Radiation Therapy Reimbursement Update

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The coding of and reimbursement for radiation therapy services is a complex and evolving system. Policymakers debate and develop new methods of reimbursement, cost-cutting measures, and the most appropriate incentives to align with payment for health care delivery. This article provides updates on radiation therapy coding and reimbursement to the current knowledge base for professionals working in the field prior to 2015, including the International Classification of Diseases, Tenth Revision (ICD-10).

The number of people affected by cancer continues to increase. By 2030, more than 2.3 million cases of cancer likely will be diagnosed in the United States each year. A corresponding rise in recent years in the number of survivors is a testament to successful early detection and improved treatment of the disease. This success comes at a price, however. Costs for delivering cancer care have increased more rapidly than for any other disease and are likely to rise an additional 39% to a total of $173 billion by 2020.

In addition to high costs, the fragmented delivery of health care in the United States has driven policymakers and payers to consider alternative incentives and payment methods. In fact, Congress has increased pressure on the Centers for Medicare and Medicaid Services (CMS) to control spending in the Medicare program, a program that consumed more than 15% of the federal budget in 2010.

Many of the measures to cut costs or better align incentives with goals to improve quality and value of care for patients affect all medical specialties.

Coding and reimbursement specifics for a hospital or medical practice are far beyond the scope of this article. The material in this article is for education purposes and is not meant as coding advice. It is based on research, primarily about Medicare reimbursement. At times, information focuses on a type of facility that might not match the specific classification, geographic location, or other determinants of that in which the reader practices. In all instances, radiation oncology providers should consult or employ professional coders and check with local Medicare carriers or third-party payers to ensure all coding and documentation requirements are met.

After completing this article, the reader should be able to:

- Define types of payers and reimbursement methods available today and in serious consideration as part of health care reform.
- Describe how cost of care affects payment to providers.
- Discuss how utilization of services affects health care reimbursement policy and payment.
- Explain the difference between past payment incentives and value-based reimbursement.
- List common updates or changes to radiation therapy coding, such as ICD-10.
- Discuss the importance of accurate coding, billing, and documentation in radiation oncology reimbursement.
Some measures over the years and in current health care reform discussions affect particular specialties or examinations, procedures, or disease groups more than others. For example, CMS has been charged with decreasing the gap in payment between specialists and primary care physicians. This effort will lead to reduced payments to radiation oncologists and other specialists and increase payments to family practice physicians, internists, and other primary care providers.4

Although health care reform and other efforts are designed to improve patient-centeredness, quality of care, and lower overall costs of care, typical American families also are paying more from their own pockets for health care.5 As all of these factors have combined, health care delivery and reimbursement are evolving, leading to an emphasis on improving the value of health care services. This requires improving patient health and outcomes while also controlling the cost of care.7,8

Reimbursement Basics

Unlike most industries and services, a gap has existed for years between the consumers who use health care services (ie, patients) and payment for those services. Further, attempts to improve the health of consumers, and therefore reduce costs of care, have centered primarily on shifting more costs to consumers.9 Yet consumers do not always have enough information available to make informed decisions and must rely on health care professionals for care recommendations. The goals of patients, health care providers, and the organizations that pay for health care services do not always align, contributing to conflicting incentives and higher costs.4

As with automotive or life insurance, health insurance policies pool premiums and risk of the insured to cover costs when individuals who are part of the insured pool become sick. Health maintenance organizations were developed as an attempt to manage risk by including providers in risk sharing.9,10

In the United States, CMS oversees reimbursement of health care services for people who qualify for governmental health insurance programs, namely Medicare and Medicaid. The agency contracts with intermediaries or carriers to make determinations about specific payments to Medicare providers.5 Medicare covers people aged 65 and older, along with people younger than 65 who have a qualifying permanent disability. Medicare is divided into several portions, or parts: Part A covers inpatient, skilled nursing, home health, and hospice services; Part B covers freestanding, or physician office and outpatient facility services; a private Medicare Advantage program provides both parts A and B benefits; and Part D covers outpatient prescription drug coverage.9,11

Providers must meet and maintain certain requirements to provide care to Medicare beneficiaries, and the program works with state agencies in certifying new providers.12 Because Medicare does not cover all costs, many beneficiaries also have supplemental coverage to help pay for deductibles, copayments, and other costs. Those who qualify based on income may use Medicaid to cover the gap, and others pay for private gap insurance. Nearly one-fifth of Medicare beneficiaries have no gap insurance.11

Medicaid provides health services to low-income individuals. It is funded jointly by the federal government and state governments and administered at the state level according to federal guidelines.9 Although growth in Medicaid enrollment and spending grew rapidly at the beginning of the 21st century, it slowed somewhat in 2011. That trend is expected to reverse back to steady growth and increased enrollment because of expanded eligibility for the program under recent health care reform.13

Other public programs that deliver or reimburse for health care include TRICARE, which pays for active and retired service members and their families. The Veterans Affairs system cares for veterans’ conditions related to military service, but it is not a health insurance plan.14

Individuals have private health insurance through group plans, most often offered by employers or purchased as individuals. These plans generally are offered in the form of fee-for-service (FFS) programs, a traditional prospective payment method of Medicare and many private plans that typically pays the provider directly. Some offer a combined FFS plan with a preferred provider organization (PPO), meaning that enrollees pay less in cost sharing, or out-of-pocket expenses, if they choose one of the preferred providers in the plan for their care. Some private insurers require use of their preferred providers for payment of benefits.15

Less common is cost-based reimbursement, which is a retrospective payment that involves reimbursing the
provider for the provider’s costs of delivering services to the insured. The reimbursement is limited to allowable costs, however, which relate directly to provision of care.9

Health maintenance organizations (HMOs) include physician networks in a geographic area that provide care for a health plan. Members of the HMO receive a range of services from physicians, hospitals, and other facilities within the HMO network that are coordinated by a primary care provider. Traditionally, HMO members pay a copayment as part of cost sharing.10 A point-of-service plan blends HMOs and PPOs by treating services from in-network providers much like an HMO, but paying for any services furnished by providers outside the network on a fee schedule based on the plan’s determination of reasonable and customary charges.10

See the Box for additional definitions and abbreviations used throughout the article.

Coding for Services
Claims for payment of services are based on diagnostic and procedural codes. Procedural codes are developed and maintained by the American Medical Association and are called Current Procedural Terminology (CPT) codes. CPT codes were officially designated the national coding standard by the U.S. Department of Health and Human Services for physicians and other health care professionals in 2000.18

The diagnostic codes used by Medicare and private payers are from the International Classification of Diseases, Clinical Modification (ICD-CM). The system, developed by the World Health Organization for the
Radiation Oncology Coding

Each specialty is different, and radiation oncology is a complex process involving many health care professionals in the consultation and planning of care that the radiation therapist ultimately delivers. Each step in the radiation therapy care process typically generates an independent claim code. Throughout a patient’s course of treatment, a radiation oncology provider might bill more than 40 treatment delivery codes in addition to numerous codes for planning, management, and other services. In short, billing for radiation oncology care is divided into:

- Patient consultation.
- Treatment preparation.
- Medical physics, dosimetry, treatment devices, and special services.
- Treatment delivery.
- Treatment management.
- Follow-up care management.

Radiation therapy might be performed at a hospital or in a freestanding facility, which affects billing and payment. CMS defines radiation oncology facilities, and resulting reimbursement, based on several factors. For example, governance of a hospital-based radiation therapy department must be the same as that of other hospital departments. Other qualifications include geographic location and market share.

Patient consultation usually consists of the initial visit a patient has with a radiation oncologist and involves matters such as discussion of the patient’s diagnosis and referral for radiation therapy, as well as whether to recommend care for the cancer or other reason for referral. The consultation is billed with an assignment of a CPT evaluation and management (E/M) code, which accurately reflects the time and complexity involved in the consultation. Overstating the consultation can flag an audit and possible fraud, but understating the consultation can cause radiation oncology practices or departments to receive less money than actually due.

As of 2010, office and inpatient codes for consultations are no longer recognized by CMS for Medicare Part B payment. Telehealth consultation codes were added to the HCPCS system (G codes 0406-0408 and 0425-0427) for Medicare patients. Only physicians and midlevel providers can furnish and bill for E/M services, which are coded based on patient type (ie, new or established); service setting (hospital inpatient, office or outpatient, emergency department, or nursing facility); and level of service, or complexity, which is based on patient medical history, the patient’s chief complaint, and how extensively the provider must review the patient’s systems. These codes are reported using a 99xxx series number.

The purpose of disease monitoring and health management, also is used to classify disease for clinical and coding functions. The purpose of ICD-CM coding is to justify procedures and supplies by noting the patient’s disease or reason for admission. ICD-CM codes do not affect CPT coding for physician and outpatient services.

The Healthcare Common Procedural Coding System (HCPCS) manual was developed by CMS to help standardize coding systems. These Level II codes are used to document Medicare-related services and supplies, and many private payers also use HCPCS to maintain consistency. A provider bills for services based on where the services take place. Care provided to hospital inpatients is billed under Medicare Part A. If a hospital owns and operates a cancer or radiation oncology center that performs outpatient radiation therapy, the hospital bills those services under the Hospital Outpatient Prospective Payment System (HOPPS). Most payments are made according to ambulatory payment classifications (APCs). These groupings are based on clinical characteristics and costs. Freestanding facilities (outpatient centers not owned by hospitals) bill for their services as physician offices under the Medicare Physician Fee Schedule (MPFS).

Reimbursement is typically divided into professional and technical components. The professional component covers physician work, and the technical component reimburses facilities for costs such as staff, supplies, and equipment. In a freestanding setting, both components might be billed together as a global claim. In hospital-based settings, they are coded and billed separately because the hospital absorbs and is reimbursed for the technical costs related to providing services such as radiation therapy, and the radiation oncologists typically contract with the hospital to oversee the service. Hospital-based payments are updated as appropriate in the Federal Register.

Radiation Oncology Coding

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Treatment preparation includes clinical planning and simulation. Planning takes into account information from the patient’s medical history and the initial consultation, along with additional examinations or tests required to complete the radiation therapy plan. The radiation oncologist determines the optimal radiation treatment technique based on areas bearing disease. Treatment duration and dose also are determined during planning. Simulation involves defining target anatomy, along with normal anatomy in the target field, and acquiring images and data using simulation equipment. On the current MPFS, the CPT codes for radiation therapy treatment planning fall under 77261 through 77263. In addition, a new code (77293) can be used for coding the physician work involved when preparing a simulation that involves respiratory motion management.

Several codes are used to bill for the involvement of the radiation oncology team in computing patient dosimetry and dose calculations. The medical radiation physicist and medical dosimetrist are involved, as is the use of devices needed to develop calculations and an isodose plan. The radiation oncologist oversees this process with close assistance of the medical physicist.

Treatment delivery codes for the particular technique used are based on each day, and multiple codes can be used within a day if a patient receives more than one treatment fraction on a given day. Through December 31, 2015, energy level and complexity contribute to CPT code selection.

Radiation therapy management involves the radiation oncologist’s oversight of the patient’s care and treatment effectiveness. Follow-up care management includes the 3 months following completion of external beam radiation therapy and all appropriate continued care that is provided to patients following treatment completion and monitored by the radiation oncologist. This includes monitoring for recurrence.

**History of Reimbursement**

Historical events influenced the creation of private insurance. For example, concerns about citizens’ ability to pay for medical care during the Great Depression eventually led to the formation of Blue Cross and Blue Shield. The concept of health insurance likely dates to centuries earlier, according to author John T Preskitt, MD. He cites an example of a caregiver named “John of Essex” who received an honorarium of a penny a day in his role as a “physician” for the combined kingdoms of Normandy and England. In essence, this was a very early form of capitation. Legends passed down through Chinese history refer to physician payment only if a patient’s health improved.

In the United States, health care was inexpensive before the 1920s, and workers who were ill paid more in lost wages than for health services. Early attempts to propose a form of health insurance failed, largely because of physician opposition. The development of the Blue Cross plans was begun by a group of teachers in Dallas who contracted with Baylor Hospital for a set number of days of hospitalization. Between the 1940s and 1960s, Blue Cross and Blue Shield began to realize that tying insurance to employers resulted in coverage of healthier insured populations (ie, those who could work). By not charging employers tax on health plans for their employees, the government supported coverage and other plans emerged.

Medicare was a response to proposed nationalized health insurance coverage. By insuring only those over age 65, the program helped provide national insurance, but answered opposition to a nationalized plan that would have included coverage for all citizens. In the 1960s, President Lyndon Johnson garnered support for the congressional mandate that established Medicare parts A and B.

Health care reform has a history of its own. Although the stated goal might be cost savings or care improvement, some reform initiatives instead have targeted narrower goals or preserved specific traditions within the delivery system. For example, reform efforts such as capitation attempted to address costs of health care in the United States, but did not address service or quality of care. In addition, laws have been passed to address fraud and abuse or self-referral by physicians, but some of these efforts have worsened cooperation across specialties. Several recent changes in reimbursement and reform are outlined in the following text.

**Medicare and Medicaid Reform**

Amendments made in 1971 expanded Medicare coverage to people who had certain long-term disabilities. In 1986, the Emergency Medical Treatment and Active
Several changes or interpretations have been made over the years to the Stark Law, and an important distinction in the law is the in-office ancillary exception. Under this exception, physicians can refer patients to on-site services that they own. An example of this exception is a urology practice that owns and operates intensity-modulated radiation therapy (IMRT) equipment in the physicians’ office to which the practice can refer prostate cancer patients. On the other hand, if the urologist has invested in a cancer center or outpatient radiation oncology center with IMRT services, the urologist could not refer patients to this center under the Stark Law.

The complexity and size of the Medicare program makes it susceptible to improper claims and payments. Medicare fraud and abuse can be construed even in the event of unintentional errors. This is particularly true if there is a pattern of uncorrected errors. CMS holds providers accountable for submitting accurate claims and employs groups to prevent, reduce, and recover improper payments. Examples of recovered payments exist in radiation oncology. In 2012, a radiation oncology practice in Georgia settled for nearly $4 million on the basis of billing unnecessary and excessive treatments for patients who had prostate cancer. Baylor University also settled with the federal government in 2012, after a finding of radiation therapy upcoding, failure to provide adequate physician supervision, and unnecessary use of IMRT and stereotactic radiation therapies. The university agreed to pay nearly $1 million.

It’s important to note that ignorance of the guidelines does not provide immunity from penalties—either monetary or jail time. All parties who complete charge captures and documentation are responsible for the information being submitted. Even radiation therapists might be held accountable for the charges they complete and found personally liable if those charges are incorrect.

**Delivery-driven Trends**

Some reform has been driven by efforts to improve quality of care and clinical outcomes. Examples of these efforts are use of evidence-based guidelines or “evidence-based medicine.” Arguably, clinical care is primarily evidence based, as in the use of National Comprehensive Cancer Network or American Society for Radiation
Oncology (ASTRO) clinical practice guidelines, which are concerned with incorporating clinical and technological advancement into clinical patient care. Using these guidelines to measure providers’ performance can be problematic, however, as the guidelines are constantly updated. Moreover, improving patient outcomes, satisfaction, and efficiency of care delivery involves factors beyond disease-based guidelines.

Utilization management is a reform effort that relates to both clinical delivery and fraud and abuse. Sometimes, clinical guidelines do not recommend routine use of a particular diagnostic examination or therapy, but certain individuals or groups of physicians use the examination or therapy at a higher level than normal for their patients. Late in the 20th century, external review of providers’ decisions regarding patient care decisions became a huge cost-containment trend. Throughout the evolution of this cost-cutting measure, insurers and others had to walk a delicate line between discouraging inappropriate care and guaranteeing that patients received the care they needed.

Utilization still is an important consideration but must be tied to other efforts and incentives, as in the example of IMRT discussed later in this article.

Bundling of payments is a new trend that is similar to capitation in that it is a fixed payment. With fixed payments, providers assume most or all of the financial risk for patient care, but also can share in cost savings. A payment might be bundled by episode or event. For example, an organ transplant or breast cancer might be considered an episode, and each provider who cares for the patient along the way is included in the bundled payment. The concept still is new and subject to concerns about how to define what portion of the patient’s care would be included in the bundled payment, how to determine sharing of payment, and how to factor in patients’ health status.

Patient-based Trends

Although several efforts have been made to help encourage insured individuals to be healthier and thereby reduce overall health costs, most of these efforts have simply shifted costs to consumers. Other efforts to reform health care delivery and reimbursement focus on the patient, such as perception-of-care measures and patient-centered care. Medical home models are being developed in some areas of the country to combine several specialties and facilities in caring for cancer patients across the continuum of care. The model aims to improve patient care and decrease unnecessary tests and hospitalizations for cancer patients.

A similar concept is the integrated practice unit, which consists of teams of both clinical and nonclinical staff who assist patients across the continuum of care. From the patient standpoint, care is more convenient as the team coordinates services following evidence-based guidelines. Providers in an integrated practice unit should achieve efficiency, reduced service utilization, and improved communication from one provider to another. The integrated practice unit might receive bundled payments for care.

Patient Protection and Affordable Care Act

The Patient Protection and Affordable Care Act (ACA) passed in March 2010. The law increased access to health insurance and added to requirements for private health insurance coverage. Health insurance exchanges were established to provide access to coverage, which became mandated for individuals. The ACA eliminated insurance companies’ ability to deny coverage based on pre-existing conditions. Most of the provisions became effective in 2014.

The intent of the ACA is to improve coverage and to move to a reimbursement system that rewards value of care based on indicators such as outcomes and quality instead of rewarding volume.

Along with private plans, the ACA ensured that Medicare covered enrollees’ preventive services such as mammogram and colonoscopies. Concerns about access to care also led to temporary increases in payment for Medicare primary care providers under the ACA. The ACA also expanded Medicaid coverage and income levels.

The ACA has created accountable care organizations that are intended to provide high-quality care while keeping costs low. A group of physicians, hospitals, and other providers can opt to form partnerships and provide care for a group of Medicare beneficiaries for a specific amount of money. Many have developed mechanisms such as bundled payments to share risk. All focus on improving value.

Alignment of Incentives

Part of the impetus behind current payment reform is that FFS reimbursement creates incentives to increase
services and can lead to excessive or inappropriate utilization. Cost is a concern at every level. For example, the MPFS must be budget neutral. When the ACA increased payment for primary care physicians, CMS had to offset the added cost. Reduction in payment for specialty services such as IMRT and stereotactic body radiation therapy likely were the result of the offset. Efforts such as capitation were introduced to control costs by paying providers a set amount, or flat fee, to care for a covered individual. Incentives under capitation agreements often aligned with cost savings, but not with providing thorough service. Furthermore, providers’ reimbursement was partly based on costs over which they had little control. In most settings, including oncology, quality of patient care is enhanced by cooperation among specialties.

Under FFS reimbursement approaches, payment links directly to volume. For radiation therapy, volume can be defined by duration, complexity, and intensity of treatment, which are reflected in the technical payment. When physicians are paid purely by prospective payment, the provider bears the marginal cost of care. For example, if treatment costs increase by $5, then physician income decreases by $5.

Although the ACA is attempting to align incentives so that the value of care is enhanced, more patients are now in high-deductible plans than in previous years. Although the reason for adding to consumer cost sharing might be based on studies showing that patients in more generous health plans (ie, fewer restrictions and less cost sharing) tend to use health services more, increasing cost sharing also can shift patients into behaviors of avoiding necessary care. This worsens patients’ health and ultimately increases costs. As health care reform continues to shift the emphasis and incentive, policymakers, as well as cancer care and radiation therapy providers, must begin finding ways to measure quality and outcome fairly for patients, payers, and providers.

Determining Cost and Value of Care

The overall cost of cancer care is immense. In 2010, more than $125 billion was spent on caring for cancer patients in the United States. Multiple factors contribute to these costs, and some can be managed by providers, while others are more specific to patients and their diseases. For example, a patient’s age, disease complexity, and underlying health status at the time of diagnosis affect the cost of providing care. These patient-related and disease-related factors are a much smaller percentage of cost variation than are costs within providers’ control. At both national and institutional levels, steps can be taken to eliminate waste and improve value so that cost-cutting does not affect patient outcomes. Still, for all of the focus on costs of health care for decades, few organizations can measure or report the cost of caring for a patient accurately over the full continuum of care. Data on costs and outcomes by condition and therapy are lacking.

When CMS determines cost of care to determine payment based on current reimbursement models, the agency uses a number of expenses such as labor, practice expenses, and malpractice insurance. Each specialty is different, and radiation therapy has many specific cost considerations in addition to length and complexity of procedures. For example, the radiation therapy treatment vault is unique to radiation oncology. Vaults used to house radiation therapy equipment are different from those used for medical imaging and unlike treatment rooms used to deliver any other type of care. Many regulations, safety, and architectural considerations must go into each vault if the equipment housed within it is changed. CMS considered removing the radiation treatment vault as a direct cost for radiation therapy providers under the 2015 MPFS, but delayed the move until the agency could study the issue further.

Some variation in cost and resulting reimbursement is facility dependent. A 2014 study in San Diego reported that variations in radiation therapy costs depended on geography and whether the provider was hospital-based or freestanding.

Because traditional payment for health care is based on reimbursement for charges, many health care organizations and practices lack data on the actual cost of providing patient care for particular services or for the continuum of each patient’s care. In addition to the costs of providing care are the costs of reimbursing for it. The complexity of FFS coding, even with software that captures charges as clinical work is completed, requires skilled coding support and administrative time.

Role of Technology

Rapid advancements in technology contribute to increasing health care costs. In general, public and
private insurers reimburse technology-intensive services at higher rates than services that focus on patient evaluation or care management. In addition to costs of equipment, new technologies often require redesign of treatment areas or workflow, along with ongoing maintenance of equipment and software updates. Further, although technology-intensive services cost more initially, costs tend to decrease as the technology becomes more widely used.

Costs of new technology must be weighed against clinical outcomes research. For example, the technology for proton therapy is more costly than for photon therapy, even substantially greater than IMRT for prostate cancer. Still, proton therapy is recognized as even more targeted, depositing radiation within a finite range that leaves virtually no residual radiation beyond the tumor. Studies must compare whether proton therapy is more effective in reducing morbidity and mortality and controlling the disease to an extent that justifies the additional costs.

Technology in health care has a complex relationship to reimbursement of clinical care delivery. As data have become more critical to providing health care, along with reimbursement and privacy issues, the integration of administrative technologies has added to the cost of care. Maintaining accurate patient information on genetics, tumor tissue types, and other data specific to a patient’s cancer and treatment is an important part of transformative medicine.

Although technology such as electronic health records, hospital information systems, and electronic filing and payment of claims can ultimately lower costs by improving recordkeeping and storage, improving access to patient information and quality data, and increasing payment speed for providers, the cost to implement the technology affects health care providers, organizations, and the delivery system. However, information technology is key to support of new delivery and reimbursement methods. CMS is attempting to offset some of the initial costs with incentive programs for adoption, implementation, and meaningful use of electronic health records.

**Intensity-modulated Radiation Therapy**

Radiation oncology is rooted in expensive technology. An example of a novel and relatively expensive technology that has recently received a great deal of attention regarding cost and use is IMRT. The technology, which has evolved to incorporate dynamic motion of multileaf collimators and the linear accelerator gantry, is an important tool for more conformal therapy that manages target motion and spares normal tissue. Adoption of IMRT was somewhat accelerated because the technique uses essentially the same technology to deliver radiation as 2-D and 3-D external beam radiation therapy. The rapid clinical adoption of IMRT could be attributed to improved control of aggressive tumors, increasing patient demand for the technology, and financial incentives provided by initial Medicare FFS reimbursement rates.

IMRT involves advanced technology but requires extensive treatment planning and review time by radiation oncologists, medical dosimetrists, and medical physicists. Compared with surgery or other radiation modalities, IMRT can cost between $15 000 and $20 000 more per treatment course for routine prostate cancer therapy.

The reimbursement rate for IMRT has been set accordingly high, and studies have shown that in-office referrals of prostate cancer patients contributed significantly to the rapid growth in IMRT utilization. A study by Mitchell retrospectively analyzed referral to IMRT by urology groups that owned in-house IMRT services and those that referred to nonowned IMRT services for prostate cancer patients between 2006 and 2010. The author found that IMRT use by self-referring urologists in 11 private practices increased 19.2% ($P < .001), but that use of IMRT increased only 1.3% ($P = .05) for urologists who did not own IMRT services.

In the past, reimbursement for IMRT services for a number of cancers provided in freestanding centers was substantially higher than reimbursement for the services at hospital-based centers. In 2013, CMS made significant reductions in payments to freestanding radiation oncology centers to lessen the difference. Increased use of IMRT also drew the attention of private insurers. Many of these companies use third-party benefit management companies specializing in radiation therapy to review all claims for IMRT services before a covered member’s treatment can begin. As health care reform efforts continue, radiation oncology leaders will continue to work with CMS and policymakers to propose alternatives to cost.
savings that can decrease overuse of services, but incorporate reimbursement adjustments based on clinical evidence, benefit to patient, and novel methods for ensuring appropriate use of services and cost analysis of care.\textsuperscript{3,4,47,55}

**Value-based Reimbursement**

Balancing cost of care with patient outcome is the foundation of value-based reimbursement, the current direction of payment reform for federal and many private insurers. Value-based designs reward efficiency in care delivery, but also reward efforts or procedures that deliver outcomes most important to patients.\textsuperscript{9} In essence, basing payment for services on value considers cost savings, but defines quality or value of care based on the customer or patient.\textsuperscript{8}

For example, integrated practice units and medical homes support patient-centered treatment, which increases patient value while also reducing costs with improved efficiency.\textsuperscript{4} One way that integrated practice units are able to improve value is by not only treating the patient’s disease (eg, lung cancer), but by also addressing related complications and conditions.\textsuperscript{7} This is not to say that health care providers have been furnishing care that lacks value or that all care is inherently wasteful, only that an emphasis on volume and margins has failed to lower costs, improve quality of care, or properly align incentives.\textsuperscript{7}

The ACA mandated that CMS would begin applying value under the MPFS by 2015. In 2013, CMS began adding a value-based payment modifier to large groups, defined as practices of 100 physicians or more, based on reported quality measures. The agency is phasing in quality benchmarks and modifiers, progressively adding more weight to value and lowering requirements for group size. By 2016, all physicians participating in Medicare will be affected by the value modifier and could be assigned a penalty for failure to report quality measures.\textsuperscript{56,57}

By linking payment for care to certain performance measures, it is hoped that value-based reimbursement will better align incentives than FFS reimbursement does. Bundling of payments is one of the methods being tested under the ACA as an alternative to FFS payment. The new form of fixed payment could work better if incorporated with integrated practice units.\textsuperscript{7,54} Reimbursing physicians and facilities based on value requires development of appropriate measures, accurate measurement, and cooperation among specialties.\textsuperscript{5,46}

**Measurement and Benchmarking**

Health care providers are used to measuring patient safety, satisfaction, and other quality indicators. Under current payment models, costs and reimbursement are supported by documenting resources and effort or by tracking quality indicators that have little demonstrated effect on lowering cost or improving quality of care.\textsuperscript{1,58} Evidence-based research can provide the clinical foundation on which to determine value of a particular service. Providers must then align the information with an individual patient’s situation, needs, and preferences.\textsuperscript{4}

Many hospital-based services are measured by systems such as the Physician Quality Reporting System (PQRS) from CMS.\textsuperscript{48} The PQRS is used to report quality data for the CMS value modifier. Physicians, or eligible professionals, either receive payment incentives based on reporting and meeting quality measures or negative payment adjustments if they do not satisfactorily report data.\textsuperscript{56,59} In 2015, participation in PQRS is voluntary, and providers who participated in 2014 could earn a 0.5% incentive bonus. According to ASTRO, there has been an increase in participation by radiation oncologists using the 7 oncology measures in the PQRS. The 2015 measures are listed in Table 1. The 2015 list no longer includes documentation of oncology cancer stage, which appeared in previous versions.\textsuperscript{49}

As measures for value-based care evolve, they likely will change from quality measures that might indicate the reliability or reputation of a provider to focus more on indicators that matter to patients across the continuum of care for their disease. For example, functional status following treatment can be as important to patients as survival. Patients who have prostate cancer might be particularly concerned about sexual function and incontinence measures, especially because 5-year survival rates already average 90%.\textsuperscript{7} Other meaningful measures to patients might include whether a patient can speak after receiving treatment for throat cancer or how satisfied a woman is with her appearance following therapy and reconstructive surgery for breast cancer.\textsuperscript{41}

As payers begin to consider measures on which to ground value-based reimbursement for providers or
Value-based Initiatives and Radiation Therapy

ASTRO has taken steps to better integrate value into radiation oncology care in anticipation of value-based payment. One of the first efforts was to provide incentives for quality in practice with development of a new accreditation program organized around patient-centered care, safety, process of care, quality management and assurance, and the radiation oncology team. The accreditation program could eventually link directly to Medicare incentive payments for quality.

The organization also has begun evaluating alternative reimbursement methods to traditional FFS payment and how these models might work in cancer care. ASTRO began working with the Radiation Oncology Institute to support research into verifying the value of radiation

Table 1

<table>
<thead>
<tr>
<th>PQRS No.</th>
<th>Title</th>
<th>Summary Description</th>
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<tbody>
<tr>
<td>71</td>
<td>Breast cancer: hormonal therapy for Stage IC-IIIC ER/PR positive breast cancer</td>
<td>Percentage of female patients ≥ 18 years with Stage I–IIIC, ER/PR+ breast cancer prescribed tamoxifen or aromatase inhibitor during 12-month reporting period.</td>
</tr>
<tr>
<td>72</td>
<td>Colon cancer: chemotherapy for AJCC Stage III colon cancer patients</td>
<td>Percentage of patients 18-80 years with AJCC Stage III colon cancer referred for, prescribed, or previously received adjuvant chemotherapy within 12-month reporting period.</td>
</tr>
<tr>
<td>110</td>
<td>Preventive care and screening: influenza immunization</td>
<td>Percentage of patients ≥ 6 months seen between October 1 and March 31 who received an influenza immunization or who reported previous receipt of an influenza immunization.</td>
</tr>
<tr>
<td>130</td>
<td>Documentation of current medications in medical record</td>
<td>Percentage of visits for patients ≥ 18 years for which the eligible professional attests to documenting a list of current medications using all immediate resources available on the date of the encounter. This list must include all known prescriptions, over-the-counter medicines, herbs, and nutritional supplements and must contain the medication’s name, dosage, frequency, and route of administration.</td>
</tr>
<tr>
<td>143</td>
<td>Oncology: medical and radiation – pain intensity quantified</td>
<td>Percentage of patients, regardless of age, with a diagnosis of cancer currently receiving chemotherapy or radiation therapy in which pain intensity is quantified.</td>
</tr>
<tr>
<td>144</td>
<td>Oncology: medical and radiation – plan of care for pain</td>
<td>Percentage of visits for patients, regardless of age, with a cancer diagnosis currently receiving chemotherapy or radiation therapy who report having pain with a documented care plan to address pain.</td>
</tr>
<tr>
<td>226</td>
<td>Preventive care and screening: tobacco use – screening and cessation intervention</td>
<td>Percentage of patients ≥ 18 years screened for tobacco use one or more times within a 24-month period and who received cessation counseling intervention if identified as a tobacco user.</td>
</tr>
</tbody>
</table>

Abbreviations: AJCC, American Joint Cancer Committee; ER/PR, estrogen receptor/progesterone receptor.
therapy care. This research could begin providing much needed data on health-related quality-of-life indicators for patients, comparing costs and cost-effectiveness of radiation therapy vs other treatments (eg, surgery) or adjuvant therapy choices. In addition, ASTRO joined the efforts of the Choosing Wisely campaign, which addresses appropriate utilization of services. Initial services of concern, or those identified as requiring detailed discussions between patients and their physicians, were:\n\n- Initiation of whole-breast radiation therapy as part of breast conservation therapy in women older than 50 years with early-stage invasive breast cancer.
- Treatment of low-risk prostate cancer and discussion of active surveillance.
- Use of extended fractionation schedules for palliative therapy for bone metastases.
- Routine use of proton beam therapy for prostate cancer (outside a clinical trial or registry).
- Routine use of IMRT for whole-breast radiation therapy as part of breast conservation therapy.

In 2014, ASTRO added the following to detailed discussions because of lower benefit vs risk or value of service:\n\n- Radiation therapy following a hysterectomy for low-risk endometrial cancer.
- Radiation therapy for patients who have non-small cell lung cancer negative margins following resection.
- Noncurative radiation therapy without defining goals of treatment and considering palliative care referral.
- Routine follow-up mammograms more often than annually for women who have had radiation therapy following breast-conserving surgery.
- Routine addition of adjuvant whole-brain radiation therapy to stereotactic radiosurgery for limited brain metastases.

In its first phase of addressing payment reform, ASTRO made recommendations to CMS regarding specific radiation therapy codes to better reflect practice and use of new technology for improved value. Establishing and standardizing new measures and processes to reduce variations in radiation oncology cost and care, determine value, and ensure quality are ongoing efforts. At the individual level, practices must take steps such as consistently measuring and tracking actual costs of care.\n
**Coding Update**\n
One reason hospitals, freestanding centers, and physician practices employ professional coders or secure the services of coding and reimbursement consultants is to remain abreast of the many changes that occur in coding and billing. The American Medical Association updates certain CPT codes twice a year, and diagnosis codes are typically added and updated each October 1. In addition, regular challenges and changes are made to Medicare coding and reimbursement. Regulatory announcements, such as changes to bundling guidelines, might be announced each quarter, and CMS usually announces changes on October 31 for the coming calendar year’s MPFS. The following information provides recent updates to radiation therapy diagnosis and procedure coding that is current as of January 2015.

**Coding and Payment Changes**\n
One of the most significant changes for 2015 was that proposed reductions in pay for radiation oncology in the MPFS that were set to begin in January 2015 were delayed until 2016. This means that freestanding facilities and physicians would have virtually no changes in Medicare professional and technical payments for 2015 instead of proposed 4% to 6% cuts in payment. CMS stated that the agency required additional time to further evaluate the radiation treatment vault. CMS had already deleted some codes for 2015 but stated that it would allow providers to use special G-codes to bill for those services at 2014 charges (see Table 2). Among these codes were the external beam treatment delivery codes 77402 through 77416. CMS plans to delete codes 77403, 77404, 77406, 77408, 77407, 77411, 77413, 77414, and 77416 and use only 77402, 77407, and 77412. The new code set will base coding and billing on complexity instead of on megavoltage beam level (see Table 3). IMRT code 77418 will be replaced by 2 new codes. CMS also added new planning codes for 2-D isodose and brachytherapy planning and added a code for image guidance and tracking. Many other changes have been made or proposed, including changes to the -59 modifier that helps distinguish a service as a separate encounter and often is used incorrectly.
Table 2

<table>
<thead>
<tr>
<th>Deleted 2014 CPT Code</th>
<th>2015 G Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>76950</td>
<td>G6001</td>
<td>Ultrasonic guidance for placement of radiation therapy fields.</td>
</tr>
<tr>
<td>77421</td>
<td>G6002</td>
<td>Stereoscopic x-ray guidance for localization of target volume for radiation therapy delivery.</td>
</tr>
<tr>
<td>77403</td>
<td>G6004</td>
<td>Radiation treatment delivery, single treatment area, single port or parallel opposed ports, simple or no blocks, 6-10 MeV.</td>
</tr>
<tr>
<td>77408</td>
<td>G6008</td>
<td>Radiation treatment delivery, 2 separate treatment areas; ≥ 3 ports on a single area, multiple blocks, 6-10 MeV.</td>
</tr>
<tr>
<td>77413</td>
<td>G6012</td>
<td>Radiation treatment delivery, ≥ 3 separate treatment areas, custom blocking, tangential ports, wedges, rotational beam, compensators, electron beam, 6-10 MeV.</td>
</tr>
<tr>
<td>77418</td>
<td>G6016</td>
<td>IMRT delivery, single or multiple fields/arcs, via narrow spatially and temporally modulated beams, binary, dynamic MLC, per session.</td>
</tr>
</tbody>
</table>

* Abbreviations: CPT, Current Procedural Terminology; IMRT, intensity-modulated radiation therapy; MeV, megavolts; MLC, multileaf collimation.
* This list includes some deleted codes. See cited sources or contact Medicare carrier for a complete list.
* Codes were scheduled for deletion as of January 1, 2015. At the time this article was written, the changes had been postponed until January 1, 2016.
* The replacement G codes are Healthcare Common Procedure Coding System (HCPCS) codes to be used temporarily in calendar year 2015.

Table 3

<table>
<thead>
<tr>
<th>New or Altered CPT Code</th>
<th>Details</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>New treatment delivery codes 77402, 77407, 77412</td>
<td>Scheduled for 2015; delayed until 2016</td>
<td>All now apply to radiation treatment delivery ≥ 1 MeV. 77402 for simple; 77407 for intermediate; 77412 for complex.</td>
</tr>
<tr>
<td>77385, 77386</td>
<td>Replace 77418, effective in 2016</td>
<td>IMRT treatment delivery, including guidance and tracking when performed. 77385 for simple, including prostate, breast and all sites using physical compensator base; 77386 for complex, including all sites not using physical compensator-based IMRT.</td>
</tr>
<tr>
<td>New teletherapy isodose plan codes 77306, 77307</td>
<td>Replace 77305, 77310, 77315 in 2015; no G codes associated with deleted codes</td>
<td>Teletherapy isodose plan, 77306 for simple; 77307 for complex.</td>
</tr>
<tr>
<td>New brachytherapy isodose plan codes 77316, 77317, 77318</td>
<td>Replace 77326-77328 in 2015; no G codes associated with deleted codes</td>
<td>Brachytherapy isodose plan, 77316 for simple (1-4 sources); 77317 for intermediate (5-10 sources); 77318 for complex (&gt; 10 sources).</td>
</tr>
<tr>
<td>77387</td>
<td>Replaces 77421, 76950, and 0197T in 2016</td>
<td>Guidance for localization of target volume for delivery of radiation treatment delivery; includes intrafraction tracking, when performed.</td>
</tr>
</tbody>
</table>

Value-based Modifier Reporting

Physicians using the PQRS Oncology Measures Group for the value-based modifier report on the measures listed in the oncology group or a qualifying registry add G code G8977 to show their intent to report, along with their patient sample report method and patient sample criteria that include a qualifying cancer diagnosis code. CMS lists qualifying ICD-9 codes for use through September 30, 2015, and ICD-10 codes for use beginning October 1, 2015.20

Participants must include 20 unique patients, a minimum of 11 who participate in Medicare. Physicians must report on all of the applicable measures for their group.21 In addition, CMS is using an incentive program to encourage meaningful adoption of electronic health records. Medicare providers that fail to demonstrate meaningful use of the technology in 2015 could have a negative adjustment (−3%) on their total Medicare Part B claims in 2017.53

Other Coding and Regulatory Changes

Proposed changes to HOPPS, which affects hospitals billing for radiation therapy services, generally are approved late in October the year before they take effect. Some of the potentially confusing changes for 2015 include proposal of 2 new comprehensive ambulatory payment classifications (C-APCs). A new C-APC 0067 has been established for single-session cranial stereotactic radiosurgery, and C-APC 0351 is for intraocular telescope implantation. CMS also made some changes to assignments of proton beam treatment APCs. CPT code 77520 was moved into APC 0412 and CPT code 77522 was moved from APC 0664 to APC 0667.64,66

ICD-10

The tenth revision of the ICD-CM code set was scheduled to replace the expiring ICD-9-CM codes on October 1, 2014, but the compliance date was postponed by the U.S. Congress until October 1, 2015. At that time, use of ICD-10-CM will be required by all providers covered by the Health Insurance Portability and Accountability Act (HIPAA). In March 2014, CMS tested the new codes with the electronic fee-for-service claims system.20,67

New code sets in the ICD-10-CM are more descriptive and have more characters than did ICD-9-CM codes. The revised codes include a new combination of diagnosis/symptom codes that should reduce the number of codes needed to fully describe a patient’s condition and 2 additional digits. Whereas ICD-9-CM had approximately 13,000 codes, the new ICD-10-CM system has nearly 68,000 distinct codes.20

Chapter 2 of the ICD-10-CM contains most of the codes that will be used by radiation oncology (malignant and most benign neoplasms). The first digit of the ICD-CM code always is a letter, followed by 2 digits and a decimal point. The digits following the decimal point (fourth through seventh) can be letters or numerals. An example is: C50.311 (malignant neoplasm of lower inner quadrant of right female breast).20,64

When assigning ICD-10-CM codes for malignancies, providers must use caution to ensure they assign the primary or secondary malignancy code correctly. If therapy is directed at the malignancy, typically the malignancy is the principal diagnosis, but there are exceptions such as when a patient is admitted for treatment of a secondary site. The primary malignancy remains the diagnosis code until treatment completion. When a patient is admitted solely for the administration of radiation therapy, radiation therapy is listed as the principal diagnosis, and code Z51.0 (encounter for antineoplastic radiation therapy) is used. The neoplasm is the secondary diagnosis in this case. If the patient develops complications following the admission solely for therapy, the Z51 code is followed by the appropriate code to indicate the complication and the neoplasm.64,68

Role of the Radiation Therapist

The responsibility for quality care, along with accurate coding, ultimately rests with the physician who provides a service. Still, all staff contribute to coding accuracy and charge capture. From the time a patient is referred for radiation therapy services, staff must ensure that clear and thorough communication and documentation occur.69 In particular, new ICD-10-CM codes will create greater challenges for gathering and documenting complete diagnostic and service information.20

Although physicians oversee care, radiation therapists deliver care on a daily basis. They can ensure that clinical charges are captured accurately, whether the charges are populated electronically or manually. Radiation therapists should remain current in code updates and work with physicians and coding staff to
ensure that the billing information and codes they enter and verify are accurate.69,70

Maintaining accurate documentation is more than ensuring that a physician, medical dosimetrist, or radiation therapist records dose or treatment plan information. As evidence of how care was delivered and whether it was delivered according to hospital or department policy, documentation is a form of compliance management. Compliance encompasses federal regulations and payment policies, coding edits, and local coverage determinations, as well as policies set forth by commercial payers.71

When auditing practices, the Office of the Inspector General and other auditing bodies typically note lack of documentation or cloning of documentation, particularly on templates. It is recommended that providers record detailed evaluation and clinical information, not check boxes or use predefined answers. The treatment plan is the most important documentation that radiation therapy centers maintain, and it should be updated and amended as needed throughout a patient’s course of treatment.71

**Physician Supervision Requirements**

Physician supervision of care is a clinical and policy matter, but also can be an important billing and reimbursement issue leading to compliance problems and even fraud and abuse charges. For example, image-guided radiation therapy (IGRT) must be performed by a qualified professional, including a trained radiation therapist, but under the supervision of a radiation oncologist. The reason for the added requirement for IGRT is that the guidance can show shifts that the physician should oversee and review, and the technique most often is used in patients who have tumors located adjacent to critical organs.72

The fraud and abuse settlement at Baylor University cited in this article included allegations of insufficient physician supervision. CMS referred to ASTRO’s White Paper on Physician Supervision Requirements in its investigation. The ASTRO white paper and CMS defined the supervision requirements in detail, and the basic requirements are summarized below:

- “Incident to” services in an outpatient hospital setting. Therapeutic services are “incident to” the services of physicians in treating patients. To be reimbursed, incident to services must be provided based on a physician’s order and under a physician’s supervision. The physician is involved in managing the patient’s course of treatment. The ordering physician does not have to be connected with the department providing the services. In Critical Access Hospitals, or the on- or off-campus outpatient department of the hospital, radiation therapy must be provided with direct supervision, meaning the supervising physician is present in the facility, can be interrupted and available immediately, and can assist or direct staff throughout a procedure. The physician does not have to be present in the room to oversee treatment delivery.
- Radiation therapy services in an office or freestanding radiation therapy center. These services have direct personal supervision by a physician. The physician does not have to be in the treatment room but must be in the area and available immediately to assist or direct radiation therapists throughout treatment delivery. If the supervising radiation oncologist leaves the facility, any treatment provided in the physician’s absence cannot be covered by Medicare. The supervising physician must be qualified as clinically appropriate to oversee care, not just qualified to respond to emergencies.
- CMS requirements for “incident to” services in an office or freestanding center do not apply to radiation therapy services. Radiation therapy services have their own category, as described above.
- Diagnostic examinations in an office or freestanding radiation therapy center. All IGRT codes are considered diagnostic tests that fall under supervision requirements. Ultrasonic guidance require direct supervision, and ultrasonic guidance for interstitial radioelement application requires personal supervision with the physician in the room during the procedure.
- Diagnostic examinations in an outpatient hospital setting. All diagnostic examinations, including IGRT, follow the same physician supervision requirements as those for MPFS diagnostic imaging...
in physician offices. Direct supervision definitions are the same as those for outpatient therapeutic services, except for those examinations performed in nonhospital locations by arrangement.

**Radiation Therapists and Reform**

Remaining flexible and responsive to change is crucial for all organizations and health care professionals as payment methods and health care reform evolve. Aligning incentives and establishing new payment models such as bundling and value-based payment measures and incentives will require systematic transformation that will affect delivery of care, patient interaction and perspectives, and communication between providers and specialists.  

While much of the responsibility for transitioning to value-based care and reimbursement rests with policymakers, organization leaders, physicians, and other staff might be involved in changing processes that ensure their provider meets PQRS goals, promotes patient-centered care, coordinates care among specialties, and helps determine the cost and value of various aspects of care. For example, radiation therapists could be involved in improving the processes related to radiation treatment delivery to make care delivery more efficient and, therefore, improve value.  

**Conclusion**

With oncology costs representing at least 10% of health care spending and 10-year growth in Medicare Part B payments of more than 200%, there is no doubt that continued reform in health care delivery and payment is eminent. Although radiation oncology payment reform could take a number of forms, it is increasingly likely that the newest reform will aim to improve care for patients and reduce costs. Most likely, a new value agenda will emerge that involves measuring patient outcomes and rewarding providers based on new patient-centered and cost-driven incentives.

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**References**


1. In 2010, Medicare consumed more than ______ % of the federal budget.
   a. 5  
   b. 10  
   c. 15  
   d. 20

2. Attempts to improve the health of consumers and reduce costs of care have shifted more:
   a. decision-making to patients.  
   b. costs to employers.  
   c. costs to consumers.  
   d. outcomes to unsafe levels.

3. Outpatient prescription drug coverage falls under Medicare part ______ coverage.
   a. A  
   b. B  
   c. C  
   d. D

4. The insurance plan that covers active duty and retired service members and their families is called:
   a. Veterans Affairs system.  
   b. Medicaid.  
   c. TRICARE.  
   d. Advantage.

5. International Classification of Diseases, Clinical Modification (ICD-CM) is used to:
   1. justify procedures and supplies by noting the patient’s disease or reason for admission.  
   2. assign the most relevant procedural code to work performed.  
   3. monitor diseases and manage health.

   a. 1 and 2  
   b. 1 and 3  
   c. 2 and 3  
   d. 1, 2, and 3
6. Hospital-based payments are updated as appropriate in the:
   a. Medicare Physician Fee Schedule (MPFS).
   b. **ICD-CM** updates.
   c. *Federal Register*.
   d. American Medical Association news.

7. Which of the following statements is **false** regarding billing for patient consultations?
   a. Inpatient codes are recognized for Medicare Part B payment.
   b. Telehealth consultation codes have been added to the Healthcare Common Procedural Coding System (HCPCS) system.
   c. Only physicians and midlevel providers can furnish and bill for evaluation and management (E/M) services.
   d. Overstating the consultation can flag an audit.

8. Through December 31, 2015, which of the following contribute to Current Procedural Terminology (CPT) selection for treatment planning codes?
   1. energy level
   2. complexity
   3. total dose
   a. 1 and 2
   b. 1 and 3
   c. 2 and 3
   d. 1, 2, and 3

9. The formation of Blue Cross and Blue Shield was influenced by:
   a. John of Essex.
   b. the Industrial Revolution.
   c. the Great Depression.
   d. passage of the Affordable Care Act (ACA).

10. The government supported formation of private health plans by:
    a. subsidizing health plan coverage for poor and disabled workers.
    b. not charging employers tax on health plans for their employees.
    c. forming Medicare.
    d. expanding Medicaid coverage.

11. The _______ requires all hospitals that participate in the Medicare program to stabilize patients who come to their emergency departments, regardless of the patient’s ability to pay.
    a. ACA
    b. Balanced Budget Act
    c. Kerr-Mills Act
    d. Emergency Medical Treatment and Active Labor Act

12. Under the Stark Law, a urology physician group that owns and operates in-office radiation therapy equipment can refer patients to on-site services that they own.
    a. true
    b. false

13. With fixed payments, providers assume most of the financial risk for patient care, but also can share in cost savings.
    a. true
    b. false

*continued on next page*
14. Features of the ACA include:
   
   1. added requirements for private health insurance coverage.
   2. establishment of health insurance exchanges.
   3. elimination of insurance denial based on pre-existing conditions.
   
   a. 1 and 2
   b. 1 and 3
   c. 2 and 3
   d. 1, 2, and 3

15. Under fee-for-service (FFS) reimbursement approaches, payment links directly to:
   
   a. complexity.
   b. quality.
   c. volume.
   d. value.

16. According to the article, Centers for Medicare and Medicaid Services (CMS) considered removing _______ as a direct cost for radiation therapy providers in 2015, but delayed the move for further study.
   
   a. linear accelerators
   b. personnel
   c. physician consultations
   d. treatment vaults

17. The rapid clinical adoption of intensity-modulated radiation therapy (IMRT) can be attributed to:
   
   1. improved control of aggressive tumors.
   2. financial incentives from Medicare reimbursement rates.
   3. patient demand for the technology.
   
   a. 1 and 2
   b. 1 and 3
   c. 2 and 3
   d. 1, 2, and 3

18. As health care reform efforts continue, radiation oncology leaders will continue to work with CMS and policymakers to propose alternatives to cost savings that can decrease overutilization of services, but incorporate reimbursement adjustments based on:
   
   1. clinical evidence.
   2. benefit to patient.
   3. novel methods for ensuring appropriate use of services and cost analysis of care.
   
   a. 1 and 2
   b. 1 and 3
   c. 2 and 3
   d. 1, 2, and 3

19. The foundation of _______ reimbursement is balancing cost of care with patient outcome.
   
   a. FFS
   b. value-based
   c. Medicare
   d. TRICARE

20. In 2015, participation in the Physician Quality Reporting System (PQRS) is voluntary, and providers who participated in 2014 could earn a _______ % incentive bonus.
   
   a. 0.5
   b. 1
   c. 1.5
   d. 2

21. As quality measures for value-based care evolve, they might focus more on:
   
   a. mortality.
   b. physician-derived and evidence-derived outcomes.
   c. payer-derived clinical measures.
   d. indicators that matter to patients across the continuum of care for their disease.
22. Which of the following services did American Society for Radiation Oncology (ASTRO) choose to include in its initial Choosing Wisely campaign for detailed discussions with physicians about utilization?
   1. routine use of proton beam therapy for prostate cancer
   2. initiation of whole-breast radiation therapy for women 50 years or older with early-stage invasive breast cancer
   3. radiation therapy following hysterectomy for low-risk endometrial cancer
   a. 1 and 2
   b. 1 and 3
   c. 2 and 3
   d. 1, 2, and 3

23. Certain CPT codes are updated by the American Medical Association:
   a. every quarter.
   b. once a year.
   c. twice a year.
   d. every other year.

24. The 2015 proposed reductions in pay for radiation oncology in the MPFS were delayed to allow CMS additional time to evaluate the radiation treatment vault.
   a. true
   b. false

25. Medicare providers could face a negative adjustment to their total Medicare Part B claims in 2017 if they fail to demonstrate:
   a. compliance with all 7 oncology group measures in 2016.
   b. ICD-10 coding updates by the deadline.
   c. meaningful use of electronic health records in 2015.
   d. development of a new value-based measure by 2017.

26. For 2015, the Hospital Outpatient Prospective Payment System added a new comprehensive ambulatory payment classification for:
   a. orthovoltage treatments.
   b. IMRT.
   c. teletherapy isodose planning.
   d. single-session cranial stereotactic radiosurgery.

27. According to the article, ICD-10-CM was most recently scheduled to take effect on:
   c. October 1, 2014.
   d. October 1, 2015.

28. The new ICD-10-CM code set has approximately _____ distinct codes.
   a. 38 000
   b. 48 000
   c. 58 000
   d. 68 000

29. For “incident to” services in an outpatient or Critical Access hospital, the physician must be:
   1. present in the facility.
   2. available immediately.
   3. present in the room.
   a. 1 and 2
   b. 1 and 3
   c. 2 and 3
   d. 1, 2, and 3

30. When determining physician supervision requirements for freestanding radiation therapy centers, the physician must be:
   a. simply qualified to respond to emergencies.
   b. in the treatment room throughout radiation delivery.
   c. in the treatment room when treatment begins and ends.
   d. qualified as clinically appropriate to oversee care.