Current Procedural Terminology Coding for Surgical Pathology

A Review and One Academic Center’s Experience With Pathologist-Verified Coding

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Context.—The Current Procedural Terminology (CPT) system is a standardized numerical coding system for reporting medical procedures and services, and is the basis for reimbursement of health care providers by Medicare and other third-party payers. Accurate CPT coding is therefore crucial for appropriate compensation as well as for compliance with Medicare policies, and erroneous coding may result in loss of revenues and/or significant monetary penalties for a hospital or practice.

Objective.—To provide a review of the history, current state, and basic principles of CPT coding, in particular as it applies to the practice of surgical pathology, and to present our experience with initiating a new system of pathologist involvement in the review and verification of CPT codes, including the most common codes that require modification in our practice at the time of sign-out or post-sign-out auditing.

Data Sources.—Review of English language literature, published CPT resources from the American Medical Association and other professional organizations, and billing quality data from a single institution.

Conclusions.—Although the appropriate extent of physician involvement in CPT coding is a matter of some debate, a multidisciplinary approach involving both health care providers and professional coders appears to be the best way to achieve accuracy.

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tandardized procedural coding systems have been an important component of the medical system since the inception of Current Procedural Terminology (CPT) in 1966, and in particular since the adoption of the Health Insurance Portability and Accountability Act in 1996. A brief historical overview is herein provided.

The first edition of CPT was published by the American Medical Association (AMA) in 1966, following the establishment of Medicare by the US Congress.1,2 This version provided a 4-digit coding system primarily for surgical procedures, with limited inclusion of other medical and laboratory services. The aim was to determine if such a system would be useful for medical insurance companies and for statistical research in health care.1,2 Three subsequent editions were published in the 1970s, expanding the CPT system to include diagnostic and therapeutic services in all medical specialties, and also switching to a 5-digit coding system.1 The currently used 4th edition was originally published in 1977 and has been updated annually since 1983.1,3

In 1996, the US Congress enacted the Health Insurance Portability and Accountability Act (HIPAA). Among numerous other measures, this act required the Department of Health and Human Services to identify a set of national standards to document medical services and procedures for the electronic exchange of health care information.1,2 In response, the AMA established a project to revise CPT in order to meet the requirements for being named as this mandated standard.2 This endeavor proved successful, and in the year 2000, the Centers for Medicare and Medicaid Services (CMS) designated CPT as the national coding standard for reporting physician and other health care services and procedures.1,2 Adoption of this system by all health care plans and providers who use electronic exchange of health care information was required by 2003.1

The evolution and expansion of CPT codes was paralleled by an evolution in the system for maintaining and updating existing codes, which is the responsibility of the CPT Editorial Panel. Initially, the panel operated under a closed-door policy; however, in 1992, a more open process was adopted. The 17-member panel consists of rotating members with representation from physicians, nonphysician...
health care providers, payers, and the American Hospital Association. The panel meets 3 times annually to evaluate all code change proposals, and is assisted by a larger body of CPT advisors who make up the CPT Advisory Committee. The advisory committee members are primarily physicians nominated by national medical specialty societies in the AMA House of Delegates. The responsibilities of the advisors include submitting code change proposals, commenting on code change proposals submitted by others, providing literature regarding efficacy and appropriateness of new procedures and the work involved therein, promoting education of committee membership, and functioning as liaisons between the panel and the members' respective medical specialties. In accordance with the AMA's open policy with regard to CPT code changes, the AMA website provides an application process for CPT code revisions, which may be submitted by a variety of parties, including individual physicians, medical specialty societies, and third-party payers.

There are 3 categories of CPT codes. The majority of codes fall under Category I, and any new Category I codes must meet several specific criteria: (1) any necessary devices and/or drugs have approval or clearance from the US Food and Drug Administration, (2) the procedure/service is performed by many health care providers throughout the country, (3) the frequency at which the procedure/service is performed is consistent with its intended clinical use, (4) the procedure/service is consistent with current medical practice, and (5) there is sufficient literature documenting the clinical efficacy of the procedure/service. Category I is divided into 6 sections: evaluation and management, anesthesiology, surgery, radiology, pathology and laboratory, and medicine. Category III codes are a temporary set of codes that do not yet meet criteria to be approved as Category I codes. They allow for a procedure/service to be tracked in order to determine the extent of use nationally. After 5 years, either these codes are determined to meet criteria to be converted to Category I or they are retired. Category II codes are optional supplemental tracking codes used for performance measurement, and they enable data collection regarding quality of care.

The 5-digit numerical CPT codes for the specialty of pathology span from 80048 to 89356, with specimens in surgical pathology spanning from 88300 to 88309. These correspond to 6 levels of interpretation: level I (88300), gross examination only; level II (88302), gross and microscopic examination to confirm identification and the absence of disease; and levels III–VI (88304, 88305, 88307, and 88309), gross and microscopic examination with increasing levels of physician work. The unit of service for surgical pathology is the specimen, which is defined as a tissue that is submitted together into one code even when removed en bloc, whereas others are grouped into multiple containers, based on bundling and unbundling rules. A few of these rules are addressed in this manuscript; the reader is also referred to the many comprehensive resources available from the AMA and other organizations for appropriate selection of CPT codes in pathology and other specialties.

Currently, the primary use of the CPT system is the reporting of medical procedures and services to both public and private insurance companies. The amount paid by Medicare for a given service (ie, a specific CPT code) is determined by CMS, usually based on recommendations submitted by the Relative Value Scale Update Committee, which was created by the AMA. The Relative Value Scale Update Committee, which includes 31 physicians and 300 medical advisors from multiple specialties, makes recommendations based on assessment of the resources required to provide each medical service. The resulting resource-based relative value scale is used not only by CMS but also by most other payers. The resources required to provide each service are divided into 3 components, each of which is assigned relative value units (RVUs): physician work, practice expense, and professional liability insurance. On average, the physician work component accounts for 51% of the total relative value for a given service, the practice expense component for 45%, and the professional liability component for 4%. Actual Medicare payments to physicians are based on the Physician Fee Schedule, which is established by a formula using the resource-based relative value scale, geographic practice cost indexes, and a conversion factor. Other payers using the resource-based relative value scale as a basis for payment may use different conversion factors or other methods to convert relative value units to payment. Of note, the Physician Fee Schedule conversion factor was previously adjusted annually using the problematic Sustainable Growth Rate formula, which necessitated regular action by Congress to prevent unsustainable cuts but which will be eliminated under the Medicare Access and CHIP [Children’s Health Insurance Program] Reauthorization Act of 2015 (MACRA), which creates a more performance-based system of incentives and penalties.

In pathology, compensation for a service is usually divided into a physician professional fee component and a technical component. The physician professional fee component is covered under the Medicare Part B Physician Fee Schedule for both inpatients and outpatients. Coverage of the technical component depends on the provider and patient setting. For hospital-based services, the technical component is bundled into prospective payment plans that provide a single fixed payment based on the diagnosis-related group (inpatients, Medicare Part A) or the Ambulatory Payment Classification (hospital-based outpatient services, Outpatient Prospective Payment System). For non–hospital-based outpatient providers, the technical component is paid according to the Clinical Laboratory Fee Schedule under Medicare Part B; starting in 2018, the fee schedule for clinical laboratory tests will be based on median private payer rates. Table 1 provides the current Medicare compensation for various commonly used codes in surgical pathology. A second system of standardized codes, the Healthcare Common Procedure Coding System (HCPCS), is also required for billing certain services for beneficiaries of Medicare and some other insurers. Developed in the 1980s, HCPCS is administered by CMS, and is divided into 2 subsystems. Level I consists entirely of the CPT code system, without modification. Level II is used to identify products,
supplies, and services that are not included in the CPT codes, for example ambulance services, durable medical equipment, and supplies used outside a physician’s office.\textsuperscript{16} The codes are alphanumeric, each starting with a single alphabetic letter followed by 4 numeric digits. Only a few HCPCS level II codes are applicable to pathology, and these consist primarily of “G-codes,” created for procedures/services for which an appropriate CPT code does not exist per the determination of CMS. For example, when billing a Medicare beneficiary for prostate needle biopsies, HCPCS level II code G0416 is used singly, regardless of the number of individual biopsies, rather than 88305 for each individual biopsy.\textsuperscript{8}

In certain situations, modifiers of CPT or HCPCS codes may be necessary. The modifiers are 2 characters in length (numeric for CPT modifiers and alphabetic or alphanumeric for HCPCS modifiers), and are added to the end of the CPT or HCPCS code. They serve to provide additional information regarding special circumstances that may apply to a particular instance of a service or procedure. For example, they may indicate that only the physician professional fee component or only the technical component is being billed, that a service was provided by more than one provider or in more than one location, that the extent or complexity of the service was more or less than usual, that a service was provided more than once in a single day, or that a service was performed by a resident or fellow under teaching physician supervision.\textsuperscript{3,8,16} Common modifiers used in pathology include the CPT modifier 26, which indicates that only the physician professional fee component is being billed (eg, for hospital-based services), and the HCPCS modifier TC, which indicates that only the technical component is being billed.\textsuperscript{8}

The use of CPT coding has streamlined the process of documenting and categorizing medical procedures accurately and efficiently, and remains the basis for compensation of clinical and laboratory services. Thus, adequate understanding of the current CPT system is vital for any practicing physician and laboratory. In the subsequent sections, we detail our academic center’s experience with CPT billing in surgical pathology, including the recent implementation of pathologist-verified billing, and discuss the issues relevant to physician involvement in the CPT coding process in general.

### Table 1. 2017 Medicare Compensation for Commonly Used Current Procedural Terminology (CPT) Codes in Surgical Pathology

| Procedure Description | CPT Code | Technical Component | Professional Component | Total  |
|-----------------------|----------|---------------------|------------------------|--------|
| Surgical pathology level I | 88300    | 11.84               | 4.67                   | 16.51  |
| Surgical pathology level II | 88302   | 23.69               | 7.54                   | 31.23  |
| Surgical pathology level III | 88304   | 29.43               | 12.20                  | 41.63  |
| Surgical pathology level IV | 88305   | 29.79               | 39.84                  | 69.63  |
| Surgical pathology level V | 88307   | 189.18              | 91.07                  | 280.25 |
| Surgical pathology level VI | 88309   | 258.40              | 155.40                 | 413.80 |
| Decalcification        | 88311    | 9.33                | 13.28                  | 22.61  |
| Frozen section (first) | 88331    | 32.66               | 66.04                  | 98.70  |
| Frozen section (additional) | 88332 | 20.82               | 32.66                  | 53.48  |
| Immunohistochemistry, qualitative, first stain | 88342  | 71.06               | 37.32                  | 108.38 |
| Immunohistochemistry, qualitative, additional stain | 88341  | 62.45               | 29.79                  | 92.24  |
| Immunohistochemistry, quantitative | 88360  | 84.70               | 57.42                  | 142.12 |

* Amounts are based on national rates for 2017, without Geographic Practice Cost Index adjustments for any particular locality (Geographic Practice Cost Index = 1).\textsuperscript{8}*

### THE SWITCH TO PATHOLOGIST-VERIFIED BILLING: OUR EXPERIENCE

In May of 2015, the department of pathology at our academic hospital instituted a new anatomic pathology billing process, whereby CPT codes are verified by attending pathologists at the time of case sign-out. The reasons for this change were manifold, but were primarily aimed at improving coding accuracy and timeliness. Prior to this, pathologists had no involvement in selecting or verifying the CPT codes associated with their cases. Each specimen type automatically generated a CPT code or set of codes at the time of accessioning. Codes were audited, corrected, and bulk verified by professional billing and gross room staff. One problem with this system was that case charges were often initially verified under the name of the pathologist to whom the specimen was originally accessioned, and not necessarily the pathologist who ultimately verified the case, which created extra work at the back end for necessary corrections. Another issue was that technical and professional charges were verified together, after the case was finalized, which sometimes resulted in loss of revenue from late billing of the technical component. Additionally, discussions between the staff auditing and verifying the billing and the pathologist who verified the case were minimal.

In the new system, the initial CPT codes are still automatically assigned at accessioning based on the specimen type. However, when a pathologist pulls up a case in the anatomic pathology laboratory information system (PathNet, Cerner Corporation, North Kansas City, Missouri), a separate window with the currently associated CPT codes is automatically assigned at accessioning. When the pathologist verifies the case, the professional components of the CPT codes are automatically verified, and not necessarily the pathologist who ultimately verified the case. The expectation is that each pathologist checks these codes for accuracy and makes any necessary changes prior to case verification. All codes are then audited after sign-out by professional coding staff. The CPT codes for the technical component are separately bulk verified; this is done early to avoid loss of revenue from late submission of charges, and the codes are later corrected after case sign-out if necessary.

In order to allow for correct up-front billing of immunohistochemical (IHC) stains, the procedure for ordering IHC was also modified slightly. Previously, CPT codes for IHC had to be changed after case verification to comply with the...
In terms of self-reported feedback about the establishment of pathologist-verified billing, the responses from pathologists and their participation in the process has been variable. Our department includes pathologists with a wide range of experience and training backgrounds. Some pathologists had previously been involved in CPT coding at other institutions, and these individuals generally adapted to the new system more readily. Some pathologists without prior exposure to coding also willingly adopted the new system, whereas others were reluctant. The objections raised and their related arguments and counterarguments are addressed in detail below.

As the switch to pathologist-verified billing was accompanied by several other concurrent changes, including separation of professional and technical billing and switching to a new charge system, accurate data illustrating changes in revenue or expenses specifically relating to pathologist involvement are unfortunately unavailable. However, we did observe a significant decrease in the number of late charges (defined as greater than 5 days from date of service) after the change. In January 2015, prior to the switch, 24.2% (2008 of 8314) of the total surgical pathology charges for the month were late. In January of 2016, several months following the switch, only 7.0% (1153 of 16385) of charges for the month were late, a significant reduction (P < .001, χ² analysis). This improvement was attributed primarily to separation of technical and professional billing (which also accounts for the difference in denominator between the 2 periods).

CPT Code Change Data 2015–2016

As accurate CPT codes are the basis for patient billing and physician/hospital compensation, it is important to identify any potential issues or areas for improvement. In order to do this, a retrospective analysis was performed on CPT coding changes for in-house cases during the first 6 months of pathologist-verified billing (May–November 2015) and during a recent 6-month period (July–December 2016) when the new system had become the established norm. All coding changes were then categorized by type and direction (changed to a higher code or changed to a lower code), and were identified as either pathologist initiated or coder initiated. This analysis included all surgical pathology specimen level codes (88300–88309), as well as decalcification; codes related to IHC, special stains, and intraoperative consultation were not included. The data are presented in Table 2, and explanations of the most common code change categories are provided below. It should be noted that these are based on our established coding practices (based on a subscription-based coding handbook and vetted by a professional coding consultant), which may differ in some respects from those of other practices, and are not meant to constitute coding advice.

Lymph Node Number.—A lymph node biopsy is coded as 88305, whereas a regional resection is coded as 88307. Like many practices, we have established an arbitrary numeric cutoff for distinguishing these 2 specimen types. As the number of nodes in a specimen is not usually clear at the time of accessioning, this code is often changed following microscopic examination of the specimen.

Decalcification.—Certain specimen types that commonly contain bone receive a code of 88311 for decalcification at the time of accessioning. If decalcification is not performed or not documented in the gross description, the code is canceled. Similarly, if decalcification is performed and documented, and was not automatically added at acces-
sioning, a code of 88311 is added for the appropriate part or parts.

**Bundling/Unbundling.**—Rules vary per organ system. For gastrointestinal and genitourinary specimens, we separately code additional attached viscera if they are more than just a short segment (using an arbitrarily designated size cutoff) or have significant pathology. The specific code used depends on the type of viscera and the amount of work involved in an individual case. For gynecologic specimens, multiple bundling/unbundling rules apply. For example, fallopian tubes are always bundled with their associated ovaries. Ovaries are bundled with the uterus unless they are suspected of having or found to have significant pathology. In the realm of breast specimens, simple mastectomies without a lymph node dissection are coded as 88307, whereas radical mastectomies or simple mastectomies with an axillary dissection are bundled with their respective nodes and coded as 88309, even if the mastectomy and nodes are received in separate containers. (Of note, in either case, any sentinel lymph nodes are coded separately.) Given the complexity of these bundling rules, and their dependence on gross and microscopic findings in many cases, multi-organ specimens almost always require some modification of the codes assigned at accessioning.

**Ovary, Benign Versus Malignant.**—Ovaries without significant pathology are coded as 88305, whereas those with or suspected to have significant pathology are coded as 88307. In our practice, we simplify this to mean that nonneoplastic ovaries are coded as 88305, and ovaries with neoplasia or at high risk for neoplasia are coded as 88307. As this distinction frequently requires microscopic examination, ovaries often require modification of CPT codes at the time of sign-out.

**Skin, Specimen Type.**—Skin excisions and biopsies are generally coded as 88305, but cysts, tags, and debridement specimens are coded as 88304. As the type of specimen is not always clear at accessioning, codes for these specimens are often changed once the diagnosis is rendered.

**Lipoma.**—Simple excisions or biopsies of soft tissue masses are coded as 88307. However, lipomas are always billed as 88304. As this rule hinges on the microscopic diagnosis, this specimen type often requires modification of the code assigned at accessioning.

**Separate Margins (Breast or Other).**—When margins for a tumor case are sent separately (a scenario most commonly encountered for breast specimens in our hospital), they are coded as 88305 when uncomplicated and 88307 when complicated. In our practice, the majority of margins are received oriented with the true margin designated, and therefore could be justified as 88307 (equivalent to breast excision requiring microscopic evaluation of margins) rather than 88305 (equivalent to breast

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**Table 2. Current Procedural Terminology (CPT) Code Changes**

| Category/Type of Change | Total, No. (% of All Changes) | Higher, No. (%)<sup>a</sup> | Lower, No. (%)<sup>b</sup> | Pathologist-Initiated, No. (%) |
|-------------------------|-------------------------------|-----------------------------|-----------------------------|-------------------------------|
| Lymph node, No. of nodes| 300 (16.5)                    | 171 (57.0)                  | 129 (43.0)                  | 32 (10.7)                    |
| Decalcification         | 186 (10.2)                    | 33 (17.7)                   | 153 (82.3)                  | 21 (11.3)                    |
| Bundling/unbundling     | 130 (7.2)                     | 126 (96.9)                  | 4 (3.1)                     | 22 (16.9)                    |
| Gastrointestinal        | 44 (2.4)                      | 43 (97.1)                   | 1 (2.3)                     | 2 (4.5)                      |
| Gynecologic            | 34 (1.9)                      | 33 (97.1)                   | 1 (2.9)                     | 10 (29.4)                    |
| Genitourinary           | 23 (1.3)                      | 21 (91.3)                   | 2 (8.7)                     | 0 (0)                        |
| Breast (mastectomy)     | 29 (1.6)                      | 29 (100)                    | 0 (0)                       | 10 (34.5)                    |
| Ovary, benign versus malignant | 93 (5.1)                     | 85 (91.4)                   | 8 (8.6)                     | 65 (69.9)                    |
| Skin, specimen type     | 73 (4.0)                      | 7 (9.6)                     | 66 (90.4)                   | 17 (23.3)                    |
| Lipoma                  | 69 (3.8)                      | 1 (1.4)                     | 68 (98.6)                   | 21 (30.4)                    |
| Breast, separate margins| 62 (3.4)                      | 59 (95.2)                   | 3 (4.8)                     | 38 (61.3)                    |
| Fetus/placenta          | 45 (2.5)                      | 3 (6.7)                     | 42 (93.3)                   | 42 (93.3)                    |
| Gastrointestinal, specimen type | 32 (1.8)                     | 17 (53.1)                   | 15 (46.9)                   | 13 (40.6)                    |
| Breast, specimen type   | 26 (1.4)                      | 8 (30.8)                    | 18 (69.2)                   | 12 (46.2)                    |
| Nonbreast, separate margins | 23 (1.3)                     | 5 (21.7)                    | 18 (78.3)                   | 1 (4.)                       |
| Eye, specimen type      | 22 (1.2)                      | 2 (9.1)                     | 20 (90.9)                   | 18 (81.8)                    |
| Omentum, benign versus malignant | 18 (1.0)                     | 3 (16.7)                    | 15 (83.3)                   | 4 (22.2)                     |
| Bone, specimen type     | 18 (1.0)                      | 11 (61.1)                   | 7 (38.9)                    | 3 (16.7)                     |
| Uterus, specimen type   | 17 (0.9)                      | 5 (29.4)                    | 12 (70.6)                   | 11 (64.7)                    |
| Lung, specimen type     | 17 (0.9)                      | 5 (29.4)                    | 12 (70.6)                   | 1 (5.9)                      |
| Lymph node, other than No. of nodes | 15 (0.8)                     | 9 (60.0)                    | 6 (40.0)                    | 4 (26.7)                     |
| Gross only versus microscopic | 12 (0.7)                     | 6 (50.0)                    | 6 (50.0)                    | 7 (58.3)                     |
| Central nervous system, specimen type | 10 (0.6)                     | 4 (40.0)                    | 6 (60.0)                    | 1 (10.0)                     |
| Other                   | 647 (35.6)                    | 517 (79.9)                  | 130 (20.1)                  | 44 (6.8)                     |
| Soft tissue             | 43 (2.4)                      | 22 (51.2)                   | 21 (48.8)                   | 5 (11.6)                     |
| Gynecologic            | 25 (1.4)                      | 8 (32.0)                    | 17 (68.0)                   | 17 (68.0)                    |
| Head and neck           | 61 (3.4)                      | 44 (72.1)                   | 17 (27.9)                   | 4 (6.6)                      |
| Genitourinary           | 52 (2.9)                      | 19 (36.5)                   | 33 (63.5)                   | 1 (1.9)                      |
| Gastrointestinal        | 32 (1.8)                      | 22 (68.8)                   | 10 (31.3)                   | 6 (18.8)                     |
| Other miscellaneous     | 434 (23.9)                    | 402 (92.6)                  | 32 (7.4)                    | 11 (2.5)                     |
| Total                   | 1815 (100)                    | 1084 (59.7)                 | 731 (40.3)                  | 377 (20.8)                   |

<sup>a</sup> Includes changing to a higher CPT code or adding a code (including unbundling).

<sup>b</sup> Includes changing to a lower CPT code or canceling a code (including bundling).
biopsy not requiring microscopic evaluation of margins). However, based on expert coding advice, the majority of such margins should be uncomplicated. Therefore, we code separate margins as 88307 only if the specimen is involved by tumor and the status of the final margin is reported. Given that most separate margins do not have tumor, all separate margins receive a code of 88305 at accessioning, and are changed to 88307 as needed following microscopic examination.

**Fetus/Placenta.**—A number of scenarios are included in this category. First-trimester products of conception receive a code of 88305 if they are spontaneous/missed abortions and 88304 if they are elective. This is typically assigned accurately at accessioning, but occasionally the wrong code is assigned up front and requires later correction. Second-trimester placentas receive a code of 88305, and third-trimester placentas receive a code of 88307. If the gestational age is clear at the time of accessioning, these are usually assigned the correct code up front. A fetus is coded separately from its placenta when it is from a second- or third-trimester gestation, which we define by a foot length of at least 1.5 cm (corresponding to 14 weeks’ gestation). When examined only grossly, the fetus receives a code of 88300, as with other gross-only specimens. When dissected and examined microscopically, the fetus receives a code of 88309 (based on our usual extensive examination). As some of these distinctions depend on examination by the grosser and pathologist, modifications of the codes assigned at accessioning are sometimes necessary.

**Gastrointestinal Specimen Type.**—Biopsies or polypectomies from gastrointestinal viscera receive a code of 88305. Resections for tumor, including endoscopic mucosal resections with margins reported, receive a code of 88309, whereas resections other than for tumor are coded as 88307. A total colectomy receives a code of 88309, regardless of the diagnosis. As some of these distinctions are not apparent at the time of accessioning, these codes occasionally require later modification.

Comparing the data from the two 6-month intervals demonstrates similar types and frequencies of code changes for most categories. The overall percentage of pathologist-initiated changes increased slightly from 20.8% (377 of 1815) to 27.6% (551 of 1993). Although this change was statistically significant (Fisher exact test, \(P < .001\)), it is modest in magnitude, indicating that the level of physician engagement in this endeavor remains relatively low. Of interest, however, in the first 6 months, there were more changes to a higher code than to a lower one (59.7% [1084 of 1815] versus 40.3% [731 of 1815]), whereas in the later 6-month interval, the opposite was seen (42.1% [839 of 1993] up versus 57.9% [1154 of 1993] down). This difference was statistically significant (Fisher exact test, \(P < .001\)). This appears to be due to a reversal of the direction of change for most cases in 3 particular categories: lymph node number, decalcification, and other.

| Total, No. (% of All Changes) | Higher, No. (%)a | Lower, No. (%)b | Pathologist-Initiated, No. (%) |
|-------------------------------|------------------|------------------|-----------------------------|
| 349 (17.5)                    | 101 (28.9)       | 248 (71.1)       | 80 (22.9)                   |
| 219 (11.0)                    | 110 (50.2)       | 109 (49.8)       | 17 (7.8)                    |
| 150 (7.5)                     | 150 (100)        | 0 (0)            | 25 (16.7)                   |
| 65 (3.3)                      | 65 (100)         | 0 (0)            | 3 (4.6)                     |
| 19 (1.0)                      | 19 (100)         | 0 (0)            | 14 (73.7)                   |
| 29 (1.5)                      | 29 (100)         | 0 (0)            | 4 (13.8)                    |
| 37 (1.9)                      | 37 (100)         | 0 (0)            | 4 (10.8)                    |
| 107 (5.4)                     | 99 (92.5)        | 8 (7.5)          | 74 (69.2)                   |
| 169 (8.5)                     | 0 (0)            | 169 (100)        | 59 (34.9)                   |
| 77 (3.9)                      | 1 (1.3)          | 76 (98.7)        | 35 (45.5)                   |
| 87 (4.4)                      | 83 (95.4)        | 4 (4.6)          | 33 (37.9)                   |
| 42 (2.1)                      | 7 (16.7)         | 35 (83.3)        | 28 (66.7)                   |
| 73 (3.7)                      | 42 (57.5)        | 31 (42.5)        | 9 (12.3)                    |
| 39 (2.0)                      | 10 (25.6)        | 29 (74.4)        | 10 (25.6)                   |
| 41 (2.1)                      | 5 (12.2)         | 36 (87.8)        | 2 (4.9)                     |
| 15 (0.8)                      | 7 (46.7)         | 8 (53.3)         | 12 (80.0)                   |
| 23 (1.2)                      | 6 (26.1)         | 17 (73.9)        | 11 (47.8)                   |
| 52 (2.6)                      | 13 (25.0)        | 39 (75.0)        | 15 (28.8)                   |
| 47 (1.3)                      | 13 (50.0)        | 13 (50.0)        | 23 (88.5)                   |
| 14 (0.7)                      | 6 (42.9)         | 8 (57.1)         | 0 (0)                       |
| 35 (1.8)                      | 25 (71.4)        | 10 (28.6)        | 2 (5.7)                     |
| 23 (1.2)                      | 7 (30.4)         | 16 (69.6)        | 3 (13.0)                    |
| 30 (1.3)                      | 13 (43.3)        | 17 (56.7)        | 7 (23.3)                    |
| 422 (21.2)                    | 141 (33.4)       | 281 (66.6)       | 106 (25.1)                  |
| 70 (3.5)                      | 24 (34.3)        | 36 (65.7)        | 30 (28.6)                   |
| 63 (3.2)                      | 7 (11.1)         | 56 (88.9)        | 25 (39.7)                   |
| 80 (4.0)                      | 25 (31.3)        | 55 (68.8)        | 28 (35.0)                   |
| 47 (2.4)                      | 27 (57.4)        | 20 (42.6)        | 0 (0)                       |
| 28 (1.4)                      | 13 (46.4)        | 15 (53.6)        | 1 (3.6)                     |
| 134 (6.7)                     | 45 (33.6)        | 89 (66.4)        | 32 (23.9)                   |
| 1993 (7.9% of all cases accessioned) | 839 (42.1)  | 1154 (57.9)      | 551 (27.6)                  |
In regard to lymph node number, the default code originally assigned to nonsentinel lymph nodes at accessioning was 88305. However, upon recognition of the high frequency of required changes to 88307, the default code assigned at accessioning was changed to 88307, thus accounting for the reversal in up versus down changes. In regard to decalcification, education on documenting decalcification in the report and adding the associated code when appropriate was provided to pathologists and gross room staff. This may have increased the number of cases in which decalcification was properly documented in the final report, allowing for the associated code to be appropriately added more frequently and minimizing cases in which the code would need to be deleted because of inadequate documentation. The reversal in the other category is more difficult to explain, but may be related to establishing in-house rules for a greater variety of specimens, as well as increased experience and more consistency in assigning specimen types and CPT codes by accessioning staff, pathologists, and coders.

It is clear from the data, however, that despite continual modifications and improvements aimed at reducing the number of coding corrections required after accessioning, a large number of cases continue to require code correction by the pathologist or coder. The likely explanation for this is that accurate billing for many specimens depends not just on the specimen type but on the final diagnosis, and this can be predicted with only limited accuracy at the time of accessioning. Consideration of the final diagnosis remains crucial for accurate coding in a large proportion of cases. This is illustrated by specific examples in Table 3.

**PHYSICIAN INVOLVEMENT IN CODING**

As stated, the pathologists in our department demonstrated a spectrum of responses to the initiation of pathologist-verified coding, with some firmly opposed, others strongly in favor, and varying opinions in between. These reactions are likely reflective of the larger debate regarding physician involvement in coding and billing, which applies not only to the specialty of pathology but to the field of medicine in general.

One valid objection that may be raised, and that was a major point of concern in our department, is the added time involved for an already busy physician to be involved in coding. Many of our pathologists reasonably pointed out that the addition of an extra step to the process of signing out a case can add up to a significant amount of extra time in a given day. The counterargument to this, however, is that, with experience, the process of checking the billing prior to sign-out becomes much faster, especially when one is within one’s own subspecialty. Additionally, biopsy specimens rarely require any changes, as almost all are accurately assigned a code of 88305 at accessioning, so some of the highest-volume specimens require the least pathologist effort.

Another argument often raised against physician involvement in billing as well as other aspects of practice

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**Table 3. Example Cases With Current Procedural Terminology Code Changes by Pathologist**

| Specimen | Relevant Clinicopathologic Information | Initial Code Assigned | Code Verified by Pathologist | Justification |
|----------|----------------------------------------|-----------------------|-----------------------------|---------------|
| Bilateral ovaries and fallopian tubes (1 container) | Prophylactic procedure in BRCA1 mutation carrier 1 set of adnexa designated as right with a suture No neoplasia found | 88305 | 88307 × 2 | Bilateral adnexa in the same container but with laterality designated may be unbundled Fallopian tube always bundled with ipsilateral ovary Extensively sampled ovaries from BRCA mutation carriers are coded like neoplastic ovaries because of high suspicion for neoplasia |
| Arm mass | 5-cm soft tissue mass excised Diagnosed as lipoma on pathologic examination | 88307 | 88304 | Biopsies and simple excisions of soft tissue masses usually coded as 88307 Lipomas always coded as 88304 |
| Breast lumpectomy with 6 separate oriented margins (7 containers) | Main lump diagnosed as invasive carcinoma 1 separate margin with carcinoma 0.1 cm from final margin Remaining margins negative for tumor | 88307 | 88307 × 2 | 88303 × 5 | 1 positive separate margin (with distance from carcinoma to final margin reported) is coded as complicated (88307) |
| Elbow lesion | Grossly consistent with small skin excision Microscopically diagnosed as epidermal inclusion cyst | 88305 | 88304 | Skin excision or biopsy is usually 88305 Skin cysts, tags, and debridement specimens are 88304 |
| Right colon, ileum, and appendix | Performed for Crohn disease with dysplasia on previous colon biopsy Colonic adenocarcinoma diagnosed in resection specimen 15-cm segment of attached ileum demonstrates findings consistent with Crohn disease and no tumor Appendix with no significant pathology 1 pericolonic lymph node with metastatic tumor | 88307 | 88309 | 88307 | Segmental colon resection for tumor is coded as 88309 Attached ileum usually bundled with colon; however, long length and presence of significant pathology justifies unbundling; coded here as resection other than for tumor (88307) Appendix bundled with colon unless significant pathology suspected or found Pericolonic lymph nodes always bundled with colon |
management is more philosophical in nature: specifically, what should being a physician entail? Many advocate that a physician should be operating at the highest level of his or her medical training, and ancillary work should be performed by nonphysician specialists. Indeed, it is difficult to contest that a professional medical coder is best qualified to navigate the complexities of medical billing (modifiers, different rules for different payers, etc), which may be too onerous and overwhelming for a busy physician to keep up with. However, the physician is best qualified to document the work that he or she did, and accurate and complete documentation is the basis for accurate medical coding.\(^\text{17}\)

For example, if the pathology report on an excision specimen refers to the specimen as a biopsy, the specimen will be undercoded; the reverse is also true. Therefore, awareness of how documentation affects the practice of coding can assist a pathologist in creating more complete reports, which then justify the use of appropriate codes.

One crucial point to consider is the physician's legal responsibility for any claim submitted under his or her name, whether or not he or she was actively involved in coding it. The legal responsibility for any CPT error discovered in an audit does not lie with the coder, but rather with the physician, and attention to accurate coding on the part of the latter may protect the practice from hefty federal government fines.\(^\text{18}\) It should also be noted that in the case of suspected Medicare abuse or fraud, the physician may face both civil and criminal liability for the questionable claims submitted.\(^\text{19}\)

The ideal practice setup seems to be one in which both physicians and professional coders are involved in medical coding. This fosters discussion of difficult cases and common issues between the 2, which results in more accurate and informed coding of individual cases, as well as appropriate reevaluation of practices when an issue is identified. In our practice, we have found this to be an invaluable contribution of our current system. The literature on this topic, though limited, also supports the value of a multidisciplinary approach to coding. One study examining coding accuracy for a specific vascular surgery procedure performed in an academic center found that there was significantly greater reimbursement for the procedure when physicians and coders were involved compared with when just coders were involved.\(^\text{20}\)

One may argue, looking at our department's data on pathologist-initiated CPT code changes, that if compliance on the part of the physicians is so low, it may not be worth the effort to switch to a system of physician involvement as we did. However, different practices may have very different experiences with physician compliance, or may be able to achieve higher compliance by using various incentives, penalties, or educational measures. Additionally, despite our own relatively low levels of pathologist participation, our multidisciplinary approach to the process was successful in improving billing efficiency and establishing a team that continues to strive for coding accuracy.

Ultimately, despite differing philosophies on what the role of the physician should be in modern health care, the current reality of the situation is that a successful medical practice requires much more than just purely medical intellectual work, and although every physician need not personally see to every aspect of running a practice or department, it may behoove every physician to have a working understanding of what is involved therein.

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**CONCLUSIONS AND FUTURE DIRECTIONS**

Accurate assignment of CPT codes is vital for any medical practice, pathology or otherwise, in order for physicians and staff to be appropriately compensated for the work performed, and to protect the practice from fines levied for erroneous billing practices. Although there continues to be debate on the specific role the physician should have in this process, it is clear that some familiarity with coding on the part of the physician can assist a practice in maintaining accurate, audit-proof documentation and in being properly reimbursed by Medicare and other payers.

In our own practice, pathologist-verified billing is now well established, although the level of participation by individual providers continues to vary. The committee we established to implement pathologist-verified billing still meets regularly. The members routinely discuss the most recent audit data and address new issues. Additionally, the role of the committee has expanded to include handling of billing issues across the whole spectrum of our department’s scope of practice, not just CPT coding for anatomic pathology. The combination of members with different medical and nonmedical training backgrounds makes it an ideal group to address the multiple complex aspects of such issues.

One potential future direction that our current process lends itself to is the inclusion of pathology trainees in the coding process. A common experience among many practicing pathologists is the need to suddenly learn a large amount of CPT coding information once in practice, having never been exposed to this in residency or fellowship training. Our pathologists are well positioned to incorporate trainees into our coding practices on a case-by-case basis. It is difficult to fit all of the practice management education a resident may ultimately need into the short 3 or 4 years of a pathology residency, but involving residents in practice management activities performed by their supervising physicians in real time may be one non–time-intensive way to address such gaps.

In conclusion, it is useful for both medical coders and pathologists to be aware of their practice’s most common coding corrections, many of which rely on pathologist diagnosis and judgment. Pathologist familiarity with the CPT system and their in-house coding guidelines facilitates more accurate professional billing and could lead to fewer potential billing errors. Incorporation of trainees into the billing process would provide a valuable skill set to future practices and help to establish a solid understanding of the importance of accurate CPT coding for new-in-practice physicians.

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