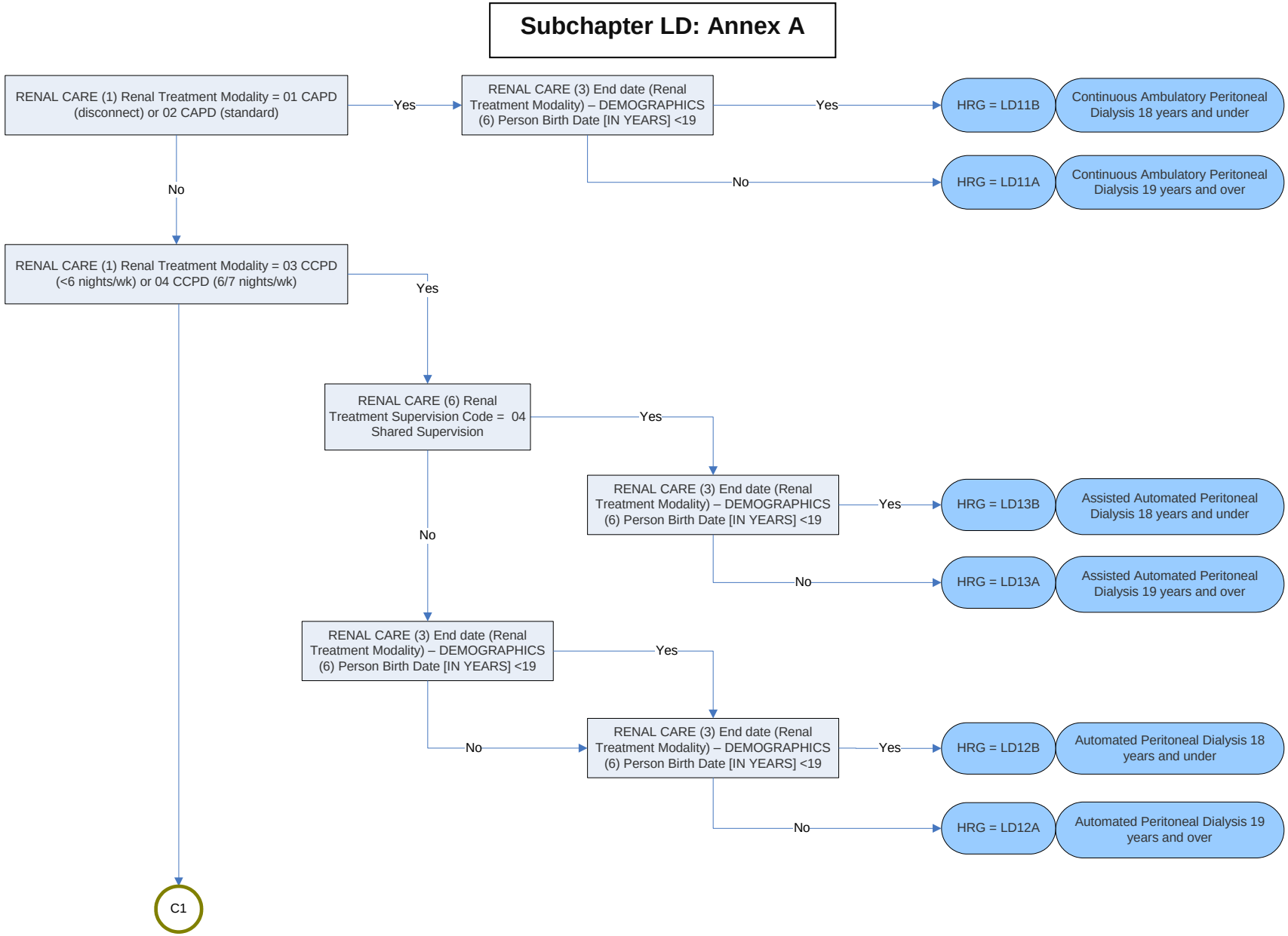
Cases A to **E** illustrate how HRG assignment is derived from the data in the NRD for haemodialysis patients of differing ages, with or without the presence of blood-borne viruses, at different sites and using different access types.

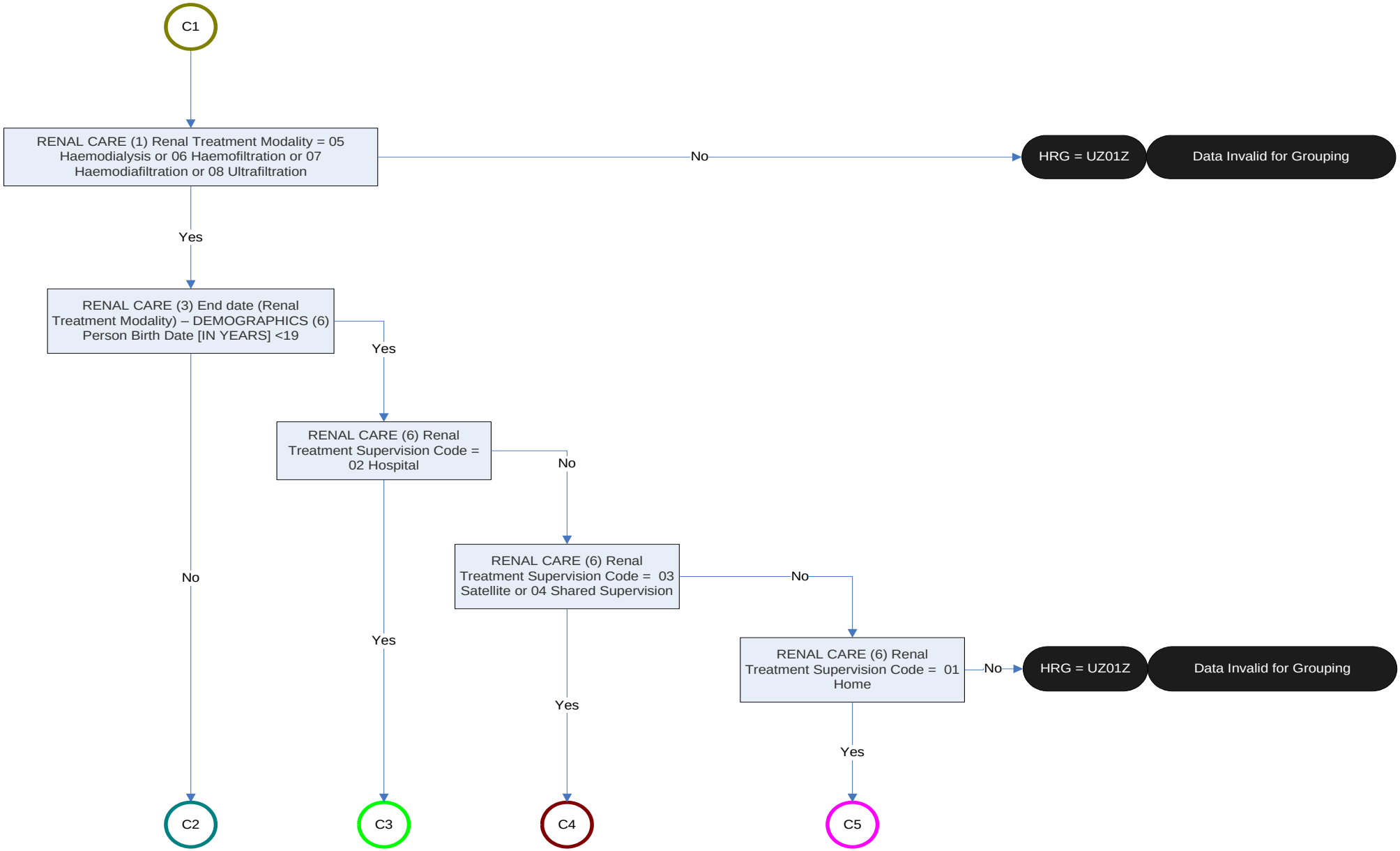
Case	Age	Renal Treatment Modality	Renal Treatment Supervision Code	Blood Tests	Type of Dialysis Access	HRG4+
A	62	05 Haemodialysis	02 Hospital	Blood test HBV surface antigen = NEG Blood test HCV antibody = NEG Blood test HIV = NEG	01 Non-tunnelled catheter	LD01A Hospital Haemodialysis or Filtration, with Access via Haemodialysis Catheter, 19 years and over
B	14	05 Haemodialysis	02 Hospital	Blood test HBV surface antigen = NEG Blood test HCV antibody = NEG Blood test HIV = NEG	01 Non-tunnelled catheter	LD01B Hospital Haemodialysis or Filtration, with Access via Haemodialysis Catheter, 18 years and under
C	25	05 Haemodialysis	02 Hospital	Blood test HBV surface antigen = NEG Blood test HCV antibody = NEG Blood test HIV = NEG	03 Arteriovenous fistula	LD02A Hospital Haemodialysis or Filtration, with Access via Arteriovenous Fistula or Graft, 19 years and over

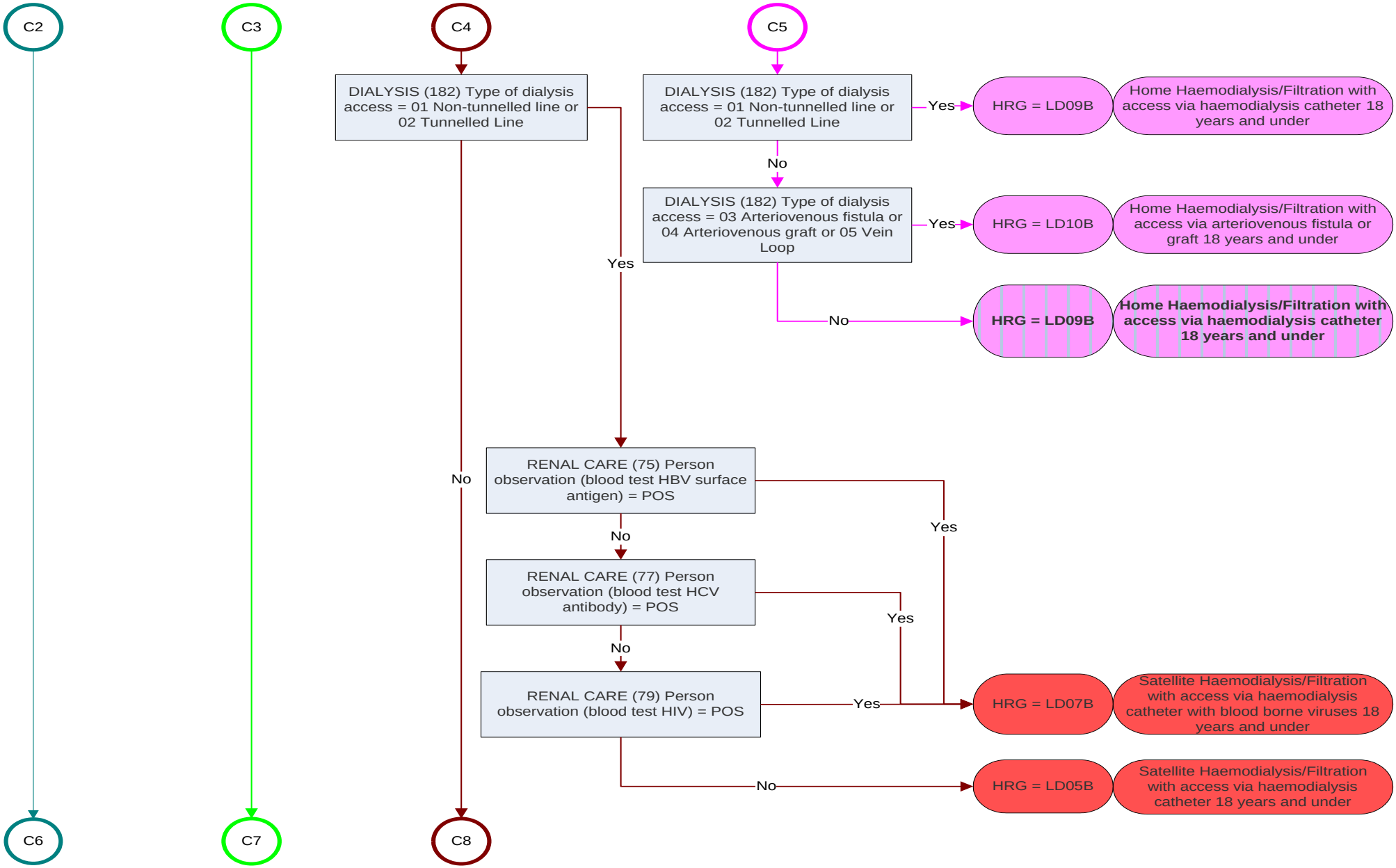
Case	Age	Renal Treatment Modality	Renal Treatment Supervision Code	Blood Tests	Type of Dialysis Access	HRG4+
D	25	05 Haemodialysis	02 Hospital	Blood test HBV surface antigen = NEG Blood test HCV antibody = **POS** Blood test HIV = NEG	03 Arteriovenous fistula	LD04A Hospital Haemodialysis or Filtration, with Access via Arteriovenous Fistula or Graft, with Blood-Borne Virus, 19 years and over
E	25	05 Haemodialysis	01 Home	Blood test HBV surface antigen = NEG Blood test HCV antibody = **POS** Blood test HIV = NEG	03 Arteriovenous fistula	LD10A Home Haemodialysis or Filtration with Access via Arteriovenous Fistula or Graft, 19 years and over

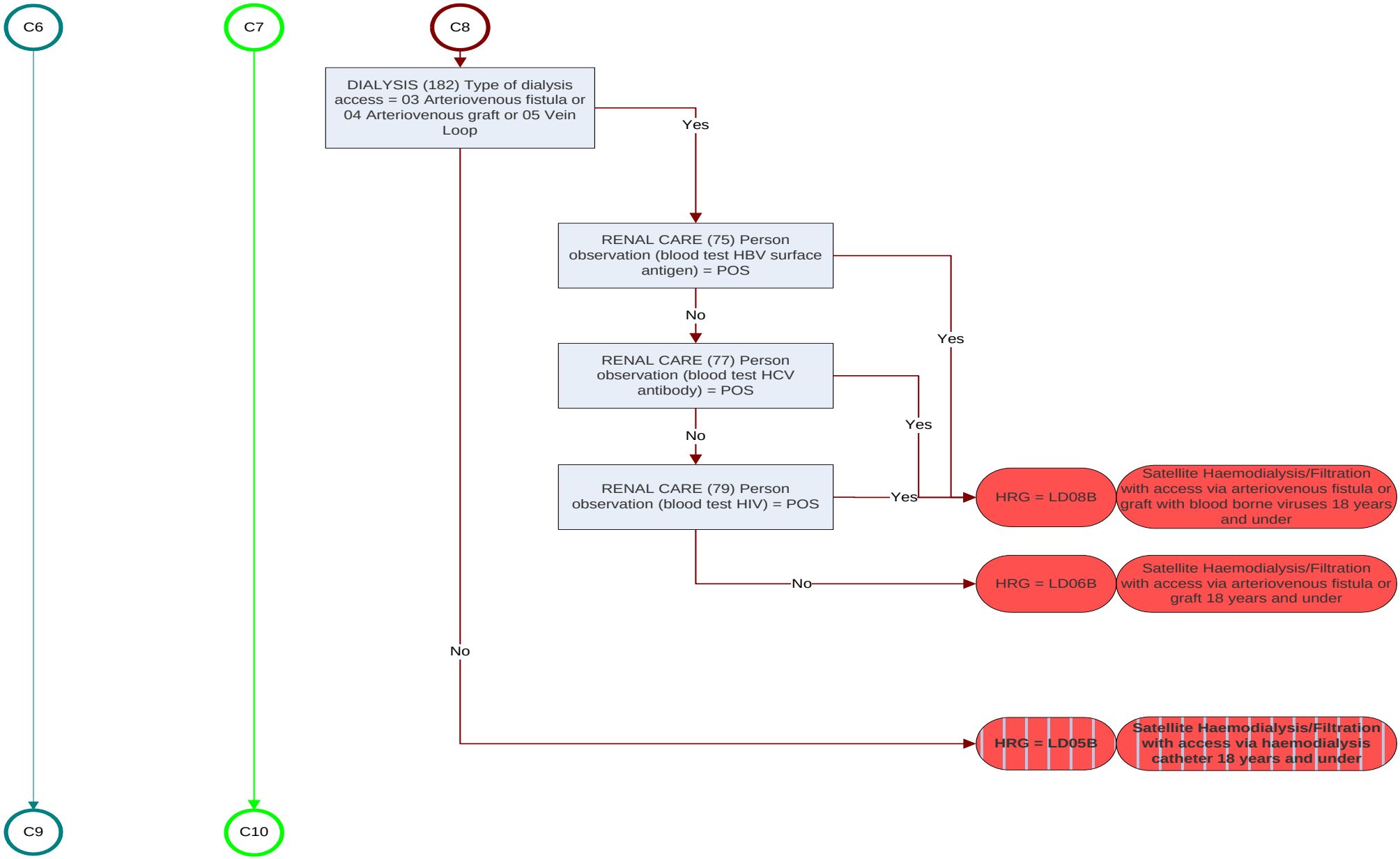
Cases F to **H** illustrate how HRG assignment is derived using the data from the NRD for peritoneal dialysis patients of differing ages, with or without the presence of blood-borne viruses, at different sites and using different access types.

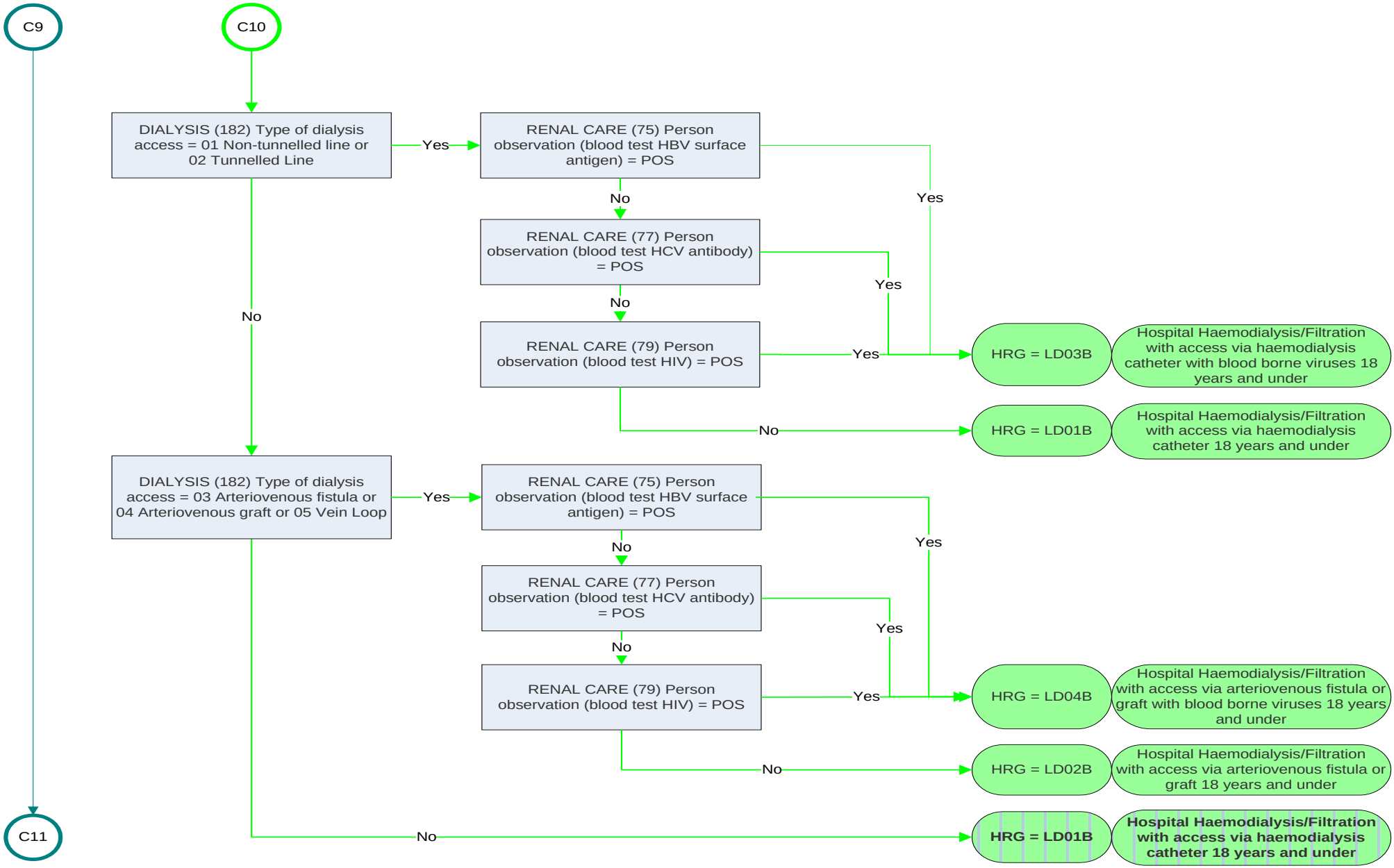
Case	Age	Renal Treatment Modality	Renal Treatment Supervision Code	Blood Tests	Type of Dialysis Access	HRG4+
F	62	02 CAPD (standard)	01 Home	Blood test HBV surface antigen = NEG Blood test HCV antibody = NEG Blood test HIV = NEG	06 PD catheter	LD11A Continuous Ambulatory Peritoneal Dialysis, 19 years and over
G	14	04 CCPD (6/7 nights/wk)	01 Home	Blood test HBV surface antigen = NEG Blood test HCV antibody = NEG Blood test HIV = NEG	06 PD catheter	LD12B Automated Peritoneal Dialysis, 18 years and under
H	62	04 CCPD (6/7 nights/wk)	04 Shared supervision	Blood test HBV surface antigen = NEG Blood test HCV antibody = NEG Blood test HIV = NEG	06 PD catheter	LD13A Assisted Automated Peritoneal Dialysis, 19 years and over

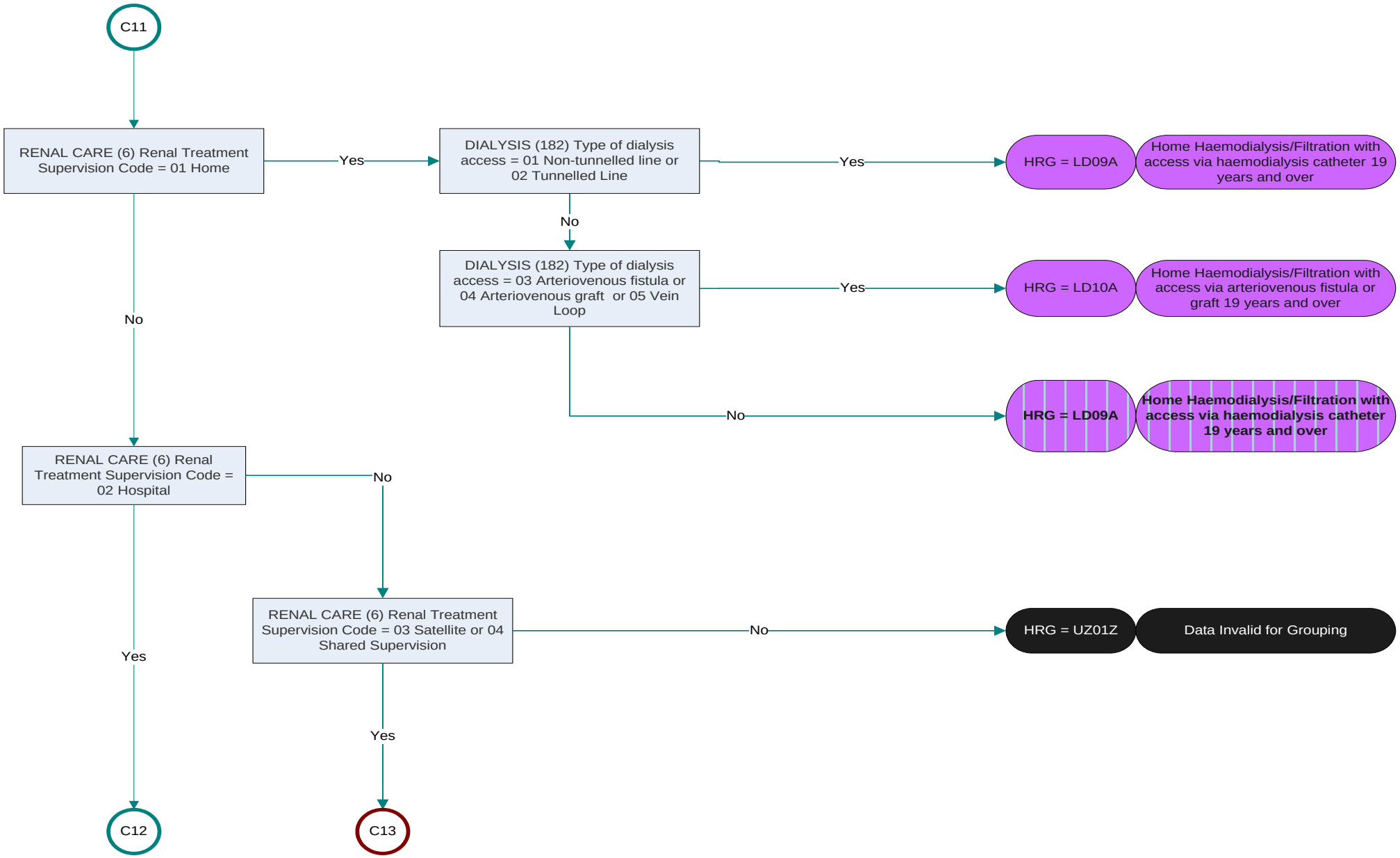


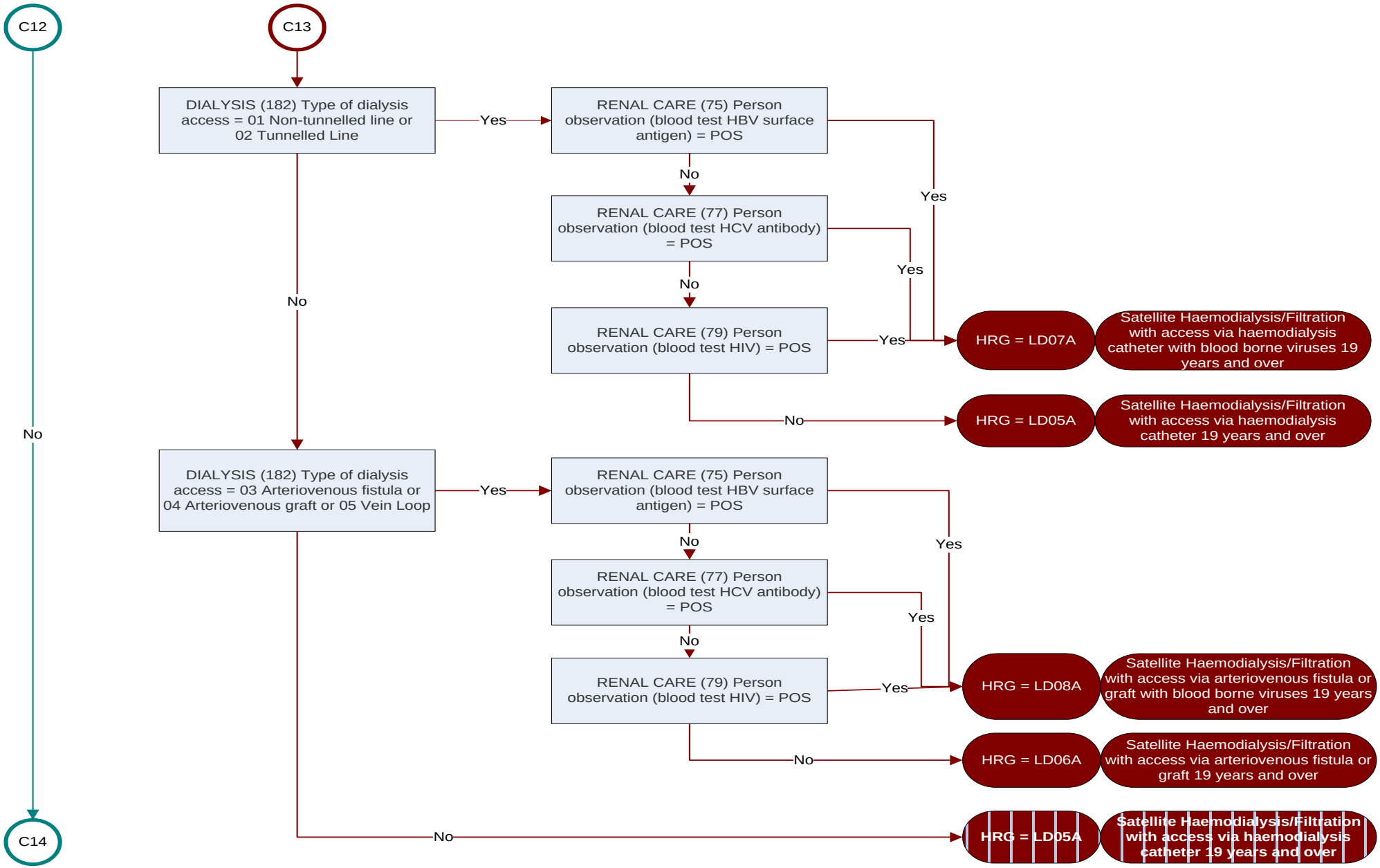


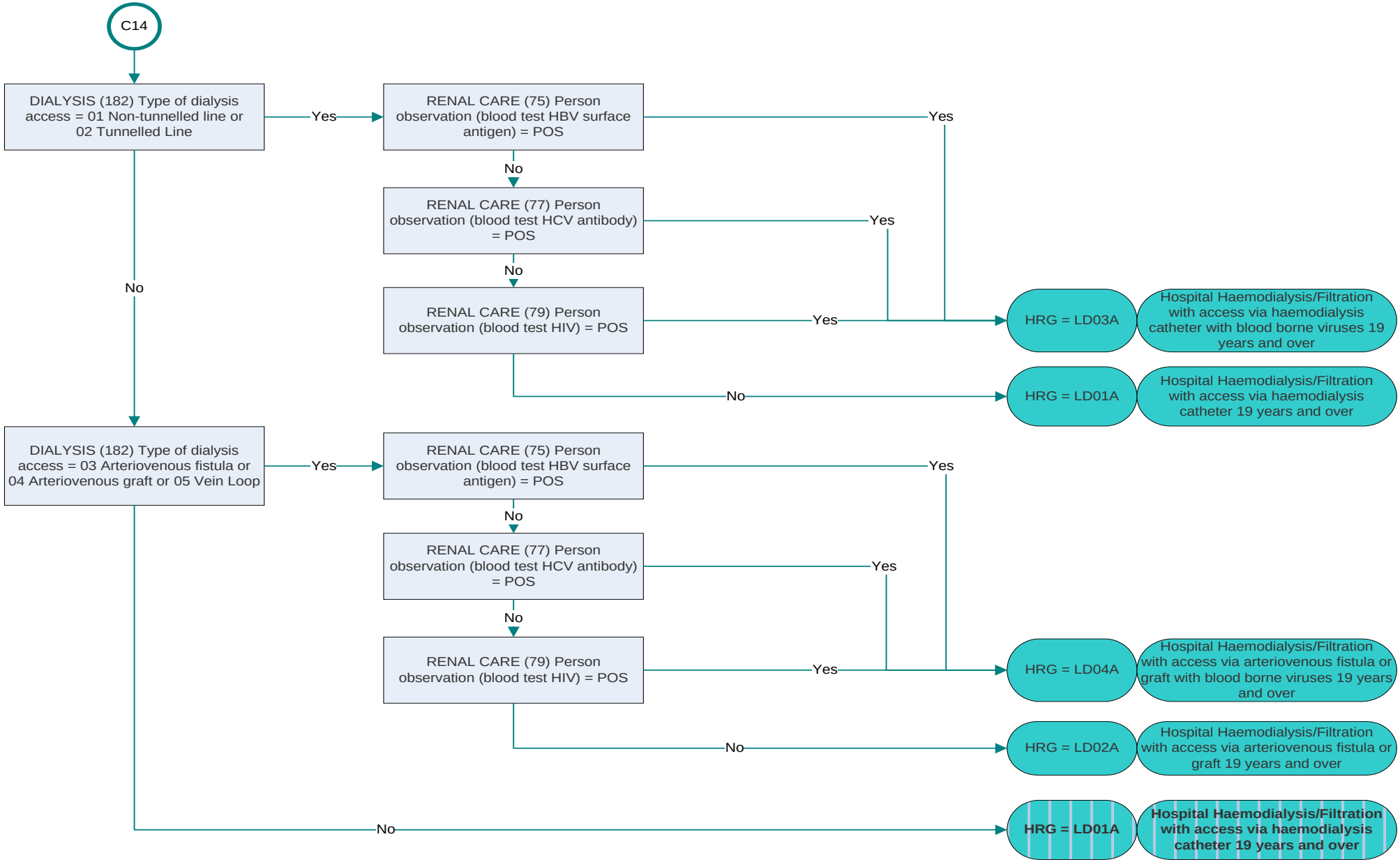












Subchapter LD:
Annex B
List of required NRD fields, acceptable values and validation applicable for the generation of LD Renal Dialysis HRGs

Renal Treatment Modality	Description
01	CAPD (disconnect)
02	CAPD (standard)
03	CCPD (<6 nights/wk)
04	CCPD (6/7 nights/wk)
05	Haemodialysis
06	Haemofiltration
07	Haemodiafiltration
08	Ultrafiltration
09	Transplant (cad - HB)
10	Transplant (cad - NHB)
11	Transplant (LRD)
12	Transplant (LUD)
13	Conservative care
14	Recovery of renal function
15	None
Validation	Only on list. Leading zero must be included for values lower than 10.

* Note 09-15 will map to U group HRG (not dialysis activity)

Treatment Supervision Code	Description
01	Home
02	Hospital
03	Satellite
04	Shared supervision
Validation	Only on list. Leading zero must be included.

Type of dialysis access (Current)	Description
01	Non-tunnelled line
02	Tunnelled line
03	Arteriovenous fistula (AVF)
04	Arteriovenous graft (AVG)
05	Vein loop
06	PD catheter
07	PD catheter temp
Validation	On list plus blank. Leading zero must be included.

Person observation (blood test HBV surface antigen)	Description
POS	Positive
NEG	Negative
UNK	Unknown
Validation	On list plus blank. Must be upper case.

Person observation (blood test HCV)	Description
POS	Positive
NEG	Negative
UNK	Unknown
Validation	On list plus blank. Must be upper case.

Person observation (blood test HIV)	Description
POS	Positive
NEG	Negative
UNK	Unknown
Validation	On list plus blank. Must be upper case.

Age	Description
(number)	(Calculated from session date - date of birth)
Validation	Within range 0 to 130 years

Fields not required for grouping but expected for identification of each session

Unique Patient ID	Description
Free text	An anonymised unique ID for each patient. Not NHS number
Validation	None

Date	Description
Free text	Date in standard format, e.g. 11/11/11 or 11-11-11
Validation	None

Subchapter LE – Renal Dialysis for Acute Kidney Injury

Subchapter **LE Renal Dialysis for Acute Kidney Injury** covers renal dialysis activity specifically for the treatment of acute kidney injury as part of an admitted care episode, for patients of all ages. The HRGs are unbundled and generated in addition to the core HRG, and they include activity undertaken in an inpatient and day case setting.

The HRGs in this subchapter are generated for renal dialysis for patients with acute kidney injury in the Admitted Patient Care setting.

Unlike dialysis for patients with chronic kidney disease, this activity is generated from the Commissioning Data Sets (CDS) using OPCS-4 procedure codes, plus ICD-10 diagnosis codes.

Dialysis for the treatment of chronic kidney disease is covered within Subchapter **LD Renal Dialysis for Chronic Kidney Disease**.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	4	4
Total HRG Roots	2	2
Procedure-driven HRGs	4	4
Diagnosis-driven HRGs	0	0
Age Splits	Yes	Yes
Complications and Comorbidities Splits	No	No
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	Yes	Yes
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	No	No

The HRGs are only generated when a dialysis OPCS-4 code is recorded in addition to a primary or secondary diagnosis indicating acute kidney injury. These diagnoses are listed below:

- **D59.3 Haemolytic-uraemic syndrome**
- **N17.0 Acute renal failure with tubular necrosis**
- **N17.1 Acute renal failure with acute cortical necrosis**
- **N17.2 Acute renal failure with medullary necrosis**
- **N17.8 Other acute renal failure**
- **N17.9 Acute renal failure, unspecified**
- **N99.0 Postprocedural renal failure**
- **T79.5 Traumatic anuria**

An **LE01* Haemodialysis for Acute Kidney Injury** HRG is generated for each occurrence of the following OPCS-4 codes in the patient record:

X40.1 Renal dialysis
X40.3 Haemodialysis NEC

An **LE02* Peritoneal Dialysis for Acute Kidney Injury** HRG is generated for each occurrence of the following OPCS-4 codes in the patient record:

X40.2 Peritoneal dialysis NEC
X40.5 Automated peritoneal dialysis
X40.6 Continuous ambulatory peritoneal dialysis

Further differentiation is also applied, based on age, in order to take into account the difference in expected resource usage between treating a child versus treating an adult.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter MA – Female Reproductive System Procedures

Subchapter **MA Female Reproductive System Procedures** includes all female upper and lower genital tract procedures for patients of all ages. It includes activity undertaken in inpatient, day case and non-admitted care settings.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**60***	**57***
Total HRG Roots	**45**	**42**
Procedure-driven HRGs	60	57
Diagnosis-driven HRGs	2	2
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	Yes	Yes
Procedure Combination Codes	Yes	Yes
Diagnosis-qualified	Yes	Yes
Subsidiary Procedure-qualified	Yes	Yes
Length of Stay-qualified	Yes	Yes

*Includes two hybrid HRGs, which are driven by either procedure or diagnosis

The HRGs within this subchapter are split into open procedures, laparoscopic procedures and procedures specific to either the treatment of malignancy or the treatment of pelvic peritoneum adhesion. Some of the open procedure HRGs are further subdivided into upper and lower genital tract procedures.

Related HRGs are divided into up to six levels of complexity: minimal, minor, intermediate, major, very major and complex.

There are procedure-specific HRGs for resection and ablation procedures, hysteroscopies, colposcopies, transvaginal ultrasounds and the insertion of an intra-uterine device. There are also procedure-specific HRGs for the termination of a pregnancy, split by medical and surgical procedures and gestational age.

Interactive CC splits are employed within many of the HRG roots within this subchapter – up to a maximum of three levels – to more appropriately differentiate expected resource usage between routine and complex patients.

In order to generate the HRGs specific to treatment of cancer, a primary diagnosis of gynaecological malignancy is required.

Multiple-procedure logic is employed by the majority of HRGs in this subchapter to escalate activity to an HRG with a higher expected resource use (up to a maximum of two complexity levels) where significant additional procedures have been recorded in the patient record. Escalation to an HRG with a higher expected resource use also occurs, where appropriate, where the primary diagnosis indicates an ectopic pregnancy or where there is a diagnosis of severe endometriosis in any position.

Escalation within the “one-stop-shop” minor procedure HRGs occurs when specific procedures are recorded together, e.g. diagnostic hysteroscopy and insertion of intrauterine contraceptive device.

The abortion and miscarriage care HRGs are differentiated on gestational age as recorded using subsidiary procedure codes, and some are further split by the presence of an additional procedure code indicating long-acting reversible contraception.

Some activity with a dominant procedure mapped to an HRG root in another subchapter will group to an HRG in this subchapter in certain scenarios, i.e. where a vaginal vault repair is undertaken in addition to a female bladder or urethra procedure (from Subchapter **LB Urological and Male Reproductive System Procedures and Disorders**)and where a

procedure is undertaken on the peritoneum of a female patient with a gynaecological primary diagnosis or on a patient with a diagnosis of endometriosis in any position (from Subchapter **FF Digestive System Open and Laparoscopic Procedures**).

Differences from the HRG4+ 2017/18 Reference Costs Grouper

HRGs have been created/deleted

The termination of pregnancy HRGs have been redesigned with the deletion of 7 HRGs to be replaced with 10 new HRGs. The new HRGs align with, and appropriately accommodate the anticipated resource usage associated with current clinical practice. This includes clarifying that the HRGs cover both abortion and miscarriage care, differentiate between medical and surgical procedures and where appropriate, by gestational age. In addition, where suitable, the HRGs have been split to indicate whether a long-acting reversible contraceptive has been inserted. The new HRGs are as follows:

- **MA50Z Surgical, Abortion or Miscarriage Care, over 20 weeks Gestation**
- **MA51Z Surgical, Abortion or Miscarriage Care, from 14 to 20 weeks Gestation**
- **MA52A Surgical, Abortion of Miscarriage Care, under 14 weeks Gestation, with Insertion of Long-Acting Contraceptive**
- **MA52B Surgical, Abortion or Miscarriage Care, under 14 weeks Gestation, without Insertion of Long-Acting Contraceptive**
- **MA53Z Medical, Abortion or Miscarriage Care, over 20 weeks Gestation**
- **MA54Z Medical, Abortion or Miscarriage Care, from 14 to 20 weeks Gestation**
- **MA55A Medical, Abortion of Miscarriage Care, from 9 to under 14 weeks Gestation, with Insertion of Long-Acting Contraceptive**
- **MA55B Medical, Abortion or Miscarriage Care, from 9 to under 14 weeks Gestation, without Insertion of Long-Acting Contraceptive**
- **MA56A Medical, Abortion or Miscarriage Care, under 9 weeks Gestation, with Insertion of Long-Acting Contraceptive**
- **MA56B Medical, Abortion or Miscarriage Care, under 9 weeks Gestation, without Insertion of Long-Acting Contraceptive**

Remapping of OPCS-4 codes to more appropriately reflect resource usage

Combination code ***X39.2+Z29.1Administration of therapeutic substance per rectum*** has been created according to clinical coding guidance to classify misoprostol per rectum and mapped to the **MA5* Medical, Abortion or Miscarriage Care** HRG roots.

Subchapter MB – Female Reproductive System Disorders

Subchapter **MB Female Reproductive System Disorders** covers female reproductive system disorders for adults and some child activity. It includes activity undertaken in an inpatient and day case setting.

The majority of diagnosis-driven activity relating to the treatment of children (aged 18 years and under) for female reproductive system disorders groups to an HRG in **Chapter P Diseases of Childhood and Neonates**, in line with the requirements of the Casemix Design Framework.

There are three HRG roots within this subchapter: one for threatened and spontaneous miscarriages and two for all other gynaecological disorders, with the latter split based on whether the disorder is malignant or non-malignant.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	17	17
Total HRG Roots	3	3
Procedure-driven HRGs	0	0
Diagnosis-driven HRGs	17	17
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	Yes	Yes
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	No	No

Interactive CC splits are employed within the majority of the HRG roots within this subchapter – up to a maximum of five levels – to more appropriately differentiate expected resource use between routine and complex patients.

Intervention splits are also employed within all of the HRG roots in this subchapter to acknowledge where “minor interventions” undertaken during a patient admission are expected to result in additional resource usage.

Some activity with a primary diagnosis mapped to an HRG root in another subchapter will group to an HRG in this subchapter in certain scenarios, i.e. for some diagnosis codes indicating injury of genital organs, activity undertaken on female patients will group to an HRG in this subchapter (rather than Subchapter **LB Urological and Male Reproductive System Procedures and Disorders**).

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter MC – Assisted Reproductive Medicine

Subchapter **MC Assisted Reproductive Medicine** includes procedures within assisted reproductive medicine for all ages of patient. It includes activity undertaken in inpatient, day case and non-admitted care settings.

The HRGs within this subchapter are split into collection of sperm for males and into intrauterine insemination (IUI) and in-vitro fertilisation (IVF) procedures for females.

There are two HRGs for collection of sperm.

The IUI HRGs are split by with or without superovulation, and with or without donor sperm.

There is one HRG for implantation of embryo, with the other IVF HRGs being split by type of oocyte recovery; whether donor, with intracytoplasmic sperm injection (ICSI) or with pre-implantation genetic diagnosis, using subsidiary procedure code logic.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**11**	**11**
Total HRG Roots	**11**	**11**
Procedure-driven HRGs	11	11
Diagnosis-driven HRGs	0	0
Age Splits	No	No
Complications and Comorbidities Splits	No	No
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	Yes	Yes
Length of Stay-qualified	Yes	Yes

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter NZ – Obstetric Medicine

Subchapter **NZ Obstetric Medicine** covers obstetric procedures and diagnoses for patients of all ages. It also accommodates obstetric aspects of embryology and placental disorders. It includes activity undertaken in inpatient, day case and non-admitted care settings.

The delivery HRGs within this subchapter are split based on the type of delivery: normal, assisted or caesarean section.

The normal and assisted delivery HRGs are further split to take into account delivery interventions. The splits are based on whether a single, or combination of, the following interventions are undertaken: induction, epidural or post-partum surgical intervention.

The caesarean section HRGs are split based on whether the surgery was planned or otherwise.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	55	55
Total HRG Roots	25	25
Procedure-driven HRGs	43	43
Diagnosis-driven HRGs	12	12
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	Yes	Yes
Procedure Combination Codes	Yes	Yes
Diagnosis-qualified	Yes	Yes
Subsidiary Procedure-qualified	Yes	Yes
Length of Stay-qualified	Yes	Yes

The ante-natal disorder HRGs are split based on obstetric complexity level. There are HRGs specific to standard and specialised ante-natal scans as well as other ante-natal therapeutic procedures.

Where a primary diagnosis of ***O26.8 Other specified pregnancy-related conditions*** is recorded, logic is used to look for the related secondary diagnosis code, which is then used to map the activity to the appropriate ante-natal disorder HRG.

There are post-natal disorder HRGs and an HRG specific to post-natal therapeutic procedures.

There are HRGs specific to diagnostic and therapuetic fetal medicine procedures.

Interactive CC splits, up to a maximum of three levels, are employed within the majority of ante- and post-natal disorder HRG roots as well as the delivery HRGs, to more appropriately differentiate expected resource usage between routine and complex patients.

In accordance with national coding standards, unlike other CC lists where only secondary diagnoses contribute towards the CC score, for the obstetric delivery HRGs all diagnoses, including the primary diagnosis, can contribute towards to the CC score.

To reiterate, this subchapter **includes** diagnosis-driven activity relating to the treatment of children (aged 18 years and under). This activity is grouped to an HRG in this subchapter instead of to an HRG in Chapter **P Diseases of Childhood and Neonates** to more appropriately reflect the nature of the service provision of obstetric medicine.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter PB – Neonatal Disorders

Subchapter **PB Neonatal Disorders** covers neonatal medicine for patients aged 1 year and under. It includes activity undertaken in inpatient and day case settings. The subchapter comprises neonatal disorders, differentiated by source of patient admission, and healthy babies.

It does not include critical care services, which are covered in the unbundled subchapter **XA Neonatal Critical Care**. There is no grouping interaction between the generation of the PB HRGs and those for critical care, other than a length of stay adjustment (reduction) relating to critical care days on the length of stay of the core PB episode/spell.

Subchapter PB does not include procedures undertaken on neonates; these group to the procedure-driven HRGs in other (non-P*) subchapters.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	20	20
Total HRG Roots	4	4
Procedure-driven HRGs	0	0
Diagnosis-driven HRGs	20	20
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	Yes	Yes
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	Yes	Yes
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	No	No

For patients receiving treatment for conditions originating in the perinatal period, the age check logic specifies “less than two years of age” to reflect that there may be a minority of patients that continue to be treated for these conditions past their first birthday.

The HRG **PB03Z Healthy Baby** is generated where no signficant procedure is recorded, irrespective of Treatment Function Code (TFC), and specifically when one of the following 9 primary diagnoses is recorded (6 of which are generated only when the baby has no secondary diagnosis of being a carrier or no secondary diagnoses indicating that the baby is in receipt of prophylactic antibiotics with a previous infection of mother):

- **P83.1 Neonatal erythema toxicum**
- **P83.4 Breast engorgement of newborn**
- **P92.5 Neonatal difficulty in feeding at breast**
- **Z38.0 Singleton, born in hospital (further qualified)**
- **Z38.1 Singleton, born outside hospital (further qualified)**
- **Z38.2 Singleton, unspecified as to place of birth (further qualified)**
- **Z38.3 Twin, born in hospital (further qualified)**
- **Z38.4 Twin, born outside hospital (further qualified)**
- **Z38.5 Twin, unspecified as to place of birth (further qualified)**

Generation of the diagnosis-driven **PB03Z Healthy Baby** HRG is also reliant on providers following ICD-10 coding standard *DChS.XVI.1: Liveborn infants according to place of birth* (Z38), namely:

- All babies must have a code from category **Z38.** recorded in their birth episode.
- If the newborn is diagnosed with a condition classifiable to ICD Chapter XVI: Certain conditions originating in the perinatal period (**P00.-P96.**), it must be coded.

- Sequencing of these codes depends on whether the baby has a condition classifiable to ICD-10 code **P00.-P96.** and whether that condition is treated/investigated.

Where babies are recorded as having a primary diagnosis of something other than the above (noting qualifications), the **PB03Z Healthy Baby** will not be generated and an HRG from the following list of HRG roots will be generated, appropriately, instead, dependent on the source of admission:

PB04 Neonatal Diagnoses, Admitted from Other Location or Born in Hospital
PB05 Neonatal Diagnoses, Admitted from Other Hospital Provider
PB06 Neonatal Diagnoses, Admitted from Home

Logic is employed to ensure babies receiving prophylactic antibiotics due to previous infection in the mother map to an appropriate resource HRG. This logic uses secondary diagnoses of carrier of disease or recipient of prophylactic chemotherapy.

Interactive CC splits are employed within three of the four HRG roots within this subchapter to more appropriately differentiate expected resource usage between routine and complex patients. The CC list for this subchapter is specific to Paediatric Neonatal Disorders.

Intervention splits are also employed within one HRG root in this subchapter to acknowledge where “minor interventions” undertaken during a patient admission are expected to result in additional resource usage.

In accordance with national coding rules, conditions within ICD-10 rubrics **P00-P04** require a discharge method of stillbirth in order to generate a valid HRG within this subchapter. This therefore includes ICD-10 codes **P01.3 Fetus and newborn affected by polyhydramnios** and **P01.4 Fetus and newborn affected by ectopic pregnancy**, which have additional logic to check whether the Discharge method is “stillbirth” in order to ensure the derivation of the most appropriate HRG according to national coding rules.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter PC – Paediatric Ear Nose and Throat Disorders

Subchapter **PC Paediatric Ear, Nose and Throat Disorders** contains all diagnosis-driven activity relating to the treatment of children's (aged 18 years and under) ear, nose and throat disorders, in line with the requirements of the Casemix Design Framework.

Subchapter PC does not include neonatal critical care or paediatric critical care – these are covered in Subchapters **XA Neonatal Critical Care** and **XB Paediatric Critical Care**, respectively.

Interactive CC splits are employed within the one HRG root in this subchapter to more appropriately differentiate expected resource usage between routine and complex patients. The CC list for this subchapter is specific to Paediatric Ear Nose and Throat Disorders.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	4	4
Total HRG Roots	1	1
Procedure-driven HRGs	0	0
Diagnosis-driven HRGs	4	4
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	No	No

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter PD – Paediatric Respiratory Disorders

Subchapter **PD Paediatric Respiratory Disorders** contains all diagnosis-driven activity relating to the treatment of children's (aged 18 years and under) respiratory disorders, in line with the requirements of the Casemix Design Framework.

Subchapter PD does not include neonatal critical care or paediatric critical care – these are covered in Subchapters **XA Neonatal Critical Care** and **XB Paediatric Critical Care**, respectively.

Interactive CC splits are employed within all HRG roots in this subchapter to more appropriately differentiate expected resource usage between routine and complex patients. The CC list for this subchapter is specific to Paediatric Respiratory Disorders.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**24**	**24**
Total HRG Roots	**6**	**6**
Procedure-driven HRGs	0	0
Diagnosis-driven HRGs	24	24
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	No	No

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter PE – Paediatric Cardiology Disorders

Subchapter **PE Paediatric Cardiology Disorders** contains all diagnosis-driven activity relating to the treatment of children's (aged 18 years and under) cardiology disorders, in line with the requirements of the Casemix Design Framework.

Subchapter PE does not include neonatal critical care or paediatric critical care – these are covered in Subchapters **XA Neonatal Critical Care** and **XB Paediatric Critical Care**, respectively.

Interactive CC splits are employed within all HRG roots in this subchapter to more appropriately differentiate expected resource usage between routine and complex patients. The CC list for this subchapter is specific to Paediatric Cardiology Disorders.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**12**	**12**
Total HRG Roots	**3**	**3**
Procedure-driven HRGs	0	0
Diagnosis-driven HRGs	12	12
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	No	No

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter PF – Paediatric Gastroenterology Disorders

Subchapter **PF Paediatric Gastroenterology Disorders** contains all diagnosis-driven activity relating to the treatment of children's (aged 18 years and under) gastroenterology disorders, in line with the requirements of the Casemix Design Framework.

Subchapter PF does not include neonatal critical care or paediatric critical care – these are covered in Subchapters **XA Neonatal Critical Care** and **XB Paediatric Critical Care**, respectively.

Interactive CC splits are employed within all HRG roots in this subchapter to more appropriately differentiate expected resource usage between routine and complex patients. The CC list for this subchapter is specific to Paediatric Gastroenterology Disorders.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**17**	**17**
Total HRG Roots	**5**	**5**
Procedure-driven HRGs	0	0
Diagnosis-driven HRGs	17	17
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	No	No

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter PG – Paediatric Hepatobiliary Disorders

Subchapter **PG Paediatric Hepatobiliary Disorders** contains all diagnosis-driven activity relating to the treatment of children's (aged 18 years and under) hepatobiliary disorders, in line with the requirements of the Casemix Design Framework.

Subchapter PG does not include neonatal critical care or paediatric critical care – these are covered in Subchapters **XA Neonatal Critical Care** and **XB Paediatric Critical Care**, respectively.

Interactive CC splits are employed within the single HRG root in this subchapter to more appropriately differentiate expected resource usage between routine and complex patients. The CC list for this subchapter is specific to Paediatric Hepatobiliary Disorders.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**3**	**3**
Total HRG Roots	**1**	**1**
Procedure-driven HRGs	0	0
Diagnosis-driven HRGs	3	3
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	No	No

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter PH – Paediatric Rheumatology Disorders

Subchapter **PH Paediatric Rheumatology Disorders** contains all diagnosis-driven activity relating to the treatment of children's (aged 18 years and under) rheumatology disorders, in line with the requirements of the Casemix Design Framework.

Subchapter PH does not include neonatal critical care or paediatric critical care – these are covered in Subchapters **XA Neonatal Critical Care** and **XB Paediatric Critical Care**, respectively.

Interactive CC splits are employed within the single HRG root in this subchapter to more appropriately differentiate expected resource usage between routine and complex patients. The CC list for this subchapter is specific to Paediatric Rheumatology Disorders.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	4	4
Total HRG Roots	1	1
Procedure-driven HRGs	0	0
Diagnosis-driven HRGs	4	4
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	No	No

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter PJ – Paediatric Dermatology Disorders

Subchapter **PJ Paediatric Dermatology Disorders** contains all diagnosis-driven activity relating to the treatment of children's (aged 18 years and under) dermatology disorders, in line with the requirements of the Casemix Design Framework.

Subchapter PJ does not include neonatal critical care or paediatric critical care – these are covered in Subchapters **XA Neonatal Critical Care** and **XB Paediatric Critical Care**, respectively.

Interactive CC splits are employed within both HRG roots in this subchapter to more appropriately differentiate expected resource usage between routine and complex patients. The CC list for this subchapter is specific to Paediatric Dermatology Disorders.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	7	7
Total HRG Roots	2	2
Procedure-driven HRGs	0	0
Diagnosis-driven HRGs	7	7
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	No	No

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter PK – Paediatric Diabetology, Endocrinology and Metabolic Disorders

Subchapter **PK Paediatric Diabetology, Endocrinology and Metabolic Disorders** contains all diagnosis-driven activity relating to the treatment of children's (aged 18 years and under) diabetology, endocrinology and metabolic disorders, in line with the requirements of the Casemix Design Framework.

Subchapter PK does not include neonatal critical care or paediatric critical care – these are covered in Subchapters **XA Neonatal Critical Care** and **XB Paediatric Critical Care**, respectively.

Interactive CC splits are employed within all HRG roots in this subchapter to more appropriately differentiate expected resource usage between routine and complex patients. The CC list for this subchapter is specific to Paediatric Diabetology, Endocrinology and Metabolic Disorders.

Composition and Concepts		
	RC18/19	**RC17/18**
Total HRGs	**11**	**11**
Total HRG Roots	**4**	**4**
Procedure-driven HRGs	0	0
Diagnosis-driven HRGs	11	11
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	No	No

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter PL – Paediatric Renal Disorders

Subchapter **PL Paediatric Renal Disorders** contains all diagnosis-driven activity relating to the treatment of children's (aged 18 years and under) renal disorders, in line with the requirements of the Casemix Design Framework.

Subchapter PL does not include neonatal critical care or paediatric critical care – these are covered in Subchapters **XA Neonatal Critical Care** and **XB Paediatric Critical Care**, respectively.

Interactive CC splits are employed within all HRG roots in this subchapter to more appropriately differentiate expected resource usage between routine and complex patients. The CC list for this subchapter is specific to Paediatric Renal Disorders.

Composition and Concepts		
	RC18/19	**RC17/18**
Total HRGs	**10**	**10**
Total HRG Roots	**3**	**3**
Procedure-driven HRGs	0	0
Diagnosis-driven HRGs	10	10
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	No	No

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter PM – Paediatric Haematological-Oncology Disorders

Subchapter **PM Paediatric Haematological-Oncology Disorders** contains all diagnosis-driven activity relating to the treatment of children's (aged 18 years and under) haematological-oncology disorders, in line with the requirements of the Casemix Design Framework.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**14**	**14**
Total HRG Roots	**6**	**6**
Procedure-driven HRGs	0	0
Diagnosis-driven HRGs	14	14
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	Yes	Yes
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	Yes	Yes

Subchapter PM does not include neonatal critical care or paediatric critical care – these are covered in Subchapters **XA Neonatal Critical Care** and **XB Paediatric Critical Care**, respectively.

Interactive CC splits are employed within some of the HRG roots in this subchapter to more appropriately differentiate expected resource usage between routine and complex patients. This subchapter has a CC list specific to paediatric haematological-oncology disorders. However, the subchapter has an alternative CC list that is used exclusively to determine the CC score for activity grouping to HRG root **PM45 Febrile Neutropenia with Malignancy**.

Logic has been applied across the HRG design to ensure activity groups to HRG root **PM45 Febrile Neutropenia with Malignancy** where at least one diagnosis code from each of the lists **Cancer**, **PM_Infection** and **PM_Neutropenia** is present in the episode/spell record.

To ensure that diagnosis codes used to reach HRG root **PM45 Febrile Neutropenia with Malignancy** are not double counted when calculating CC score, the CC score for an episode/spell grouping to this HRG root is calculated on a different basis to activity grouping to the other HRG roots in this subchapter.

PM45 Paediatric Febrile Neutropenia with has its own specific CC list, **PM45_CC**, which is used in conjunction with the list **PM45_Canc_Inf_Neut** to calculate a combined CC score using both lists. List **PM45_Canc_Inf** contains all the cancer, infection and neutropenia codes that, when combined, enable the generation of HRG root **PM45 Paediatric Febrile Neutropenia with Malignancy**. Each member of this list has a list value of 1, so all activity that maps to HRG root PM45 will have a minimum score of 3 from this list (as it includes the value for the primary diagnosis). However, some patients may suffer from multiple cancers or infections, and these patients will have a higher score from this list.

The combined CC score, from which 3 is subtracted (the value of the three codes used to reach the HRG root – to avoid double counting these in this score) is used to determine the final CC score.

For example, a record with a value of 4 from list **PM45_Canc_Inf** plus a value of 2 from list **PM45_CC** will generate a CC score of 3, resulting in the HRG **PM45B Paediatric Febrile Neutropenia with Malignancy, with CC Score 3-5** being generated.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter PN – Paediatric Non-Malignant Haematological Disorders

Subchapter **PN Paediatric Non-Malignant Haematological Disorders** contains all diagnosis-driven activity relating to the treatment of children's (aged 18 years and under) non-malignant haematological disorders, in line with the requirements of the Casemix Design Framework.

Subchapter PN does not include neonatal critical care or paediatric critical care – these are covered in Subchapters **XA Neonatal Critical Care** and **XB Paediatric Critical Care**, respectively.

Interactive CC splits are employed within all HRG roots in this subchapter to more appropriately differentiate expected resource usage between routine and complex patients. The CC list for this subchapter is specific to Paediatric Non-Malignant Haematological Disorders.

There is one HRG root, **PN46 Paediatric Thalassaemia**, that can be reached through either a diagnosis code alone (indicating thalassaemia) or through a procedure code plus a diagnosis code. For paediatric patients, where a procedure code classifying a blood transfusion has been recorded as the dominant procedure alongside a primary diagnosis of thalassaemia, the diagnosis takes precedence over the transfusion procedure, driving activity to HRG root **PN46 Paediatric Thalassaemia**.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**9***	**9***
Total HRG Roots	**4**	**4**
Procedure-driven HRGs	2	2
Diagnosis-driven HRGs	9	9
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	Yes	Yes
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	No	No

* Includes two hybrid HRGs that are driven by either procedure or diagnosis

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter PP – Paediatric Ophthalmic Disorders

Subchapter **PP Paediatric Ophthalmic Disorders** contains all diagnosis-driven activity relating to the treatment of children's (aged 18 years and under) ophthalmic disorders, in line with the requirements of the Casemix Design Framework.

Subchapter PP does not include neonatal critical care or paediatric critical care – these are covered in Subchapters **XA Neonatal Critical Care** and **XB Paediatric Critical Care**, respectively.

Interactive CC splits are employed within the single HRG root in this subchapter to more appropriately differentiate expected resource usage between routine and complex patients. The CC list for this subchapter is specific to Paediatric Ophthalmic Disorders.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**2**	**2**
Total HRG Roots	**1**	**1**
Procedure-driven HRGs	0	0
Diagnosis-driven HRGs	2	2
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	No	No

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter PQ – Paediatric Immune System Disorders

Subchapter **PQ Paediatric Immune System Disorders** contains all diagnosis-driven activity relating to the treatment of children's (aged 18 years and under) immune system disorders, in line with the requirements of the Casemix Design Framework.

Subchapter PQ does not include neonatal critical care or paediatric critical care – these are covered in Subchapters **XA Neonatal Critical Care** and **XB Paediatric Critical Care**, respectively.

Interactive CC splits are employed within the single HRG root in this subchapter to more appropriately differentiate expected resource usage between routine and complex patients. The CC list for this subchapter is specific to Paediatric Immune System Disorders.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**2**	**2**
Total HRG Roots	**1**	**1**
Procedure-driven HRGs	0	0
Diagnosis-driven HRGs	2	2
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	No	No

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter PR – Paediatric Nervous System Disorders

Subchapter **PR Paediatric Nervous System Disorders** contains all diagnosis-driven activity relating to the treatment of children's (aged 18 years and under) nervous system disorders, in line with the requirements of the Casemix Design Framework.

Subchapter PR does not include neonatal critical care or paediatric critical care – these are covered in Subchapters **XA Neonatal Critical Care** and **XB Paediatric Critical Care**, respectively.

Interactive CC splits are employed within all HRG roots in this subchapter to more appropriately differentiate expected resource usage between routine and complex patients. The CC list for this subchapter is specific to Paediatric Nervous System Disorders.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	22	22
Total HRG Roots	7	7
Procedure-driven HRGs	0	0
Diagnosis-driven HRGs	22	22
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	No	No

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter PT – Paediatric Mental Health Disorders

Subchapter **PT Paediatric Mental Health Disorders** contains all diagnosis-driven activity relating to the treatment of children's (aged 18 years and under) mental health disorders, in line with the requirements of the Casemix Design Framework.

Some paediatric activity for mental health conditions continues to map to the newly redesigned subchapter **WD Treatment of Mental Health Patients by Non-Mental Health Service Providers**.

Subchapter PT does not include neonatal critical care or paediatric critical care – these are covered in Subchapters **XA Neonatal Critical Care** and **XB Paediatric Critical Care**, respectively.

Interactive CC splits are employed within both HRG roots in this subchapter to more appropriately differentiate expected resource usage between routine and complex patients. The CC list for this subchapter is specific to Paediatric Mental Health Disorders.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	4	4
Total HRG Roots	2	2
Procedure-driven HRGs	0	0
Diagnosis-driven HRGs	4	4
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	No	No

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter PV – Paediatric Trauma Medicine

Subchapter **PV Paediatric Trauma Medicine** contains all diagnosis-driven activity relating to the treatment of children's (aged 18 years and under) trauma medicine, in line with the requirements of the Casemix Design Framework.

Subchapter PV does not include neonatal critical care or paediatric critical care – these are covered in Subchapters **XA Neonatal Critical Care** and **XB Paediatric Critical Care**, respectively.

Interactive CC splits are employed within all HRG roots in this subchapter to more appropriately differentiate expected resource usage between routine and complex patients. The CC list for this subchapter is specific to Paediatric Trauma Medicine.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	7	7
Total HRG Roots	3	3
Procedure-driven HRGs	0	0
Diagnosis-driven HRGs	7	7
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	No	No

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter PW – Paediatric Infectious Diseases

Subchapter **PW Paediatric Infectious Diseases** contains all diagnosis-driven activity relating to the treatment of children's (aged 18 years and under) infectious diseases, in line with the requirements of the Casemix Design Framework.

Subchapter PW does not include neonatal critical care or paediatric critical care – these are covered in Subchapters **XA Neonatal Critical Care** and **XB Paediatric Critical Care**, respectively.

Interactive CC splits are employed within all HRG roots in this subchapter to more appropriately differentiate expected resource usage between routine and complex patients. The CC list for this subchapter is specific to Paediatric Infectious Diseases.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**15**	**15**
Total HRG Roots	**4**	**4**
Procedure-driven HRGs	0	0
Diagnosis-driven HRGs	15	15
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	No	No

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter PX – Paediatric Medicine

Subchapter **PX Paediatric Medicine** contains all diagnosis-driven activity relating to the treatment of children (aged 18 years and under) that does not otherwise fit within the more specific paediatric disorder subchapters, in line with the requirements of the Casemix Design Framework.

Subchapter PX does not include neonatal critical care or paediatric critical care – these are covered in Subchapters **XA Neonatal Critical Care** and **XB Paediatric Critical Care**, respectively.

Interactive CC splits are employed within the majority of HRG roots in this subchapter to more appropriately differentiate expected resource usage between routine and complex patients. The CC list for this subchapter is specific to Paediatric Medicine.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**46**	**46**
Total HRG Roots	**19**	**19**
Procedure-driven HRGs	0	0
Diagnosis-driven HRGs	46	46
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	No	No

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter RD – Diagnostic Imaging Procedures

Subchapter **RD Diagnostic Imaging Procedures** covers diagnostic imaging for patients of all ages, delivered in admitted or non-admitted care settings.

The unbundled HRGs in this subchapter are separated based on the type of examination undertaken.

The diagnostic imaging (procedure) HRGs are split based on the modality of scan (MRI, CT, DEXA, ultrasound, contrast fluoroscopy and simple echo).

The CT and MRI HRGs are split based on the number of body areas scanned and whether contrast is used.

The ultrasound and contrast fluoroscopy HRGs are split by the time taken and by whether the scan is mobile/intraoperative. In addition, the ultrasound scans are split based on whether contrast is used.

There are also HRGs specific to more specialised scans such as complex CT, vascular ultrasound and ultrasound elastography.

Composition and Concepts		
	RC18/19	**RC17/18**
Total HRGs	**49***	**48***
Total HRG Roots	**39**	**38**
Procedure-driven HRGs	49	48
Diagnosis-driven HRGs	1	1
Age Splits	Yes	Yes
Complications and Comorbidities Splits	No	No
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	Yes	Yes
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	Yes	Yes
Length of Stay-qualified	Yes	Yes

*Includes one core HRG (**RD97Z**) that is driven by both diagnosis and procedure logic for admitted patient care and by procedure only for non-admitted patients. Both settings also utilise TFC.

Age splits are employed in several of the HRG roots specific to MRI, CT and simple echocardiogram: There are specific HRGs for adult activity (19 years and over) and others for paediatric activity (18 years and under). There are also HRGs specific to the treatment of young children (0 to 5 years of age) and those for older children (6 to 18 years).

The HRG design for this area aligns with the national coding standard for diagnostic imaging scans. Where multiple body areas are scanned using the same modality in the same visit to the radiology department, then one unbundled HRG indicating multiple body areas have been scanned is generated rather than multiple separate HRGs indicating a scan of a single body area.

For example, if a patient undergoes an MRI scan of their chest, abdomen and pelvis (with post contrast) during the same trip to the radiology department, the episode will generate a single unbundled HRG for the MRI scan covering all three body areas. This episode would be coded as follows and would generate the unbundled HRG **RD05Z Magnetic Resonance Imaging Scan of Two or Three Areas**.

U21.1 Magnetic resonance imaging NEC +
Y79.3 Radiology with post contrast +
Y98.3 Radiology of three body areas **(or 20-40 minutes)** +
Z92.4 Chest NEC
Z92.6 Abdomen NEC
O16.1 Pelvis NEC

There are two HRGs within this subchapter that are not unbundled HRGs.

RD97Z Same Day Diagnostic Imaging Admission or Attendance is generated when a diagnostic imaging scan has taken place and the treatment function code (TFC) is **812 Diagnostic Imaging**; no significant procedures have taken place so the core HRG which would otherwise be generated is diagnosis-driven (or an attendance HRG in outpatients); and length of stay is zero days.

RD98Z Admission or Attendance for Diagnostic Imaging under General Anaesthetic is generated where a diagnostic imaging or nuclear medicine scan has taken place; an OPCS-4 code classifying general anaesthetic is recorded; no significant procedures have taken place so the core HRG which would otherwise be generated is diagnosis-driven (or an attendance HRG in outpatients); and the treatment function code is TFC **812 Diagnostic Imaging**.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

HRGs have been created/deleted

RD28Z Complex Computerised Tomography Scan has been deleted and replaced with two new HRGs, which split out cardiac CT from CT colonography to appropriately differentiate the expected resource usage between these types of complex CT scans:

- **RD60Z Cardiac Computerised Tomography Scan**
- **RD61Z Colon Computerised Tomography Scan**

Subchapter RN – Nuclear Medicine Procedures

Subchapter **RN Nuclear Medicine Procedures** covers both diagnostic and therapeutic nuclear medicine procedures for patients of all ages, delivered in admitted or non-admitted care settings.

The unbundled HRGs in this subchapter are separated based on the type of test performed.

The diagnostic imaging procedures are split based on the modality or type of scan, e.g. PET-CT, SPECT-CT, PET, SPECT, nuclear bone scan etc.

The PET-CT and SPECT-CT HRGs are split based on the number of body areas scanned.

There are also HRGs specific to molecular radiotherapy procedures.

Age splits are employed in the majority of these nuclear medicine HRGs; there are specific HRGs for adult activity (19 years and over) and others for paediatric activity (18 years and under). There are also HRGs specific to the treatment of young children (0 to 5 years of age) and those for older children (6 to 18 years).

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**69***	**69***
Total HRG Roots	**38**	**38**
Procedure-driven HRGs	69	69
Diagnosis-driven HRGs	1	1
Age Splits	Yes	Yes
Complications and Comorbidities Splits	No	No
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	Yes	Yes
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	Yes	Yes
Length of Stay-qualified	Yes	Yes

* Includes one core HRG (**RN97Z**) that is driven by both diagnosis and procedure logic for admitted patient care and by procedure only for non-admitted patients. Both settings also utilise TFC.

Due to limitations in the current underlying OPCS-4 classification, for the majority of activity it is not yet possible to differentiate activity based on the type of radionuclide used.

There is one HRG within this subchapter that is not unbundled: **RN97Z Same Day Nuclear Medicine Admission or Attendance** is generated when a nuclear medicine scan has taken place; the treatment function code (TFC) is **812 Diagnostic Imaging**; no significant procedures have taken place so the core HRG which would otherwise be generated is diagnosis-driven (or an attendance HRG in outpatients); and length of stay is zero days.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter SA – Haematological Procedures and Disorders

Subchapter **SA Haematological Procedures and Disorders** covers procedures for patients of all ages and adult diagnoses relating to haematological conditions. It includes activity undertaken in inpatient, day case and non-admitted care settings.

All diagnosis-driven activity relating to the treatment of children (aged 18 years and under) groups to an HRG in **Chapter P Diseases of Childhood and Neonates**, in line with the requirements of the Casemix Design Framework.

Within Subchapter SA, there are HRG roots specific to blood and bone marrow transplantation, including peripheral blood stem cell transplant HRGs that are differentiated on donor type to mirror the equivalent bone marrow transplant HRGs. All blood and bone marrow transplantation HRG roots include age splits to separate paediatric activity from adult activity.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	104*	104*
Total HRG Roots	41	41
Procedure-driven HRGs	33	33
Diagnosis-driven HRGs	72	72
Age Splits	Yes	Yes
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	Yes	Yes
Diagnosis-qualified	Yes	Yes
Subsidiary Procedure-qualified	Yes	Yes
Length of Stay-qualified	Yes	Yes

*Includes one hybrid HRG that is driven by either procedure or diagnosis

There are also HRGs specific to blood transfusion and diagnostic extraction of blood or marrow procedures, and there are HRGs specific to blood and bone marrow harvest.

Interactive CC splits are employed within the majority of adult haematological disorder HRG roots within this subchapter – up to a maximum of six levels – to more appropriately differentiate expected resource usage between routine and complex patients.

There is one HRG, **SA11Z Thalassaemia**, that can be reached through either a diagnosis code alone (indicating thalassaemia) or through a procedure code plus a diagnosis code. Where a procedure code classifying a blood transfusion has been recorded as the dominant procedure alongside a primary diagnosis of thalassaemia, the diagnosis takes precedence over the transfusion procedure, driving activity to **SA11Z Thalassaemia**.

HRG **SA33Z Diagnostic Bone Marrow Extraction** and HRGs **SA41Z Automated Red Cell Exchange** to **SA45* Injection of Rh Immune Globulin or Other Blood Transfusion** inclusive employ maximum length of stay logic to ensure that minor procedures, such as a blood transfusion, are not used to determine the HRG for a long-stay medical patient, e.g. a child who has sickle-cell anaemia.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter SB – Chemotherapy

Subchapter **SB Chemotherapy** covers both the procurement and delivery of chemotherapy regimens for patients of all ages. All but one of the HRGs in this subchapter are unbundled. This subchapter includes activity undertaken in inpatient, day case and non-admitted care settings.

There are chemotherapy procurement and chemotherapy delivery HRGs within this subchapter.

The chemotherapy procurement HRGs are separated according to high cost drug band, with band 1 having the lowest expected cost (£0 to £200) and band 10 having the highest expected cost (£1,801 upwards).

These bands are derived from a national list owned by NHS England. In addition, there is a catch-all HRG for the procurement of drugs not on said list.

There are HRGs specific to chemotherapy delivery, distinguished by method of delivery, e.g. oral, intravenous etc.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**18***	**18***
Total HRG Roots	**18**	**18**
Procedure-driven HRGs	18	18
Diagnosis-driven HRGs	1	1
Age Splits	No	No
Complications and Comorbidities Splits	No	No
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	Yes	Yes
Subsidiary Procedure-qualified	Yes	Yes
Length of Stay-qualified	Yes	Yes

*Includes one core HRG (**SB97Z**) that is driven by both diagnosis and procedure logic for admitted patient care and by procedure only for non-admitted patients.

There is one HRG, **SB97Z Same Day Chemotherapy Admission or Attendance**, that has been created as an “empty core” HRG. The specific logic required to derive **SB97Z Same Day Chemotherapy Admission or Attendance** requires a delivery or procurement of chemotherapy procedure code, a length of stay of 0 days, and a lack of any other significant procedure code. This design ensures that the total resource usage of a patient undergoing same day chemotherapy is associated with the unbundled HRG derived rather than with the core HRG.

The specific logic required to derive the HRG root **SB97 Same Day Chemotherapy Admission or Attendance** requires a length of stay of zero days and either a delivery or procurement of chemotherapy procedure code or a secondary diagnosis of ***Z51.1 Chemotherapy session***, and a lack of any other significant procedure code.

The chemotherapy procurement HRGs are generated per cycle, while the delivery HRGs are generated per session, based on the OPCS-4 codes recorded.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter SB: Worked Examples: Regimens and Treatments

In Subchapter SB, HRGs are derived using the relevant Chemotherapy Procurement procedure codes and, where appropriate, Chemotherapy Delivery procedure codes.

Case 1: Inpatient Treatment

A soft tissue sarcoma patient receives Doxorubicin and Ifosfamide chemotherapy as an inpatient. This consists of doxorubicin treatment on day one, followed by 24 hours of Ifosfamide and Mesna continuous infusion. This is repeated every 21 days.

Coding

Primary Diagnosis: C49.9 Malignant neoplasm of connective and soft tissue, unspecified

X70.4 Procurement of drugs for chemotherapy for neoplasm for regimens in Band 4

HRG Output

Core HRG: HD40* Malignancy, of Bone or Connective Tissue

Unbundled HRG(s): SB04Z Procure Chemotherapy drugs for regimens in Band 4

Case 2: Day Case

A lymphoma patient is receiving ABVD chemotherapy. This consists of four drugs and is given every 14 days.

Coding

Primary Diagnosis: C81.9 Hodgkin's disease, Hodgkin's disease, unspecified

Cycle 1:

X70.2 Procurement of drugs for chemotherapy for neoplasm for regimens in Band 2

X72.2 Delivery of complex parenteral chemotherapy for neoplasm at first attendance

Repeat for attendance of each new cycle every 14 days

HRG Output

Core HRG: SB97Z Same day Chemotherapy admission or attendance

Unbundled HRG(s): SB02Z Procure Chemotherapy drugs for regimens in Band 2

SB13Z Deliver more Complex Parenteral Chemotherapy at First Attendance

Case 3: Ambulatory Patient

A breast cancer patient is receiving Trastuzumab 7 loading dose followed by Trastuzumab 7 maintenance dose on a weekly basis. This is repeated every seven days.

Coding

Cycle 1: Trastuzumab 7 loading dose (1 attendance)

X70.5 Procurement of drugs for chemotherapy for neoplasm for regimens in Band 5

X72.3 Delivery of simple parenteral chemotherapy for neoplasm at first attendance

Cycle 2: Trastuzumab 7 maintenance dose (1 attendance)

X70.3 Procurement of drugs for chemotherapy for neoplasm for regimens in Band 3.

X72.3 Delivery of simple parenteral chemotherapy for neoplasm at first attendance

Do not use X72.4 Delivery of subsequent element of cycle of chemotherapy for neoplasm because the cycle length is seven days. These are classed as different cycles because they are different regimens.

HRG Output

HRG output is based on different cycles. For the 1 attendance of cycle 1, the grouper will output a procurement HRG and a delivery HRG. For the 1 attendance of cycle two, the grouper will again output both a procurement HRG and a delivery HRG.

1 attendance of cycle 1:

Core HRG: SB97Z Same day Chemotherapy admission or attendance

Unbundled HRG(s): SB05Z Procure Chemotherapy drugs for regimens in Band 5

SB12Z Deliver Simple Parenteral Chemotherapy at First Attendance

1 attendance of cycle 2:

Core HRG: SB97Z Same day Chemotherapy admission/attendance

Unbundled HRG(s): SB03Z Procure Chemotherapy drugs for regimens in Band 3

SB12Z Deliver Simple Parenteral Chemotherapy at First Attendance

Case 4: A regimen with inpatient and outpatient components

An inpatient receives BEP 5-day chemotherapy for a testicular solid tumour. The chemotherapy consists of three different drugs given over three inpatient days and the two consecutive outpatient treatments at seven-day intervals. The whole cycle is repeated every 21 days.

Coding

Primary Diagnosis: C62.9 Malignant neoplasm of testis, unspecified

Cycle 1: Day 1 (Inpatient episode)

X70.3 Procurement of drugs for chemotherapy for neoplasm for regimens Band 3

HRG Output

Core HRG: LB35* Scrotum, Testis or Vas Deferens Disorders

Unbundled HRG: SB03Z Procure Chemotherapy drugs for regimens in Band 3

Day 8 (1 outpatient attendance)

X72.4 Delivery of subsequent element of cycle of chemotherapy for neoplasm.

HRG Output

Core HRG: SB97Z Same day Chemotherapy admission or attendance

Unbundled HRG: SB15Z Deliver subsequent elements of a Chemotherapy cycle

Day 15 (2nd outpatient attendance)

X72.4 Delivery of subsequent element of cycle of chemotherapy for neoplasm

HRG Output

Core HRG: SB97Z Same day Chemotherapy admission or attendance

Unbundled HRG: SB15Z Deliver subsequent elements of a Chemotherapy cycle

Cycle 2

Day 21 (Inpatient episode)

X70.3 Procurement of drugs for chemotherapy for neoplasm for regimens Band 3

HRG Output

Core HRG: LB35* Scrotum, Testis or Vas Deferens Disorders

Unbundled HRG: SB03Z Procure Chemotherapy drugs for regimens in Band 3

Case 5: Outpatient treatment with a subsequent element

A lung cancer patient is receiving Carboplatin + Vinorelbine chemotherapy as an outpatient. This consists of one day of treatment with Vinorelbine and carboplatin both IV. This is followed seven days later by Vinorelbine therapy oral. The cycle is repeated every 21 days.

Coding

Day 1 (1 outpatient attendance)

X70.3 Procurement of drugs for chemotherapy for neoplasms for regimens in Band 3

X72.3 Delivery of simple parenteral chemotherapy for neoplasm at first attendance

HRG Output

Core HRG: SB97Z Same day Chemotherapy admission or attendance

Unbundled HRGs: SB03Z Procure Chemotherapy drugs for regimens in Band 4

SB12Z Deliver Simple Parenteral Chemotherapy at First Attendance

Day 8 (2nd outpatient attendance)

X72.4 Delivery of subsequent element of cycle of chemotherapy for neoplasm

HRG Output

Core HRG: SB97Z Same day Chemotherapy admission or attendance

Unbundled HRG: SB15Z Deliver subsequent elements of a Chemotherapy cycle

Subchapter SC – Radiotherapy

Subchapter **SC Radiotherapy** covers both the preparation and delivery of radiotherapy for patients of all ages.

All but one of the HRGs in this subchapter are unbundled. This subchapter includes activity undertaken in inpatient, day case and non-admitted care settings.

HRGs for radiotherapy include one set for pre-treatment (planning) processes and one set for treatment delivered, with a separate HRG being allocated for each fraction delivered.

The planning HRGs are intended to cover all attendances required for completion of the planning process. It is not intended that individual attendances for parts of this process will be recorded separately.

The planning HRGs do not include the consultation at which the patient consents to radiotherapy, nor do they cover any outpatient attendance for medical review required by any change in status of the patient.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**30***	**30***
Total HRG Roots	**30**	**30**
Procedure-driven HRGs	30	30
Diagnosis-driven HRGs	1	1
Age Splits	No	No
Complications and Comorbidities Splits	No	No
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	Yes	Yes
Subsidiary Procedure-qualified	Yes	Yes
Length of Stay-qualified	Yes	Yes

*Includes one core HRG (**SC97Z**) that is driven by both diagnosis and procedure logic for admitted patient care and by procedure only for non-admitted patients.

Radiotherapy HRGs are driven by OPCS-4 codes, and the majority have a direct mapping. The logic relies on the coding of a subsidiary procedure code to indicate delivery of a fraction using a megavoltage or orthovoltage machine and whether technical support was used.

In addition, there are specific HRGs that are generated when a subsidiary code is recorded indicating the radiotherapy treatment was undertaken under general anaesthetic.

To reflect activity for patients that are admitted solely for the delivery of external beam radiotherapy as a day case episode or outpatient attendance, an “empty core” HRG of **SC97Z Same Day External Beam Radiotherapy Admission or Attendance** is output as well as the unbundled external beam radiotherapy HRGs.

The specific logic required to derive the HRG **SC97Z Same Day Radiotherapy Admission or Attendance (excluding Brachytherapy)** requires a procedure code classifying the delivery of external beam radiotherapy or nuclear medicine therapy, a length of stay of 0 days and a lack of any other significant procedure code.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter SC: Outpatient Example

Cases A to **E** illustrate the five fraction course of Total body irradiation (TBI) of a patient diagnosed as having Hodgkin's lymphoma prior to a bone marrow transplant. The TBI is planned and the first treatment is given immediately afterwards (same attendance):

Case	Attendance	Dominant Procedure (OPCS-4)	Other Procedures (OPCS-4)	HRG4+
A	1 attendance	X67.2 Preparation for total body irradiation	X65.1 Delivery of a fraction of total body irradiation (TBI)	*SC97Z* + SC42Z + SC25Z — *Same Day External Beam Radiotherapy Admission or Attendance* + Preparation for Total Body Irradiation + Deliver a fraction of Total Body irradiation
B	2nd attendance	X65.1 Delivery of a fraction of total body irradiation (TBI)		*SC97Z* + SC25Z — *Same Day External Beam Radiotherapy Admission or Attendance* + Deliver a fraction of Total Body irradiation
C	3rd attendance	X65.1 Delivery of a fraction of total body irradiation (TBI)		*SC97Z* + SC25Z — *Same Day External Beam Radiotherapy Admission or Attendance* + Deliver a fraction of Total Body irradiation
D	4th attendance	X65.1 Delivery of a fraction of total body irradiation (TBI)		*SC97Z* + SC25Z — *Same Day External Beam Radiotherapy Admission or Attendance* + Deliver a fraction of Total Body irradiation
E	5th attendance	X65.1 Delivery of a fraction of total body irradiation (TBI)		*SC97Z* + SC25Z — *Same Day External Beam Radiotherapy Admission or Attendance* + Deliver a fraction of Total Body irradiation

Subchapter SC: Inpatient Example

Case F highlights a patient who is diagnosed with malignant neoplasm of breast and undergoes total mastectomy, followed by radiotherapy treatment delivered as part of the inpatient episode:

Case	Age	Length of Stay (days)	Primary Diagnosis (ICD-10)	Dominant Procedure (OPCS-4)	Other Procedures (OPCS-4)	HRG4+
F	32	2	C50.9 Malignant neoplasm of breast, unspecified	B27.4 Total mastectomy	X67.4 Volume definition for simple radiotherapy with imaging and dosimetry + X65.8 Other specified radiotherapy delivery + Y91.2 Delivery of a fraction of simple radiotherapy on a megavoltage machine	*JA20F* *Unilateral Major Breast Procedures with CC Score 0-2* + SC45Z Preparation for simple radiotherapy with imaging and dosimetry + SC22Z Deliver a fraction of treatment on a megavoltage machine

Subchapter SD – Specialist Palliative Care

Subchapter **SD Specialist Palliative Care** relates to care in which the clinical intent or treatment goal is primarily to improve the quality of life of a patient with an active, progressive disease with little or no prospect of cure. This subchapter covers both adult and paediatric activity.

Specialist palliative care (SPC) is usually evidenced by an interdisciplinary assessment and/or management of the physical, psychological, emotional and spiritual needs of the patient, and a grief and bereavement support service for the patient and their carers/family.

SPC includes care provided under the principal clinical management of a SPC medicine consultant, either in a Palliative Care unit or in a designated Palliative Care programme. It can be delivered by NHS, voluntary sector and other accredited providers.

Subchapter SD comprises:

- Specialist support services delivered to inpatients
- Outpatients, day therapy assessments and interventions for inpatients and day cases

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	10	10
Total HRG Roots	5	5
Procedure-driven HRGs	N/A	N/A
Diagnosis-driven HRGs	N/A	N/A
Age Splits	Yes	Yes
Complications and Comorbidities Splits	No	No
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	Yes	Yes
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	Yes	Yes

The main driver for these HRGs is a combination of Main Specialty Code and Treatment Function Codes

Diagnoses are used in the subchapter-specific grouping logic, in conjunction with length of stay and age, when determining the HRG. See the table below for details.

The services provided by palliative care specialists include the following:

- Clinical consultancy/care
- Personal care
- Spiritual/emotional support/counselling
- Home care/support
- Education
- Case management/care coordination

If an inpatient is not admitted under the care of a specialist palliative medicine consultant but is receiving support from a member of a SPC Team, this is classed as SPC Support.

The following specialist palliative care is not covered in HRG4+:

- General palliative care
- Community specialist palliative care
- Bereavement care as a separate HRG. However, some bereavement care costs are expected to be included within the costs covered by other HRGs. Bereavement costs that are to be included in HRG costs are detailed in the Service Level Agreements drafted by the National Partnership Group for Palliative Care

- Patients admitted for holiday relief/respite

SPC HRGs are classed as unbundled activity. Unbundled HRG grouping is the second stage of the grouping process, occurring immediately after the data have been validated. After the relevant activity has been unbundled from the data, multiple trauma, burns and core HRGs are produced.

The SPC HRGs require one or a combination of the following: a main speciality or treatment function code of 315 Specialist Palliative Care; a diagnosis of ***Z51.5 Palliative Care***.

For inpatient specialist palliative care (not day cases), SPC HRGs are generated on a per diem basis for the entire SPC consultant episode. The grouper generates these in addition to the core HRG, based on the number of SPC days recorded in the CDS.

For day case specialist palliative care, a single SPC HRG is generated, plus a core HRG.

For non-admitted care, HRGs have been defined for both medical and non-medical specialist palliative care attendances. For non-admitted attendances, the grouper allocates an appropriate SPC HRG, plus a core HRG, which may be a default core HRG from Subchapter **WF Non-Admitted Care Consultations** if no significant procedure has been recorded.

It should be noted that root HRG **SD03 Hospital Specialist Palliative Care Support** is NOT generated per diem, irrespective of the data items recorded.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter SD: Specialised Palliative Care HRGs Explained by Setting

Inpatient SPC HRGs:

HRG	Label	Definition	Notes
SD01A	Inpatient Specialist Palliative Care, 19 years and over	Age = 19 years and over **AND** Main Specialty Code = 315 (Palliative Medicine) **AND** Treatment Function Code = 315 (Palliative Medicine) **AND** Length of Stay > 0 **OR** Discharge Method = 4 (Patient Died) **AND** Secondary Diagnosis (ICD-10)= Z51.5 (Palliative Care) **AND NOT** Primary Diagnosis (ICD-10) = Z75.5 (Holiday Relief Care)	Adult inpatients under the care of a specialist palliative medicine consultant, excluding patients discharged on the day of admission (unless they die on the day of admission), excluding patients admitted for respite care [[Note: Requires SPC days CDS field to be populated to indicate duration of specialist palliative care and produce multiple unbundled HRGs accordingly]
SD01B	Inpatient Specialist Palliative Care, 18 years and under	As above with: Age = 18 years and under	Paediatric inpatients under the care of a specialist palliative medicine consultant , excluding patients discharged on the day of admission (unless they die on the day of admission), excluding patients admitted for respite care [Note: Requires SPC days CDS field to be populated to indicate duration of specialist palliative care and produce multiple unbundled HRGs accordingly]
SD02A	Inpatient Specialist Palliative Care, Same Day, 19 years and over	Age = 19 years and over **AND** Main Specialty Code = 315 (Palliative Medicine) **AND** Treatment Function Code = 315 (Palliative Medicine) **AND** Length of Stay = 0 **AND** Discharge Method ≠ 4 (Patient did not die) **AND** Secondary Diagnosis (ICD-10)= Z51.5 Palliative care **AND NOT** Primary Diagnosis (ICD-10) = Z75.5 Holiday relief care	[Note: a maximum of 1 SPC unbundled HRG will be generated, in addition to the core HRG, irrespective of SPC days recorded in the CDS]
SD02B	Inpatient Specialist Palliative Care, Same Day, 18 years and under	As above with: Age = 18 years and under	[Note: a maximum of 1 SPC unbundled HRG will be generated, in addition to the core HRG, irrespective of SPC days recorded in the CDS]

HRG	Label	Definition	Notes
SD03A	Hospital Specialist Palliative Care Support, 19 years and over	Age = 19 years and over **AND** Secondary Diagnosis (ICD-10)= Z51.5 Palliative care **AND NOT** Main Specialty Code = 315 (Palliative Medicine)	Adult inpatients not under the care of a specialist palliative medicine consultant but receiving input from a specialist palliative care specialist support service [Note: SPC days should not be recorded in the CDS]
SD03B	Hospital Specialist Palliative Care Support, 18 years and under	As above with: Age = 18 years and under	Paediatric inpatients not under the care of a specialist palliative medicine consultant but receiving input from a specialist palliative care specialist support service [Note: SPC days should not be recorded in the CDS]

Outpatient, Day Therapy Assessment and Intervention HRGs

HRG	Label	Definition
SD04A	Medical Specialist Palliative Care Attendance, 19 years and over	Age = 19 years and over **AND** Main Specialty Code = 315 (Palliative Medicine) **AND** Treatment Function Code = 315 (Palliative Medicine)
SD04B	Medical Specialist Palliative Care Attendance, 18 years and under	As above with: Age = 18 years and under
SD05A	Non-Medical Specialist Palliative Care Attendance, 19 years and over	Age = 19 years and over **AND** Main Specialty Code = 950 (Nursing Episode) **OR** 960 (Allied Health Profession Episode) **AND** Treatment Function Code = 315 (Palliative Medicine)
SD05B	Non-Medical Specialist Palliative Care Attendance, 18 years and under	As above with: Age = 18 years and under

The Outpatient Attendance Commissioning Data Sets (CDS) can record contacts by medical, nursing and allied health professionals (AHPs), including physiotherapists, speech and language therapists, occupational therapists, podiatrists, dietitians and clinical psychologists. Chaplains and social workers may also record contacts as AHPs.

Subchapter UZ – Undefined Groups

The single HRG in Subchapter **UZ Undefined Groups** is generated where a patient record is not valid for grouping to one of the other subchapters.

There is only one HRG in this subchapter, **UZ01Z Data Invalid for Grouping**.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	1	1
Total HRG Roots	1	1
Procedure-driven HRGs	N/A	N/A
Diagnosis-driven HRGs	N/A	N/A

This subchapter is intended to help an organisation identify invalid data and take action, for example, to understand whether clinical coding errors are due to lack of information specificity or unavailability of information at the time of the coding.

Subchapter UZ is comprised of 11 underlying U Error categories that lead to the assignment of HRG **UZ01Z Data Invalid for Grouping**.

These are as follows:

- **UZ01 Invalid Primary Diagnosis:**
  - The primary diagnosis is blank
  - The primary diagnosis ICD-10 code cannot be used in the primary position
- **UZ02 Poorly Coded Primary Diagnosis:**
  - The diagnosis ICD-10 code exists and is valid in the primary position, but it is so unspecific that the resource use cannot be defined
- **UZ03 Age Conflicting with Diagnosis**
- **UZ04 Diagnosis conflicting with anatomical sites:**
  - The ICD-10 anatomical site code, specified at the 5th digit level, conflicts with the diagnosis in the record
- **UZ05 Invalid procedure for Casemix grouping purposes**
- **UZ06 Poorly coded procedure for Casemix grouping purposes**
- **UZ11 Neonatal Critical Care Error**
- **UZ13 Adult Critical Care Error**
- **UZ14 Renal (NRD) Error**
- **UZ15 Burns Error**
  - Burns primary diagnosis code of unspecified body region or with no subsequent total body surface area (TBSA) code
- **UZ21 CCAC Inappropriate for NCC**

Note that **UZ99 Indicator flag for Specialist Palliative Care** is not an error category but an indicator flag that stops certain criteria from being processed for Specialist Palliative Care activity. It does not generate HRG **UZ01Z Data Invalid for Grouping** in and of itself.

The HRG4+ grouping software ensures that the data are complete, valid and within expected value ranges. The software applies the following three stages of validation to the data during a processing run:

- Field content within record
- Cross validation of episodes within spell
- Grouping logic (assignment of flag values)

Where the HRG4+ Grouper cannot assign a valid HRG, **UZ01Z Data invalid for grouping** is returned in the output record, signifying that the record is unclassified.

If there are errors in the input data, these will be reported in the **data quality report**, as part of the Grouper output files, but processing will not be halted. There can be more than one reason for non-assignment of an HRG, so there may be more than one data quality message for each data row, all of which need to be reviewed to identify the underlying problem(s).

UZ01 Invalid Primary Diagnosis
This error indicates that there is an error with the primary diagnosis code.

UZ02 Poorly Coded Primary Diagnosis
This error is generated where a diagnosis code exists and is valid as a primary diagnosis but is too vague to determine resource use.

UZ03 Diagnosis Conflicts with Age
This error indicates that a paediatric diagnosis has been recorded for an adult patient (age 19 years and over).

UZ04 Diagnosis Conflicts with Anatomical Site
This error indicates that an invalid combination of diagnosis and anatomical site has been input. This only applies to specific musculoskeletal codes entered at ICD-10 5th digit level.

UZ05 Invalid procedure for Casemix grouping purposes
This error is reported if the OPCS-4 code with the highest procedure hierarchy in the record is a valid OPCS-4 code but is not valid for grouping, for example, if the code represents a “conversion from” code in orthopaedic surgery.

UZ06 Poorly coded procedure for Casemix grouping purposes
This error indicates that a procedure code is valid as a dominant procedure but is insufficiently specific to determine the resource use from an HRG design perspective, e.g. OPCS-4 code **X45.9 Unspecified donation of organ**.

UZ11 Neonatal Critical Care Error
This is a general error for neonatal critical care and is generated when conditions in the grouping algorithm have not been met.

UZ13 ACC Grouping Error
This is a general error for adult critical care and is generated when conditions in the grouping algorithm have not been met.

UZ14 Renal (NRD) Error
This is a general error for grouping renal activity using the national renal data set and is generated when conditions in the grouping algorithm have not been met.

UZ15 Burns Error
This error is produced when a burns primary diagnosis code of unspecified body region or total body surface area (TBSA) is recorded, or a burns diagnosis code is recorded in any position, with no subsequent TBSA code present. Failure to record TBSA contravenes national coding rules.

UZ21 CCAC Inappropriate in NCC
Certain critical care activity codes (CCAC) are not valid for neonatal critical care (NCC) grouping or are valid only when used in combination with other codes. UZ21 is generated when the CCAC or combination of codes in the input record is not appropriate for the derivation of an NCC HRG.

UZ99 Indicator flag for Specialist Palliative Care
This indicator flag ensures Specialist Palliative Care unbundled HRGs cannot be generated when certain conditions are met, for example it enables Holiday Relief Care to be excluded from Specialist Palliative Care grouping.

Further information regarding the underlying U categories can be found in the Group to Split worksheet within the Code to Group Excel workbook.

Field Validation Errors

All clinical codes are validated against the Grouper's internal database of codes. Clinical codes in the patient record that are not on this list will result in the generation of a UZ01Z HRG.

- Diagnosis (ICD-10) codes that are not on the list are classified as invalid. These will not result in a specific error message but will be output in the Data Quality report as follows:

  ICD|XXXX|Diagnosis Code is invalid in DIAG_XX

- Procedure (OPCS-4) codes that are not on the list are similarly classified as invalid. However, these will not result in a specific error message but will be output in the Data Quality report as follows:

  OPCS|XXXX|Procedure code is invalid in OPER_XX

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter VA – Multiple Trauma

Subchapter **VA Multiple Trauma** covers high resource, complex diagnoses and treatments associated with multiple trauma cases for patients of all ages. In the HRG4+ design, multiple trauma is determined by the presence of significant simultaneous traumatic injuries involving more than one body area.

Traumatic single injuries are addressed elsewhere within the relevant body system subchapters.

This subchapter includes activity undertaken in inpatient and day case settings.

Following validation and unbundling, multiple trauma grouping takes precedence over any other grouping logic that might otherwise be applied across the episode or spell. The multiple trauma logic is made up of the following elements:

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**24**	**24**
Total HRG Roots	**6**	**6**
Procedure-driven HRGs	0	0
Diagnosis-driven HRGs	24	24
Age Splits	No	No
Complications and Comorbidities Splits	No	No
Intervention Splits	No	No
Multiple Procedures	Yes	Yes
Procedure Combination Codes	Yes	Yes
Diagnosis-qualified	Yes	Yes
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	No	No

- For single episode spells, where the episode HRG is multiple trauma, the HRG of the spell will be the same multiple trauma HRG
- A multiple trauma spell HRG will be generated where the HRG of the first episode of a multi-episode spell is multiple trauma. The multiple trauma HRG of the first episode, that of any later episode(s) and that of the spell may be different because of the additive nature of the logic employed
- For multi-episode spells where the first episode is not multiple trauma but a later episode is multiple trauma, the spell HRG will not be multiple trauma.

To be derived, all multiple trauma HRGs require at least two trauma (injury) diagnosis codes (one primary), with each relating to a different body site. These injuries should be coded in accordance with ICD-10 *Chapter XIX, Injury, poisoning and certain other consequences of external causes* (S00 – T98).The trauma injury diagnoses are separated into nine categories based on body site:

- Abdominal trauma diagnoses
- Chest trauma diagnoses
- Head trauma diagnoses
- Kidney trauma diagnoses
- Lower limb trauma diagnoses
- Other trauma diagnoses
- Pelvis or spine trauma diagnoses
- Upper limb trauma diagnoses
- Urinary trauma diagnoses

The table of non-superficial trauma injuries relating to these specific body sites can be found in the “Comb_VA_ *” lists in the Other Lists worksheet of the Code to Group Excel workbook.

If a patient has trauma injury diagnoses for two or more body sites within an episode, this will generate a multiple trauma HRG for that episode.

This subchapter employs grid logic that is able to take into account multiple procedures as well as multiple diagnoses to ensure the complexity involved in treating patients that have multiple traumatic injuries is accurately reflected in the HRG design. Each relevant procedure and diagnosis has been assigned a score ranging from 3 to 15. To determine which multiple trauma HRG is derived, the score of all relevant procedure and all relevant diagnosis codes recorded in the patient record are totalled, respectively, to determine a procedure score and a diagnosis score. This pair of scores determines which HRG is derived.

The following grid provides the scoring logic used and shows which HRG would be produced from a given pair of scores.

HRG Derivation Grid:

Procedure score => Diagnosis score	0	1 - 8	9 – 18	19 - 29	30 - 44	>=45
<=23	VA10A	VA11A	VA12A	VA13A	VA14A	VA15A
24 – 32	VA10B	VA11B	VA12B	VA13B	VA14B	VA15B
33 – 50	VA10C	VA11C	VA12C	VA13C	VA14C	VA15C
>=51	VA10D	VA11D	VA12D	VA13D	VA14D	VA15D

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter VB – Emergency Medicine

Subchapter **VB Emergency Medicine** covers activity for patients of all ages treated within the following types of emergency departments:

Type 01
Emergency Departments: Consultant-led 24-hour service with full resuscitation facilities and designated accommodation for the reception of accident and emergency patients

Type 02
Consultant-led mono-specialty accident and emergency service (e.g. ophthalmology, dental) with designated accommodation for the reception of patients, with the exception of gynaecology casualty departments

Type 03
Other types of units with designated accommodation for the reception of minor accident and emergency patients, including other open access treatment services offering at least minor injury/illness services, whether located alongside a main A&E department or at another location

Type 04
NHS walk-in centres

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	12	12
Total HRG Roots	12	12
Procedure-driven HRGs	N/A	N/A
Diagnosis-driven HRGs	N/A	N/A
Age Splits	No	No
Complications and Comorbidities Splits	No	No
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	No	No

The HRG in this subchapter are split into ten levels of complexity based on a combination of investigation and treatment categories. There are also HRGs specific to emergency dental care and to patients that are dead on arrival. The Emergency Medicine HRGs do not cover activity within clinical decision units and observation type wards/units.

Emergency Medicine HRGs

HRG	HRG Label
VB01Z	Emergency Medicine, Any Investigation with Category 5 Treatment
VB02Z	Emergency Medicine, Category 3 Investigation with Category 4 Treatment
VB03Z	Emergency Medicine, Category 3 Investigation with Category 1-3 Treatment
VB04Z	Emergency Medicine, Category 2 Investigation with Category 4 Treatment
VB05Z	Emergency Medicine, Category 2 Investigation with Category 3 Treatment
VB06Z	Emergency Medicine, Category 1 Investigation with Category 3-4 Treatment
VB07Z	Emergency Medicine, Category 2 Investigation with Category 2 Treatment
VB08Z	Emergency Medicine, Category 2 Investigation with Category 1 Treatment
VB09Z	Emergency Medicine, Category 1 Investigation with Category 1-2 Treatment
VB10Z	Emergency Medicine, Dental Care
VB11Z	Emergency Medicine, No Investigation with No Significant Treatment
VB99Z	Emergency Medicine, Patient Dead On Arrival

In Subchapter VB, the HRG assigned depends on the investigations and treatments recorded within the A&E Commissioning Data Set (CDS 110). The HRG assigned to each attendance depends on the dominant investigation and dominant treatment and their respective categories of care.

Grouping for each attendance works as follows:

1. Each **treatment** and **investigation** on the attendance record has an associated hierarchy (See Appendix A for investigations and Appendix B for treatments).
2. This hierarchy information determines the dominant treatment and dominant investigation for the record, and thereby the categories of both.
3. Combining the Investigation and Treatment categories of care will result in the most resource-intensive HRG being generated, subject to the Grouping Exceptions identified below.

Records with neither an Investigation nor Treatment Code recorded will generate the UZ01Z HRG. Where there is no Investigation Code recorded, the patient record will group based upon the appropriate Treatment code.

The hierarchies presented in Appendices A and B are fundamental to which investigations and treatments are considered dominant and used for HRG derivation.

Grouping Exceptions

When determining the HRG assigned to each investigation and treatment, there are certain exceptions where the category is one of two possible values.

* If the dominant investigation is “None” (Investigation code 24) or blank and the dominant treatment is from the following list, the HRG assigned will be **VB11Z**. Otherwise these treatments will be considered as category 1 and the HRG derived will be dependent on the category value of the dominant investigation code.

Treatment Code	Treatment Code Label	Treatment Category (5=highest; 1=lowest)
12	Intravenous cannula	1 or 0 *
221	Guidance/advice only – written	1 or 0 *
222	Guidance/advice only – verbal	1 or 0 *
241	Tetanus – immune	1 or 0 *
99	None (consider guidance/advice option)	1 or 0 *

* For treatments shown below, the following HRG rules apply depending on the dominant investigation:

Dominant Treatment	Category of Dominant Investigation	HRG
031 Primary sutures (Cat. 3 or 4) 032 Secondary/complex suture (Cat. 3 or 4) 17 Urinary catheter/suprapubic (Cat. 3 or 4) 235 Anaesthesia–sedation (Cat. 3 or 4) 512 Medication administered – intra-muscular (Cat. 3 or 4) 515 Medication administered–sublingual (Cat. 3 or 4)	Category 1 or blank	VB06Z (Emergency Medicine, Category 1 Investigation with Category 3-4 Treatment)
	Category 2	VB05Z (Emergency Medicine, Category 2 Investigation with Category 3 Treatment)
	Category 3	VB02Z (Emergency Medicine, Category 3 Investigation with Category 4 Treatment)

Patient Dead on Arrival HRG

HRG **VB99Z Emergency Medicine, Patient Dead On Arrival** has been created within this subchapter for patients that are dead on arrival (DOA). This HRG is derived from a value of 70 (brought in dead) in the data item *A&E Patient Group*. This HRG will be derived in preference to any other HRGs within this subchapter, where the relevant value is present.

The table below shows all valid codes for A&E Patient Group:

Code	Treatment
10	Road Traffic Accident
20	Assault
30	Deliberate Self-Harm
40	Sports Injury
50	Fireworks Injury
60	Other Accident
70	Brought In Dead
80	Other Than Above

Where no Investigation or Treatment code is recorded, patient records with a value of 70 brought in dead in the data item A&E Patient Group will generate a UZ01Z HRG.

Dental Care HRG

HRG **VB10Z Emergency Medicine, Dental Care** has been created within this subchapter to identify a specific cohort of patients that seek emergency care for dental treatment only. The table below identifies the combination of Investigations and Treatments that will map to HRG **VB10Z**, based around the Investigation code “22” (Dental Investigation) and/or Treatment code “56” (Dental Treatment):

Inv. Code	Investigation Description	Treat. Code	Treatment Description
01	X-ray plain film	56	Dental Treatment
22	Dental investigation	56	Dental Treatment
24	None	56	Dental Treatment
99	Other	56	Dental Treatment
22	Dental investigation	57	Prescription\medicines prepared to take away
22	Dental investigation	99	None (consider guidance/advice option)

HRG **VB10Z** will be derived in preference to any other HRGs within this subchapter if the above combinations only are recorded in the patient record.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

To confirm, this means that the input data required to generate the approriate VB* HRGs continue to be based on the contents of Commissioning Data Set 010 Accident and Emergency, rather than CDS 011 Emergency Care (ECDS). The latter may be used to generate the HRGs once the contents (recorded via a SNOMED-CT subset as determined by the Royal College of Emergency Medicine) have been mapped to the required

investigation and treatment codes, as per CDS 010, on which HRG derivation currently relies.

For further information on the ECDS, including the Enhanced Technical Output Specification containing the mapping of CDS010 Investigation and Treatment codes and their SNOMED-CT equivalents, please see:

https://digital.nhs.uk/data-and-information/data-collections-and-data-sets/data-sets/emergency-care-data-set-ecds/ecds-latest-update

Subchapter VB: Appendix A – List of Investigations (with category and hierarchy value) used in the A&E CDS and required for HRG4+ derivation

Investigation Code	Investigation Code Label	Category (3=highest; 1= lowest)	Hierarchy (7=highest; 1=lowest)
01	X-ray plain film	2	6
02	Electrocardiogram	1	3
03	Haematology	2	6
04	Cross match blood/group and save serum for later cross match	2	6
05	Biochemistry	1	5
06	Urinalysis	1	3
07	Bacteriology	2	6
08	Histology	2	6
10	Ultrasound	3	7
11	Magnetic Resonance Imaging	3	7
12	Computerised Tomography (excludes genito urinary contrast examination/tomography)	3	7
13	Genito urinary contrast examination/tomography	3	7
14	Clotting studies	2	6
15	Immunology	2	6
16	Cardiac enzymes	2	6
17	Arterial/capillary blood gas	1	4
18	Toxicology	2	6
19	Blood culture	2	6
20	Serology	2	6
21	Pregnancy test	1	3
22	Dental investigation	2	2
23	Refraction, orthoptic tests and computerised visual fields	2	6
24	None	1 or 0 *	1
99	Other	1	3

The hierarchies presented in Appendix A above are fundamental to determining which investigation is considered dominant and used for HRG derivation.

Subchapter VB: Appendix B – List of Treatments (with category and hierarchy value) used in the A&E CDS and required for HRG4+ derivation

Treatment Code	Treatment Code Label	Category (5=highest; 1=lowest)	Hierarchy (8=highest; 1=lowest)
011	Dressing minor wound/burn/eye	2	4
012	Dressing major wound/burn/eye	3	5
02	Bandage/support	1	3
031	Primary sutures	3 or 4 *	6
032	Secondary/complex suture	3 or 4 *	6
033	Removal of sutures/clips	1	3
041	Wound closure – steristrips	2	4
042	Wound closure – wound glue	2	4
043	Wound closure – other (e.g. clips)	2	4
051	Application Plaster of Paris	2	4
052	Removal Plaster of Paris	1	3
06	Splint	2	4
08	Removal foreign body	3	5
091	Physiotherapy – strapping, ultra sound treatment, short wave diathermy, manipulation	2	4
092	Physiotherapy – gait re-education, falls prevention	2	4
101	Manipulation of upper limb fracture	4	7
102	Manipulation of lower limb fracture	4	7
103	Manipulation of dislocation	4	7
11	Incision & drainage	3	5
12	Intravenous cannula	1 or 0 *	2
13	Central line	3	5
14	Lavage/emesis/charcoal/eye irrigation	2	4
15	Intubation & Endotracheal tubes/laryngeal mask airways/rapid sequence induction	4	7
16	Chest drain	4	7
17	Urinary catheter/suprapubic	3 or 4 *	6
181	Defibrillation	4	7
182	External pacing	4	7
19	Resuscitation/cardiopulmonary resuscitation	5	8
20	Minor surgery	3	5
21	Observation/electrocardiogram, pulse oximetry/head injury/trends	1	3
221	Guidance/advice only – written	1 or 0 *	2
222	Guidance/advice only – verbal	1 or 0 *	2
231	Anaesthesia – general anaesthetic	4	7
232	Anaesthesia – local anaesthetic	2	4
233	Anaesthesia – regional block	2	4
234	Anaesthesia – Entonox	2	4
235	Anaesthesia – sedation	3 or 4 *	6
236	Anaesthesia – other	2	4
241	Tetanus – immune	1 or 0 *	2
242	Tetanus – tetanus toxoid course	2	4
243	Tetanus – tetanus toxoid booster	2	4
244	Tetanus – human immunoglobulin	2	4
245	Tetanus – combined tetanus/diphtheria course	2	4
246	Tetanus – combined tetanus/diphtheria booster	2	4
25	Nebuliser/spacer	3	5

Treatment Code	Treatment Code Label	Category (5=highest; 1=lowest)	Hierarchy (8=highest; 1=lowest)
27	Other (consider alternatives)	1	3
281	Parenteral thrombolysis – streptokinase parenteral thrombolysis	4	7
282	Parenteral thrombolysis – recombinant – plasminogen activator	5	8
291	Other Parenteral drugs – intravenous drug, e.g. stat/bolus	4	7
292	Other Parenteral drugs – intravenous infusion	4	7
30	Recording vital signs	1	3
31	Burns review	1	3
32	Recall/x-ray review	1	3
33	Fracture review	1	3
34	Wound cleaning	1	3
35	Dressing/wound review	1	3
36	Sling/collar cuff/broad arm sling	1	3
37	Epistaxis control	2	4
38	Nasal airway	2	4
39	Oral airway	2	4
40	Supplemental oxygen	3	5
41	Continuous positive airways pressure/nasal intermittent positive pressure ventilation/bag valve mask	3	5
42	Arterial line	3	5
43	Infusion fluids	2	4
44	Blood product transfusion	4	7
45	Pericardiocentesis	4	7
46	Lumbar puncture	4	7
47	Joint aspiration	3	5
48	Minor plastic procedure/split skin graft	4	7
49	Active rewarming of the hypothermic patient	3	5
50	Cooling – control body temperature	1	3
511	Medication administered – oral	2	4
512	Medication administered – intra-muscular	3 or 4 *	6
513	Medication administered – subcutaneous	3	5
514	Medication administered – per rectum	2	4
515	Medication administered – sublingual	3 or 4 *	6
516	Medication administered – intra-nasal	2	4
517	Medication administered – eye drops	1	3
518	Medication administered – ear drops	1	3
519	Medication administered – topical skin cream	1	3
521	Occupational Therapy – OT functional assessment	3	5
522	Occupational Therapy – OT activities of daily living equipment provision	1	3
53	Loan of walking aid (crutches)	1	3
54	Social work intervention	3	5
551	Eye – orthoptic exercises	1	3
552	Eye – laser of retina/iris or posterior capsule	5	8
553	Eye – retrobulbar injection	3	5
554	Eye – epilation of lashes	3	5
555	Eye – subconjunctival injection	4	7
56	Dental treatment	2	2
57	Prescription\medicines prepared to take away	1	3
99	None (consider guidance/advice option)	1 or 0 *	1

Also note, the hierarchies presented in Appendix B are fundamental to determining which treatment is considered dominant and used for HRG derivation.

Subchapter VB: Worked Examples

The examples below show how the different Investigation codes and treatment codes are grouped in HRG4+.

Case	Invest.1	Invest. 2	Treat. 1	Treat. 2	Dominant investigation	Dominant treatment	HRG4+
A	01-X-Ray (category 2)	02-Electro-cardiogram (category 1)	11-Incision & drainage (category 3)	511-Medication administered-oral (category 2)	01-X-ray (as category 2>1)	11-Incision & drainage (as category 3>2)	VB05Z Category 2 Investigation with Category 3 Treatment
B	01-X-Ray (category 2)	02-Electro-cardiogram (category 1)	282-Parenteral thrombolysis – recombinant – plasminogen activator (category 5)	99-None (consider guidance/advice option) (category 0 or 1)	01-X-ray (as category 2>1)	282-Parenteral thrombolysis – recombinant – plasminogen activator (as category 5>1 and 0)	VB01Z Any Investigation with Category 5 Treatment
C	22-Dental investigation	24-None	56-Dental treatment	99-None (consider guidance/advice option)	22-Dental investigation	56-Dental treatment	VB10Z Dental Care
D	24-None		56-Dental treatment	99-None (consider guidance/advice option)	24-None	56-Dental treatment	VB10Z Dental Care
E	22-Dental investigation	24-None	222-Guidance/advice only – verbal	99-None (consider guidance/advice option)	22-Dental investigation	222-Guidance/advice only – verbal	VB08Z Emergency Medicine, Category 2 Investigation with Category 1 Treatment
F	13-Genito urinary contrast examination/ tomography (category 3)	03-Haematology (category 2)	031-** Primary sutures (category 3 or 4)	511-Medication administered – oral (category 2)	13-Genito urinary contrast examination/ tomography (category 3)	031-Primary sutures	VB02Z Category 3 Investigation with Category 4 Treatment
G	05-Biochemistry (category 1)	24-None	17-Urinary catheter/suprapubic (category 3 or 4)	12-Intravenous cannula (category 0 or 1)	05-Biochemistry (category 1)	17-Urinary catheter/suprapubic	VB06Z Category 1 Investigation with Category 3-4 Treatment

** “Primary sutures” is considered category 4 in this example as it is recorded with a category 3 dominant investigation. See page above for further detail.

Subchapter VC – Rehabilitation

Subchapter **VC Rehabilitation** covers all activities relating to the assessment for, and the delivery of, rehabilitation for patients of all ages. It includes activity undertaken in inpatient, day case and non-admitted care settings.

Subchapter VC comprises:

- Assessment for rehabilitation
- Specific rehabilitation services for both inpatients and outpatients
- Rehabilitation services delivered to adults, children and older people
- Rehabilitation services delivered by the NHS and, potentially, other accredited providers

The Rehabilitation HRGs do not cover the following:

- Rehabilitation within an acute care treatment episode
- The identification of highly complex specialist rehabilitation

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**23**	**23**
Total HRG Roots	**23**	**23**
Procedure-driven HRGs	23	23
Diagnosis-driven HRGs	0	0
Age Splits	No	No
Complications and Comorbidities Splits	N/A	N/A
Intervention Splits	N/A	N/A
Multiple Procedures	N/A	N/A
Procedure Combination Codes	N/A	N/A
Diagnosis-qualified	N/A	N/A
Subsidiary Procedure-qualified	N/A	N/A
Length of Stay-qualified	N/A	N/A

The majority of Rehabilitation HRGs are unbundled on a per diem basis and are only generated where care is identified as taking place under a specialist rehabilitation consultant or within a discrete rehabilitation unit. They require the use of OPCS-4 codes **U50.-** to **U54.-** to generate a rehabilitation HRG, plus an appropriate duration of rehabilitative care to ensure that the HRGs are rightly generated on a per diem basis.

Rehabilitation assessment is identified by OPCS-4 code **X60.-**. A rehabilitation diagnosis code is not required to generate any of the three rehabilitation assessment HRGs, which are instance-based rather than duration-based. Thus they do not require a duration of rehabilitative care to be recorded.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter WD – Treatment of Mental Health Patients by Non-Mental Health Service Providers

Subchapter **WD Treatment of Mental Health Patients by Non-Mental Health Service Providers** covers the treatment of mental health patients by NHS organisations that do not provide specialist mental health services but do provide treatment to patients of all ages with a mental health primary diagnosis prior to discharge or transfer to a specialist mental health provider.

Patients younger than 19 years old with a primary mental health diagnosis will group to HRGs in Subchapter **PT Paediatric Mental Health Disorders**.

Mental health services provided by specialist mental health providers are captured using the mental health clustering classification and therefore fall outside of the HRG design.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	9	9
Total HRG Roots	9	9
Procedure-driven HRGs	0	0
Diagnosis-driven HRGs	9	9
Age Splits	No	No
Complications and Comorbidities Splits	No	No
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	No	No

The HRGs in Subchapter WD are differentiated based on type of mental health disorder in line with ICD-10 diagnosis code category definitions, and they do not as yet utilise interactive CC splits or intervention splits.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter WF – Non-Admitted Consultations

Subchapter **WF Non-Admitted Consultations** covers non-admitted consultations, including outpatients and ward attenders, for patients of all ages.

Subchapter WF comprises:

- Unidisciplinary face-to-face first and follow-up attendances
- Multiprofessional face-to-face first and follow-up attendances
- Unidisciplinary non face-to-face first and follow-up attendances
- Multiprofessional non face-to-face first and follow-up attendances

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	8	8
Total HRG Roots	2	2
Procedure-driven HRGs	8	8
Diagnosis-driven HRGs	0	0
Age Splits	No	No
Complications and Comorbidities Splits	No	No
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	No	No

Where significant procedures are coded in outpatient attendances, the appropriate procedure-driven HRG will be generated.

For outpatients or ward attenders, a significant procedure may not always be recorded. In these cases, activity is grouped to subchapter WF, with the HRG derived based on the type of attendance (using the FIRST ATTENDANCE data item in the NHS Data Model and Dictionary), modified by the presence of the following OPCS-4 codes:

- **X62.2 Assessment by multi-professional team NEC**
- **X62.3 Assessment by multi-disciplinary team NEC**

The matrix below shows how the type of attendance and the presence of OPCS-4 codes for uni-professional or multi-professional assessments drive the derivation of the HRGs in this subchapter:

		Attendance Type*			
		1 First Attendance Face-to-face	2 Follow-up Attendance Face-to-face	3 First Telephone or Telemedicine Consultation	4 Follow-up Telephone or Telemedicine Consultation
OPCS-4 Code	None or X62.1 Assessment by uni-professional team NEC	WF01B	WF01A	WF01D	WF01C
	X62.2 Assessment by multi-professional team NEC or X62.3 Assessment by multi-disciplinary team NEC	WF02B	WF02A	WF02D	WF02C

*Attendance Type refers to the NHS Data Dictionary item FIRST ATTENDANCE.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter WH – Poisoning, Toxic Effects, Special Examinations, Screening and Other Healthcare Contacts

Subchapter **WH Poisoning, Toxic Effects, Special Examinations, Screening and Other Healthcare Contacts** is made up of a range of disparate healthcare activity including poisoning, toxic effects, special examinations and screening.

All diagnosis-driven activity (with the exception of some donation and procreative management diagnoses) relating to the treatment of children (aged 18 years and under) groups to an HRG in **Chapter P Diseases of Childhood and Neonates**, in line with the requirements of the Casemix Design Framework.

Subchapter WH includes activity undertaken in inpatient, day case and non-admitted care settings.

The subchapter includes a single procedure-driven HRG root, for lymphatic system procedures for patients of all ages.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	68	68
Total HRG Roots	29	29
Procedure-driven HRGs	2	2
Diagnosis-driven HRGs	66	66
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	Yes	Yes
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	Yes	Yes
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	Yes	Yes

The majority of diagnosis-driven HRG roots within this subchapter are for adult care activities only; however, the HRG roots for procedures not carried out, certain diagnoses related to organ donation and certain diagnoses related to procreative management are for patients of all ages.

There are specific HRG roots for acute disorders including transplant rejection, other post-procedure complications and follow-up care, as well as HRG roots specific to poisonings, allergies and effects of environment. The remaining HRG roots cover various signs and symptoms and healthcare contacts, e.g. abdominal pain, senility, abnormal findings and respite care.

There is one HRG root (**WH50 Procedure Not Carried Out**) specific to planned procedures not carried out. This root is split into two HRGs differentiated on the reason the procedure was not carried out, as follows:

- **WH50A Procedure Not Carried Out, for Medical or Patient Reasons**
- **WH50B Procedure Not Carried Out, for Other or Unspecified Reasons**

Both of these HRGs can be generated in two ways.

WH50A Procedure Not Carried Out, for Medical or Patient Reasons is derived when one of the following ICD-10 codes is recorded as the primary diagnosis:

- **Z28.0 Immunization not carried out because of contraindication**
- **Z28.1 Immunization not carried out because of patient's decision for reasons of belief or group pressure**
- **Z28.2 Immunization not carried out because of patient's decision for other and unspecified reasons**

WH50B Procedure Not Carried Out, for Other or Unspecified Reasons is derived when one of the following ICD-10 codes is recorded as the primary diagnosis:

- **Z28.8 Immunization not carried out for other reasons**
- **Z28.9 Immunization not carried out for unspecified reason**

Alternatively, HRG **WH50A** employs global exception logic (core 5) and can be generated when no significant procedure is recorded, with any primary diagnosis, and a secondary diagnosis from ICD-10 rubric **Z53.- Persons encountering health services for specific procedures, not carried out**, as follows:

- **Z53.0 Procedure not carried out because of contraindication**
- **Z53.1 Procedure not carried out because of patient's decision for reasons of belief and group pressure**
- **Z53.2 Procedure not carried out because of patient's decision for other and unspecified reasons**

HRG **WH50B** also employs global exception logic (core 5) and can be generated when no significant procedure is recorded, with any primary diagnosis, and a secondary diagnosis from ICD-10 rubric **Z53.- Persons encountering health services for specific procedures, not carried out**, as follows:

- **Z53.8 Procedure not carried out for other reasons**
- **Z53.9 Procedure not carried out, unspecified reason**

Note that the dummy HRG root **WH99** enables direct mapping to **WH50B Procedure Not Carried Out, for Other or Unspecified Reasons**.

Interactive CC splits are employed within the majority of HRG roots within this subchapter – up to a maximum of four levels – to more appropriately differentiate expected resource usage between routine and complex patients.

Intervention splits are also employed within the majority of diagnosis-driven HRG roots within this subchapter to acknowledge where “minor interventions” undertaken during a patient admission are expected to result in additional resource usage.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter WJ – Infectious Diseases and Immune System Disorders

Subchapter **WJ Infectious Diseases and Immune System Disorders** covers multi-systemic infectious diseases and immune system disorders.

This subchapter is largey for adult activity only, with the exception of several genitourinary infection HRG roots that are intended to cover patients of all ages.

It includes activity undertaken in inpatient and day case settings.

All diagnosis-driven activity (with the exception of some genitourinary infections) relating to the treatment of children (aged 18 years and under) groups to an HRG in **Chapter P Diseases of Childhood and Neonates**, in line with the requirements of the Casemix Design Framework.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**38**	**38**
Total HRG Roots	**8**	**8**
Procedure-driven HRGs	0	0
Diagnosis-driven HRGs	38	38
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	Yes	Yes
Multiple Procedures	No	No
Procedure Combination Codes	No	No
Diagnosis-qualified	Yes	Yes
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	No	No

There are disease-specific HRGs for infections such as sepsis, unknown fever, HIV and genitourinary medicine (GUM) disorders. There is one HRG root specific to all other immune system disorders.

The remainder of multi-systemic infectious diseases are split across three HRG roots based on the complexity of the disorder – standard, major and complex.

Within the complexity categories, escalation to an HRG with a higher expected resource use can occur when secondary diagnoses are recorded that indicate the patient requires isoloation or has antimicrobial resistance.

Interactive CC splits are employed within the majority of HRG roots within this subchapter – up to a maximum of four levels – to more appropriately differentiate expected resource usage between routine and complex patients.

Intervention splits, including those that differentiate between whether a single “minor intervention” or multiple “minor interventions” have been undertaken, are employed within the majority of the HRG roots in this subchapter.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter XA – Neonatal Critical Care

Subchapter **XA Neonatal Critical Care** includes unbundled HRGs and covers neonatal critical care, including transportation (retrieval).

Other critical care services are addressed in Subchapters **XC Adult Critical Care** and **XB Paediatric Critical Care**.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	6	6
Total HRG Roots	6	6
Procedure-driven HRGs	0	0
Diagnosis-driven HRGs	0	0
Age Splits	N/A	N/A
Complications and Comorbidities Splits	N/A	N/A
Intervention Splits	N/A	N/A
Multiple Procedures	N/A	N/A
Procedure Combination Codes	N/A	N/A
Diagnosis-qualified	N/A	N/A
Subsidiary Procedure-qualified	N/A	N/A
Length of Stay-qualified	N/A	N/A

The HRGs within this Subchapter are split into five levels of complexity: there is one HRG specific to neonatal intensive care activity (NICU) – **XA01Z Neonatal Critical Care, Intensive Care** – and one HRG specific to neonatal high dependency care (NHDU) – **XA02Z Neonatal Critical Care, High Dependency**, and there are three HRGs specific to neonatal special care baby unit (SCBU) or transitional care activity – **XA03Z Neonatal Critical Care, Special Care, without External Carer**; **XA04Z Neonatal Critical Care, Special Care, with External Carer**; and **XA05Z Neonatal Critical Care, Normal Care**.

The XA HRGs are generated from information within the Neonatal Critical Care Minimum Data Set (Version 2.0, 2016) on a per diem basis, based on the Critical Care Unit Function (CCUF) and Critical Care Activity Code (CCAC) recorded. See SCCI Information Standard 0075 for further information regarding the updated 2016 NCCMDS; https://digital.nhs.uk/data-and-information/information-standards/information-standards-and-data-collections-including-extractions/publications-and-notifications/information-standards-notices-2016.

For this subchapter, grouping is based on data items from the Neonatal Critical Care Minimum Data Set (Version 2.0, 2016), but additional data items are required from the Admitted Patient Care data set (Discharge Date and Discharge Method). The main driver for grouping is the Critical Care Activity Code.

One neonatal critical care HRG is generated for each day the baby receives critical care. The HRGs are unbundled, being generated in addition to the HRGs for the associated admitted patient care episode and spell.

Please see the grouping algorithm flowchart at the end of the subchapter summary for this subchapter for further information.

There is also an HRG specific to neonatal transportation – **XA06Z Neonatal Critical Care, Transportation**. This HRG is derived from the Admitted Patient Care data set as the Neonatal Critical Care data set does not incorporate data items that can be used to identify transportation. This represents the transfer of a baby in neonatal critical care from one provider trust to another.

Grouping is driven by the following parameters:

- Admission method

- Source of admission
- Treatment function code
- Neonatal level of care

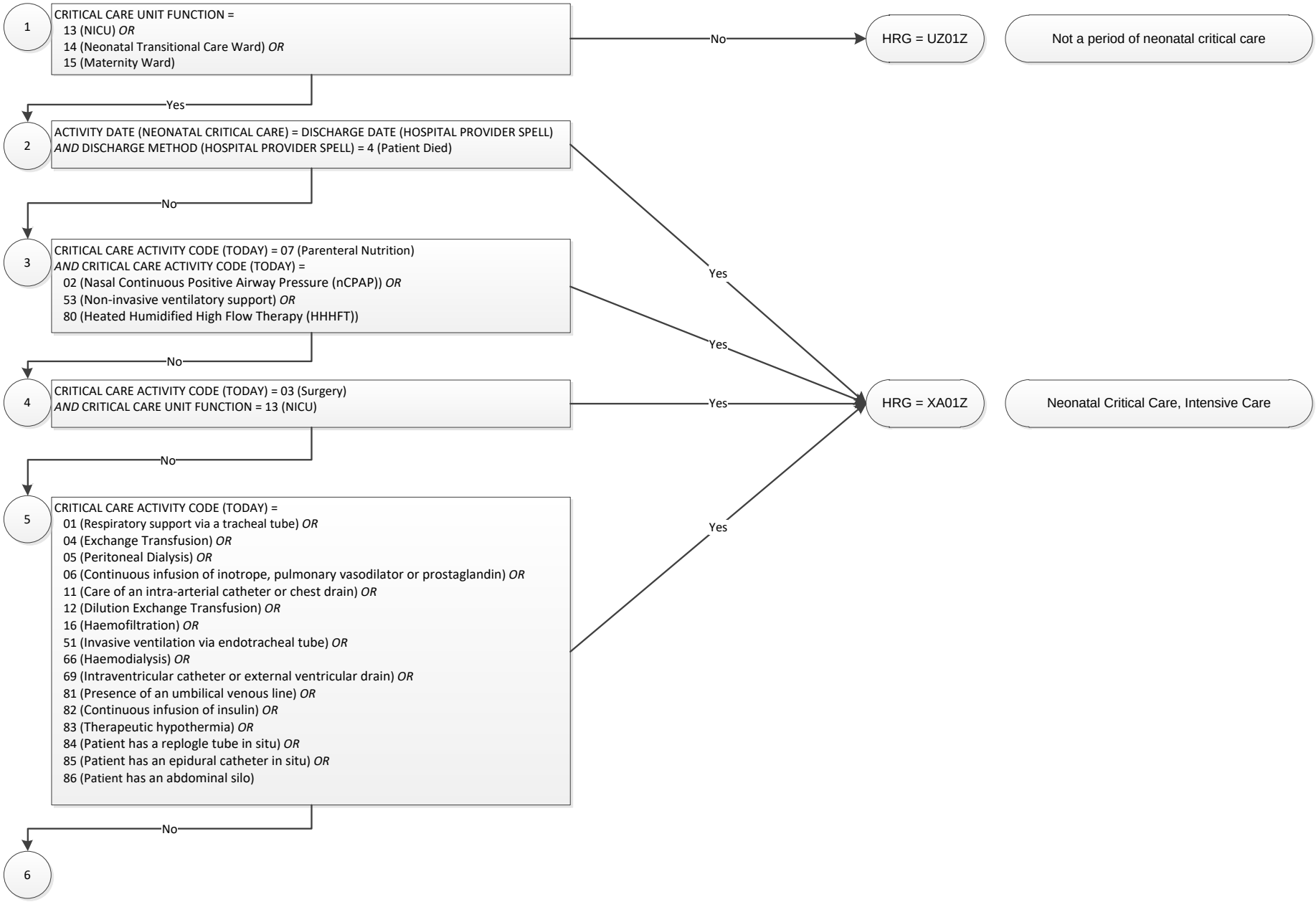
All of the following criteria must be met in order to derive the transportation HRG:

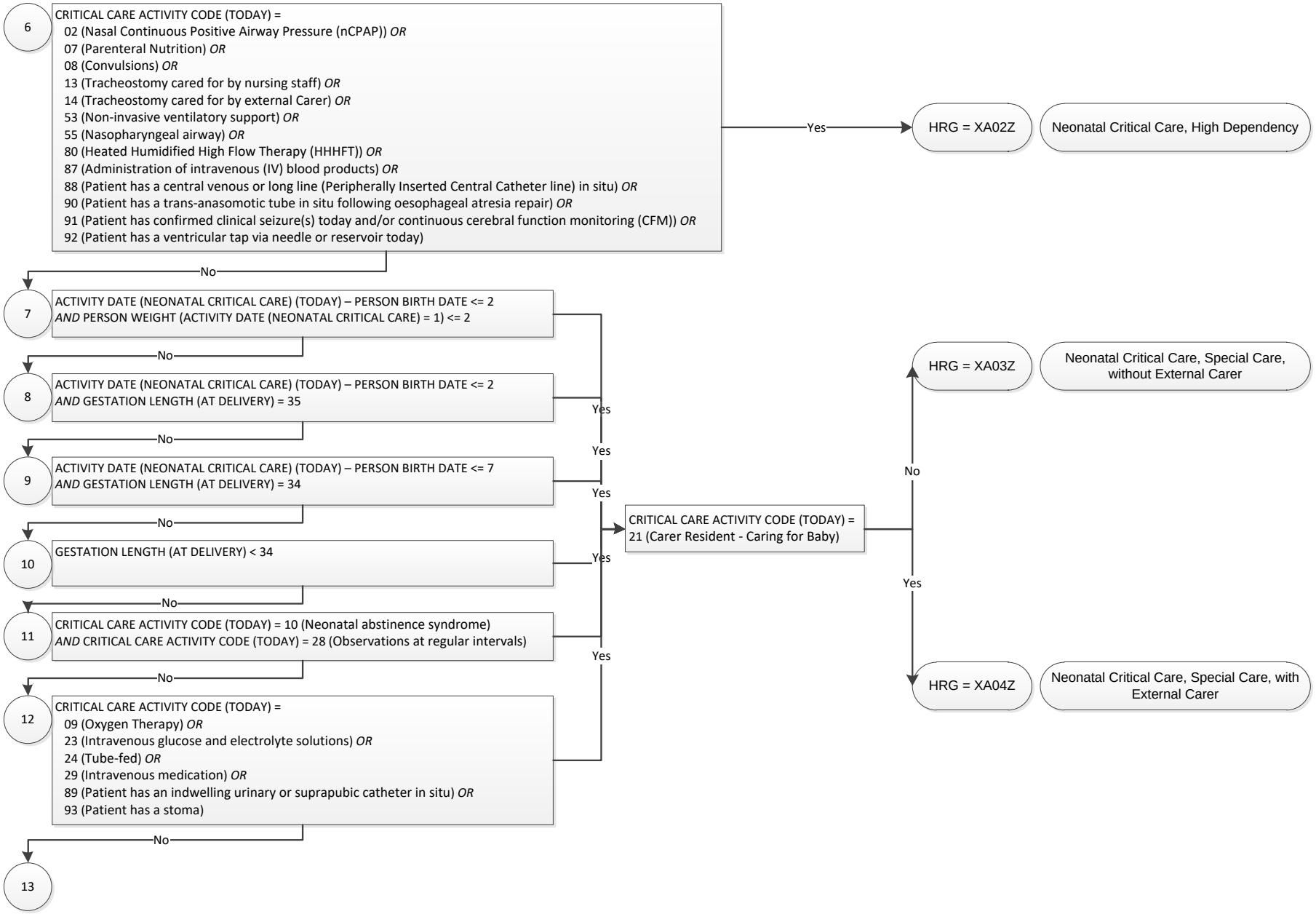
Data Item	Value	Notes
Admission Method	81: Transfer of any admitted patient from other hospital provider other than in an emergency (Data submitted using CDS 6.1 or 6.2) or 28: Other Means (includes transfer of an admitted patient from another hospital provider in an emergency) (Data submitted using CDS 6.1 only) or 2B: Transfer of an admitted PATIENT from another Hospital Provider in an emergency (Data submitted using CDS 6.2 only)	Hospital transfer
Source of Admission	52: NHS other hospital provider – ward for maternity patients or neonates or 87: Non NHS run hospital	Confirms the transfer is from another hospital (Admission Method 28 includes other locations)
Treatment Function Code	422: Neonatology – Special Care, High Dependency and Intensive Care	
Neonatal Level of Care	3: Level 1 Intensive Care (Maximal Intensive Care) or 2: Level 2 Intensive Care (High Dependency Intensive Care)	

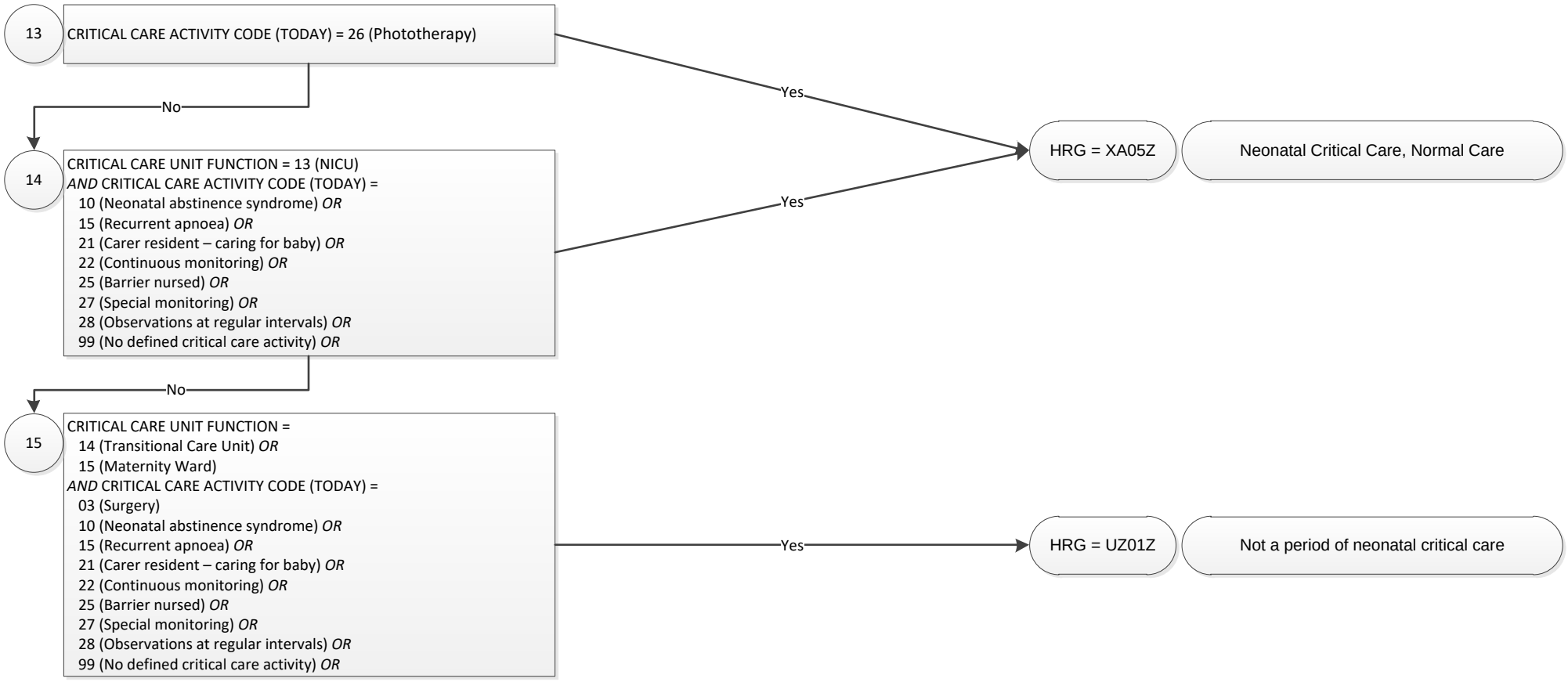
Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.







Subchapter XB – Paediatric Critical Care

Subchapter **XB Paediatric Critical Care** includes unbundled HRGs and covers paediatric critical care, including transportation (retrieval). Other critical care services are addressed in Subchapters **XC Adult Critical Care** and **XA Neonatal Critical Care**.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	9	9
Total HRG Roots	9	9
Procedure-driven HRGs	0	0
Diagnosis-driven HRGs	0	0
Age Splits	N/A	N/A
Complications and Comorbidities Splits	N/A	N/A
Intervention Splits	N/A	N/A
Multiple Procedures	N/A	N/A
Procedure Combination Codes	N/A	N/A
Diagnosis-qualified	N/A	N/A
Subsidiary Procedure-qualified	N/A	N/A
Length of Stay-qualified	N/A	N/A

The HRGs within this subchapter are split into eight levels of complexity: there are five HRGs specific to paediatric intensive care activity, which would be undertaken in a paediatric intensive care unit (PICU), and three HRGs specific to paediatric high dependency care activity, which may take place in a PICU or paediatric high dependency ward.

The XB HRGs are generated from information within the Paediatric Critical Care Minimum Data Set (Version 2.0, 2016) on a per diem basis, based on the Critical Care Unit Function (CCUF) and Critical Care Activity Code (CCAC) recorded. See SCCI Information Standard 0076 for further information regarding the updated 2016 PCCMDS; https://digital.nhs.uk/data-and-information/information-standards/information-standards-and-data-collections-including-extractions/publications-and-notifications/information-standards-notices-2016).

Grouping is based primarily on data items from the Paediatric Critical Care Minimum Data Set (Version 2.0, 2016), but additional data items are required from the Admitted Patient Care data set (including Discharge Date, Discharge Method and Diagnosis).

One paediatric critical care HRG is generated for each day the child receives critical care. The HRGs are unbundled, being generated in addition to the HRGs for the associated admitted patient care episode and spell.

Please see the grouping algorithm flowchart at the end of the subchapter summary for this subchapter for further information.

There is also an HRG specific to paediatric transportation – **XB08Z Paediatric Critical Care, Transportation**. This HRG is derived from the Admitted Patient Care data set.

All of the following criteria must be met in order to derive the transportation HRG:

Data Item	Value	Notes
Admission Method	81: Transfer of any admitted patient from other hospital provider other than in an emergency (Data submitted using CDS 6.1 or 6.2) or 28: Other Means (includes transfer of an admitted patient from another hospital provider in an emergency) (Data submitted using CDS 6.1 only) or 2B: Transfer of an admitted PATIENT from another Hospital Provider in an emergency (Data submitted using CDS 6.2 only)	Hospital transfer
Source of Admission	51: NHS other hospital provider – ward for general patients or the younger physically disabled or A&E department or 87: Non NHS run hospital	Confirms the transfer is from another hospital (Admission Method 28 includes other locations)
Treatment Function Code of the first episode in the spell	242: Paediatric Intensive Care – Only to be used by designated Paediatric Intensive Care Units	

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter XB: Worked Examples

Case A: A patient is being treated in the paediatric critical care unit and has apnoea requiring intervention.

Case	Critical Care Unit Function Code	Patient Age (Days)	Discharge Method (Hospital Provider Spell)	Main Critical Care Activity Code	Other Critical Care Activity Codes	ICD-10 Diagnosis Code		HRG4+	
A	04 (Paediatric Intensive Care Unit)	10	1 (Patient discharged on clinical advice or with clinical consent)	58 Apnoea requiring intervention				XB07Z	Paediatric Critical Care, Basic Critical Care

Case B: A patient is being treated on a ward for children and young people and has central venous pressure monitoring.

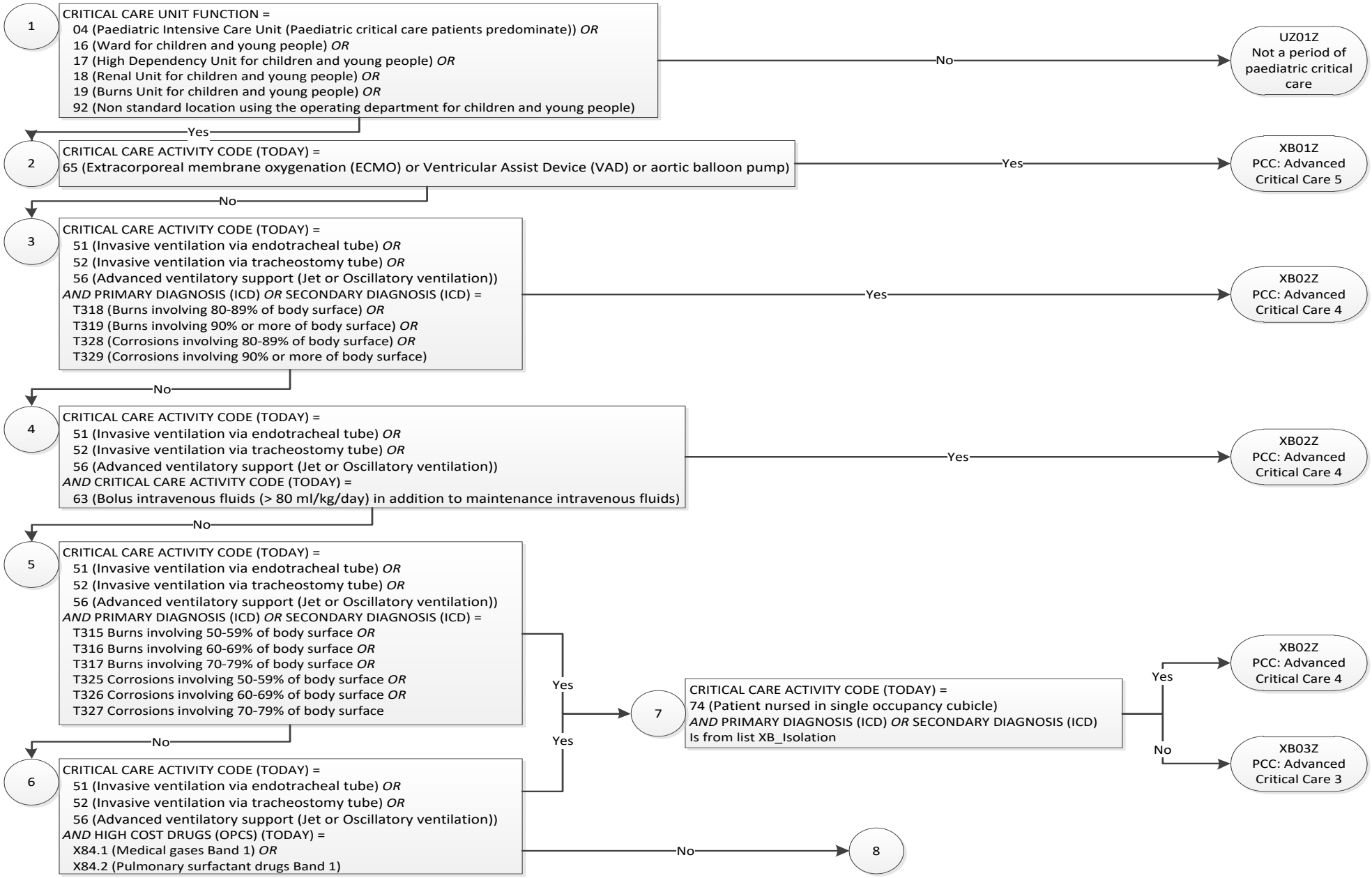
B	16 (Ward for children and young people)	10	1 (Patient discharged on clinical advice or with clinical consent)	62 Central venous pressure monitoring				XB06Z	Paediatric Critical Care, Basic Critical Care

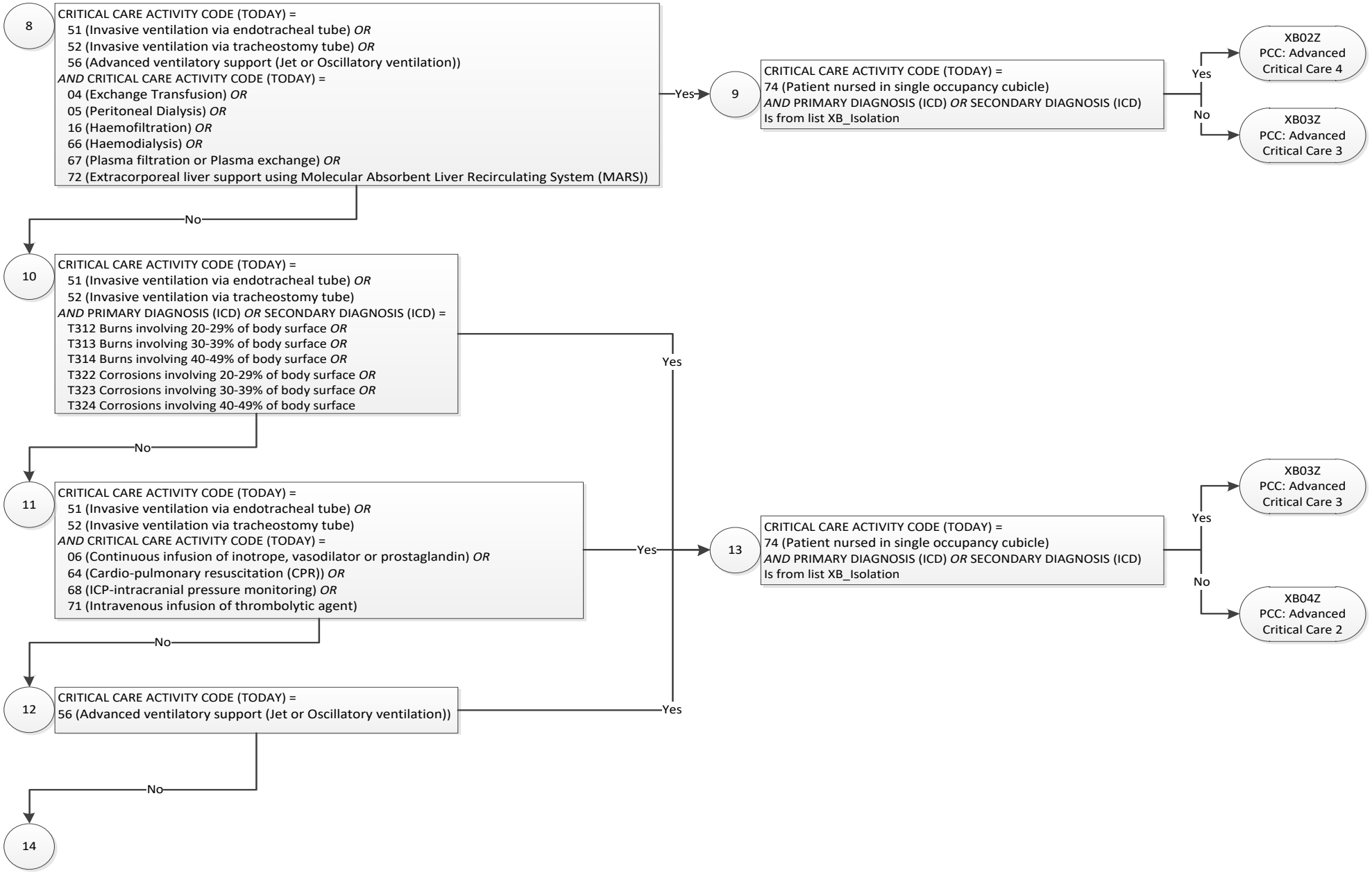
Case C: A patient is being treated in the paediatric critical care unit and has invasive ventilation after being severely burned. This illustrates how the diagnosis is used in deriving the HRG.

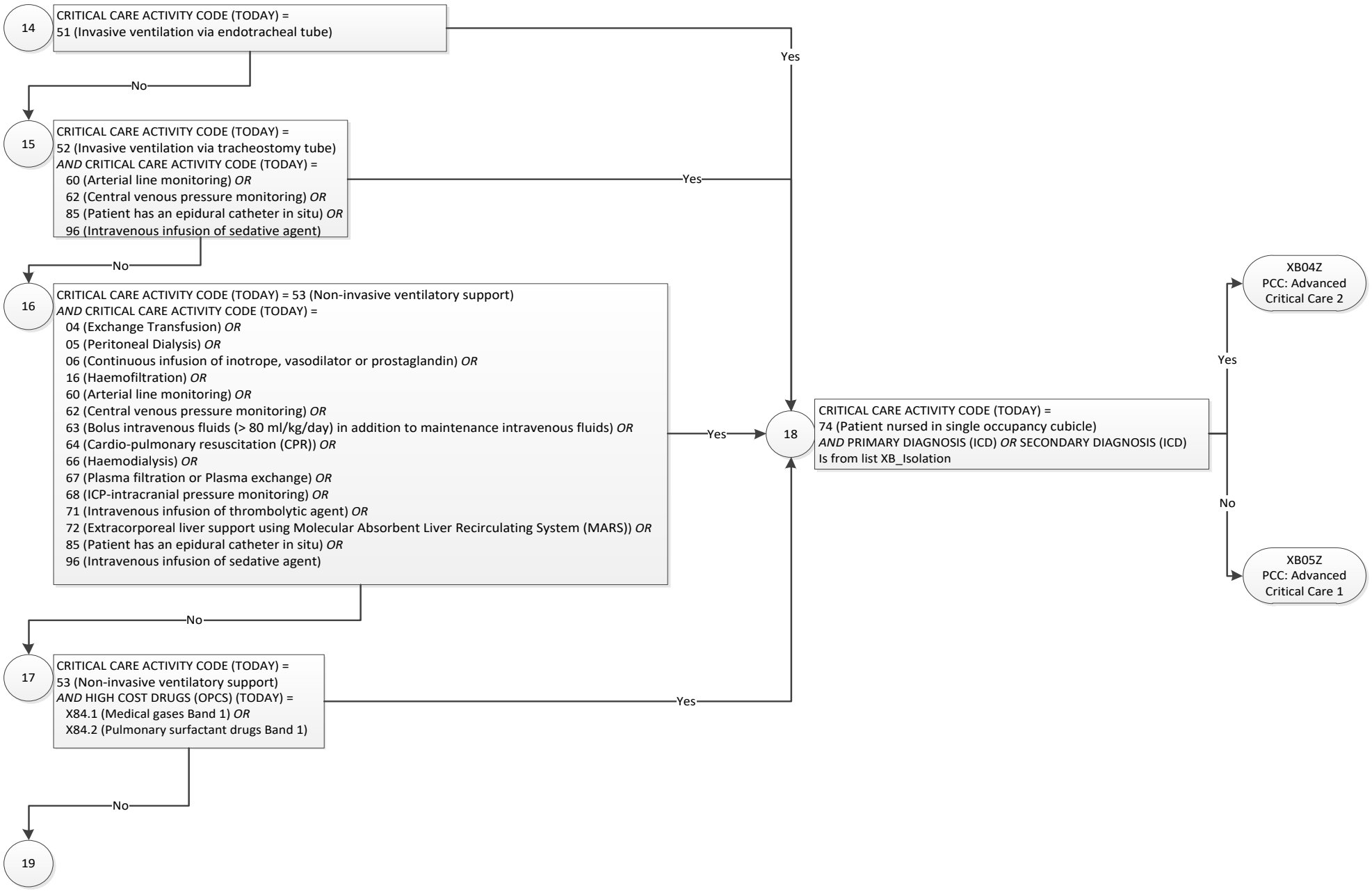
C	04 (Paediatric Intensive Care Unit)	10	1 (Patient discharged on clinical advice or with clinical consent)	51 Invasive ventilation via endotracheal tube		T31.5	Burns involving 50-59% of body surface	XB03Z	Paediatric Critical Care, Advanced Critical Care 3

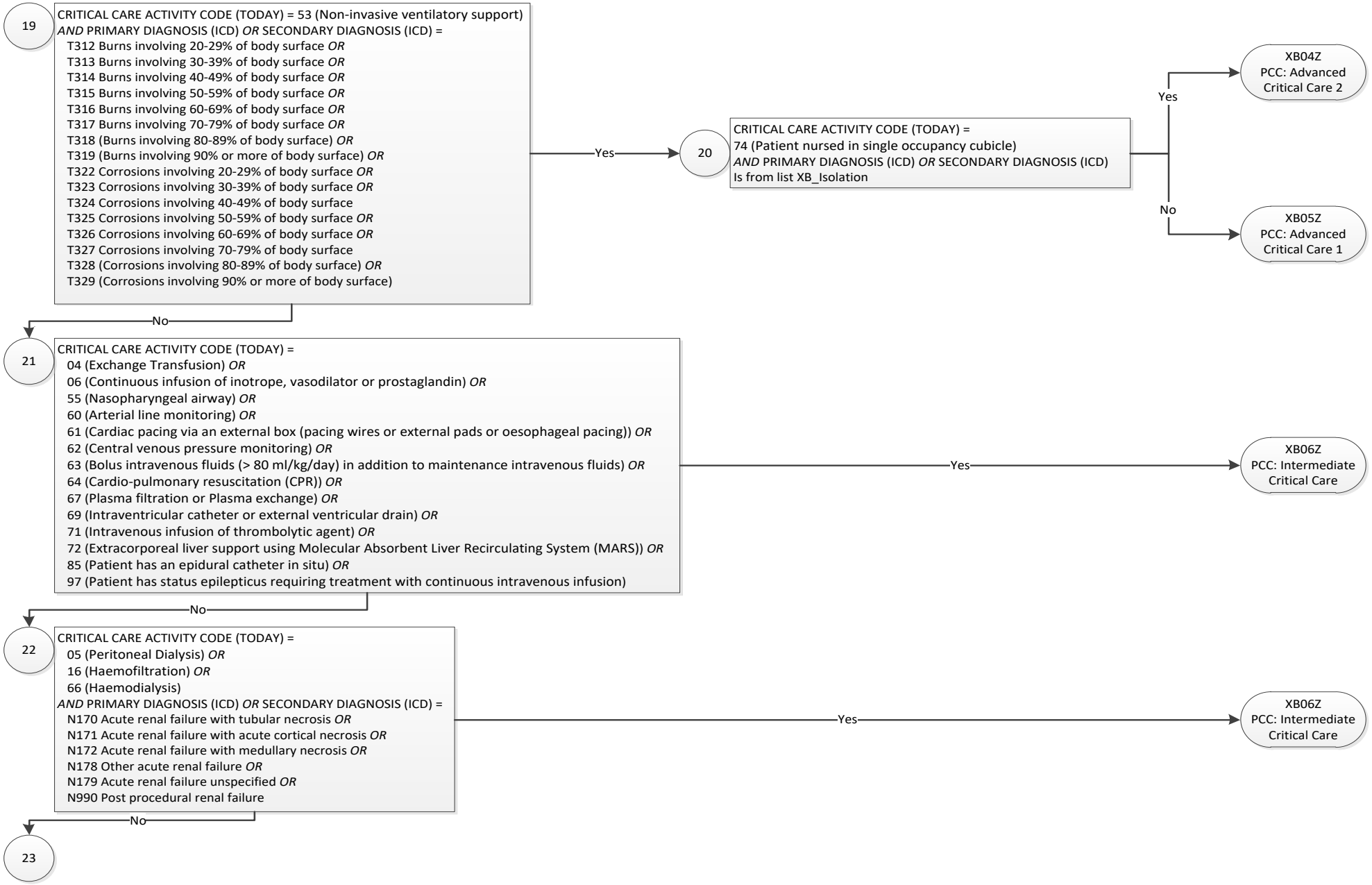
Case D: A patient with renal hypoplasia who develops adenoviral pneumonia is admitted to a single occupancy cubicle in the paediatric critical care unit. This illustrates how both the diagnosis and CCAC affect the HRG derived.

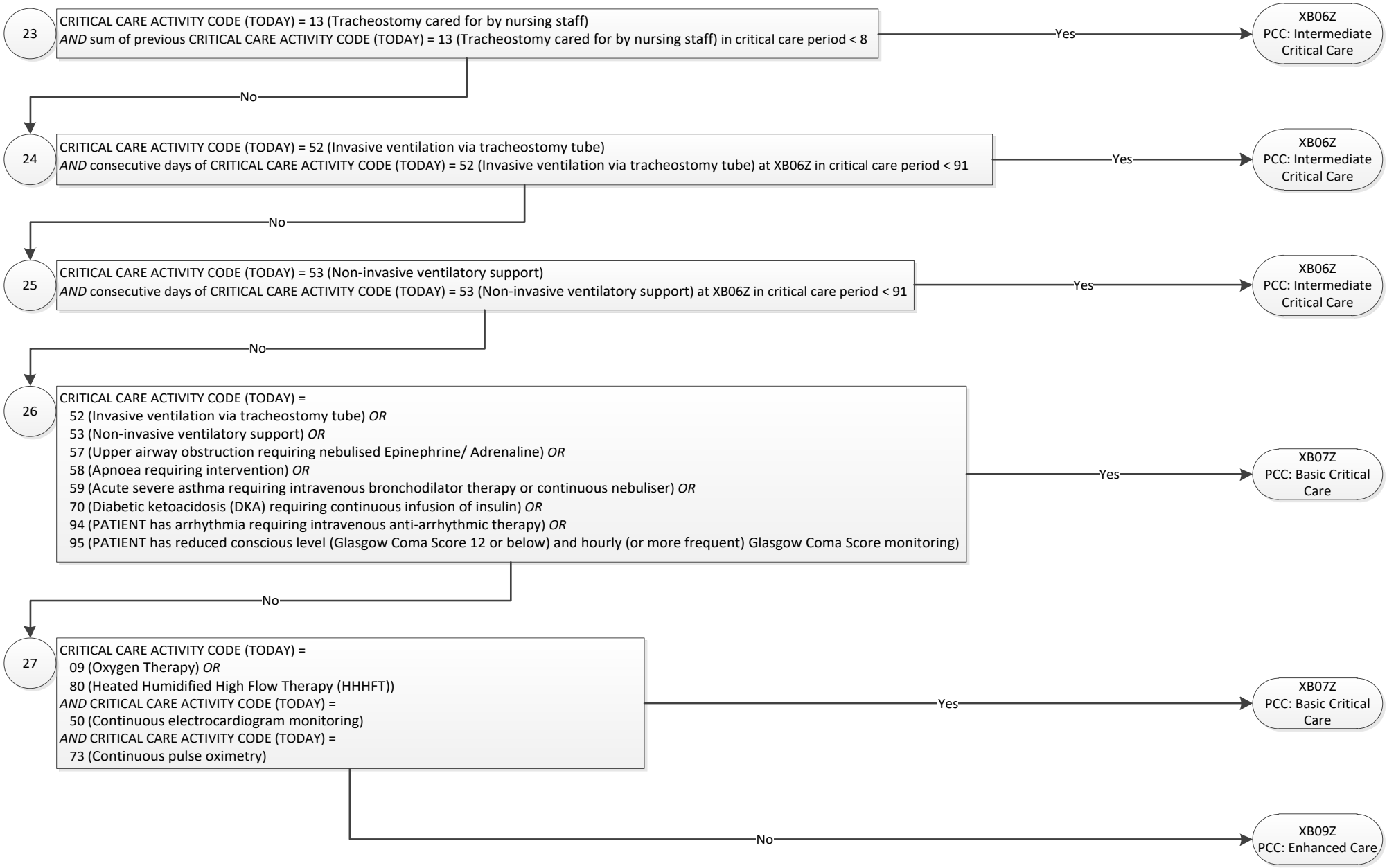
D	04 (Paediatric Intensive Care Unit)	10	1 (Patient discharged on clinical advice or with clinical consent)	51 Invasive ventilation via endotracheal tube	05 Peritoneal dialysis + 74 Patient nursed on single occupancy cubicle	Q60.5 + J12.0	Renal hypoplasia, unspecified + Adenoviral pneumonia	XB02Z	Paediatric Critical Care, Advanced Critical Care 4











Subchapter XB: Appendix E: List XB_ISOLATION

ICD-10 code	Description
A000	Cholera due to Vibrio cholerae 01, biovar cholerae
A001	Cholera due to Vibrio cholerae 01, biovar eltor
A009	Cholera, unspecified
A010	Typhoid fever
A011	Paratyphoid fever A
A012	Paratyphoid fever B
A013	Paratyphoid fever C
A014	Paratyphoid fever, unspecified
A020	Salmonella enteritis
A021	Salmonella sepsis
A022	Localized salmonella infections
A030	Shigellosis due to Shigella dysenteriae
A031	Shigellosis due to Shigella flexneri
A032	Shigellosis due to Shigella boydii
A033	Shigellosis due to Shigella sonnei
A038	Other shigellosis
A039	Shigellosis, unspecified
A043	Enterohaemorrhagic Escherichia coli infection
A045	Campylobacter enteritis
A047	Enterocolitis due to Clostridium difficile
A072	Cryptosporidiosis
A080	Rotaviral enteritis
A081	Acute gastroenteropathy due to Norwalk agent
A082	Adenoviral enteritis
A083	Other viral enteritis
A084	Viral intestinal infection, unspecified
A090	Other and unspecified gastroenteritis and colitis of infectious origin
A099	Gastroenteritis and colitis of unspecified origin
A150	Tuberculosis of lung, confirmed by sputum microscopy with or without culture
A151	Tuberculosis of lung, confirmed by culture only
A152	Tuberculosis of lung, confirmed histologically
A153	Tuberculosis of lung, confirmed by unspecified means
A154	Tuberculosis of intrathoracic lymph nodes, confirmed bacteriologically and histologically
A155	Tuberculosis of larynx, trachea and bronchus, confirmed bacteriologically and histologically
A156	Tuberculous pleurisy, confirmed bacteriologically and histologically
A157	Primary respiratory tuberculosis, confirmed bacteriologically and histologically
A158	Other respiratory tuberculosis, confirmed bacteriologically and histologically
A159	Respiratory tuberculosis unspecified, confirmed bacteriologically and histologically
A170	Tuberculous meningitis
A192	Acute miliary tuberculosis, unspecified
A360	Pharyngeal diphtheria
A361	Nasopharyngeal diphtheria
A362	Laryngeal diphtheria
A363	Cutaneous diphtheria
A368	Other diphtheria

ICD-10 code	Description
A369	Diphtheria, unspecified
A370	Whooping cough due to Bordetella pertussis
A371	Whooping cough due to Bordetella parapertussis
A378	Whooping cough due to other Bordetella species
A379	Whooping cough, unspecified
A38X	Scarlet fever
A390	Meningococcal meningitis
A392	Acute meningococcaemia
A394	Meningococcaemia, unspecified
A399	Meningococcal infection, unspecified
A871	Adenoviral meningitis
A984	Ebola virus disease
B000	Eczema herpeticum
B001	Herpesviral vesicular dermatitis
B002	Herpesviral gingivostomatitis and pharyngotonsillitis
B003	Herpesviral meningitis
B004	Herpesviral encephalitis
B005	Herpesviral ocular disease
B007	Disseminated herpesviral disease
B008	Other forms of herpesviral infection
B009	Herpesviral infection, unspecified
B010	Varicella meningitis
B011	Varicella encephalitis
B012	Varicella pneumonia
B018	Varicella with other complications
B019	Varicella without complication
B020	Zoster encephalitis
B021	Zoster meningitis
B022	Zoster with other nervous system involvement
B023	Zoster ocular disease
B027	Disseminated zoster
B028	Zoster with other complications
B029	Zoster without complication
B050	Measles complicated by encephalitis
B051	Measles complicated by meningitis
B052	Measles complicated by pneumonia
B053	Measles complicated by otitis media
B054	Measles with intestinal complications
B058	Measles with other complications
B059	Measles without complication
B150	Hepatitis A with hepatic coma
B159	Hepatitis A without hepatic coma
B172	Acute hepatitis E
B200	HIV disease resulting in mycobacterial infection
B201	HIV disease resulting in other bacterial infections
B202	HIV disease resulting in cytomegaloviral disease
B203	HIV disease resulting in other viral infections

ICD-10 code	Description
B204	HIV disease resulting in candidiasis
B205	HIV disease resulting in other mycoses
B206	HIV disease resulting in Pneumocystis jirovecii pneumonia
B207	HIV disease resulting in multiple infections
B208	HIV disease resulting in other infectious and parasitic diseases
B209	HIV disease resulting in unspecified infectious or parasitic disease
B230	Acute HIV infection syndrome
B24X	Unspecified human immunodeficiency virus [HIV] disease
B260	Mumps orchitis
B261	Mumps meningitis
B262	Mumps encephalitis
B263	Mumps pancreatitis
B268	Mumps with other complications
B269	Mumps without complication
B300	Keratoconjunctivitis due to adenovirus
B301	Conjunctivitis due to adenovirus
B440	Invasive pulmonary aspergillosis
B441	Other pulmonary aspergillosis
B442	Tonsillar aspergillosis
B447	Disseminated aspergillosis
B448	Other forms of aspergillosis
B449	Aspergillosis, unspecified
B970	Adenovirus as the cause of diseases classified to other chapters
B974	Respiratory syncytial virus as the cause of diseases classified to other chapters
D70X	Agranulocytosis
D810	Severe combined immunodeficiency [SCID] with reticular dysgenesis
D811	Severe combined immunodeficiency [SCID] with low T- and B-cell numbers
D812	Severe combined immunodeficiency [SCID] with low or normal B-cell numbers
D848	Other specified immunodeficiencies
J100	Influenza with pneumonia, seasonal influenza virus identified
J101	Influenza with other respiratory manifestations, seasonal influenza virus identified
J120	Adenoviral pneumonia
J121	Respiratory syncytial virus pneumonia
J122	Parainfluenza virus pneumonia
J152	Pneumonia due to staphylococcus
J158	Other bacterial pneumonia
J204	Acute bronchitis due to parainfluenza virus
J205	Acute bronchitis due to respiratory syncytial virus
J210	Acute bronchiolitis due to respiratory syncytial virus
J218	Acute bronchiolitis due to other specified organisms
J219	Acute bronchiolitis, unspecified
L123	Acquired epidermolysis bullosa
L511	Bullous erythema multiforme
L512	Toxic epidermal necrolysis [Lyell]
T312	Burns involving 20-29% of body surface
T313	Burns involving 30-39% of body surface
T314	Burns involving 40-49% of body surface

ICD-10 code	Description
T315	Burns involving 50-59% of body surface
T316	Burns involving 60-69% of body surface
T317	Burns involving 70-79% of body surface
T318	Burns involving 80-89% of body surface
T319	Burns involving 90% or more of body surface
T322	Corrosions involving 20-29% of body surface
T323	Corrosions involving 30-39% of body surface
T324	Corrosions involving 40-49% of body surface
T325	Corrosions involving 50-59% of body surface
T326	Corrosions involving 60-69% of body surface
T327	Corrosions involving 70-79% of body surface
T328	Corrosions involving 80-89% of body surface
T329	Corrosions involving 90% or more of body surface
T860	Bone-marrow transplant rejection
U049	Severe acute respiratory syndrome [SARS], unspecified
U821	Resistance to methicillin
U822	Extended spectrum betalactamase (ESBL) resistance
U828	Resistance to other betalactam antibiotics
U829	Resistance to betalactam antibiotics, unspecified
U830	Resistance to vancomycin
U837	Resistance to multiple antibiotics
U838	Resistance to other single specified antibiotic
U841	Resistance to antifungal drug(s)
U842	Resistance to antiviral drug(s)
U843	Resistance to tuberculostatic drug(s)
U847	Resistance to multiple antimicrobial drugs
Z943	Heart and lungs transplant status
Z944 with Z940	Liver transplant status with Kidney transplant status
Z944 with Z948	Liver transplant status with Other transplanted organ and tissue status
A400 with M726*	Sepsis due to streptococcus, group A with Necrotizing fasciitis

“*”Fifth character code

Subchapter XC – Adult Critical Care

Subchapter **XC Adult Critical Care** includes unbundled HRGs and covers adult critical care services. Other critical care services are addressed in Subchapters **XA Neonatal Critical Care** and **XB Paediatric Critical Care**.

Subchapter XC comprises HRGs specific to the numbers of organs the patient needs supported – from 0 to 6+ – and the HRGs are generated from information within the Critical Care Minimum Data Set.

The adult critical care HRGs are unbundled from the rest of the patient episode. The HRGs are based on the data in the Critical Care Minimum Data Set and differentiate on the level of support required by the patient, which is determined by the number of organ systems supported.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	7	7
Total HRG Roots	7	7
Procedure-driven HRGs	0	0
Diagnosis-driven HRGs	0	0
Age Splits	N/A	N/A
Complications and Comorbidities Splits	N/A	N/A
Intervention Splits	N/A	N/A
Multiple Procedures	N/A	N/A
Procedure Combination Codes	N/A	N/A
Diagnosis-qualified	N/A	N/A
Subsidiary Procedure-qualified	N/A	N/A
Length of Stay-qualified	N/A	N/A

Adult critical care HRGs are generated per Critical Care Period, i.e. one (maximum) HRG is generated for each Critical Care Period and not on a per diem basis, although Grouper output will also identify the numbers of days of each critical care period.

In addition to the Critical Care Unit Function Field, the following additional fields from the Critical Care MDS are used in the derivation of these HRGs. These fields are related to the organ support groups.

- Advanced Respiratory Support Days
- Basic Respiratory Support Days
- Advanced Cardiovascular Support Days
- Basic Cardiovascular Support Days
- Renal Support Days
- Neurological Support Days
- Dermatological Support Days
- Liver Support Days

Gastrointestinal support days do not contribute to the derivation of critical care HRGs, on clinical advice. The expected cost of providing this support is subsumed within other organ support groups.

Note that the field “Organ Support Maximum” is not used in grouping; the number of organ systems supported is calculated based on the existence of support days for each of the organ systems.

In addition to the fields listed above, the grouper requires Critical Care Start Date and Critical Care Discharge Date in the input data. These are used to calculate critical care days in the grouper output file. They are not used in HRG derivation.

Please see the grouping algorithm flowchart at the end of the subchapter summary for this subchapter for further information.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

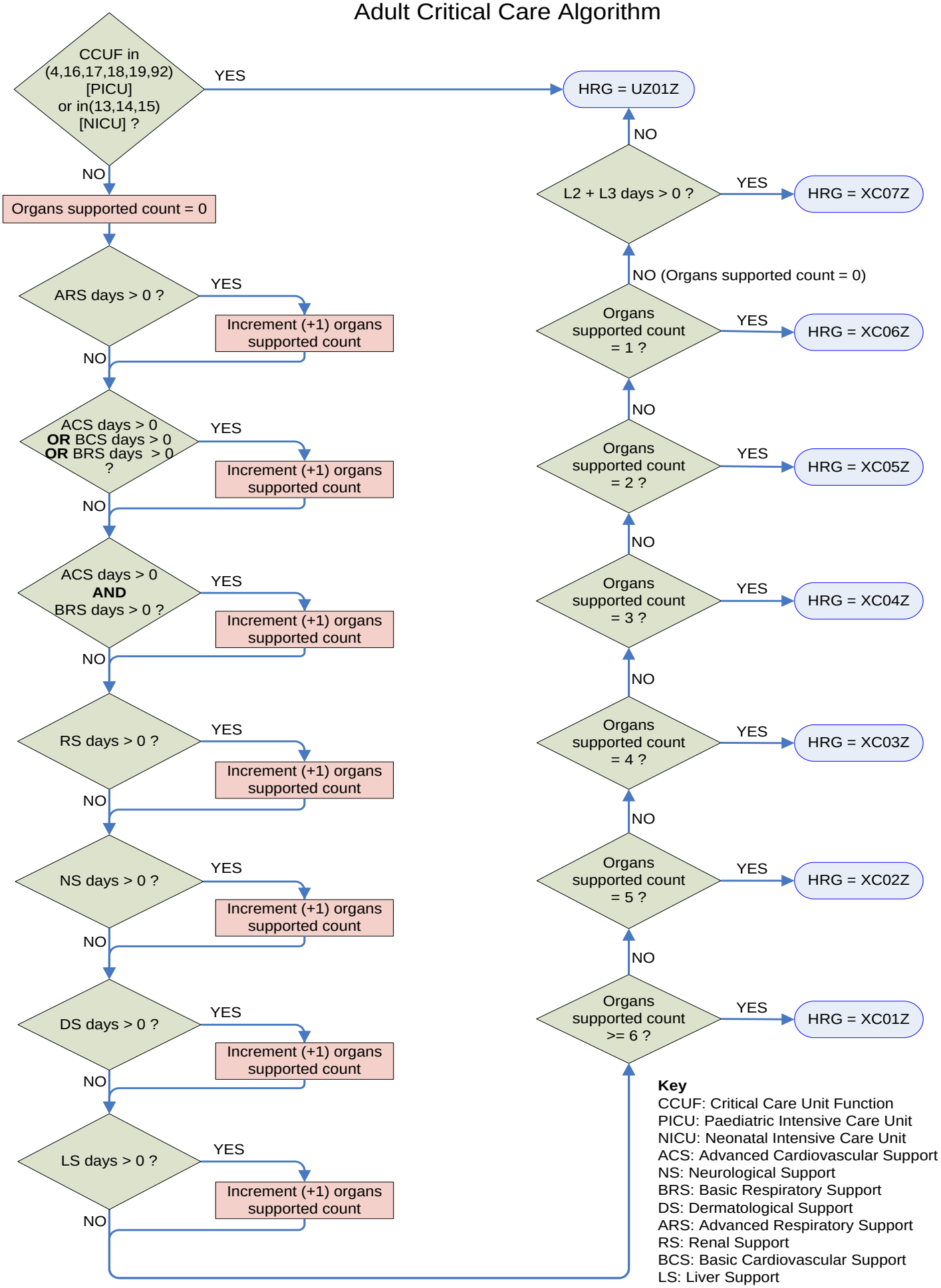
No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter XC: Worked Examples

Advanced Respiratory Support days	Basic Respiratory Support days	Advanced Cardiovascular support days	Basic Cardiovascular support days	Renal Support days	Neurological Support days	Dermatological Support days	Liver Support days	L2 Days	L3 Days	CC Start date	CC Discharge Date	Unit Function	Length of Stay	HRG4+	Comment
Case A illustrates a patient having basic and advanced respiratory support.															
1	1	0	0	0	0	0	0	1	1	01 Jan 16	02 Jan 16	1	2	XC05Z	Two organ systems supported
Case B illustrates a patient having basic and advanced respiratory support plus basic and advanced cardiovascular support.															
5	10	4	4	0	0	0	0	10	5	01 Jan 16	15 Jan 16	2	15	XC04Z	Three organ systems supported
Case C illustrates a patient having basic and advanced respiratory support plus liver support.															
2	1	0	0	0	0	0	1	0	3	01 Jan 16	03 Jan 16	2	3	XC04Z	Three organ systems supported

Advanced Respiratory Support days	Basic Respiratory Support days	Advanced Cardiovascular support days	Basic Cardiovascular support days	Renal Support days	Neurological Support days	Dermatological Support days	Liver Support days	L2 Days	L3 Days	CC Start date	CC Discharge Date	Unit Function	Length of Stay	HRG4+	Comment
Case D illustrates a patient having basic and advanced cardiovascular support.															
0	0	5	5	0	0	0	0	10	0	01 Jan 16	10 Jan 16	1	10	XC06Z	One organ system supported
Case E illustrates a patient with no organ systems supported and neither Level 2 nor Level 3 care.															
0	0	0	0	0	0	0	0	0	0	01 Jan 16	05 Jan 16	1	5	UZ01Z	Data Invalid for Grouping
Case F illustrates a patient with no organ systems support days and Level 2 care.															
0	0	0	0	0	0	0	0	1	0	01 Jan 16	05 Jan 16	5	5	XC07Z	No organ systems supported

Adult Critical Care Algorithm



Subchapter XD – High Cost Drugs

Subchapter **XD High Cost Drugs** comprises unbundled HRGs for select high cost drugs across all body systems, for patients of all ages.

The list of named high cost drugs was created by the Payment by Results team within the Department of Health (now NHS England and NHS Improvement pricing teams) in conjunction with advice from the High Cost Drugs Steering Group.

In Subchapter XD, there is a one-to-one mapping of high cost drug OPCS-4 codes to a high cost drug HRG.

Where multiple high cost drugs are recorded, multiple high cost drug HRGs will be generated, since one unbundled HRG is generated for each distinct high cost drug code recorded in the patient record.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**58**	**58**
Total HRG Roots	**58**	**58**
Procedure-driven HRGs	58	58
Diagnosis-driven HRGs	0	0
Age Splits	N/A	N/A
Complications and Comorbidities Splits	N/A	N/A
Intervention Splits	N/A	N/A
Multiple Procedures	N/A	N/A
Procedure Combination Codes	N/A	N/A
Diagnosis-qualified	N/A	N/A
Subsidiary Procedure-qualified	N/A	N/A
Length of Stay-qualified	N/A	N/A

Multiple doses of the same drug will only generate one unbundled high cost drug HRG, however, because the current HRG4+ design cannot consider dosage due to a lack of such information in the underlying OPCS-4 codes or other data fields within the Commissioning Data Sets (CDS).

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter YA – Neurological Imaging Interventions

Subchapter **YA Neurological Imaging Interventions** covers neurological imaging interventions for patients of all ages. It includes activity undertaken in inpatient, day case and non-admitted care settings.

This activity is separate from the neurosurgery procedures mapped to Subchapter **AA Nervous System Procedures and Disorders** and from the other non-vascular imaging interventions found in the other subchapters within Chapter **Y Vascular Procedures and Disorders and Imaging Interventions**.

The HRGs in this subchapter are specific to the type of intracranial and extracranial imaging intervention performed.

They also differentiate between categories of embolisation based on size and complexity, and they take into account where multiple procedures have been performed and whether the treatment was for an arteriovenous malformation.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	11	11
Total HRG Roots	8	8
Procedure-driven HRGs	11	11
Diagnosis-driven HRGs	0	0
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	Yes	Yes
Procedure Combination Codes	Yes	Yes
Diagnosis-qualified	Yes	Yes
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	Yes	Yes

Interactive CC splits are employed within two of the HRG roots in this subchapter – up to a maximum of three levels – to more appropriately differentiate expected resource usage between routine and complex patients.

YA11Z Percutaneous Transluminal Arteriography, of Intracranial or Extracranial Blood Vessel employs maximum length of stay logic to ensure that relatively minor procedures such as cerebral angiography are not used to determine the HRG for a long stay medical patient, e.g. a person who has suffered a stroke.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter YC – Neck Imaging Interventions

Subchapter **YC Neck Imaging Interventions** covers neck imaging interventions for patients of all ages. It includes activity undertaken in inpatient, day case and non-admitted care settings.

This activity is separate from the open and endoscopic neck procedures mapped to Subchapters **CA Ear, Nose, Mouth, Throat and Neck Procedures** and **KA Endocrine System Disorders** and from the other non-vascular imaging interventions found in other subchapters within Chapter **Y Vascular Procedures and Disorders and Imaging Interventions**.

The HRGs in this subchapter are specific to the type of neck imaging intervention performed and consist of HRGs for image guided biopsies, aspirations and therapeutic procedures, respectively.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**3**	**3**
Total HRG Roots	**3**	**3**
Procedure-driven HRGs	3	3
Diagnosis-driven HRGs	0	0
Age Splits	No	No
Complications and Comorbidities Splits	No	No
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	Yes	Yes
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	Yes	Yes
Length of Stay-qualified	Yes	Yes

The majority of procedures that map to this subchapter are either classified using a combination code consisting of an OPCS-4 procedure code followed by a subsidiary code indiciating the procedure was performed under image control, or they have logic applied that checks whether the procedure was recorded with a subsidiary code indicating image control.

With the exception of **YC10Z Percutaneous Therapeutic Neck Procedures**, all of the HRGs within this subchapter employ maximum length of stay logic to ensure that relatively minor procedures such as thoracentesis are not used to determine the HRG for a long stay medical patient, e.g. a person who has tuberculosis.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter YD – Thoracic Imaging Interventions

Subchapter **YD Thoracic Imaging Interventions** covers thoracic imaging interventions for patients of all ages. It includes activity undertaken in inpatient, day case and non-admitted care settings.

This activity is separate from the open and endoscopic thoracic procedures mapped to Subchapter **DZ Respiratory System Procedures and Disorders** and from the other non-vascular imaging interventions found in other subchapters within Chapter **Y Vascular Procedures and Disorders and Imaging Interventions**.

The HRGs in this subchapter are specific to the type of thoracic imaging intervention performed and consist of HRGs specific to thoracic ablative procedures, biopsy, drainage interventions and aspiration interventions, respectively.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**5**	**5**
Total HRG Roots	**5**	**5**
Procedure-driven HRGs	5	5
Diagnosis-driven HRGs	0	0
Age Splits	No	No
Complications and Comorbidities Splits	No	No
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	Yes	Yes
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	Yes	Yes

With the exception of **YD01Z Percutaneous Ablation of Lesion of Respiratory Tract**, all of the HRGs within this subchapter employ maximum length of stay logic to ensure that relatively minor procedures such as thoracentesis are not used to determine the HRG for a long stay medical patient, e.g. a person who has tuberculosis.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter YF – Gastrointestinal Imaging Interventions

Subchapter **YF Gastrointestinal Imaging Interventions** covers gastrointestinal imaging interventions for patients of all ages. It includes activity undertaken in inpatient, day case and non-admitted care settings.

This activity is separate from the open and endoscopic digestive system procedures mapped to Subchapters **FF Digestive System Procedures and Disorders** and **FE Digestive System Endoscopic Procedures** and from the other non-vascular imaging interventions found in the other subchapters within Chapter **Y Vascular Procedures and Disorders and Imaging Interventions**.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**9**	**9**
Total HRG Roots	**5**	**5**
Procedure-driven HRGs	9	9
Diagnosis-driven HRGs	0	0
Age Splits	Yes	Yes
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	Yes	Yes
Procedure Combination Codes	Yes	Yes
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	Yes	Yes
Length of Stay-qualified	Yes	Yes

The HRGs in this subchapter are specific to the type of gastrointestinal imaging intervention performed. There are HRGs for the insertion of gastrostomy and jejunostomy tubes, respectively, and others for the drainage of abdominal abscesses. There is also an HRG for biopsy of the abdominal cavity.

Interactive CC splits are employed within two HRG roots in this subchapter – up to a maximum of three levels – to more appropriately differentiate expected resource usage between routine and complex patients.

The drainage of abdominal abscess HRGs employ multiple-procedure logic to take into account the additional expected resource usage associated with patients that undergo multiple drainage interventions.

The insertion of gastrostomy and jejunostomy HRGs and the abdominal biopsy HRG within this subchapter employ maximum length of stay logic to ensure that these relatively minor procedures are not used to determine the HRG for a long stay medical patient, e.g. a person who has Crohn’s disease.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter YG – Hepatobiliary and Pancreatic Imaging Interventions

Subchapter **YG Hepatobiliary and Pancreatic Imaging Interventions** covers hepatobiliary and pancreatic imaging interventions for patients of all ages. It includes activity undertaken in inpatient, day case and non-admitted care settings.

This activity is separate from the open and endoscopic hepatobiliary and pancreatic procedures mapped to Subchapters **GA Hepatobiliary and Pancreatic System Open Procedures** and **GB Hepatobiliary and Pancreatic System Endoscopic Procedures**, respectively, and from the other non-vascular imaging interventions found in the other subchapters within Chapter **Y Vascular Procedures and Disorders and Imaging Interventions**.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**16**	**16**
Total HRG Roots	**10**	**10**
Procedure-driven HRGs	16	16
Diagnosis-driven HRGs	0	0
Age Splits	Yes	Yes
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	Yes	Yes
Procedure Combination Codes	Yes	Yes
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	Yes	Yes
Length of Stay-qualified	Yes	Yes

The HRGs in this subchapter are specific to the type of hepatobiliary and pancreatic imaging intervention performed. There are HRGs for ablative procedures, the insertion of stents, drainage procedures and biopsies, respectively.

HRG root **YG11 Percutaneous Punch Biopsy of Lesion of Liver** includes an age split to separate paediatric activity (18 years and under) from adult activity (19 years and over).

Interactive CC splits are employed within two HRG roots in this subchapter – up to a maximum of two levels – to more appropriately differentiate expected resource usage between routine and complex patients.

The insertion of stent and drainage HRGs employ multiple-procedure logic to take into account the additional expected resource usage associated with patients that have multiple stents inserted or undergo stent insertion with drainage. The stent HRGs also differentiate on the type of stent inserted, i.e. standard or metal.

Several HRGs within this subchapter employ maximum length of stay logic to ensure that relatively minor procedures such as biopsies are not used to determine the HRG for a long stay medical patient, e.g. a person with liver failure.

Differences from the HRG4+ 2016/17 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter YH – Musculoskeletal Imaging Interventions

Subchapter **YH Musculoskeletal Imaging Interventions** covers musculoskeletal imaging interventions for patients of all ages. It includes activity undertaken in inpatient, day case and non-admitted care settings. However, it does not include any activity included in a Pain Management Programme found within Subchapter **AB Pain Management**.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**11**	**11**
Total HRG Roots	**8**	**8**
Procedure-driven HRGs	11	11
Diagnosis-driven HRGs	0	0
Age Splits	Yes	Yes
Complications and Comorbidities Splits	No	No
Intervention Splits	No	No
Multiple Procedures	No	No
Procedure Combination Codes	Yes	Yes
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	No	No
Length of Stay-qualified	Yes	Yes

The activity mapped to this subchapter is separate from the spinal and orthopaedic procedures mapped to Chapter **H Musculoskeletal System** and from the other non-vascular imaging interventions found in the other subchapters within Chapter **Y Vascular Procedures and Disorders and Imaging Interventions**.

The HRGs in this subchapter are specific to the type of musculoskeletal imaging intervention performed. There are HRGs for ablative procedures, vertebroplasty, aspiration interventions and biopsies, respectively.

The vertebroplasty HRGs are differentiated based on levels of spine – one; two; or three or more levels.

With the exception of the vertebroplasty and ablative procedure HRGs, all HRGs within this subchapter employ maximum length of stay logic to ensure that relatively minor procedures such as biopsies are not used to determine the HRG for a long stay medical patient, e.g. a person who has metastatic bone cancer.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter YJ – Breast Imaging Interventions

Subchapter **YJ Breast Imaging Interventions** covers breast imaging interventions for patients of all ages. It includes activity undertaken in inpatient, day case and non-admitted care settings.

This activity is separate from the open breast procedures mapped to Subchapter **JA Breast Procedures and Disorders** and from the other non-vascular imaging interventions found in the other subchapters within Chapter **Y Vascular Procedures and Disorders and Imaging Interventions**.

The HRGs are specific to the type of breast imaging intervention performed and include HRGs specific to various types of biopsies and aspirations.

Some HRGs in this subchapter employ multiple-procedure logic to take into account the additional resource usage associated with patients that undergo multiple biopsies or aspirations, and bilateral interventions.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**9**	**9**
Total HRG Roots	**9**	**9**
Procedure-driven HRGs	9	9
Diagnosis-driven HRGs	0	0
Age Splits	No	No
Complications and Comorbidities Splits	No	No
Intervention Splits	No	No
Multiple Procedures	Yes	Yes
Procedure Combination Codes	Yes	Yes
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	Yes	Yes
Length of Stay-qualified	Yes	Yes

The core needle biopsy HRGs are differentiated by approach type –ultrasound guided or stereotactic – using subsidiary procedure codes.

All HRGs within this subchapter have maximum length of stay logic to ensure that relatively minor procedures such as biopsies are not used to determine the HRG for a long stay medical patient, e.g. a person who has metastatic breast cancer.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter YL – Urological Imaging Interventions

Subchapter **YL Urological Imaging Interventions** covers urological interventions for patients of all ages. It includes activity undertaken in inpatient, day case and non-admitted care settings.

This activity is separate from the open urological procedures mapped to Subchapter **LB Urological and Male Reproductive System Procedures and Disorders** and from the other non-vascular imaging interventions found in the other subchapters within Chapter **Y Vascular Procedures and Disorders and Imaging Interventions**.

The HRGs within this subchapter are specific to the type of urological imaging intervention performed. There are HRGs for biopsies and ablative procedures as well as those for insertion of stent and nephrostomy procedures.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**9**	**9**
Total HRG Roots	**8**	**8**
Procedure-driven HRGs	9	9
Diagnosis-driven HRGs	0	0
Age Splits	Yes	Yes
Complications and Comorbidities Splits	No	No
Intervention Splits	No	No
Multiple Procedures	Yes	Yes
Procedure Combination Codes	Yes	Yes
Diagnosis-qualified	No	No
Subsidiary Procedure-qualified	Yes	Yes
Length of Stay-qualified	Yes	Yes

The insertion of stent and nephrostomy HRGs employ multiple-procedure logic to take account of the additional expected resource usage of patients that have multiple stents inserted or undergo multiple drainage interventions, including bilateral procedures.

HRG root **YL20 Percutaneous Needle Biopsy of Lesion of Kidney** includes an age split to separate paediatric activity (18 years and under) from adult activity (19 years and over).

With the exception of the ablative procedure HRGs, all HRGs within this subchapter employ maximum length of stay logic to ensure that relatively minor procedures such as insertion of nephrostomy are not used to determine the HRG for a long stay medical patient, e.g. a person who has chronic kidney disease.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

Remapping of OPCS-4 codes to more appropriately reflect resource usage

Combination codes ***M70,8+Y12.3 Irreversible electroporation of lesion of outlet of male bladder*** and ***M70.8+Y13.6 Irreversible electroporation of lesion of outlet of male bladder*** have been created as per NICE guidance to classify irreversible electroporation of prostate and classify vascular targeted photodynamic therapy of prostate, respectively, and mapped to HRG root **YL30 Percutaneous Ablation of Lesion of Prostate**.

Subchapter YQ – Vascular Open Procedures and Disorders

Subchapter **YQ Vascular Open Procedures and Disorders** covers vascular open procedures for patients of all ages and adult disorders. It includes activity undertaken in inpatient, day case and non-admitted care settings.

This activity is separate from the interventions that map to **YR Vascular Imaging Interventions**.

All diagnosis-driven activity relating to the treatment of children (aged 18 years and under) groups to an HRG in **Chapter P Diseases of Childhood and Neonates**, in line with the requirements of the Casemix Design Framework.

The HRGs within this subchapter are split based on the site of the blood vessel, e.g. abdominal, lower limb, upper limb; however, there are also procedure-specific HRGs, e.g. for amputation procedures and varicose vein surgery.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	64	64
Total HRG Roots	29	29
Procedure-driven HRGs	53	53
Diagnosis-driven HRGs	11	11
Age Splits	No	No
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	Yes	Yes
Procedure Combination Codes	Yes	Yes
Diagnosis-qualified	Yes	Yes
Subsidiary Procedure-qualified	Yes	Yes
Length of Stay-qualified	Yes	Yes

There are two adult diagnosis-driven HRG roots within this subchapter, one specific to deep vein thrombosis (DVT) and another that covers all other peripheral vascular disease.

Interactive CC splits are employed within the majority of procedure-driven and diagnosis-driven HRGs within this subchapter – up to a maximum of six levels – to more appropriately differentiate expected resource usage between routine and complex patients.

Multiple-procedure logic is employed by the majority of procedure-driven HRGs in this subchapter to escalate activity to an HRG with a higher expected resource usage where significant additional procedures have been recorded in the patient record. Escalation to an HRG with a higher expected resource usage also occurs, where appropriate, if a procedure is revisional or undertaken bilaterally. In addition, logic is employed within the aortic repair HRGs to escalate activity from the standard HRGs to the complex HRGs where a diagnosis of aortic dissection or cardiovascular infection is recorded.

Some activity with a dominant procedure mapped to an HRG root in this subchapter will group to an HRG in another subchapter in certain scenarios, i.e. where an intervention affecting an arteriovenous shunt or fistula is undertaken under image control, activity will group to an HRG in Subchapter **YR Vascular Imaging Interventions**, where a procedure on an aorta or vena cava is performed on a child or to treat an adult with congenital heart disease, activity will group to an HRG in Subchapter **EC Open and Interventional Procedures for Congenital Heart Disease**.

Likewise, some activity with a dominant procedure mapped to an HRG root in another subchapter will group to an HRG in this subchapter in certain scenarios, i.e. where an abdominal aorta procedure is undertaken in addition to a repair of the thoracic aorta or aortic arch, activity will group to the thoracoabdominal repair HRGs within this subchapter (from Subchapter **ED Open Cardiac Procedures for Acquired Conditions**); where certain amputation or disarticulation of bone procedures are performed on a patient with a primary

diagnosis of vascular disorder, activity will group to an HRG in this subchapter rather than to an HRG in Subchapter **DZ Respiratory System Procedures and Disorders** or **HN Orthopaedic Non-Trauma Procedures**.

The minor procedure HRGs in this subchapter, e.g. varicose vein surgery and vascular access procedures, have maximum length of stay logic to ensure that minor procedures such as arteriovenous (AV) fistula insertion are not used to determine the HRG for a long stay medical patient, e.g. a person who has chronic kidney disease.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2018/19 Reference Costs Grouper when compared to the HRG4+ 2017/18 Reference Costs Grouper.

Subchapter YR – Vascular Imaging Interventions

Subchapter **YR Vascular Imaging Interventions** covers vascular imaging interventions for patients of all ages. It includes activity undertaken in inpatient, day case and non-admitted care settings.

This activity is separate from the open vascular procedures and non-vascular imaging interventions found in the other subchapters within Chapter **Y Vascular Procedures and Disorders and Imaging Interventions**.

This subchapter consists of HRGs specific to endovascular aortic aneurysm repair (EVAR), angioplasty and stenting, embolisation, varicose vein interventions, vascular access procedures and other percutaneous diagnostic or therapeutic vascular interventions.

Composition and Concepts		
	RC18/19	RC17/18
Total HRGs	**75**	**74**
Total HRG Roots	**43**	**42**
Procedure-driven HRGs	75	74
Diagnosis-driven HRGs	0	0
Age Splits	Yes	Yes
Complications and Comorbidities Splits	Yes	Yes
Intervention Splits	No	No
Multiple Procedures	Yes	Yes
Procedure Combination Codes	Yes	Yes
Diagnosis-qualified	Yes	Yes
Subsidiary Procedure-qualified	Yes	Yes
Length of Stay-qualified	Yes	Yes

Age splits are employed in several of the vascular access HRGs: there are specific HRGs for adult activity (19 years and over) and others for paediatric activity (18 years and under).

Interactive CC splits are employed within several of the therapeutic vascular imaging intervention HRG roots – up to a maximum of four levels – to more appropriately differentiate expected resource usage between routine and complex patients.

Multiple-procedure logic is employed by the majority of therapeutic HRGs in this subchapter. Escalation to an HRG with a higher expected resource use also occurs where certain types of stents or stent grafts are used, and where appropriate, if a procedure is undertaken bilaterally.

Activity with a dominant procedure code classifying an embolisation procedure may map to different HRGs depending on the primary diagnosis recorded, e.g. where recorded with a primary diagnosis of arteriovenous malformation, hyperplasia of prostate or anerysm.

Some activity with a dominant procedure mapped to an HRG root in another subchapter will group to an HRG in this subchapter in certain scenarios, i.e. where an intervention affecting an arteriovenous shunt or fistula is undertaken under image control, activity will group to an HRG in this subchapter (from Subchapter **YQ Vascular Open Procedures and Disorders**).

The minor procedure HRGs, e.g. varicose vein interventions, vascular access procedures and diagnostic imaging interventions, have maximum length of stay logic to ensure that minor procedures such as CV catheter insertion are not used to determine the HRG for a long stay medical patient, e.g. a person who is receiving treatment for cancer.

Differences from the HRG4+ 2017/18 Reference Costs Grouper

HRGs have been created

Procedure-specific HRG **YR59Z Prostate Artery Embolisation** has been created according to NICE guidance to identify prostate artery embolisation for lower urinary tract symptoms caused by benign prostatic hyperplasia.

Changes made to list membership

OPCS-4 code ***L26.8 Other specified transluminal operations on aorta*** has been added to list **YR_Complex_EVAR** to enable escalation of EVAR where endostapling is recorded in the patient record.

The Documentation Suite

Below is a list of the various documents which are available to download from the National Casemix Office website: https://digital.nhs.uk/services/national-casemix-office/downloads-groupers-and-tools.

This documentation suite provides a comprehensive resource intended to help users understand HRG design concepts and logic as well as use the Grouper.

- The **Casemix Companion** is a starting point and general reference guide for anyone interested in learning about the casemix classification system used by the NHS in England. This document provides an introduction to HRGs, groupers, HRG4+ design concepts and grouping logic, and it contains links to additional resources.
- The **Grouper User Manual** provides instructions on how to prepare and group data using the Grouper software application. Sample data with expected results is provided. This document is updated with each grouper release.
- The **Summary of Changes** document provides an overview of the main differences between the current grouper design and its relevant predecessor.
- The **Chapter Summaries** document provides an overview of the scope, composition and relevant grouping logic of individual HRG subchapters, and it highlights significant changes made in the latest HRG design.
- The **Code to Group Workbook** is an Excel workbook that embodies the casemix design. It provides details of the constituent elements that contribute to HRG grouping, and it contains reference data such as the ICD-10 and OPCS-4 codes utilised in the design, the procedure and diagnosis hierarchies pertinent to a specific design, and the Complication and Comorbidities (CC) lists for HRG subchapters. The workbook also includes information on Programme Budgeting Category (PBC) mapping as well as a comprehensive list of HRG codes and labels.
- The **Trimpoints Workbook** identifies the episode and spell-level trimpoints used to collect reference costs for each HRG in a given year. This workbook is published alongside the Trimpoint Methodology document.