
Supplementary Online Content

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Technical Appendix

Figure A1. Kaplan Meier – Non-Workup

Table A1. HCPCS and Revenue Codes used to Identify Qualifying Outpatient, Non-Acute Inpatient, Acute Inpatient, Observation, and Emergency Department Claims.

Table A2. HCPCS Codes used to Identify Qualifying Radiology Claims.

Table A3. HCPCS codes used to Identify Qualifying Non-Surgical Biopsy Claims and Workups

Table A4. HCPCS Codes used to Identify Qualifying Surgical Resection Claims and Workups

Table A5. ICD-9-CM Cancer Diagnosis Codes

Table A6. HCPCS Codes for CT used to Identify Workups

Table A7. HCPCS Codes for PET used to Identify Workups

This supplementary material has been provided by the authors to give readers additional information about their work.

Technical Appendix

The MarketScan denominator population and study population of newly diagnosed indeterminate pulmonary nodule (IPN) patients was derived from individuals in the MarketScan® database. MarketScan is an annual medical database that includes geographically diverse private sector data from approximately 100 commercial plans with annual enrollment for the years of interest of about 28 to 47 million lives. MarketScan links paid claims to detailed member demographic information across years and includes all providers who received payments. MarketScan links paid claims to detailed member demographic information across years and includes all providers who received payments.

MarketScan Denominator Population Requirements

We used the following enrollment requirements to identify the MarketScan denominator population from the MarketScan database:

- Member reports continuous enrollment in a MarketScan non-capitated plan from 1/1/2013-12/31/2013 and for at least one day in 2014.
- Plan subscriber must be classified as an active employee as of January 2014.
- Members must be age 64 or younger as of 12/31/2016.

New IPN Population

We used the following claims coding requirements to identify the members from the MarketScan denominator population who received a new IPN diagnosis and the qualifying claim where the diagnosis appeared

1. Patients were required to have either:
 - Acute inpatient or observation claim (see Table A1 for the definition of acute inpatient and observation claims), with an allowed amount that is greater than zero, incurred in 2014, with the International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) diagnosis code 793.11 (Solitary pulmonary nodule) in any position.

or

 - At least one claim among the following types, with an allowed amount that was greater than zero, incurred in 2014, with ICD-9-CM code 793.11 in any position:
 - Facility or professional services in an emergency department, outpatient, or non-acute inpatient setting (see Table A1 for the definition of emergency department, outpatient, and non-acute inpatient claims).
 - Radiology on professional services claims where professional component is reported (blank or “26” in primary modifier field). (See Table A2 for definition of radiology claims).
 - Non-surgical biopsy on facility or professional services claims. (See Table A3 for definition of non-surgical biopsy claims).
 - Surgical resection on professional services claims. (See Table A4 for definition of surgical resection claims).
2. The index event was the patient’s first qualifying IPN claim from step 1 in 2014:
 - The index date was the admit date (inpatient), the claim from date (observation, emergency department, outpatient), or the date of the line-item Healthcare Common Procedure Coding System (HCPCS) code on a facility claim or professional services claim (blank or “26” in primary modifier field) for radiology, non-surgical biopsy, and surgical resection.
 - The category of the index event was inpatient, observation, emergency department, outpatient, non-acute inpatient, radiology, non-surgical biopsy, or surgical resection, depending on the qualifying claim.

3. A patient was considered newly diagnosed with an IPN if there were no prior claims of any type with the diagnosis code 793.11 in any position incurred in the 12 months prior to the index event.
4. Patients previously diagnosed with cancer were excluded from this analysis:
 - Cancer diagnoses were identified when a patient had at least one acute inpatient or observation claim or on at least two facility or professional services emergency department, outpatient, or non-acute inpatient claims (See Table A1) on different dates of service with a cancer diagnosis code (See Table A5 for cancer diagnosis code list) in any position incurred in the 12 months leading up to the index event.
5. The patient was required to be an active employee (or dependent of an active employee) up to and including the month of the index event.
6. The patient was required to be age 18 or older at time of index event

Study Population

The study population consisted of patients from the new IPN population who had enrollment to the end of the study period (2016) and, therefore, would have a complete claims history with which to categorize workup.

Categorization of Workup

We considered up to three levels of workup events for each member.

Workup Level 1

We identified the first workup level for the new IPN population as one of 4 options: CT, PET, non-surgical biopsy, or surgical resection (see Tables A6, A7, A3, and A4 for definitions of the above events).

1. For new IPN patients with an index event categorized as a non-surgical biopsy or a surgical resection, the index event itself was assigned at the Level 1 workup.
2. For new IPN patients with an index event categorized as other than a non-surgical biopsy or a surgical resection, the first computed tomography scan (CT), positron emission tomography (PET), non-surgical biopsy, or surgical resection claim occurring after the index event was assigned to the Level 1 workup.
3. New IPN patients who did not have any claims for a CT, PET, non-surgical biopsy, or surgical resection after the index event were considered to have no workup.

Workup Level 2

1. For new IPN patients with a CT or non-surgical biopsy as their Level 1 workup, the first CT, PET, non-surgical biopsy, or surgical resection claim after the Level 1 workup event was assigned to the Level 2 workup. If no such claim was found, the patient was considered to have no Level 2 workup.
2. For new IPN patients with a PET as their Level 1 workup, the first CT, non-surgical biopsy, or surgical resection claim after the Level 1 workup event was assigned to be the Level 2 workup. If no such claim was found, the patient was considered to have no Level 2 workup.
3. New IPN patients with a surgical resection as their Level 1 workup were not followed to Level 2.

Workup Level 3

1. For new IPN patients with a CT or non-surgical biopsy as both their Level 1 workup and Level 2 workup, the first CT, PET, non-surgical biopsy, or surgical resection claim after the Level 2 workup event was taken to be the Level 3 workup. If no such claim was found, the patient was considered to have no Level 3 workup.
2. For new IPN patients with a PET as their Level 1 or Level 2 workup, the first CT, non-surgical biopsy, or surgical resection claim after the Level 2 workup event was taken to be the Level 3 workup. If no such claim was found, the patient was considered to have no Level 3 workup.
3. New IPN patients with a surgical resection as their Level 2 workup were not followed to Level 3.

Calculation of Workup Costs

Costs for each workup event were accumulated from three sources: the costs attributed to the workup claim itself, the costs from follow-up work after a non-surgical biopsy or surgical resection, and the costs from claims with the diagnosis code 793.11 in the principal position occurring between a workup event and the index event (if Level 1 workup) or between a workup event and the previous workup event (if Level 2 or 3 workup).

Costs Attributed to the Workup Claim

1. When the workup at a given level was a CT or PET, the cost of the workup included the following:
 - a. All non-inpatient dollars incurred on the same facility or professional services claim (identified by a blank or 'TC' in the primary modifier field) of the workup event.
 - b. All professional services line-item costs for the same HCPCS code which identified the workup event, reported with a '26' in the primary modifier field, for up to 7 days following the from date of the workup event.
2. When the workup at a given level was a non-surgical biopsy or a surgical resection in a non-inpatient setting, the cost of the workup included the following:
 - a. All non-inpatient dollars incurred on the same facility claim of the workup event
 - b. All professional services line-item costs for the same HCPCS code which identified the workup event for up to 7 days prior to and 7 days following the from date of the workup event.
3. When the workup at a given level was a non-surgical biopsy or a surgical resection in an inpatient setting, the cost of the workup included the following:
 - a. All services incurred during the duration of the inpatient stay (excluding any adjacent visits/transfers to another inpatient facility on the day of discharge).

Follow-Up Costs for Non-Surgical Biopsies and Surgical Resections

1. For each new IPN patient with a non-surgical biopsy as a given workup level, we identified patients with an emergency department, observation, or inpatient services claim within 2 days immediately following the procedure (see Table A1 for the definition of the above claims).
 - a. All non-inpatient dollars incurred during the from/through span of an emergency room or observation claim were assigned to the workup level.
 - b. All services incurred during the duration of an inpatient stay (excluding any adjacent visits/transfers to another inpatient facility on the day of discharge) were assigned to the workup level.
 - c. Costs already attributed to the workup claims were excluded.

2. For each new IPN patient with a surgical resection as a given workup level, we identified patients with an emergency department, observation, inpatient, skilled nursing facility, long-term care hospital, inpatient rehabilitation facility, or home health services claim within 30 days immediately following the procedure (see Table A1 for the definition of the above claims).
 - a. All non-inpatient dollars incurred during the from/through span of an emergency room or observation claim were assigned to the workup level.
 - b. All services incurred during the duration of an inpatient stay (excluding any adjacent visits/transfers to another inpatient facility on the day of discharge) were assigned to the workup level.
 - c. All services incurred during the from/through span of a skilled nursing facility, long-term care hospital, inpatient rehabilitation facility, or home health services claim were assigned to the workup level.
 - d. Costs already attributed to a workup level were excluded

Costs from IPN-Related Claims in Between Workup Events

1. For each new IPN patient with a Level 1 workup, we identified all claims with the diagnosis code 793.11 in the principal position occurring between the index event and the Level 1 workup, and assigned their costs to the Level 1 workup.
 - a. Except for inpatient, observation and emergency department claims, the cost included was the cost on the claim with the specified diagnosis code.
 - b. For inpatient claims, the cost included all services incurred during the duration of the inpatient stay (excluding any adjacent visits/transfers to another inpatient facility on the day of discharge).
 - c. For emergency department and observation claims, the cost included was all non-inpatient dollars incurred during the from/through day span of the claim.
 - d. Costs already attributed to a workup level were excluded.
2. For each new IPN patient with a Level 2 workup, we identified all claims with the diagnosis code 793.11 in the principal position occurring between the Level 1 workup and the Level 2 workup, and assigned their costs to the level 2 workup.
3. For each new IPN patient with a Level 3 workup, we identified all claims with the diagnosis code 793.11 in the principal position occurring between the Level 2 workup event and the Level 3 workup event, and assigned their costs to the Level 3 workup.

Identification of Former and Current Smokers

Current or former smokers were identified using, HCPCS codes for smoking cessation-related services, and National Drug Codes (NDCs) for prescription drugs for smoking-cessation products. The following list of codes were used to identify current or former smokers:

1. One of the following diagnosis codes on any claim in 2014
 - a. 305.1 (tobacco use disorder)
 - b. 649.0x (tobacco use complicating pregnancy)
 - c. 989.84 (toxic effect of tobacco)
 - d. V15.82 (personal history of tobacco use)
2. Any pharmacy claim in 2013-2016 for a drug with GPI beginning with 6210 (nicotine, varenicline, and formulations of bupropion hydrochloride) indicated as smoking deterrents from the MediSpan® database.
3. One of the following procedure codes on any claim in 2013-2016
 - a. 99406 (smoking counseling visit)
 - b. 99407 (smoking counseling visit)

- c. 1034F (current tobacco smoker)
- d. 4004F (tobacco use screening and intervention)
- e. 4001F (tobacco use screening and intervention)
- f. G0436 (smoking counseling visit)
- g. G0437 (smoking counseling visit)
- h. G9016 (smoking counseling visit)
- i. S9453 (smoking cessation class)
- j. S4995 (smoking cessation gum)
- k. G9276 (documented tobacco user advised to quit)
- l. G9458 (documented tobacco user advised to quit)

This methodology was based on the best performing claims algorithm analyzed by Desai, *et al.*¹ The algorithm identified smokers from the above ICD 9 and HCPCS codes, or a nicotine replacement or varenicline prescription. We added the NDC codes for bupropion HCl with specific indication for smoking deterrent in MediSpan.

Kaplan – Meier Analysis

Our analysis for quantifying costs related to workup relied on the study population having full coverage in the MarketScan database from diagnosis to the end of the study period (December 2016) so that a patient's complete claim history was available. However, this condition means we excluded patients who left the MarketScan database, including those who may have died of lung cancer during the average 2.5 years of follow up after the initial IPN diagnosis. We performed a Kaplan-Meier analysis to test the impact of this requirement on the non-workup rate.

Figure A1 shows the difference in “survival” functions using our study methodology and a curve constructed using the Kaplan-Meier method also known as the product limit method.

The solid IPN Study Population curve represents the portion of the study population, with the full coverage requirement (i.e. coverage through December 2016), who had not yet received workup the specified number of days following the initial IPN diagnosis. The dashed Kaplan Meier curve was constructed using all newly diagnosed IPN patients without the full coverage requirement. We calculated the curve on a daily basis, multiplying the non-workup rate for each day, computed as the proportion of members who did not receive workup out of members who had coverage and no workup up to that point, to the Kaplan-Meier estimate for the previous day.

The Kaplan-Meier curve therefore shows a lower non-workup rate than the study methodology since it considers the workup rates of each successive cohort of members before they lost coverage. However, the difference between the curves is between zero and three percent at all possible points along the curve. At the end of the study period, the study methodology shows approximately 64% of patients received no workup while the Kaplan-Meier estimate of the non-workup rate is 61%. We consider this difference immaterial given the broader finding of low workup when compared to ACCP guidelines.

References

¹ Desai RJ, Solomon DH, Shadick N, Iannaccone C, Kim SC. Identification of smoking using Medicare data – a validation study of claims-based algorithms. *Pharmacoepidemiol Drug Saf.* 2016; 25(4): 472-475.

Technical Appendix Tables and Figures

Figure A1. Kaplan Meier – Non-Workup

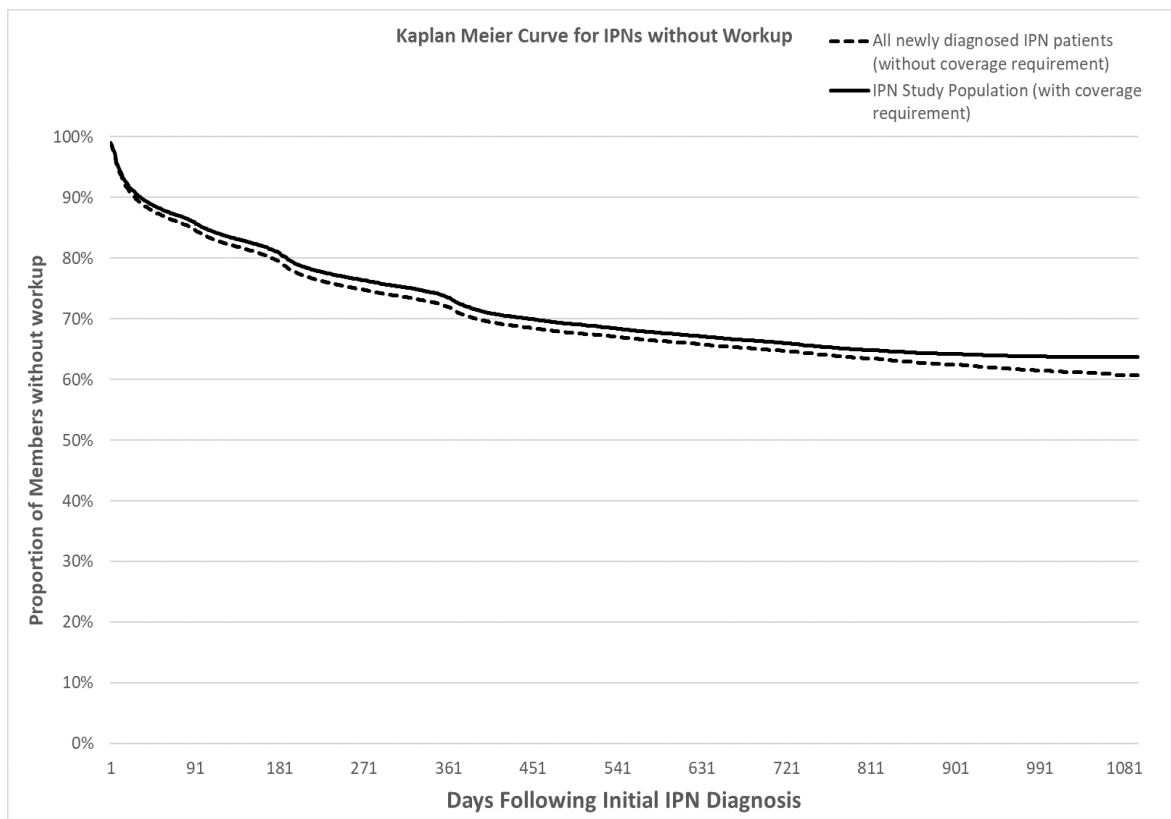


Table A1. HCPCS and Revenue Codes used to Identify Qualifying Outpatient, Non-Acute Inpatient, Acute Inpatient, Observation, and Emergency Department Claims.

Claim Type	HCPCS Code	Revenue Code
Outpatient	99201-99205, 99211-99215, 99241-99245, 99341-99345, 99347-99350, 99381-99387, 99391-99397, 99401-99404, 99411, 99412, 99429, 99455, 99456, G0402, G0438, G0439, G0463, G0466-G0468, T1015	0510-0517, 0519-0523, 0526-0529, 0982, 0983
Non-acute inpatient	99304-99310, 99315, 99316, 99318, 99324-99328, 99334-99337	0118, 0128, 0138, 0148, 0158, 0190-0194, 0199, 0524, 0525, 0550-0552, 0559
Acute inpatient	99221-99223, 99231-99233, 99238, 99239, 99251-99255, 99291, 99468, 99469, 99471, 99472, 99475-99480	010x, 0110-0115, 0117, 0119-0125, 0127, 0129-0135, 0137, 0139-0145, 0147, 0149-0155, 0157, 0159-0160, 0164, 0166-0175, 0179, 0200-0204, 0206-0214, 0219, 0720-0722
Observation	99217-99220, 99224-99226, G0378, G0379	
Emergency department	99281-99285, G0380-G0384	0450-0452, 0456, 0459, 0981

Table A2. HCPCS Codes used to Identify Qualifying Radiology Claims.

HCPCS Code	Description	HCPCS Code	Description
70000-7XXXX	Radiology CPT code series	C8914	MRA w/o fol w/cont, lwr ext
0040T	Rad s/i, endovasc taa prosth	C8918	MRA w/cont, pelvis
0042T	Ct perfusion w/contrast cbf	C8919	MRA w/o cont, pelvis
0291T	Iv oct for proc init vessel	C8920	MRA w/o fol w/cont, pelvis
0292T	Iv oct for proc addl vessel	C8931	MRA, w/dye, spinal canal
0346T	Ultrasound elastography	C8932	MRA, w/o dye, spinal canal
0348T	Rsa spine exam	C8933	MRA, w/o&w/dye, spinal canal
0349T	Rsa upper extr exam	C8934	MRA, w/dye, upper extremity
0350T	Rsa lower extr exam	C8935	MRA, w/o dye, upper extr
0351T	Intraop oct brst/node spec	C8936	MRA, w/o&w/dye, upper extr
0352T	Oct brst/node i&r per spec	C9744	Abd us w/contrast
0353T	Intraop oct breast cavity	G0130	Single energy x-ray study
0354T	Oct breast surg cavity i&r	G0202	Scr mammo bi incl cad
0398T	Mrgfus strtctc les abltj	G0204	Dx mammo incl cad bi
0470T	oct skn img ac quisj i&r 1st	G0206	Dx mammo incl cad uni
0471T	oct skn img ac quisj i&r addl	G0219	PET img wholbod melano nonco
0475T	rec ftl car sgl 3 ch i&r	G0235	PET not otherwise specified
0476T	rec ftl car sgl elec tr data	G0252	PET imaging initial dx
0477T	rec ftl car sgl xrtj alys	G0275	Renal angio, cardiac cath
0478T	rec ftl car 3 ch rev i&r	G0278	Iliac art angio,cardiac cath
C8900	MRA w/cont, abd	G0279	Tomosynthesis, mammo
C8901	MRA w/o cont, abd	G0288	Recon, CTA for surg plan
C8902	MRA w/o fol w/cont, abd	G0297	Ldct for lung ca screen
C8903	Mri w/cont, breast, uni	G0389	Ultrasound exam AAA screen
C8904	MRI w/o cont, breast, uni	S8032	Low dose CT lung screening
C8905	MRI w/o fol w/cont, brst, un	S8035	Magnetic source imaging
C8906	Mri w/cont, breast, bi	S8037	Mrcp
C8907	MRI w/o cont, breast, bi	S8042	MRI low field
C8908	MRI w/o fol w/cont, breast,	S8055	Us guidance fetal reduct
C8909	MRA w/cont, chest	S8080	Scintimammography
C8910	MRA w/o cont, chest	S8085	Fluorine-18 fluorodeoxygluco
C8911	MRA w/o fol w/cont, chest	S8092	Electron beam computed tomog
C8912	MRA w/cont, lwr ext	S9024	Paranasal sinus ultrasound
C8913	MRA w/o cont, lwr ext		

Table A3. HCPCS codes used to identify qualifying non-surgical biopsy claims and workups.

HCPCS Code	Description
10022	Fna w/image
32400	Needle biopsy chest lining
32405	Percut bx lung/mediastinum
31628	Bronchoscopy/lung bx each
31629	Bronchoscopy/needle bx each
31652	Bronch ebus samplng 1/2 node

Table A4. HCPCS Codes used to Identify Qualifying Surgical Resection Claims and Workups

HCPCS Code	Description
32607	Thoracoscopy w/bx infiltrate
32608	Thoracoscopy w/bx nodule
32609	Thoracoscopy w/bx pleura
32096	Open wedge/bx lung infiltr
32097	Open wedge/bx lung nodule
32098	Open biopsy of lung pleura
32666	Thoracoscopy w/wedge resect

Table A5. ICD-9-CM Cancer Diagnosis Codes

ICD-9-CM Diagnosis Code	Description
1400	Malignant neoplasm of upper lip, vermilion border
1401	Malignant neoplasm of lower lip, vermilion border
1403	Malignant neoplasm of upper lip, inner aspect
1404	Malignant neoplasm of lower lip, inner aspect
1405	Malignant neoplasm of lip, unspecified, inner aspect
1406	Malignant neoplasm of commissure of lip
1408	Malignant neoplasm of other sites of lip
1409	Malignant neoplasm of lip, unspecified, vermilion border
1410	Malignant neoplasm of base of tongue
1411	Malignant neoplasm of dorsal surface of tongue
1412	Malignant neoplasm of tip and lateral border of tongue
1413	Malignant neoplasm of ventral surface of tongue
1414	Malignant neoplasm of anterior two-thirds of tongue, part unspecified
1415	Malignant neoplasm of junctional zone of tongue
1416	Malignant neoplasm of lingual tonsil
1418	Malignant neoplasm of other sites of tongue
1419	Malignant neoplasm of tongue, unspecified
1420	Malignant neoplasm of parotid gland
1421	Malignant neoplasm of submandibular gland
1422	Malignant neoplasm of sublingual gland
1428	Malignant neoplasm of other major salivary glands
1429	Malignant neoplasm of salivary gland, unspecified
1430	Malignant neoplasm of upper gum
1431	Malignant neoplasm of lower gum
1438	Malignant neoplasm of other sites of gum
1439	Malignant neoplasm of gum, unspecified
1440	Malignant neoplasm of anterior portion of floor of mouth
1441	Malignant neoplasm of lateral portion of floor of mouth
1448	Malignant neoplasm of other sites of floor of mouth
1449	Malignant neoplasm of floor of mouth, part unspecified
1450	Malignant neoplasm of cheek mucosa
1451	Malignant neoplasm of vestibule of mouth
1452	Malignant neoplasm of hard palate
1453	Malignant neoplasm of soft palate
1454	Malignant neoplasm of uvula
1455	Malignant neoplasm of palate, unspecified
1456	Malignant neoplasm of retromolar area

Table A5. ICD-9-CM Cancer Diagnosis Codes - cont.

ICD-9-CM Diagnosis Code	Description
1458	Malignant neoplasm of other specified parts of mouth
1459	Malignant neoplasm of mouth, unspecified
1460	Malignant neoplasm of tonsil
1461	Malignant neoplasm of tonsillar fossa
1462	Malignant neoplasm of tonsillar pillars (anterior) (posterior)
1463	Malignant neoplasm of vallecula epiglottica
1464	Malignant neoplasm of anterior aspect of epiglottis
1465	Malignant neoplasm of junctional region of oropharynx
1466	Malignant neoplasm of lateral wall of oropharynx
1467	Malignant neoplasm of posterior wall of oropharynx
1468	Malignant neoplasm of other specified sites of oropharynx
1469	Malignant neoplasm of oropharynx, unspecified site
1470	Malignant neoplasm of superior wall of nasopharynx
1471	Malignant neoplasm of posterior wall of nasopharynx
1472	Malignant neoplasm of lateral wall of nasopharynx
1473	Malignant neoplasm of anterior wall of nasopharynx
1478	Malignant neoplasm of other specified sites of nasopharynx
1479	Malignant neoplasm of nasopharynx, unspecified site
1480	Malignant neoplasm of postcricoid region of hypopharynx
1481	Malignant neoplasm of pyriform sinus
1482	Malignant neoplasm of aryepiglottic fold, hypopharyngeal aspect
1483	Malignant neoplasm of posterior hypopharyngeal wall
1488	Malignant neoplasm of other specified sites of hypopharynx
1489	Malignant neoplasm of hypopharynx, unspecified site
1490	Malignant neoplasm of pharynx, unspecified
1491	Malignant neoplasm of waldeyer's ring
1498	Malignant neoplasm of other sites within the lip and oral cavity
1499	Malignant neoplasm of ill-defined sites within the lip and oral cavity
1500	Malignant neoplasm of cervical esophagus
1501	Malignant neoplasm of thoracic esophagus
1502	Malignant neoplasm of abdominal esophagus
1503	Malignant neoplasm of upper third of esophagus
1504	Malignant neoplasm of middle third of esophagus
1505	Malignant neoplasm of lower third of esophagus
1508	Malignant neoplasm of other specified part of esophagus
1509	Malignant neoplasm of esophagus, unspecified site
1510	Malignant neoplasm of cardia
1511	Malignant neoplasm of pylorus
1512	Malignant neoplasm of pyloric antrum
1513	Malignant neoplasm of fundus of stomach
1514	Malignant neoplasm of body of stomach
1515	Malignant neoplasm of lesser curvature of stomach, unspecified
1516	Malignant neoplasm of greater curvature of stomach, unspecified
1518	Malignant neoplasm of other specified sites of stomach
1519	Malignant neoplasm of stomach, unspecified site
1520	Malignant neoplasm of duodenum
1521	Malignant neoplasm of jejunum

Table A5. ICD-9-CM Cancer Diagnosis Codes - cont.

ICD-9-CM Diagnosis Code	Description
1522	Malignant neoplasm of ileum
1523	Malignant neoplasm of Meckel's diverticulum
1528	Malignant neoplasm of other specified sites of small intestine
1529	Malignant neoplasm of small intestine, unspecified site
1530	Malignant neoplasm of hepatic flexure
1531	Malignant neoplasm of transverse colon
1532	Malignant neoplasm of descending colon
1533	Malignant neoplasm of sigmoid colon
1534	Malignant neoplasm of cecum
1535	Malignant neoplasm of appendix vermiformis
1536	Malignant neoplasm of ascending colon
1537	Malignant neoplasm of splenic flexure
1538	Malignant neoplasm of other specified sites of large intestine
1539	Malignant neoplasm of colon, unspecified site
1540	Malignant neoplasm of rectosigmoid junction
1541	Malignant neoplasm of rectum
1542	Malignant neoplasm of anal canal
1543	Malignant neoplasm of anus, unspecified site
1548	Malignant neoplasm of other sites of rectum, rectosigmoid junction, and anus
1550	Malignant neoplasm of liver, primary
1551	Malignant neoplasm of intrahepatic bile ducts
1552	Malignant neoplasm of liver, not specified as primary or secondary
1560	Malignant neoplasm of gallbladder
1561	Malignant neoplasm of extrahepatic bile ducts
1562	Malignant neoplasm of ampulla of vater
1568	Malignant neoplasm of other specified sites of gallbladder and extrahepatic bile ducts
1569	Malignant neoplasm of biliary tract, part unspecified site
1570	Malignant neoplasm of head of pancreas
1571	Malignant neoplasm of body of pancreas
1572	Malignant neoplasm of tail of pancreas
1573	Malignant neoplasm of pancreatic duct
1574	Malignant neoplasm of islets of langerhans
1578	Malignant neoplasm of other specified sites of pancreas
1579	Malignant neoplasm of pancreas, part unspecified
1580	Malignant neoplasm of retroperitoneum
1588	Malignant neoplasm of specified parts of peritoneum
1589	Malignant neoplasm of peritoneum, unspecified
1590	Malignant neoplasm of intestinal tract, part unspecified
1591	Malignant neoplasm of spleen, not elsewhere classified
1598	Malignant neoplasm of other sites of digestive system and intra-abdominal organs
1599	Malignant neoplasm of ill-defined sites within the digestive organs and peritoneum
1600	Malignant neoplasm of nasal cavities
1601	Malignant neoplasm of auditory tube, middle ear, and mastoid air cells
1602	Malignant neoplasm of maxillary sinus
1603	Malignant neoplasm of ethmoidal sinus
1604	Malignant neoplasm of frontal sinus
1605	Malignant neoplasm of sphenoidal sinus

Table A5. ICD-9-CM Cancer Diagnosis Codes - cont.

ICD-9-CM Diagnosis Code	Description
1608	Malignant neoplasm of other accessory sinuses
1609	Malignant neoplasm of accessory sinus, unspecified
1610	Malignant neoplasm of glottis
1611	Malignant neoplasm of supraglottis
1612	Malignant neoplasm of subglottis
1613	Malignant neoplasm of laryngeal cartilages
1618	Malignant neoplasm of other specified sites of larynx
1619	Malignant neoplasm of larynx, unspecified
1620	Malignant neoplasm of trachea
1622	Malignant neoplasm of main bronchus
1623	Malignant neoplasm of upper lobe, bronchus or lung
1624	Malignant neoplasm of middle lobe, bronchus or lung
1625	Malignant neoplasm of lower lobe, bronchus or lung
1628	Malignant neoplasm of other parts of bronchus or lung
1629	Malignant neoplasm of bronchus and lung, unspecified
1630	Malignant neoplasm of parietal pleura
1631	Malignant neoplasm of visceral pleura
1638	Malignant neoplasm of other specified sites of pleura
1639	Malignant neoplasm of pleura, unspecified
1640	Malignant neoplasm of thymus
1641	Malignant neoplasm of heart
1642	Malignant neoplasm of anterior mediastinum
1643	Malignant neoplasm of posterior mediastinum
1648	Malignant neoplasm of other parts of mediastinum
1649	Malignant neoplasm of mediastinum, part unspecified
1650	Malignant neoplasm of upper respiratory tract, part unspecified
1658	Malignant neoplasm of other sites within the respiratory system and intrathoracic organs
1659	Malignant neoplasm of ill-defined sites within the respiratory system
1700	Malignant neoplasm of bones of skull and face, except mandible
1701	Malignant neoplasm of mandible
1702	Malignant neoplasm of vertebral column, excluding sacrum and coccyx
1703	Malignant neoplasm of ribs, sternum, and clavicle
1704	Malignant neoplasm of scapula and long bones of upper limb
1705	Malignant neoplasm of short bones of upper limb
1706	Malignant neoplasm of pelvic bones, sacrum, and coccyx
1707	Malignant neoplasm of long bones of lower limb
1708	Malignant neoplasm of short bones of lower limb
1709	Malignant neoplasm of bone and articular cartilage, site unspecified
1710	Malignant neoplasm of connective and other soft tissue of head, face, and neck
1712	Malignant neoplasm of connective and other soft tissue of upper limb, including shoulder
1713	Malignant neoplasm of connective and other soft tissue of lower limb, including hip
1714	Malignant neoplasm of connective and other soft tissue of thorax
1715	Malignant neoplasm of connective and other soft tissue of abdomen
1716	Malignant neoplasm of connective and other soft tissue of pelvis
1717	Malignant neoplasm of connective and other soft tissue of trunk, unspecified
1718	Malignant neoplasm of other specified sites of connective and other soft tissue
1719	Malignant neoplasm of connective and other soft tissue, site unspecified

Table A5. ICD-9-CM Cancer Diagnosis Codes - cont.

ICD-9-CM Diagnosis Code	Description
1720	Malignant melanoma of skin of lip
1721	Malignant melanoma of skin of eyelid, including canthus
1722	Malignant melanoma of skin of ear and external auditory canal
1723	Malignant melanoma of skin of other and unspecified parts of face
1724	Malignant melanoma of skin of scalp and neck
1725	Malignant melanoma of skin of trunk, except scrotum
1726	Malignant melanoma of skin of upper limb, including shoulder
1727	Malignant melanoma of skin of lower limb, including hip
1728	Malignant melanoma of other specified sites of skin
1729	Melanoma of skin, site unspecified
1740	Malignant neoplasm of nipple and areola of female breast
1741	Malignant neoplasm of central portion of female breast
1742	Malignant neoplasm of upper-inner quadrant of female breast
1743	Malignant neoplasm of lower-inner quadrant of female breast
1744	Malignant neoplasm of upper-outer quadrant of female breast
1745	Malignant neoplasm of lower-outer quadrant of female breast
1746	Malignant neoplasm of axillary tail of female breast
1748	Malignant neoplasm of other specified sites of female breast
1749	Malignant neoplasm of breast (female), unspecified
1750	Malignant neoplasm of nipple and areola of male breast
1759	Malignant neoplasm of other and unspecified sites of male breast
1760	Kaposi's sarcoma, skin
1761	Kaposi's sarcoma, soft tissue
1762	Kaposi's sarcoma, palate
1763	Kaposi's sarcoma, gastrointestinal sites
1764	Kaposi's sarcoma, lung
1765	Kaposi's sarcoma, lymph nodes
1768	Kaposi's sarcoma, other specified sites
1769	Kaposi's sarcoma, unspecified site
179	Malignant neoplasm of uterus, part unspecified
1800	Malignant neoplasm of endocervix
1801	Malignant neoplasm of exocervix
1808	Malignant neoplasm of other specified sites of cervix
1809	Malignant neoplasm of cervix uteri, unspecified site
181	Malignant neoplasm of placenta
1820	Malignant neoplasm of corpus uteri, except isthmus
1821	Malignant neoplasm of isthmus
1828	Malignant neoplasm of other specified sites of body of uterus
1830	Malignant neoplasm of ovary
1832	Malignant neoplasm of fallopian tube
1833	Malignant neoplasm of broad ligament of uterus
1834	Malignant neoplasm of parametrium
1835	Malignant neoplasm of round ligament of uterus
1838	Malignant neoplasm of other specified sites of uterine adnexa
1839	Malignant neoplasm of uterine adnexa, unspecified site
1840	Malignant neoplasm of vagina
1841	Malignant neoplasm of labia majora

Table A5. ICD-9-CM Cancer Diagnosis Codes - cont.

ICD-9-CM Diagnosis Code	Description
1842	Malignant neoplasm of labia minora
1843	Malignant neoplasm of clitoris
1844	Malignant neoplasm of vulva, unspecified site
1848	Malignant neoplasm of other specified sites of female genital organs
1849	Malignant neoplasm of female genital organ, site unspecified
185	Malignant neoplasm of prostate
1860	Malignant neoplasm of undescended testis
1869	Malignant neoplasm of other and unspecified testis
1871	Malignant neoplasm of prepuce
1872	Malignant neoplasm of glans penis
1873	Malignant neoplasm of body of penis
1874	Malignant neoplasm of penis, part unspecified
1875	Malignant neoplasm of epididymis
1876	Malignant neoplasm of spermatic cord
1877	Malignant neoplasm of scrotum
1878	Malignant neoplasm of other specified sites of male genital organs
1879	Malignant neoplasm of male genital organ, site unspecified
1880	Malignant neoplasm of trigone of urinary bladder
1881	Malignant neoplasm of dome of urinary bladder
1882	Malignant neoplasm of lateral wall of urinary bladder
1883	Malignant neoplasm of anterior wall of urinary bladder
1884	Malignant neoplasm of posterior wall of urinary bladder
1885	Malignant neoplasm of bladder neck
1886	Malignant neoplasm of ureteric orifice
1887	Malignant neoplasm of urachus
1888	Malignant neoplasm of other specified sites of bladder
1889	Malignant neoplasm of bladder, part unspecified
1890	Malignant neoplasm of kidney, except pelvis
1891	Malignant neoplasm of renal pelvis
1892	Malignant neoplasm of ureter
1893	Malignant neoplasm of urethra
1894	Malignant neoplasm of paraurethral glands
1898	Malignant neoplasm of other specified sites of urinary organs
1899	Malignant neoplasm of urinary organ, site unspecified
1900	Malignant neoplasm of eyeball, except conjunctiva, cornea, retina, and choroid
1901	Malignant neoplasm of orbit
1902	Malignant neoplasm of lacrimal gland
1903	Malignant neoplasm of conjunctiva
1904	Malignant neoplasm of cornea
1905	Malignant neoplasm of retina
1906	Malignant neoplasm of choroid
1907	Malignant neoplasm of lacrimal duct
1908	Malignant neoplasm of other specified sites of eye
1909	Malignant neoplasm of eye, part unspecified
1910	Malignant neoplasm of cerebrum, except lobes and ventricles
1911	Malignant neoplasm of frontal lobe
1912	Malignant neoplasm of temporal lobe

Table A5. ICD-9-CM Cancer Diagnosis Codes - cont.

ICD-9-CM Diagnosis Code	Description
1913	Malignant neoplasm of parietal lobe
1914	Malignant neoplasm of occipital lobe
1915	Malignant neoplasm of ventricles
1916	Malignant neoplasm of cerebellum nos
1917	Malignant neoplasm of brain stem
1918	Malignant neoplasm of other parts of brain
1919	Malignant neoplasm of brain, unspecified
1920	Malignant neoplasm of cranial nerves
1921	Malignant neoplasm of cerebral meninges
1922	Malignant neoplasm of spinal cord
1923	Malignant neoplasm of spinal meninges
1928	Malignant neoplasm of other specified sites of nervous system
1929	Malignant neoplasm of nervous system, part unspecified
193	Malignant neoplasm of thyroid gland
1940	Malignant neoplasm of adrenal gland
1941	Malignant neoplasm of parathyroid gland
1943	Malignant neoplasm of pituitary gland and craniopharyngeal duct
1944	Malignant neoplasm of pineal gland
1945	Malignant neoplasm of carotid body
1946	Malignant neoplasm of aortic body and other paraganglia
1948	Malignant neoplasm of other endocrine glands and related structures
1949	Malignant neoplasm of endocrine gland, site unspecified
1950	Malignant neoplasm of head, face, and neck
1951	Malignant neoplasm of thorax
1952	Malignant neoplasm of abdomen
1953	Malignant neoplasm of pelvis
1954	Malignant neoplasm of upper limb
1955	Malignant neoplasm of lower limb
1958	Malignant neoplasm of other specified sites
1960	Secondary and unspecified malignant neoplasm of lymph nodes of head, face, and neck
1961	Secondary and unspecified malignant neoplasm of intrathoracic lymph nodes
1962	Secondary and unspecified malignant neoplasm of intra-abdominal lymph nodes
1963	Secondary and unspecified malignant neoplasm of lymph nodes of axilla and upper limb
1965	Secondary and unspecified malignant neoplasm of lymph nodes of inguinal region and lower limb
1966	Secondary and unspecified malignant neoplasm of intrapelvic lymph nodes
1968	Secondary and unspecified malignant neoplasm of lymph nodes of multiple sites
1969	Secondary and unspecified malignant neoplasm of lymph nodes, site unspecified
1970	Secondary malignant neoplasm of lung
1971	Secondary malignant neoplasm of mediastinum
1972	Secondary malignant neoplasm of pleura
1973	Secondary malignant neoplasm of other respiratory organs
1974	Secondary malignant neoplasm of small intestine including duodenum
1975	Secondary malignant neoplasm of large intestine and rectum
1976	Secondary malignant neoplasm of retroperitoneum and peritoneum
1977	Malignant neoplasm of liver, secondary
1978	Secondary malignant neoplasm of other digestive organs and spleen

Table A5. ICD-9-CM Cancer Diagnosis Codes - cont.

ICD-9-CM Diagnosis Code	Description
1980	Secondary malignant neoplasm of kidney
1981	Secondary malignant neoplasm of other urinary organs
1982	Secondary malignant neoplasm of skin
1983	Secondary malignant neoplasm of brain and spinal cord
1984	Secondary malignant neoplasm of other parts of nervous system
1985	Secondary malignant neoplasm of bone and bone marrow
1986	Secondary malignant neoplasm of ovary
1987	Secondary malignant neoplasm of adrenal gland
19881	Secondary malignant neoplasm of breast
19882	Secondary malignant neoplasm of genital organs
19889	Secondary malignant neoplasm of other specified sites
1990	Disseminated malignant neoplasm without specification of site
1991	Other malignant neoplasm without specification of site
1992	Malignant neoplasm associated with transplant organ
20000	Reticulosarcoma, unspecified site, extranodal and solid organ sites
20001	Reticulosarcoma, lymph nodes of head, face, and neck
20002	Reticulosarcoma, intrathoracic lymph nodes
20003	Reticulosarcoma, intra-abdominal lymph nodes
20004	Reticulosarcoma, lymph nodes of axilla and upper limb
20005	Reticulosarcoma, lymph nodes of inguinal region and lower limb
20006	Reticulosarcoma, intrapelvic lymph nodes
20007	Reticulosarcoma, spleen
20008	Reticulosarcoma, lymph nodes of multiple sites
20010	Lymphosarcoma, unspecified site, extranodal and solid organ sites
20011	Lymphosarcoma, lymph nodes of head, face, and neck
20012	Lymphosarcoma, intrathoracic lymph nodes
20013	Lymphosarcoma, intra-abdominal lymph nodes
20014	Lymphosarcoma, lymph nodes of axilla and upper limb
20015	Lymphosarcoma, lymph nodes of inguinal region and lower limb
20016	Lymphosarcoma, intrapelvic lymph nodes
20017	Lymphosarcoma, spleen
20018	Lymphosarcoma, lymph nodes of multiple sites
20020	Burkitt's tumor or lymphoma, unspecified site, extranodal and solid organ sites
20021	Burkitt's tumor or lymphoma, lymph nodes of head, face, and neck
20022	Burkitt's tumor or lymphoma, intrathoracic lymph nodes
20023	Burkitt's tumor or lymphoma, intra-abdominal lymph nodes
20024	Burkitt's tumor or lymphoma, lymph nodes of axilla and upper limb
20025	Burkitt's tumor or lymphoma, lymph nodes of inguinal region and lower limb
20026	Burkitt's tumor or lymphoma, intrapelvic lymph nodes
20027	Burkitt's tumor or lymphoma, spleen
20028	Burkitt's tumor or lymphoma, lymph nodes of multiple sites
20030	Marginal zone lymphoma, unspecified site, extranodal and solid organ sites
20031	Marginal zone lymphoma, lymph nodes of head, face, and neck
20032	Marginal zone lymphoma, intrathoracic lymph nodes
20033	Marginal zone lymphoma, intraabdominal lymph nodes
20034	Marginal zone lymphoma, lymph nodes of axilla and upper limb
20035	Marginal zone lymphoma, lymph nodes of inguinal region and lower limb

Table A5. ICD-9-CM Cancer Diagnosis Codes - cont.

ICD-9-CM Diagnosis Code	Description
20036	Marginal zone lymphoma, intrapelvic lymph nodes
20037	Marginal zone lymphoma, spleen
20038	Marginal zone lymphoma, lymph nodes of multiple sites
20040	Mantle cell lymphoma, unspecified site, extranodal and solid organ sites
20041	Mantle cell lymphoma, lymph nodes of head, face, and neck
20042	Mantle cell lymphoma, intrathoracic lymph nodes
20043	Mantle cell lymphoma, intra-abdominal lymph nodes
20044	Mantle cell lymphoma, lymph nodes of axilla and upper limb
20045	Mantle cell lymphoma, lymph nodes of inguinal region and lower limb
20046	Mantle cell lymphoma, intrapelvic lymph nodes
20047	Mantle cell lymphoma, spleen
20048	Mantle cell lymphoma, lymph nodes of multiple sites
20050	Primary central nervous system lymphoma, unspecified site, extranodal and solid organ sites
20051	Primary central nervous system lymphoma, lymph nodes of head, face, and neck
20052	Primary central nervous system lymphoma, intrathoracic lymph nodes
20053	Primary central nervous system lymphoma, intra-abdominal lymph nodes
20054	Primary central nervous system lymphoma, lymph nodes of axilla and upper limb
20055	Primary central nervous system lymphoma, lymph nodes of inguinal region and lower limb
20056	Primary central nervous system lymphoma, intrapelvic lymph nodes
20057	Primary central nervous system lymphoma, spleen
20058	Primary central nervous system lymphoma, lymph nodes of multiple sites
20060	Anaplastic large cell lymphoma, unspecified site, extranodal and solid organ sites
20061	Anaplastic large cell lymphoma, lymph nodes of head, face, and neck
20062	Anaplastic large cell lymphoma, intrathoracic lymph nodes
20063	Anaplastic large cell lymphoma, intra-abdominal lymph nodes
20064	Anaplastic large cell lymphoma, lymph nodes of axilla and upper limb
20065	Anaplastic large cell lymphoma, lymph nodes of inguinal region and lower limb
20066	Anaplastic large cell lymphoma, intrapelvic lymph nodes
20067	Anaplastic large cell lymphoma, spleen
20068	Anaplastic large cell lymphoma, lymph nodes of multiple sites
20070	Large cell lymphoma, unspecified site, extranodal and solid organ sites
20071	Large cell lymphoma, lymph nodes of head, face, and neck
20072	Large cell lymphoma, intrathoracic lymph nodes
20073	Large cell lymphoma, intra-abdominal lymph nodes
20074	Large cell lymphoma, lymph nodes of axilla and upper limb
20075	Large cell lymphoma, lymph nodes of inguinal region and lower limb
20076	Large cell lymphoma, intrapelvic lymph nodes
20077	Large cell lymphoma, spleen
20078	Large cell lymphoma, lymph nodes of multiple sites
20080	Other named variants of lymphosarcoma and reticulosarcoma, unspecified site, extranodal and solid organ sites
20081	Other named variants of lymphosarcoma and reticulosarcoma, lymph nodes of head, face, and neck
20082	Other named variants of lymphosarcoma and reticulosarcoma, intrathoracic lymph nodes
20083	Other named variants of lymphosarcoma and reticulosarcoma, intra-abdominal lymph nodes
20084	Other named variants of lymphosarcoma and reticulosarcoma, lymph nodes of axilla and upper limb
20085	Other named variants of lymphosarcoma and reticulosarcoma, lymph nodes of inguinal region and lower limb
20086	Other named variants of lymphosarcoma and reticulosarcoma, intrapelvic lymph nodes

Table A5. ICD-9-CM Cancer Diagnosis Codes - cont.

ICD-9-CM Diagnosis Code	Description
20087	Other named variants of lymphosarcoma and reticulosarcoma, spleen
20088	Other named variants of lymphosarcoma and reticulosarcoma, lymph nodes of multiple sites
20100	Hodgkin's paragranuloma, unspecified site, extranodal and solid organ sites
20101	Hodgkin's paragranuloma, lymph nodes of head, face, and neck
20102	Hodgkin's paragranuloma, intrathoracic lymph nodes
20103	Hodgkin's paragranuloma, intra-abdominal lymph nodes
20104	Hodgkin's paragranuloma, lymph nodes of axilla and upper limb
20105	Hodgkin's paragranuloma, lymph nodes of inguinal region and lower limb
20106	Hodgkin's paragranuloma, intrapelvic lymph nodes
20107	Hodgkin's paragranuloma, spleen
20108	Hodgkin's paragranuloma, lymph nodes of multiple sites
20110	Hodgkin's granuloma, unspecified site, extranodal and solid organ sites
20111	Hodgkin's granuloma, lymph nodes of head, face, and neck
20112	Hodgkin's granuloma, intrathoracic lymph nodes
20113	Hodgkin's granuloma, intra-abdominal lymph nodes
20114	Hodgkin's granuloma, lymph nodes of axilla and upper limb
20115	Hodgkin's granuloma, lymph nodes of inguinal region and lower limb
20116	Hodgkin's granuloma, intrapelvic lymph nodes
20117	Hodgkin's granuloma, spleen
20118	Hodgkin's granuloma, lymph nodes of multiple sites
20120	Hodgkin's sarcoma, unspecified site, extranodal and solid organ sites
20121	Hodgkin's sarcoma, lymph nodes of head, face, and neck
20122	Hodgkin's sarcoma, intrathoracic lymph nodes
20123	Hodgkin's sarcoma, intra-abdominal lymph nodes
20124	Hodgkin's sarcoma, lymph nodes of axilla and upper limb
20125	Hodgkin's sarcoma, lymph nodes of inguinal region and lower limb
20126	Hodgkin's sarcoma, intrapelvic lymph nodes
20127	Hodgkin's sarcoma, spleen
20128	Hodgkin's sarcoma, lymph nodes of multiple sites
20140	Hodgkin's disease, lymphocytic-histiocytic predominance, unspecified site, extranodal and solid organ sites
20141	Hodgkin's disease, lymphocytic-histiocytic predominance, lymph nodes of head, face, and neck
20142	Hodgkin's disease, lymphocytic-histiocytic predominance, intrathoracic lymph nodes
20143	Hodgkin's disease, lymphocytic-histiocytic predominance, intra-abdominal lymph nodes
20144	Hodgkin's disease, lymphocytic-histiocytic predominance, lymph nodes of axilla and upper limb
20145	Hodgkin's disease, lymphocytic-histiocytic predominance, lymph nodes of inguinal region and lower limb
20146	Hodgkin's disease, lymphocytic-histiocytic predominance, intrapelvic lymph nodes
20147	Hodgkin's disease, lymphocytic-histiocytic predominance, spleen
20148	Hodgkin's disease, lymphocytic-histiocytic predominance, lymph nodes of multiple sites
20150	Hodgkin's disease, nodular sclerosis, unspecified site, extranodal and solid organ sites
20151	Hodgkin's disease, nodular sclerosis, lymph nodes of head, face, and neck
20152	Hodgkin's disease, nodular sclerosis, intrathoracic lymph nodes
20153	Hodgkin's disease, nodular sclerosis, intra-abdominal lymph nodes
20154	Hodgkin's disease, nodular sclerosis, lymph nodes of axilla and upper limb
20155	Hodgkin's disease, nodular sclerosis, lymph nodes of inguinal region and lower limb
20156	Hodgkin's disease, nodular sclerosis, intrapelvic lymph nodes
20157	Hodgkin's disease, nodular sclerosis, spleen

Table A5. ICD-9-CM Cancer Diagnosis Codes - cont.

ICD-9-CM Diagnosis Code	Description
20158	Hodgkin's disease, nodular sclerosis, lymph nodes of multiple sites
20160	Hodgkin's disease, mixed cellularity, unspecified site, extranodal and solid organ sites
20161	Hodgkin's disease, mixed cellularity, lymph nodes of head, face, and neck
20162	Hodgkin's disease, mixed cellularity, intrathoracic lymph nodes
20163	Hodgkin's disease, mixed cellularity, intra-abdominal lymph nodes
20164	Hodgkin's disease, mixed cellularity, lymph nodes of axilla and upper limb
20165	Hodgkin's disease, mixed cellularity, lymph nodes of inguinal region and lower limb
20166	Hodgkin's disease, mixed cellularity, intrapelvic lymph nodes
20167	Hodgkin's disease, mixed cellularity, spleen
20168	Hodgkin's disease, mixed cellularity, lymph nodes of multiple sites
20170	Hodgkin's disease, lymphocytic depletion, unspecified site, extranodal and solid organ sites
20171	Hodgkin's disease, lymphocytic depletion, lymph nodes of head, face, and neck
20172	Hodgkin's disease, lymphocytic depletion, intrathoracic lymph nodes
20173	Hodgkin's disease, lymphocytic depletion, intra-abdominal lymph nodes
20174	Hodgkin's disease, lymphocytic depletion, lymph nodes of axilla and upper limb
20175	Hodgkin's disease, lymphocytic depletion, lymph nodes of inguinal region and lower limb
20176	Hodgkin's disease, lymphocytic depletion, intrapelvic lymph nodes
20177	Hodgkin's disease, lymphocytic depletion, spleen
20178	Hodgkin's disease, lymphocytic depletion, lymph nodes of multiple sites
20190	Hodgkin's disease, unspecified type, unspecified site, extranodal and solid organ sites
20191	Hodgkin's disease, unspecified type, lymph nodes of head, face, and neck
20192	Hodgkin's disease, unspecified type, intrathoracic lymph nodes
20193	Hodgkin's disease, unspecified type, intra-abdominal lymph nodes
20194	Hodgkin's disease, unspecified type, lymph nodes of axilla and upper limb
20195	Hodgkin's disease, unspecified type, lymph nodes of inguinal region and lower limb
20196	Hodgkin's disease, unspecified type, intrapelvic lymph nodes
20197	Hodgkin's disease, unspecified type, spleen
20198	Hodgkin's disease, unspecified type, lymph nodes of multiple sites
20200	Nodular lymphoma, unspecified site, extranodal and solid organ sites
20201	Nodular lymphoma, lymph nodes of head, face, and neck
20202	Nodular lymphoma, intrathoracic lymph nodes
20203	Nodular lymphoma, intra-abdominal lymph nodes
20204	Nodular lymphoma, lymph nodes of axilla and upper limb
20205	Nodular lymphoma, lymph nodes of inguinal region and lower limb
20206	Nodular lymphoma, intrapelvic lymph nodes
20207	Nodular lymphoma, spleen
20208	Nodular lymphoma, lymph nodes of multiple sites
20210	Mycosis fungoides, unspecified site, extranodal and solid organ sites
20211	Mycosis fungoides, lymph nodes of head, face, and neck
20212	Mycosis fungoides, intrathoracic lymph nodes
20213	Mycosis fungoides, intra-abdominal lymph nodes
20214	Mycosis fungoides, lymph nodes of axilla and upper limb
20215	Mycosis fungoides, lymph nodes of inguinal region and lower limb
20216	Mycosis fungoides, intrapelvic lymph nodes
20217	Mycosis fungoides, spleen
20218	Mycosis fungoides, lymph nodes of multiple sites
20220	Sezary's disease, unspecified site, extranodal and solid organ sites

Table A5. ICD-9-CM Cancer Diagnosis Codes - cont.

ICD-9-CM Diagnosis Code	Description
20221	Sezary's disease, lymph nodes of head, face, and neck
20222	Sezary's disease, intrathoracic lymph nodes
20223	Sezary's disease, intra-abdominal lymph nodes
20224	Sezary's disease, lymph nodes of axilla and upper limb
20225	Sezary's disease, lymph nodes of inguinal region and lower limb
20226	Sezary's disease, intrapelvic lymph nodes
20227	Sezary's disease, spleen
20228	Sezary's disease, lymph nodes of multiple sites
20230	Malignant histiocytosis, unspecified site, extranodal and solid organ sites
20231	Malignant histiocytosis, lymph nodes of head, face, and neck
20232	Malignant histiocytosis, intrathoracic lymph nodes
20233	Malignant histiocytosis, intra-abdominal lymph nodes
20234	Malignant histiocytosis, lymph nodes of axilla and upper limb
20235	Malignant histiocytosis, lymph nodes of inguinal region and lower limb
20236	Malignant histiocytosis, intrapelvic lymph nodes
20237	Malignant histiocytosis, spleen
20238	Malignant histiocytosis, lymph nodes of multiple sites
20240	Leukemic reticuloendotheliosis, unspecified site, extranodal and solid organ sites
20241	Leukemic reticuloendotheliosis, lymph nodes of head, face, and neck
20242	Leukemic reticuloendotheliosis, intrathoracic lymph nodes
20243	Leukemic reticuloendotheliosis, intra-abdominal lymph nodes
20244	Leukemic reticuloendotheliosis, lymph nodes of axilla and upper arm
20245	Leukemic reticuloendotheliosis, lymph nodes of inguinal region and lower limb
20246	Leukemic reticuloendotheliosis, intrapelvic lymph nodes
20247	Leukemic reticuloendotheliosis, spleen
20248	Leukemic reticuloendotheliosis, lymph nodes of multiple sites
20250	Letterer-siwe disease, unspecified site, extranodal and solid organ sites
20251	Letterer-siwe disease, lymph nodes of head, face, and neck
20252	Letterer-siwe disease, intrathoracic lymph nodes
20253	Letterer-siwe disease, intra-abdominal lymph nodes
20254	Letterer-siwe disease, lymph nodes of axilla and upper limb
20255	Letterer-siwe disease, lymph nodes of inguinal region and lower limb
20256	Letterer-siwe disease, intrapelvic lymph nodes
20257	Letterer-siwe disease, spleen
20258	Letterer-siwe disease, lymph nodes of multiple sites
20260	Malignant mast cell tumors, unspecified site, extranodal and solid organ sites
20261	Malignant mast cell tumors, lymph nodes of head, face, and neck
20262	Malignant mast cell tumors, intrathoracic lymph nodes
20263	Malignant mast cell tumors, intra-abdominal lymph nodes
20264	Malignant mast cell tumors, lymph nodes of axilla and upper limb
20265	Malignant mast cell tumors, lymph nodes of inguinal region and lower limb
20266	Malignant mast cell tumors, intrapelvic lymph nodes
20267	Malignant mast cell tumors, spleen
20268	Malignant mast cell tumors, lymph nodes of multiple sites
20270	Peripheral T cell lymphoma, unspecified site, extranodal and solid organ sites
20271	Peripheral T cell lymphoma, lymph nodes of head, face, and neck
20272	Peripheral T cell lymphoma, intrathoracic lymph nodes

Table A5. ICD-9-CM Cancer Diagnosis Codes - cont.

ICD-9-CM Diagnosis Code	Description
20273	Peripheral T cell lymphoma, intra-abdominal lymph nodes
20274	Peripheral T cell lymphoma, lymph nodes of axilla and upper limb
20275	Peripheral T cell lymphoma, lymph nodes of inguinal region and lower limb
20276	Peripheral T cell lymphoma, intrapelvic lymph nodes
20277	Peripheral T cell lymphoma, spleen
20278	Peripheral T cell lymphoma, lymph nodes of multiple sites
20280	Other malignant lymphomas, unspecified site, extranodal and solid organ sites
20281	Other malignant lymphomas, lymph nodes of head, face, and neck
20282	Other malignant lymphomas, intrathoracic lymph nodes
20283	Other malignant lymphomas, intra-abdominal lymph nodes
20284	Other malignant lymphomas, lymph nodes of axilla and upper limb
20285	Other malignant lymphomas, lymph nodes of inguinal region and lower limb
20286	Other malignant lymphomas, intrapelvic lymph nodes
20287	Other malignant lymphomas, spleen
20288	Other malignant lymphomas, lymph nodes of multiple sites
20290	Other and unspecified malignant neoplasms of lymphoid and histiocytic tissue, unspecified site, extranodal and solid organ sites
20291	Other and unspecified malignant neoplasms of lymphoid and histiocytic tissue, lymph nodes of head, face, and neck
20292	Other and unspecified malignant neoplasms of lymphoid and histiocytic tissue, intrathoracic lymph nodes
20293	Other and unspecified malignant neoplasms of lymphoid and histiocytic tissue, intra-abdominal lymph nodes
20294	Other and unspecified malignant neoplasms of lymphoid and histiocytic tissue, lymph nodes of axilla and upper limb
20295	Other and unspecified malignant neoplasms of lymphoid and histiocytic tissue, lymph nodes of inguinal region and lower limb
20296	Other and unspecified malignant neoplasms of lymphoid and histiocytic tissue, intrapelvic lymph nodes
20297	Other and unspecified malignant neoplasms of lymphoid and histiocytic tissue, spleen
20298	Other and unspecified malignant neoplasms of lymphoid and histiocytic tissue, lymph nodes of multiple sites
20300	Multiple myeloma, without mention of having achieved remission
20301	Multiple myeloma, in remission
20302	Multiple myeloma, in relapse
20310	Plasma cell leukemia, without mention of having achieved remission
20311	Plasma cell leukemia, in remission
20312	Plasma cell leukemia, in relapse
20380	Other immunoproliferative neoplasms, without mention of having achieved remission
20381	Other immunoproliferative neoplasms, in remission
20382	Other immunoproliferative neoplasms, in relapse
20400	Acute lymphoid leukemia, without mention of having achieved remission
20401	Acute lymphoid leukemia, in remission
20402	Acute lymphoid leukemia, in relapse
20410	Chronic lymphoid leukemia, without mention of having achieved remission
20411	Chronic lymphoid leukemia, in remission
20412	Chronic lymphoid leukemia, in relapse
20420	Subacute lymphoid leukemia, without mention of having achieved remission
20421	Subacute lymphoid leukemia, in remission
20422	Subacute lymphoid leukemia, in relapse
20480	Other lymphoid leukemia, without mention of having achieved remission

Table A5. ICD-9-CM Cancer Diagnosis Codes - cont.

ICD-9-CM Diagnosis Code	Description
20481	Other lymphoid leukemia, in remission
20482	Other lymphoid leukemia, in relapse
20490	Unspecified lymphoid leukemia, without mention of having achieved remission
20491	Unspecified lymphoid leukemia, in remission
20492	Unspecified lymphoid leukemia, in relapse
20500	Acute myeloid leukemia, without mention of having achieved remission
20501	Acute myeloid leukemia, in remission
20502	Acute myeloid leukemia, in relapse
20510	Chronic myeloid leukemia, without mention of having achieved remission
20511	Chronic myeloid leukemia, in remission
20512	Chronic myeloid leukemia, in relapse
20520	Subacute myeloid leukemia, without mention of having achieved remission
20521	Subacute myeloid leukemia, in remission
20522	Subacute myeloid leukemia, in relapse
20530	Myeloid sarcoma, without mention of having achieved remission
20531	Myeloid sarcoma, in remission
20532	Myeloid sarcoma, in relapse
20580	Other myeloid leukemia, without mention of having achieved remission
20581	Other myeloid leukemia, in remission
20582	Other myeloid leukemia, in relapse
20590	Unspecified myeloid leukemia, without mention of having achieved remission
20591	Unspecified myeloid leukemia, in remission
20592	Unspecified myeloid leukemia, in relapse
20600	Acute monocytic leukemia, without mention of having achieved remission
20601	Acute monocytic leukemia, in remission
20602	Acute monocytic leukemia, in relapse
20610	Chronic monocytic leukemia, without mention of having achieved remission
20611	Chronic monocytic leukemia, in remission
20612	Chronic monocytic leukemia, in relapse
20620	Subacute monocytic leukemia, without mention of having achieved remission
20621	Subacute monocytic leukemia, in remission
20622	Subacute monocytic leukemia, in relapse
20680	Other monocytic leukemia, without mention of having achieved remission
20681	Other monocytic leukemia, in remission
20682	Other monocytic leukemia, in relapse
20690	Unspecified monocytic leukemia, without mention of having achieved remission
20691	Unspecified monocytic leukemia, in remission
20692	Unspecified monocytic leukemia, in relapse
20700	Acute erythremia and erythroleukemia, without mention of having achieved remission
20701	Acute erythremia and erythroleukemia, in remission
20702	Acute erythremia and erythroleukemia, in relapse
20710	Chronic erythremia, without mention of having achieved remission
20711	Chronic erythremia, in remission
20712	Chronic erythremia, in relapse
20720	Megakaryocytic leukemia, without mention of having achieved remission
20721	Megakaryocytic leukemia, in remission
20722	Megakaryocytic leukemia, in relapse

Table A5. ICD-9-CM Cancer Diagnosis Codes - cont.

ICD-9-CM Diagnosis Code	Description
20780	Other specified leukemia, without mention of having achieved remission
20781	Other specified leukemia, in remission
20782	Other specified leukemia, in relapse
20800	Acute leukemia of unspecified cell type, without mention of having achieved remission
20801	Acute leukemia of unspecified cell type, in remission
20802	Acute leukemia of unspecified cell type, in relapse
20810	Chronic leukemia of unspecified cell type, without mention of having achieved remission
20811	Chronic leukemia of unspecified cell type, in remission
20812	Chronic leukemia of unspecified cell type, in relapse
20820	Subacute leukemia of unspecified cell type, without mention of having achieved remission
20821	Subacute leukemia of unspecified cell type, in remission
20822	Subacute leukemia of unspecified cell type, in relapse
20880	Other leukemia of unspecified cell type, without mention of having achieved remission
20881	Other leukemia of unspecified cell type, in remission
20882	Other leukemia of unspecified cell type, in relapse
20890	Unspecified leukemia, without mention of having achieved remission
20891	Unspecified leukemia, in remission
20892	Unspecified leukemia, in relapse
20900	Malignant carcinoid tumor of the small intestine, unspecified portion
20901	Malignant carcinoid tumor of the duodenum
20902	Malignant carcinoid tumor of the jejunum
20903	Malignant carcinoid tumor of the ileum
20910	Malignant carcinoid tumor of the large intestine, unspecified portion
20911	Malignant carcinoid tumor of the appendix
20912	Malignant carcinoid tumor of the cecum
20913	Malignant carcinoid tumor of the ascending colon
20914	Malignant carcinoid tumor of the transverse colon
20915	Malignant carcinoid tumor of the descending colon
20916	Malignant carcinoid tumor of the sigmoid colon
20917	Malignant carcinoid tumor of the rectum
20920	Malignant carcinoid tumor of unknown primary site
20921	Malignant carcinoid tumor of the bronchus and lung
20922	Malignant carcinoid tumor of the thymus
20923	Malignant carcinoid tumor of the stomach
20924	Malignant carcinoid tumor of the kidney
20925	Malignant carcinoid tumor of foregut, not otherwise specified
20926	Malignant carcinoid tumor of midgut, not otherwise specified
20927	Malignant carcinoid tumor of hindgut, not otherwise specified
20929	Malignant carcinoid tumor of other sites
20930	Malignant poorly differentiated neuroendocrine carcinoma, any site
20931	Merkel cell carcinoma of the face
20932	Merkel cell carcinoma of the scalp and neck
20933	Merkel cell carcinoma of the upper limb
20934	Merkel cell carcinoma of the lower limb
20935	Merkel cell carcinoma of the trunk
20936	Merkel cell carcinoma of other sites
20970	Secondary neuroendocrine tumor, unspecified site

Table A5. ICD-9-CM Cancer Diagnosis Codes - cont.

ICD-9-CM Diagnosis Code	Description
20971	Secondary neuroendocrine tumor of distant lymph nodes
20972	Secondary neuroendocrine tumor of liver
20973	Secondary neuroendocrine tumor of bone
20974	Secondary neuroendocrine tumor of peritoneum
20975	Secondary Merkel cell carcinoma
20979	Secondary neuroendocrine tumor of other sites
2300	Carcinoma in situ of lip, oral cavity, and pharynx
2301	Carcinoma in situ of esophagus
2302	Carcinoma in situ of stomach
2303	Carcinoma in situ of colon
2304	Carcinoma in situ of rectum
2305	Carcinoma in situ of anal canal
2306	Carcinoma in situ of anus, unspecified
2307	Carcinoma in situ of other and unspecified parts of intestine
2308	Carcinoma in situ of liver and biliary system
2309	Carcinoma in situ of other and unspecified digestive organs
2310	Carcinoma in situ of larynx
2311	Carcinoma in situ of trachea
2312	Carcinoma in situ of bronchus and lung
2318	Carcinoma in situ of other specified parts of respiratory system
2319	Carcinoma in situ of respiratory system, part unspecified
2320	Carcinoma in situ of skin of lip
2321	Carcinoma in situ of eyelid, including canthus
2322	Carcinoma in situ of skin of ear and external auditory canal
2323	Carcinoma in situ of skin of other and unspecified parts of face
2324	Carcinoma in situ of scalp and skin of neck
2325	Carcinoma in situ of skin of trunk, except scrotum
2326	Carcinoma in situ of skin of upper limb, including shoulder
2327	Carcinoma in situ of skin of lower limb, including hip
2328	Carcinoma in situ of other specified sites of skin
2329	Carcinoma in situ of skin, site unspecified
2330	Carcinoma in situ of breast
2331	Carcinoma in situ of cervix uteri
2332	Carcinoma in situ of other and unspecified parts of uterus
23330	Carcinoma in situ, unspecified female genital organ
23331	Carcinoma in situ, vagina
23332	Carcinoma in situ, vulva
23339	Carcinoma in situ, other female genital organ
V580	Encounter for radiotherapy
V5811	Encounter for antineoplastic chemotherapy
V5812	Encounter for antineoplastic immunotherapy
V5842	Aftercare following surgery for neoplasm

Table A6. HCPCS Codes for CT used to Identify Workups

HCPCS Code	Description
S0832	Low dose ct lung screening
G0297	Ldct for lung ca screen
71250	Ct thorax w/o dye

Table A7. HCPCS Codes for PET used to Identify Workups

PET CPT/HCPCS Codes	Description
77811	Pet image ltd area
77812	Pet image skull-thigh
78813	Pet image full body
78814	Pet image w/ct lmtd
78815	Pet image w/ct skull-thigh
78816	Pet image w/ct full body