

Chronic Condition Subject Matter Expert Panel and BETOS Restructuring



Restructured BETOS Classification System RBCS Final Report

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TABLE OF CONTENTS

Executive Summary	1
Reintroducing the RBCS Taxonomy	5
<i>Introduction</i>	5
<i>RBCS Taxonomy Overview</i>	5
Claims Data	6
Fee Schedules	7
Unbundling Spending	7
Categories	9
Subcategories	10
Families	12
Major Procedure Identification	14
Changes Made for the Current Year	15
<i>Fee Schedules</i>	15
RBCS 2023 Update Process	17
<i>HCPCS Codes and Captured Spending</i>	17
<i>Category, Subcategory, and Family Modifications</i>	20
<i>Count of Categories, Subcategories, and Families</i>	20
<i>Families in the Retention Period</i>	22
<i>HCPCS Codes and Spending Captured by Named Families</i>	22
<i>Major Procedures</i>	23
<i>Major Procedures in the Retention Period</i>	23
Conclusion	24
<i>Spending and Code Count by Subcategory</i>	24
Appendix A: RBCS Families	27
Appendix B: 2023 RBCS Update Steps	30



LIST OF TABLES

Table 1: RBCS Taxonomy Timespans	4
Table 2: RBCS Taxonomy Assignment Effective Date Example.....	4
Table 3: Unbundling Bundled Payments Example	8
Table 4: Category Decision Rules.....	9
Table 5: RBCS Subcategories by Category Group	10
Table 6: Subcategory Decision Rules.....	11
Table 7: MPFS National Physician Fee Schedule Relative Value File Status Code (PPRVU)	16
Table 8: Outpatient Prospective Payment System (OPPS) Status Indicator Addendum B	16
Table 9: Ambulatory Surgical Center (ASC) Payment Indicator	16
Table 10: Federally Qualified Health Center (FQHC) HCPCS Codes	17
Table 11: High-Level RBCS Statistics Across the Most Recent Three Years	18
Table 12: Top Ten New HCPCS Codes in Terms of Spending	18
Table 13: Top Ten New HCPCS Codes in Terms of Code Frequency.....	19
Table 14: Highest Spending Categories and Subcategories for New HCPCS Codes.....	20
Table 15: Count of 2023 HCPCS Codes that Switched Places in the RBCS Taxonomy	20
Table 16: RBCS Category, Subcategory, and Family* Counts	21
Table 17: Families Introduced in the 2023 RBCS Taxonomy	21
Table 18: Family Retention Period Monitoring.....	22
Table 19: HCPCS Codes and Spending Captured by Code Families	22
Table 20: HCPCS Codes Identified as Major Procedures.....	23
Table 21: Major Procedure Retention Period Monitoring	23
Table 22: Spending and Utilization by Subcategory in 2023 RBCS Update – Anesthesia	24
Table 23: Spending and Utilization by Subcategory in 2023 RBCS Update – Durable Medical Equipment (DME)	24
Table 24: Spending and Utilization by Subcategory in 2023 RBCS Update – Evaluation and Management (E&M).....	25
Table 25: Spending and Utilization by Subcategory in 2023 RBCS Update – Imaging	25
Table 26: Spending and Utilization by Subcategory in 2023 RBCS Update – Other.....	25
Table 27: Spending and Utilization by Subcategory in 2023 RBCS Update – Procedures.	26
Table 28: Spending and Utilization by Subcategory in 2023 RBCS Update – Tests.....	26
Table 29: Spending and Utilization by Subcategory in 2023 RBCS Update – Treatments.	26

EXECUTIVE SUMMARY

The rapid evolution of medical services and technology has led to changes in Medicare spending and, in turn, created challenges to understanding Medicare expenditures. Since the 1980s, the Centers for Medicare & Medicaid Services (CMS), policymakers, and researchers have relied on the Berenson-Eggers Type of Service¹ (BETOS) Taxonomy to understand shifts in Medicare Part B spending over time. However, since BETOS was originally developed, new avenues of utilization have materialized, and the landscape of provided services has expanded, requiring the BETOS system to be refreshed.

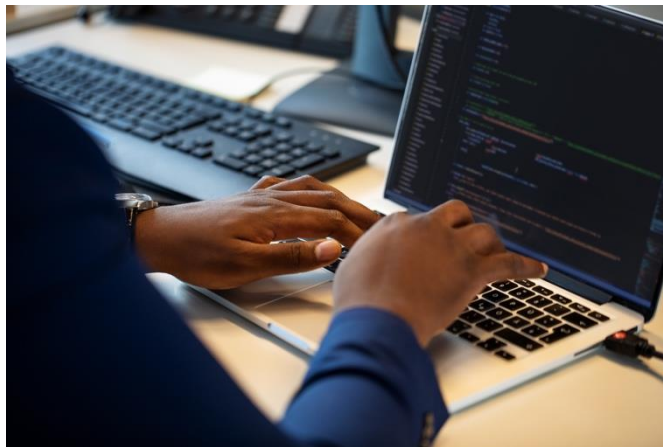


In September 2019, Provider Resources, Inc. (**PRI**[™]) and the CMS Office of Enterprise Data and Analytics (OEDA) launched this project to restructure and maintain the BETOS classification system. The objective was twofold: 1) to revise the BETOS classification system for healthcare services and supplies to facilitate meaningful analysis of healthcare spending and utilization; and 2) to maintain and update the Taxonomy over time. Specifically, the project sought to categorize Healthcare Common Procedure Coding System (HCPCS) codes across all Medicare Part B services (not only Physician Fee Schedule (PFS) services) and reduce the number of uncategorized HCPCS codes.

This work culminated in the creation of the Restructured BETOS Classification System (RBCS). RBCS development required an extensive review of the previous efforts to update BETOS and necessitated the exploration of innovative approaches to account for most Medicare Part B expenditures.

¹ Robert A. Berenson, MD, Mary Jo Braid-Forbes, MPH (May 2019). Updating BETOS 2.0 for 2018 and 2019. Report for the Medicare Payment Advisory Commission. <https://www.urban.org/research/publication/development-and-structure-betos-20-illustrative-data>.

The RBCS includes HCPCS Level One codes (Current Procedural Terminology commonly referred to as “CPT®² codes” developed by the American Medical Association (AMA)) and HCPCS Level Two codes (commonly referred to as “HCPCS codes”). Level One and Level Two HCPCS codes were used to bill for professional services, hospital outpatient services, durable medical equipment (DME), drugs, radiology and clinical lab tests. Each step of the RBCS development process was reviewed and approved by a Technical Expert Panel (TEP) comprised of experts with diverse backgrounds including, but not limited to, social science researchers, practicing physicians, physicians in academic institutions, representatives from Medicare Payment Advisory Commission (MedPAC), Cigna Healthcare, and the Urban Institute, along with staff from CMS departments such as the Office of Enterprise Data and Analytics and the Division of Practitioner Services (DPS).



Each year, the RBCS Taxonomy is updated to account for retired HCPCS codes, newly introduced HCPCS codes, and changes in utilization that could impact how HCPCS codes are categorized in the RBCS Taxonomy. The update effort also includes a thorough review of the process used to build the RBCS to ensure it remains accurate and stable. As part of the review process, additional areas of interest and potential complicating factors are explored. All Taxonomy updates and

process modifications are reviewed by the TEP to ensure the RBCS remains logically sound and aligned with the needs of the research community. The TEP met on April 19, 2023, to discuss the development of the 2023 RBCS Taxonomy.

In 2020, the first year of RBCS Taxonomy development, the RBCS process evaluated claims billed between January 1, 2014, and December 31, 2018. The final 2020 Taxonomy captured 13,414 distinct HCPCS codes paid through Medicare Part B and accounted for over \$1.109 trillion in allowed spending.

In 2021, the RBCS Taxonomy update evaluated claims billed between January 1, 2015, and December 31, 2019. The final 2021 Taxonomy captured 13,648 distinct HCPCS codes paid through Medicare Part B and accounted for over \$1.154 trillion in allowed spending. Of the HCPCS codes classified in 2021, 599 were new to the Taxonomy. A total of 365 HCPCS codes classified in the 2020 Taxonomy construction were not identified through the 2021 Taxonomy

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update process. However, these HCPCS codes were included in the Taxonomy file because the Taxonomy contains all RBCS classification history.

In 2022, the RBCS Taxonomy update evaluated claims billed between January 1, 2016, and December 31, 2020. The final 2022 Taxonomy captured 13,759 distinct HCPCS codes paid through Medicare Part B and accounted for over \$1.149 trillion in allowed spending. Of the HCPCS codes classified in 2022, 347 were new to the Taxonomy. A total of 236 HCPCS codes classified in the 2021 Taxonomy were not identified through the 2022 Taxonomy update process. However, these HCPCS codes were included in the Taxonomy file because the Taxonomy contains all RBCS classification history.

In 2023, the RBCS Taxonomy update was modified to incorporate fee schedules into the code identification process. In addition to evaluating claims billed between January 1, 2017, and December 31, 2021 (5 years of claims data), the process incorporated CMS fee schedules issued between January 1, 2017, and December 31, 2022 (6 years of fee schedule data). Fee schedules were added to the RBCS Taxonomy update process for two reasons: 1) to ensure that the RBCS Taxonomy includes HCPCS codes that were paid by Medicare, but were not found in the claims data, and 2) to make the RBCS more current by capturing an additional year of data with newly introduced HCPCS codes. The final 2023 Taxonomy captured 14,806 distinct HCPCS codes paid through Medicare Part B and accounted for over \$1.137 trillion in allowed spending. Of the HCPCS codes classified in 2023, 1,162 were new to the Taxonomy. A total of 195 HCPCS codes classified in the 2022 Taxonomy were not captured by the 2023 Taxonomy update process. However, these HCPCS codes were included in the Taxonomy file because it contains all RBCS classification history.

The final 2023 Taxonomy file represents a timeline of RBCS assignments. The Taxonomy preserves all RBCS assignments for HCPCS codes from Taxonomies issued in previous years that were:

- not included in the 2023 Taxonomy construction process; and
- revised during the 2023 Taxonomy construction process.

The final 2023 Taxonomy file consists of 17,033 total rows which is broken down as follows:

13,414	Distinct RBCS assignments with effective dates equal to 1/1/2014. These HCPCS codes are from the original 2020 RBCS release.
900	Distinct RBCS assignments with effective dates equal to 1/1/2015. These HCPCS codes were newly introduced in the 2021 RBCS revision, or where the RBCS assignment was updated during the 2021 RBCS revision process.
1,172	Distinct RBCS assignments with effective dates equal to 1/1/2016. These HCPCS codes were newly introduced in the 2022 RBCS revision, or where the RBCS assignment was updated during the 2022 RBCS revision process.
1,547	Distinct RBCS assignments with effective dates equal to 1/1/2017. These HCPCS codes were newly introduced in the 2023 RBCS revision, or where the RBCS assignment was updated during the 2023 RBCS revision process.
17,033	Total Rows



Assignments carried over from previous years have effective dates equal to the first year the classification is made. The timespans used for each iteration of the RBCS Taxonomy are presented in **Table 1**.

Table 1: RBCS Taxonomy Timespans

RBCS ID Assignment Year	Part B Healthcare Services 5-year Period	RBCS Assignment Effective Date
2020	2014 – 2018	01/01/2014
2021	2015 – 2019	01/01/2015
2022	2016 – 2020	01/01/2016
2023	2017 – 2021	01/01/2017

An advantage to having the Taxonomy in a timeline format is that it maintains the history of the Taxonomy in a single file. This allows users to easily see previous versions of the Taxonomy and helps them understand the gradual evolution of the RBCS Taxonomy as Medicare Part B payment policies change, HCPCS codes are added or retired, and assignments are updated. Another advantage to maintaining history is that it will aid in the replication of results when the Taxonomy is used at different points in time. As the RBCS evolves, maintaining the RBCS history in this way will prove crucial.

For example: HCPCS code 25105 was assigned an initial RBCS ID of PM000O in the 2020 RBCS Taxonomy and this assignment was carried over into the 2021 and 2022 RBCS Taxonomy revisions. However, HCPCS code 25105 is assigned a new RBCS ID of PM000M in the 2023 RBCS Taxonomy revision because the HCPCS code met the criteria to be designated a major procedure. For HCPCS code 25105, the original assignment has an effective date of 01/01/2014 (the first year the classification was made). The modified assignment has a new row with an effective date of 01/01/2016 as presented in **Table 2**.

Table 2: RBCS Taxonomy Assignment Effective Date Example

HCPCS_CD	RBCS_ID	RBCS Assignment Effective Date
19330	PM000O	01/01/2014
19330	PM000M	01/01/2016

This final report details the processes undertaken to update the 2023 RBCS Taxonomy. Included in the report and appendices are significant details on the development of categories, subcategories, families, and major procedure designation. The final Taxonomy and HCPCS code crosswalk are also included in this report.

REINTRODUCING THE RBCS TAXONOMY

Introduction

The RBCS design work began with the understanding that it was an evolution of the BETOS framework; it would need to fill the same niche occupied by the original BETOS. Throughout the RBCS development process, careful consideration was given to how the classification system would be used, understood, and maintained over time. The Taxonomy design, decision rules, and classification methodology were structured with these guiding operational principles in mind.



RBCS Taxonomy Overview

Like the BETOS classification system that preceded it, the RBCS Taxonomy is hierarchically structured with several levels of granularity. The various groupings within each level of the hierarchy (categories, subcategories, and families) were developed to ensure they are clinically meaningful and informative.

The RBCS only categorizes HCPCS codes with an allowed amount greater than zero paid through Medicare Part B funds or covered by one of the Medicare fee schedules, excluding HCPCS codes only paid through Medicaid or commercial payers. Fee schedule and claims data are both used because some HCPCS codes can account for significant Medicare spending even when they are not explicitly covered by a Medicare Fee Schedule. For example, HCPCS code 81479 (Unlisted Molecular Pathology) is not paid by any fee schedule but is eligible for payment by a Medicare Administrative Contractor (MAC) after the medical record is submitted, undergoes complex medical review with evidence supporting medical necessity, and the appropriate billing for services using HCPCS code 81479.³

The RBCS hierarchy has RBCS code categories at the highest level, followed by RBCS code subcategories, followed by RBCS code families. Each lower level of the Taxonomy is fixed and nested within the higher-level grouping; a subcategory cannot include HCPCS codes from different categories, and families cannot include HCPCS codes from different subcategories. This structure is designed to allow various levels of granularity for researchers interested in analyzing Medicare spending and utilization.

In addition, HCPCS codes in the “procedures” category are further subdivided into “major procedures” and “other procedures.” Any HCPCS code in the “procedures” category can be designated as a “major procedure” regardless of its subcategory or family. This RBCS

³ https://localcoverage.cms.gov/mcd_archive/view/article.aspx?articleInfo=58918:17

Taxonomy feature was also carried over from the original BETOS. This feature allows researchers to focus on procedures that require more work or are more likely to be performed in inpatient settings.

Like the original BETOS and BETOS 2.0, the RBCS assignment for a given HCPCS code was condensed into a single RBCS identifier. This RBCS identifier is six characters in length with each character or group of characters conveying important information about the code's place in the RBCS Taxonomy. The RBCS category is identified by the first character, the subcategory is identified by the combined first and second characters, the family is identified by the third, fourth, and fifth characters, and the major procedure designation is identified by the sixth character. Imbedding intelligence into the RBCS code helps data users easily determine a code's general place in the RBCS Taxonomy.



Well-defined RBCS classification rules not only help guide the process of assigning RBCS codes to a place in the Taxonomy, but they also provide guidance to data users by being easily understood and clinically relevant. RBCS rules are future facing, ensuring the Taxonomy is responsive to technological innovation and changes in practice patterns. The rules for each level of the Taxonomy are described in the following sections.

Claims Data

Each year, the RBCS process is updated utilizing the most recently compiled five years of Medicare Part B claims data. The RBCS only categorizes HCPCS codes from the claims data with an allowed amount greater than zero paid through Medicare Part B funds, excluding HCPCS codes only paid through Medicaid or commercial payers. The 2023 development of the RBCS Taxonomy used Virtual Research Data Center (VRDC) data from the Medicare carrier, DME, and outpatient claims files for the years 2017 to 2021.



Allowed amounts are used for all spending assessments throughout the RBCS update process. Allowed amounts represent the total liability owed to the provider for the rendered service, including Medicare liability, patient deductibles, and patient co-pays. The allowed amount provides a more accurate representation of the true cost of a given service rather than the Medicare paid amount alone. This is because it combines all liabilities owed to the provider for a given service, not just what is paid by one party. Allowed amounts were used whenever they

were available in the data. When they are not available, an allowed amount equivalent is calculated by combining the Medicare paid amount with the patient responsibility amount.

For every RBCS update, the five years of data are combined and analyzed as a single unit. This broad timeframe smooths out variation in spending and utilization and increases data stability. Spending and utilization are used during the family creation process and the major procedure identification process, both of which are covered in more detail below. By using a large, multi-year dataset, the Taxonomy naturally adjusts to changing trends and healthcare practice patterns over time but does so slowly, giving the RBCS Taxonomy the stability needed to be a useful research tool.

Fee Schedules

The 2023 RBCS update evaluated fee schedules released between January 1, 2017, and December 31, 2022. These dates correspond with the 5-year timeframe used to select the claims data necessary for the RBCS update process (2017 – 2021) plus one additional year (2022).

A thorough review of the fee schedule process is outlined in the “Changes made for the current year” section of this report.

Unbundling Spending

Bundled payments present a challenge for the RBCS methodology because allowed spending amounts for individual HCPCS codes are a critical part of the family assignment process. When services are paid as part of a bundle, reimbursement is not directly linked to each specific service on a claim. Rather, bundled payments capture multiple services that are paid as part of a package with providers being paid a set rate for the entire package instead of being paid for each individual service. In these instances, HCPCS codes that are part of the bundle will have a line-level payment amount of \$0, but it does not mean that those HCPCS codes are not covered by Medicare. Therefore, the RBCS update process includes steps to “unbundle” bundled claims and allocate spending to the HCPCS codes included in the bundled payment. This process focuses on three broad types of bundled claims:

1. Bundled Ambulatory Payment Classification (APC) claims paid through the Outpatient Prospective Payment System (OPPS),
2. Federally Qualified Health Center (FQHC) claims, and
3. Rural Health Clinic (RHC) claims.

Though different mechanisms were used to identify the payments and bundled codes for each of these bundled types, the process of unbundling the payment is the same.

Medicare pays for most hospital outpatient services under the OPPS using APCs. APC claims must meet the following criteria to be included in the unbundling process: at least one claim line contains an APC code (where revenue center payment method indicator is equal to 1), and at least one claim line with a HCPCS code where the revenue center payment method indicator is equal to 9.



FQHCs are safety net providers that typically provide services in an outpatient clinic. FQHCs are not reimbursed by Medicare through the PFS or OPFS like other comparable providers of Medicare Part B services. Rather Medicare pays FQHCs based on the FQHC PPS. Bill type codes are used to identify FQHC claims. Bundled payments for these claims were taken from lines with FQHC-specific procedure codes, and bundled lines were identified as non-denied claim lines with \$0 allowed spending. Claim lines that did not have FQHC-specific procedure codes but had greater than \$0 in allowed spending were considered non-bundled services and were excluded from the unbundling process.

RHCs do not receive reimbursement from Medicare's PFS or OPFS like comparable providers of Medicare Part B services. Instead, CMS pays an all-inclusive rate (AIR) payment per visit throughout the clinic's fiscal year which are then reconciled at the end of the year. Bill type codes are also used to identify RHC claims. Bundled payments for these claims are taken from claim lines with a "CG" procedure code modifier (primary reason for the medically necessary visit), and bundled lines are identified as non-denied claim lines with \$0 allowed spending. Claim lines that did not have a "CG" procedure code modifier but had greater than \$0 in allowed spending are considered non-bundled services and were excluded from the unbundling process.

For all claim types, charged amounts from the bundled lines are used to allocate the bundled payment on the claim. The bundled payments were allocated to each bundled line according to the proportion of the overall charged amount accounted for by a given claim line. For example, if one line on a bundled claim accounted for 47 percent of the overall charges from the bundled lines on that claim, 47 percent of the bundled payment is allocated to that line.

Table 3 shows how the unbundling process is handled in RBCS.

Table 3: Unbundling Bundled Payments Example

Claim Line	HCPSC Code	Provider Payment Amount	Charged Amount	Percent of Charged Amount	Unbundled Paid Amount
1	71046	\$0	\$266	4%	\$88
2	78452	\$0	\$3287	47%	\$1087
3	99284	\$2096	\$915	13%	\$303
4	96413	\$233	\$833	12%	\$275
5	93017	\$0	\$864	12%	\$286
6	A9500	\$0	\$877	12%	\$290

*Lines 3 – 4: Bundled Payments

*Lines 1 – 6: Bundled Codes

Only HCPSC codes that are covered by a fee schedule are included in the unbundling process. Non-covered or expired HCPSC codes are occasionally included in a service bundle on a claim, but they are not always identified as non-payable codes by the payment and status indicators. To prevent such codes from entering the Taxonomy or influencing the allocation of spending

among covered codes in the bundle, the unbundling process is restricted to codes covered by at least one fee schedule.

For claims with more than one bundled payment, the bundled payment is summed and divided among the bundled claims as if the lines are paid as part of a single bundle.

Categories

Identified as the first character of the RBCS code, categories are the highest level of the Taxonomy and represent broad concepts such as “procedures,” “tests,” and “imaging.” These eight groupings give shape to the overall structure of the Taxonomy and help guide subsequent code assignments. **Table 4** lists the specific categories and rules used to assign RBCS codes to categories.

Table 4: Category Decision Rules

Category	Rule
Anesthesia	<ul style="list-style-type: none"> All anesthesia HCPCS codes were placed in the anesthesia category.
DME	<ul style="list-style-type: none"> HCPCS codes for products and supplies were classified as Durable Medical Equipment (DME).
Evaluation and Management (E&M)	<ul style="list-style-type: none"> All HCPCS codes identified as evaluation and management visits were classified as E&M. HCPCS codes for physical examinations to obtain specimens for subsequent testing were assigned to the E&M category.
Imaging	<ul style="list-style-type: none"> If the primary purpose of a HCPCS code is to obtain an image, it was classified as imaging in the RBCS Taxonomy. For situations in which a HCPCS code appeared to combine imaging and a procedure, if the primary purpose is to produce an image for interpretation, the HCPCS code was assigned to imaging.
Other	<ul style="list-style-type: none"> HCPCS codes for ambulance, enteral and parenteral feeding and nutrition services and supplies, and vision, hearing, and speech services were classified as Other.
Procedures	<ul style="list-style-type: none"> If the primary purpose of a HCPCS code is to perform a procedure at a single time and place, it was classified as a procedure. For situations in which a HCPCS code appeared to combine imaging and a procedure, if the primary purpose is to produce an image to facilitate a procedure, the HCPCS code was classified as a procedure. HCPCS codes for obtaining biopsy or measurement information were assigned as a procedure.
Treatments	<ul style="list-style-type: none"> If the medical intervention described by a HCPCS code is intended to be delivered repeatedly as part of a series over time, it was classified as a treatment. HCPCS codes linking an E&M process with a treatment modality were classified as treatments.
Tests	<ul style="list-style-type: none"> If the purpose of the procedure is to obtain test results, the HCPCS code was classified as a test.

Subcategories

Identified by the combined first and second characters of the RBCS code, subcategories are the mid-level of the Taxonomy, further dividing categories into specific service groups or organ systems. For example, the “procedures” category contains subcategories specific to organ systems, such as “breast,” “cardiovascular,” or “skin.” The tests category contains subcategories that are specific to test type, such as “anatomic pathology” and “pulmonary function.” The full list of 52 RBCS subcategories is presented in **Table 5**.

Table 5: RBCS Subcategories by Category Group

Category	Subcategory
Anesthesia	Anesthesia
Durable Medical Equipment (DME)	Drugs Administered through DME
DME	Hospital Beds
DME	Medical/Surgical Supplies
DME	Orthotic Devices
DME	Other DME
DME	Oxygen and Supplies
DME	Wheelchairs
Evaluation and Management (E&M)	Behavioral Health Services
E&M	Care Management/Coordination
E&M	Critical Care Services
E&M	E&M – Miscellaneous
E&M	Emergency Department Services
E&M	Home Services
E&M	Hospice
E&M	Hospital Inpatient Services
E&M	Nursing Facility Services
E&M	Observation Care Services
E&M	Office/Outpatient Services
E&M	Ophthalmological Services
Imaging	CT Scan
Imaging	Imaging – Miscellaneous
Imaging	Magnetic Resonance (MR)
Imaging	Nuclear
Imaging	Standard X-ray
Imaging	Ultrasound
Other	Ambulance
Other	Enteral and Parenteral
Other	Vision, Hearing, and Speech Services
Procedure	Breast
Procedure	Cardiovascular

Category	Subcategory
Procedure	Digestive/Gastrointestinal
Procedure	Eye
Procedure	Hematology
Procedure	Musculoskeletal
Procedure	Other Organ Systems
Procedure	Skin
Procedure	Vascular
Test	Anatomic Pathology
Test	Cardiography
Test	General Laboratory
Test	Molecular Testing
Test	Neurologic
Test	Pulmonary
Test	Test – Miscellaneous
Treatment	Chemotherapy
Treatment	Dialysis
Treatment	Injections and Infusions (nononcologic)
Treatment	Physical, Occupational, and Speech Therapy
Treatment	Radiation Oncology
Treatment	Spinal Manipulation
Treatment	Treatment – Miscellaneous

Like categories, well-structured rules were used to determine how HCPCS codes were classified into the various subcategories. These rules are outlined in **Table 6**.

Table 6: Subcategory Decision Rules

Category	Subcategory Assignment Rules
Evaluation and Management (E&M)	<ul style="list-style-type: none"> Subcategory distinctions remain based primarily on place of service. Most E&M (care management/coordination) spending is in “visits,” with substantial variation by place of service. Certain E&M activities specific to a clinical domain (e.g., ophthalmology and behavioral health) are retained. Recent policy interest in new E&M activities that do not require in-person patient encounters and are recognized for PFS payments gave rise to a subcategory for care coordination/management activities. As such HCPCS codes increase in number, they may need to be grouped into additional subcategories and families in the future.
Procedures & Treatments	<ul style="list-style-type: none"> Neither technical modality (e.g., endoscopy) nor service location (e.g., office or ambulatory surgical center) were deemed clinically important distinctions for creating subcategories. Rather, organ system remains the sole basis for

Category	Subcategory Assignment Rules
	<p>procedure subcategories, and type of treatment remains the basis for treatment subcategories.</p> <ul style="list-style-type: none"> • Blood products and preparation for transfusion including laboratory HCPCS service codes are categorized to Procedure – Hematology. • Drugs administered orally are categorized as Treatment – Miscellaneous. Some medications associated with chemotherapy, but also used for other treatment, are categorized as Treatment – Miscellaneous rather than Treatment – Chemotherapy. • Administration of preventive vaccines covered by Medicare are categorized to Treatment –for example, injection for influenza, pneumococcal, and Hepatitis B vaccines. • Component services for dialysis and supplies are grouped as Treatment – Dialysis.
Imaging	<ul style="list-style-type: none"> • The original BETOS imaging subcategories continue to effectively present the different imaging modalities.
Tests	<ul style="list-style-type: none"> • HCPCS codes for travel allowance and collection of specimens are categorized as Test – Laboratory, such as collection of venous blood by venipuncture. Venipunctures and arterial punctures for withdrawal of blood for diagnosis are categorized as procedures.
Anesthesia	<ul style="list-style-type: none"> • Spending was not analyzed inside this broad category, and no subcategory or family designations were created.
Durable Medical Equipment (DME)	<ul style="list-style-type: none"> • Medical/Surgical Supplies are assigned to items thrown away after use or not used with equipment. • Other DME is assigned to reusable medical equipment that can withstand repeated use. • Drug and supply dispensing fees paid to a pharmacy are categorized as Other DME. • Orthotic Devices includes HCPCS codes for prosthetics.
Other	<ul style="list-style-type: none"> • Other – Enteral & Parenteral category includes items such as formula, tubes, supply kits, and all services and supplies related to enteral and parenteral nutrition.

Families

Families represent the lowest level of the hierarchy and subdivide the subcategories into groups of HCPCS codes based on the similarity of the procedural approach. For example, the “digestive/gastrointestinal” subcategory of the “procedures” category contains families such as “cholecystectomy – laparoscopic” and “upper GI endoscopy.” The “anatomic pathology” subcategory of the “tests” category contains families such as “immunohistochemistry” and “surgical pathology examination.” Clinical and coding experts, as well as the AMA CPT section and subsection headings, are the primary means by which similar HCPCS codes were grouped.

The 2023 RBCS Taxonomy includes 176 named families, listed in **Appendix A: RBCS Families**.



While all HCPCS codes in the RBCS Taxonomy are given a category and subcategory, not all HCPCS codes are assigned to a family. The RBCS code family development process begins by identifying the highest spending among non-anesthesia HCPCS codes that, when combined, account for 90% of total allowed spending in the claims data being reviewed for the current year. These high-spend HCPCS codes (referred to below as “start codes”) are used as starting points to build RBCS code families.

Once the start codes have been identified, the data is searched for other HCPCS codes that are clinically similar to one or more start HCPCS codes. If these clinically similar HCPCS codes (including the start code) met the spending threshold of at least 0.1% of allowed spending in the claims data being reviewed, then a formal family was created to capture these codes. HCPCS codes that cannot be grouped in this way were not assigned to a formal RBCS family.

The use of spending and utilization patterns in the family development process helps ensure the RBCS Taxonomy is consistent with changing practice trends. As practice patterns change or new HCPCS codes are introduced, spending will increase for groups of procedures with higher utilization and will decrease for groups with lower utilization. In this way, new families will be introduced, and old families will be retired. This RBCS Taxonomy process has dual benefits:

1. capturing emerging healthcare trends; and
2. pruning families that experience decreased utilization.

As spending fluctuates from year to year, families that are close to the threshold may be dropped and added repeatedly over time. This instability would introduce confusion and make the Taxonomy difficult to use. To resolve this potential problem, families are only dropped if they fail to meet the spending threshold for five consecutive years. If a family enters the retention period one year but exceeds the threshold the next year, the five-year retention period restarts.



When HCPCS codes are retired and replaced by new HCPCS codes, the new HCPCS codes may be different enough from the retired HCPCS codes to prevent them from being grouped

into the same family. For example, in 2016, all HCPCS codes in the “Transluminal Angioplasty – Venous” family were retired and replaced with new HCPCS codes in the “A-V Fistula PCI” family. To avoid a potential gap as replacement HCPCS codes accumulate the spending needed to create a new family, a review step to the RBCS update process was added to identify retired and replacement HCPCS codes and to automatically create new families, if needed. If the original HCPCS codes were assigned to an RBCS code family and it was determined that the replacement HCPCS codes were different enough to create a new RBCS family, the new RBCS family was created automatically. This new RBCS family then begins the five-year retention period and could potentially be dropped if sufficient spending is not accumulated over the next five years.

For retired HCPCS codes that are not part of a named RBCS family, spending for the retired HCPCS codes is added to the spending for the replacement HCPCS codes. This allows the Taxonomy to pick up emerging trends more quickly.

The family classification is the third, fourth, and fifth characters of the RBCS code value. For each category, families were assigned a numeric value beginning with “001” in order of highest spending to lowest spending, with “001” assigned to the family with the highest spending. Numbers were assigned in this way because the families with the highest spending are likely to be the most stable over time. HCPCS codes that were not assigned to a family are always given the value of “000.”

Major Procedure Identification

In the last step of the RBCS update process, all HCPCS codes in the “procedures” category are evaluated to determine if they are major or non-major procedures. Unlike other levels of the RBCS Taxonomy, the major procedure designation is not hierarchical in nature. All HCPCS codes in the “procedures” category can be classified as major procedures, regardless of subcategory. The major procedure identification process uses relative value units (RVUs) and service setting to differentiate procedure type. Major procedure HCPCS codes were identified in four ways:



- HCPCS codes assigned an RVU greater than or equal to 9.0 were identified as a major procedure.
- HCPCS codes assigned an RVU greater than or equal to 5.5 but less than 9.0 and used in an inpatient setting greater than 15% of the time were identified as a major procedure.
- HCPCS code descriptions beginning with “unlisted” and occurring in an inpatient setting with a frequency greater than 15% were classified as a major procedure. The RVU requirement is not included for unlisted HCPCS codes because RVUs are not assigned to these codes.
- Add-on HCPCS codes were identified as major procedures when all of their associated primary HCPCS codes were major procedures. Add-on HCPCS codes

represent procedures where the bulk of the effort was concentrated in the primary HCPCS code. For this reason, add-on HCPCS codes were generally not identified as major procedures using RVU rules, even if they occurred within the context of a major procedure. This rule was developed to account for situations where all primary HCPCS codes for a given add-on HCPCS code were major procedures. This rule was not applied in situations in which primary HCPCS codes for the add-on HCPCS code were a mix of major and non-major procedures or where the add-on HCPCS code was not in the “procedures” category.

RVU releases are obtained from the [CMS PFS Relative Value Files website](#)⁴ for the years covered by the RBCS Taxonomy revision timeframe. The most recent non-missing RVU was retained for situations in which a HCPCS code was assigned different RVUs across years.

In addition to these rules, a three-year retention is used to enhance the stability of the major procedure identification indicator. HCPCS codes identified as major procedures in one year continue to be classified as major procedures unless they fail to meet the major procedure benchmarks for three consecutive years. If a major procedure enters the retention period one year and then exceeds the thresholds the next year, the three-year retention period restarts.

The major procedure designation was added as the sixth character of the RBCS code value. Major procedures were assigned an “M,” and non-major procedures were assigned an “O” (other). An “N” (not a procedure) was assigned to all non-procedure HCPCS codes.

CHANGES MADE FOR THE CURRENT YEAR

Fee Schedules

As noted earlier, Medicare fee schedules were added as data sources for the 2023 RBCS revision. The RBCS process evaluated fee schedules released over a 6-year timeframe. Five of those years correspond to the dates used to extract claims data for a given RBCS revision. The final year corresponds to the year after the dates used to extract claims data for a given RBCS revision.

Adding fee schedule data benefits the RBCS in two primary ways. First, using fee schedules as a data source makes the RBCS more comprehensive by capturing codes paid by Medicare that may not account for any spending in the claims data. It is possible that some HCPCS codes that are paid by one of the Medicare fee schedules is not billed on a claim, or are billed, but did not account for any allowed spending. Using fee schedules ensures those HCPCS codes are included in the RBCS Taxonomy.

Second, adding an additional year of fee schedule data makes the RBCS more current by including codes that were issued in the year following the end of the RBCS claims date range. The RBCS claims date range was selected to ensure that the claims data being used to construct the Taxonomy was completed at the beginning of the RBCS update process. A consequence of this is that the regency of the HCPCS codes included in the RBCS update

⁴ <https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/PhysicianFeeSched/PFS-Relative-Value-Files>

claims data lags by up to two years by the time the revision was made public. By adding an additional year of fee schedule data to the update process, the HCPCS codes included in a given RBCS Taxonomy revision are more up to date than they would be if the fee schedule date range mirrored the claims data date range.

The following fee schedules were added to the RBCS update process:

- MPFS Relative Value Unit File (PPRVU)
Codes from the MPFS PPRVU file with the following status indicators were considered paid by the MPFS:

Table 7: MPFS National Physician Fee Schedule Relative Value File Status Code (PPRVU)

Status Code	Description
A	Active code
B	Bundled code
C	MACs priced code
J	Anesthesia services
R	Restricted coverage
T	Paid as only service

- Outpatient Prospective Payment System (OPPS) Addendum B
Codes from the OPPS Addendum B with the following status indicators were considered paid by the OPPS:

Table 8: Outpatient Prospective Payment System (OPPS) Status Indicator Addendum B

Status Indicator	Description
G	Pass-through Drugs and Biologicals
H	Pass-through device categories
J1 – J2	Hospital Part B services paid through comprehensive APC
K	Nonpass-through drugs and non-implantable biologicals
L	Flu/PPV/COVID-19 vaccine
N	Items/services packaged into APC rates

- Ambulatory Surgical Center (ASC) Payment Rates Addenda AA, BB, and FF
Codes in ASC Addenda AA, BB, and FF were considered paid if they did not have the following payment indicator codes:

Table 9: Ambulatory Surgical Center (ASC) Payment Indicator

Payment Indicator	Description
B5	Alternative code may be available; no payment made
D5	Discontinued codes
K5	Surgical procedure/item not valid for Medicare purposes

- Durable Medical Equipment Parenteral and Enteral Nutrition (DMEPEN)
All codes listed in the DMEPEN fee schedule were considered paid by Medicare.

- Durable Medical Equipment Prosthetics, Orthotics, & Supplies (DMEPOS)
All codes listed in the DMEPOS fee schedule were considered paid by Medicare.
- Clinical Lab Fee Schedule (CLFS)
All codes listed in the CLFS were considered paid by Medicare.
- National Drug Code (NDC) Drug and Biological Average Sales Price (ASP NDC), Average Wholesale Price (AWS NDC), Outpatient Prospective Payment (OPPS NDC) and COVID-19 NDC Crosswalk
All codes in the ASP NDC, AWS NDC, OPPS NDC, and COVID-19 NDC files were considered paid by Medicare.
- Additionally, all FQHC payment codes were considered paid by Medicare.

Table 10: Federally Qualified Health Center (FQHC) HCPCS Codes

HCPCS Code	Description
G0466	FQHC visit, new patient
G0467	FQHC visit, established patient
G0468	FQHC visit, IPPE or AWW
G0469	FQHC visit, mental health, new patient
G0470	FQHC visit, mental health, established patient
G0511	Chronic Care Management for FQHCs
G0512	RHC or FQHC only, psychiatric collaborative care model
G0071	5+ minutes of virtual (non-face-to-face) communication between an RHC or FQHC practitioner
G2025	Payment for a telehealth distant site service furnished by a RHC or FQHC only

For the 2023 update process, all available fee schedules issued between 2017 and 2022 were combined to identify HCPCS codes paid by Medicare. Any code from any fee schedule during the review time frame is considered covered by Medicare and included in the RBCS.

Finally, prior versions of the RBCS Taxonomy included both RBCS Assignment Effective and End Dates so that users knew which RBCS ID to use in their analysis, since some HCPCS codes get reassigned new RBCS IDs in newer versions of the Taxonomy. To simplify the Taxonomy, users can accomplish the same objective by using only the RBCS Assignment Effective Date. CMS recommends that users consider the time period of their analysis and apply the appropriate RBCS ID to a service. Please note that we recommend using the most recent version of the RBCS ID.

RBCS 2023 UPDATE PROCESS

This section of the report provides summary details for the 2023 update process. A step-by-step outline of the update process is presented in Appendix B.

HCPCS Codes and Captured Spending

Statistics for the current and prior years are shown in **Table 11**. In 2023, a total of 14,806 distinct HCPCS codes were classified by the RBCS Taxonomy. Of these HCPCS codes, 1,162

were new to the 2023 revision. A total of 195 HCPCS codes from the 2022 RBCS Taxonomy were not part of the 2023 RBCS Taxonomy update process either because they were retired or because they didn't capture any spending in the data. The 2023 revision captured \$11.9 billion less in total spending than the 2022 revision.

Table 11: High-Level RBCS Statistics Across the Most Recent Three Years

	2020	2021	2022	2023
Years Captured	2014-2018	2015-2019	2016-2020	2017-2022*
HCPCS Codes Classified	13,414	13,648	13,759	14,806
Total Allowed Spending Captured	\$1,109 billion	\$1,154 billion	\$1,149 billion	\$1,137 billion
New HCPCS Codes	N/A	599	347	1,162
HCPCS Codes Not Carried Over	N/A	365	236	195
Spending Attributed to New HCPCS Codes	N/A	\$4,991 million	\$3,737 million	\$4,615 million

*The last year in this date range only captures fee schedule data and does not include any claims data.

The top ten new HCPCS codes in terms of spending and HCPCS code frequency are listed in **Table 12 and Table 13**. Most of the high spending and high frequency HCPCS codes were for injections and COVID-19 related services.

Table 12: Top Ten New HCPCS Codes in Terms of Spending

HCPCS Code	Description
J9144	Injection, daratumumab, 10 mg and hyaluronidase-fihj
0002A	Intramuscular administration of single severe acute respiratory syndrome Coronavirus 2 (COVID-19) vaccine, mRNA-LNP, spike protein, preservative free, 30 mcg/0.3mL dosage, diluent reconstituted; second dose
0012A	Intramuscular administration of single severe acute respiratory syndrome Coronavirus 2 (COVID-19) vaccine, mRNA-LNP, spike protein, preservative free, 100 mcg/0.5mL dosage; second dose
0064A	Immunization administration by intramuscular injection of severe acute respiratory syndrome Coronavirus 2 (SARS-COV-2) (Coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 50 mcg/0.25 ml dosage, booster dose
U0005	Infectious agent detection by nucleic acid (DNA or RNA); severe acute respiratory syndrome Coronavirus 2 (SARS-COV-2) (Coronavirus disease [COVID-19]), amplified probe technique, CDC or non-CDC, making use of high throughput technologies, completed within 2 calendar days from date of specimen collection (list separately in addition to either HCPCS code u0003 or u0004) as described by cms-2020-01-r2
0004A	Immunization administration by intramuscular injection of severe acute respiratory syndrome Coronavirus 2 (SARS-COV-2) (Coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 30 mcg/0.3 ml dosage, diluent reconstituted; booster dose
0001A	Intramuscular administration of single severe acute respiratory syndrome Coronavirus 2 (COVID-19) vaccine, mRNA-LNP, spike protein, preservative free, 30 mcg/0.3mL dosage, diluent reconstituted; first dose

HCPCS Code	Description
0011A	Intramuscular administration of single severe acute respiratory syndrome Coronavirus 2 (COVID-19) vaccine, mRNA-LNP, spike protein, preservative free, 100 mcg/0.5mL dosage; first dose
0003A	Immunization administration by intramuscular injection of severe acute respiratory syndrome Coronavirus 2 (SARS-COV-2) (Coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 30 mcg/0.3 ml dosage, diluent reconstituted; third dose
0013A	Immunization administration by intramuscular injection of severe acute respiratory syndrome Coronavirus 2 (SARS-COV-2) (Coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 100 mcg/0.5 ml dosage; third dose

Table 13: Top Ten New HCPCS Codes in Terms of Code Frequency

HCPCS Code	Description
U0005	Infectious agent detection by nucleic acid (DNA or RNA); severe acute respiratory syndrome Coronavirus 2 (SARS-COV-2) (Coronavirus disease [COVID-19]), amplified probe technique, CDC or non-CDC, making use of high throughput technologies, completed within 2 calendar days from date of specimen collection (list separately in addition to either HCPCS code U0003 or U0004) as described by cms-2020-01-r2
0001A	Intramuscular administration of single severe acute respiratory syndrome Coronavirus 2 (COVID-19) vaccine, mRNA-LNP, spike protein, preservative free, 30 mcg/0.3mL dosage, diluent reconstituted; first dose
0011A	Intramuscular administration of single severe acute respiratory syndrome Coronavirus 2 (COVID-19) vaccine, mRNA-LNP, spike protein, preservative free, 100 mcg/0.5mL dosage; first dose
0002A	Intramuscular administration of single severe acute respiratory syndrome Coronavirus 2 (COVID-19) vaccine, mRNA-LNP, spike protein, preservative free, 30 mcg/0.3mL dosage, diluent reconstituted; second dose
0012A	Intramuscular administration of single severe acute respiratory syndrome Coronavirus 2 (COVID-19) vaccine, mRNA-LNP, spike protein, preservative free, 100 mcg/0.5mL dosage; second dose
0064A	Immunization administration by intramuscular injection of severe acute respiratory syndrome Coronavirus 2 (SARS-COV-2) (Coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 50 mcg/0.25 ml dosage, booster dose
0004A	Immunization administration by intramuscular injection of severe acute respiratory syndrome Coronavirus 2 (SARS-COV-2) (Coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 30 mcg/0.3 ml dosage, diluent reconstituted; booster dose
0003A	Immunization administration by intramuscular injection of severe acute respiratory syndrome Coronavirus 2 (SARS-COV-2) (Coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 30 mcg/0.3 ml dosage, diluent reconstituted; third dose
0013A	Immunization administration by intramuscular injection of severe acute respiratory syndrome Coronavirus 2 (SARS-COV-2) (Coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 100 mcg/0.5 ml dosage; third dose
91300	Severe acute respiratory syndrome Coronavirus 2 (COVID-19) vaccine, mRNA-LNP, spike protein, preservative free, 30 mcg/0.3mL dosage, diluent reconstituted, for intramuscular use

Categories and subcategories for new HCPCS codes are listed in **Table 14**. As shown, the subcategory with the highest spending is molecular testing, which captured \$1.6 billion in spending for new HCPCS codes.

Table 14: Highest Spending Categories and Subcategories for New HCPCS Codes

Category	Subcategory	Total New HCPCS Codes	Total Allowed Amount for New HCPCS Codes (\$M)
Treatment	Injections and Infusions (nononcologic)	151	\$ 2,515
Treatment	Chemotherapy	44	\$ 1,319
Test	Molecular Testing	224	\$ 477
Test	Cardiography	23	\$ 69
Procedure	Other Organ Systems	46	\$ 51
Imaging	CT Scan	30	\$ 51
DME	Medical/Surgical Supplies	72	\$ 44
E&M	Care Management/Coordination	25	\$ 31
E&M	Office/Outpatient Services	5	\$ 17
Test	General Laboratory	114	\$ 13

Category, Subcategory, and Family Modifications

Part of the RBCS update process involved reviewing HCPCS code assignments to ensure they were categorized accurately.

The count of HCPCS codes that switched positions from the 2022 RBCS Taxonomy in the 2023 RBCS Taxonomy are presented in **Table 15**. As indicated, 300 HCPCS codes were reclassified. Almost all (250) of these were codes that moved from “No RBCS Family” to a formal family. Of the codes that moved from “No RBCS Family” to a formal family, most moved to the newly created “Wound Care Directed Dressings” family (105), the “Laminotomy or Laminectomy – Lumbar” family (33), the “Skin Allograft” family (19) or the “Peritoneal Dialysis” family (13).

Table 15: Count of 2023 HCPCS Codes that Switched Places in the RBCS Taxonomy

RBCS Taxonomy Modifications	# of Codes
HCPCS Codes moved from “No RBCS Family” to a Family	250
HCPCS Codes Switched from One Family to Another Family	11
HCPCS Codes Switched Subcategory and Family*	19
HCPCS Codes Switched Category, Subcategory, and Family*	20
Total	300

*HCPCS codes that were not part of a named family were included in these counts.

Count of Categories, Subcategories, and Families

The category, subcategory, and family counts for the 2023 RBCS Taxonomy are presented in **Table 16**. No new categories or subcategories were introduced in 2023, and no categories, subcategories or families were modified in 2023.

Table 16: RBCS Category, Subcategory, and Family* Counts

RBCS Taxonomy	2020	2021	2022	2023
Total Categories	8	8	8	8
Total Subcategories	52	52	52	52
Total Families	158	158	172**	176
New Categories	0	0	0	0
New Subcategories	0	0	1	0
New Families	0	0	15	4
Families Retained†	0	5	14	15
Categories Not Carried Over	0	0	0	0
Subcategories Not Carried Over	0	0	1	0
Families Not Carried Over	0	0	1	0

* All family counts in this table do not include the “No RBCS Family” family.

† Families that failed to meet the thresholds but were in the five-year retention period.

**The Blood Glucose Test or Reagent Strips family was replaced by the Diabetic Supplies and Monitoring family, which increased the 2022 total family count to 172 even though there were 15 new families (158 + 15 - 1 = 172).

The 2023 Taxonomy contains 4 new families. Statistics for the new families are provided in **Table 17**.

Table 17: Families Introduced in the 2023 RBCS Taxonomy

Category	Subcategory	Family	Total Codes	Total Spending (\$M)
DME	Medical/Surgical Supplies	Wound Care Directed Dressings	105	\$1,704.90
E&M	Office/Outpatient Services	Telephone Services	3	\$1,331.30
Treatment	Injections and Infusions (nononcologic)	COVID-19 Vaccine Administration	35	\$2,365.90
Treatment	Injections and Infusions (nononcologic)	Platelet Stimulating Agent	2	\$1,126.10

Families in the Retention Period

The distribution of families in the five-year retention time period is presented in **Table 18**. There were 3 families in retention year 3, 10 families in retention year 2, and 2 families in retention year 1. The retention period was first implemented in 2021 so no families were in the 4-year or 5-year retention periods.

Table 18: Family Retention Period Monitoring

Family Retention Period	2021	2022	2023
1-Year Retention	5	11	2
2-Year Retention	0	3	10
3-Year Retention	0	0	3
4-Year Retention	0	0	0
5-Year Retention	0	0	0
Families Dropped – Expired	0	0	0
Families Dropped – Other*	0	1	0

* Families were dropped if all HCPCS codes within the family were no longer found in the data or if all codes were assigned to a more suitable family.

HCPCS Codes and Spending Captured by Named Families

Given the nature of the family identification process, most HCPCS codes were not assigned to a code family. Only groups of related HCPCS codes that have a start code (high spend codes used to start families) and can account for the spending threshold of at least 0.1% of total allowed spending were assigned to an RBCS code family. Less than half (40.8%) of HCPCS codes met this criterion. However, RBCS code families did capture the majority of 2023 spending (90.1%). The spending breakdown can be found in **Table 19**.

Table 19: HCPCS Codes and Spending Captured by Code Families

Code Families	2020	2021	2022	2023
Number of Families	158	158	172	176
Codes Assigned to a Family	4,069	4,299	5,149	6,048
Percent of Codes Accounted for by Code Families	30.3%	31.5%	37.4%	40.8%
Total Spending Captured	\$981B	\$1,022B	1,033B	\$1,024B
Percent of Total Spending Captured	88.5%	88.5%	89.9%	90.1%

Major Procedures

A comparison of major procedure counts is presented in **Table 20**. A total of 3,512 HCPCS codes were identified as major procedure HCPCS codes in 2023, a slight increase (32 HCPCS codes) from the 3,480 HCPCS codes identified as major procedures in 2022. There were 24 more codes identified as major procedures using RVUs in 2023 than there were in 2022 (2,678 in 2022 vs. 2,702 in 2023). In both years, a similar number of HCPCS codes were identified using service setting (463 in 2022 vs. 468 in 2023). There is a slight increase in the number of add-on codes identified as major procedures because all associated primary codes are identified as major procedures.

Table 20: HCPCS Codes Identified as Major Procedures

Major Procedures	2020	2021	2022	2023
Total Major Procedures	3,485	3,470	3,480	3,512
% of HCPCS Codes in Procedures Category	55.9%	55.7%	55.8%	54.8%
Major Procedures Identified Using RVUs Alone	2,692	2,681	2,678	2,702
Major Procedures Identified Using Service Setting*	672	468	463	468
Major Procedures Identified as Add-On Codes	121	111	115	121
Major Procedures Retained	0	210	224	221

* Includes "unlisted" HCPCS codes.

Major Procedures in the Retention Period

All HCPCS codes that do not meet the major procedure threshold during a given update retain their major procedure designation for three years. As shown in **Table 21**, in 2023, 0 major procedures entered year one of the three-year retention period and 25 major procedures entered year two of the three-year major procedure retention period; 199 major procedures entered year three of the three-year retention period and will no longer be considered major procedures if they do not meet the major procedure threshold during the next RBCS revision.

Table 21: Major Procedure Retention Period Monitoring

Major Procedure Retention Status	2021	2022	2023
1-Year Retention	210	25	0
2-Year Retention	0	199	25
3-Year Retention	0	0	199
Major Procedures Changed to Other	0	0	0
Other Procedures Changed to Major	1	10	5
Major Procedures Changed to "N" *	0	0	0

* Major procedures will change to "N" if they switch from the procedures category to a different category.

CONCLUSION

The update process for the RBCS Taxonomy added new HCPCS codes and introduced several process improvements. The RBCS Taxonomy proved to be very stable with little variation in the overall structure of the Taxonomy. Manual review of RBCS code assignments improved the accuracy of the overall Taxonomy.

Spending and Code Count by Subcategory

The full breakdown of spending by subcategory can be found in **Table 22** through **Table 29**.

Table 22: Spending and Utilization by Subcategory in 2023 RBCS Update – Anesthesia

Subcategory	Allowed Spending (Millions)	% of Allowed Spending	Total Codes	% of Codes
Anesthesia	\$13,759	1.2%	293	2.0%

Table 23: Spending and Utilization by Subcategory in 2023 RBCS Update – Durable Medical Equipment (DME)

Subcategory	Allowed Spending (Millions)	% of Allowed Spending	Total Codes	% of Codes
Drugs Administered through DME	\$5,062	0.4%	44	0.3%
Hospital Beds	\$411	0.0%	37	0.2%
Medical/Surgical Supplies	\$5,173	0.5%	440	3.0%
Orthotic Devices	\$18,249	1.6%	1034	7.0%
Other DME	\$34,998	3.1%	500	3.4%
Oxygen and Supplies	\$3,953	0.3%	22	0.1%
Wheelchairs	\$3,365	0.3%	318	2.1%

Table 24: Spending and Utilization by Subcategory in 2023 RBCS Update – Evaluation and Management (E&M)

Subcategory	Allowed Spending (Millions)	% of Allowed Spending	Total Codes	% of Codes
Behavioral Health Services	\$12,024	1.1%	128	0.9%
Care Management/Coordination	\$3,778	0.3%	75	0.5%
Critical Care Services	\$7,566	0.7%	20	0.1%
E&M – Miscellaneous	\$725	0.1%	96	0.6%
Emergency Department Services	\$31,054	2.7%	15	0.1%
Home Services	\$2,306	0.2%	22	0.1%
Hospice	\$16	0.0%	2	0.0%
Hospital Inpatient Services	\$48,822	4.3%	19	0.1%
Nursing Facility Services	\$14,788	1.3%	28	0.2%
Observation Care Services	\$7,526	0.7%	12	0.1%
Office/Outpatient Services	\$145,612	12.8%	100	0.7%
Ophthalmological Services	\$12,140	1.1%	35	0.2%

Table 25: Spending and Utilization by Subcategory in 2023 RBCS Update – Imaging

Subcategory	Allowed Spending (Millions)	% of Allowed Spending	Total Codes	% of Codes
CT Scan	\$26,286	2.3%	107	0.7%
Imaging – Miscellaneous	\$2,300	0.2%	40	0.3%
Magnetic Resonance	\$11,323	1.0%	107	0.7%
Nuclear	\$15,664	1.4%	233	1.6%
Standard X-ray	\$25,416	2.2%	354	2.4%
Ultrasound	\$23,348	2.1%	127	0.9%

Table 26: Spending and Utilization by Subcategory in 2023 RBCS Update – Other

Subcategory	Allowed Spending (Millions)	% of Allowed Spending	Total Codes	% of Codes
Ambulance	\$32,040	2.8%	16	0.1%
Enteral and Parenteral	\$2,326	0.2%	43	0.3%
Vision, Hearing, and Speech Services	\$2,236	0.2%	159	1.1%

Table 27: Spending and Utilization by Subcategory in 2023 RBCS Update – Procedures

Subcategory	Allowed Spending (Millions)	% of Allowed Spending	Total Codes	% of Codes
Breast	\$2,628	0.2%	61	0.4%
Cardiovascular	\$24,579	2.2%	551	3.7%
Digestive/Gastrointestinal	\$25,968	2.3%	748	5.1%
Eye	\$25,199	2.2%	319	2.2%
Hematology	\$1,815	0.2%	70	0.5%
Musculoskeletal	\$51,719	4.5%	2018	13.6%
Other Organ Systems	\$24,517	2.2%	1766	11.9%
Skin	\$28,466	2.5%	436	2.9%
Vascular	\$17,475	1.5%	433	2.9%

Table 28: Spending and Utilization by Subcategory in 2023 RBCS Update – Tests

Subcategory	Allowed Spending (Millions)	% of Allowed Spending	Total Codes	% of Codes
Anatomic Pathology	\$13,541	1.2%	113	0.8%
Cardiography	\$9,521	0.8%	115	0.8%
General Laboratory	\$45,607	4.0%	1198	8.1%
Molecular Testing	\$13,821	1.2%	701	4.7%
Neurologic	\$5,507	0.5%	145	1.0%
Pulmonary	\$1,715	0.2%	48	0.3%
Test - Miscellaneous	\$1,192	0.1%	120	0.8%

Table 29: Spending and Utilization by Subcategory in 2023 RBCS Update – Treatments

Subcategory	Allowed Spending (Millions)	% of Allowed Spending	Total Codes	% of Codes
Chemotherapy	\$75,091	6.6%	279	1.9%
Dialysis	\$54,420	4.8%	98	0.7%
Injections and Infusions (nononcologic)	\$123,358	10.9%	848	5.7%
Physical, Occupational, and Speech Therapy	\$45,538	4.0%	63	0.4%
Radiation Oncology	\$21,373	1.9%	131	0.9%
Spinal Manipulation	\$3,714	0.3%	8	0.1%
Treatment - Miscellaneous	\$7,709	0.7%	107	0.7%

APPENDIX A: RBCS FAMILIES

- **Category**
 - **Subcategory**
 - **Family**

DME

Drugs Administered through DME

- Bronchodilator
- Vasodilator

Medical/Surgical Supplies

- Skin Allograft
- Wound Care Directed Dressings

Orthotic Devices

- Below Knee Orthotic
- Implantable Joint Device
- Intermittent Urinary Catheter
- Knee Orthosis
- Lumbar Sacral Orthosis Brace
- Ostomy

Other DME

- Cardiac Catheter
- Cardiac Stent
- Cardioverter-Defibrillator
- CPAP (sleep apnea)
- Diabetic Supplies and Monitoring
- Home Ventilator
- Implantable Neurostimulator
- Orthopedic Screw
- Pacemaker

Oxygen & Supplies

- Oxygen Concentrator

Wheelchairs

- Power Wheelchairs and Accessories
- Wheelchair Accessories

Evaluation and Management (E&M)

Behavioral Health Services

- Psychotherapy – Group
- Psychotherapy – Nongroup

Care Management/Coordination

- Chronic & Transitional Care Management

Critical Care Services

Critical Care E&M

Emergency Department services

Emergency Department E&M

Home Services

- Home E&M – New and Established
- Home Health Skilled Services

Hospital Inpatient Services

- Hospital Discharge Management
- Hospital E&M – Initial
- Hospital E&M – Subsequent

Nursing Facility Services

- Rest Home E&M
- SNF E&M

Observation Care Services

Observation Care

Office/Outpatient Services

- Annual Wellness Visits
- FQHC E&M – Facility Fee
- Hospital Outpatient E&M – Facility Fee
- Office E&M – Established
- Office E&M – New
- Telephone Services

Ophthalmological Services

Ophthalmological E&M

Imaging

CT Scan

- CT/CTA – Abdomen and Pelvis
- CT/CTA – Chest
- CT/CTA – Head and Neck
- CT/CTA – Spine

Imaging – Miscellaneous

Computerized Ophthalmic Imaging

Magnetic Resonance (MR)

- MRI/MRA – Abdomen and Pelvis
- MRI/MRA – Head and Neck
- MRI/MRA – Lower Extremity
- MRI/MRA – Other
- MRI/MRA – Spine

Nuclear

- Myocardial Perfusion Scan
- PET – Oncology



Standard X-ray
Angiography
Contrast Agent
Mammography
X-ray – Chest
X-ray – Lower Extremity
X-ray – Spine and Pelvis
X-ray – Upper Extremity
Ultrasound
Duplex Scan – Extracranial Arteries
Duplex Scan – Extremity Arteries
Duplex Scan – Extremity Veins
Echocardiography (TTE/TEE)
Ultrasound – Abdomen and Pelvis
Ultrasound – Nonspecific
Other
Ambulance
Medical Transport – Air
Medical Transport – Ground
Medical Transport – Ground Emergency
Medical Transport – Mileage
Enteral & Parenteral
Enteral Feeding and Formula
Parenteral Feeding and Formula
Procedure
Breast
Breast Biopsy
Mastectomy
Cardiovascular
Comprehensive Electrophysiologic Evaluation
Insertion/Removal/Replacement ICD
Pacemaker Insertion or Repair
Pacemaker Removal
Percutaneous Coronary Artery Angioplasty and Stenting
Percutaneous Transcatheterization
Digestive/gastrointestinal
Cholecystectomy – Laparoscopic
Colonoscopy – Lesion Removal
Hernia Repair – Laparoscopic (any site)
Hernia Repair – Open (Inguinal)

Lower GI Endoscopy – Other
Upper GI Endoscopy
Eye
Cataract Surgery
Intravitreal Injection
Vitrectomy – Mechanical
Hematology
Red Blood Cell Transfusion
Musculoskeletal
Arthrodesis – Spine
Arthroplasty – Hip
Arthroplasty – Knee
Arthroscopy – Lower Extremity
Arthroscopy – Upper Extremity
Destruction by Neurolytic Agent – Back
Joint Injection
Laminotomy or Laminectomy – Lumbar
Nerve Block Injection – Back
Neurostimulator – Back
Percutaneous Vertebroplasty
Other Organ Systems
Bronchoscopy
Calculus Removal – Urinary
Cystourethroscopy
Lymph Node Biopsy
Nasal/Sinus Endoscopy
Prostate Resection
Skin
Debridement
Destruction Skin Lesion
Mohs Surgery
Nail Procedure
Removal or Shaving of Skin Growth
Skin Biopsy
Skin Grafting
Skin Lesion Excision
Wound Repair – All Levels
Vascular
A-V Fistula Creation
A-V Fistula PCI
Transluminal Angioplasty – Arterial

Transluminal Angioplasty – Venous

Transvascular Stent

Varicose Vein Ablation

Vascular Embolization

Venous Catheter Insertion

Test

Anatomic Pathology

Immunohistochemistry

Surgical Pathology Examination

Cardiography

Electrocardiogram

External Electrocardiographic Monitoring

General Laboratory

Bacterial Culture

Blood Count

Clinical Chemistry

Drug Tests

Immunoassay

Venipuncture Blood Collection

Molecular Testing

Genetic Analysis

Infectious Agent Detection by DNA/RNA

Neurologic

Electrical Nerve Conductivity

Sleep Study

Pulmonary

Pulmonary Function Testing

Treatment

Chemotherapy

Chemotherapeutic Agent

Chemotherapy Administration

Dialysis

ESRD Related Services (not dialysis)

Hemodialysis

Peritoneal Dialysis

Injections and Infusions (nononcologic)

COVID-19 Vaccine Administration

Erythropoiesis - Stimulating Agent

Injection – Anticoagulant

Injection – Clotting Factors

Injection – Colony Stimulating Factors

Injection – Enzymes

Injection – Growth/Hormone Factor

Injection – Hyaluronan or Derivative

Injection – Immune Globulin

Injection – Immunomodulator

Injection – Macular Degeneration

Injection – Monoclonal Antibodies

Injection – Somatostatin

Injection – Tumor Necrosis Factor Blocker

Injection – Vasodilator

Injection Administration

Intravenous Infusion, Hydration

Platelet Stimulating Agent

Vaccine – Toxoids

Vaccine Admin – Flu, Pneum, & Hep B

Physical, Occupational, and Speech Therapy

Occupational Therapy

PT Treatment

PT/OT Evaluation

Speech Therapy

Radiation Oncology

Conventional Radiation Treatment

Intensity Modulated Radiation Therapy

Radiation Treatment Planning

Spinal Manipulation

Chiropractic

Treatment – Miscellaneous

Cardiac Rehabilitation

Hyperbaric Oxygen

Immunosuppressive Drugs – Non-Injectable

APPENDIX B: 2023 RBCS UPDATE STEPS

The steps below were performed for the 2023 RBCS update.

1. Combined all fee schedules issued between January 1, 2017, and December 31, 2022, and identified HCPCS codes paid by Medicare.
2. Extracted HCPCS codes from carrier, DME, and outpatient claims from the VRDC with service dates between January 1, 2017, and December 31, 2021.
3. Identified and unbundled FQHC, RHC, and APC bundled payments. (Only HCPCS codes covered by a fee schedule during the 6-year fee schedule window were allocated spending during the unbundling process).
4. Retained HCPCS codes with positive allowed spending⁵ over the five-year timeframe and HCPCS codes billed as part of a bundled payment.
5. Combined the list of paid HCPCS codes from the claims data with the list of HCPCS codes paid by one of the Medicare fee schedules, keeping all HCPCS codes that were either paid in the claims data or were covered by a fee schedule.
6. Applied the RBCS codes from the previous year to the new file.
7. Identified HCPCS codes that were not classified in the previous year.
8. Added category and subcategory classifications to any new HCPCS codes.
9. Identified newly added HCPCS codes for families, reviewed HCPCS codes to determine if new families needed to be created, reviewed retired and replacement HCPCS codes, and identified existing families that did not meet the spending threshold and began the five-year retention period.
10. Identified major and non-major procedures and began the three-year retention period for HCPCS codes that do not meet the major procedure requirements.
11. Applied quality assurance checks.
 - a. Spot checks
 - b. HCPCS add-on code checks
12. Finalized Taxonomy for TEP review.
13. Conducted TEP review of revised Taxonomy.
14. Finalized RBCS Taxonomy for the current year.
15. Submitted the *RBCS Final Report* to CMS.

⁵ For the carrier and DME files, the allowed amount was defined as the allowed charge amount. For all other claims files, allowed amounts were calculated by adding the payment amount and the patient responsibility amount(s). This was done because other claims tables do not have a field for specifically captured allowed amounts.