Intensity-Modulated Radiation Therapy (IMRT) of the Prostate

Policy
Blue Cross and Blue Shield of Kansas City (Blue KC) will provide coverage for IMRT of the prostate when it is determined to be medically necessary because the criteria shown below are met.

When Policy Topic is covered
Intensity-modulated radiation therapy (IMRT) may be considered **medically necessary** in the treatment of localized prostate cancer at radiation doses of 75 to 80 Gy.

When Policy Topic is not covered
Intensity-modulated radiation therapy (IMRT) is considered **investigational** for the treatment of prostate cancer when the above criteria are not met.

Considerations

Radiation Tolerance Doses for Normal Tissues of the Pelvis

<table>
<thead>
<tr>
<th>TD 5/5 (Gy) a</th>
<th>TD 50/5 (Gy) b</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portion of organ involved</td>
<td>Portion of organ involved</td>
</tr>
<tr>
<td>Site</td>
<td>1/3</td>
</tr>
<tr>
<td>Spinal cord</td>
<td>50</td>
</tr>
<tr>
<td>Small intestine</td>
<td>50</td>
</tr>
<tr>
<td>Colon</td>
<td>55</td>
</tr>
<tr>
<td>Rectum</td>
<td>NP</td>
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<tr>
<td>Bladder</td>
<td>NP</td>
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<tr>
<td>Femoral head</td>
<td>NP</td>
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</table>
The tolerance doses in the table are a compilation from the following 2 sources:
a TD 5/5, the average dose that results in a 5% complication risk within 5 years.
b TD 50/5, the average dose that results in a 50% complication risk within 5 years.

Localized prostate cancer is defined as cancer confined to the prostate, or locally advanced cancer that is confined to adjacent structures and/or local lymph nodes. For localized prostate cancer, IMRT may offer advantages in both local tumor control and reducing toxicity to adjacent normal tissues. For non-localized prostate cancer, it is uncertain whether this is the case and radiation to the prostate is not usually given as part of treatment.

**Description of Procedure or Service**
Radiation therapy is an integral component in the treatment of prostate cancer. Intensity-modulated radiation therapy (IMRT) has been proposed as a method of radiation therapy that allows adequate radiation therapy to the tumor while minimizing the radiation dose to surrounding normal tissues and structures.

For prostate cancer, radiation therapy is one accepted option for treatment. Other treatment options include surgery, hormonal treatment, and watchful waiting.

**Radiation techniques**

Conventional external beam radiation therapy (EBRT). Over the past several decades, methods to plan and deliver radiation therapy have evolved in ways that permit more precise targeting of tumors with complex geometries. Most early trials used 2-dimensional treatment planning based on flat images and radiation beams with cross-sections of uniform intensity that were sequentially aimed at the tumor along 2 or 3 intersecting axes. Collectively, these methods are termed “conventional external beam radiation therapy”.

3-dimensional conformal radiation (3D-CRT). Treatment planning evolved by using 3-dimensional images, usually from computed tomography (CT) scans, to delineate the boundaries of the tumor and discriminate tumor tissue from adjacent normal tissue and nearby organs at risk for radiation damage. Computer algorithms were developed to estimate cumulative radiation dose delivered to each volume of interest by summing the contribution from each shaped beam. Methods also were developed to position the patient and the radiation portal reproducibly for each fraction and immobilize the patient, thus maintaining consistent beam axes across treatment sessions. Collectively, these methods are termed 3-dimensional conformal radiation therapy (3D-CRT).

Intensity-modulated radiation therapy (IMRT). IMRT, which uses computer software and CT and magnetic resonance imaging (MRI) images, offers better conformality than 3D-CRT, as it is able to modulate the intensity of the overlapping radiation beams projected on the target and to use multiple shaped treatment fields. It uses a device (a multileaf collimator, MLC) which, coupled to a computer algorithm, allows for “inverse” treatment planning. The radiation oncologist delineates the target on each slice of a CT scan and specifies the target’s prescribed radiation dose, acceptable limits of dose heterogeneity within the target volume, adjacent normal tissue volumes to avoid, and acceptable dose limits within the normal tissues. Based on these parameters and a digitally reconstructed radiographic image of the tumor and surrounding tissues and organs at risk, computer software optimizes the location, shape, and intensities of the beams ports, to achieve the treatment plan’s goals.
Increased conformality may permit escalated tumor doses without increasing normal tissue toxicity and thus may improve local tumor control, with decreased exposure to surrounding normal tissues, potentially reducing acute and late radiation toxicities. Better dose homogeneity within the target may also improve local tumor control by avoiding underdosing within the tumor and may decrease toxicity by avoiding overdosing.

Since most tumors move as patients breathe, dosimetry with stationary targets may not accurately reflect doses delivered within target volumes and adjacent tissues in patients. Furthermore, treatment planning and delivery are more complex, time-consuming, and labor-intensive for IMRT than for 3D-CRT. Thus, clinical studies must test whether IMRT improves tumor control or reduces acute and late toxicities when compared with 3D-CRT.

**Methodologic Issues in IMRT research**

Multiple-dose planning studies have generated 3D-CRT and IMRT treatment plans from the same scans, then compared predicted dose distributions within the target and in adjacent organs at risk. Results of such planning studies show that IMRT improves on 3D-CRT with respect to conformality to, and dose homogeneity within, the target. Dosimetry using stationary targets generally confirms these predictions. Thus, radiation oncologists hypothesized that IMRT may improve treatment outcomes compared with those of 3D-CRT. However, these types of studies offer indirect evidence on treatment benefit from IMRT, and it is difficult to relate results of dosing studies to actual effects on health outcomes.

Comparative studies of radiation-induced side effects from IMRT versus alternative radiation delivery are probably the most important type of evidence in establishing the benefit of IMRT. Such studies would answer the question of whether the theoretical benefit of IMRT in sparing normal tissue translates into real health outcomes. Single-arm series of IMRT can give some insights into the potential for benefit, particularly if an adverse effect that is expected to occur at high rates is shown to decrease by a large amount. Studies of treatment benefit are also important to establish that IMRT is at least as good as other types of delivery, but in the absence of such comparative trials, it is likely that benefit from IMRT is at least as good as with other types of delivery.

**Rationale**

This policy was originally created in 2008 and was regularly updated with searches of the MEDLINE database. The most recent literature search was performed for the period of March 11, 2013 through March 18, 2014. The following is a summary of the key findings to date.

As noted in the Description section, intensity-modulated radiation therapy (IMRT) detects the areas of radiation and adjusts the dose weighting and delivery to process the radiation plan. In contrast to 3-dimensional conformal radiotherapy (3D-CRT) that is accurate to within 7 to 10 mm, IMRT restricts the dose and provides accuracy within 1 to 3 mm. This policy focuses on systematic reviews that evaluate outcomes of IMRT treatment in patients with prostate cancer. This review will also summarize the data on adverse effects from these systematic reviews and representative primary studies, given that a reduction in adverse effects is likely to be the greatest potential benefit of IMRT. In this regard, the most relevant studies are comparative trials of IMRT versus 3D conformal radiation that report on rates of adverse events following treatment.

**Systematic Reviews**

In 2012, Bauman and colleagues published a systematic review that examined the evidence for IMRT in the treatment of prostate cancer in order to quantify its potential benefits and to make recommendations for radiation treatment programs considering adopting this technique within the province of Ontario, Canada. (1) Based on a review of 11 published reports through March 2009 (9 retrospective cohort studies and two randomized clinical trials [RCTs]) including 4,559 patients, the authors put forth the recommendation for IMRT over 3D-CRT for aggressive treatment of localized
prostate cancer where an escalated radiation (>70 Gy[gray]) dose is required. There were insufficient data to recommend IMRT over 3D-CRT in the postoperative setting. (1)

Nine of 11 studies reviewed by Bauman and colleagues reported on adverse effects. Six of 9 studies reported on acute gastrointestinal (GI) effects. (1) Four studies (3 retrospective cohort studies and 1 RCT) reported differences in adverse effects between IMRT and 3D-CRT. The RCT included a total of 78 patients and reported that acute GI toxicity was significantly less frequent in the IMRT group compared to 3D-CRT. This was true for grade 2 or higher toxicities (20% vs. 61%, p=0.001), grade 3 or higher toxicity (0 vs. 13%, p=0.001) and for acute proctitis (15% vs. 38%, p=0.03). In contrast, the second RCT included in this systematic review reported that there were no differences in toxicity between IMRT and 3D-CRT. (1)

Six of 9 studies reported on acute genitourinary (GU) effects. One study, which was a retrospective cohort study including 1,571 patients, reported a difference in overall acute GU effects in favor of 3D-CRT (37% IMRT vs. 22% 3D-CRT, p=0.001). For late GI toxicity, 4 of 9 studies, all retrospective cohort studies with a total of 3,333 patients, reported differences between IMRT and 3D-CRT. One RCT reported on late GI toxicity and did not find any differences between IMRT and 3D-CRT. Five of 9 studies reported on late GU effects, and only one reported a difference in late GU effects in favor of 3D-CRT (20% vs. 12%, p=0.01). Two retrospective cohort studies reported mixed findings on quality-of-life outcomes. (1) A subsequent economic analysis (based on this systematic review data) demonstrated that for radical radiation treatment (>70 Gy) of prostate cancer, IMRT seems to be cost-effective when compared with an equivalent dose of 3D-CRT from the perspective of the Canadian health care system for 2009. (2)

In 2008, the Agency for Healthcare Research and Quality (AHRQ) published a systematic review comparing the relative effectiveness and safety of various treatment options for clinically localized prostate cancer. (3) Studies on IMRT were included in the assessment under the category of EBRT. Based on review of RCTs and nonrandomized studies published from 2000 to September 2007, there was no direct evidence (i.e., from RCTs) that IMRT resulted in better survival or disease-free survival than other therapies for localized prostate cancer. Based on case-series data, the absolute risks of clinical and biochemical outcomes (including tumor recurrence), toxicity, and quality of life after IMRT were comparable with conformal radiation. For IMRT, the percent of patients with grade 1 and 2 acute GI toxicity was 22% and 4%, respectively; the percent of patients with rectal bleeding was 1.6-10%; and the percent of patients with grade 2 GU toxicity was 28-31%. This review concluded that there was low-level evidence that IMRT provides at least as good a radiation dose to the prostate with less radiation to the surrounding tissues compared with conformal radiation therapy. (3)

In 2010, an update of the 2008 AHRQ systematic review was undertaken by the AHRQ Technology Assessment Program. (4) As with the 2008 review, this review concluded that the available data were insufficient to compare the effectiveness of the various forms of radiation treatments. Studies on IMRT were included in the assessment under the category of external-beam radiation therapy (EBRT) and thus reported data were not specific to IMRT. While higher EBRT dosages may result in longer-term biochemical control than lower EBRT dosages, overall and disease-specific survival data were inconclusive. Additionally, GU and GI toxicities experienced with EBRT did not seem to differ when standard fractionation was compared to moderate hypofractionization. The authors noted the need for further studies to evaluate outcomes of IMRT for the treatment of prostate cancer. (4) In addition, a subsequent report undertaken by the AHRQ Comparative Effectiveness Review Surveillance Program using the search strategy employed for the 2008 systematic review found no new data on IMRT following a limited literature search of the MEDLINE database through March 2012. (5)

Similar findings were observed in a systematic review of the clinical effectiveness of IMRT for the radical treatment of prostate cancer undertaken by the U.K. Health Technology Assessment Programme in 2010. (6) The authors also performed an economic analysis which demonstrated IMRT to be cost-effective from the perspective of the U.K. National Health Service for 2008/09 if this treatment modality can be used to prolong survival. (7)
An earlier review by the Institute for Clinical and Economic Review (8) reached the following conclusions in 2007:

“The literature on comparative rates of toxicity has serious methodological weaknesses. There are no prospective randomized trials or cohort trials, and the case series that exist are hampered by the lack of contemporaneous cohorts and/or by a failure to describe the selection process by which patients were assigned to IMRT vs. 3D-CRT. Published case series demonstrate consistent findings of a reduced rate of GI toxicity for IMRT at radiation doses from approximately 75–80 Gy [grays]. Data on GU [genitourinary] toxicity have not shown superiority of IMRT over 3D-CRT, nor do the existing data suggest that IMRT provided a lower risk of erectile dysfunction.”

“The literature suggests that the risk of Grade 2 GI toxicity is approximately 14% with 3D-CRT and 4% with IMRT. Thus, the number of patients needed to treat to prevent one case of moderate-severe proctitis is 10, and for every 100 patients treated with IMRT instead of 3D-CRT, 10 cases of GI toxicity would be expected to be prevented.”

**Primary studies reporting on outcomes and adverse effects**

The use of IMRT for prostate cancer has increased significantly and long-term data on biochemical control rates and toxicity has demonstrated benefits with the use of IMRT in some risk groups. The majority of studies are case series, with a lack of high-quality, prospective comparative studies comparing IMRT to standard radiotherapy.

One study reporting comparative data of IMRT compared to 3D-CRT is a publication from the Radiation Therapy Oncology Group 0126 prostate cancer trial. (9) In this trial, the initial protocol was for 3d conformal radiation, but during the trial the protocol was amended to provide IMRT. As a result, 491 patients were treated with 3D-CRT and 257 were treated with IMRT. Radiation exposure for the bladder and rectum were significantly reduced with IMRT. There was a significant decrease in grade 2 or greater late GI toxicity for IMRT on univariate analysis (p=0.039). On multivariate analysis, there was a 26% reduction in grade 2 or higher GI toxicity for the IMRT group, but this difference did not meet statistical significance (p=0.099). There were no differences in early or late GU toxicity between groups. This study offers some comparative data that supports lower toxicity for IMRT, but it is limited by the non-concurrent use of IMRT and 3D-CRT, and the lack of statistical significance on most outcomes.

Vora et al, reported on 9-year tumor control and chronic toxicities observed in 302 patients treated with IMRT for clinically localized prostate cancer at one institution. (10) The median dose delivered was 76 Gy (range 70–77 Gy), and 35% of patients received androgen deprivation therapy. Local and distant recurrence rates were 5% and 8.6%, respectively. At 9 years, biochemical control rates were close to 77% for low-risk, 70% for intermediate-risk, and 53% for high-risk patients (log rank p=0.05). At last follow-up, only 0%/0.7% had persistent grade ≥3 GI/GU toxicity. The high-risk group was associated with a higher distant metastasis rate (p=0.02) and death from prostate cancer (p=0.001). (10)

Alicikus et al, reported on 10-year outcomes in 170 patients treated after high-dose IMRT (81 Gy). (11) The 10-year actuarial prostate-specific antigen (PSA) relapse-free survival rates were 81% for the low-risk group, 78% for the intermediate-risk group, and 62% for the high-risk group. The 10-year distant metastases–free rates were 100%, 94%, and 90%, respectively, and cause-specific mortality rates were 0%, 3%, and 14%, respectively. The 10-year likelihood of developing grade 2 and 3 late genitourinary toxicity was 11% and 5%, respectively, and the likelihood of developing grade 2 and 3 late gastrointestinal toxicity was 2% and 1%, respectively. No grade 4 toxicities were observed. These findings indicate that IMRT is associated with good long-term tumor-control and low rates of serious toxicity in patients with localized prostate cancer. (11)

In 2008, Zelefsky and colleagues reported on the incidence and predictors of treatment-related toxicity at 10 years after 3D-CRT and IMRT for localized prostate cancer. (12) Between 1988 and 2000, 1,571 patients with stages T1-T3 prostate cancer were treated with 3D-CRT or IMRT, with doses ranging from
66 to 81 Gy. Twenty-two percent were considered to be at low risk, as based on National Comprehensive Cancer Network (NCCN) guidelines. The median follow-up was 10 years. The actuarial likelihood at 10 years for the development of Grade 2 or higher GI toxicities was 9%. The use of IMRT significantly reduced the risk of GI toxicities compared with patients treated with conventional 3D-CRT (13% to 5%; p<0.001). Among patients who experienced acute symptoms, the 10-year incidence of late toxicity was 42%, compared with 9% for those who did not experience acute symptoms. The 10-year incidence of late Grade 2 or higher GU [genitourinary] toxicity was 15%. Patients treated with 81 Gy (IMRT) had a 20% incidence of GU symptoms at 10 years, compared with 12% for patients treated with lower doses (p=0.01). Among patients who had developed acute symptoms during treatment, the incidence of late toxicity at 10 years was 35%, compared with 12%. The incidence of grade 3 GI and GU toxicities was 1% and 3%, respectively. The authors concluded that serious late toxicity was unusual despite the delivery of high radiation dose levels in these patients. They also noted that higher doses were associated with increased GI and GU grade 2 toxicities, but the risk of proctitis was significantly reduced with IMRT.

Cahlon and colleagues reported on preliminary biochemical outcomes and toxicity with high-dose IMRT to a dose of 86.4 Gy for localized prostate cancer. (13) For this study, 478 patients were treated between August 1997 and March 2004 with 86.4 Gy using a 5- to 7-field IMRT technique. The median follow-up was 53 months. Thirty-seven patients (8%) experienced acute grade 2 GI toxicity; none had acute grade 3 or 4 GI toxicity; 105 patients (22%) experienced acute grade 2 GU toxicity; and 3 patients (0.6%) had grade 3 GU toxicity. Sixteen patients (3%) developed late grade 2 GI toxicity; 2 patients (<1%) developed late grade 3 GI toxicity; 60 patients (13%) had late grade 2 GU toxicity; and 12 (<3%) experienced late grade 3 GU toxicity. The 5-year actuarial PSA [prostate-specific antigen] relapse-free survival, according to the nadir plus 2 ng/mL definition, was 98%, 85%, and 70% for the low-, intermediate-, and high-risk NCCN prognostic groups. The authors concluded that treatment with ultra-high radiation dose levels of 86.4 Gy using IMRT for localized prostate cancer is well-tolerated, and the early excellent biochemical control rates are encouraging. These results based on a case series should be considered as preliminary.

In 2009, Wong and colleagues reported on a retrospective study of radiation dose escalation in 853 patients with localized (T1c-T3N0M0) prostate cancer. (14) Radiation therapies used included conventional dose (71 Gy) 3D-CRT (n=270), high-dose (75.6 Gy) IMRT (n=314), permanent transperineal brachytherapy (n=225), and external-beam radiotherapy (EBRT) plus brachytherapy boost (n=44). All patients were followed for a median of 58 months (range, 3 to 121 months). The authors reported:

"The 5-year overall survival for the entire group was 97%. The 5-year [biochemical control] bNED rates, local control rates, and distant control rates were 74%, 93%, and 96%, respectively, for 3D-CRT; 87%, 99%, and 97%, respectively, for IMRT; 94%, 100%, and 99%, respectively, for BRT alone; and 94%, 100%, and 97%, respectively, for EBRT + BRT. The bNED rates for 3D-CRT were significantly less than those of the other higher dose modalities (P<.0001)."

Intermediate- and high-risk prostate cancer patients in this study had significantly improved 5-year bNED rates with dose escalation. However, in low-risk prostate cancer patients, bNED rates with dose escalation were not improved compared to conventional dose 3D-CRT. The authors also found acute and late grade-2 and -3 GU toxicities were fewer with IMRT than brachytherapy or EBRT plus brachytherapy.

In a 2013 review of data from the Surveillance, Epidemiology, and End Results (SEER) Medicare database, Gandaglia et al, evaluated 42,483 patients treated with IMRT or initial observation for prostate cancer between 2001 and 2007. (15) Propensity-score matching of patients in both treatment groups resulted in 19,064 patients for inclusion in the analysis (n= 9,532 in each treatment group). The median follow-up was 50 months. Cancer-specific mortality (CSM) rates at 8-years were 3.4% for IMRT and 4.1% for initial observation (p<0.001). When patients were stratified by risk categories, IMRT was not associated with lower 8-year CSM rates than observation (2.5% vs. 1.7%, respectively, p=0.7) in
patients with low- or intermediate-risk disease. The 8-year CSM rates continued to be not statistically significantly different when patients with low- or intermediate-risk disease were stratified by age and Charlson comorbidity index ([CCI] all p≥0.5). In high-risk disease patients, 8-year CSM rates were 5.8% for IMRT versus 10.5% for observation (p<0.001). After stratifying patients according to age (<73, ≥73) and CCI (≤1, ≥2), in high-risk disease patients, the 8-year CSM rates continued to be statistically significantly better in the IMRT groups than the observation groups (all p<0.002).

**Ongoing Clinical Trials**

A search of online site Clinicaltrials.gov on March 18, 2014 identified several Phase III randomized clinical trials of IMRT for prostate cancer. Some trials were identified comparing IMRT to other radiation modalities for the treatment of prostate cancer. One Phase III randomized clinical trial is comparing IMRT to proton beam therapy to determine which therapy best minimizes the side effects of treatment (NCT01617161). This trial has an estimated enrollment of 461 patients and is sponsored by the Massachusetts General Hospital in collaboration with the University of Pennsylvania and the National Cancer Institute. The primary outcome measure is disease-free survival at 5 years. This study is currently recruiting participants with the estimated completion date of January 2016.

In a Canadian randomized Phase III trial, 3D-CRT is being compared to helical tomotherapy IMRT in high-risk prostate cancer patients (NCT00326638). This trial has an estimated enrollment of 72 patients and is sponsored by the Ottawa Hospital Research Institute. The primary outcome measure is late rectal toxicity from radiotherapy of the prostate. This study is currently recruiting participants with the estimated completion date of May 2014.

In another randomized Phase III trial, hypofractionated 3D-CRT or IMRT is being compared to conventionally fractionated 3D-CRT or IMRT in favorable-risk prostate cancer (NCT00331773). This trial has an estimated enrollment of 1,067 patients and is sponsored by the Radiation Therapy Oncology Group-National Cancer Institute. The primary outcome measure is disease-free survival at 5 years. This study is currently recruiting participants with the estimated completion date of February 2021.

A randomized ongoing Phase III trial studying the adverse effects of 3 schedules of IMRT in treating patients with localized prostate cancer is being undertaken by the U.K. Institute of Cancer Research (NCT00392535). This is a multicenter trial (n=26 centers) with an estimated enrollment of 2,163 patients. The primary outcome measures are acute and late radiation-induced side effects and freedom from prostate cancer recurrence. This study completion date was September 2012, but final results are not published. Preliminary results of this study have been published which report that hypofractionated IMRT (57-60 Gy) seems equally well-tolerated as conventionally fractionated treatment (74 Gy) at 2 years of follow-up. (16)

**Summary**

The evidence base for intensity-modulated radiation therapy (IMRT) of the prostate consists largely of lower quality studies, with a lack of high-quality comparative studies reporting on clinical outcomes. In general, where the radiation doses are similar, the available evidence suggests that IMRT provides tumor control rates comparable to existing radiotherapy techniques. In addition, while results are not uniform and are based primarily on retrospective cohort trials, some studies show reductions in gastrointestinal and genitourinary toxicity. A reduction in clinically significant complications of radiation therapy is likely to lead to an improved quality of life for treated patients. Thus, despite limitations in the published literature, IMRT is another technique that can be used to deliver radiation therapy in the treatment of localized prostate cancer, and its use for this clinical application may be considered medically necessary.

**Practice Guidelines and Position Statements**
The most recent National Comprehensive Cancer Network (NCCN) guidelines (V1.2014) for prostate cancer indicate, in the principles of radiation therapy, highly conformal radiation therapy should be used in conventional fraction doses of 75.6 to 79.2 Gy for low-risk prostate cancer and up to 81 Gy for intermediate- and high-risk prostate cancer. The discussion section indicates IMRT is preferred over 3D-CRT since it seems to decrease salvage therapy rates while the risk of side effects such as gastrointestinal toxicities are reduced with IMRT. (17) The NCCN guidelines also indicate 3D-CRT or IMRT may be considered as initial treatment options in all prostate cancer patients except for patients with a very-low risk of recurrence and less than 20 years’ expected survival.

The American College of Radiology Appropriateness Criteria indicates IMRT is appropriate for field shaping in patients being treated for clinically localized prostate cancer. (18) Additionally, the ACR guidelines indicate IMRT is most appropriate for treatment planning for dose escalation.

**Medicare National Coverage**

No national coverage determination (NCD) was identified. In the absence of an NCD, coverage decisions are left to the discretion of local Medicare carriers.

**References:**


**Billing Coding/Physician Documentation Information**

0073T Compensator-based beam modulation treatment delivery of inverse planned treatment using 3 or more high resolution (milled or cast) compensator convergent beam modulated fields, per treatment session

77301 Intensity modulated radiotherapy plan, including dose-volume histograms for target and critical structure partial tolerance specifications

77338 Multi-leaf collimator (MLC) device(s) for intensity modulated radiation therapy (IMRT), design and construction per IMRT plan

77418 Intensity modulated treatment delivery, single or multiple fields/arcs, via narrow spatially and temporally modulated beams, binary, dynamic MLC, per treatment session

77421 Stereoscopic X-ray guidance for localization of target volume for the delivery of radiation therapy

**Additional Policy Key Words**

N/A

**Policy Implementation/Update Information**

5/1/09 New policy; considered medically necessary.
1/1/10 Coding updated. Policy number changed from 2.03.09 to 8.01.47.
5/1/10 No policy statement changes.
5/1/11 No policy statement changes.
5/1/12 No policy statement changes.
5/1/13 No policy statement changes.
5/1/14 Policy statement added stating other indications not meeting the criteria for medical necessity are considered investigational.

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