

Standard Pricing Implementation: Lab and Imaging Service Categories
Relative Resource Use (RRU) Measures

Summary Report

Prepared for the Committee on Performance Measurement

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National Committee for Quality Assurance
1100 13th Street NW, Suite 1000
Washington, D.C. 20005
202-955-3500

Methodology

OBJECTIVE

Assess challenges of applying a standardized pricing approach to lab and imaging services.

TESTING METHOD

Claims data from health plans (total of 40) was reviewed and analyzed for a variety of revenue and procedure codes (CPT) with technical (TC) and professional (26) modifier combinations. Each of the service records examined was filed on the same date of service for the same member in order to determine the amount of noise due to different methods of data capture for similar events. Up to 2 records per day per member were cross referenced for revenue codes, CPT-global codes and CPT codes with either TC or 26 modifiers present.

The following analyses were performed:

- Evaluate single and multiple claim record scenarios for coding and place of service (POS).
- Evaluate single and multiple claim record scenarios with respect to radiology service records.
- Examine the distribution of single images and multiple views to determine the consistency of pricing.
- Examine distribution of scenarios for one vs. multiple rows of revenue codes for imaging
- Examine the variation in Imaging Cost per Service, by Revenue and by Coding Scenarios.
- Examine the usage of modifiers (26 or TC) for variation across plans and/or correlation with corresponding RRU results.

Results

PATTERNS OF CODING CLAIMS FOR HEALTH PLANS (IMAGING)

Table 1: Imaging Claims for the Same Member with the Same Date

# CLAIM RECORDS**	# RECORDS	% OF RECORDS	ALLOWED \$	% OF ALLOWED AMOUNTS
1	11,447,418	45%	\$1,592,675,847	19%
2	8,275,951	33%	\$2,746,158,741	33%
3	2,217,728	9%	\$1,137,730,130	14%
4	2,209,968	9%	\$1,383,560,419	17%
5	311,960	1%	\$329,287,553	4%
6+	780,305	3%	\$1,118,036,729	13%
TOTAL	25,243,330	100%	\$ 8,307,449,420	100%

**SAME DATE-SAME MEMBER

Members with a Single Claim Record Scenario

45% of radiology service records corresponded with 1 claim record (19% of allowed amounts).

- 72% of these records utilized either outpatient revenue or global CPT codes.
 - In the inpatient setting, the CPT-26 modifier combination was frequently utilized.
 - Certain code combinations are problematic depending on the setting (outpatient--CPT with either a 26 or TC modifier; inpatient--use of a TC modifier).
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Members with Two Claims Records Scenario (Non-Inpatient Setting)

When evaluating the codes, the combinations displayed were:

- CPT-CPT (59%);
- CPT-Revenue (20%);
- Revenue-CPT (15%)

When evaluating the Code-Modifiers the combinations displayed were:

- CPT-CPT (31%);
- CPT-Revenue-Modifier 1 [26 modifier] (19%);
- Revenue-CPT-Modifier 2 [26 modifier] (14%);
- CPT-CPT-Modifiers 1 and 2 [Both 26 modifiers] (9%);
- CPT-CPT-Modifiers 1 and 2 [26 modifier and TC modifier] (9%)

Table 2: Summary of Imaging Records with Acceptable Coding and Corresponding Costs

Combinations	% of Total Dollars	% of Records with Acceptable Coding	% of Dollars with Acceptable Coding
Total Records (Single/Double Claim Records)	100.0%	83.5%	92.8%
Single Records (85% of dollars CPT)	38.8%	81.9%	94.4%
2 Records with the Same CPT Code	9.3%	86.7%	89.2%
2 Records with the Different CPT Code	19.4%	74.2%	80.3%
2 Records with 1 CPT and 1 Revenue Code	32.6%	99.3%	99.5%

Two Claims Records Scenario (Non-Inpatient Setting): Same CPT Code

The combinations displayed were:

- 26-TC (46%);
- No modifiers (21%);
- TC-26 (17%);
- 26-26 (6%)

Two Claims Records Scenario: Different CPT Codes, Evaluating Code-Modifier Combinations

The combinations displayed were:

- No modifiers (65%) [non-inpatient setting];
- 26-26 (29%) [9% originated from an inpatient setting]

Two Claims Records Scenario (Non-Inpatient Setting): Revenue and CPT Codes, Evaluating Code-Modifier Combinations

The combinations displayed were:

- CPT-Rev-Modifier 1 [26 modifier] (56%);
- Rev-CPT-Modifier 2 [26 modifier] (42%)

The analysis presented in Table 2 for imaging services showed the distribution of potentially invalid coding for different scenarios. Overall, the percentage of dollars with acceptable coding ranged from 80.3% for 2 records with a different CPT to 99.5% for 2 records with one CPT/one revenue code. Looking across plans for each combination showed reasonable consistency in percentage of dollars within each of the combinations.

The question was asked whether the percent of dollars falling into each of the four combinations differed across plans – e.g., do some plans have a relatively greater percentage of services in the “2 Records with Different CPT Code?” There may be a greater issue around acceptable coding in this scenario since that

combination showed the lowest percentage overall of acceptable coding (80.3%). We reviewed the Total Records “% of Dollars with Acceptable Coding” amounts, by health plan and measured key percentiles to assess variation. This analysis essentially created the first row in Table 2 by health plan and was expanded by looking at the variation in the result for “% of Dollars with Acceptable Coding” across plans whose results are presented in Table 3.

Table 3: Distribution of Total Records “% of Dollars with Acceptable Coding” across plans

	Overall Average	10th Pctile	25th Pctile	Median	75th Pctile	90th Pctile	95 th Pctile
Total Records (Single/Double Claims Records)	92.8%	90%	92%	93%	94%	95%	96%

Although there may be some variation in the relative records and dollars across the combination scenarios, the variation in the “% of Dollars with Acceptable Coding” across plans is minimal. As there is minimal variation across health plans in the overall % of imaging records presented with an “acceptable” coding scenario, the recommendation at this point is to proceed.

The question of whether quantity of service is coded correctly for imaging services remained. CPT codes for imaging services with multiple views are designed to be coded with a quantity of one, unless more than one service (with multiple views) is performed. Providers should understand this distinction – coding review/fraud software will also provide an opportunity to correct persistent inaccuracies. Our results indicate that very few records with multiple service quantity are coded as multiples (Table 4):

Table 4: Multiple Quantities billed for Multiple Views – Comparison of Matched Pairs of Codes

Code	QTY	% Claims	Code	QTY	% Claims
RADEX CHEST 1 VIEW FRNT			RADEX CHEST 2 VIEWS FRNT&LAT		
71010	1	99.69%	71020	1	99.98%
71010	2	0.28%	71020	2	0.02%
71010	3	0.02%	71020	3	0.00%
71010	4+	0.01%	71020	4+	0.00%
RADEX SHOULDER 1 VIEW			RADEX SHOULDER COMPL MINIMUM 2 VIEWS		
73020	1	99.54%	73030	1	99.42%
73020	2	0.45%	73030	2	0.57%
73020	3	0.01%	73030	3	0.00%
73020	4+		73030	4+	0.00%
RADEX HAND 2 VIEWS			RADEX HAND MINIMUM 3 VIEWS		
73120	1	99.11%	73130	1	98.63%
73120	2	0.89%	73130	2	1.36%
73120	3	0.00%	73130	3	0.00%
73120	4+		73130	4+	0.00%
RADEX HIP UNI 1 VIEW			RADEX HIP UNI COMPL MINIMUM 2 VIEWS		
73500	1	98.89%	73510	1	99.80%
73500	2	1.11%	73510	2	0.20%
73500	3	0.00%	73510	3	0.00%
73500	4+	0.00%	73510	4+	0.00%

PATTERNS OF CODING CLAIMS FOR HEALTH PLANS (LABORATORY)

Table 5: Laboratory Claims for the Same Member with the Same Date

# Claim records**	# Records	% of records	Allowed \$	% of Allowed Amounts
1	16,743,247	39%	\$ 909,969,258	27%
2	8,411,923	20%	\$ 397,731,991	12%
3	5,132,186	12%	\$317,081,277	10%
4	3,687,470	9%	\$ 284,950,885	9%
5	2,508,746	6%	\$ 242,963,910	7%
6+	6,106,230	14%	\$ 1,172,784,287	35%
Total	42,589,802	100%	\$ 3,325,481,609	100%

**same date-same member

Members with a Single Claim Record Scenario

39% of radiology service records corresponded with 1 claims record. 97% of records are either outpatient revenue or global CPT codes and certain code combinations are problematic depending on the setting (outpatient--CPT with either a 26 or TC modifier; inpatient--use of a TC modifier)

Members with Two Claims Records Scenario (Non-Inpatient Setting)

When evaluating the codes, the combinations displayed were:

- CPT-CPT (90%);
- Rev-Rev (6%)

When evaluating the Code-Modifiers the combinations displayed were:

- CPT-CPT [no modifiers] (88%);
- Rev-Rev [no modifiers] (6%)

Two Claims Records Scenario (Non-Inpatient Setting): Same CPT Code

The combinations displayed were:

- No modifiers (93%);
- Modifier 1 only [26 modifier] (2%);
- Modifiers 1 and 2 [26-TC] (2%)

Two Claims Records Scenario: Different CPT Codes, Evaluating Code-Modifier Combinations

The combinations displayed were:

- No modifiers (blank) (96%);
- Modifiers 1 and 2 [26-26] (2%) [both records originated from an inpatient setting]

Two Claims Records Scenario (Non-Inpatient Setting): Revenue and CPT Codes, Evaluating Code-Modifier Combinations

The combinations displayed were:

- CPT-Rev-no modifiers (60%);
 - Rev-CPT-no modifiers (37%);
 - Rev-CPT-Modifier 2 [26 modifier] (2%)
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Table 6: Summary of Lab Records with Acceptable Coding and Corresponding Costs

Combinations	% of Records with Acceptable Coding		
	% of Total Dollars	% of Records with Acceptable Coding	% of Dollars with Acceptable Coding
Total Records (Single/Double Claim Records)	100.0%	98.7%	98.8%
Single Records (94% of dollars CPT)	78.6%	98.8%	99.0%
2 Records with the Same CPT Code	1.6%	96.4%	94.6%
2 Records with the Different CPT Code	19.3%	98.4%	98.2%
2 Records with 1 CPT and 1 Revenue Code	0.5%	99.9%	99.9%

There are often multiple tests included in a lab panel and we needed to know whether the codes were specific as to which tests are included in a panel with enough reliability to price the panel compared to the individual corresponding tests. The CPT codes for lab panel services are designed to be coded with a quantity of one, capturing the entire battery of lab tests.

Examples:

- 80047 – *Basic metabolic panel (Calcium, ionized)*. This panel must include the following: Calcium, ionized (82330), Carbon dioxide (82374), Chloride (82435), Creatinine (82565), Glucose (82947), Potassium (84132), Sodium (84295), Urea Nitrogen (BUN) (84520)
- 80050 – *General health pane.* / This panel must include the following: Comprehensive metabolic panel (80053), Blood count, complete (CBC), automated and automated differential WBC count (85025 or 85027 and 85004), OR, Blood count, complete (CBC), automated (85027) and appropriate manual differential WBC count (85007 or 85009), Thyroid stimulating hormone (TSH) (84443)

There is a clear indication of the tests in the panel and providers should understand this distinction. Coding review/fraud software should also correct persistent inaccuracies in health plan data sets. An analysis of 18.9 million claim records for these services showed an average quantity of 1.003. Results did not differ across health plans therefore inaccurate coding of service quantity for labs does not present an issue that would prevent reliable pricing.

Variation in Costs for the Same Code:

There is likely variation in the actual cost for revenue codes for imaging and lab services since revenue codes for these services are relatively broadly defined. In order to determine if a pricing strategy would be consistent for revenue codes vs. the CPT codes for similar services, we investigated how much variation would exist in observed payments within a revenue code and how different would that be from the CPT coded services for imaging and lab by examining the distribution of observed payment amounts across claim records for each revenue code and for selected high-volume CPT codes. Variation was observed across records for both revenue and CPT coded services although greater variation was observed for revenue codes. As we expected, there will be increased heterogeneity within the revenue codes for these services, in terms of the services actually performed. To quantify this, we calculated a ratio of the 75th to the 25th percentile which demonstrated that variation is approximately twice that or higher (Tables 7a-7c). This is especially true for the “general class” and “other” revenue codes.

Table 7a: Distribution of Amount Allowed Across Imaging Claim Records—by Revenue Code

Revenue Code	Description	# of Records	Mean	Pctl25	Median	Pctl75	Pctl90	75/25 Ratio
320	Radiology - Diagnostic - General Classification	6,254,686	351	87	172	354	890	4.1
321	Radiology - Diagnostic - Angiocardiology	596	863	189	301	1,307	2,360	6.9
322	Radiology - Diagnostic - Arthrography	1,576	294	213	255	287	552	1.4
323	Radiology - Diagnostic - Arteriography	2,609	1,210	153	818	1,517	2,257	9.9
324	Radiology - Diagnostic - Chest X-Ray	256,724	111	46	104	142	211	3.1
329	Radiology - Diagnostic – Other	13,187	108	10	30	102	250	10.2
330	Radiology - Therapeutic - General Classification	1,155	382	191	237	361	763	1.9
333	Radiology - Therapeutic - Radiation Therapy	305,748	1,906	266	495	1,308	3,796	4.9
339	Radiology - Therapeutic – Other	314	2,184	480	3,060	3,440	3,440	7.2
340	Nuclear Medicine - General Classification	16,263	582	226	402	730	1,193	3.2
341	Nuclear Medicine – Diagnostic	86,680	537	192	366	721	1,215	3.7
342	Nuclear Medicine –Therapeutic	1,584	647	216	444	664	1,108	3.1
350	CT Scan - General Classification	124,821	755	349	627	1,036	1,424	3.0
351	CT Scan - Head Scan	96,091	581	282	428	776	1,239	2.8
352	CT Scan - Body Scan	245,569	730	398	595	928	1,463	2.3
359	CT Scan - Other CT Scans	5,597	795	232	637	1,349	1,744	5.8
400	Other Imaging - General classification	4,046	355	226	295	408	462	1.8
401	Other Imaging - Diagnostic Mammography	180,232	137	39	120	222	280	5.6
402	Other Imaging - Ultrasound	429,668	268	164	228	334	459	2.0
403	Other Imaging - Screening Mammography	619,664	123	36	82	215	275	5.9
409	Other Imaging - Other	4,552	94	58	86	104	115	1.8
610	MRI - General Classification	94,297	1,261	682	1,060	1,669	2,385	2.4
611	MRI - Brain (including Brainstem)	34,131	1,576	850	1,516	2,106	2,736	2.5
612	MRI - Spinal Cord (including Spine)	40,813	1,244	733	1,002	1,683	2,257	2.3

Table 7b: Distribution of Amount Allowed Across Lab Claim Records—by Revenue Code

Revenue Code	Description	# of Records	Mean	Pctl25	Median	Pctl75	Pctl90	75/25 Ratio
300	Laboratory - General Classification	10,030,891	98	11	32	88	233	8.0
301	Laboratory - Chemistry	5,072,330	41	12	26	48	83	4.1
302	Laboratory - Immunology	651,104	46	20	30	45	85	2.3
303	Laboratory - Renal Patient(Home)	125	31	13	24	35	47	2.8
304	Laboratory - Non-Routine Dialysis	21,737	76	15	29	60	109	4.0
305	Laboratory - Hematology	1,492,708	23	9	15	25	52	2.7
306	Laboratory - Bacteriology and Microbiology	1,024,043	39	17	27	46	77	2.7
307	Laboratory - Urology	397,495	17	7	12	19	36	2.7
309	Laboratory - Other	55,754	35	5	14	31	67	6.2
310	Laboratory Pathological - General Classification	216,145	192	51	113	205	400	4.0
311	Laboratory Pathological - Cytology	291,703	69	29	51	62	106	2.1
312	Laboratory Pathological - Histology	175,744	176	62	115	194	378	3.1
314	Laboratory Pathological - Biopsy	8,935	176	63	132	210	392	3.3
319	Laboratory Pathological - Other	7,448	109	15	84	129	249	8.6

Table 7c: Distribution of Amount Allowed Across Imaging Claim Records—by CPT Code

CPT	Description	Number of Records	Mean	Pctl25	Median	Pctl75	Pctl90	75/25 Ratio
85025	Blood count	3,627,299	10	5	8	12	16	2.5
80061	Lipid panel	3,029,206	20	9	17	22	34	2.5
81002	Urinalysis, non-automated, without microscopy	3,026,337	3	2	2	4	4	1.7
87880	Infectious agent antigen detection	2,577,438	14	10	13	17	22	1.7
80053	Comprehensive metabolic panel	2,144,111	15	6	11	17	26	2.7
81000	Urinalysis; non-automated, with microscopy	1,531,042	4	3	3	4	6	1.7
84443	Thyroid stimulating hormone (TSH)	1,321,391	24	10	21	28	44	2.9
87804	Infectious agent antigen detection	1,312,780	14	7	14	17	23	2.4
81003	Urinalysis, automated, without microscopy	1,312,724	3	2	3	3	5	1.7
83036	Hemoglobin; glycosylated (A1C)	1,136,071	14	7	11	16	24	2.3
80050	General health panel	1,060,813	43	19	37	50	72	2.6
85610	Prothrombin time;	1,059,687	5	3	5	6	9	1.8
81001	Urinalysis	987,200	6	3	4	6	10	2.1