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Chapter Summaries

HRG4+ 2020/21 National Costs Grouper

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Contents

Introduction 5
Subchapter AA – Nervous System Procedures and Disorders 10
Subchapter AB – Pain Management 13
Subchapter BZ – Eyes and Periorbita Procedures and Disorders 15
Subchapter CA – Ear, Nose, Mouth, Throat, Head and Neck Procedures 18
Subchapter CB – Ear, Nose, Mouth, Throat, Head and Neck Disorders 22
Subchapter CD – Dental and Orthodontic Procedures 23
Subchapter DX – COVID-19 Infection 25
Subchapter DZ – Respiratory System Procedures and Disorders 36
Subchapter EB – Cardiac Disorders 39
Subchapter EC – Open and Interventional Procedures for Congenital Heart Disease 40
Subchapter ED – Open Cardiac Procedures for Acquired Conditions 43
Subchapter EY – Interventional Cardiology for Acquired Conditions 45
Subchapter FD – Digestive System Disorders 49
Subchapter FE – Digestive System Endoscopic Procedures 50
Subchapter FF – Digestive System Open and Laparoscopic Procedures 52
Subchapter GA – Hepatobiliary and Pancreatic System Open and Laparoscopic Procedures 56
Subchapter GB – Hepatobiliary and Pancreatic System Endoscopic Procedures 58
Subchapter GC – Hepatobiliary and Pancreatic System Disorders 60
Subchapter HC – Spinal Procedures and Disorders 61
Subchapter HD – Musculoskeletal and Rheumatological Disorders 64
Subchapter HE – Orthopaedic Disorders 65
Subchapter HN – Orthopaedic Non-Trauma Procedures 66
Subchapter HT – Orthopaedic Trauma Procedures 70
Subchapter JA – Breast Procedures and Disorders 73
Subchapter JB – Burns Procedures and Disorders 76
Subchapter JC – Skin Procedures 87

Subchapter JD – Skin Disorders 89
Subchapter KA – Endocrine System Procedures and Disorders 90
Subchapter KB – Diabetic Medicine 92
Subchapter KC – Metabolic Disorders 93
Subchapter LA – Renal Procedures and Disorders 94
Subchapter LB – Urological and Male Reproductive System Procedures and Disorders 96
Subchapter LD – Renal Dialysis for Chronic Kidney Disease 100
Subchapter LE – Renal Dialysis for Acute Kidney Injury 114
Subchapter MA – Female Reproductive System Procedures 116
Subchapter MB – Female Reproductive System Disorders 118
Subchapter MC – Assisted Reproductive Medicine 119
Subchapter NZ – Obstetric Medicine 120
Subchapter PB – Neonatal Disorders 122
Subchapter PC – Paediatric Ear Nose and Throat Disorders 124
Subchapter PD – Paediatric Respiratory Disorders 125
Subchapter PE – Paediatric Cardiology Disorders 126
Subchapter PF – Paediatric Gastroenterology Disorders 127
Subchapter PG – Paediatric Hepatobiliary Disorders 128
Subchapter PH – Paediatric Rheumatology Disorders 129
Subchapter PJ – Paediatric Dermatology Disorders 130
Subchapter PK – Paediatric Diabetology, Endocrinology and Metabolic Disorders 131
Subchapter PL – Paediatric Renal Disorders 132
Subchapter PM – Paediatric Haematological-Oncology Disorders 133
Subchapter PN – Paediatric Non-Malignant Haematological Disorders 135
Subchapter PP – Paediatric Ophthalmic Disorders 136
Subchapter PQ – Paediatric Immune System Disorders 137
Subchapter PR – Paediatric Nervous System Disorders 138
Subchapter PT – Paediatric Mental Health Disorders 139
Subchapter PV – Paediatric Trauma Medicine 140
Subchapter PW – Paediatric Infectious Diseases 141
Subchapter PX – Paediatric Medicine 142

Subchapter RD – Diagnostic Imaging Procedures 144
Subchapter RN – Nuclear Medicine Procedures 146
Subchapter SA – Haematological Procedures and Disorders 147
Subchapter SB – Chemotherapy 148
Subchapter SC – Radiotherapy 153
Subchapter SD – Specialist Palliative Care 155
Subchapter UZ – Undefined Groups 159
Subchapter VA – Multiple Trauma 165
Subchapter VB – Emergency Medicine 172
Subchapter VC – Rehabilitation 179
Subchapter WD – Treatment of Mental Health Patients by Non-Mental Health Service Providers 180
Subchapter WF – Non-Admitted Consultations 181
Subchapter WH – Poisoning, Toxic Effects, Special Examinations, Screening and Other Healthcare Contacts 183
Subchapter WJ – Infectious Diseases and Immune System Disorders 186
Subchapter XA – Neonatal Critical Care 188
Subchapter XB – Paediatric Critical Care 193
Subchapter XC – Adult Critical Care 205
Subchapter XD – High Cost Drugs 210
Subchapter YA – Neurological Imaging Interventions 211
Subchapter YC – Head and Neck Imaging Interventions 213
Subchapter YD – Thoracic Imaging Interventions 216
Subchapter YF – Gastrointestinal Imaging Interventions 217
Subchapter YG – Hepatobiliary and Pancreatic Imaging Interventions 220
Subchapter YH – Musculoskeletal Imaging Interventions 222
Subchapter YJ – Breast Imaging Interventions 223
Subchapter YL – Urological Imaging Interventions 225
Subchapter YQ – Vascular Open Procedures and Disorders 227
Subchapter YR – Vascular Imaging Interventions 230
The Documentation Suite 233

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 costing design.

Unless otherwise specified, any comparison between HRG designs in this document refers to this, the latest HRG grouper design for costing purposes, the HRG4+ 2020/21 National Costs Grouper, and the last published Reference Costs grouper, the HRG4+ 2018/19 Reference Costs Grouper. In conjunction with NHS England and NHS Improvement, the National Casemix Office decided that the HRG4+ 2018/19 Reference Costs Grouper would be rolled forward for one year, to be used for financial year 2019/20. Therefore, the National Casemix Office did not create or publish a dedicated costing grouper for 2019/20.

As well as the changes highlighted in each subchapter summary, there are cross-chapter changes implemented in the HRG4+ 2020/21 National Costs Grouper 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.

New HRG Subchapter

In response to the COVID-19 pandemic and following changes in national clinical coding guidance published by the Clinical Classifications Service – issued in line with World Health Organisation (WHO) requirements – a new HRG subchapter, **DX COVID-19 Infection**, has been created. The subchapter includes six new HRGs for patients of all ages where a primary diagnosis of either test-positive or clinically determined COVID-19, and no significant procedure, has been recorded. Please see the section **Subchapter DX COVID-19 Infection** for more information on this change.

Updates to Classification Code Sets

Accommodation of OPCS-4.9

The HRG design has been updated to accommodate the latest version of the OPCS Classification of Interventions and Procedures (OPCS-4), OPCS-4.9, which came into effect 1 April 2020.

Five OPCS-4.8 codes have been retired as part of the OPCS-4.9 update, and 223 new codes have been authored. Each new code has been accommodated within the HRG design after careful consideration of the Clinical Classifications Service's OPCS-4.9 Table of Coding Equivalences (TOCE) – essentially a guide to the most likely OPCS-4.8 code(s) the activity classified by each new code would have historically been recorded against – and with clinical input from our National Casemix Office Expert Working Groups (EWGs).

In addition to amending the OPCS-4 code set, the Clinical Classifications Service has made changes to index trails, usage notes and the OPCS-4 National Clinical Coding Standards, and it has issued updated clinical coding guidance affecting both the new OPCS-4.9 codes and pre-existing codes. Where these changes impact on the HRG design, the design has been amended to ensure it complies with the latest clinical coding standards and guidance.

The following new OPCS-4.9 codes have been ignored for Casemix grouping purposes, meaning that they are not included in any grouping logic nor included on any list, except for the procedure hierarchy list (**ProcHier**), where they have each been assigned a value of 1. An OPCS-4 code is ignored for grouping either because it is too generic for appropriate HRG derivation or, where the code is specific, because it does not fit appropriately within the current HRG design structure.

OPCS-4.9 code	Description
C91.8	Other specified operations on anterior segment of eye
C91.9	Unspecified operations on anterior segment of eye
O35.1*	Attention to therapeutic joint spacer
U38.1	Saline suppression test
U41.1	Oral food provocation test
U41.2	Oral drug provocation test
U41.8	Other specified provocation test
U41.9	Unspecified provocation test
W17.6*	Traction lengthening of bone with intramedullary fixation
W71.5*	Open stem cell implantation into articular structure
W89.3*	Endoscopic stem cell implantation into articular cartilage

* These codes are not ignored for grouping, and for combination codes that are mapped appropriately, when recorded alongside an orthopaedic site code

As these new OPCS-4.9 codes have been ignored for Casemix grouping purposes, when one of these codes is recorded without a significant procedure (i.e. without an OPCS-4 code with a procedure hierarchy value of 5 or more) in an outpatient setting, a WF Outpatient Attendance HRG will be generated. In admitted patient care, if one of these codes is recorded without a significant procedure (i.e. without an OPCS-4 code with a procedure hierarchy value of 5 or more), a diagnosis-driven HRG will be derived for the episode/spell based on the clinically determined primary diagnosis.

Further details relating to the OPCS-4.9 accommodation can be found in the relevant subchapter summaries, but some changes that impact multiple subchapters include:

Deletion of paired code combination codes

After clarifying OPCS-4 clinical coding guidance relating to the sequencing of codes, it was determined that the paired code combination codes within the HRG design were not required. Consequently, 766 paired code combination codes, 133 related combination lists and 133 related documentation flags have been deleted from the HRG design. Paired code combination codes are constructed using two codes from the OPCS-4 body system chapters (Chapters A–T and V–W), as opposed to other combination codes, which are constructed using a code from a body system chapter followed by one or more subsidiary codes from Chapter **Y Subsidiary Classification of Methods of Operation** and/or Chapter **Z Subsidiary Classification of Sites of Operation**. Where appropriate, escalation lists and logic have been amended to ensure that the procedures previously classified by the deleted codes continue to contribute to HRG escalation.

Update of combination code descriptions

The code descriptions of nearly 100 combination codes have been amended to ensure each code's description accurately reflects the description of the individual OPCS-4 codes that make up that combination code. These changes are cosmetic and will not affect HRG grouping.

Updates to NICE Guidance

Over 200 National Institute for Health and Clinical Excellence (NICE) interventional procedures guidances (IPGs) were updated to reflect changes to the OPCS-4 classification made as part of the 4.9 update. These IPGs were reviewed to assess whether it was necessary to amend the HRG design to take into account changes in clinical coding. 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 updated NICE guidance, this is noted in the changes section of the relevant subchapter summary.

Accommodation of ICD-10 emergency use codes

The HRG design has been updated to accommodate the use of International Classification of Diseases, 10th Revision (ICD-10) emergency use codes.

The code description of each of the following emergency use codes has been updated in the HRG4+ 2020/21 National Costs Grouper to comply with changes in clinical coding guidance issued by the Clinical Classifications Service and in line with WHO requirements. The new code descriptions for these codes are as follows:

U06.9 Zika virus disease, unspecified
U07.0 Vaping-related disorder
U07.1 COVID-19, virus identified
U07.2 COVID-19, virus not identified
U07.3 Personal history of COVID-19
U07.4 Post COVID-19 condition
U07.5 Multisystem inflammatory syndrome associated with COVID-19
U07.6 Need for immunization against COVID-19
U07.7 COVID-19 vaccines causing adverse effects in therapeutic use

Following the changes in national coding guidance affecting these nine codes, the mapping of each of these codes has been reevaluated to ensure they are appropriately accommodated within the HRG design.

Changes Related to COVID-19

The updated national coding guidance for the ICD-10 codes classifying COVID-19 infection and related codes can be found here:
https://hscic.kahootz.com/connect.ti/t_c_home/view?objectId=19099248#19099248

U07.1 COVID-19, virus identified and U07.2 COVID-19, virus not identified
These codes have been remapped to one of 6 HRGs within new Subchapter **DX COVID-19 Infection**:

- **DX01A COVID-19 Infection, with Major Manifestations, 19 years and over**
- **DX01B COVID-19 Infection, with Major Manifestations, 18 years and under**
- **DX11A COVID-19 Infection, with Pneumonia, 19 years and over**
- **DX11B COVID-19 Infection, with Pneumonia, 18 years and under**
- **DX21A COVID-19 Infection, 19 years and over**
- **DX21B COVID-19 Infection, 18 years and under**

When recorded as a primary diagnosis, these codes map to a base (default) HRG root of **DX21 COVID-19 Infection**. HRG root **DX11 COVID-19 Infection, with Pneumonia** is reached when a secondary diagnosis of ***J12.8 Other viral pneumonia*** (and no secondary diagnoses from the Major Manifestations list) is recorded alongside a primary diagnosis of either U07.1 or U07.2. HRG root **DX01 COVID-19 Infection, with Major Manifestations** is reached when a secondary diagnosis from list **DX_Major** (Major manifestations of COVID-19) is recorded alongside a primary diagnosis of either U07.1 or U07.2. **DX_Major** contains 125 diagnosis codes covering the likes of sepsis, organ failure, blood clots, pulmonary collapse and multisystem inflammatory syndrome (see Appendix A for the complete list).

U07.1 and U07.2 codes have been added to subchapter-specific complications and comorbidities lists wherever ICD-10 code ***J22.X Unspecified acute lower respiratory infection*** was already on the list.
These codes have been remapped to base PBC **PBC0211X Problems of the Respiratory System**.

U07.3 Personal history of COVID-19
This code has been remapped from HRG root **WH15 Special Screening, Examinations or Other Genetic Disorders** (adult patients) and HRG root **PX57 Paediatric, Examination, Follow-up, Special Screening or Other Admissions** (child patients) to **UZ01Z Data Invalid for Grouping** as, according to national clinical coding standards, this code is not permitted to be used as a primary diagnosis, as per most similar code ***Z86.1 Personal history of infectious and parasitic diseases***.
When recorded as a primary diagnosis, U07.3 will generate error code **UZ01 Invalid Primary Diagnosis: 1. Primary Diagnosis doesn't exist or 2. Primary Diagnosis Blank or 3. Diagnosis can't be used at primary position**.
This code has not been added to any complications and comorbidity lists as per clinical advice.
This code has been remapped to base PBC **PBC0201X Infectious Diseases**.

U07.4 Post COVID-19 condition
This code has not been remapped and retains mapping to HRG root **WH15 Special Screening, Examinations or Other Genetic Disorders** for adult patients and HRG root **PX57 Paediatric, Examination, Follow-up, Special Screening or Other Admissions** for patients 18 years and under, on clinical advice.
This code has not been added to any complications and comorbidity lists as per clinical advice.
This code remains mapped to base PBC **PBC0223X Other**.

U07.5 Multisystem inflammatory syndrome associated with COVID-19
This code has been remapped from HRG root **WH15 Special Screening, Examinations or Other Genetic Disorders** to HRG root **WJ06 Sepsis** for adult patients, and from HRG root **PX57 Paediatric, Examination, Follow-up, Special Screening or Other Admissions** to **PW16 Paediatric Major Infections** for patients aged 18 years and under and to **PM45 Paediatric Febrile Neutropenia with Malignancy** for patients aged 18 years and under where an additional diagnosis of cancer and agranulocytosis is recorded. This matches the mapping of the ICD-10 code in use for this disorder before the introduction of this emergency use code, ***R65.0 Systemic Inflammatory Response Syndrome of infectious origin without organ failure***.
As per ***R65.0 Systemic Inflammatory Response Syndrome of infectious origin without organ failure***, this code has been added to the paediatric, burns and adult infectious diseases complications and co-morbidities lists and to list **DX_Major** (Major manifestations of COVID-19).
This code has been remapped to base PBC **PBC0201X Infectious Diseases**.

U07.6 Need for immunization against COVID-19
This code has been remapped from HRG root **WH15 Special Screening, Examinations or Other Genetic Disorders** to **WH19 Potential Health Hazard Related to Communicable Disease** for adult patients and retains its mapping to HRG root **PX57 Paediatric, Examination, Follow-up, Special Screening or Other Admissions** for children. This matches the mapping of the ICD-10 code in use for this disorder before the introduction of

this emergency use code, ***Z25.8 Need for immunization against other specified single viral diseases***.
This code has not been added to any complications and comorbidity lists as per clinical advice.
This code has been remapped to base PBC category **PBC0221X Healthy Individuals**.

U07.7 COVID-19 vaccines causing adverse effects in therapeutic use
This code has been remapped from HRG root **WH15 Special Screening, Examinations or Other Genetic Disorders** for adult patients and from **PX57 Paediatric, Examination, Follow-up, Special Screening or Other Admissions** for patients 18 years and under to **UZ01 Data Invalid for Grouping** as, according to national clinical coding standards, this code is not permitted to be used as a primary diagnosis, as per most similar code ***Y59.0 Viral vaccines***. When recorded as a primary diagnosis, it will generate error code **UZ01 Invalid Primary Diagnosis: 1. Primary Diagnosis doesn't exist or 2. Primary Diagnosis Blank or 3. Diagnosis can't be used at primary position**.
This code has not been added to any complications and comorbidity lists as per clinical advice.
This code has been remapped to base PBC category **PBC02U2 Unclassified**.

Updates to 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. Due to the remapping of various clinical codes, the PH value of some OPCS-4 codes has been amended. Changes to a PH value are noted in the changes section of the relevant subchapter summary.

Update to multiple-procedure escalation list membership

A global review of the membership of lists used in multiple-procedure escalation logic has been undertaken to ensure consistency across the HRG design and to remove redundant OPCS-4 codes and combination codes from lists. Also, the list value of some OPCS-4 codes have been updated on a given list to ensure the resource usage associated with these codes is accurately reflected within the HRG design. Where an OPCS-4 code has been added or removed from a list, or where a list member’s list value has been updated, this is noted in the subchapter summary for the subchapter employing the updated list.

Update to list names and list descriptions

The list name and/or list description of various lists used in HRG grouping logic have been amended for accuracy and/or to ensure consistency across the HRG design. These changes are cosmetic and will not affect HRG grouping.

Update to documentation flag IDs and documentation flag descriptions

The documentation flag ID and/or documentation flag description of various documentation flags used in HRG grouping logic have been amended for accuracy and/or to ensure consistency across the HRG design. These changes are cosmetic and will not affect HRG grouping.

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		
	NC20/21	RC18/19
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 specific 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+ 2018/19 Reference Costs Grouper

Changes related to new OPCS-4.9 codes

A new combination code has been created using new OPCS-4.9 approach code ***Y45.1 Approach to organ under electromyography control*** to appropriately capture EMG-guided intramuscular injections, e.g. Botox via EMG guidance. ***X378+Y451 Intramuscular injection under electromyography control*** has been mapped to base HRG root **AA33 Conventional EEG, EMG or Nerve Conduction Studies** as the EMG guidance is expected to be the main resource driver.

With the introduction of new OPCS-4.9 code category ***Y68.- Other approach to organ under image control***, which is an extension of category ***Y53.- Approach to organ under image control***, it is necessary to replace combination codes relying on combination list **CL_Y53** (Approach to organ under image control) with a new combination code using combination list **CL_IMAGE** (Approach to organ under image control). Each new combination code classifies the same procedure(s) as the code it has replaced and can be formed using either an existing (Y53.-) or a new (Y68.-) approach to organ under image control subsidiary code. Three combination codes employing **CL_Y53** and mapped to a base HRG root from this subchapter have been deleted and replaced with a combination code employing **CL_IMAGE**.

Changes related to OPCS-4.9 coding guidance amendments

Two new combination codes, ***E158+Y261 Reconstruction of sphenoid sinus*** and ***S288+Z226 Flap of mucosa to nasopharynx***, have been created to ensure that endoscopic transsphenoidal pituitary surgery is captured within the HRG design according to revised coding guidance. When recorded on their own, the two new combination codes do not map to HRG roots within this subchapter. However, these combination codes have been created to ensure that the additional resource usage associated with endoscopic transsphenoidal pituitary surgery are reflected within the HRG design: when both of these codes are recorded alongside the code classifying excision of pituitary lesion, their presence appropriately escalates activity up two complexity categories within the neurosurgery HRGs.

Change to code mapping

OPCS-4.9 code ***A20.3 Monitoring of pressure in ventricle of brain*** has been remapped from HRG root **AA57 Minimal Intracranial Procedures** to **AA54 Intermediate Intracranial Procedures, 19 years and over** to more appropriately reflect the resource usage associated with this procedure.

Introduction of new combination codes

New combination code ***A208+Y037 Removal of prosthesis from ventricle of brain*** has been created and mapped to HRG root **AA55 Minor Intracranial Procedures, 19 years and over** to ensure this procedure is mapped according to expected resource usage.

Deletion of paired code combination codes

After clarifying OPCS-4 clinical coding guidance relating to the sequencing of codes, it was determined that the paired code combination codes within the HRG design were not required. Consequently, two paired code combination codes, relating to subcutaneous storage pockets, that mapped to a base HRG root in this subchapter have been deleted from the HRG design. Where appropriate, escalation lists and logic have been amended to ensure that the procedures previously classified by the deleted codes continue to contribute to HRG escalation.

Update to multiple-procedure escalation list membership

The membership of lists used in multiple-procedure escalation logic employed within this subchapter have been updated as part of a global list membership review undertaken to ensure consistency across the HRG design and to remove redundant OPCS-4 codes and combination codes from escalation lists.

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **AA_CC**.

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		
	NC20/21	RC18/19
Total HRGs	**16**	**16**
Total HRG Roots	**16**	**16**
Procedure-driven HRGs	16	16
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+ 2018/19 Reference Costs Grouper

Changes related to new OPCS-4.9 codes

With the introduction of new OPCS-4.9 code category ***Y68.- Other approach to organ under image control***, which is an extension of category ***Y53.- Approach to organ under image control***, it is necessary to replace combination codes relying on combination list **CL_Y53** (Approach to organ under image control) with a new combination code using combination list **CL_IMAGE** (Approach to organ under image control). Each new combination code classifies the same procedure(s) as the code it has replaced and can be

formed using either an existing (Y53.-) or a new (Y68.-) approach to organ under image control subsidiary code. Twenty-two combination codes employing **CL_Y53** and mapped to a base HRG root from this subchapter have been deleted and replaced with a combination code employing **CL_IMAGE**.

Logic has been applied to new OPCS-4.9 codes ***T57.5 Injection of therapeutic substance into fascia*** and ***T96.7 Injection into soft tissue*** (and 16 associated +SITE combination codes, e.g. ***T575+HIP Injection of therapeutic substance into fascia of hip***), so that these procedures map to HRG root **AB22 Trigger Point Injection for Pain Management** when they are recorded with a primary diagnosis of a pain-related disorder or with a pain-related TFC; and have a length of stay of 1 day or less. This ensures that these procedures map to the appropriate HRG when undertaken for the management of pain.

Changes related to OPCS-4.9 coding guidance amendments

Pain management logic has been removed from codes ***A28.8 Other specified extracranial extirpation of other cranial nerve*** and ***A36.8 Other specified other operations on cranial nerve*** because it is not appropriate for these procedures to map to pain management HRGs as they are non-specific.

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		
	NC20/21	RC18/19
Total HRGs	**93**	**93**
Total HRG Roots	**48**	**48**
Procedure-driven HRGs	89	89
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+ 2018/19 Reference Costs Grouper

Changes related to new OPCS-4.9 codes

New OPCS-4.9 codes ***A82.2 Electro-oculography*** and ***A82.3 Multifocal electroretinography*** have been mapped to base HRG root **BZ84 Major Vitreous Retinal Procedures**. However, unlike for other codes mapped to this HRG root, multiple-procedure escalation logic has not been applied to A82.2 and A82.3 except logic triggering escalation where one of these procedures is performed under general anaesthetic or where these two procedures are recorded together. This is to ensure that where multiple ophthalmic tests are recorded together, activity does not inappropriately escalate to a higher resource HRG. For the same reason, the multiple procedure logic on existing OPCS-4 code ***A84.5 Electroretinography NEC*** has been removed except for logic triggering escalation where this procedure is performed under general anaesthetic or where it is recorded together with A82.2 (its PH value has also been reduced). Combination code ***A848+Z17 Neurophysiological operations on muscle of eye*** has been deleted as this code is redundant following the introduction of the new specific OPCS-4.9 codes in code category A82.-.

New OPCS-4.9 codes ***C51.6 Topography evaluation of cornea*** and ***C91.1 Optical coherence tomography of anterior segment of eye*** have been mapped to base HRG root **BZ65 Minor, Cornea or Sclera Procedures**. However, unlike for other codes mapped to this HRG root, multiple-procedure escalation logic has not been applied to C51.6 and C91.1. This is to ensure that where multiple ophthalmic tests are recorded together, activity does not inappropriately escalate to a higher resource HRG.

With the introduction of new OPCS-4.9 code ***Y68.1 Approach to organ under contrast enhanced ultrasonic control***, it is necessary to replace combination code ***C518+Y53 Corneal pachymetry*** with ***C518+US Ultrasound of cornea***. The new combination code can be formed using either the existing ultrasound approach subsidiary codes or the new subsidiary code. This combination code is ignored for grouping purposes.

Changes to accommodate NICE guidance

Combination code ***C518+Y371 Introduction of photodynamic substance into cornea*** has been created using existing OPCS-4 codes and mapped to HRG root **BZ63 Major, Cornea or Sclera Procedures** following an update to clinical coding guidance impacting NICE guidance for corneal collagen crosslinking. As a result of the creation of this new combination code, existing combination code ***C518+PDT Photodynamic therapy to cornea*** has been deleted.

Deletion of paired code combination codes

After clarifying OPCS-4 clinical coding guidance relating to the sequencing of codes, it was determined that the paired code combination codes within the HRG design were not required. Consequently, 125 paired code combination codes that mapped to a base HRG root in this subchapter have been deleted from the HRG design. Where appropriate, escalation lists and logic have been amended to ensure that the procedures previously classified by the deleted codes continue to contribute to HRG escalation.

HRG Root **BZ34 Phacoemulsification Cataract Extraction and Lens Implant** was previously only reached via paired combination codes that have now been deleted. In order to ensure that the BZ34 HRGs can be appropriately generated, logic has been added and

amended to ensure that this HRG root is generated when ***C71.2 Phacoemulsification of lens*** and ***C75.1 Insertion of prosthetic replacement for lens NEC*** are recorded together.

In addition, to ensure that Minimally Invasive Glaucoma Surgery (MIGS) plus cataract surgery maps to the appropriate HRG, logic has been added to ***C60.5 Insertion of tube into anterior chamber of eye to assist drainage of aqueous humour*** so that when recorded with ***C71.2 Phacoemulsification of lens***, activity is escalated to **BZ30 Complex, Cataract or Lens Procedures**.

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **BZ_CC**.

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

Subchapter **CA Ear, Nose, Mouth, Throat, Head 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 Head and 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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Change to chapter and subchapter labels

The labels of Chapter C and Subchapter CA have been amended to clarify that HRGs in this subchapter include procedures undertaken on the tissue of the head. The new labels are as follows:

- **C Ear, Nose, Mouth, Throat, Head and Neck Procedures and Disorders**
- **CA Ear, Nose, Mouth, Throat, Head and Neck Procedures**

Change to HRG labels

The labels of HRG roots CA01-CA05 and that of their associated HRGs have been amended to clarify that these HRGs include procedures undertaken on the tissue of the head. The new root labels are as follows:

- **CA01 Complex, Head or Neck Procedures**
- **CA02 Very Major, Head or Neck Procedures**
- **CA03 Major, Head or Neck Procedures**
- **CA04 Intermediate, Head or Neck Procedures**
- **CA05 Minor, Head or Neck Procedures**

Changes related to new OPCS-4.9 codes

New OPCS-4.9 code ***E29.7 Cordectomy of vocal cord NEC*** has been mapped to base HRG root **CA81 Complex, Mouth or Throat Procedures**.

New OPCS-4.9 codes ***S29.1 Distant osteocutaneous pedicle flap to head or neck***, ***S29.3 Distant osteocutaneous flap to head or neck NEC***, ***S32.1 Distant osteomusculocutaneous pedicle flap to head or neck*** and ***S32.3 Distant osteomusculocutaneous flap to head or neck NEC*** have been mapped to base HRG root **CA92 Very Major Maxillofacial Procedures**.

New OPCS-4.9 codes ***S29.4 Distant osteocutaneous free flap to head or neck*** and ***S32.4 Distant osteomusculocutaneous free flap to head or neck*** have been mapped to base HRG root **CA91 Complex Maxillofacial Procedures**.

Existing code ***F39.1 Reconstruction of mouth using flap NEC*** has been remapped from base HRG root ***CA80 Very Complex, Mouth or Throat Procedures*** to **CA81 Complex, Mouth or Throat Procedures**. Escalation logic applied to this code ensures that an episode/spell with this dominant procedure will escalate to CA80 where one of the new OPCS-4.9 codes classifying a distant flap procedure is also recorded in the patient record.

New combination codes have been created using new OPCS-4.9 approach codes ***Y35.5 Insertion of radioactive marker into organ NOC***, ***Y37.3 Insertion of wire marker into organ NOC*** and ***Y37.4 Insertion of marker into organ NOC*** to appropriately capture cervical lymph node marker procedures. ***T872+Y355 Excision or biopsy of cervical lymph node using insertion of radioactive marker***, ***T872+Y373 Excision or biopsy of cervical lymph node using insertion of wire marker*** and ***T872+Y374 Excision or biopsy of cervical lymph node using insertion of other marker*** have been mapped to base HRG root **CA04 Intermediate Head or Neck Procedures**.

Existing OPCS-4 code ***T88.1 Drainage of lesion of cervical lymph node*** and existing combination code ***T888+NECK Other specified drainage of lesion of lymph node of neck***

have been remapped from a base HRG root of **CA05 Minor, Head or Neck Procedures** to **YC10 Percutaneous Therapeutic, Head or Neck Procedures** following a mapping review of lymph node procedures in light of the many new OPCS-4.9 codes classifying lymph node sites and procedures.

Existing combination code ***T964+NECK Evacuation of seroma from soft tissue of neck*** has been remapped from a base HRG root of **CA05 Minor, Head or Neck Procedures** to **YC10 Percutaneous Therapeutic, Head or Neck Procedures** to ensure this code is mapped to the same HRG root as related codes introduced as part of the OPCS-4.9 update.

Existing OPCS-4 code ***F48.1 Biopsy of lesion of salivary gland*** has been remapped from a base HRG root of **CA85 Minor, Mouth or Throat Procedures** to **YC01 Percutaneous Core Needle Biopsy of Lesion of, Head or Neck** to ensure this code is mapped to the same HRG root as related codes introduced as part of the OPCS-4.9 update.

Existing OPCS-4 codes ***F51.1 Open extraction of calculus from parotid duct***, ***F51.2 Open extraction of calculus from submandibular duct***, ***F55.1 Dilation of parotid duct***, ***F55.2 Dilation of submandibular duct***, ***F55.8 Other specified dilation of salivary duct*** and ***F55.9 Unspecified dilation of salivary duct*** have been remapped from a base HRG root of **CA85 Minor, Mouth or Throat Procedures** to **YC10 Percutaneous Therapeutic, Head or Neck Procedures** to ensure these codes are mapped to the same HRG root as related codes introduced as part of the OPCS-4.9 update.

As a result of this code remapping, the **YC_Y53** under image control logic has been removed from these codes, and these 14 codes no longer map to HRGs within this subchapter.

New OPCS-4.9 code ***Z91.7 Jugular vein*** has been added to combination list **CL_NECK** so that it can be used to form the +NECK site combination codes.

Changes related to OPCS-4.9 coding guidance amendments

New combination code ***E158+Y261 Reconstruction of sphenoid sinus*** has been created to ensure that endoscopic transsphenoidal pituitary surgery is captured within the HRG design according to revised coding guidance. When recorded on its own, this new combination code maps to base HRG root **CA26 Complex Sinus Procedures**.

The values of ***D17.1 Stapedectomy*** and ***D17.2 Revision of stapedectomy*** on the **CA_Ear_Nose** list have been reduced to 3 to ensure that when a stapedectomy with part-and-parcel prosthetic replacement of ossicular chain is undertaken it does not inappropriately escalate to a higher resource HRG.

Combination code ***T879+NECK Unspecified excision or biopsy of lymph node of neck*** has been deleted following updated clinical advice.

Changes related to alternatives to creating new OPCS-4.9 codes

Rather than author new OPCS-4.9 codes to classify specific procedures performed on the head, the Clinical Classifications Service has confirmed that these procedures can already be captured using existing codes followed by a site code identifying (part of) the head. Nine new combination codes using an existing OPCS-4 code and new combination list **CL_Head** (Head site codes) have been mapped to the same HRG roots as their +NECK equivalents in this subchapter to appropriately classify these procedures when performed on head tissue. ***T771+HEAD Excision of whole muscle group of head*** has been mapped to base HRG root **CA02 Very Major, Head or Neck Procedures**; ***T772+HEAD Wide excision of muscle of head*** and ***T778+HEAD Other specified excision of muscle of head*** have been mapped to base HRG root **CA03 Major, Head or Neck Procedures**; ***T773+HEAD Partial excision of muscle NEC of head*** and ***T779+HEAD Unspecified excision of muscle of head*** have been mapped to base HRG root **CA04 Intermediate, Head or Neck Procedures**; and ***T878+HEAD Other specified excision or biopsy of lymph node of head***, ***T962+HEAD***

Excision of lesion of soft tissue NEC of head, ***T963+HEAD Debridement of soft tissue NEC of head*** and ***T968+HEAD Other specified other operations on soft tissue of head*** have been mapped to HRG root **CA05 Minor, Head or Neck Procedures**.

Rather than author a new OPCS-4.9 approach code to classify robotic transoral surgery, the Clinical Classifications Service has confirmed that ***Y76.5 Robotic assisted minimal access approach to other body cavity*** can be used to record robotic transoral surgery. Therefore, this code has been added to escalation lists **CA_Mouth** and **CA_Neck**, with a value of 3 in both cases, to ensure the resource usage associated with transoral robotic surgery is reflected in the final HRG derived for oral and head and neck surgery.

Deletion of paired code combination codes

After clarifying OPCS-4 clinical coding guidance relating to the sequencing of codes, it was determined that the paired code combination codes within the HRG design were not required. Consequently, one paired code combination code, ***F058+S221 Repair of lip using neurovascular island sensory flap of skin***, that mapped to a base HRG root in this subchapter has been deleted from the HRG design. Where appropriate, escalation lists and logic have been amended to ensure that the procedures previously classified by the deleted codes continue to contribute to HRG escalation.

Update to multiple-procedure escalation list membership

The membership of lists used in multiple-procedure escalation logic employed within this subchapter have been updated as part of a global list membership review undertaken to ensure consistency across the HRG design and to remove redundant OPCS-4 codes and combination codes from escalation lists. The list value of one code on an escalation list used within this subchapter has been updated to reflect the expected resource usage of the procedure classified by this code when recorded as a secondary procedure.

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **CACB_CC**.

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

Subchapter **CB Ear, Nose, Mouth, Throat, Head 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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Update to the chapter and subchapter labels

The labels of Chapter C and Subchapter CB have been amended to clarify that HRGs within this chapter and subchapter include disorders of the soft tissue of the head. The new labels are as follows:

- **C Ear, Nose, Mouth, Throat, Head and Neck Procedures and Disorders**
- **CB Ear, Nose, Mouth, Throat, Head and Neck Disorders**

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **CACB_CC**.

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, Head and Neck Procedures**.

Dental disorders are covered in Subchapter **CB Ear, Nose, Mouth, Throat, Head 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		
	NC20/21	RC18/19
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	Yes	Yes
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+ 2018/19 Reference Costs Grouper

Changes related to new OPCS-4.9 codes

New OPCS-4.9 code ***F10.5 Extraction of retained root of tooth*** has been mapped to base HRG root **CD07 Minor Extraction of Tooth**. Unlike the other codes mapped to CD07, logic has been added to F10.5 to escalate activity to **CD06 Extraction of Multiple Teeth** when new OPCS-4.9 site code ***O36.1 Multiple Teeth NEC*** is recorded in a subsidiary position. This is to reflect the additional resource usage associated with performing the procedure on multiple teeth.

Logic has been added to 19 existing procedure codes for tooth operations that map to a base HRG root of **CD05 Surgical Removal of Tooth**, **CD03 Minor Dental Procedures** or **CD02 Intermediate Dental Procedures** to escalate activity to **CD04 Major Surgical Removal of Tooth**, **CD02 Intermediate Dental Procedures** and **CD01 Major Dental Procedures**, respectively, when new OPCS-4.9 site code ***O36.1 Multiple Teeth NEC*** is recorded in a subsidiary position. This is to reflect the additional resource usage associated with performing a procedure on multiple teeth.

Changes related to alternatives to creating new OPCS-4.9 codes

Rather than author new OPCS-4.9 codes to classify periodontal grafting procedures, the Clinical Classifications Service has confirmed that periodontal regenerative surgery can be

coded using combinations of existing codes. New combination codes ***F208+Y678 Graft to gingiva using harvest of tissue*** and ***F208+Y272 Allograft to gingiva*** have been created and mapped to base HRG root **CD01 Major Dental Procedures** to appropriately reflect the resource usage associated with these procedures.

Subchapter DX – COVID-19 Infection

Subchapter **DX COVID-19 Infection** is a new subchapter designed specifically to identify patients with a primary diagnosis of either ***U07.1 COVID-19, virus identified*** or ***U07.2 COVID-19, virus not identified*** who have no significant procedures recorded. It covers patients of all ages and includes activity undertaken in admitted patient care (APC) settings only. As the HRGs are diagnosis driven, they cannot be generated in a non-admitted care setting.

Subchapter **DX COVID-19 Infection** has been created in response to updates to national coding guidance regarding the recording of COVID-19 infections, which has confirmed that the two COVID-19 ICD-10 codes are effectively identifying a cohort of patients with the same disease and treatment pathway.

Composition and Concepts		
	NC20/21	**RC18/19**
Total HRGs	**6**	**N/A**
Total HRG Roots	**3**	**N/A**
Procedure-driven HRGs	0	N/A
Diagnosis-driven HRGs	6	N/A
Age Splits	Yes	N/A
Complications and Comorbidities Splits	No	N/A
Intervention Splits	No	N/A
Multiple Procedures	No	N/A
Procedure Combination Codes	No	N/A
Diagnosis-qualified	Yes	N/A
Subsidiary Procedure-qualified	No	N/A
Length of Stay-qualified	No	N/A

U07.1 COVID-19, virus identified must only be assigned for laboratory confirmed cases of COVID-19 (i.e. positive test result).

U07.2 COVID-19, virus not identified is used when COVID-19 is diagnosed clinically or epidemiologically but laboratory testing is inconclusive or not available.

There are six HRGs within this subchapter, as follows:

- **DX01A COVID-19 Infection, with Major Manifestations, 19 years and over**
- **DX01B COVID-19 Infection, with Major Manifestations, 18 years and under**
- **DX11A COVID-19 Infection, with Pneumonia, 19 years and over**
- **DX11B COVID-19 Infection, with Pneumonia, 18 years and under**
- **DX21A COVID-19 Infection, 19 years and over**
- **DX21B COVID-19 Infection, 18 years and under**

Subchapter DX COVID-19 Infection HRG Grouping Logic

The Subchapter **DX COVID-19 Infection** HRGs require a primary diagnosis of either ***U07.1 COVID-19, virus identified*** or ***U07.2 COVID-19, virus not identified*** and no significant procedures recorded. They cover patients of all ages and can only be generated from the APC Data Set.

The HRG Grouping logic makes use of two lists, effectively “escalating” from the DX21* “infection-only” base HRGs when specified secondary diagnoses are recorded.

For example:

- If the patient has one or more major manifestations recorded as secondary diagnoses in the patient record (as identified by one of the 125 ICD-10 codes on the “Major Manifestation” list **DX_Major**, which can be seen in Appendix A), the HRG root that will be generated will be **DX01 COVID-19 Infection, with Major Manifestations**

The Major Manifestations list includes conditions clinically identified as major manifestations of other diseases caused by the COVID-19 infection, such as sepsis, blood clots, organ failure and paediatric multisystem inflammatory syndrome. Appendix A is the complete list of codes.

If the patient does not have a Major Manifestation recorded but does have a manifestation of “COVID-pneumonia”, recorded in accordance with national coding standards as a secondary diagnosis of ***J12.8 Other viral pneumonia***, the HRG root that will be generated will be **DX11 COVID-19 Infection, with Pneumonia**. The ICD-10 code ***J12.8 Other viral pneumonia*** is the only ICD-10 code on the “COVID-Pneumonia” list (list **DX_Pneumonia**)

If the patient has COVID-Pneumonia and one or more of the manifestations on list **DX_Major**, then the HRG root generated will be **DX01 COVID-19 Infection, with Major Manifestations**.

- If the patient has a primary diagnosis of either ***U07.1 COVID-19, virus identified*** or ***U07.2 COVID-19, virus not identified*** and has no manifestations of the disease recorded that are included on either the Major Manifestations or COVID-Pneumonia lists, the HRG root that will be generated will be **DX21 COVID-19 Infection**

The HRGs within this subchapter employ standard adult / child age splits (19 years and over / 18 years and under) and do not employ any CC or Intervention splits.

The Subchapter **DX COVID-19 Infection** HRGs do not take into account whether or not patients have subsequently been admitted to intensive care facilities, as the data, and the appropriate unbundled HRG design, is reliant upon different data sets, for example the Critical Care Minimum Data Sets.

As both episode and spell APC grouping are based on the patient’s adjusted rather than total length of stay, the days relating to Critical Care, discrete Rehabilitation or Specialist Palliative Care should be included in the grouping input file, as per standard HRG grouping.

Event-based unbundled HRGs, recorded using OPCS-4 procedure codes and relating to services such as dialysis for acute renal failure, will also be generated in addition to the APC core Subchapter **DX COVID-19 Infection** HRGs for patients admitted with a COVID-19 infection primary diagnosis, as per the Casemix design principles. Please see the respective unbundled HRG subchapters for further information on how these HRGs are generated.

Understanding HRG Grouping Methods

The HRGs in Subchapter **DX COVID-19 Infection** are diagnosis driven and so not all patients with a primary diagnosis of ***U07.1 COVID-19, virus identified*** or ***U07.2 COVID-19, virus not identified*** will group to this subchapter

For example:

- In line with standard grouping methodology, these HRGs will not be generated if any elements of the data in the mandated fields required for grouping are invalid. If this is the case, the HRG **UZ01Z Data Invalid for Grouping** will be generated

- **Core 1** procedure-driven grouping takes precedence over **Core 1** diagnosis-driven grouping in the HRG design. Where a patient has a significant procedure (determined by

the procedure hierarchy within the design), a procedure-driven HRG will be generated. However, the design also includes maximum length of stay logic for some procedures. For these procedures, grouping will effectively "flip" to diagnosis-driven HRG grouping where the maximum adjusted length of stay for the procedure has been exceeded. These are the basic principles of **Core 1** Logic

Where the dominant procedure has a procedure hierarchy (PH) value of five or more and has no maximum length of stay logic check (at either the episode or spell level), the HRG generated will be procedure driven.

For patients with a primary diagnosis of either ***U07.1 COVID-19, virus identified*** or ***U07.2 COVID-19, virus not identified*** who have a significant procedure recorded (that is not subject to a maximum length of stay check), the HRG generated will be from a subchapter other than Subchapter **DX COVID-19 Infection**.

For patients with a primary diagnosis of either ***U07.1 COVID-19, virus identified*** or ***U07.2 COVID-19, virus not identified*** who have a significant procedure recorded (that is subject to a maximum length of stay check), HRGs from Subchapter **DX COVID-19 Infection** will be generated where the maximum length of stay for the dominant procedure (at either the episode or spell level) is exceeded.

- Where the dominant procedure in the APC patient record has a PH value of two, an unbundled HRG will be derived (in addition to the core HRG). Procedures with a PH value of one are deemed insignificant for grouping purposes, so the HRG derived will be generated from the spell primary diagnosis

    - Where the dominant procedure in the patient record has a PH value of zero, the procedure is not valid for Casemix Grouping and will generate the HRG **UZ01Z Data Invalid for Grouping**, irrespective of the primary diagnosis of the patient

- Where patients are admitted as a result of Multiple Trauma injuries, **Core 4** grouping logic is employed, and as such a Subchapter **DX COVID-19 Infection** HRG cannot be generated, as neither ***U07.1 COVID-19, virus identified*** or ***U07.2 COVID-19, virus not identified*** are present on the Multiple Trauma primary diagnoses "entry list"

- Where patients have a second- or third-degree burn with diagnoses recorded in any position, **Core 7** logic (and subsequently **Core 3** escalation logic) is employed. As such a Subchapter **DX COVID-19 Infection** HRG will not be generated, as "burns" logic takes precedence over **Core 1** grouping logic. The resultant HRG will be from Subchapter **JB Burns Procedures and Disorders**

- **Core 5** logic is referred to as "global exception logic" and takes precedence over **Core 1** logic within the grouping process. For example, this allows for planned procedures not carried out (recorded via ICD-10 secondary diagnoses codes) to override **Core 1** grouping using diagnoses that would ordinarily result in a different HRG

    - Coding standard **DCS.XXI.11: Cancelled procedures and abandoned procedures (Z53)** states that "*Codes in category Z53.- Persons encountering health services for specific procedures, not carried out must never be assigned in a primary position. Z53.- must only be used for patients admitted electively for a procedure which is subsequently cancelled/not carried out/not started for any reason and no other procedure has been carried out, i.e. the coded record contains no OPCS-4 procedure codes within that particular consultant episode*."

Therefore, if the ICD-10 codes (**Z53***) are recorded in the patient record, the HRG root **WH50 Procedure Not Carried Out** will be derived, for patients of all ages.

- **Core 5** grouping logic is also employed to override HRG derivation in specific circumstances to allow the generation of HRGs that identify patients who, irrespective of their primary diagnosis, are admitted or attend for one of the following reasons:

    I. Solely for radiotherapy treatment and have a length of stay of zero days

    II. Solely for chemotherapy treatment and have a length of stay of zero days

    III. Solely for nuclear medicine investigations under Treatment Function Code **371 Nuclear Medicine**

    IV. Solely for diagnostic imaging investigations under Treatment Function Code **812 Diagnostic Imaging**

Further details of the Casemix grouping logic and design principles can be found in the Casemix Companion that accompanies this release.

Subchapter DX: Appendix A – List of ICD-10 diagnosis codes on the DX_Major, major manifestation of COVID-19 list

ICD-10 Code	Code Description
A02.1	Salmonella sepsis
A08.3	Other viral enteritis
A20.7	Septicaemic plague
A22.7	Anthrax sepsis
A26.7	Erysipelothrix sepsis
A32.7	Listerial sepsis
A40.0	Sepsis due to streptococcus, group A
A40.1	Sepsis due to streptococcus, group B
A40.2	Sepsis due to streptococcus, group D
A40.3	Sepsis due to Streptococcus pneumoniae
A40.8	Other streptococcal sepsis
A40.9	Streptococcal sepsis, unspecified
A41.0	Sepsis due to Staphylococcus aureus
A41.1	Sepsis due to other specified staphylococcus
A41.2	Sepsis due to unspecified staphylococcus
A41.3	Sepsis due to Haemophilus influenzae
A41.4	Sepsis due to anaerobes
A41.5	Sepsis due to other Gram-negative organisms
A41.8	Other specified sepsis
A41.9	Sepsis, unspecified
A42.7	Actinomycotic sepsis
A85.8	Other specified viral encephalitis
A87.8	Other viral meningitis
B17.8	Other specified acute viral hepatitis
B33.2	Viral carditis
B37.7	Candidal sepsis
B44.0	Invasive pulmonary aspergillosis
B44.1	Other pulmonary aspergillosis
B44.2	Tonsillar aspergillosis
B44.7	Disseminated aspergillosis
B44.8	Other forms of aspergillosis

ICD-10 Code	Code Description
B44.9	Aspergillosis, unspecified
D65.X	Disseminated intravascular coagulation [defibrination syndrome]
D89.8	Other specified disorders involving the immune mechanism, not elsewhere classified
F05.8	Other delirium
G02.0	Meningitis in viral diseases classified elsewhere
G05.1	Encephalitis, myelitis and encephalomyelitis in viral diseases classified elsewhere
G61.0	Guillain-Barre syndrome
G93.1	Anoxic brain damage, not elsewhere classified
I11.0	Hypertensive heart disease with (congestive) heart failure
I12.0	Hypertensive renal disease with renal failure
I13.0	Hypertensive heart and renal disease with (congestive) heart failure
I13.1	Hypertensive heart and renal disease with renal failure
I13.2	Hypertensive heart and renal disease with both (congestive) heart failure and renal failure
I26.0	Pulmonary embolism with mention of acute cor pulmonale
I26.9	Pulmonary embolism without mention of acute cor pulmonale
I27.0	Primary pulmonary hypertension
I27.2	Other secondary pulmonary hypertension
I30.1	Infective pericarditis
I32.1	Pericarditis in other infectious and parasitic diseases classified elsewhere
I33.0	Acute and subacute infective endocarditis
I41.1	Myocarditis in viral diseases classified elsewhere
I43.0	Cardiomyopathy in infectious and parasitic diseases classified elsewhere
I47.0	Re-entry ventricular arrhythmia
I47.1	Supraventricular tachycardia
I47.2	Ventricular tachycardia
I47.9	Paroxysmal tachycardia, unspecified
I50.0	Congestive heart failure
I50.1	Left ventricular failure
I50.9	Heart failure, unspecified
I63.0	Cerebral infarction due to thrombosis of precerebral arteries
I63.1	Cerebral infarction due to embolism of precerebral arteries
I63.3	Cerebral infarction due to thrombosis of cerebral arteries
I63.4	Cerebral infarction due to embolism of cerebral arteries
I63.6	Cerebral infarction due to cerebral venous thrombosis, nonpyogenic
I74.0	Embolism and thrombosis of abdominal aorta
I74.1	Embolism and thrombosis of other and unspecified parts of aorta
I74.2	Embolism and thrombosis of arteries of upper extremities
I74.3	Embolism and thrombosis of arteries of lower extremities
I74.4	Embolism and thrombosis of arteries of extremities, unspecified
I74.5	Embolism and thrombosis of iliac artery
I74.8	Embolism and thrombosis of other arteries
I74.9	Embolism and thrombosis of unspecified artery
I80.1	Phlebitis and thrombophlebitis of femoral vein
I80.2	Phlebitis and thrombophlebitis of other deep vessels of lower extremities
I80.8	Phlebitis and thrombophlebitis of other sites
I81.X	Portal vein thrombosis
I82.1	Thrombophlebitis migrans
I82.2	Embolism and thrombosis of vena cava
I82.3	Embolism and thrombosis of renal vein
I82.8	Embolism and thrombosis of other specified veins
J80.X	Adult respiratory distress syndrome
J81.X	Pulmonary oedema

ICD-10 Code	Code Description
J84.0	Alveolar and parietoalveolar conditions
J84.1	Other interstitial pulmonary diseases with fibrosis
J84.8	Other specified interstitial pulmonary diseases
J84.9	Interstitial pulmonary disease, unspecified
J93.0	Spontaneous tension pneumothorax
J93.1	Other spontaneous pneumothorax
J93.8	Other pneumothorax
J93.9	Pneumothorax, unspecified
J96.0	Acute respiratory failure
J96.00	Acute respiratory failure: Type I [hypoxic]
J96.01	Acute respiratory failure: Type II [hypercapnic]
J96.09	Acute respiratory failure: Type unspecified
J96.1	Chronic respiratory failure
J96.10	Chronic respiratory failure: Type I [hypoxic]
J96.11	Chronic respiratory failure: Type II [hypercapnic]
J96.19	Chronic respiratory failure: Type unspecified
J98.1	Pulmonary collapse
K72.0	Acute and subacute hepatic failure
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
O85.X	Puerperal sepsis
O88.3	Obstetric pyaemic and septic embolism
O90.3	Cardiomyopathy in the puerperium
P22.8	Other respiratory distress of newborn
P25.1	Pneumothorax originating in the perinatal period
P28.5	Respiratory failure of newborn
P29.0	Neonatal cardiac failure
P36.0	Sepsis of newborn due to streptococcus, group B
P36.1	Sepsis of newborn due to other and unspecified streptococci
P36.2	Sepsis of newborn due to Staphylococcus aureus
P36.3	Sepsis of newborn due to other and unspecified staphylococci
P36.4	Sepsis of newborn due to Escherichia coli
P36.5	Sepsis of newborn due to anaerobes
P36.8	Other bacterial sepsis of newborn
P36.9	Bacterial sepsis of newborn, unspecified
P60.X	Disseminated intravascular coagulation of fetus and newborn
R57.2	Septic shock
R65.0	Systemic Inflammatory Response Syndrome of infectious origin without organ failure
R65.1	Systemic Inflammatory Response Syndrome of infectious origin with organ failure
U07.5	Multisystem inflammatory syndrome associated with COVID-19

Differences from the HRG4+ 2018/19 Reference Costs Grouper

Introduction of new subchapter

This is a new subchapter, with six new HRGs for patients of all ages where a primary diagnosis of either test-positive or clinically determined COVID-19, and no significant procedure(s), has been recorded.

Accommodation of ICD-10 emergency use codes

ICD-10 codes ***U07.1 COVID-19, virus identified*** and ***U07.2 COVID-19, virus not identified*** have been remapped so that an HRG from this subchapter is generated when either code is recorded as the primary diagnosis. These codes have been remapped from the following HRG roots:

- **WH15 Special Screening, Examinations or Other Genetic Disorders**, for adult patients
- **PX57 Paediatric, Examination, Follow-up, Special Screening or Other Admissions**, for patients aged 18 years and under

U07.5 Multisystem inflammatory syndrome associated with COVID-19 has been added to the major manifestations list, **DX_Major**, as per ***R65.0 Systemic Inflammatory Response Syndrome of infectious origin without organ failure***.

Subchapter DX: Worked Examples

Cases A to **F** illustrate the basic grouping of the new HRGs.

Case	Age	Overall Length of Stay (Days)	Adjusted Length of Stay (Days)	Primary Diagnosis	Secondary Diagnosis	Dominant Procedure	HRG4+
A	20	10	10	U07.1 COVID-19, virus identified *or* *U07.2 COVID-19, virus not identified*	A41.9 Sepsis, unspecified		DX01A COVID-19 Infection, with Major Manifestations, 19 years and over
B	5	10	10	U07.1 COVID-19, virus identified *or* *U07.2 COVID-19, virus not identified*	U07.5 Multisystem inflammatory syndrome associated with COVID-19		DX01B COVID-19 Infection, with Major Manifestations, 18 years and under
C	20	10	10	U07.1 COVID-19, virus identified *or* *U07.2 COVID-19, virus not identified*	J12.8 Other viral pneumonia		DX11A COVID-19 Infection, with Pneumonia, 19 years and over
D	5	10	10	U07.1 COVID-19, virus identified *or* *U07.2 COVID-19, virus not identified*	J12.8 Other viral pneumonia		DX11B COVID-19 Infection, with Pneumonia, 18 years and under
E	20	10	10	U07.1 COVID-19, virus identified *or* *U07.2 COVID-19, virus not identified*			DX21A COVID-19 Infection, 19 years and over
F	5	10	10	U07.1 COVID-19, virus identified *or* *U07.2 COVID-19, virus not identified*			DX21B COVID-19 Infection, 18 years and under

Cases G to **I** illustrate the basic grouping of the new HRGs, with an adjusted length of stay relating to specialist care, without a dominant procedure recorded.

Case	Age	Overall Length of Stay (Days)	Adjusted Length of Stay (Days)	Primary Diagnosis	Secondary Diagnosis	Dominant Procedure	HRG4+
G	20	10	0	U07.1 COVID-19, virus identified *or* *U07.2 COVID-19, virus not identified*	A41.9 Sepsis, unspecified; J12.8 Other viral pneumonia		DX01A COVID-19 Infection, with Major Manifestations, 19 years and over
H	5	10	0	U07.1 COVID-19, virus identified *or* *U07.2 COVID-19, virus not identified*	U07.5 Multisystem inflammatory syndrome associated with COVID-19; J12.8 Other viral pneumonia		DX01B COVID-19 Infection, with Major Manifestations, 18 years and under
I	20	10	0	U07.1 COVID-19, virus identified *or* *U07.2 COVID-19, virus not identified*	J12.8 Other viral pneumonia		DX11A COVID-19 Infection, with Pneumonia, 19 years and over

Cases J to **M** illustrate the grouping of the new HRGs where a dominant procedure (that does not have a maximum adjusted length of stay logic check) is recorded.

In addition, patients of all ages typically may generate the same HRG root as a result of procedure-driven grouping. As these HRGs are not affected by length of stay, the HRG roots detailed below are applicable for all lengths of stay, irrespective of whether they are Overall, or Adjusted.

Case	Age	Overall Length of Stay (Days)	Adjusted Length of Stay (Days)	Primary Diagnosis	Secondary Diagnosis	Dominant Procedure	HRG4+ Root
J	20	10	10	U07.1 COVID-19, virus identified *or* *U07.2 COVID-19, virus not identified*	J12.8 Other viral pneumonia	T52.6 Revision of digital fasciectomy	HN42 Very Major Hand Procedures for Non-Trauma
K	5	10	10	U07.1 COVID-19, virus identified *or* *U07.2 COVID-19, virus not identified*	A41.9 Sepsis, unspecified	T52.6 Revision of digital fasciectomy	HN42 Very Major Hand Procedures for Non-Trauma
L	20	10	0	U07.1 COVID-19, virus identified *or* *U07.2 COVID-19, virus not identified*		T52.6 Revision of digital fasciectomy	HN42 Very Major Hand Procedures for Non-Trauma
M	5	10	0	U07.1 COVID-19, virus identified *or* *U07.2 COVID-19, virus not identified*	J12.8 Other viral pneumonia	T52.6 Revision of digital fasciectomy	HN42 Very Major Hand Procedures for Non-Trauma

Cases N to **Q** illustrate the grouping of the new HRGs where a dominant procedure (which has maximum adjusted length of stay logic) is recorded, either where the maximum length of stay logic criteria is met or not.

In addition, patients of all ages may generate the same HRG root as a result of procedure-driven grouping.

Case	Age	Overall Length of Stay (Days)	Adjusted Length of Stay (Days)	Primary Diagnosis	Secondary Diagnosis	Dominant Procedure	HRG4+
N	20	10	10	U07.1 COVID-19, virus identified *or* *U07.2 COVID-19, virus not identified*	J12.8 Other viral pneumonia	E85.6 Continuous positive airway pressure	DX11A COVID-19 Infection, with Pneumonia, 19 years and over
O	20	10	0	U07.1 COVID-19, virus identified *or* *U07.2 COVID-19, virus not identified*		E85.6 Continuous positive airway pressure	DZ37A Non-Invasive Ventilation Support Assessment, 19 years and over
P	5	10	10	U07.1 COVID-19, virus identified *or* *U07.2 COVID-19, virus not identified*		E85.6 Continuous positive airway pressure	DX21B COVID-19 Infection, 18 years and under
Q	5	10	0	U07.1 COVID-19, virus identified *or* *U07.2 COVID-19, virus not identified*	A41.9 Sepsis, unspecified	E85.6 Continuous positive airway pressure	DZ37B Non-Invasive Ventilation Support Assessment, 18 years and under

In the above example, a dominant procedure of OPCS-4 code ***E85.6 Continuous positive airway pressure*** has a maximum length of stay logic check of zero days. For adjusted lengths of stay of one day or more, where the dominant procedure is ***E85.6 Continuous positive airway pressure***, the HRG derived will be diagnosis driven.

Maximum length of stay logic can be a different duration for different OPCS-4 codes: for example, where OPCS-4 code ***L91.2 Insertion of central venous catheter NEC*** is the dominant procedure, the HRG derived will be procedure driven for adjusted lengths of stay that are less than three days. For further details relating to the grouping logic, please see the Code to Group tab in the Code to Group workbook that accompanies this Grouper release.

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.

Composition and Concepts		
	NC20/21	RC18/19
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

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.

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+ 2018/19 Reference Costs Grouper

Change to HRG label

The label of HRG root DZ32 and that of its associated HRG have been amended to clarify which interventions are covered by this HRG root. The new root label is as follows:

- **DZ32 Field Exercise Test or Measurement of Fractional Exhaled Nitric Oxide**

Changes related to new OPCS-4.9 codes

New OPCS-4.9 code ***E63.4 Endoscopic ultrasound examination of mediastinum and biopsy of lesion of mediastinum*** has been mapped to base HRG root **DZ70 Endobronchial Ultrasound Examination of Mediastinum**.

New OPCS-4.9 codes ***E85.6 Continuous positive airway pressure*** and ***E89.5 Mechanical insufflation and exsufflation*** have been mapped to base HRG root **DZ37 Non-Invasive Ventilation Support Assessment**.

New OPCS-4.9 code ***E92.7 Measurement of fractional exhaled nitric oxide concentration*** has been mapped to HRG root **DZ32 Field Exercise Test or Measurement of Fractional Exhaled Nitric Oxide**.

New OPCS-4.9 code ***T12.6 Insertion of tunnelled catheter into pleural cavity*** has been mapped to base HRG root **DZ64 Intermediate Thoracic Procedures**.

New OPCS-4.9 code ***T12.7 Attention to tunnelled catheter in pleural cavity*** has been mapped to base HRG root **DZ71 Minor Thoracic Procedures**.

New combination codes have been created using new OPCS-4.9 codes ***T96.5 Aspiration of soft tissue NEC***, ***T96.6 Biopsy of soft tissue NEC*** and ***T96.7 Injection into soft tissue NEC***, respectively, plus existing combination list **CL_Rib** (Site of rib) to appropriately classify these procedures when performed on rib tissue. ***T965+RIB Aspiration of soft tissue of rib***, ***T966+RIB Biopsy of soft tissue of rib*** and ***T967+RIB Injection into soft tissue of rib*** have been mapped to base HRG root **DZ71 Minor Thoracic Procedures**.

New combination code ***W176+RIB Traction lengthening of bone of rib with intramedullary fixation*** has been created using new OPCS-4.9 code ***W17.6 Traction lengthening of bone with intramedullary fixation*** to appropriately capture this procedure when performed on the ribs. This new combination code has been mapped to base HRG root **DZ64 Intermediate Thoracic Procedures**.

Combination code ***W818+Y032+RIB Renewal of therapeutic spacer into joint of rib*** has been deleted following the introduction of a new OPCS-4.9 code classifying the renewal of spacer procedure and after it was determined that this procedure is not undertaken on ribs.

Changes related to OPCS-4.9 coding guidance amendments

A new coding standard has been issued for high flow nasal oxygen (HFNO) therapy stating that this procedure is classified by ***X52.8 Other specified oxygen therapy***. Therefore, to ensure that the resource usage associated with HFNO therapy is appropriately accommodated within the HRG design, this code has been remapped from being ignored for grouping purposes to HRG root **DZ37 Non-Invasive Ventilation Support Assessment**.

E91.3 Overnight oximetry has been remapped from **DZ37 Non-Invasive Ventilation Support Assessment** to be ignored for grouping following updated clinical guidance in accordance with the introduction of related new OPCS-4.9 codes.

Changes related to alternatives to creating new OPCS-4.9 codes

Rather than author a new OPCS-4.9 approach code to classify electromagnetic navigation bronchoscopy (ENB), the Clinical Classifications Service has confirmed that ***Y53.3 Approach to organ under computed tomography scan control*** can be used alongside the diagnostic bronchoscopy codes to classify ENB. Therefore, the following seven new combination codes have been created to classify ENB: ***E491+Y533 Diagnostic fibreoptic endoscopic examination of lower respiratory tract and biopsy of lesion of lower respiratory tract under computed tomography scan control***, ***E492+Y533 Diagnostic fibreoptic endoscopic examination of lower respiratory tract and lavage of lesion of lower respiratory tract under computed tomography scan control***, ***E493+Y533 Diagnostic fibreoptic endoscopic examination of lower respiratory tract and brush cytology of lesion of lower respiratory tract under computed tomography scan control***, ***E494+Y533 Diagnostic fibreoptic endoscopic examination of lower respiratory tract with lavage and brush cytology of lesion of lower respiratory tract under computed tomography scan control***, ***E495+Y533 Diagnostic fibreoptic endoscopic examination of lower respiratory tract with biopsy, lavage and brush cytology of lesion of lower respiratory tract under computed tomography scan control***, ***E498+Y533 Other specified diagnostic fibreoptic endoscopic examination of lower respiratory tract under computed tomography scan control***, ***E499+Y533 Unspecified diagnostic fibreoptic endoscopic examination of lower respiratory tract under computed tomography scan control***. These new combination codes have been mapped to base HRG root **DZ64 Intermediate Thoracic Procedures** to ensure that the resource usage associated with ENB are reflected in the HRG design.

Deletion of paired code combination codes

After clarifying OPCS-4 clinical coding guidance relating to the sequencing of codes, it was determined that the paired code combination codes within the HRG design were not required. Consequently, 24 paired code combination codes that mapped to a base HRG root in this subchapter have been deleted from the HRG design. Where appropriate, escalation lists and logic have been amended to ensure that the procedures previously classified by the deleted codes continue to contribute to HRG escalation.

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **DZ_CC**.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **EB_CC**.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Changes related to new OPCS-4.9 codes

New OPCS-4.9 site code ***O43.2 Coronary sinus*** has been used to create a new combination code classifying coronary sinus stenting. ***K578+Y14+O432 Transluminal insertion of stent into coronary sinus*** has been mapped to HRG root **EC15 Minor**

Procedures for Congenital Heart Disease (when the patient has a congenital heart disease diagnosis or is aged 18 years or under).

Changes related to OPCS-4.9 coding guidance amendments

Rather than author a new OPCS-4.9 code to classify bubble contrast echocardiogram, the Clinical Classifications Service has issued coding guidance stating that the existing radiology with contrast codes are to be used alongside ***U20.1 Transthoracic echocardiography*** to classify this intervention. As a result, new combination code ***U201+Y97 Transthoracic echocardiography with contrast*** has been created, and rather than generate unbundled HRG root **RD51 Simple Echocardiogram**, this has been mapped to HRG root **EC21 Complex Echocardiogram for Congenital Heart Disease** (when the patient has a congenital heart disease diagnosis or is aged 18 years or under).

A new coding standard has been issued to clarify the coding of percutaneous transluminal procedures for which no specific code exists in the code set. According to the new standard, where no specific procedure code exists but there is an equivalent open procedure code, the code classifying the open procedure should be recorded along with a subsidiary code classifying transluminal approach to organ (rather than recording a .8 other specified percutaneous transluminal procedure code with a subsidiary method of operation code). Therefore, to ensure that percutaneous transluminal procedures on the heart appropriately map to HRG roots within this subchapter, new combination codes classifying these procedures have been created using new combination list **CL_TRNSCATH** (Transcatheter approaches). This combination list comprises approach to organ through blood vessel codes and transapical approach to heart codes. Four new combination codes have been created, ***K241+Y403+TRNSCATH Percutaneous transcatheter balloon dilation of right ventricular outflow tract obstruction***, ***K255+Y072+TRNSCATH Percutaneous transcatheter clipping of mitral valve***, ***K341+TRNSCATH Percutaneous transcatheter annuloplasty of mitral valve*** and ***K342+TRNSCATH Percutaneous transcatheter annuloplasty of tricuspid valve***, and these have been mapped to the base HRG root for congenital cardiac surgery, **EC14 Intermediate Procedures for Congenital Heart Disease** (when the patient has a congenital heart disease diagnosis or is aged 18 years or under).

Changes related to alternatives to creating new OPCS-4.9 codes

Rather than author a new OPCS-4.9 approach code to classify robotic heart surgery, the Clinical Classifications Service has confirmed that ***Y74.3 Robotic minimal access approach to thoracic cavity*** can be used to record robotic heart surgery. Therefore, this code has been added to escalation list **EC_Proc_List** with a score of 3 to ensure the resource usage associated with robotic congenital heart surgery is reflected within the HRG design.

Deletion of paired code combination codes

After clarifying OPCS-4 clinical coding guidance relating to the sequencing of codes, it was determined that the paired code combination codes within the HRG design were not required. Consequently, 50 paired code combination codes that mapped to a base HRG root in this subchapter have been deleted from the HRG design. Where appropriate, escalation lists and logic have been amended to ensure that the procedures previously classified by the deleted codes continue to contribute to HRG escalation.

Update to multiple-procedure escalation list membership

The membership of lists used in multiple-procedure escalation logic employed within this subchapter have been updated as part of a global list membership review undertaken to ensure consistency across the HRG design and to remove redundant OPCS-4 codes and combination codes from escalation lists.

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **EC_CC**.

Subchapter ED – Open Cardiac Procedures for Acquired Conditions

Composition and Concepts		
	NC20/21	RC18/19
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

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.

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+ 2018/19 Reference Costs Grouper

Changes related to alternatives to creating new OPCS-4.9 codes

Rather than author a new OPCS-4.9 approach code to classify robotic heart surgery, the Clinical Classifications Service has confirmed that ***Y74.3 Robotic minimal access approach to thoracic cavity*** can be used to record robotic heart surgery. Therefore, this code has been added to escalation list **ED_Therap**, which is used to escalate activity from various **standard** cardiac procedure HRG roots to **complex** cardiac procedure HRG roots.

Deletion of paired code combination codes

After clarifying OPCS-4 clinical coding guidance relating to the sequencing of codes, it was determined that the paired code combination codes within the HRG design were not required. Consequently, 423 paired code combination codes that mapped to a base HRG root in this subchapter have been deleted from the HRG design. Where appropriate, escalation lists and logic have been amended to ensure that the procedures previously classified by the deleted codes continue to contribute to HRG escalation.

Update to multiple-procedure escalation list membership

The membership of lists used in multiple-procedure escalation logic employed within this subchapter have been updated as part of a global list membership review undertaken to ensure consistency across the HRG design and to remove redundant OPCS-4 codes and combination codes from escalation lists. List **ED_Root** (Aortic root procedures) and its associated logic have been deleted as this flag could not be triggered due to procedure hierarchies and was therefore is no longer necessary.

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **EDEY_CC**.

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		
	NC20/21	RC18/19
Total HRGs	**73**	**73**
Total HRG Roots	**29**	**29**
Procedure-driven HRGs	73	73
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

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 defibrillator 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+ 2018/19 Reference Costs Grouper

Changes related to new OPCS-4.9 codes

With the introduction of new OPCS-4.9 code category ***Y68.- Other approach to organ under image control***, which is an extension of category ***Y53.- Approach to organ under image control***, it is necessary to replace combination codes relying on combination list **CL_Y53** (Approach to organ under image control) with a new combination code using combination list **CL_IMAGE** (Approach to organ under image control). Each new combination code classifies the same procedure(s) as the code it has replaced and can be formed using either an existing (Y53.-) or a new (Y68.-) approach to organ under image control subsidiary code. One combination code employing **CL_Y53** and mapped to a base HRG root from this subchapter has been deleted and replaced with a combination code employing **CL_IMAGE**, ***K232+IMAGE Biopsy of lesion of heart wall under image control***.

New OPCS-4.9 site code ***O43.2 Coronary sinus*** has been used to create a new combination code classifying coronary sinus stenting. ***K578+Y14+O432 Transluminal insertion of stent into coronary sinus*** has been mapped to base HRG root **EY40 Complex Percutaneous Transluminal Coronary Angioplasty**.

Three new OPCS-4.9 approach codes to be used alongside PCI procedures have been added to escalation list **EY_PCI_Proc**. When recorded alongside a PCI procedure, ***Y17.3 Lithotripsy of lesion of organ NOC***, ***Y37.2 Introduction of substance into organ using drug-eluting balloon*** and ***Y45.2 Approach to organ under robotic control NEC*** are each expected to result in additional resource usage. Consequently, the presence of these codes in the patient record – or any other code on list **EY_Complex_PCI** – will trigger escalation to a higher resource HRG.

Logic has been added to all 13 codes that map to base HRG root **EY41 Standard Percutaneous Transluminal Coronary Angioplasty** and the five codes that map to base HRG root **EY40 Complex Percutaneous Transluminal Coronary Angioplasty** to escalate activity to HRG roots **EY40 Complex Percutaneous Transluminal Coronary Angioplasty** and **EY44 Very Complex Percutaneous Transluminal Coronary Angioplasty**, respectively, when a dual arterial approach is used. This logic ensures that new approach code ***Y79.5 Transluminal approach to organ through radial artery***, when recorded alongside ***Y79.3 Transluminal approach to organ through femoral artery***, triggers escalation to a higher resource HRG, ensuring that the additional resource usage associated with a dual approach PCI is reflected within the HRG design. ***Y79.5 Transluminal approach to organ through radial artery*** has been added to combination list **CL_TAVI** (Other transluminal approach codes for TAVI).

Changes related to OPCS-4.9 coding guidance amendments

Rather than author a new OPCS-4.9 code to classify bubble contrast echocardiogram, the Clinical Classifications Service has issued coding guidance stating that the existing radiology with contrast codes are to be used alongside ***U20.1 Transthoracic echocardiography*** to classify this intervention. As a result, a new combination code has been created, ***U201+Y97 Transthoracic echocardiography with contrast***, and rather than generate unbundled HRG root **RD51 Simple Echocardiogram**, this has been mapped to **EY50Z Complex Echocardiogram**.

A new coding standard has been issued to clarify the coding of percutaneous transluminal procedures for which no specific code exists in the code set. According to the new standard, where no specific procedure code exists but there is an equivalent open procedure code, the code classifying the open procedure should be recorded along with a subsidiary code classifying transluminal approach to organ (rather than recording a .8 other specified percutaneous transluminal procedure code with a subsidiary method of operation code). Therefore, to ensure that percutaneous transluminal procedures on the heart appropriately map to HRG roots within this subchapter, new combination codes classifying these procedures have been created using new combination list **CL_TRNSCATH** (Transcatheter approaches). This combination list comprises approach to organ through blood vessel codes and transapical approach to heart codes. Four new combination codes have been created, ***K241+Y403+TRNSCATH Percutaneous transcatheter balloon dilation of right ventricular outflow tract obstruction***, ***K255+Y072+TRNSCATH Percutaneous transcatheter clipping of mitral valve***, ***K341+TRNSCATH Percutaneous transcatheter annuloplasty of mitral valve*** and ***K342+TRNSCATH Percutaneous transcatheter annuloplasty of tricuspid valve***, and these have been mapped to base HRG root **EY22 Complex Other Percutaneous Transluminal Repair of Acquired Defect of Heart**.

Combination codes ***K751+Y146 Percutaneous transluminal balloon angioplasty and insertion of 1-2 biodegradable drug-eluting stents into coronary artery***, ***K752+Y146 Percutaneous transluminal balloon angioplasty and insertion of 3 or more biodegradable drug-eluting stents into coronary artery***, ***K753+Y146 Percutaneous transluminal balloon angioplasty and insertion of 1-2 biodegradable stents into coronary artery*** and ***K754+Y146 Percutaneous transluminal balloon angioplasty and insertion of 3 or more biodegradable stents into coronary artery*** have been deleted. However, escalation lists and logic have been amended to ensure that the use of metal and biodegradable stents contributes to HRG escalation where appropriate.

Changes related to alternatives to creating new OPCS-4.9 codes

Rather than author new codes to classify various approaches to an occlusion of artery, e.g. retrograde, antegrade, subintimal or combined, logic has been added to all 13 codes that map to base HRG root **EY41 Standard Percutaneous Transluminal Coronary Angioplasty** and the five codes that map to HRG root **EY40 Complex Percutaneous Transluminal Coronary Angioplasty** to escalate activity to HRG roots **EY40 Complex Percutaneous Transluminal Coronary Angioplasty** and **EY44 Very Complex Percutaneous Transluminal Coronary Angioplasty**, respectively, where the primary diagnosis is indicative of chronic total occlusion (CTO) of coronary arteries – ***I25.8 Other forms of chronic ischaemic heart disease***. This allows the resource usage associated with complex PCI procedures undertaken to treat CTO to be appropriately accommodated within the HRG design.

Deletion of paired code combination codes

After clarifying OPCS-4 clinical coding guidance relating to the sequencing of codes, it was determined that the paired code combination codes within the HRG design were not required. Consequently, 12 paired code combination codes that mapped to a base HRG root in this subchapter have been deleted from the HRG design. Where appropriate, escalation lists and logic have been amended to ensure that the procedures previously classified by the deleted codes continue to contribute to HRG escalation.

Update to multiple-procedure escalation list membership

The membership of lists used in multiple-procedure escalation logic employed within this subchapter have been updated as part of a global list membership review undertaken to ensure consistency across the HRG design and to remove redundant OPCS-4 codes and combination codes from escalation lists.

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **EDEY_CC**.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **FDFEFFYF_CC**.

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		
	NC20/21	RC18/19
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 consume 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+ 2018/19 Reference Costs Grouper

Changes related to new OPCS-4.9 codes

New OPCS-4.9 codes ***H21.5 Fibreoptic endoscopic decompression of colon***, ***H24.5 Endoscopic decompression of lower bowel using fibreoptic sigmoidoscope***, ***H27.5 Endoscopic decompression of sigmoid colon using rigid sigmoidoscope***, ***H71.1 Fibreoptic endoscopic balloon dilation of colonic pouch NEC***, ***H71.8 Other specified therapeutic endoscopic operations on enteric pouch*** and ***H71.9 Unspecified therapeutic endoscopic operations on enteric pouch*** have been mapped to base HRG root **FE03 Intermediate Therapeutic Endoscopic, Upper or Lower Gastrointestinal Tract Procedures**.

Two new combination codes have been created using new OPCS-4.9 codes ***G47.5 Insertion of nasogastric tube*** and ***G67.5 Insertion of nasojejunal tube*** to appropriately capture endoscopic insertion of NG or NJ tubes. ***G475+Y763 Endoscopic insertion of nasogastric tube*** has been created and mapped to base HRG root **FE12 Endoscopic Insertion of Gastrostomy Tube**. ***G675+Y763 Endoscopic insertion of nasojejunal tube*** has been created and mapped to base HRG root **FE13 Endoscopic Insertion of, Gastrojejunostomy or Jejunostomy Tube**.

New combination code ***G604+Y763+Y032 Endoscopic renewal of jejunostomy tube*** has been created using new OPCS-4.9 code ***G60.4 Attention to jejunostomy tube*** to specifically classify this procedure. This new combination code replaces the redundant, now-deleted code ***G648+Y032 Endoscopic renewal of tubal prosthesis into jejunum*** and has been mapped to base HRG root **FE13 Endoscopic Insertion of, Gastrojejunostomy or Jejunostomy Tube**.

With the introduction of new OPCS-4.9 code category ***Y68.- Other approach to organ under image control***, which is an extension of category ***Y53.- Approach to organ under image control***, it is necessary to replace flag **FE_Y53** with flag **FE_Image**, which is utilised by 14 codes within this subchapter, to capture all image control approach codes.

Changes related to OPCS-4.9 coding guidance amendments

Combination codes ***G448+Y032 Fibreoptic endoscopic percutaneous renewal of gastrostomy tube***, ***G438+RFA Fibreoptic endoscopic radiofrequency extirpation of lesion of upper gastrointestinal tract*** and ***H208+RFA Fibreoptic endoscopic radiofrequency controlled thermal extirpation of lesion of colon*** have been deleted following clarification of clinical coding guidance.

Update to multiple-procedure escalation list membership

The membership of lists used in multiple-procedure escalation logic employed within this subchapter have been updated as part of a global list membership review undertaken to ensure consistency across the HRG design and to remove redundant OPCS-4 codes and combination codes from escalation lists.

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **FDFEFFYF_CC**.

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		
	NC20/21	RC18/19
Total HRGs	**115**	**115**
Total HRG Roots	**37**	**37**
Procedure-driven HRGs	115	115
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 generalised 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+ 2018/19 Reference Costs Grouper

Changes related to new OPCS-4.9 codes

New OPCS-4.9 codes ***G47.5 Insertion of nasogastric tube***, ***G67.5 Insertion of nasojejunal tube*** and ***G60.4 Attention to jejunostomy tube*** have been mapped to base HRG root **FF05 Intermediate Upper Gastrointestinal Tract Procedures, 19 years and over**. Procedures classified by the latter code were previously classified by combination codes ***G608+Y031 Maintenance of jejunostomy tube*** and ***G608+Y037 Removal of jejunostomy tube***; however, these combination codes have been deleted as they are now redundant.

New OPCS-4.9 codes ***H29.5 Subtotal excision of colon and anastomosis of colon to ileum*** and ***H35.5 Anterior fixation of rectum using prosthetic material*** have been mapped to base HRG root **FF34 Major Large Intestine Procedures, 19 years and over**.

New OPCS-4.9 codes ***H42.7 Rubber band ligation of prolapsed rectal mucosa*** and ***H62.7 Endoanal ultrasound examination of lower bowel*** have been mapped to base HRG root **FF36 Intermediate Large Intestine Procedures, 19 years and over**.

New OPCS-4.9 codes ***T30.5 Packing of abdominal cavity***, ***T41.6 Excision of peritoneum*** and ***T42.5 Endoscopic excision of peritoneum*** have been mapped to base HRG root **FF51 Major General Abdominal Procedures**.

New combination codes have been created using new OPCS-4.9 approach codes ***Y26.6 Partial removal of mesh from organ NOC*** and ***Y26.7 Total removal of mesh from organ NOC*** to classify removal of abdominal mesh procedures. ***T318+Y266 Partial removal of mesh from anterior abdominal wall*** and ***T318+Y267 Total removal of mesh from anterior abdominal wall*** have been mapped to base HRG root **FF51 Major General Abdominal Procedures**.

Three new combination codes have been created using new OPCS-4.9 site code ***O14.3 Mesenteric lymph node*** to classify operations performed on this specific lymph node. ***T858+O143 Block dissection of mesenteric lymph node***, ***T868+O143 Sampling of mesenteric lymph node*** and ***T878+O143 Excision or biopsy of mesenteric lymph node*** have been mapped to base HRG root **FF50 Complex General Abdominal Procedures**.

Existing OPCS-4 codes ***T86.6 Sampling of para-aortic lymph nodes*** and ***T87.5 Excision or biopsy of para-aortic lymph node*** have been remapped from a base HRG root of **FF51 Major General Abdominal Procedures** to **FF50 Complex General Abdominal Procedures** following a mapping review of lymph node procedures in light of the many new OPCS-4.9 codes classifying lymph node sites and procedures.

Existing OPCS-4 code ***T85.6 Block dissection of pelvic lymph nodes*** and existing combination codes ***T868+O141 Sampling of pelvic lymph nodes*** and ***T878+O141 Excision or biopsy of pelvic lymph node*** have been remapped from a base HRG root of **LB10 Major Open Bladder Procedures or Reconstruction** to **FF50 Complex General Abdominal Procedures** following a mapping review of lymph node procedures in light of the many new OPCS-4.9 codes classifying lymph node sites and procedures.

Existing OPCS-4 code ***T85.4 Block dissection of para-aortic lymph nodes*** has been remapped from a base HRG root of **YQ05 Single Open Procedure, on Aorta or Abdominal Blood Vessel** to **FF50 Complex General Abdominal Procedures** following a mapping review of lymph node procedures in light of the many new OPCS-4.9 codes classifying lymph node sites and procedures.

New OPCS-4.9 code ***Y91.6 Intraoperative electron beam radiotherapy*** has been added to escalation lists **FF_Major**, **FF_Complex** and **FF_VeryComplex** to ensure the expected additional resource usage associated with this intervention (over and above the radiotherapy

delivery) can be acknowledged within the HRG design, e.g. to account for the increased theatre time associated with patients receiving intraoperative radiotherapy.

Changes related to alternatives to creating new OPCS-4.9 codes

Rather than author a new OPCS-4.9 code to classify specific procedures undertaken on the retroperitoneal lymph node, the Clinical Classifications Service has confirmed that these procedures can already be classified using existing codes followed by existing site code ***Z61.7 Retroperitoneal lymph node***. New combination codes ***T858+Z617 Block dissection of retroperitoneal lymph nodes***, ***T868+Z617 Sampling of retroperitoneal lymph nodes*** and ***T878+Z617 Excision or biopsy of retroperitoneal lymph node*** have been created and mapped to HRG root **FF51 Major General Abdominal Procedures**.

Following updated clinical advise, existing code ***T88.3 Drainage of lesion of inguinal lymph node*** was remapped from **FF53 Minor Therapeutic or Diagnostic, General Abdominal Procedures** to HRG root **YF04 Single Percutaneous Drainage of Abdominal Lesion Procedure**.

Deletion of paired code combination codes

After clarifying OPCS-4 clinical coding guidance relating to the sequencing of codes, it was determined that the paired code combination codes within the HRG design were not required. Consequently, 40 paired code combination codes that mapped to a base HRG root in this subchapter have been deleted from the HRG design. Where appropriate, escalation lists and logic have been amended to ensure that the procedures previously classified by the deleted codes continue to contribute to HRG escalation.

Update to multiple-procedure escalation list membership

The membership of lists used in multiple-procedure escalation logic employed within this subchapter have been updated as part of a global list membership review undertaken to ensure consistency across the HRG design and to remove redundant OPCS-4 codes and combination codes from escalation lists. The list value of multiple codes on an escalation list used within this subchapter have been updated to reflect the expected resource usage of the procedures classified by these code when recorded as a secondary procedure.

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **FDFEFFYF_CC**.

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		
	NC20/21	RC18/19
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 transplant 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 (atypically 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+ 2018/19 Reference Costs Grouper

Changes related to new OPCS-4.9 codes

New OPCS-4.9 code ***J07.4 Transection of liver*** has been mapped to base HRG root **GA04 Complex, Hepatobiliary or Pancreatic Procedures**.

New OPCS-4.9 code ***Y91.6 Intraoperative electron beam radiotherapy*** has been added to escalation lists **G_Major**, **GA_VeryMajor**, **GA_Complex** and **GA_VeryComplex** to ensure the expected additional resource usage associated with this intervention (over and above the radiotherapy delivery) can be acknowledged within the HRG design, e.g. to account for the increased theatre time associated with patients receiving intraoperative radiotherapy.

With the introduction of new OPCS-4.9 category ***O34.- Other biliary tract NEC***, which includes codes to classify the different sections of the liver, it is necessary to replace combination code ***X458+Z301 Donation of lobe or segment of liver*** with ***X458+LIVER Donation of lobe or segment of liver*** as the latter code can be formed using either the existing liver site code or a site code from the new code category.

Changes related to alternatives to creating new OPCS-4.9 codes

Rather than author a new OPCS-4.9 code to classify percutaneous hepatic perfusion, the Clinical Classifications Service has confirmed that this procedure can already be captured using existing code ***J16.1 Localised perfusion of liver*** followed by subsidiary code ***Y73.2 Extracorporeal circulation NEC***. New combination code ***J161+Y732 Localised perfusion of liver using extracorporeal circulation*** has been created and mapped to base HRG root **GA03 Very Complex, Hepatobiliary or Pancreatic Procedures** to appropriately reflect the resource usage associated with this procedure.

Update to multiple-procedure escalation list membership

The membership of lists used in multiple-procedure escalation logic employed within this subchapter have been updated as part of a global list membership review undertaken to ensure consistency across the HRG design and to remove redundant OPCS-4 codes and combination codes from escalation lists.

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **GAGBGCYG_CC**.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Changes related to new OPCS-4.9 codes

New OPCS-4.9 codes ***J39.2 Endoscopic sphincteroplasty of ampulla of Vater NEC***, ***J39.3 Endoscopic sphincteroplasty of ampulla of Vater and removal of calculus HFQ*** and ***J39.4 Endoscopic sphincteroplasty of ampulla of Vater and insertion of tubal prosthesis into bile duct*** have been mapped to base HRG root **GB06 Intermediate Therapeutic Endoscopic Retrograde Cholangiopancreatography**.

New combination code ***J394+MET Endoscopic sphincteroplasty of ampulla of Vater and insertion of metal stent into bile duct*** has been created using new OPCS-4.9 code ***J39.4***

Endoscopic sphincteroplasty of ampulla of Vater and insertion of tubal prosthesis into bile duct to specifically classify this procedure and enable the additional expected resource usage associated with metal stents to be acknowledged within the HRG design. The new combination code has been mapped to base HRG root **GB09 Complex Therapeutic Endoscopic Retrograde Cholangiopancreatography**.

Update to multiple-procedure escalation list membership

The membership of lists used in multiple-procedure escalation logic employed within this subchapter have been updated as part of a global list membership review undertaken to ensure consistency across the HRG design and to remove redundant OPCS-4 codes and combination codes from escalation lists.

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **GAGBGCYG_CC**.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **GAGBGCYG_CC**.

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.

Composition and Concepts		
	NC20/21	RC18/19
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 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.

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**.

HC65Z Minor Extradural Spinal Procedures and HRG root **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+ 2018/19 Reference Costs Grouper

Changes related to new OPCS-4.9 codes

New OPCS-4.9 code ***A51.5 Repair of dura of spinal cord*** has been mapped to base HRG root **HC70 Complex Intradural Spinal Procedures**; however, multiple-procedure escalation logic has not been applied to this code to ensure that when this procedure is undertaken to repair a surgical tear it does not inappropriately escalate the activity to a higher resource HRG.

New OPCS-4.9 codes ***V24.6 Primary posterior laminectomy decompression of thoracic spine*** and ***V70.1 Revisional posterior laminectomy decompression of cervical spine*** have been mapped to base HRG root **HC63 Major Extradural Spinal Procedures**. In addition, new combination code ***V246+V553 Primary posterior laminectomy decompression of thoracic spine, with greater than two levels of spine*** has been created and mapped to base HRG root **HC62 Very Major Extradural Spinal Procedures**.

New OPCS-4.9 code ***V24.7 Revisional posterior laminectomy decompression of thoracic spine*** has been mapped to base HRG root **HC61 Complex Extradural Spinal Procedures**. In addition, new combination code ***V247+V553 Revisional posterior laminectomy decompression of thoracic spine, with greater than two levels of spine*** has been created and mapped to base HRG root **HC60 Very Complex Extradural Spinal Procedures**.

New OPCS-4.9 code ***V69.1 Primary posterior laminectomy decompression of cervical spine*** has been mapped to base HRG root **HC64 Intermediate Extradural Spinal Procedures**. In addition, new combination codes ***V691+V552 Primary posterior laminectomy decompression of cervical spine, with two levels of spine*** and ***V691+V553 Primary posterior laminectomy decompression of cervical spine, with greater than two levels of spine*** have been created and mapped to base HRG root **HC63 Major Extradural Spinal Procedures**.

With the introduction of new OPCS-4.9 code category ***Y68.- Other approach to organ under image control***, which is an extension of category ***Y53.- Approach to organ under image control***, it is necessary to replace combination codes relying on combination list **CL_Y53** (Approach to organ under image control) with a new combination code using combination list **CL_IMAGE** (Approach to organ under image control). Each new combination code classifies the same procedure(s) as the code it has replaced and can be formed using either an existing (Y53.-) or a new (Y68.-) approach to organ under image control subsidiary code. Two combination codes employing **CL_Y53** and mapped to a base HRG root from this subchapter have been deleted and replaced with a combination code employing **CL_IMAGE**.

Changes related to alternatives to creating new OPCS-4.9 codes

Rather than author new OPCS-4.9 codes to classify specific fusion of sacroiliac joint procedures, the Clinical Classifications Service has confirmed that these procedures can already be classified using existing codes followed by existing site code ***Z84.1 Sacroiliac joint***. New combination codes ***W621+Z841 Primary arthrodesis and internal fixation of***

sacroiliac joint and ***W631+Z841 Revision of arthrodesis and internal fixation of sacroiliac joint*** have been created and mapped to HRG root **HC62 Very Major Extradural Spinal Procedures**. The former code replaces combination code ***W621+Y769+Z841 Primary arthrodesis and internal fixation of sacroiliac joint using minimal access approach***, which has been deleted from the HRG design.

Changes to accommodate NICE guidance

Combination code ***V259+Y083 Primary laser decompression of lumbar spine*** has been created using existing OPCS-4 codes and mapped to HRG root **HC65 Minor Extradural Spinal Procedures** following an update to clinical coding guidance impacting NICE guidance for percutaneous intradiscal laser ablation in the lumbar spine.

Update to multiple-procedure escalation list membership

The membership of lists used in multiple-procedure escalation logic employed within this subchapter have been updated as part of a global list membership review undertaken to ensure consistency across the HRG design and to remove redundant OPCS-4 codes and combination codes from escalation lists.

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **HC_CC**.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **HD_CC**.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **HEHNHT_CC**.

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		
	NC20/21	**RC18/19**
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 ***A592+ELBOW*** would be derived and would drive grouping.

Differences from the HRG4+ 2018/19 Reference Costs Grouper

Changes related to new OPCS-4.9 codes

New OPCS-4.9 codes ***O37.1 Conversion to reverse polarity total prosthetic replacement of shoulder joint using cement***, ***O37.2 Revision of one component of reverse polarity total prosthetic replacement of shoulder joint using cement***, ***O38.1 Conversion to reverse polarity total prosthetic replacement of shoulder joint not using cement***, ***O38.2 Revision of one component of reverse polarity total prosthetic replacement of shoulder joint not using cement***, ***O39.1 Conversion to reverse polarity total prosthetic replacement of shoulder joint NEC***, ***O39.3 Revision of one component of reverse polarity total prosthetic replacement of shoulder joint NEC***, ***O40.1 Primary reverse polarity hybrid prosthetic replacement of shoulder joint using cement***, ***O40.2 Conversion to reverse polarity hybrid total prosthetic replacement of shoulder joint using cement*** and ***O40.3 Revision of reverse polarity hybrid prosthetic replacement of shoulder joint using cement*** have been mapped to base HRG root **HN86 Complex, Foot, Hand, Shoulder or Elbow Procedures for Non-Trauma**.

New OPCS-4.9 codes ***O37.8 Other specified reverse polarity total prosthetic replacement of shoulder joint using cement***, ***O37.9 Unspecified reverse polarity total prosthetic replacement of shoulder joint using cement***, ***O38.8 Other specified reverse polarity total prosthetic replacement of shoulder joint not using cement***, ***O38.9 Unspecified reverse polarity total prosthetic replacement of shoulder joint not using cement***, ***O39.8 Other specified reverse polarity total prosthetic replacement of shoulder joint***, ***O39.9 Unspecified reverse polarity total prosthetic replacement of shoulder joint***, ***O40.8 Other specified reverse polarity hybrid prosthetic replacement of shoulder joint using cement*** and ***O40.9 Unspecified reverse polarity hybrid prosthetic replacement of shoulder joint using cement*** have been mapped to base HRG root **HN52 Very Major Shoulder Procedures for Non-Trauma**.

New OPCS-4.9 codes ***O39.2 Attention to reverse polarity total prosthetic replacement of shoulder joint NEC*** and ***O40.4 Attention to hybrid reverse polarity total prosthetic replacement of shoulder joint using cement*** have been mapped to base HRG root **HN53 Major Shoulder Procedures for Non-Trauma**.

New OPCS-4.9 code ***T54.3 Needle fasciotomy of palmar fascia*** has been mapped to base HRG root **HN46 Minimal Hand Procedures**.

New OPCS-4.9 code ***T54.4 Needle fasciotomy of plantar fascia*** has been mapped to base HRG root **HN35 Minor Foot Procedures for Non-Trauma**.

New OPCS-4.9 codes ***T57.5 Injection of therapeutic substance into fascia***, ***T96.5 Aspiration of soft tissue NEC***, ***T96.6 Biopsy of soft tissue NEC*** and ***T96.7 Injection into soft tissue NEC*** have been mapped to base HRG root **HN93 Other Muscle, Tendon, Fascia or Ligament Procedures**. In addition, for each of these new OPCS-4.9 codes, new +SITE combination codes have been created, e.g. ***T575+HIP Injection of therapeutic substance into fascia of hip***. Each of these 24 new combination codes has been mapped to the relevant **HN*6 Minimal SITE Procedures** HRG root, e.g. **HN16 Minimal Hip Procedures**. T575 replaces the now-redundant, deleted combination code ***T578+Y38 Injection of therapeutic substance into fascia***, and the new T575+SITE combination codes replace the six now-redundant, deleted combination codes in the form ***T578+Y38+SITE Injection of therapeutic substance into fascia of SITE.***

New OPCS-4.9 code ***T74.7 Injection of stem cells into tendon*** has been mapped to base HRG root **HN93 Other Muscle, Tendon, Fascia or Ligament Procedures**. In addition, six new +SITE combination codes have been created, e.g. ***T747+HIP Injection of stem cells into tendon of hip***, and mapped to the relevant **HN*5 Minor SITE Procedures for Non-Trauma** HRG root, e.g. **HN15 Minor Hip Procedures for Non-Trauma**.

Six new +SITE combination codes have been created using new OPCS-4.9 code ***W71.5 Open stem cell implantation into articular structure*** and another six created using new OPCS-4.9 code ***W17.6 Traction lengthening of bone with intramedullary fixation***, e.g. ***W715+HIP Open stem cell implantation into articular structure of hip***. Each of these twelve new combination codes have been mapped to the relevant **HN*3 Major SITE Procedures for Non-Trauma** HRG root, e.g. **HN13 Major Hip Procedures for Non-Trauma**.

Six new +SITE combination codes have been created using new OPCS-4.9 code ***W89.3 Endoscopic stem cell implantation into articular cartilage*** and another six created using new OPCS-4.9 code ***O35.1 Attention to therapeutic joint spacer***, e.g. ***W893+HIP Endoscopic stem cell implantation into articular cartilage of hip***. Each of these twelve new combination codes have been mapped to the relevant **HN*4 Intermediate SITE Procedures for Non-Trauma** HRG root, e.g. **HN14 Intermediate Hip Procedures for Non-Trauma**. In addition, six new +SITE combination codes in the form ***O351+Y032+SITE Renewal of therapeutic joint spacer of SITE***, e.g. ***O351+Y032+HIP Renewal of therapeutic joint spacer of hip***, have been created to replace the now-redundant, deleted combination codes in the form ***W818+Y032+SITE Renewal of therapeutic spacer into joint of SITE***. Each of these new combination codes have been mapped to the relevant **HN*2 Very Major SITE Procedures for Non-Trauma** HRG root, e.g. **HN12 Very Major Hip Procedures for Non-Trauma**.

New OPCS-4.9 site code ***O16.3 Axilla NEC*** has been added to combination list **CL_Shoulder** and new site code ***Z76.6 Trochlear surface of femur*** has been added to combination list **CL_Knee** so that they can be used to form the +SHOULDER and +KNEE orthopaedic combination codes, respectively.

New OPCS-4.9 site code ***O16.3 Axilla NEC*** has been added to combination list **CL_Shoulder** and site code ***Z76.6 Trochlear surface of femur*** has been added to combination list **CL_Knee** so that they can be used to form the +SHOULDER and +KNEE orthopaedic combination codes, respectively.

New OPCS-4.9 site codes ***Z72.5 Trapezium*** and ***Z73.5 Multiple metacarpals*** have been added to combination list **CL_Hand** so that they can be used to form the +HAND orthopaedic combination codes. The latter code has also been added to the orthopaedic escalation lists so that when this site code is recorded, activity will escalate to the next highest resource HRG root to appropriately reflect the resource usage associated with operating on multiple metacarpals.

New OPCS-4.9 site code ***Z80.5 Multiple metatarsals*** has been added to combination list **CL_Foot** so that it can be used to form the +FOOT orthopaedic combination codes. This code has also been added to the orthopaedic escalation lists so that when this site code is recorded, activity will escalate to the next highest resource HRG root to appropriately reflect the resource usage associated with operating on multiple metatarsals.

With the introduction of new OPCS-4.9 code category ***Y68.- Other approach to organ under image control***, which is an extension of category ***Y53.- Approach to organ under image control***, it is necessary to replace combination codes relying on combination list **CL_Y53** (Approach to organ under image control) with a new combination code using combination list **CL_IMAGE** (Approach to organ under image control). Each new combination code classifies the same procedure(s) as the code it has replaced and can be formed using either an existing (Y53.-) or a new (Y68.-) approach to organ under image control subsidiary code. The 63 combination codes employing **CL_Y53** and mapped to a base HRG root from this subchapter have been deleted and replaced with a combination code employing **CL_IMAGE**.

Changes to accommodate NICE guidance

Four new combination codes have been created following an update to clinical coding guidance impacting NICE guidance for knee repair procedures using a scaffold. Two of the new combination codes, ***W703+SCAF Open repair of semilunar cartilage using scaffold*** and ***W823+SCAF Endoscopic repair of semilunar cartilage using scaffold***, rely on existing OPCS-4 codes and newly created combination list **CL_Scaf** (Introduction of scaffold into organ), while the other two, ***W823+Y272 Endoscopic repair of semilunar cartilage using allograft*** and ***W703+Y272 Open repair of semilunar cartilage using allograft***, rely on existing OPCS-4 codes only. All four new combination codes are mapped to HRG root **HN23 Major Knee Procedures for Non-Trauma**.

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **HEHNHT_CC**.

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		
	NC20/21	**RC18/19**
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 ***A592+ELBOW*** would be derived and would drive grouping.

Differences from the HRG4+ 2018/19 Reference Costs Grouper

Changes related to new OPCS-4.9 codes

New OPCS-4.9 codes ***O37.1 Conversion to reverse polarity total prosthetic replacement of shoulder joint using cement***, ***O37.2 Revision of one component of reverse polarity total prosthetic replacement of shoulder joint using cement***, ***O38.1 Conversion to reverse polarity total prosthetic replacement of shoulder joint not using cement***, ***O38.2 Revision of one component of reverse polarity total prosthetic replacement of shoulder joint not using cement***, ***O39.1 Conversion to reverse polarity total prosthetic replacement of shoulder joint NEC***, ***O39.3 Revision of one component of reverse polarity total prosthetic replacement of shoulder joint NEC***, ***O40.1 Primary reverse polarity hybrid prosthetic replacement of shoulder joint using cement***, ***O40.2 Conversion to reverse polarity hybrid total prosthetic replacement of shoulder joint using cement*** and ***O40.3 Revision of reverse polarity hybrid prosthetic replacement of shoulder joint using cement*** have been mapped to base trauma HRG root **HT86 Complex, Foot, Hand, Shoulder or Elbow Procedures for Trauma**.

New OPCS-4.9 codes ***O37.8 Other specified reverse polarity total prosthetic replacement of shoulder joint using cement***, ***O37.9 Unspecified reverse polarity total prosthetic replacement of shoulder joint using cement***, ***O38.8 Other specified reverse polarity total prosthetic replacement of shoulder joint not using cement***, ***O38.9 Unspecified reverse polarity total prosthetic replacement of shoulder joint not using cement***, ***O39.8 Other specified reverse polarity total prosthetic replacement of shoulder joint***, ***O39.9 Unspecified reverse polarity total prosthetic replacement of shoulder joint***, ***O40.8 Other specified reverse polarity hybrid prosthetic replacement of shoulder joint using cement*** and ***O40.9 Unspecified reverse polarity hybrid prosthetic replacement of shoulder joint using cement*** have been mapped to base trauma HRG root **HT52 Very Major Shoulder Procedures for Trauma**.

New OPCS-4.9 codes ***O39.2 Attention to reverse polarity total prosthetic replacement of shoulder joint NEC*** and ***O40.4 Attention to hybrid reverse polarity total prosthetic replacement of shoulder joint using cement*** have been mapped to base trauma HRG root **HT53 Major Shoulder Procedures for Trauma**.

New OPCS-4.9 code ***T54.4 Needle fasciotomy of plantar fascia*** has been mapped to base trauma HRG root **HT35 Minor Foot Procedures for Trauma**.

Six new +SITE combination codes have been created using new OPCS-4.9 code ***T74.7 Injection of stem cells into tendon***, e.g. ***T747+HIP Injection of stem cells into tendon of hip***, and when for trauma, have been mapped to the relevant **HT*5 Minor SITE Procedures for Trauma** HRG root, e.g. **HT15 Minor Hip Procedures for Trauma**.

Six new +SITE combination codes have been created using new OPCS-4.9 code ***W71.5 Open stem cell implantation into articular structure*** and another six created using new OPCS-4.9 code ***W17.6 Traction lengthening of bone with intramedullary fixation***, e.g. ***W715+HIP Open stem cell implantation into articular structure of hip***. Each of these twelve new combination codes have been mapped to the relevant **HT*3 Major SITE Procedures for Trauma** HRG root, e.g. **HT13 Major Hip Procedures for Trauma** (when for trauma).

Six new +SITE combination codes have been created using new OPCS-4.9 code ***W89.3 Endoscopic stem cell implantation into articular cartilage*** and another six created using new OPCS-4.9 code ***O35.1 Attention to therapeutic joint spacer***, e.g. ***W893+HIP Endoscopic stem cell implantation into articular cartilage of hip***. Each of these twelve new combination codes have been mapped to the relevant **HT*4 Intermediate SITE Procedures for Trauma** HRG roots, e.g. **HT14 Intermediate Hip Procedures for Trauma** (when for trauma). In addition, six new +SITE combination codes in the form ***O351+Y032+SITE Renewal of therapeutic joint spacer of SITE***, e.g. ***O351+Y032+HIP Renewal of therapeutic joint spacer of hip***, have been created to replace the now-redundant, deleted combination codes ***W818+Y032+SITE Renewal of therapeutic spacer into joint of SITE***. Each of these new combination codes has been mapped to the relevant **HT*2 Very Major SITE Procedures for Trauma** HRG root, e.g. **HT12 Very Major Hip Procedures for Trauma** (when for trauma).

Changes to accommodate NICE guidance

Four new combination codes have been created following an update to clinical coding guidance impacting NICE guidance for knee repair procedures using a scaffold. Two of the new combination codes, ***W703+SCAF Open repair of semilunar cartilage using scaffold*** and ***W823+SCAF Endoscopic repair of semilunar cartilage using scaffold***, rely on existing OPCS-4 codes and newly created combination list **CL_Scaf** (Introduction of scaffold into organ), while the other two, ***W823+Y272 Endoscopic repair of semilunar cartilage using allograft*** and ***W703+Y272 Open repair of semilunar cartilage using allograft***, rely on existing OPCS-4 codes only. All four new combination codes are mapped to HRG root **HT23 Major Knee Procedures for Trauma** (when for trauma).

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **HEHNHT_CC**.

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.

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.

Composition and Concepts		
	NC20/21	RC18/19
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

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+ 2018/19 Reference Costs Grouper

Changes related to new OPCS-4.9 codes

New OPCS-4.9 codes ***B29.6 Reconstruction of breast using glandular remodelling*** and ***B29.7 Reconstruction of breast using dermoglandular flap*** have been mapped to base HRG root **JA20 Unilateral Major Breast Procedures**.

New OPCS-4.9 code ***B37.6 Partial capsulectomy of breast*** has been mapped to base HRG root **JA43 Unilateral Intermediate Breast Procedures**.

Changes related to OPCS-4.9 description changes / Notes and index trail amendments

A note has been added at code ***S48.2 Insertion of skin expander into subcutaneous tissue of breast*** to specify that this code includes insertions of skin expanders into submuscular tissue. As it has been confirmed that this code classifies submuscular insertions, and therefore is equivalent to the insertion of a breast implant, it is appropriate to remap this code from base HRG root **JC42 Intermediate Skin Procedures** to **JA20 Unilateral Major Breast Procedures** to appropriately reflect expected resource usage. A similar note has been added at code ***S49.3 Removal of skin expander from subcutaneous tissue of breast***, and therefore this code is equivalent to the removal of a breast implant. Consequently, this code has been remapped from base HRG root **JC42 Intermediate Skin Procedures** to **JA43 Unilateral Intermediate Breast Procedures**.

Changes related to OPCS-4.9 coding guidance amendments

A new coding standard has been issued that allows for the differentiation of surgical versus radiological sentinel lymph node biopsies, with the coding guidance stating that the latter can be captured using a subsidiary code classifying approach to organ under image control. Therefore, to appropriately reflect the different expected resource usage of these procedures, code ***T87.3 Excision or biopsy of axillary lymph node*** has been remapped from base HRG root **YJ04 Core Needle Biopsy of Axillary Lymph Nodes** to **JA43 Unilateral Intermediate Breast Procedures**, as this code classifies a surgical biopsy. In addition, new combination code ***T873+IMAGE Excision or biopsy of axillary lymph node under image control*** has been created (where +IMAGE is a subsidiary code classifying approach to organ under image control) and mapped to **YJ04 Core Needle Biopsy of Axillary Lymph Nodes**, as this code classifies a radiological sentinel node biopsy.

Changes related to alternatives to creating new OPCS-4.9 codes

Rather than author a new OPCS-4.9 code to classify round block therapeutic mastopexy, the Clinical Classifications Service has confirmed that this procedure can already be classified using existing code ***B31.3 Mastopexy*** plus a partial excision of breast code. Therefore, to ensure that this procedure maps to the appropriate therapeutic mammoplasty HRGs, logic has been added to code ***B31.3 Mastopexy*** so that when a partial excision of breast code is recorded alongside it, the HRG derived will be **JA40Z Unilateral Therapeutic Mammoplasty** or **JA41Z Bilateral Therapeutic Mammoplasty**.

Deletion of paired code combination codes

After clarifying OPCS-4 clinical coding guidance relating to the sequencing of codes, it was determined that the paired code combination codes within the HRG design were not required. Consequently, 38 paired code combination codes that mapped to a base HRG root in this subchapter have been deleted from the HRG design. As there is no subsidiary logic within the breast HRG escalation logic, this change will have no impact on HRG derivation.

Update to multiple-procedure escalation list membership

The membership of lists used in multiple-procedure escalation logic employed within this subchapter have been updated as part of a global list membership review undertaken to ensure consistency across the HRG design and to remove redundant OPCS-4 codes and combination codes from escalation lists.

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **JAJD_CC**.

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		
	NC20/21	**RC18/19**
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

Body Site (as per ICD-10 codes)	Proxy % TBSA (where <10% TBSA overall)	Proxy % TBSA (where <20% TBSA overall)
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.

Differences from the HRG4+ 2018/19 Reference Costs Grouper

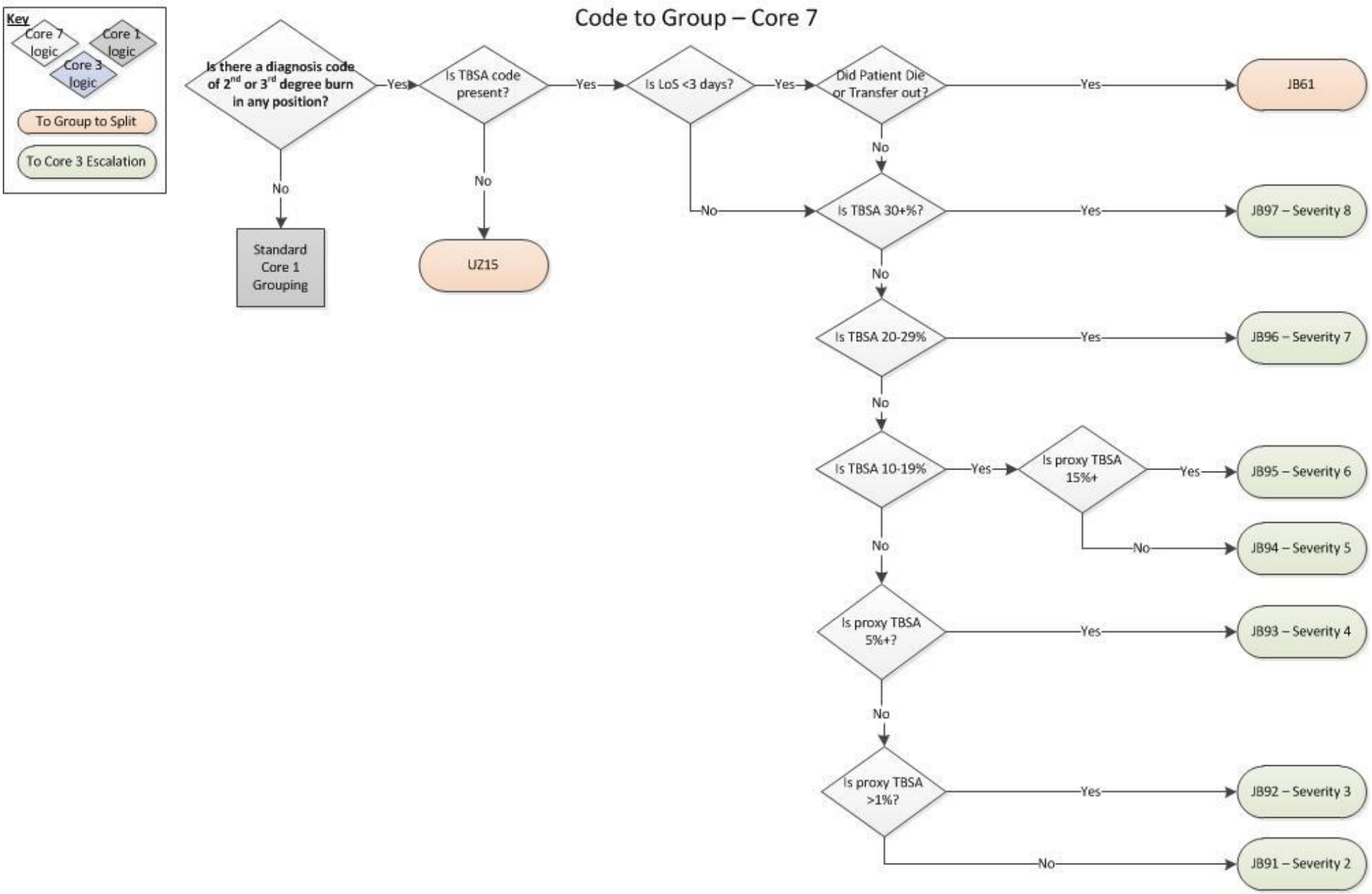
Changes related to new OPCS-4.9 codes

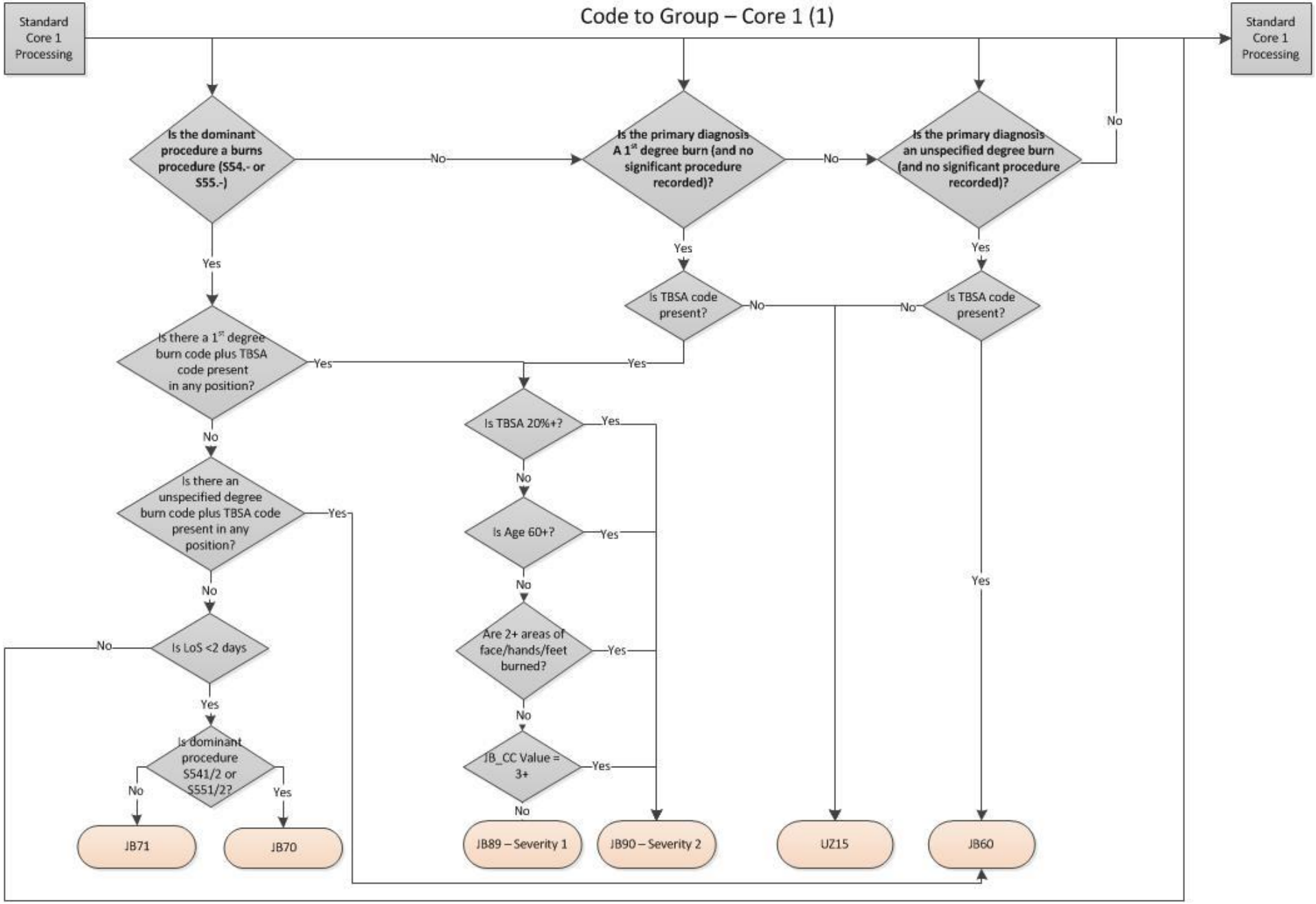
New OPCS-4.9 code ***S53.7 Application of dermal substitute to skin*** has been added to list **JB_Interventions** with a value of 1, the equivalent to a skin graft procedure, to appropriately reflect the resource usage associated with this procedure.

Accommodation of ICD-10 emergency use codes

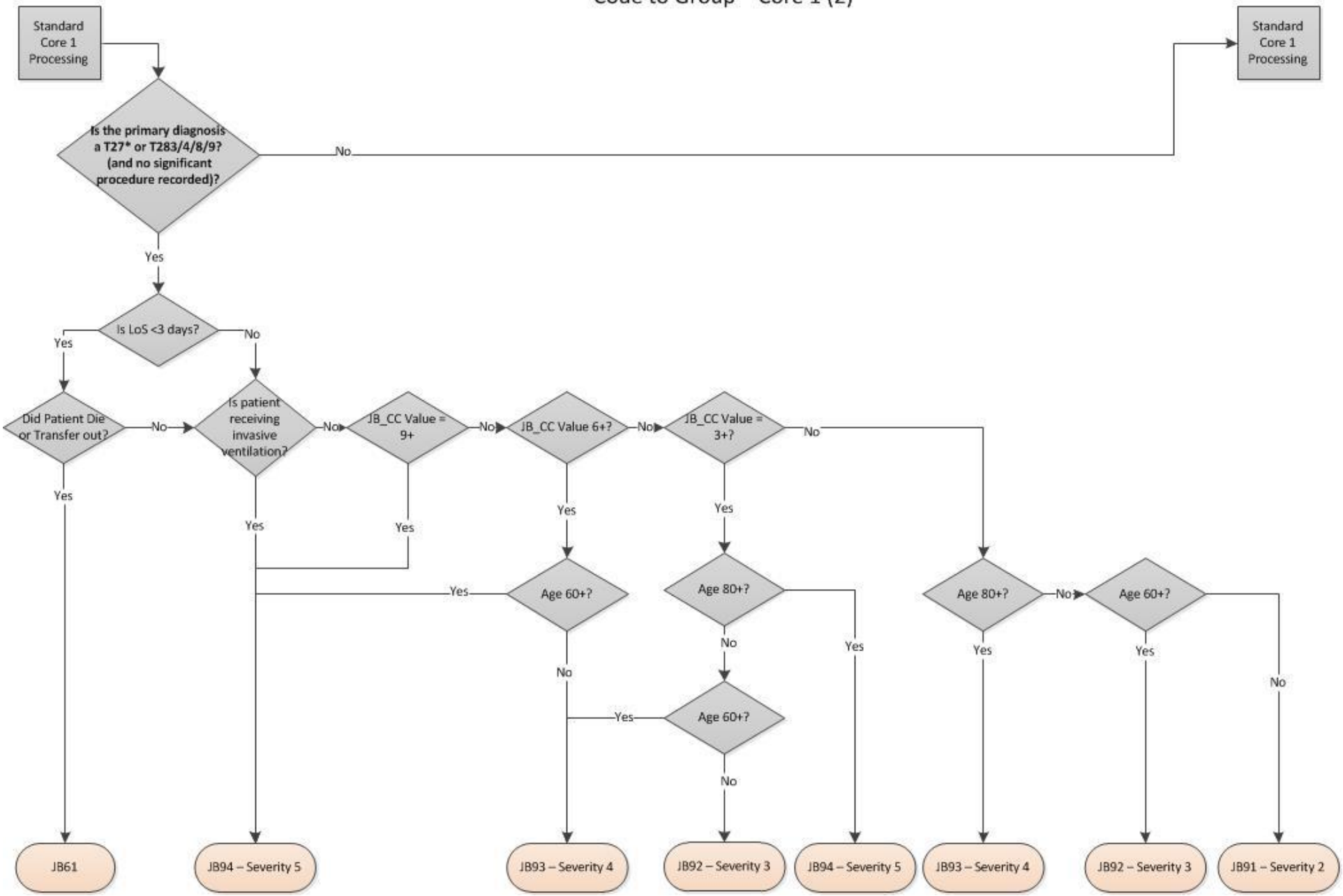
U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **JB_CC**.

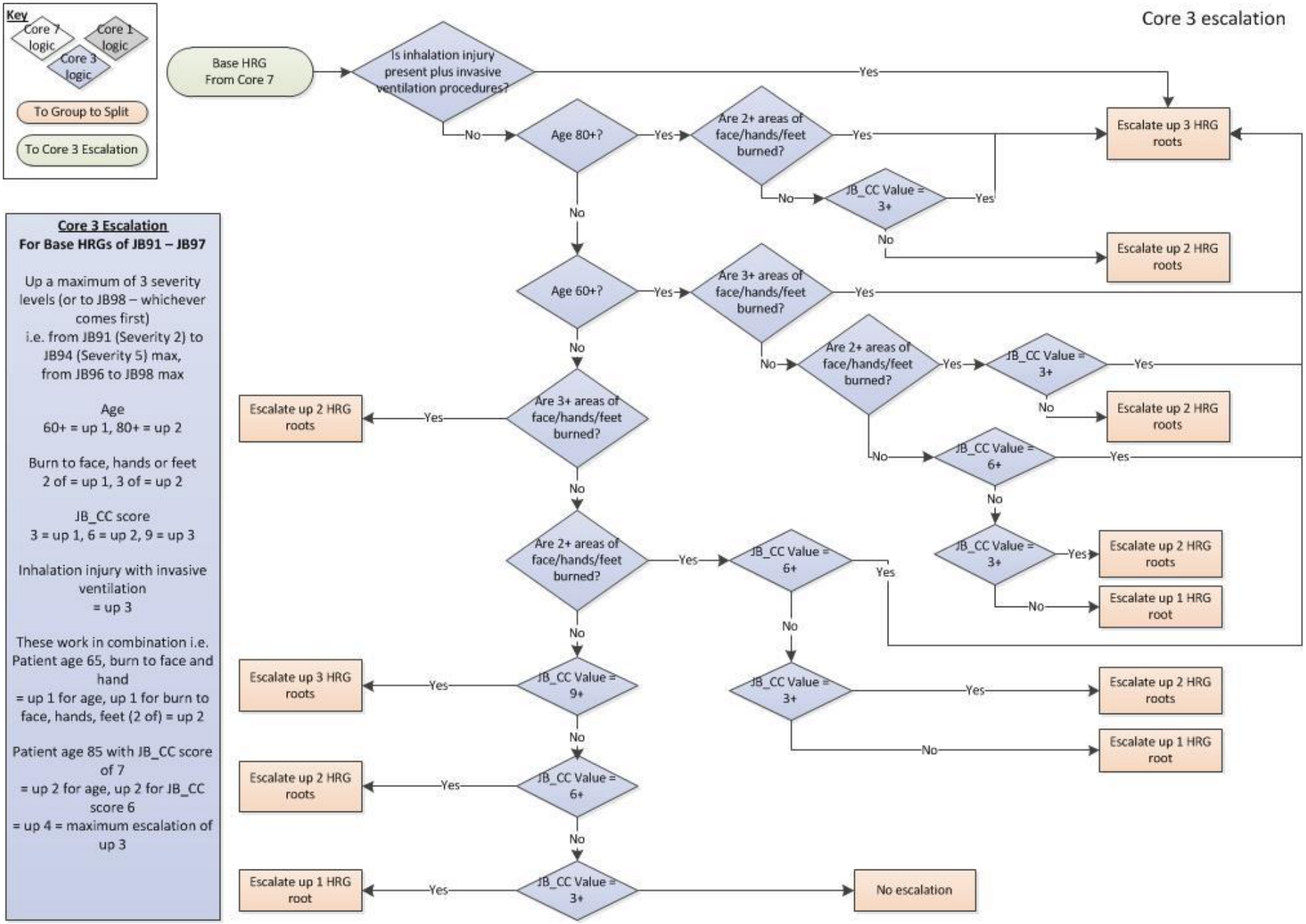
U07.5 Multisystem inflammatory syndrome associated with COVID-19 has been added to the complications and comorbidities list for this subchapter, **JB_CC**, as per the ICD-10 code in use for this disorder before the introduction of this emergency use code, ***R65.0 Systemic Inflammatory Response Syndrome of infectious origin without organ failure***.

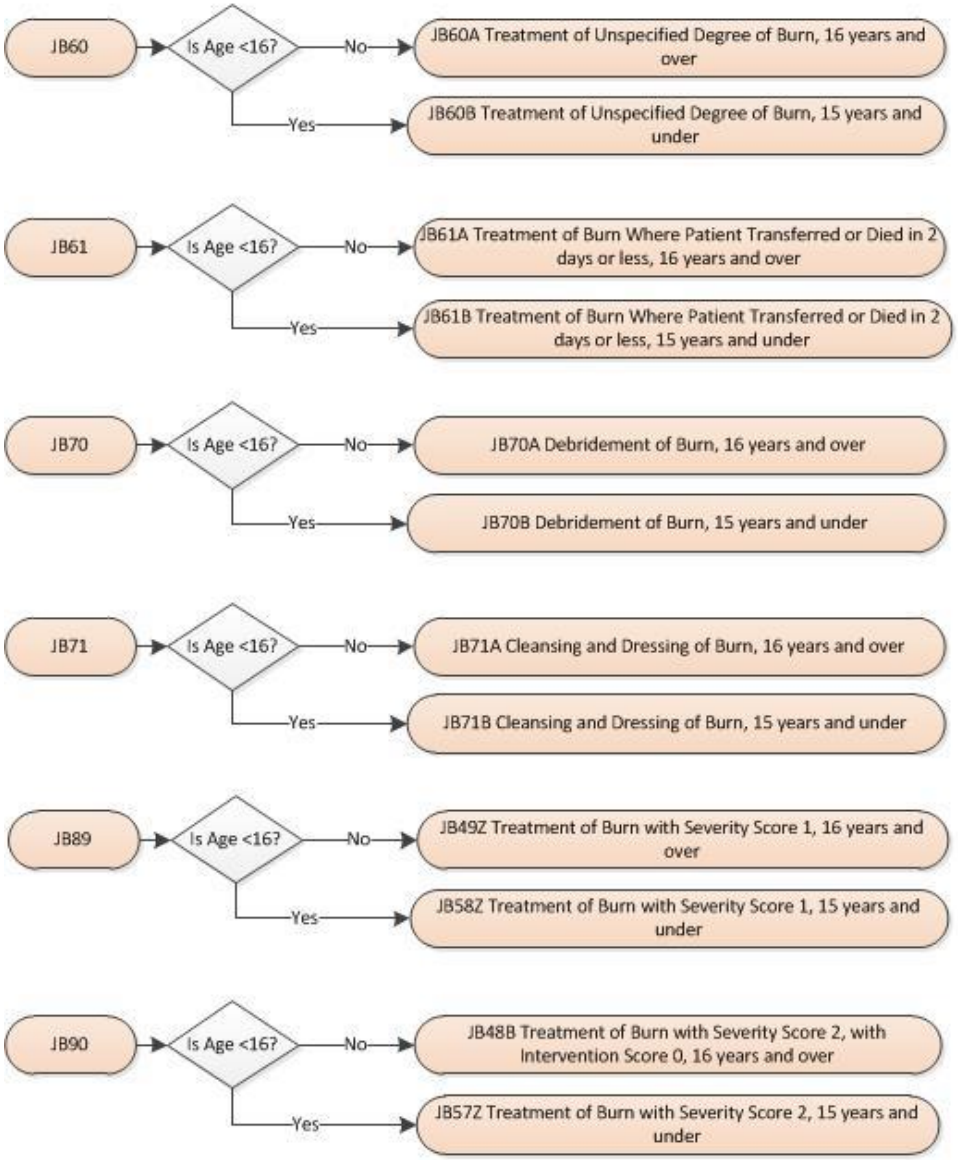


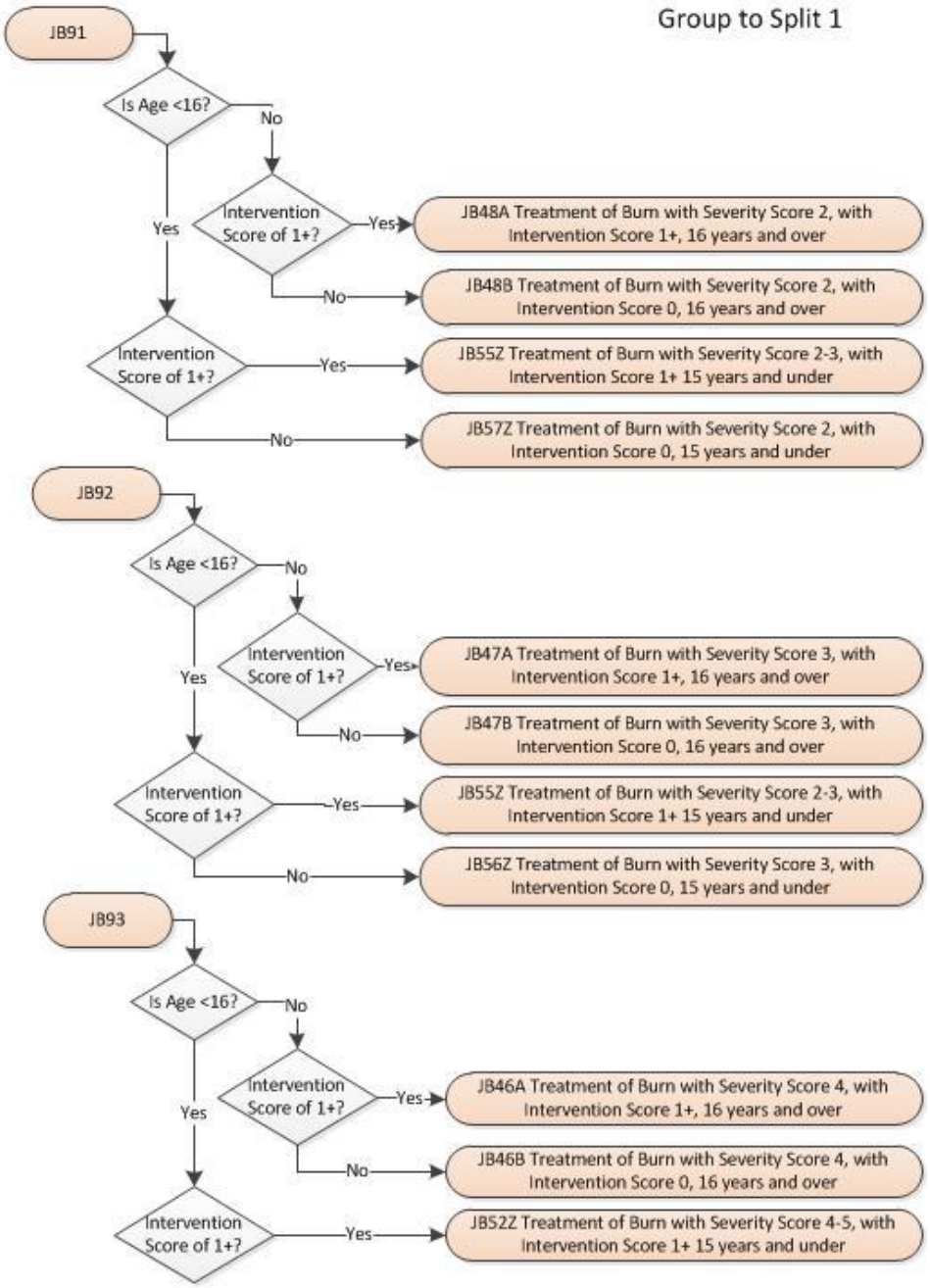


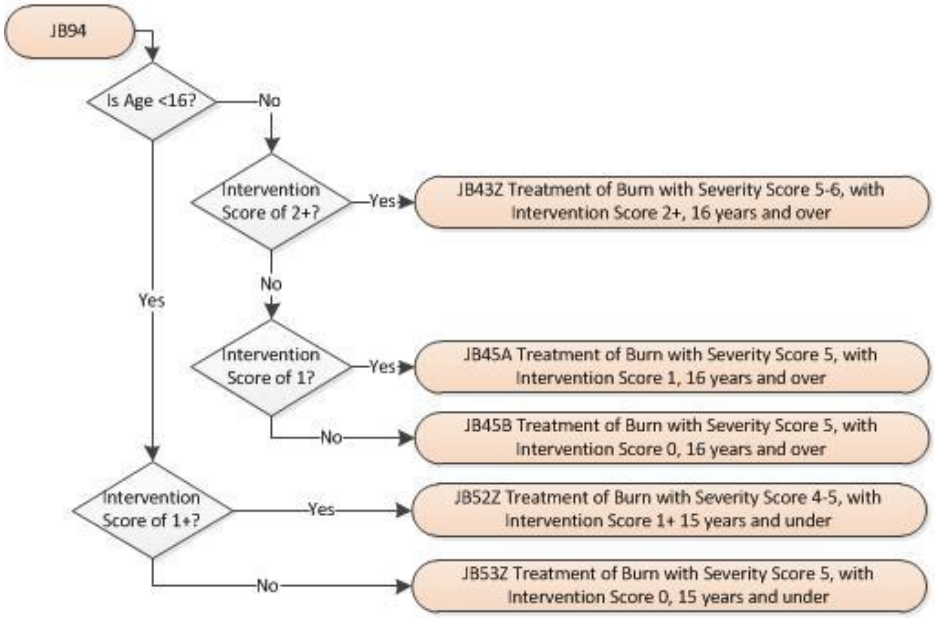
Code to Group – Core 1 (2)

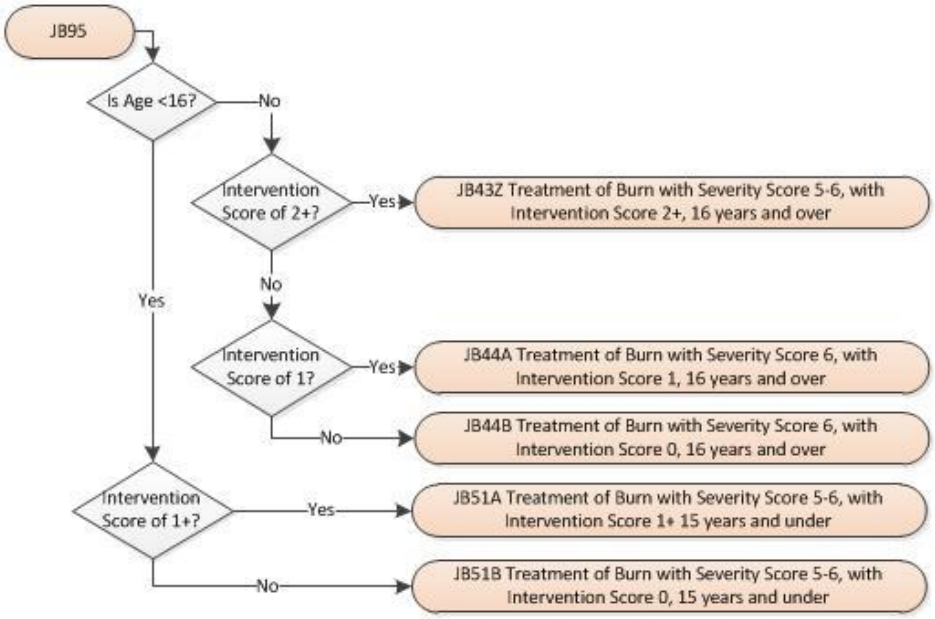




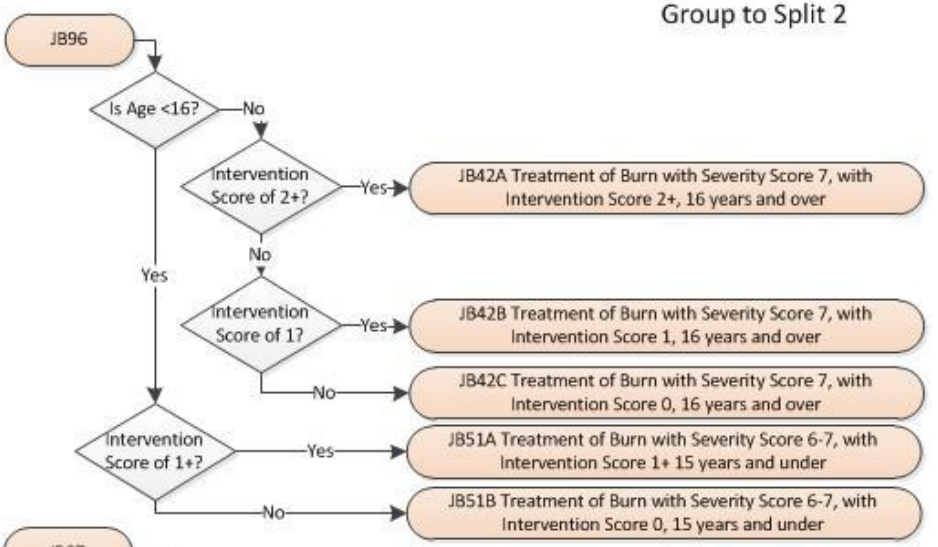


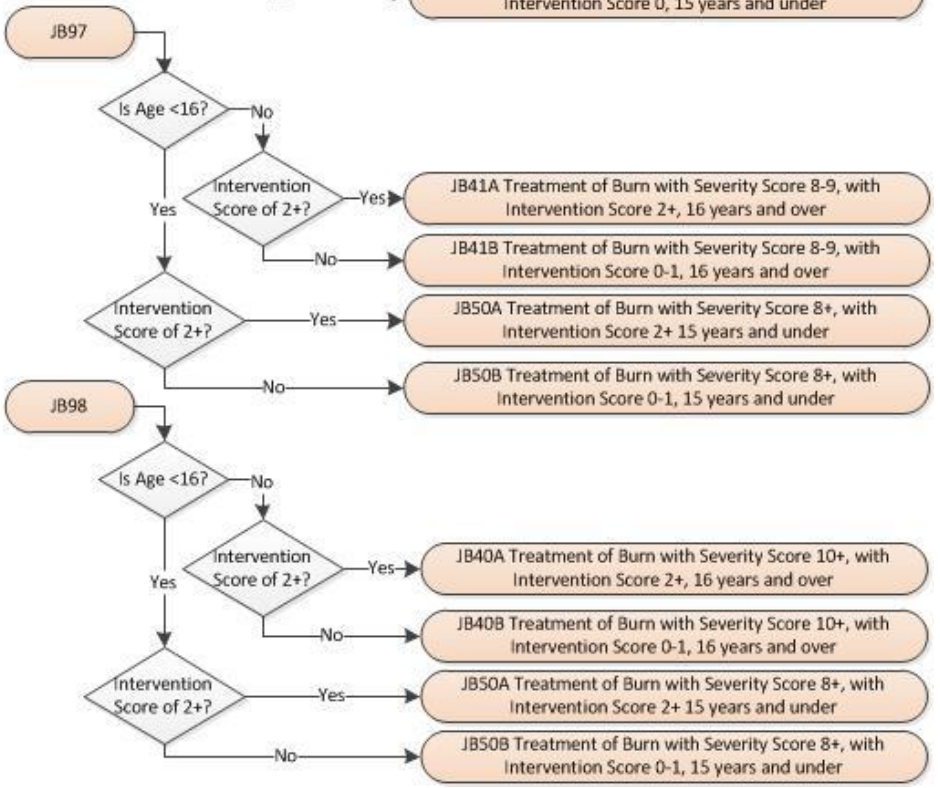






Group to Split 2





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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Change to HRG label

The label of HRG root JC40 and that of its associated HRG have been amended to clarify the type of procedures covered by this HRG root. The new root label is as follows:

- **JC40 Very Major Skin Procedures**

Changes related to new OPCS-4.9 codes

New OPCS-4.9 code ***U40.3 Skin prick test*** has been mapped to base HRG root **JC43 Minor Skin Procedures**.

New OPCS-4.9 code ***S53.7 Application of dermal substitute to skin*** has been mapped to base HRG root **JC41 Major Skin Procedures**.

Fourteen new OPCS-4.9 codes, ***S17.4 Distant myocutaneous free flap to head or neck***, ***S17.5 Distant myocutaneous free flap NEC***, ***S18.4 Distant fasciocutaneous free flap to head or neck***, ***S18.5 Distant fasciocutaneous free flap NEC***, ***S20.6 Distant free flap of skin to head or neck NEC***, ***S20.7 Distant free flap of skin NEC***, ***S29.2 Distant osteocutaneous pedicle flap NEC***, ***S29.5 Distant osteocutaneous free flap NEC***, ***S29.8 Other specified distant flap of skin and bone***, ***S29.9 Unspecified distant flap of skin and bone***, ***S32.2 Distant osteomusculocutaneous pedicle flap NEC***, ***S32.5 Distant***

osteomusculocutaneous free flap NEC, ***S32.8 Other specified distant flap of skin and multiple tissues*** and ***S32.9 Unspecified distant flap of skin and multiple tissues***, have been mapped directly to HRG root **JC40 Very Major Skin Procedures**. To ensure that these procedures take precedence over procedures that map to base HRG root **JC41 Major Skin Procedures**, 22 of the existing procedure codes that map to the latter HRG root – but that had a higher procedure hierarchy value than codes mapped to JC40 – have had their procedure hierarchy value reduced to 22.

Changes related to OPCS-4.9 description changes / Notes and index trail amendments

A note has been added at code ***S48.2 Insertion of skin expander into subcutaneous tissue of breast*** to specify that this code includes insertions of skin expanders into submuscular tissue. As it has been confirmed that this code classifies submuscular insertions, and therefore is equivalent to the insertion of a breast implant, it is appropriate to remap this code from base HRG root **JC42 Intermediate Skin Procedures** to **JA20 Unilateral Major Breast Procedures** to appropriately reflect expected resource usage. A similar note has been added at code ***S49.3 Removal of skin expander from subcutaneous tissue of breast***, and therefore this code is equivalent to the removal of a breast implant. Consequently, this code has been remapped from base HRG root **JC42 Intermediate Skin Procedures** to **JA43 Unilateral Intermediate Breast Procedures**.

Changes related to OPCS-4.9 coding guidance amendments

New combination code ***S288+Z226 Flap of mucosa to nasopharynx*** has been created to ensure that endoscopic transsphenoidal pituitary surgery is appropriately captured in the HRG design according to revised coding guidance. When recorded on its own, this new combination code maps to base HRG root **JC41 Major Skin Procedures**.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **JAJD_CC**.

Subchapter KA – Endocrine System Procedures and Disorders

Subchapter **KA Endocrine System Procedures and 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 Head and 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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Change to subchapter label

The label of Subchapter KA has been amended to clarify that this subchapter includes procedure-driven as well as diagnosis-driven HRGs. The new label is as follows:

- **KA Endocrine System Procedures and Disorders**

Changes related to new OPCS-4.9 codes

Existing OPCS-4 code ***B16.2 Biopsy of lesion of parathyroid gland*** has been remapped from a base HRG root of **KA03 Parathyroid Procedures** to **YC01 Percutaneous Core Needle Biopsy of Lesion of, Head or Neck** to ensure this code is mapped to the same HRG root as related codes introduced as part of the OPCS-4.9 update.

Existing OPCS-4 codes ***B10.3 Biopsy of lesion of thyroglossal tract*** and ***B12.2 Biopsy of lesion of thyroid gland*** have been remapped from a base HRG root of **KA09 Thyroid Procedures** to **YC01 Percutaneous Core Needle Biopsy of Lesion of, Head or Neck** to ensure these codes are mapped to the same HRG root as related codes introduced as part of the OPCS-4.9 update.

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **KA_CC**.

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		
	NC20/21	RC18/19
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 Procedures and 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+ 2018/19 Reference Costs Grouper

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **KBKC_CC**.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **KBKC_CC**.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **LALB_CC**.

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		
	NC20/21	RC18/19
Total HRGs	149	149
Total HRG Roots	62	62
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.

LB81Z Complex Open Urethra Procedures can be reached via escalation logic where additional procedure codes indicate that 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 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**. In addition, 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+ 2018/19 Reference Costs Grouper

Change to HRG label

The label of HRG root LB71 and that of its associated HRG have been amended to clarify the type of procedures covered by this HRG root. The new root label is as follows:

- **LB71 Complex Pelvic Clearance Procedures**

Changes related to new OPCS-4.9 codes

New OPCS-4.9 codes ***M07.1 Ureteroscopic laser fragmentation of calculus of kidney***, ***M07.2 Ureteroscopic extraction of calculus of kidney NEC***, ***M07.8 Other specified therapeutic ureteroscopic operations on kidney*** and ***M07.9 Unspecified therapeutic ureteroscopic operations on kidney*** have been mapped to base HRG root **LB65 Major Endoscopic, Kidney or Ureter Procedures, 19 years and over**.

New OPCS-4.9 codes ***M19.7 Construction of orthotopic bladder substitute using intestine***, ***M24.1 Construction of continent catheterisable intestinal pouch NEC***, ***M24.2 Construction of continent catheterisable intestinal pouch with continent cystostomy NEC***, ***M24.3 Construction of continent catheterisable intestinal pouch with continent***

cystostomy using appendix and ***M24.4 Construction of continent catheterisable intestinal pouch with continent cystostomy using ileum*** have been mapped to base HRG root **LB67 Complex Open Bladder Procedures**.

New OPCS-4.9 codes ***M24.5 Creation of continent cystostomy NEC***, ***M24.6 Creation of continent cystostomy using appendix*** and ***M24.7 Creation of continent cystostomy using ileum*** have been mapped to base HRG root **LB10 Major Open Bladder Procedures or Reconstruction**.

New OPCS-4.9 code ***X14.4 Pelvic side wall clearance*** has been mapped to base HRG root **LB71 Complex Pelvic Clearance Procedures**.

New OPCS-4.9 code ***M65.6 Endoscopic ablation of prostate using steam*** has been mapped to base HRG root **LB70 Complex Endoscopic, Prostate or Bladder Neck Procedures (Male and Female)**.

Existing OPCS-4 code ***T85.6 Block dissection of pelvic lymph nodes*** and existing combination codes ***T868+O141 Sampling of pelvic lymph nodes*** and ***T878+O141 Excision or biopsy of pelvic lymph node*** have been remapped from a base HRG root of **LB10 Major Open Bladder Procedures or Reconstruction** to **FF50 Complex General Abdominal Procedures** following a mapping review of lymph node procedures in light of the many new OPCS-4.9 codes classifying lymph node sites and procedures.

New OPCS-4.9 code ***Y91.6 Intraoperative electron beam radiotherapy*** has been added to escalation lists **LB_Major_Open** to ensure the expected additional resource usage associated with this intervention (over and above the radiotherapy delivery) can be acknowledged within the HRG design, e.g. to account for the increased theatre time associated with patients receiving intraoperative radiotherapy.

Changes related to OPCS-4.9 code retirements

OPCS-4.8 code ***M16.4 Percutaneous nephrolithotomy NEC*** has been retired in OPCS-4.9 and its description updated to *Code retired - refer to introduction* as there was an overlap in meaning between this code and code ***M09.4 Endoscopic extraction of calculus of kidney NEC*** following the addition of the includes note *Includes: Percutaneous nephrolithotomy NEC* at M09.4. Consequently, ***M16.4 Code retired - refer to introduction*** has been removed from all escalation lists and remapped to **UZ01 Data Invalid for Grouping**. This code falls under U Error category **UZ06 Poorly coded procedure for Casemix grouping purposes**.

M09.4 Endoscopic extraction of calculus of kidney NEC has been remapped to **LB75 Percutaneous Nephrolithotomy**.

Three OPCS-4.8 codes, ***M28.1 Endoscopic laser fragmentation of calculus of ureter NEC***, ***M28.2 Endoscopic fragmentation of calculus of ureter NEC*** and ***M28.3 Endoscopic extraction of calculus of ureter NEC***, have been retired in OPCS-4.9 and their descriptions updated to *Code retired - refer to introduction*. These codes were duplicates of codes ***M27.1 Ureteroscopic laser fragmentation of calculus of ureter***, ***M27.2 Ureteroscopic fragmentation of calculus of ureter NEC*** and ***M27.3 Ureteroscopic extraction of calculus of ureter***, respectively, which remain unchanged in the classification. ***M28.1 Code retired - refer to introduction***, ***M28.2 Code retired - refer to introduction*** and ***M28.3 Code retired - refer to introduction*** have been removed from all escalation lists and remapped to **UZ01 Data Invalid for Grouping**. These codes fall under U Error category **UZ06 Poorly coded procedure for Casemix grouping purposes**.

Changes related to OPCS-4.9 description changes / Notes and index trail amendments

To ensure that ureteroscopic and nephroscopic procedures can be differentiated within the OPCS-4 classification, includes notes have been added to code categories ***M09.- Therapeutic endoscopic operations on calculus of kidney*** and ***M10.- Endoscopic operations on kidney*** to specify that these codes are to be used for nephroscopic procedures (and exclude ureteroscopic procedures). As it is now possible to differentiate between simpler ureteroscopic and more complex nephroscopic procedures, the 17 codes classifying endoscopic and nephroscopic procedures that previously mapped to base HRG root **LB65 Major Endoscopic, Kidney or Ureter Procedures, 19 years and over** have been remapped to **LB64 Complex Endoscopic, Kidney or Ureter Procedures, 19 years and over**, leaving only ureteroscopic procedures mapped to **LB65 Major Endoscopic, Kidney or Ureter Procedures, 19 years and over**.

Changes related to OPCS-4.9 coding guidance amendments

Guidance relating to the coding of the insertion and renewal of ureteric stents has been amended. In order to appropriately capture this activity according to revised coding guidance, the two now-redundant combination codes ***M264+MET Nephroscopic insertion of metal stent into ureter*** and ***M268+Y152 Nephroscopic renewal of metal stent into ureter*** have been deleted and replaced by two new combination codes, ***M292+MET Endoscopic insertion of metal stent into ureter*** and ***M295+MET Endoscopic renewal of metal stent into ureter***. The new combination codes have been mapped to base HRG root **LB64 Complex Endoscopic, Kidney or Ureter Procedures, 19 years and over**.

Combination code ***M268+Y032 Nephroscopic renewal of tubal prosthesis into ureter*** has been deleted following clarification of clinical coding guidance.

Changes to accommodate NICE guidance

Combination code ***T967+O161 Injection into soft tissue of pelvis NEC*** has been created using new OPCS-4.9 code ***T96.7 Injection into soft tissue NEC*** and mapped to HRG root **LB26 Intermediate Endoscopic, Prostate or Bladder Neck Procedures (Male and Female)** to accommodate NICE guidance for the insertion of a biodegradable spacer into the perirectal space.

Deletion of paired code combination codes

After clarifying OPCS-4 clinical coding guidance relating to the sequencing of codes, it was determined that the paired code combination codes within the HRG design were not required. Consequently, 12 paired code combination codes that mapped to a base HRG root in this subchapter have been deleted from the HRG design. Where appropriate, escalation lists and logic have been amended to ensure that the procedures previously classified by the deleted codes continue to contribute to HRG escalation.

Update to multiple-procedure escalation list membership

The membership of lists used in multiple-procedure escalation logic employed within this subchapter have been updated as part of a global list membership review undertaken to ensure consistency across the HRG design and to remove redundant OPCS-4 codes and combination codes from escalation lists.

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified 19*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **LALB_CC**.

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		
	NC20/21	RC18/19
Total HRGs	26	26
Total HRG Roots	13	13
Procedure-driven HRGs	N/A	N/A
Diagnosis-driven HRGs	N/A	N/A
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+ 2018/19 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2020/21 Costing Grouper when compared to the HRG4+ 2018/19 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.

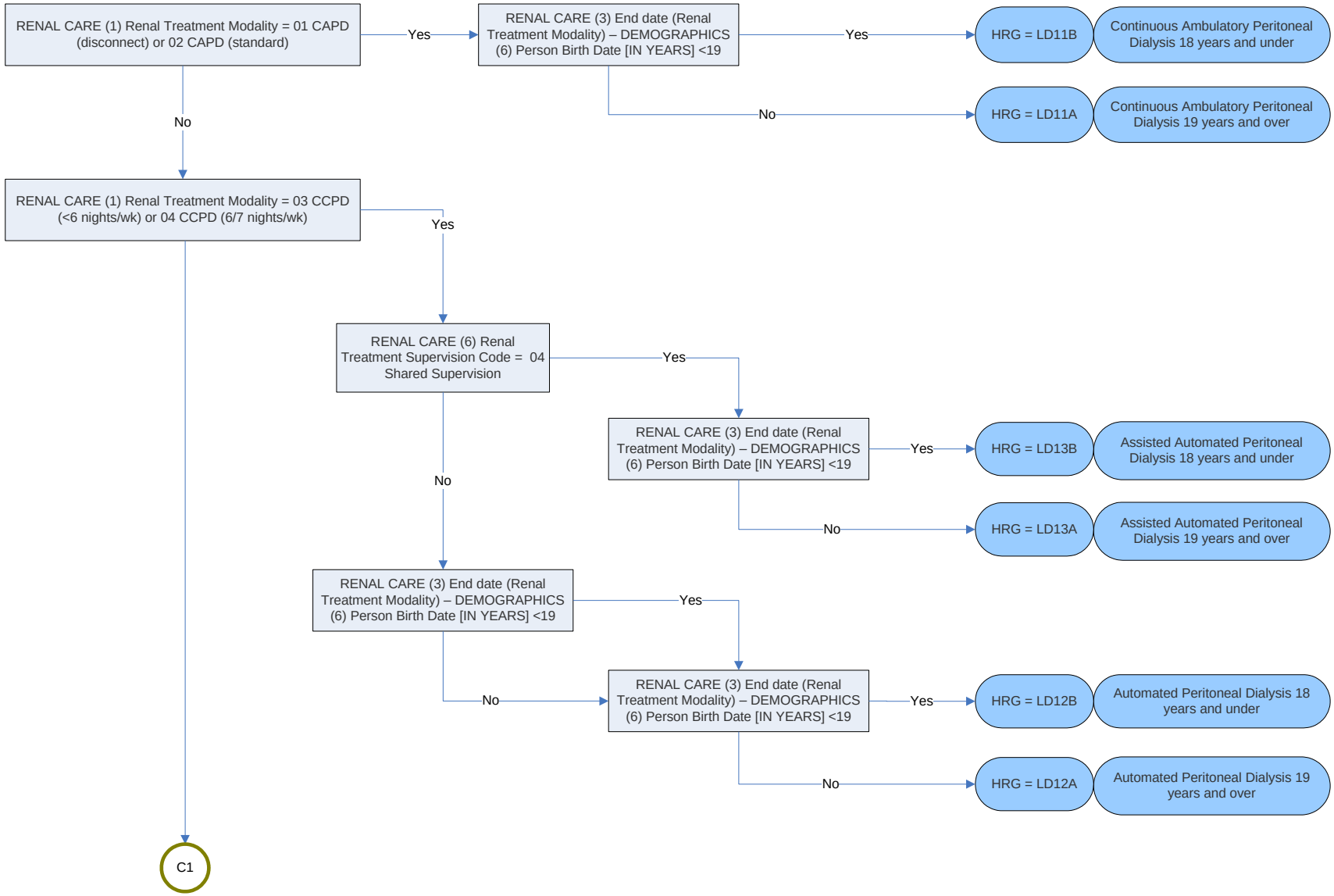
Case	Age	Renal Treatment Modality	Renal Treatment Supervision Code	Blood Tests	Type of Dialysis Access	HRG4+
A	62	05 Haemodialysis	02 Hospital	Blood test HBV surface antigen = NEG Blood test HCV antibody = NEG Blood test HIV = NEG	01 Non-tunnelled catheter	LD01A Hospital Haemodialysis or Filtration, 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

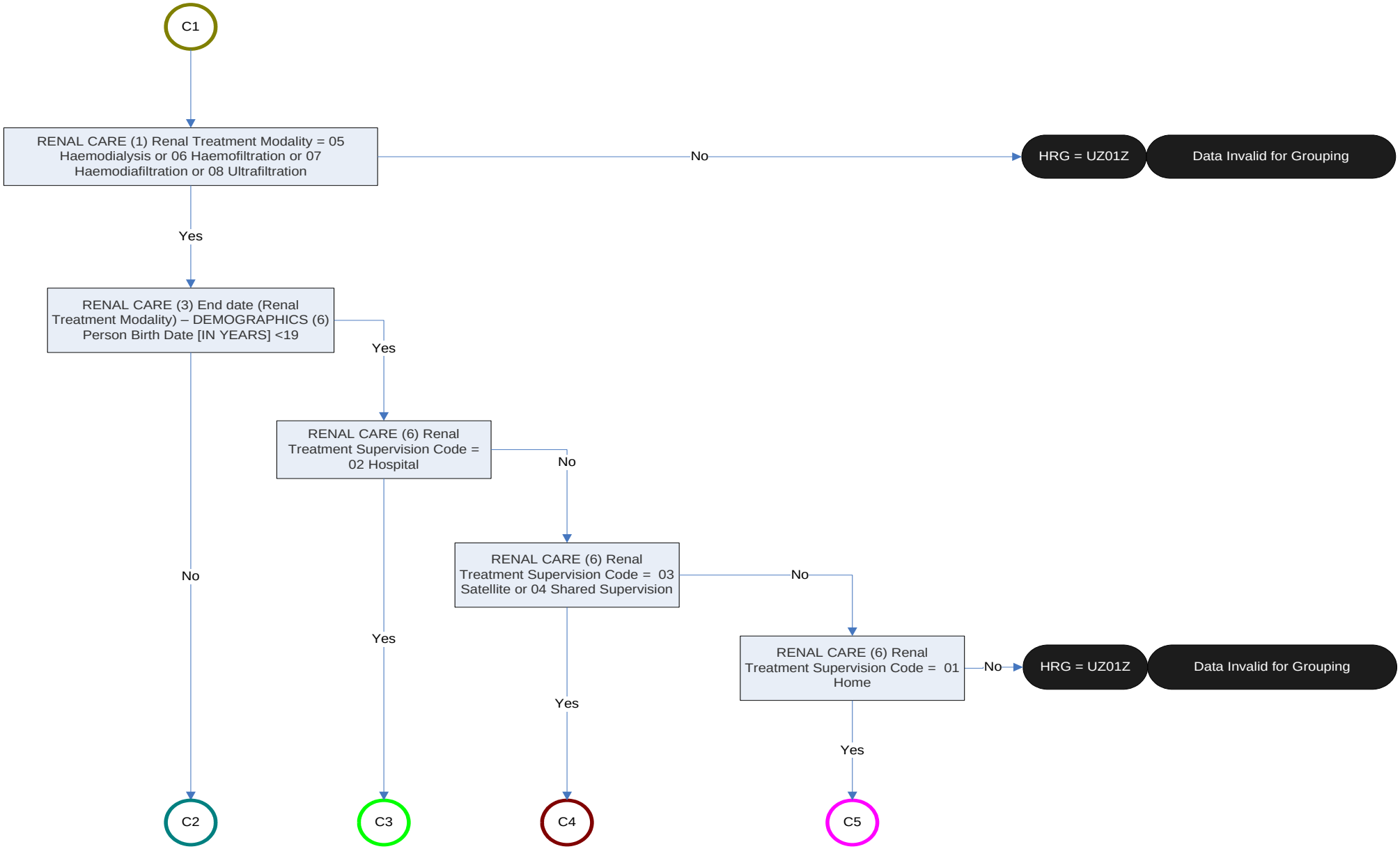
Case	Age	Renal Treatment Modality	Renal Treatment Supervision Code	Blood Tests	Type of Dialysis Access	HRG4+
D	25	05 Haemodialysis	02 Hospital	Blood test HBV surface antigen = NEG Blood test HCV antibody = **POS** Blood test HIV = NEG	03 Arteriovenous fistula	LD04A Hospital Haemodialysis or Filtration, 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

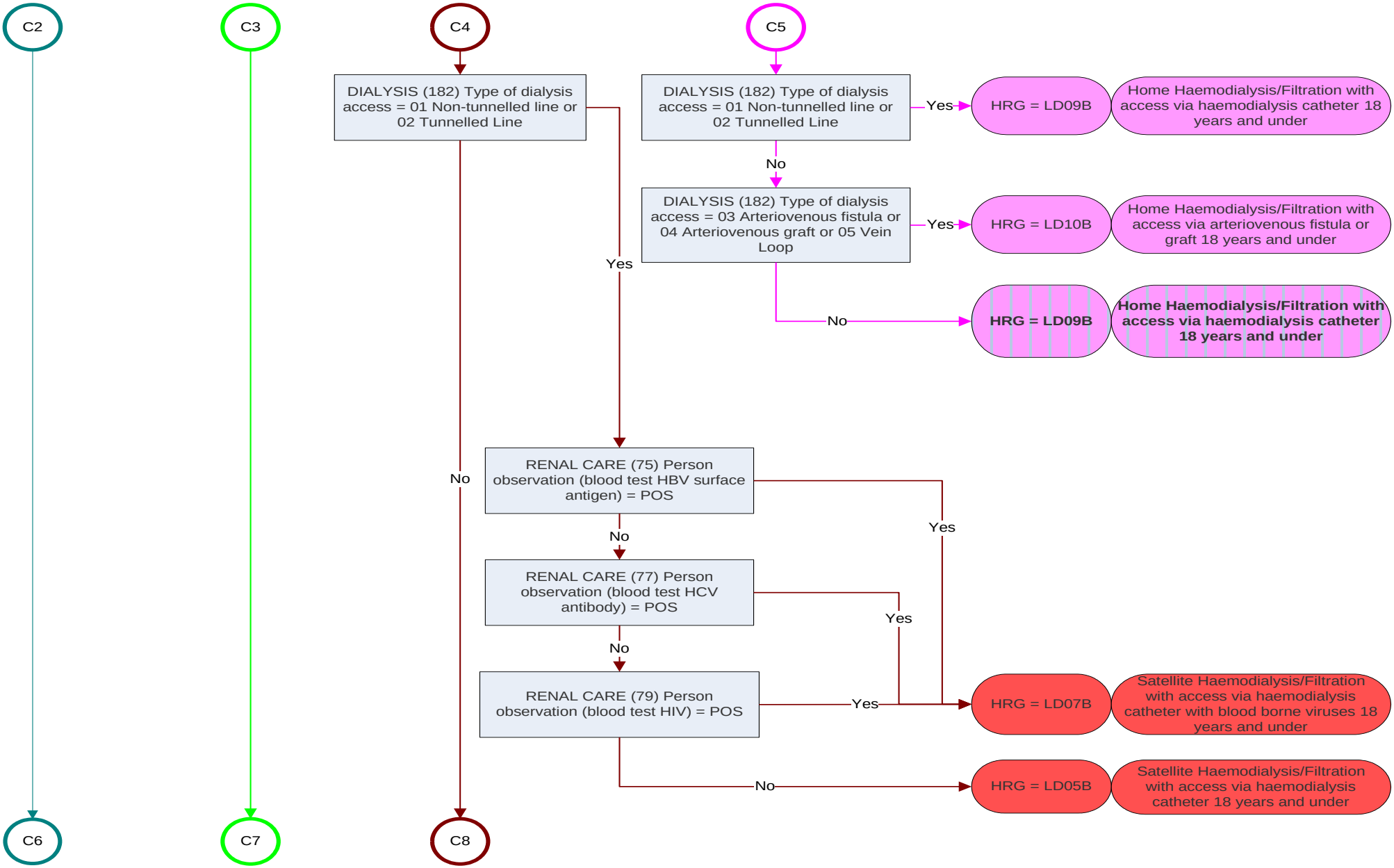
Cases F to **H** illustrate how HRG assignment is derived using the data from the NRD for peritoneal dialysis patients of differing ages, with or without the presence of blood-borne viruses, at different sites and using different access types.

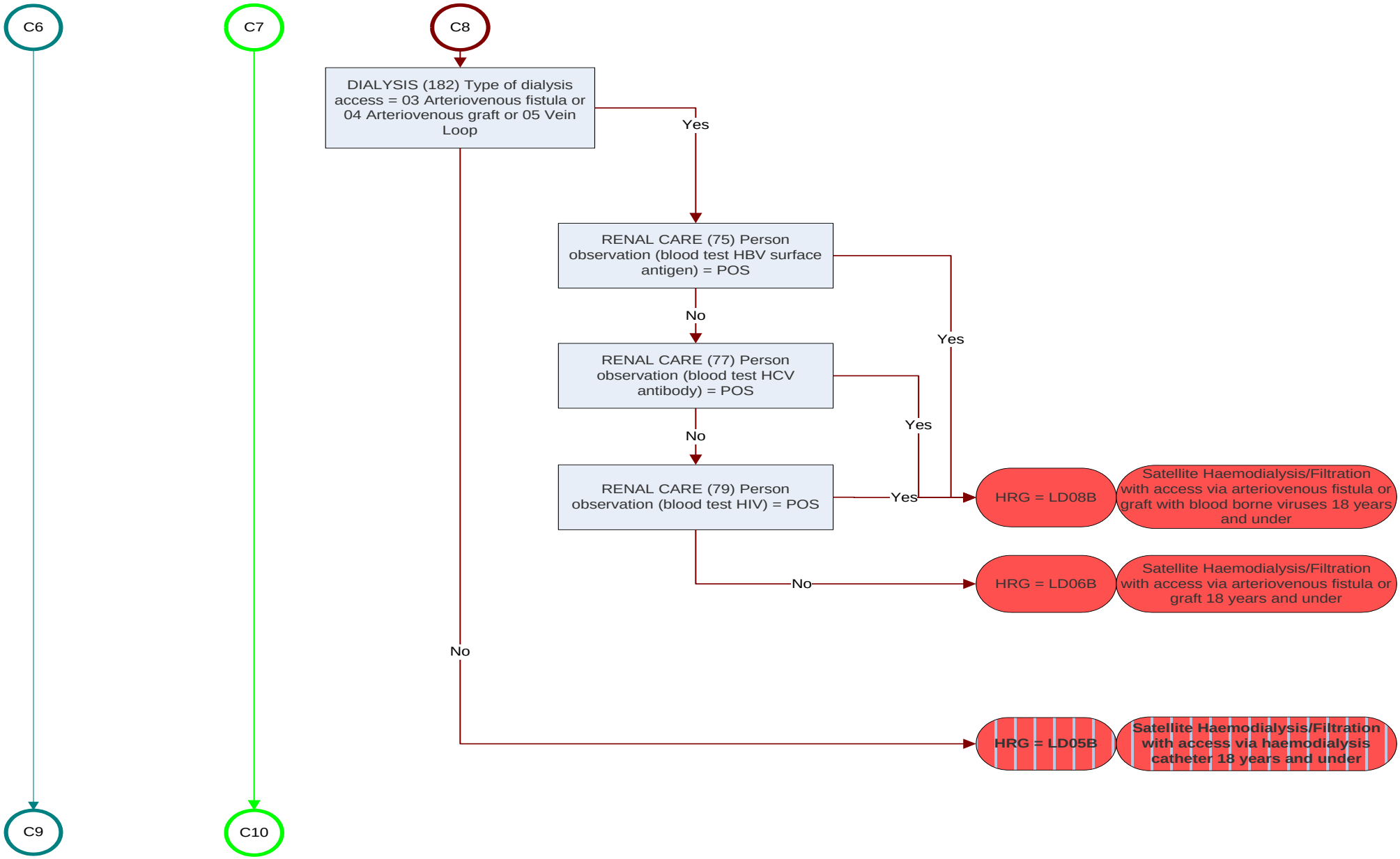
Case	Age	Renal Treatment Modality	Renal Treatment Supervision Code	Blood Tests	Type of Dialysis Access	HRG4+
F	62	02 CAPD (standard)	01 Home	Blood test HBV surface antigen = NEG Blood test HCV antibody = NEG Blood test HIV = NEG	06 PD catheter	LD11A Continuous Ambulatory Peritoneal Dialysis, 19 years 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

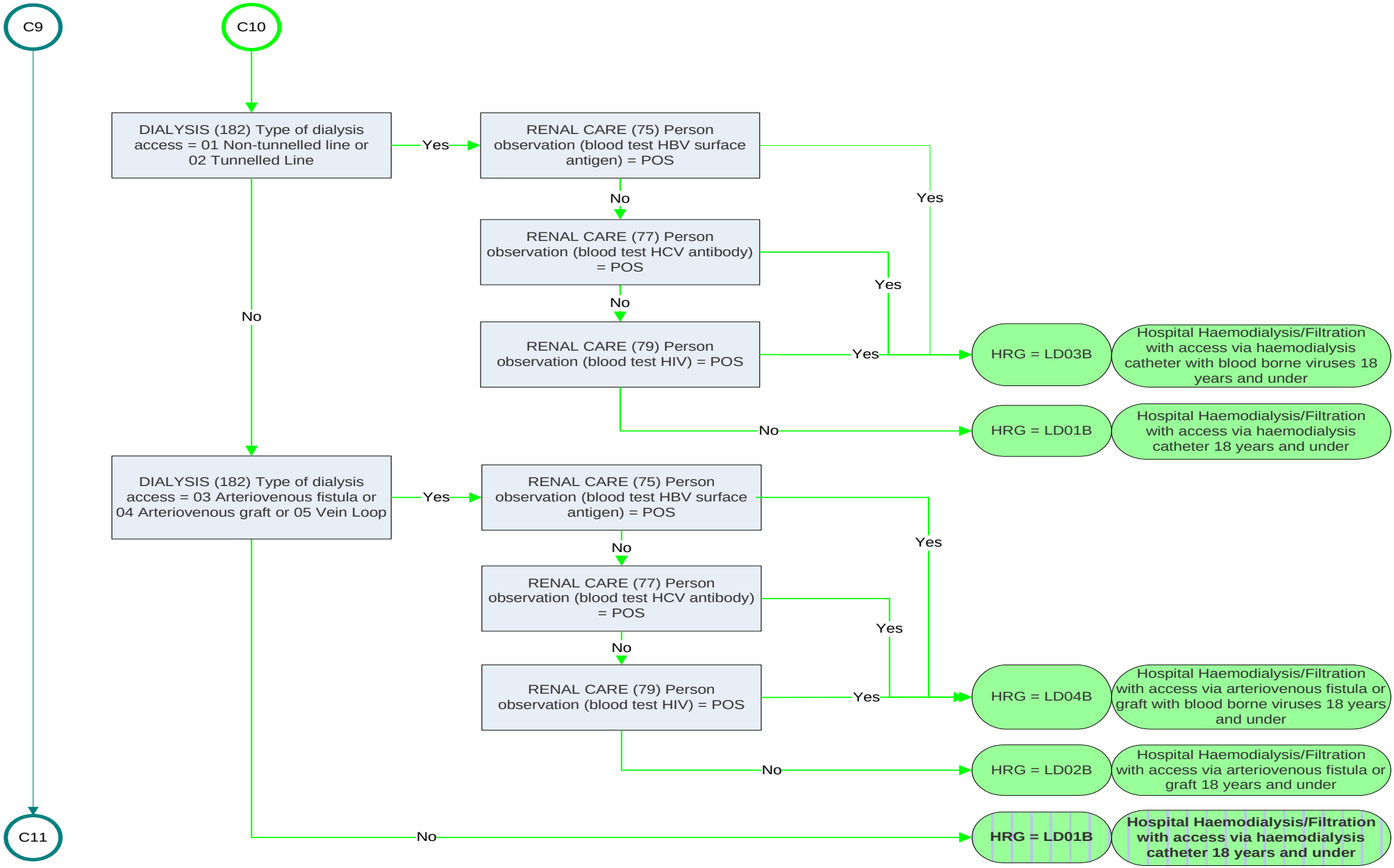
Subchapter LD: Annex A

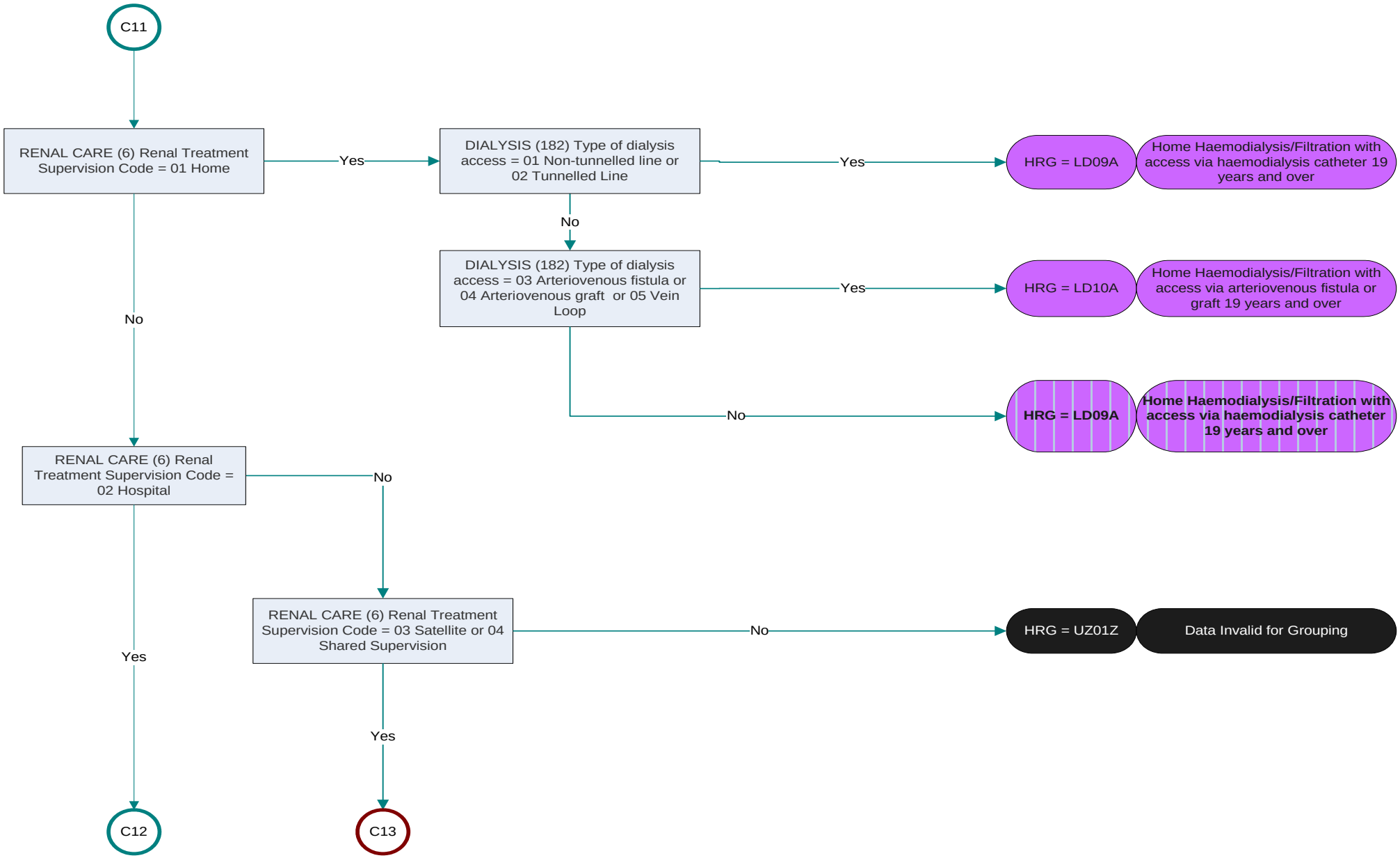


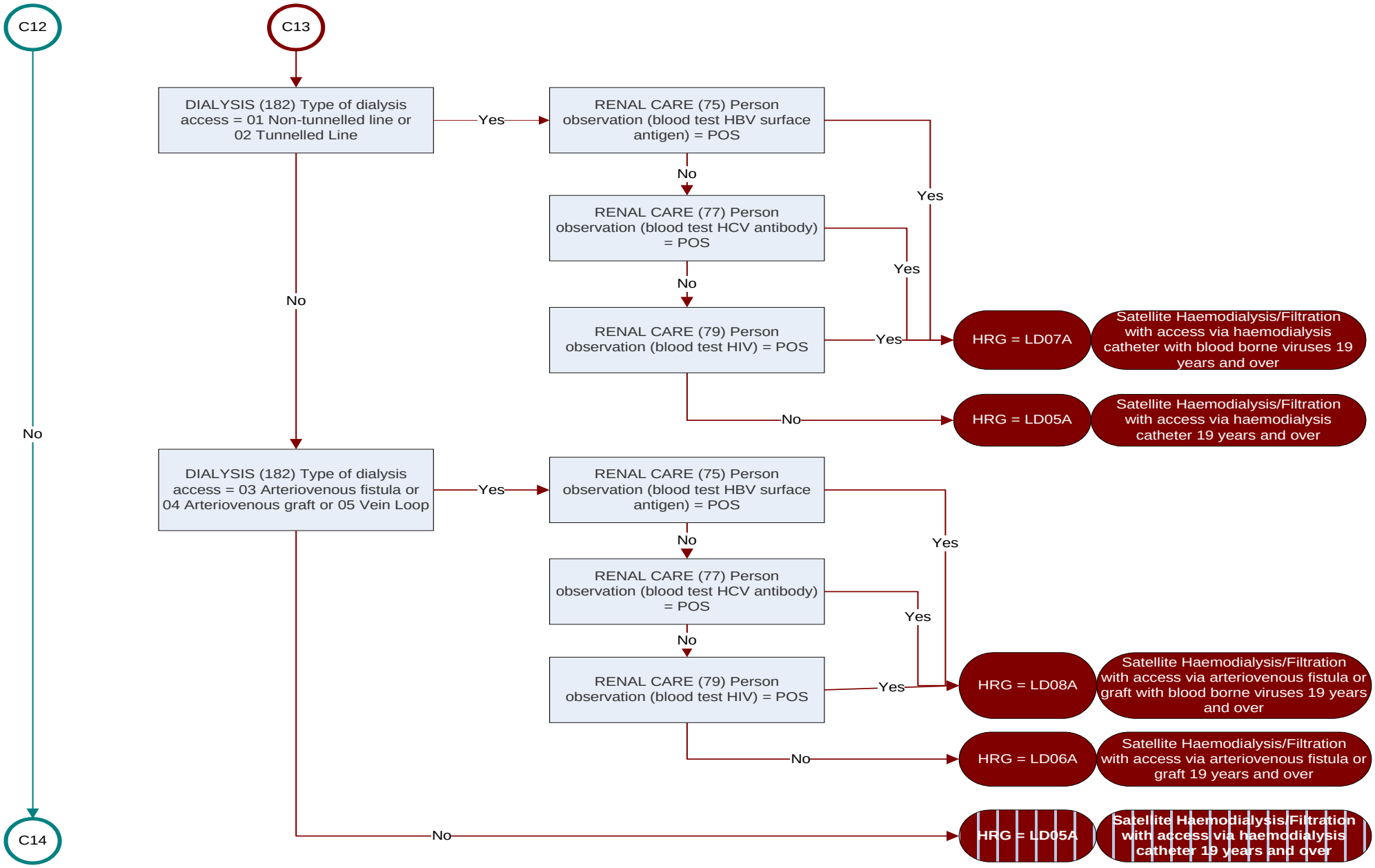


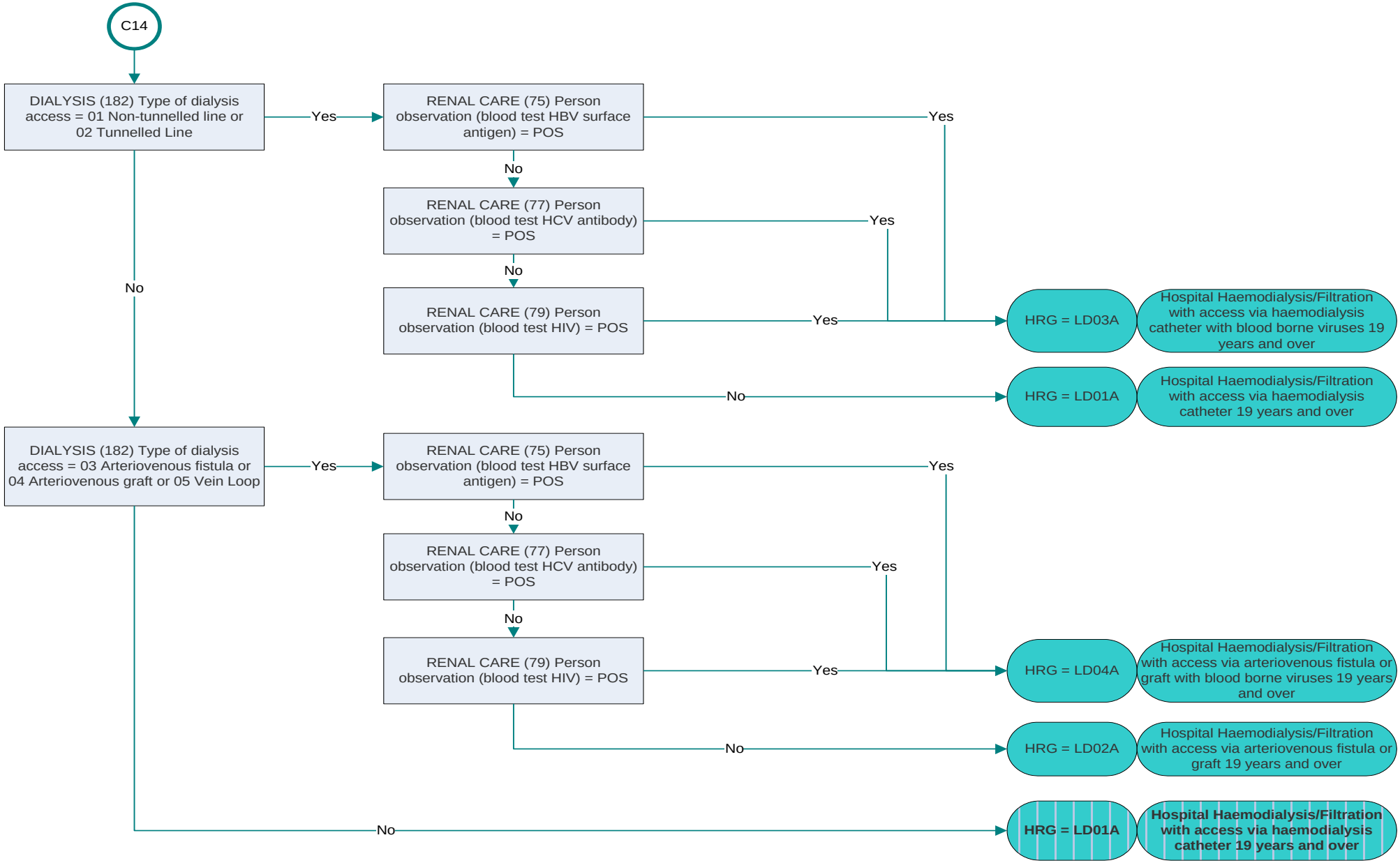












Subchapter LD:
Annex B
List of required NRD fields, acceptable values, and validation applicable for the generation of LD Renal Dialysis HRGs

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.

Composition and Concepts		
	NC20/21	RC18/19
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 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**.

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+ 2018/19 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2020/21 Costing Grouper when compared to the HRG4+ 2018/19 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		
	NC20/21	RC18/19
Total HRGs	**60**	**60**
Total HRG Roots	**45**	**45**
Procedure-driven HRGs	60	60
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

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+ 2018/19 Reference Costs Grouper

Changes related to new OPCS-4.9 codes

New OPCS-4.9 code ***P31.7 Extirpation of lesion of pouch of Douglas*** has been mapped to base HRG root **MA04 Intermediate Open Lower Genital Tract Procedures**.

New OPCS-4.9 codes ***Q16.7 Radiofrequency ablation of lesion of uterus*** and ***Q20.7 Destruction of lesion of uterus NEC*** have been mapped to base HRG root **MA12 Resection or Ablation Procedures for Intrauterine Lesions**.

New OPCS-4.9 codes ***Q58.1 Cephalic delivery of terminated fetus***, ***Q58.2 Breech delivery of terminated fetus***, ***Q58.8 Other specified delivery of terminated fetus*** and ***Q58.9 Unspecified delivery of terminated fetus*** have been mapped directly to HRG root **MA53 Medical, Abortion or Miscarriage Care, over 20 weeks Gestation**, irrespective of gestational age, to reflect the expected resource usage associated with these procedures.

Changes related to alternatives to creating new OPCS-4.9 codes

Rather than author a new OPCS-4.9 code to classify excision of diaphragm, the Clinical Classifications Service has confirmed that this procedure can already be captured using existing code ***T17.8 Other specified other operations on diaphragm***. Although this code maps to an HRG root in another subchapter, it has been added to the gynaecological surgery escalation lists **MA_Major** and **MA_Major_Cancer** so this procedure can contribute towards multiple-procedure escalation within this subchapter. The procedure hierarchy value of this code has also been reduced to 22.

Deletion of paired code combination codes

After clarifying OPCS-4 clinical coding guidance relating to the sequencing of codes, it was determined that the paired code combination codes within the HRG design were not required. Consequently, 39 paired code combination codes that mapped to a base HRG root in this subchapter have been deleted from the HRG design. Where appropriate, escalation lists and logic have been amended to ensure that the procedures previously classified by the deleted codes continue to contribute to HRG escalation.

Update to multiple-procedure escalation list membership

The membership of lists used in multiple-procedure escalation logic employed within this subchapter have been updated as part of a global list membership review undertaken to ensure consistency across the HRG design and to remove redundant OPCS-4 codes and combination codes from escalation lists.

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **MAMB_CC**.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **MAMB_CC**.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2020/21 Costing Grouper when compared to the HRG4+ 2018/19 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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Changes related to new OPCS-4.9 codes

New OPCS-4.9 codes ***R01.3 Fetoscopic removal of tracheal plug***, ***R06.3 Percutaneous selective feticide by vascular occlusion of umbilical cord***, ***R09.1 Open repair of meningomyelocele of fetus***, ***R09.8 Other specified open operations on fetus***, ***R09.9 Unspecified open operations on fetus*** and ***R11.1 Percutaneous removal of fetal tracheal plug*** have been mapped to base HRG root **NZ71 Specialised Fetal Therapeutic Procedures**.

New OPCS-4.9 codes ***R13.1 Sampling of fetal blood NEC***, ***R13.8 Other specified other operations on fetus*** and ***R13.9 Unspecified other operations on fetus*** have been mapped to base HRG root **NZ72 Specialised Fetal Invasive Diagnostic Procedures**.

New OPCS-4.9 codes ***R38.3 Chorionicity scan*** and ***R42.4 Doppler ultrasound scan of ductus venosus*** have been mapped to base HRG root **NZ22 Ante-Natal Specialised Non-Routine Ultrasound Scan**.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **PB_CC**.

U07.5 Multisystem inflammatory syndrome associated with COVID-19 has been added to the complications and comorbidities list for this subchapter, **PB_CC**, as per the ICD-10 code in use for this disorder before the introduction of this emergency use code, ***R65.0 Systemic Inflammatory Response Syndrome of infectious origin without organ failure***.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **PC_CC.**

U07.5 Multisystem inflammatory syndrome associated with COVID-19 has been added to the complications and comorbidities list for this subchapter, **PC_CC**, as per the ICD-10 code in use for this disorder before the introduction of this emergency use code, ***R65.0 Systemic Inflammatory Response Syndrome of infectious origin without organ failure***.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **PD_CC**.

U07.5 Multisystem inflammatory syndrome associated with COVID-19 has been added to the complications and comorbidities list for this subchapter, **PD_CC**, as per the ICD-10 code in use for this disorder before the introduction of this emergency use code, ***R65.0 Systemic Inflammatory Response Syndrome of infectious origin without organ failure***.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **PE_CC**.

U07.5 Multisystem inflammatory syndrome associated with COVID-19 has been added to the complications and comorbidities list for this subchapter, **PE_CC**, as per the ICD-10 code in use for this disorder before the introduction of this emergency use code, ***R65.0 Systemic Inflammatory Response Syndrome of infectious origin without organ failure***.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **PF_CC.**

U07.5 Multisystem inflammatory syndrome associated with COVID-19 has been added to the complications and comorbidities list for this subchapter, **PF_CC**, as per the ICD-10 code in use for this disorder before the introduction of this emergency use code, ***R65.0 Systemic Inflammatory Response Syndrome of infectious origin without organ failure***.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **PG_CC**.

U07.5 Multisystem inflammatory syndrome associated with COVID-19 has been added to the complications and comorbidities list for this subchapter, **PG_CC**, as per the ICD-10 code in use for this disorder before the introduction of this emergency use code, ***R65.0 Systemic Inflammatory Response Syndrome of infectious origin without organ failure***.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **PH_CC**.

U07.5 Multisystem inflammatory syndrome associated with COVID-19 has been added to the complications and comorbidities list for this subchapter, **PH_CC**, as per the ICD-10 code in use for this disorder before the introduction of this emergency use code, ***R65.0 Systemic Inflammatory Response Syndrome of infectious origin without organ failure***.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **PJ_CC**.

U07.5 Multisystem inflammatory syndrome associated with COVID-19 has been added to the complications and comorbidities list for this subchapter, **PJ_CC**, as per the ICD-10 code in use for this disorder before the introduction of this emergency use code, ***R65.0 Systemic Inflammatory Response Syndrome of infectious origin without organ failure***.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **PK_CC**.

U07.5 Multisystem inflammatory syndrome associated with COVID-19 has been added to the complications and comorbidities list for this subchapter, **PK_CC**, as per the ICD-10 code in use for this disorder before the introduction of this emergency use code, ***R65.0 Systemic Inflammatory Response Syndrome of infectious origin without organ failure***.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **PL_CC**.

U07.5 Multisystem inflammatory syndrome associated with COVID-19 has been added to the complications and comorbidities list for this subchapter, **PL_CC**, as per the ICD-10 code in use for this disorder before the introduction of this emergency use code, ***R65.0 Systemic Inflammatory Response Syndrome of infectious origin without organ failure***.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Accommodation of ICD-10 emergency use codes

U07.5 Multisystem inflammatory syndrome associated with COVID-19 has been remapped from HRG root **PX57 Paediatric, Examination, Follow-up, Special Screening or Other Admissions** to **PW16 Paediatric Major Infections** for patients aged 18 years and under and to **PM45 Paediatric Febrile Neutropenia with Malignancy** for patients aged 18 years and under where an additional diagnosis of cancer and agranulocytosis is recorded. This matches the mapping of the ICD-10 code in use for this disorder before the introduction of this emergency use code, ***R65.0 Systemic Inflammatory Response Syndrome of infectious origin without organ failure***.

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **PM_CC**.

U07.5 Multisystem inflammatory syndrome associated with COVID-19 has been added to the complications and comorbidities list for this subchapter, **PM_CC**, as per the ICD-10 code in use for this disorder before the introduction of this emergency use code, ***R65.0 Systemic Inflammatory Response Syndrome of infectious origin without organ failure***.

U07.5 Multisystem inflammatory syndrome associated with COVID-19 has been added to other infection lists specific to this subchapter, **PM_Canc_Inf_Neut** and **PM_Infection**.

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.

Composition and Concepts		
	NC20/21	RC18/19
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

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**.

Differences from the HRG4+ 2018/19 Reference Costs Grouper

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **PN_CC**.

U07.5 Multisystem inflammatory syndrome associated with COVID-19 has been added to the complications and comorbidities list for this subchapter, **PN_CC**, as per the ICD-10 code in use for this disorder before the introduction of this emergency use code, ***R65.0 Systemic Inflammatory Response Syndrome of infectious origin without organ failure***.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **PP_CC**.

U07.5 Multisystem inflammatory syndrome associated with COVID-19 has been added to the complications and comorbidities list for this subchapter, **PP_CC**, as per the ICD-10 code in use for this disorder before the introduction of this emergency use code, ***R65.0 Systemic Inflammatory Response Syndrome of infectious origin without organ failure***.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **PQ_CC**.

U07.5 Multisystem inflammatory syndrome associated with COVID-19 has been added to the complications and comorbidities list for this subchapter, **PQ_CC**, as per the ICD-10 code in use for this disorder before the introduction of this emergency use code, ***R65.0 Systemic Inflammatory Response Syndrome of infectious origin without organ failure***.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **PR_CC**.

U07.5 Multisystem inflammatory syndrome associated with COVID-19 has been added to the complications and comorbidities list for this subchapter, **PR_CC**, as per the ICD-10 code in use for this disorder before the introduction of this emergency use code, ***R65.0 Systemic Inflammatory Response Syndrome of infectious origin without organ failure***.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **PT_CC**.

U07.5 Multisystem inflammatory syndrome associated with COVID-19 has been added to the complications and comorbidities list for this subchapter, **PT_CC**, as per the ICD-10 code in use for this disorder before the introduction of this emergency use code, ***R65.0 Systemic Inflammatory Response Syndrome of infectious origin without organ failure***.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **PV_CC**.

U07.5 Multisystem inflammatory syndrome associated with COVID-19 has been added to the complications and comorbidities list for this subchapter, **PV_CC**, as per the ICD-10 code in use for this disorder before the introduction of this emergency use code, ***R65.0 Systemic Inflammatory Response Syndrome of infectious origin without organ failure***.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Accommodation of ICD-10 emergency use codes

U07.5 Multisystem inflammatory syndrome associated with COVID-19 has been remapped from HRG root **PX57 Paediatric, Examination, Follow-up, Special Screening or Other Admissions** to **PW16 Paediatric Major Infections** for patients aged 18 years and under and to **PM45 Paediatric Febrile Neutropenia with Malignancy** for patients aged 18 years and under where an additional diagnosis of cancer and agranulocytosis is recorded. This matches the mapping of the ICD-10 code in use for this disorder before the introduction of this emergency use code, ***R65.0 Systemic Inflammatory Response Syndrome of infectious origin without organ failure***.

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **PW_CC**.

U07.5 Multisystem inflammatory syndrome associated with COVID-19 has been added to the complications and comorbidities list for this subchapter, **PW_CC**, as per the ICD-10 code in use for this disorder before the introduction of this emergency use code, ***R65.0 Systemic Inflammatory Response Syndrome of infectious origin without organ failure***.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been remapped for patients aged 18 years and under from HRG root **PX57 Paediatric, Examination, Follow-up, Special Screening or Other Admissions** to HRG root **DX21 COVID-19 Infection**.

U07.3 Personal history of COVID-19 and ***U07.7 COVID-19 vaccines causing adverse effects in therapeutic use*** have been remapped for patients aged 18 years and under from HRG root **PX57 Paediatric, Examination, Follow-up, Special Screening or Other Admissions** to **UZ01 Data Invalid for Grouping** as, according to national clinical coding standards, these codes are not permitted to be used as a primary diagnosis. The former code matches the mapping of similar code ***Z86.1 Personal history of infectious and parasitic diseases***, the latter code as per most similar code ***Y59.0 Viral vaccines***.

U07.5 Multisystem inflammatory syndrome associated with COVID-19 has been remapped from HRG root **PX57 Paediatric, Examination, Follow-up, Special Screening or Other Admissions** to **PW16 Paediatric Major Infections** for patients aged 18 years and under and to **PM45 Paediatric Febrile Neutropenia with Malignancy** for patients aged 18 years and under where an additional diagnosis of cancer and agranulocytosis is recorded. This matches the mapping of the ICD-10 code in use for this disorder before the introduction of this emergency use code, ***R65.0 Systemic Inflammatory Response Syndrome of infectious origin without organ failure***.

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower***

respiratory infection was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **PX_CC**.

U07.5 Multisystem inflammatory syndrome associated with COVID-19 has been added to the complications and comorbidities list for this subchapter, **PX_CC**, as per the ICD-10 code in use for this disorder before the introduction of this emergency use code, ***R65.0 Systemic Inflammatory Response Syndrome of infectious origin without organ failure***.

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		
	NC20/21	RC18/19
Total HRGs	**49***	**49***
Total HRG Roots	**39**	**39**
Procedure-driven HRGs	49	49
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	Yes	Yes
Length of Stay-qualified	Yes	Yes

* Includes two core HRG (**RD97Z, RD98Z**) that 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** or **371 Nuclear Medicine**.

Differences from the HRG4+ 2018/19 Reference Costs Grouper

Changes related to new OPCS-4.9 codes

New OPCS-4.9 code ***U35.5 Computed tomography angiography*** has been mapped to unbundled HRG root **RD20 Computerised Tomography Scan of One Area**.

Changes related to OPCS-4.9 coding guidance amendments

Rather than author a new OPCS-4.9 code to classify bubble contrast echocardiogram, the Clinical Classifications Service has issued coding guidance stating that the existing radiology with contrast codes are to be used alongside ***U20.1 Transthoracic echocardiography*** to classify this intervention. As a result, a new combination code has been created, ***U201+Y97 Transthoracic echocardiography with contrast***, and rather than generate unbundled HRG root **RD51 Simple Echocardiogram**, this combination code has been mapped to HRG root **EY50 Complex Echocardiogram**, or **EC21 Complex Echocardiogram for Congenital Heart Disease** when the patient has a congenital heart disease diagnosis or is aged 18 years or under.

Change to logic and lists

List **R_TFC_812_371** has been created so that both **TFC 812 Diagnostic Imaging** and **TFC 371 Nuclear Medicine** can be used to generate **RD98Z Admission or Attendance for Diagnostic Imaging under General Anaesthetic**. Previously only **TFC 812 Diagnostic Imaging** could be used to generate this HRG.

The simple flags associated with documentation flag **RD_TFC_Rad_GA** have been updated to use new list **R_TFC_812_371**. The description of this documentation flag has been updated to reflect this.

The documentation flag ID and/or documentation flag description of flags used to describe HRG grouping logic used in this subchapter have been amended for accuracy and/or to ensure consistency across the HRG design. These changes are cosmetic and will not affect HRG grouping.

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		
	NC20/21	RC18/19
Total HRGs	**69***	**69***
Total HRG Roots	**38**	**38**
Procedure-driven HRGs	69	69
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	Yes	Yes
Length of Stay-qualified	Yes	Yes

* Includes one core HRG (**RN97Z**) that also utilises 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** or **371 Nuclear Medicine**; 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+ 2018/19 Reference Costs Grouper

Changes related to new OPCS-4.9 codes

New OPCS-4.9 code ***U25.5 Gastric emptying breath test*** has been mapped to unbundled HRG root **RN28 Breath Test**.

Change to logic and lists

List **R_TFC_812_371** has been created so that both **TFC 812 Diagnostic Imaging** and **TFC 371 Nuclear Medicine** can be used to generate HRG **RN97Z Same Day Diagnostic Imaging Admission**. Previously only TFC 812 could be used to generate this HRG.

The simple flags associated with documentation flag **RN_TFC_Rad_LoS_0** have been updated to use new list **R_TFC_812_371**. The description of this documentation flag has been updated to reflect this.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **SA_CC**.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2020/21 Costing Grouper when compared to the HRG4+ 2018/19 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 lymphoma, 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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Changes related to new OPCS-4.9 codes

New OPCS-4.9 codes ***X69.1 Delivery of a fraction of hemi-body radiation*** and ***X69.2 Delivery of a fraction of total skin radiotherapy*** have been mapped to unbundled HRG root **SC29 Other Radiotherapy Treatment**.

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	1st 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 + X65.8 + Y91.2	Volume definition for simple radiotherapy with imaging and dosimetry + Other specified radiotherapy delivery + Delivery of a fraction of simple radiotherapy on a megavoltage machine	*JA20F* + SC45Z + SC22Z	*Unilateral Major Breast Procedures with CC Score 0-2* + Preparation for simple radiotherapy with imaging and dosimetry + 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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2020/21 Costing Grouper when compared to the HRG4+ 2018/19 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		
	NC20/21	RC18/19
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 means that the resource use cannot be determined to generate the appropriate burns HRG.

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+ 2018/19 Reference Costs Grouper

Changes related to new OPCS-4.9 codes

The following 68 new OPCS-4.9 codes have been mapped to **UZ01 Data Invalid for Grouping**. These codes fall under U Error category **UZ05 Invalid procedure for Casemix grouping purposes** as these are method of operation, site or conversion from codes, which according to coding standards should only ever be used in a subsidiary position.

OPCS-4.9 Code	Description
O14.3	Mesenteric lymph node
O16.3	Axilla NEC
O34.1	Lobe of liver NEC
O34.2	Quadrate lobe of liver
O34.3	Caudate lobe of liver
O34.4	Porta hepatis
O34.5	Falciform ligament of liver
O34.8	Specified other biliary tract NEC
O34.9	Other biliary tract NEC
O36.1	Multiple teeth NEC
O36.8	Specified other mouth NEC
O36.9	Other mouth NEC
O37.0	Conversion from reverse polarity total prosthetic replacement of shoulder joint using cement

OPCS-4.9 Code	Description
O38.0	Conversion from reverse polarity total prosthetic replacement of shoulder joint not using cement
O39.0	Conversion from reverse polarity total prosthetic replacement of shoulder joint NEC
O40.0	Conversion from previous reverse polarity hybrid prosthetic replacement of shoulder joint using cement
O43.1	Cardiac vein NEC
O43.2	Coronary sinus
O43.8	Specified part of heart NEC
O43.9	Part of heart NEC
O44.1	Proton radiotherapy
O44.8	Other specified other external beam radiotherapy
O44.9	Unspecified other external beam radiotherapy
O45.1	Bifurcation of aorta
O45.2	Juxtarenal abdominal aorta
O45.8	Specified other aorta NEC
O45.9	Other aorta NEC
Y05.6	Enucleation of organ NOC
Y10.3	Steam ablation of organ NOC
Y10.4	Vapourisation of organ NOC
Y17.3	Lithotripsy of lesion of organ NOC
Y17.4	Vapourisation of lesion of organ NOC
Y17.5	Steam ablation of lesion of organ NOC
Y26.6	Partial removal of mesh from organ NOC
Y26.7	Total removal of mesh from organ NOC
Y28.1	Insertion of synthetic mesh into organ NOC
Y28.2	Insertion of biological mesh into organ NOC
Y28.3	Insertion of composite mesh into organ NOC
Y28.4	Insertion of mesh into organ NOC
Y28.8	Other specified insertion of other material into organ NOC
Y28.9	Unspecified insertion of other material into organ NOC
Y35.5	Insertion of radioactive marker into organ NOC
Y36.5	Introduction of biological scaffold into organ NOC
Y36.6	Introduction of synthetic scaffold into organ NOC
Y36.7	Introduction of other scaffold into organ NOC
Y37.2	Introduction of substance into organ using drug-eluting balloon NOC
Y37.3	Insertion of wire marker into organ NOC
Y37.4	Insertion of marker into organ NOC
Y45.1	Approach to organ under electromyography control
Y45.2	Approach to organ under robotic control NEC
Y45.8	Other specified approach to organ under other control
Y45.9	Unspecified approach to organ under other control

OPCS-4.9 Code	Description
Y68.1	Approach to organ under contrast enhanced ultrasonic control
Y68.8	Other specified other approach to organ under image control
Y68.9	Unspecified other approach to organ under image control
Y73.7	Ex utero intrapartum approach to fetus
Y79.5	Transluminal approach to organ through radial artery
Y91.6	Intraoperative electron beam radiotherapy
Y91.7	Electron beam radiotherapy NEC
Z38.7	Prostate artery
Z72.5	Trapezium
Z73.5	Multiple metacarpals
Z76.6	Trochlear surface of femur
Z80.5	Multiple metatarsals
Z88.2	Epiglottis
Z88.3	Glottis
Z91.6	Basilic vein
Z91.7	Jugular vein

The following 14 new OPCS-4.9 codes have been mapped to **UZ01 Data Invalid for Grouping**. These codes fall under U Error category **UZ06 Poorly coded procedure for Casemix grouping purposes** as they are the *.8 Other specified* and *.9 Unspecified* codes of extended categories, which according to coding standards should never be used.

OPCS-4.9 Code	Description	Principal Category
M24.8	Other specified other urinary diversion	M19
M24.9	Unspecified other urinary diversion	M19
O35.8	Other specified open operations on joint	W81
O35.9	Unspecified open operations on joint	W81
R11.8	Other specified other therapeutic percutaneous operations on fetus	R04
R11.9	Unspecified other therapeutic percutaneous operations on fetus	R04
U38.8	Other specified other diagnostic endocrinology	U29
U38.9	Unspecified other diagnostic endocrinology	U29
V69.8	Other specified other primary decompression operations on cervical spine	V22
V69.9	Unspecified other primary decompression operations on cervical spine	V22
V70.8	Other specified other revisional decompression operations on cervical spine	V23
V70.9	Unspecified other revisional decompression operations on cervical spine	V23
X69.8	Other specified other radiotherapy	X65
X69.9	Unspecified other radiotherapy	X65

Changes related to OPCS-4.9 code retirements

The following five existing OPCS-4 codes have been retired in OPCS-4.9 and their description each updated to *Code retired - refer to introduction* as there was an overlap in meaning between these and other existing codes, making them redundant codes. These codes have been remapped to **UZ01 Data Invalid for Grouping** and fall under U Error category **UZ06 Poorly coded procedure for Casemix grouping purposes**.

OPCS-4.9 Code	Previous OPCS-4.8 Description
L99.1	Percutaneous transluminal angioplasty of vein NEC
M16.4	Percutaneous nephrolithotomy NEC
M28.1	Endoscopic laser fragmentation of calculus of ureter NEC
M28.2	Endoscopic fragmentation of calculus of ureter NEC
M28.3	Endoscopic extraction of calculus of ureter NEC

Accommodation of ICD-10 emergency use codes

U07.3 Personal history of COVID-19 has been remapped from HRG root **WH15 Special Screening, Examinations or Other Genetic Disorders** to **UZ01 Data Invalid for Grouping** as, according to national clinical coding standards, this code is not permitted to be used as a primary diagnosis, as per most similar code ***Z86.1 Personal history of infectious and parasitic diseases***. When recorded as a primary diagnosis, it will generate error code **UZ01 Invalid Primary Diagnosis: 1. Primary Diagnosis doesn't exist or 2. Primary Diagnosis Blank or 3. Diagnosis can't be used at primary position**.

U07.7 COVID-19 vaccines causing adverse effects in therapeutic use has been remapped from HRG root **WH15 Special Screening, Examinations or Other Genetic Disorders** to **UZ01 Data Invalid for Grouping** as, according to national clinical coding standards, this code is not permitted to be used as a primary diagnosis, as per most similar code ***Y59.0 Viral vaccines***. When recorded as a primary diagnosis, it will generate error code **UZ01 Invalid Primary Diagnosis: 1. Primary Diagnosis doesn't exist or 2. Primary Diagnosis Blank or 3. Diagnosis can't be used at primary position**.

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		
	NC20/21	RC18/19
Total HRGs	**24***	**24***
Total HRG Roots	**6**	**6**
Procedure-driven HRGs	20	20
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

* Includes 20 hybrid HRGs, which are diagnosis driven but also need a procedure to be generated

- 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+ 2018/19 Reference Costs Grouper

Changes related to new OPCS-4.9 codes

The following 49 new OPCS-4.9 codes have been added to multiple trauma grouping.

OPCS-4.9 Code	Description	MT_OPCS_ Value
A51.5	Repair of dura of spinal cord	11
B29.6	Reconstruction of breast using glandular remodelling	11
B29.7	Reconstruction of breast using dermoglandular flap	11
C51.6	Topography evaluation of cornea	6
E29.7	Cordectomy of vocal cord NEC	11
E85.6	Continuous positive airway pressure	6
H42.7	Rubber band ligation of prolapsed rectal mucosa	8
L35.4	Percutaneous transluminal embolectomy of cerebral artery	12
M19.7	Construction of orthotopic bladder substitute using intestine	12
M24.1	Construction of continent catheterisable intestinal pouch NEC	12
M24.2	Construction of continent catheterisable intestinal pouch with continent cystostomy NEC	12

OPCS-4.9 Code	Description	MT_OPCS_ Value
M24.3	Construction of continent catheterisable intestinal pouch with continent cystostomy using appendix	12
M24.4	Construction of continent catheterisable intestinal pouch with continent cystostomy using ileum	12
M24.5	Creation of continent cystostomy NEC	10
M24.6	Creation of continent cystostomy using appendix	10
M24.7	Creation of continent cystostomy using ileum	10
O03.4	Percutaneous transluminal flow diverting stent assisted coil embolisation of three or more aneurysms of artery	12
O03.5	Percutaneous transluminal flow diverting stent assisted coil embolisation of two aneurysms of artery	12
O03.6	Percutaneous transluminal flow diverting stent assisted coil embolisation of single aneurysm of artery	11
O40.1	Primary reverse polarity hybrid prosthetic replacement of shoulder joint using cement	11
S17.4	Distant myocutaneous free flap to head or neck	10
S17.5	Distant myocutaneous free flap NEC	10
S18.4	Distant fasciocutaneous free flap to head or neck	10
S18.5	Distant fasciocutaneous free flap NEC	10
S20.6	Distant free flap of skin to head or neck NEC	8
S20.7	Distant free flap of skin NEC	8
S29.1	Distant osteocutaneous pedicle flap to head or neck	10
S29.2	Distant osteocutaneous pedicle flap NEC	10
S29.3	Distant osteocutaneous flap to head or neck NEC	10
S29.4	Distant osteocutaneous free flap to head or neck	10
S29.5	Distant osteocutaneous free flap NEC	10
S29.8	Other specified distant flap of skin and bone	10
S29.9	Unspecified distant flap of skin and bone	10
S32.1	Distant osteomusculocutaneous pedicle flap of head or neck	10
S32.2	Distant osteomusculocutaneous pedicle flap NEC	10
S32.3	Distant osteomusculocutaneous flap to head or neck NEC	10
S32.4	Distant osteomusculocutaneous free flap to head or neck	10
S32.5	Distant osteomusculocutaneous free flap NEC	10
S32.8	Other specified distant flap of skin and multiple tissues	10
S32.9	Unspecified distant flap of skin and multiple tissues	10
T12.6	Insertion of tunnelled catheter into pleural cavity	8
T30.5	Packing of abdominal cavity	9
T42.5	Endoscopic excision of peritoneum	9
T57.5	Injection of therapeutic substance into fascia	5
T74.7	Injection of stem cells into tendon	5
V24.6	Primary posterior laminectomy decompression of thoracic spine	11
V24.7	Revisional posterior laminectomy decompression of thoracic spine	11

OPCS-4.9 Code	Description	MT_OPCS_ Value
V69.1	Primary posterior laminectomy decompression of cervical spine	10
V70.1	Revisional posterior laminectomy decompression of cervical spine	11

The following 56 new combination codes created using new OPCS-4.9 codes have been added to multiple trauma grouping.

Combination Code	Description	MT_OPCS_ Value
B378+Y355	Insertion of radioactive marker into breast	9
B378+Y373	Insertion of wire marker into breast	9
B378+Y374	Insertion of marker into breast NOC	9
C518+US	Ultrasound of cornea	6
E598+WVA	Water vapour ablation of lung	10
L713+Z387	Percutaneous transluminal embolisation of prostate artery	10
O034+NEURO	Percutaneous transluminal flow diverting stent assisted coil embolisation of three or more aneurysms of intracranial or extracranial artery	12
O035+NEURO	Percutaneous transluminal flow diverting stent assisted coil embolisation of two aneurysms of intracranial or extracranial artery	12
O036+NEURO	Percutaneous transluminal flow diverting stent assisted coil embolisation of single aneurysm of intracranial or extracranial artery	11
O351+ELBOW	Attention to therapeutic joint spacer in elbow	9
O351+FOOT	Attention to therapeutic joint spacer in foot	9
O351+HAND	Attention to therapeutic joint spacer in hand	9
O351+HIP	Attention to therapeutic joint spacer in hip	10
O351+KNEE	Attention to therapeutic joint spacer in knee	10
O351+ SHOULDER	Attention to therapeutic joint spacer in shoulder	10
O351+Y032+ ELBOW	Renewal of therapeutic joint spacer of elbow	9
O351+Y032+ FOOT	Renewal of therapeutic joint spacer of foot	9
O351+Y032+ HAND	Renewal of therapeutic joint spacer of hand	9
O351+Y032+ HIP	Renewal of therapeutic joint spacer of hip	10
O351+Y032+ KNEE	Renewal of therapeutic joint spacer of knee	10
O351+Y032+ SHOULDER	Renewal of therapeutic joint spacer of shoulder	10
T575+ELBOW	Injection of therapeutic substance into fascia of elbow	8
T575+FOOT	Injection of therapeutic substance into fascia of foot	8
T575+HAND	Injection of therapeutic substance into fascia of hand	8

Combination Code	Description	MT_OPCS_ Value
T575+HIP	Injection of therapeutic substance into fascia of hip	9
T575+KNEE	Injection of therapeutic substance into fascia of knee	9
T575+ SHOULDER	Injection of therapeutic substance into fascia of shoulder	9
T747+ELBOW	Injection of stem cells into tendon of elbow	8
T747+FOOT	Injection of stem cells into tendon of foot	8
T747+HAND	Injection of stem cells into tendon of hand	8
T747+HIP	Injection of stem cells into tendon of hip	9
T747+KNEE	Injection of stem cells into tendon of knee	9
T747+ SHOULDER	Injection of stem cells into tendon of shoulder	9
V246+V553	Primary posterior laminectomy decompression of thoracic spine, with greater than two levels of spine	11
V247+V553	Revisional posterior laminectomy decompression of thoracic spine, with greater than two levels of spine	11
V691+V552	Primary posterior laminectomy decompression of cervical spine, with two levels of spine	10
V691+V553	Primary posterior laminectomy decompression of cervical spine, with greater than two levels of spine	10
W176+ELBOW	Traction lengthening of bone of elbow with intramedullary fixation	9
W176+FOOT	Traction lengthening of bone of foot with intramedullary fixation	9
W176+HAND	Traction lengthening of bone of hand with intramedullary fixation	9
W176+HIP	Traction lengthening of bone of hip with intramedullary fixation	11
W176+KNEE	Traction lengthening of bone of knee with intramedullary fixation	10
W176+RIB	Traction lengthening of bone of rib with intramedullary fixation	10
W176+ SHOULDER	Traction lengthening of bone of shoulder with intramedullary fixation	10
W715+ELBOW	Open stem cell implantation into articular structure of elbow	9
W715+FOOT	Open stem cell implantation into articular structure of foot	9
W715+HAND	Open stem cell implantation into articular structure of hand	9
W715+HIP	Open stem cell implantation into articular structure of hip	10
W715+KNEE	Open stem cell implantation into articular structure of knee	10
W715+ SHOULDER	Open stem cell implantation into articular structure of shoulder	10
W893+ELBOW	Endoscopic stem cell implantation into articular cartilage of elbow	9
W893+FOOT	Endoscopic stem cell implantation into articular cartilage of foot	9
W893+HAND	Endoscopic stem cell implantation into articular cartilage of hand	9
W893+HIP	Endoscopic stem cell implantation into articular cartilage of hip	10
W893+KNEE	Endoscopic stem cell implantation into articular cartilage of knee	10
W893+ SHOULDER	Endoscopic stem cell implantation into articular cartilage of shoulder	10

As a result of the authoring of new OPCS-4 codes, the following 14 combination codes are redundant. Consequently, these codes have been deleted from the HRG design and will no longer contribute to multiple trauma grouping.

Combination Code	Description
T578+Y38	Injection of therapeutic substance into fascia
T578+Y38+ELBOW	Injection of therapeutic substance into fascia of elbow
T578+Y38+FOOT	Injection of therapeutic substance into fascia of foot
T578+Y38+HAND	Injection of therapeutic substance into fascia of hand
T578+Y38+HIP	Injection of therapeutic substance into fascia of hip
T578+Y38+KNEE	Injection of therapeutic substance into fascia of knee
T578+Y38+SHOULDER	Injection of therapeutic substance into fascia of shoulder
W818+Y032+ELBOW	Renewal of therapeutic spacer into joint of elbow
W818+Y032+FOOT	Renewal of therapeutic spacer into joint of foot
W818+Y032+HAND	Renewal of therapeutic spacer into joint of hand
W818+Y032+HIP	Renewal of therapeutic spacer into joint of hip
W818+Y032+KNEE	Renewal of therapeutic spacer into joint of knee
W818+Y032+RIB	Renewal of therapeutic spacer into joint of rib
W818+Y032+SHOULDER	Renewal of therapeutic spacer into joint of shoulder

With the introduction of new OPCS-4.9 code category ***Y68.- Other approach to organ under image control***, which is an extension of category ***Y53.- Approach to organ under image control***, it is necessary to replace combination codes relying on combination list **CL_Y53** (Approach to organ under image control) with a new combination code using combination list **CL_IMAGE** (Approach to organ under image control). Each new combination code classifies the same procedure(s) as the code it has replaced and can be formed using either an existing (Y53.-) or a new (Y68.-) approach to organ under image control subsidiary code. The 52 combination codes employing **CL_Y53** and included in multiple trauma grouping have been deleted and replaced with a combination code employing **CL_IMAGE**. The 52 replacement codes have been added to multiple trauma grouping.

Changes related to OPCS-4.9 coding guidance amendments

The following eight new combination codes, created as a result of changes to OPCS-4 clinical coding guidance, have been added to multiple trauma grouping.

Combination Code	Description	MT_OPCS_ Value
C518+Y371	Introduction of photodynamic substance into cornea	6
M292+MET	Endoscopic insertion of metal stent into ureter	8
S288+Z226	Flap of mucosa to nasopharynx	8
V259+Y083	Primary laser decompression of lumbar spine	10
W703+SCAF	Open repair of semilunar cartilage using scaffold	10
W703+Y272	Open repair of semilunar cartilage using allograft	10
W823+SCAF	Endoscopic repair of semilunar cartilage using scaffold	10
W823+Y272	Endoscopic repair of semilunar cartilage using allograft	10

As a result of changes to OPCS-4 clinical coding guidance, the following two combination codes are redundant. Consequently, these codes have been deleted from the HRG design and will no longer contribute to multiple trauma grouping.

Combination Code	Description
C518+PDT	Photodynamic therapy to cornea
M264+MET	Nephroscopic insertion of metal stent into ureter

After clarifying OPCS-4 clinical coding guidance relating to the sequencing of codes, it was determined that the paired code combination codes within the HRG design were redundant. Consequently, 368 now-deleted paired code combination codes have been removed from multiple trauma grouping.

Changes related to alternatives to creating new OPCS-4.9 codes

The following seven new combination codes, created as an alternative to authoring new OPCS-4.9 codes, have been added to multiple trauma grouping.

Combination Code	Description	MT_OPCS_ Value
T771+HEAD	Excision of whole muscle group of head	11
T772+HEAD	Wide excision of muscle of head	11
T773+HEAD	Partial excision of muscle NEC of head	9
T778+HEAD	Other specified excision of muscle of head	10
T779+HEAD	Unspecified excision of muscle of head	9
W621+Z841	Primary arthrodesis and internal fixation of sacroiliac joint	11
W631+Z841	Revision of arthrodesis and internal fixation of sacroiliac joint	11

Combination code ***W621+Y769+Z841 Primary arthrodesis and internal fixation of sacroiliac joint using minimal access approach*** was replaced with ***W621+Z841 Primary arthrodesis and internal fixation of sacroiliac joint***. The former combination code was therefore deleted from multiple trauma grouping.

Introduction of new combination codes

New combination code ***A208+Y037 Removal of prosthesis from ventricle of brain*** has been created and added to multiple trauma grouping.

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		
	NC20/21	RC18/19
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 B for investigations and Appendix C 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 B and C 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+ 2018/19 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2020/21 Costing Grouper when compared to the HRG4+ 2018/19 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 B – 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 B above are fundamental to determining which investigation is considered dominant and used for HRG derivation.

Subchapter VB: Appendix C – 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

Treatment Code	Treatment Code Label	Category (5=highest; 1=lowest)	Hierarchy (8=highest; 1=lowest)
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, ultrasound 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
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

Treatment Code	Treatment Code Label	Category (5=highest; 1=lowest)	Hierarchy (8=highest; 1=lowest)
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 C 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

Composition and Concepts		
	NC20/21	RC18/19
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 Rehabilitation HRGs do not cover the following:

- Rehabilitation within an acute care treatment episode
- The identification of highly complex specialist rehabilitation

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+ 2018/19 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2020/21 Costing Grouper when compared to the HRG4+ 2018/19 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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2020/21 Costing Grouper when compared to the HRG4+ 2018/19 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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2020/21 Costing Grouper when compared to the HRG4+ 2018/19 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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been remapped for adult patients from HRG root **WH15 Special Screening, Examinations or Other Genetic Disorders** to HRG root **DX21 COVID-19 Infection**.

U07.3 Personal history of COVID-19 and ***U07.7 COVID-19 vaccines causing adverse effects in therapeutic use*** have been remapped for adult patients from HRG root **WH15 Special Screening, Examinations or Other Genetic Disorders** to **UZ01 Data Invalid for Grouping** as, according to national clinical coding standards, these codes are not permitted to be used as a primary diagnosis. The former code matches the mapping of similar code ***Z86.1 Personal history of infectious and parasitic diseases***, the latter code as per most similar code ***Y59.0 Viral vaccines***.

U07.5 Multisystem inflammatory syndrome associated with COVID-19 has been remapped from HRG root **WH15 Special Screening, Examinations or Other Genetic Disorders** to HRG root **WJ06 Sepsis** for adult patients. This matches the mapping of the ICD-10 code in use for this disorder before the introduction of this emergency use code,

R65.0 Systemic Inflammatory Response Syndrome of infectious origin without organ failure.

U07.6 Need for immunization against COVID-19 has been remapped from HRG root **WH15 Special Screening, Examinations or Other Genetic Disorders** to **WH19 Potential Health Hazard Related to Communicable Disease** for adult patients. This matches the mapping of the ICD-10 code in use for this disorder before the introduction of this emergency use code, ***Z25.8 Need for immunization against other specified single viral diseases***.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Accommodation of ICD-10 emergency use codes

U07.5 Multisystem inflammatory syndrome associated with COVID-19 has been remapped from HRG root **WH15 Special Screening, Examinations or Other Genetic Disorders** to HRG root **WJ06 Sepsis** for adult patients. This matches the mapping of the ICD-10 code in use for this disorder before the introduction of this emergency use code, ***R65.0 Systemic Inflammatory Response Syndrome of infectious origin without organ failure***.

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **WJ_CC**.

U07.5 Multisystem inflammatory syndrome associated with COVID-19 has been added to the complications and comorbidities list for this subchapter, **WJ_CC**, as per the ICD-10 code in use for this disorder before the introduction of this emergency use code, ***R65.0 Systemic Inflammatory Response Syndrome of infectious origin without organ failure***.

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		
	NC20/21	RC18/19
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, Neonatology Supported 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:

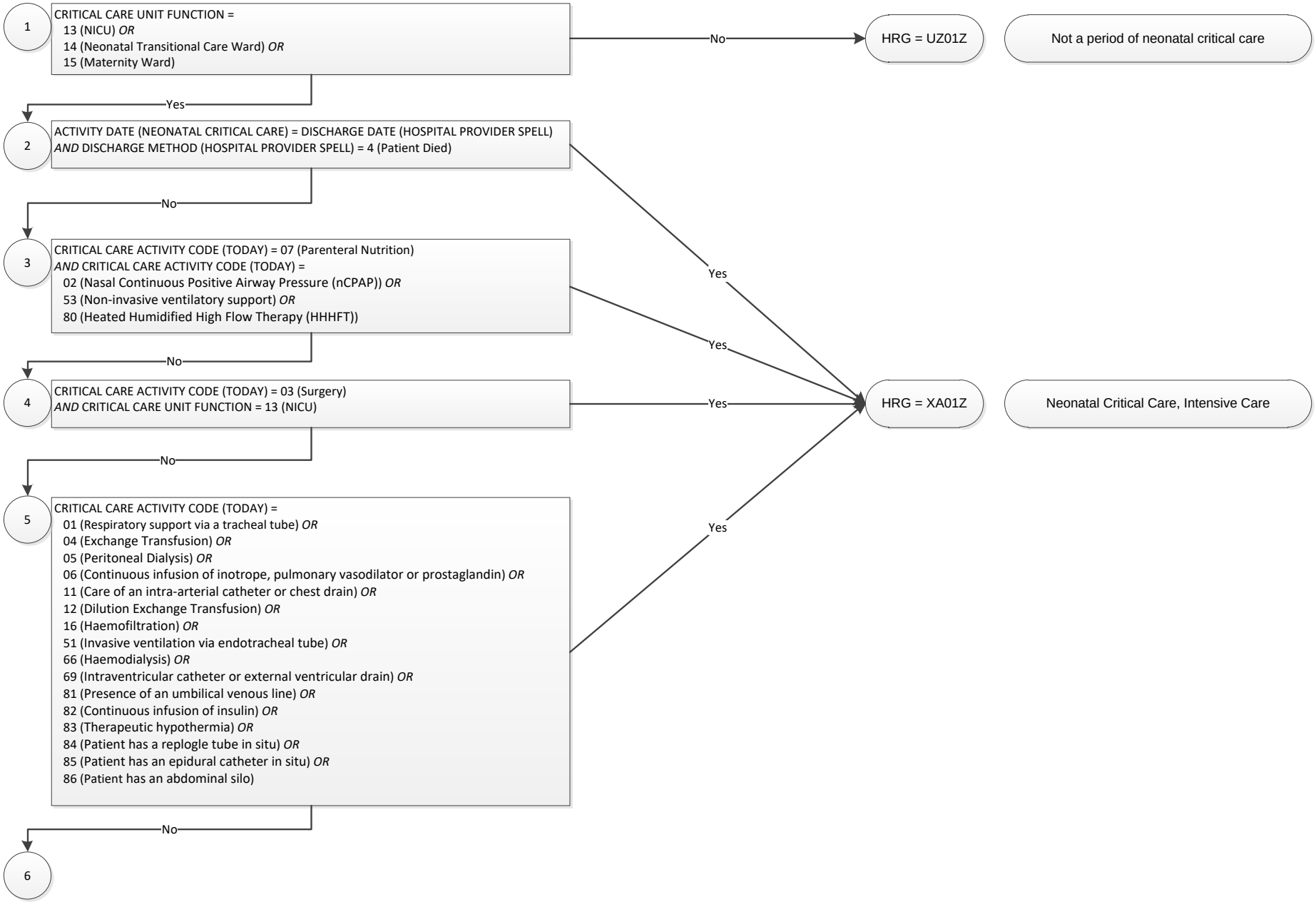
Data Item	Value	Notes
Admission Method	81: Transfer of any admitted patient from other hospital provider other than in an emergency (Data submitted using CDS 6.1 or 6.2) or 28: Other Means (includes transfer of an admitted patient from another hospital provider in an emergency) (Data submitted using 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)	

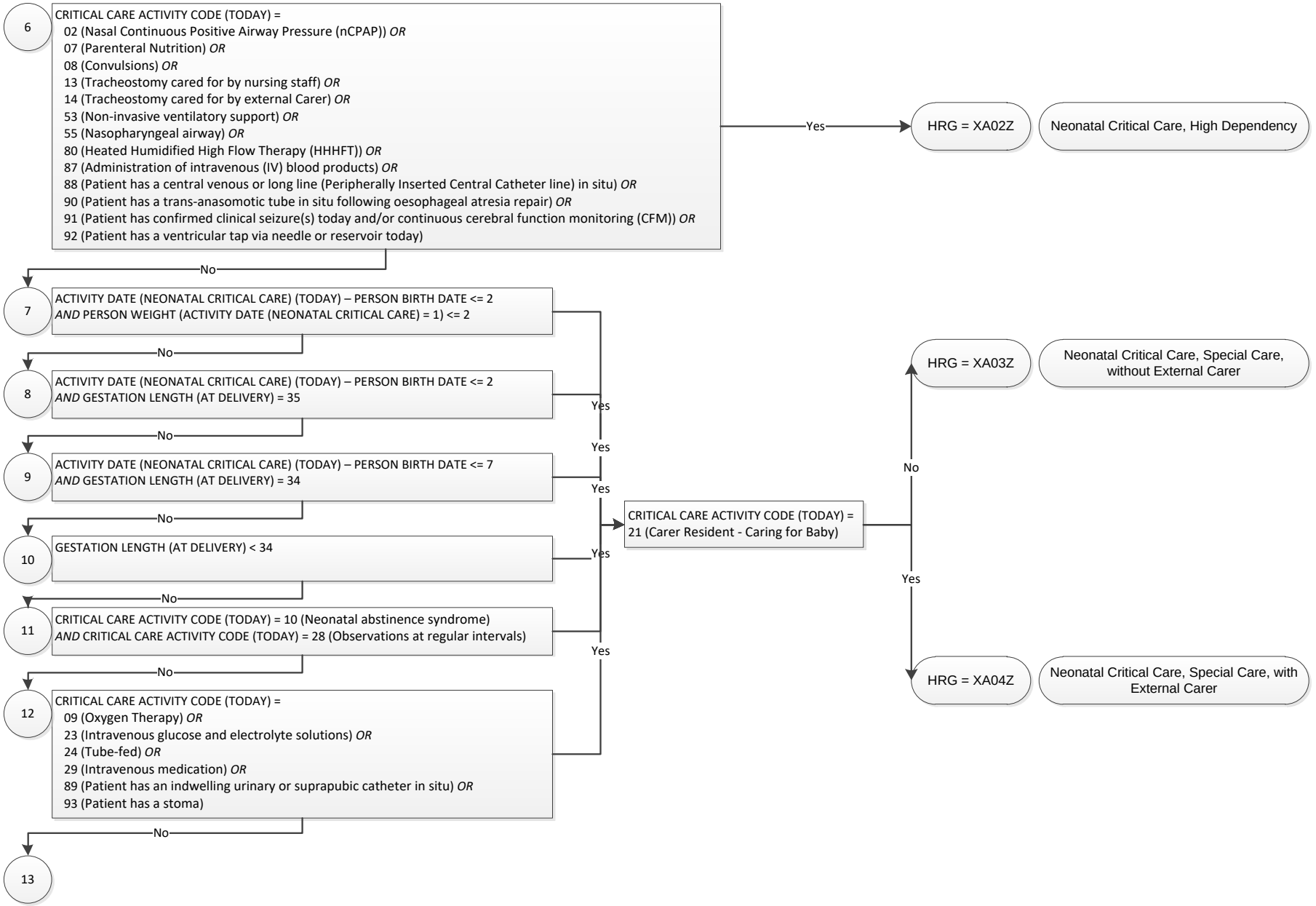
Differences from the HRG4+ 2018/19 Reference Costs Grouper

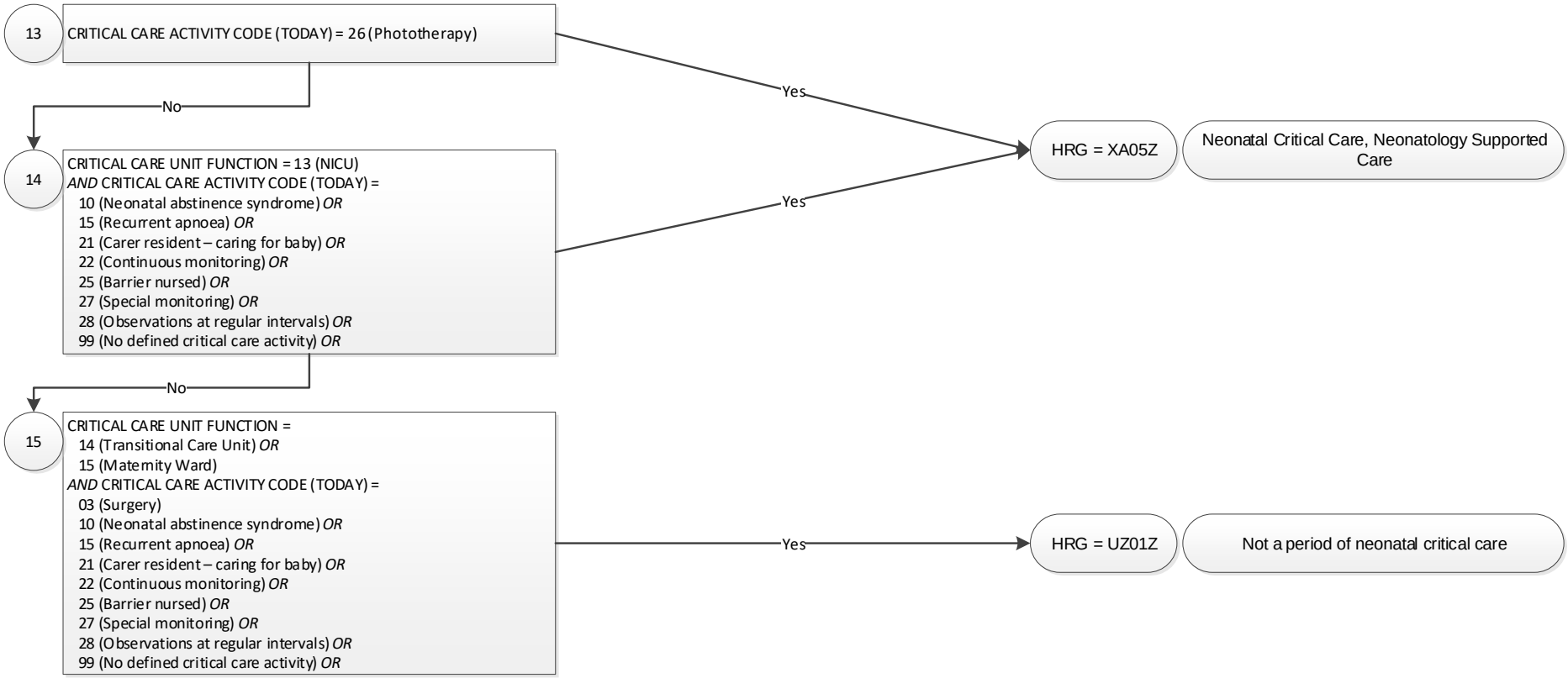
Change to HRG label

The label of HRG root XA05 and that of its associated HRG have been amended to clarify that patients grouping to this HRG root are not receiving active critical care but are being supported in a neonatal unit. The new root label is as follows:

- **XA05 Neonatal Critical Care, Neonatology Supported Care**







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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2020/21 Costing Grouper when compared to the HRG4+ 2018/19 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.

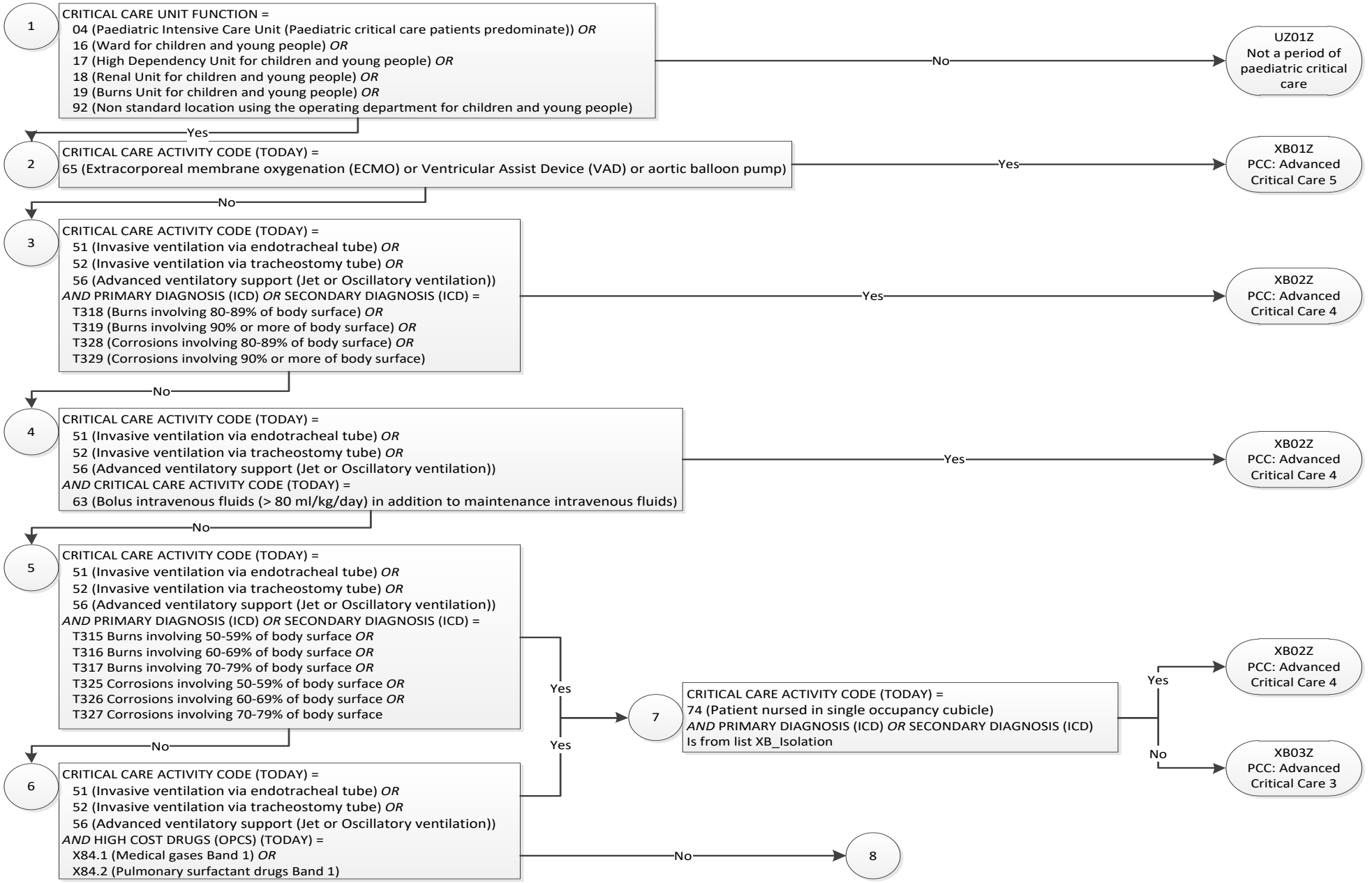
B	16 (Ward for children and young people)	10	1 (Patient discharged on clinical advice or with clinical consent)	62 Central venous pressure monitoring				XB06Z	Paediatric Critical Care, Basic Critical Care

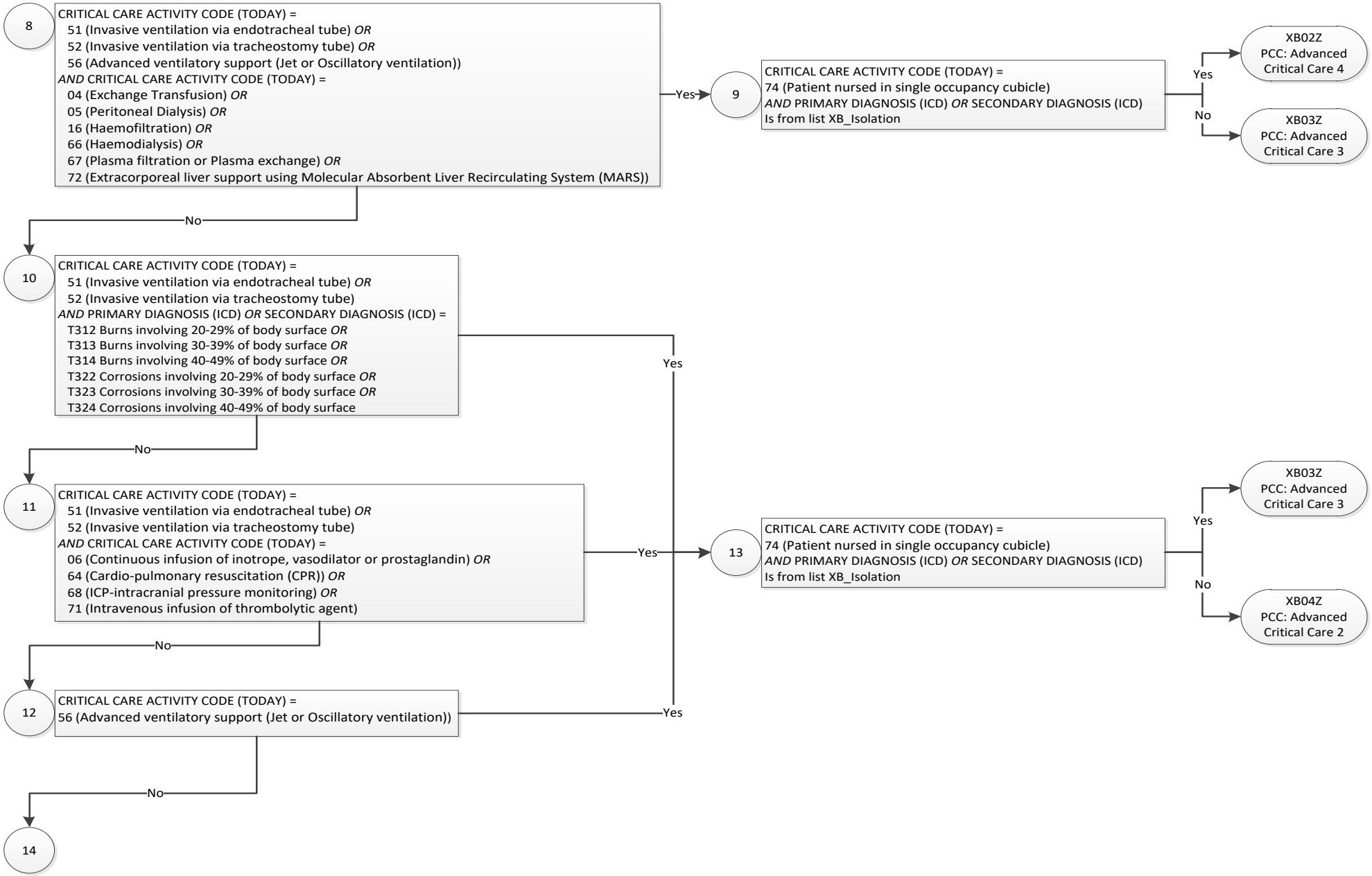
Case C: A patient is being treated in the paediatric critical care unit and has invasive ventilation after being severely burned. This illustrates how the diagnosis is used in deriving the HRG.

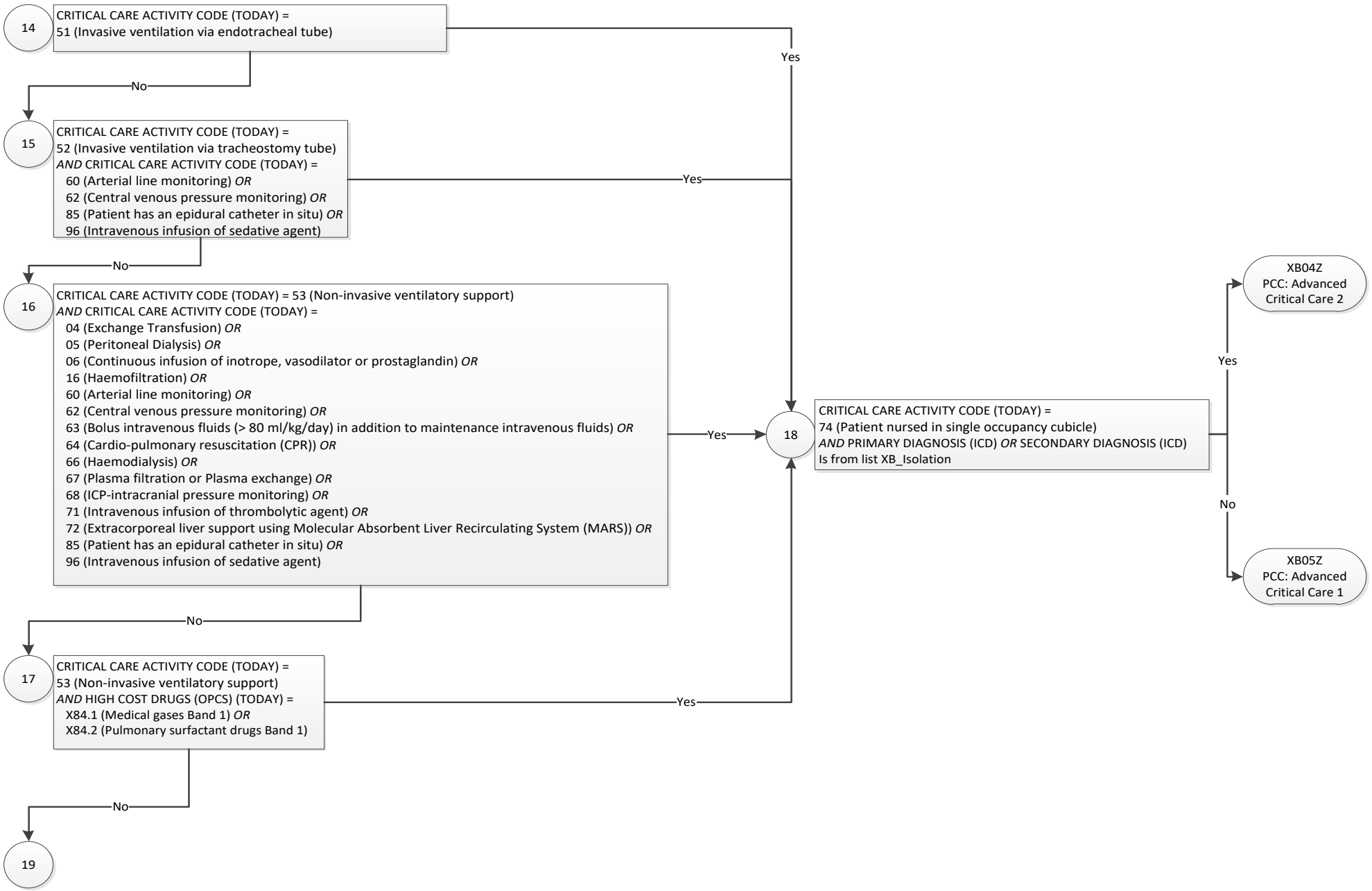
C	04 (Paediatric Intensive Care Unit)	10	1 (Patient discharged on clinical advice or with clinical consent)	51 Invasive ventilation via endotracheal tube		T31.5	Burns involving 50-59% of body surface	XB03Z	Paediatric Critical Care, Advanced Critical Care 3

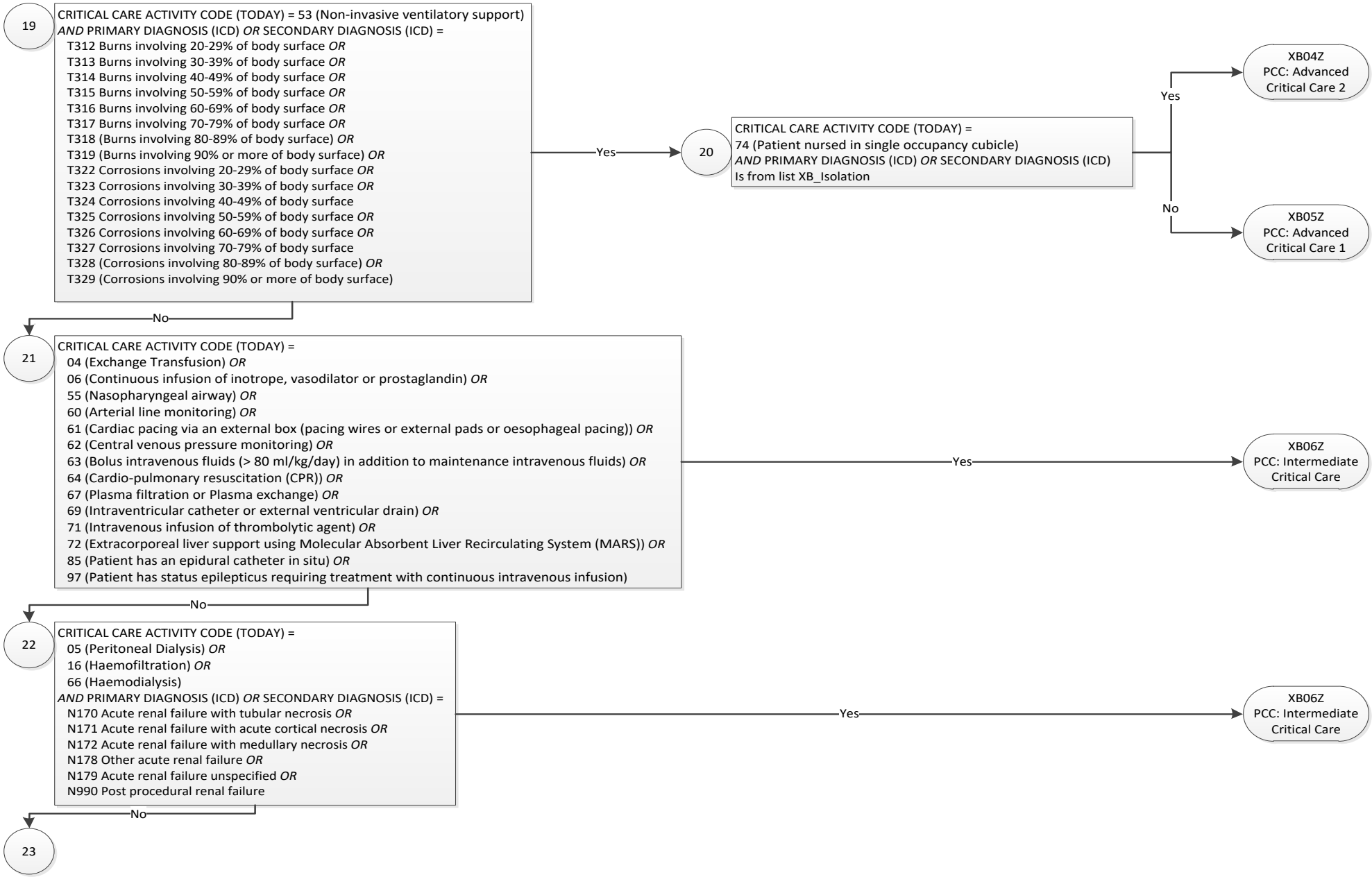
Case D: A patient with renal hypoplasia who develops adenoviral pneumonia is admitted to a single occupancy cubicle in the paediatric critical care unit. This illustrates how both the diagnosis and CCAC affect the HRG derived.

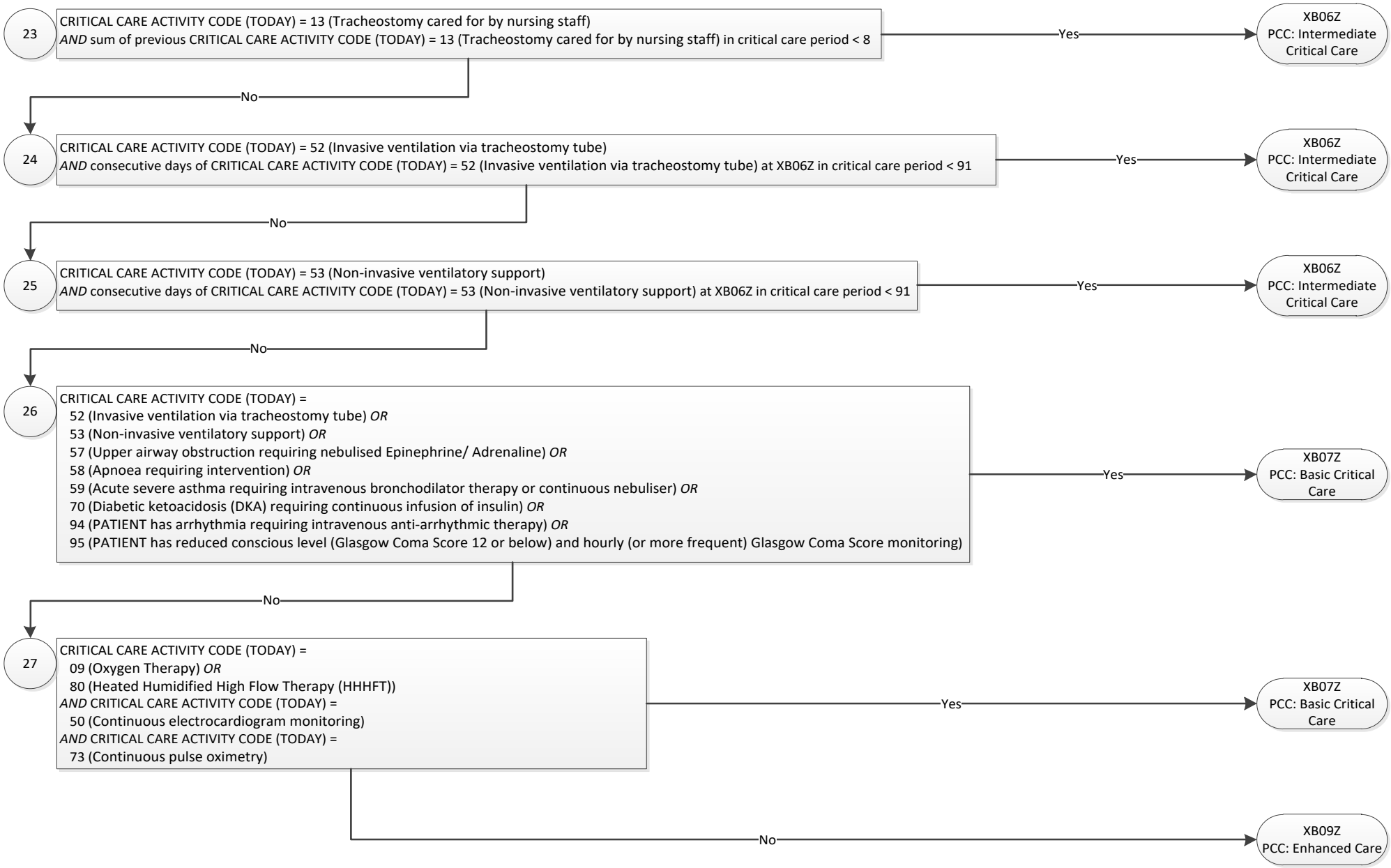
D	04 (Paediatric Intensive Care Unit)	10	1 (Patient discharged on clinical advice or with clinical consent)	51 Invasive ventilation via endotracheal tube	05 Peritoneal dialysis + + 74 Patient nursed on single occupancy cubicle	Q60.5 + J12.0	Renal hypoplasia, unspecified + Adenoviral pneumonia	XB02Z	Paediatric Critical Care, Advanced Critical Care 4











Subchapter XB: Appendix D: List XB_ISOLATION

ICD-10 code	Description
A00.0	Cholera due to Vibrio cholerae 01, biovar cholerae
A00.1	Cholera due to Vibrio cholerae 01, biovar eltor
A00.9	Cholera, unspecified
A01.0	Typhoid fever
A01.1	Paratyphoid fever A
A01.2	Paratyphoid fever B
A01.3	Paratyphoid fever C
A01.4	Paratyphoid fever, unspecified
A02.0	Salmonella enteritis
A02.1	Salmonella sepsis
A02.2	Localized salmonella infections
A03.0	Shigellosis due to Shigella dysenteriae
A03.1	Shigellosis due to Shigella flexneri
A03.2	Shigellosis due to Shigella boydii
A03.3	Shigellosis due to Shigella sonnei
A03.8	Other shigellosis
A03.9	Shigellosis, unspecified
A04.3	Enterohaemorrhagic Escherichia coli infection
A04.5	Campylobacter enteritis
A04.7	Enterocolitis due to Clostridium difficile
A07.2	Cryptosporidiosis
A08.0	Rotaviral enteritis
A08.1	Acute gastroenteropathy due to Norwalk agent
A08.2	Adenoviral enteritis
A08.3	Other viral enteritis
A08.4	Viral intestinal infection, unspecified
A09.0	Other and unspecified gastroenteritis and colitis of infectious origin
A09.9	Gastroenteritis and colitis of unspecified origin
A15.0	Tuberculosis of lung, confirmed by sputum microscopy with or without culture
A15.1	Tuberculosis of lung, confirmed by culture only
A15.2	Tuberculosis of lung, confirmed histologically
A15.3	Tuberculosis of lung, confirmed by unspecified means
A15.4	Tuberculosis of intrathoracic lymph nodes, confirmed bacteriologically and histologically
A15.5	Tuberculosis of larynx, trachea and bronchus, confirmed bacteriologically and histologically
A15.6	Tuberculous pleurisy, confirmed bacteriologically and histologically
A15.7	Primary respiratory tuberculosis, confirmed bacteriologically and histologically
A15.8	Other respiratory tuberculosis, confirmed bacteriologically and histologically
A15.9	Respiratory tuberculosis unspecified, confirmed bacteriologically and histologically
A17.0	Tuberculous meningitis
A19.2	Acute miliary tuberculosis, unspecified
A36.0	Pharyngeal diphtheria
A36.1	Nasopharyngeal diphtheria
A36.2	Laryngeal diphtheria
A36.3	Cutaneous diphtheria
A36.8	Other diphtheria

ICD-10 code	Description
A36.9	Diphtheria, unspecified
A37.0	Whooping cough due to Bordetella pertussis
A37.1	Whooping cough due to Bordetella parapertussis
A37.8	Whooping cough due to other Bordetella species
A37.9	Whooping cough, unspecified
A38.X	Scarlet fever
A39.0	Meningococcal meningitis
A39.2	Acute meningococcaemia
A39.4	Meningococcaemia, unspecified
A39.9	Meningococcal infection, unspecified
A87.1	Adenoviral meningitis
A98.4	Ebola virus disease
B00.0	Eczema herpeticum
B00.1	Herpesviral vesicular dermatitis
B00.2	Herpesviral gingivostomatitis and pharyngotonsillitis
B00.3	Herpesviral meningitis
B00.4	Herpesviral encephalitis
B00.5	Herpesviral ocular disease
B00.7	Disseminated herpesviral disease
B00.8	Other forms of herpesviral infection
B00.9	Herpesviral infection, unspecified
B01.0	Varicella meningitis
B01.1	Varicella encephalitis
B01.2	Varicella pneumonia
B01.8	Varicella with other complications
B01.9	Varicella without complication
B02.0	Zoster encephalitis
B02.1	Zoster meningitis
B02.2	Zoster with other nervous system involvement
B02.3	Zoster ocular disease
B02.7	Disseminated zoster
B02.8	Zoster with other complications
B02.9	Zoster without complication
B05.0	Measles complicated by encephalitis
B05.1	Measles complicated by meningitis
B05.2	Measles complicated by pneumonia
B05.3	Measles complicated by otitis media
B05.4	Measles with intestinal complications
B05.8	Measles with other complications
B05.9	Measles without complication
B15.0	Hepatitis A with hepatic coma
B15.9	Hepatitis A without hepatic coma
B17.2	Acute hepatitis E
B20.0	HIV disease resulting in mycobacterial infection
B20.1	HIV disease resulting in other bacterial infections
B20.2	HIV disease resulting in cytomegaloviral disease
B20.3	HIV disease resulting in other viral infections

ICD-10 code	Description
B20.4	HIV disease resulting in candidiasis
B20.5	HIV disease resulting in other mycoses
B20.6	HIV disease resulting in Pneumocystis jirovecii pneumonia
B20.7	HIV disease resulting in multiple infections
B20.8	HIV disease resulting in other infectious and parasitic diseases
B20.9	HIV disease resulting in unspecified infectious or parasitic disease
B23.0	Acute HIV infection syndrome
B24.X	Unspecified human immunodeficiency virus [HIV] disease
B26.0	Mumps orchitis
B26.1	Mumps meningitis
B26.2	Mumps encephalitis
B26.3	Mumps pancreatitis
B26.8	Mumps with other complications
B26.9	Mumps without complication
B30.0	Keratoconjunctivitis due to adenovirus
B30.1	Conjunctivitis due to adenovirus
B44.0	Invasive pulmonary aspergillosis
B44.1	Other pulmonary aspergillosis
B44.2	Tonsillar aspergillosis
B44.7	Disseminated aspergillosis
B44.8	Other forms of aspergillosis
B44.9	Aspergillosis, unspecified
B97.0	Adenovirus as the cause of diseases classified to other chapters
B97.4	Respiratory syncytial virus as the cause of diseases classified to other chapters
D70.X	Agranulocytosis
D81.0	Severe combined immunodeficiency [SCID] with reticular dysgenesis
D81.1	Severe combined immunodeficiency [SCID] with low T- and B-cell numbers
D81.2	Severe combined immunodeficiency [SCID] with low or normal B-cell numbers
D84.8	Other specified immunodeficiencies
J10.0	Influenza with pneumonia, seasonal influenza virus identified
J10.1	Influenza with other respiratory manifestations, seasonal influenza virus identified
J12.0	Adenoviral pneumonia
J12.1	Respiratory syncytial virus pneumonia
J12.2	Parainfluenza virus pneumonia
J15.2	Pneumonia due to staphylococcus
J15.8	Other bacterial pneumonia
J20.4	Acute bronchitis due to parainfluenza virus
J20.5	Acute bronchitis due to respiratory syncytial virus
J21.0	Acute bronchiolitis due to respiratory syncytial virus
J21.8	Acute bronchiolitis due to other specified organisms
J21.9	Acute bronchiolitis, unspecified
L12.3	Acquired epidermolysis bullosa
L51.1	Bullous erythema multiforme
L51.2	Toxic epidermal necrolysis [Lyell]
T31.2	Burns involving 20-29% of body surface
T31.3	Burns involving 30-39% of body surface
T31.4	Burns involving 40-49% of body surface

ICD-10 code	Description
T31.5	Burns involving 50-59% of body surface
T31.6	Burns involving 60-69% of body surface
T31.7	Burns involving 70-79% of body surface
T31.8	Burns involving 80-89% of body surface
T31.9	Burns involving 90% or more of body surface
T32.2	Corrosions involving 20-29% of body surface
T32.3	Corrosions involving 30-39% of body surface
T32.4	Corrosions involving 40-49% of body surface
T32.5	Corrosions involving 50-59% of body surface
T32.6	Corrosions involving 60-69% of body surface
T32.7	Corrosions involving 70-79% of body surface
T32.8	Corrosions involving 80-89% of body surface
T32.9	Corrosions involving 90% or more of body surface
T86.0	Bone-marrow transplant rejection
U04.9	Severe acute respiratory syndrome [SARS], unspecified
U82.1	Resistance to methicillin
U82.2	Extended spectrum betalactamase (ESBL) resistance
U82.8	Resistance to other betalactam antibiotics
U82.9	Resistance to betalactam antibiotics, unspecified
U83.0	Resistance to vancomycin
U83.7	Resistance to multiple antibiotics
U83.8	Resistance to other single specified antibiotic
U84.1	Resistance to antifungal drug(s)
U84.2	Resistance to antiviral drug(s)
U84.3	Resistance to tuberculostatic drug(s)
U84.7	Resistance to multiple antimicrobial drugs
Z94.3	Heart and lungs transplant status
Z94.4 with Z94.0	Liver transplant status with Kidney transplant status
Z94.4 with Z948	Liver transplant status with Other transplanted organ and tissue status
A40.0 with M726*	Sepsis due to streptococcus, group A with Necrotizing fasciitis

“*” inc 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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

No changes

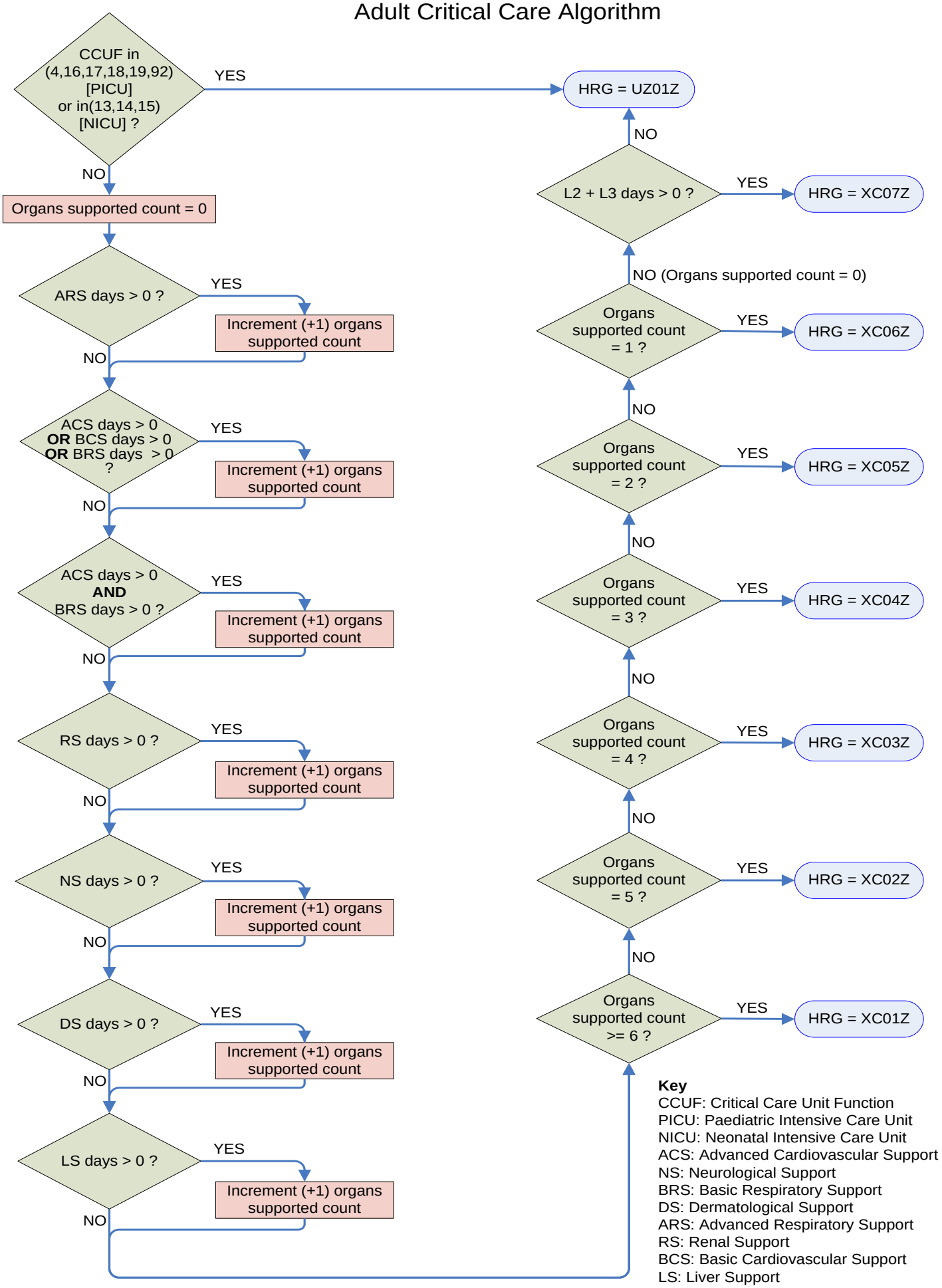
No changes directly impacting this subchapter have been made in the HRG4+ 2020/21 Costing Grouper when compared to the HRG4+ 2018/19 Reference Costs Grouper.

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 20	02 Jan 20	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 20	15 Jan 20	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 20	03 Jan 20	2	3	XC04Z	Three organ systems supported
Case D illustrates a patient having basic and advanced cardiovascular support.															
0	0	5	5	0	0	0	0	10	0	01 Jan 20	10 Jan 20	1	10	XC06Z	One organ system 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 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 20	05 Jan 20	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 20	05 Jan 20	5	5	XC07Z	No organ systems supported

Adult Critical Care Algorithm



Key
CCUF: Critical Care Unit Function
PICU: Paediatric Intensive Care Unit
NICU: Neonatal Intensive Care Unit
ACS: Advanced Cardiovascular Support
NS: Neurological Support
BRS: Basic Respiratory Support
DS: Dermatological Support
ARS: Advanced Respiratory Support
RS: Renal Support
BCS: Basic Cardiovascular Support
LS: Liver Support

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

No changes

No changes directly impacting this subchapter have been made in the HRG4+ 2020/21 Costing Grouper when compared to the HRG4+ 2018/19 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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Changes related to new OPCS-4.9 codes

New OPCS-4.9 code ***L35.4 Percutaneous transluminal embolectomy of cerebral artery*** has been mapped to HRG root **YA13 Percutaneous Transluminal, Embolectomy or Thrombolysis, of Intracranial or Extracranial Blood Vessel**.

Four new combination codes have been created using new OPCS-4.9 codes ***O03.4 Percutaneous transluminal flow diverting stent assisted coil embolisation of three or more aneurysms of artery***, ***O03.5 Percutaneous transluminal flow diverting stent assisted coil embolisation of two aneurysms of artery aneurysms of artery***, ***O03.6 Percutaneous transluminal flow diverting stent assisted coil embolisation of single aneurysm of artery*** and ***O04.3 Percutaneous transluminal flow diverting stent embolisation of aneurysm of artery*** to classify embolisation procedures undertaken on intracranial or extracranial arteries. ***O034+NEURO Percutaneous transluminal flow diverting stent assisted coil embolisation of three or more aneurysms of intracranial or extracranial artery***, ***O035+NEURO Percutaneous transluminal flow diverting stent***

assisted coil embolisation of two aneurysms of intracranial or extracranial artery, ***O036+NEURO Percutaneous transluminal flow diverting stent assisted coil embolisation of single aneurysm of intracranial or extracranial artery*** and ***O043+NEURO Percutaneous transluminal flow diverting stent embolisation of aneurysm of intracranial or extracranial artery*** have been mapped to HRG root **YA01 Percutaneous Transluminal Embolisation of, Single Giant or Three or more Other, Intracranial or Extracranial Aneurysms**.

New OPCS-4.9 code ***Z91.7 Jugular vein*** has been added to combination list **CL_NEURO** so that it can be used to form the +NEURO intracranial and extracranial blood vessel combination codes.

Changes related to OPCS-4.9 code retirements

OPCS-4.8 code ***L99.1 Percutaneous transluminal angioplasty of vein*** has been retired in OPCS-4.9 and its description updated to *Code retired - refer to introduction* as there was an overlap in meaning between this code and code ***L94.6 Percutaneous transluminal venoplasty***, resulting in two codes classifying the same procedure. Consequently, ***L99.1 Code retired - refer to introduction*** has been removed from all escalation lists and has been remapped to **UZ01 Data Invalid for Grouping**. This code falls under U Error category **UZ06 Poorly coded procedure for Casemix grouping purposes**. As ***L99.1 Code retired - refer to introduction*** is no longer a valid code for HRG grouping purposes, combination code ***L991+NEURO Percutaneous transluminal angioplasty of intracranial or extracranial vein*** has been deleted.

Update to multiple-procedure escalation list membership

The membership of lists used in multiple-procedure escalation logic employed within this subchapter have been updated as part of a global list membership review undertaken to ensure consistency across the HRG design and to remove redundant OPCS-4 codes and combination codes from escalation lists.

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **YAYQYR_CC**.

Subchapter YC – Head and Neck Imaging Interventions

Subchapter **YC Head and 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		
	NC20/21	RC18/19
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, Head or 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+ 2018/19 Reference Costs Grouper

Change to chapter and subchapter labels

The label Subchapter YC has been amended to clarify that HRGs in this subchapter include procedures undertaken on the tissue of the head. The new label is as follows:

- **YC Head and Neck Imaging Interventions**

Change to HRG labels

The labels of HRG root YC01, YC02 and YC10 and that of their associated HRGs have been amended to clarify that these HRGs include procedures undertaken on the tissue of the head. The new root labels are as follows:

- **YC01 Percutaneous Core Needle Biopsy of Lesion of, Head or Neck**
- **YC02 Percutaneous Fine Needle Aspiration Biopsy of Lesion of, Head or Neck**
- **YC10 Percutaneous Therapeutic, Head or Neck Procedures**

Changes related to new OPCS-4.9 codes

New OPCS-4.9 code ***B12.5 Percutaneous drainage of lesion of thyroid gland*** has been mapped to base HRG root **YC10 Percutaneous Therapeutic, Head or Neck Procedures**.

This has resulted in the deletion of the now-redundant combination code ***B128+Y22+Y53 Drainage of thyroid gland under image control***, which the new code replaces.

New combination codes have been created using new OPCS-4.9 codes ***T96.5 Aspiration of soft tissue NEC***, ***T96.6 Biopsy of soft tissue NEC*** and ***T96.7 Injection into soft tissue NEC***. These six new codes use either existing combination list **CL_Neck** (Neck site codes) or new combination list **CL_Head** (Head site codes) to appropriately classify these procedures when performed on neck or head tissue. ***T966+NECK Biopsy of soft tissue of neck*** and ***T966+HEAD Biopsy of soft tissue of head*** have been mapped to base HRG root **YC01 Percutaneous Core Needle Biopsy of Lesion of, Head or Neck**; and ***T965+NECK Aspiration of soft tissue of neck***, ***T965+HEAD Aspiration of soft tissue of head***, ***T967+NECK Injection into soft tissue of neck*** and ***T967+HEAD Injection into soft tissue of head*** have been mapped to base HRG root **YC10 Percutaneous Therapeutic, Head or Neck Procedures**. This has resulted in the deletion of the now-redundant combination codes ***T968+BIOP+Y53+NECK Biopsy of soft tissue of neck under image control*** and ***T968+Y204+Y53+NECK Fine needle aspiration of soft tissue of neck under image control***, which the new combination codes replace.

Existing OPCS-4 codes ***F51.1 Open extraction of calculus from parotid duct***, ***F51.2 Open extraction of calculus from submandibular duct***, ***F55.1 Dilation of parotid duct***, ***F55.2 Dilation of submandibular duct***, ***F55.8 Other specified dilation of salivary duct*** and ***F55.9 Unspecified dilation of salivary duct*** have been remapped from a base HRG root of **CA85 Minor, Mouth or Throat Procedures** to **YC10 Percutaneous Therapeutic, Head or Neck Procedures** to ensure these codes are mapped to the same HRG root as related codes introduced as part of the OPCS-4.9 update.

With the introduction of new OPCS-4.9 code category ***Y68.- Other approach to organ under image control***, which is an extension of category ***Y53.- Approach to organ under image control***, it is necessary to replace combination codes relying on combination list **CL_Y53** (Approach to organ under image control) with a new combination code using combination list **CL_IMAGE** (Approach to organ under image control). Each new combination code classifies the same procedure(s) as the code it has replaced and can be formed using either an existing (Y53.-) or a new (Y68.-) approach to organ under image control subsidiary code. Three combination codes employing **CL_Y53** and mapped to a base HRG root from this subchapter have been deleted and replaced with a combination code employing **CL_IMAGE**.

Changes related to OPCS-4.9 coding guidance amendments

Following clarification of clinical coding guidance as to which head and neck procedures would inherently be expected to be performed under image control, the seven **+Y53** combination codes that mapped to HRGs within this subchapter have been deleted (and not replaced with +IMAGE equivalents). Instead the driving codes have been remapped as appropriate.

Existing OPCS-4 codes ***B16.2 Biopsy of lesion of parathyroid gland***, ***B10.3 Biopsy of lesion of thyroglossal tract*** and ***B12.2 Biopsy of lesion of thyroid gland*** have been remapped from a base HRG root of **KA03 Parathyroid Procedures** for the former code and **KA09 Thyroid Procedures** for the latter two codes to **YC01 Percutaneous Core Needle Biopsy of Lesion of, Head or Neck** as these code are expected to be undertaken using image control and are now mapped to the the same HRG root as related codes introduced as part of the OPCS-4.9 update.

Existing OPCS-4 code ***T88.1 Drainage of lesion of cervical lymph node*** and existing combination code ***T888+NECK Other specified drainage of lesion of lymph node of neck*** have been remapped from a base HRG root of **CA05 Minor, Head or Neck Procedures** to

YC10 Percutaneous Therapeutic, Head or Neck Procedures following a mapping review of lymph node procedures in light of the many new OPCS-4.9 codes classifying lymph node sites and procedures.

Existing combination code ***T964+NECK Evacuation of seroma from soft tissue of neck*** has been remapped from a base HRG root of **CA05 Minor, Head or Neck Procedures** to **YC10 Percutaneous Therapeutic, Head or Neck Procedures** to ensure this code is mapped to the same HRG root as related codes introduced as part of the OPCS-4.9 update.

Existing OPCS-4 code ***F48.1 Biopsy of lesion of salivary gland*** has been remapped from a base HRG root of **CA85 Minor, Mouth or Throat Procedures** to **YC01 Percutaneous Core Needle Biopsy of Lesion of, Head or Neck** to ensure this code is mapped to the same HRG root as related codes introduced as part of the OPCS-4.9 update.

As a result of this code remapping, the **YC_Y53** under image control logic has been removed, and these 14 codes no longer map to HRGs within this subchapter.

Combination code ***T879+Y53+NECK Unspecified excision or biopsy of lymph node of neck under image control*** has been deleted following updated clinical advice.

Changes related to alternatives to creating new OPCS-4.9 codes

Rather than author new OPCS-4.9 codes to classify specific procedures performed on the head, the Clinical Classifications Service has confirmed that these procedures can already be captured using existing codes followed by a site code identifying (part of) the head. Four new combination codes using an existing OPCS-4 code and new combination list **CL_Head** (Head site codes) have been mapped to HRG roots in this subchapter to appropriately classify these procedures when performed on head tissue. ***T811+HEAD Percutaneous biopsy of muscle of head*** and ***T878+IMAGE+HEAD Other specified excision or biopsy of lymph node of head under image control*** have been mapped to base HRG root **YC01 Percutaneous Core Needle Biopsy of Lesion of, Head or Neck**, and ***T888+HEAD Other specified drainage of lesion of lymph node of head*** and ***T964+HEAD Evacuation of seroma from soft tissue of head*** have been mapped to base HRG root **YC10 Percutaneous Therapeutic, Head or Neck Procedures**.

Rather than author new OPCS-4.9 codes to classify specific drainage procedures performed on the head and neck, the Clinical Classifications Service has confirmed that these procedures can already be captured using existing codes followed by a code from combination list **CL_Y22** (Drainage of lesion of organ). New combination codes ***B108+Y22 Drainage of thyroglossal tissue***, ***B168+Y22 Drainage of parathyroid gland*** and ***F488+Y22 Drainage of salivary gland*** have been created and mapped to base HRG root **YC10 Percutaneous Therapeutic, Head or Neck Procedures**.

Changes to accommodate NICE guidance

Combination code ***B128+Y135 Ultrasonic destruction of lesion of thyroid gland*** has been created using existing OPCS-4 codes and mapped to HRG root **YC10 Percutaneous Therapeutic, Head or Neck Procedures** following an update to clinical coding guidance impacting NICE guidance for high-intensity focused ultrasound destruction of thyroid nodule.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Changes related to new OPCS-4.9 codes

A new combination code has been created using new OPCS-4.9 approach codes ***Y10.3 Steam ablation of organ NOC*** and ***Y17.5 Steam ablation of lesion of organ NOC*** (via the creation of new combination list **CL_WVA** (Water vapour ablation)) to classify water vapour ablation procedures. ***E598+WVA Water vapour ablation of lung*** has been mapped to HRG root **YD01 Percutaneous Ablation of Lesion of Respiratory Tract**.

With the introduction of new OPCS-4.9 code category ***Y68.- Other approach to organ under image control***, which is an extension of category ***Y53.- Approach to organ under image control***, it is necessary to replace combination codes relying on combination list **CL_Y53** (Approach to organ under image control) with a new combination code using combination list **CL_IMAGE** (Approach to organ under image control). Each new combination code classifies the same procedure(s) as the code it has replaced and can be formed using either an existing (Y53.-) or a new (Y68.-) approach to organ under image control subsidiary code. One combination code employing **CL_Y53** and mapped to a base HRG root from this subchapter has been deleted and replaced with a combination code employing **CL_IMAGE**, ***E612+IMAGE Biopsy of lesion of mediastinum under image control***.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Change to HRG labels

The labels of HRG roots YF03-YF05 and that of their associated HRGs have been amended to clarify the type of procedures covered by these HRGs. The new root labels are as follows:

- **YF03 Multiple Percutaneous Drainage of Abdominal Lesion Procedures**
- **YF04 Single Percutaneous Drainage of Abdominal Lesion Procedure**
- **YF05 Percutaneous Biopsy of Lesion of Abdominal Cavity**

Changes related to new OPCS-4.9 codes

New combination code ***G604+Y032 Renewal of jejunostomy tube*** has been created using new OPCS-4.9 code ***G60.4 Attention to jejunostomy tube*** to appropriately classify a renewal of jejunostomy tube, and it has been mapped to HRG root **YF02 Radiological Insertion of, Gastrojejunostomy or Jejunostomy Tube**. The previous combination code

used to identify this procedure, ***G608+Y032 Renewal of jejunostomy tube***, has been deleted as this code is now redundant.

New combination code ***T888+O143 Drainage of lesion of mesenteric lymph node*** has been created using new OPCS-4.9 site code ***O14.3 Mesenteric lymph node*** and has been mapped to HRG root **YF04 Single Percutaneous Drainage of Abdominal Lesion Procedure**.

New combination code ***T878+IMAGE+O143 Excision or biopsy of mesenteric lymph node under image control*** has been created using new OPCS-4.9 site code ***O14.3 Mesenteric lymph node*** and has been mapped to HRG root **YF05 Percutaneous Biopsy of Lesion of Abdominal Cavity**.

With the introduction of new OPCS-4.9 code category ***Y68.- Other approach to organ under image control***, which is an extension of category ***Y53.- Approach to organ under image control***, it is necessary to replace combination codes relying on combination list **CL_Y53** (Approach to organ under image control) with a new combination code using combination list **CL_IMAGE** (Approach to organ under image control). Each new combination code classifies the same procedure(s) as the code it has replaced and can be formed using either an existing (Y53.-) or a new (Y68.-) approach to organ under image control subsidiary code. Six combination codes employing **CL_Y53** and mapped to a base HRG root from this subchapter have been deleted and replaced with a combination code employing **CL_IMAGE**.

Changes related to alternatives to creating new OPCS-4.9 codes

Rather than author new OPCS-4.9 codes to classify specific drainage of lymph node procedures, the Clinical Classifications Service has confirmed that these procedures can already be classified using existing codes followed by an existing site code for the relevant lymph node. New combination codes ***T888+O141 Drainage of lesion of pelvic lymph node***, ***T888+Z615 Drainage of lesion of para-aortic lymph node*** and ***T888+Z617 Drainage of lesion of retroperitoneal lymph node*** have been created and mapped to HRG root **YF04 Single Percutaneous Drainage of Abdominal Lesion Procedure**. Alongside this, and in line with updated clinical advice, existing code ***T88.3 Drainage of lesion of inguinal lymph node*** was remapped from **FF53 Minor Therapeutic or Diagnostic, General Abdominal Procedures** and ***T45.4 Image controlled percutaneous drainage of lesion of abdominal cavity NEC*** from ignored for grouping purposes to HRG root **YF04 Single Percutaneous Drainage of Abdominal Lesion Procedure**.

Rather than author new OPCS-4.9 codes to classify specific biopsy of lymph node procedures, the Clinical Classifications Service has confirmed that these procedures can already be classified using existing OPCS-4 codes followed by a code classifying approach to organ under image control and an existing site code for the relevant lymph node. New combination codes ***T878+IMAGE+O141 Excision or biopsy of pelvic lymph node under image control*** and ***T878+IMAGE+Z617 Excision or biopsy of retroperitoneal lymph node under image control*** have been created and mapped to HRG root **YF05 Percutaneous Biopsy of Lesion of Abdominal Cavity**.

Introduction of new combination codes

New combination codes ***T294+IMAGE Biopsy of lesion of umbilicus under image control***, ***T311+IMAGE Biopsy of lesion of anterior abdominal wall under image control***, ***T393+IMAGE Biopsy of lesion of posterior peritoneum under image control***, ***T876+IMAGE Excision or biopsy of porta hepatis lymph node under image control*** and ***X551+IMAGE Biopsy of lesion of unspecified organ under image control*** have been created and mapped to HRG root **YF05 Percutaneous Biopsy of Lesion of Abdominal Cavity**.

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **FDFEFFYF_CC**.

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.

Composition and Concepts		
	NC20/21	RC18/19
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

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**.

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

Changes related to new OPCS-4.9 codes

Two new combination codes have been created using new OPCS-4.9 approach codes ***Y10.3 Steam ablation of organ NOC*** and ***Y17.5 Steam ablation of lesion of organ NOC*** (via the creation of a new combination list **CL_WVA** (Water vapour ablation)) to classify water vapour ablation procedures. ***J128+WVA Percutaneous water vapour ablation of liver*** and ***J668+WVA Percutaneous water vapour ablation of pancreas*** have been created and mapped to base HRG root **YG01 Percutaneous Ablation of Lesion of, Liver or Pancreas**.

Changes related to alternatives to creating new OPCS-4.9 codes

Rather than author new OPCS-4.9 codes to classify ablation of the pancreas, the Clinical Classifications Service has confirmed that this procedure can be captured using existing code ***J66.8 Other specified therapeutic percutaneous operations on pancreas*** followed by a subsidiary code indicating the type of ablation performed. Therefore, one new combination code, ***J668+RFA Percutaneous radiofrequency controlled thermal destruction of pancreas***, has been created to classify this pancreas ablation procedure and has been mapped to base HRG root **YG01 Percutaneous Ablation of Lesion of, Liver or Pancreas**, to which the existing ablation of pancreas procedure codes are mapped.

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified 19*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **GAGBGCYG_CC**.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Changes related to new OPCS-4.9 codes

A new combination code has been created using new OPCS-4.9 approach codes ***Y10.3 Steam ablation of organ NOC*** and ***Y17.5 Steam ablation of lesion of organ NOC*** (via the creation of a new combination list **CL_WVA** (Water vapour ablation)) to classify water vapour ablation procedures. ***W094+WVA Water vapour ablation of lesion of bone*** has been mapped to HRG root **YH20 Percutaneous Ablation of Lesion of Bone**.

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.

Composition and Concepts		
	NC20/21	RC18/19
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

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.

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+ 2018/19 Reference Costs Grouper

Changes related to new OPCS-4.9 codes

Three new combination codes have been created using new OPCS-4.9 approach codes ***Y35.5 Insertion of radioactive marker into organ NOC***, ***Y37.3 Insertion of wire marker into organ NOC*** and ***Y37.4 Insertion of marker into organ NOC*** to classify insertion of breast marker procedures. ***B378+Y355 Insertion of radioactive marker into breast***, ***B378+Y373 Insertion of wire marker into breast*** and ***B378+Y374 Insertion of marker into breast NOC*** have been created and mapped to HRG root **YJ12 Insertion of, Wire or Marker, for Localisation of Breast Lesion**. As a result, the now-redundant combination codes ***B378+Y022 Insertion of wire or marker for localisation of breast lesion***, ***B378+Y368 Introduction of non-removable material into breast*** and ***B378+Y378 Introduction of other substance into breast*** have been deleted.

Changes related to OPCS-4.9 coding guidance amendments

A new coding standard has been issued that allows for the differentiation of surgical versus radiological sentinel lymph node biopsies, with the coding guidance stating that the latter can be captured using a subsidiary code classifying approach to organ under image control. Therefore, to appropriately reflect the different expected resource usage of these

procedures, code ***T87.3 Excision or biopsy of axillary lymph node*** has been remapped from base HRG root **YJ04 Core Needle Biopsy of Axillary Lymph Nodes** to **JA43 Unilateral Intermediate Breast Procedures**, as this code classifies a surgical biopsy. In addition, new combination code ***T873+IMAGE Excision or biopsy of axillary lymph node under image control*** has been created (where +IMAGE is a subsidiary code classifying approach to organ under image control) and mapped to **YJ04 Core Needle Biopsy of Axillary Lymph Nodes**, as this code classifies a radiological sentinel node biopsy.

To ensure consistency within the design, new combination code ***T911+IMAGE Biopsy of sentinel lymph node under image control*** has been created and mapped to **YJ04 Core Needle Biopsy of Axillary Lymph Nodes** to match the mapping of new combination code ***T873+IMAGE Excision or biopsy of axillary lymph node under image control***.

Update to multiple-procedure escalation list membership

The membership of lists used in multiple-procedure escalation logic employed within this subchapter have been updated as part of a global list membership review undertaken to ensure consistency across the HRG design and to remove redundant OPCS-4 codes and combination codes from escalation lists.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Changes related to new OPCS-4.9 codes

New combination codes have been created using new OPCS-4.9 approach codes ***Y10.3 Steam ablation of organ NOC*** and ***Y17.5 Steam ablation of lesion of organ NOC*** (via the creation of a new combination list **CL_WVA** (Water vapour ablation)) to appropriately capture water vapour ablation procedures. ***M138+WVA Percutaneous water vapour ablation of kidney*** has been created and mapped to HRG root **YL02 Percutaneous, Microwave or Radiofrequency Ablation, of Lesion of Kidney**, and ***M708+WVA Water vapour ablation of outlet of male bladder*** has been created and mapped to base HRG root **YL30 Percutaneous Ablation of Lesion of Prostate**.

Changes related to alternatives to creating new OPCS-4.9 codes

Rather than author new OPCS-4.9 codes to classify ablation of prostate, the Clinical Classifications Service has confirmed that this procedure can be already be captured using existing code ***M70.8 Other specified other operations on outlet of male bladder*** followed by a subsidiary code indicating the type of ablation performed. Therefore, two new

combination codes, ***M708+MIC Microwave destruction of outlet of male bladder*** and ***M708+RFA Radiofrequency controlled thermal destruction of outlet of male bladder***, have been created to classify various prostate ablation procedures. These combination codes have been mapped to base HRG root **YL30 Percutaneous Ablation of Lesion of Prostate**, to which the existing cryoablation of prostate combination code is mapped.

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		
	NC20/21	RC18/19
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+ 2018/19 Reference Costs Grouper

Change to HRG labels

The label of HRG root YQ20 and that of its associated HRGs have been amended to ensure the labels reflect all types of activity that group to HRGs within this HRG root, including where the same limb has been re-amputated at a higher level during the same admission.The new root label is as follows:

- **YQ20A Multiple Limb Amputation Procedures**

Changes related to new OPCS-4.9 codes

New OPCS-4.9 codes ***O45.1 Bifurcation of aorta*** and ***O45.2 Juxtarenal abdominal aorta*** have been added to combination list **CL_Abd** so that these codes can be used to form the +ABD abdominal blood vessel combination codes.

New OPCS-4.9 code ***Z91.6 Basilic vein*** has been added to combination list **CL_UppLimb** so that this code can be used to form the +UPPLIMB upper limb blood vessel combination codes.

Existing OPCS-4 code ***T85.4 Block dissection of para-aortic lymph nodes*** has been remapped from a base HRG root of **YQ05 Single Open Procedure, on Aorta or Abdominal Blood Vessel** to **FF50 Complex General Abdominal Procedures** following a mapping review of lymph node procedures in light of the many new OPCS-4.9 codes classifying lymph node sites and procedures.

Changes to accommodate NICE guidance

Combination code ***A792+Y742 Thoracoscopic destruction of thoracic sympathetic nerve NEC*** has been created using existing OPCS-4 codes and mapped to HRG root **YQ40 Sympathectomy** following an update to clinical coding guidance impacting NICE guidance for endoscopic thoracic sympathectomy.

Change to existing code mapping

OPCS-4.9 code ***L91.1 Open insertion of central venous catheter*** has been remapped from HRG root **YR40 Insertion of Non-Tunnelled Central Venous Catheter** to HRG root **YQ41 Open Operations, on Other or Unspecified Blood Vessels** because the procedures classified by this code are not imaging interventions.

Change to existing combination code

The Code to Code entry for combination code ***L758+CAROTID Other specified other arteriovenous operations on carotid artery*** has been updated to ensure the code can be generated as intended.

Update to multiple-procedure escalation list membership

The membership of lists used in multiple-procedure escalation logic employed within this subchapter have been updated as part of a global list membership review undertaken to ensure consistency across the HRG design and to remove redundant OPCS-4 codes and combination codes from escalation lists.

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **YAYQYR_CC**.

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		
	NC20/21	RC18/19
Total HRGs	**75**	**75**
Total HRG Roots	**43**	**43**
Procedure-driven HRGs	75	75
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 or aneurysm.

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+ 2018/19 Reference Costs Grouper

Change to HRG labels

The label of HRG roots YR14 and YR15 and that of their associated HRGs have been amended to clarify that all stent procedures, not just metal stent procedures, map to these HRGs. The new root labels are as follows:

- **YR14 Percutaneous Transluminal Angioplasty with Insertion of Multiple Stents into Peripheral Blood Vessels**
- **YR15 Percutaneous Transluminal Angioplasty with Insertion of Single Stent into Peripheral Blood Vessel**

Changes related to new OPCS-4.9 codes

New OPCS-4.9 codes ***O03.4 Percutaneous transluminal flow diverting stent assisted coil embolisation of three or more aneurysms of artery***, ***O03.5 Percutaneous transluminal flow diverting stent assisted coil embolisation of two aneurysms of artery***, ***O03.6 Percutaneous transluminal flow diverting stent assisted coil embolisation of single aneurysm of artery*** and ***O04.3 Percutaneous transluminal flow diverting stent embolisation of aneurysm of artery*** have been mapped to HRG root **YR50 Percutaneous Transluminal Embolisation of, Single Giant or Three or more Other, Peripheral Aneurysms**.

Two new combination codes have been created using new OPCS-4.9 site code ***O45.2 Juxtarenal abdominal aorta*** to classify operations on this specific site. **L271+O452 Endovascular insertion of stent graft for juxtarenal abdominal aortic *aneurysm*** and ***L281+O452 Endovascular insertion of stent for juxtarenal abdominal aortic aneurysm*** have been created and mapped to HRG root **YR66 Complex Endovascular Repair of Abdominal Aortic Aneurysm**.

A new site code has been created using new OPCS-4.9 site code ***Z38.7 Prostate artery***. New combination code ***L713+Z387 Percutaneous transluminal embolisation of prostate artery*** has been created and mapped to HRG root **YR59 Prostate Artery Embolisation**. As a result of the creation of this combination code, the now-redundant logic to check for primary diagnosis of prostate hyperplasia has been removed from ***L71.3 Percutaneous transluminal embolisation of artery***.

With the introduction of new OPCS-4.9 code category ***Y68.- Other approach to organ under image control***, which is an extension of category ***Y53.- Approach to organ under image control***, it is necessary to replace flag **YR_Y53** with flag **YR_Image**, which is utilised by four codes within this subchapter, to capture all image control approach codes.

Changes related to OPCS-4.9 code retirements

OPCS-4.8 code ***L99.1 Percutaneous transluminal angioplasty of vein*** has been retired in OPCS-4.9 and its description updated to *Code retired - refer to introduction* as there was an overlap in meaning between this code and code ***L94.6 Percutaneous transluminal venoplasty***, resulting in two codes classifying the same procedure. Consequently, ***L99.1 Code retired - refer to introduction*** has been removed from all escalation lists and has been remapped to **UZ01 Data Invalid for Grouping**. This code falls under U Error category **UZ06 Poorly coded procedure for Casemix grouping purposes**.

Changes related to OPCS-4.9 coding guidance amendments

After clarifying OPCS-4 clinical coding guidance relating to the recording of procedures involving the insertion of multiple stents, including bilateral operations, the logic on the 25 codes that map to base HRG root **YR15 Percutaneous Transluminal Angioplasty with Insertion of Single Stent into Peripheral Blood Vessel** has been modified so that a subisidiary procedure indicating the insertion of multiple stents into one blood vessel or a

single stent into more than one blood vessel appropriately escalates to **YR14 Percutaneous Transluminal Angioplasty with Insertion of Multiple Stents into Peripheral Blood Vessels**.

Change to code mapping

OPCS-4.9 code ***L91.1 Open insertion of central venous catheter*** has been remapped from an HRG root in this subchapter to an HRG root in Subchapter **YQ Vascular Open Procedures and Disorders** because the procedures classified by this code are not imaging interventions.

Update to multiple-procedure escalation list membership

The membership of lists used in multiple-procedure escalation logic employed within this subchapter have been updated as part of a global list membership review undertaken to ensure consistency across the HRG design and to remove redundant OPCS-4 codes and combination codes from escalation lists.

Accommodation of ICD-10 emergency use codes

U07.1 COVID-19, virus identified and ***U07.2 COVID-19, virus not identified*** have been added to the complications and comorbidities lists that ***J22.X Unspecified acute lower respiratory infection*** was already on. Therefore these codes have been added to the complications and comorbidities list for this subchapter, **YAYQYR_CC**.

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.