



CIGNA MEDICAL COVERAGE POLICY

The following Coverage Policy applies to all plans administered by CIGNA Companies including plans administered by Great-West Healthcare, which is now a part of CIGNA.

Subject Proton Beam Therapy for Prostate Cancer

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- Brachytherapy for Prostate Cancer
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- Neutron Beam Therapy
- Prostate-Specific Antigen (PSA) Screening for Prostate Cancer
- Transrectal Ultrasound (TRUS)

INSTRUCTIONS FOR USE

Coverage Policies are intended to provide guidance in interpreting certain **standard** CIGNA HealthCare benefit plans as well as benefit plans formerly administered by Great-West Healthcare. Please note, the terms of a participant's particular benefit plan document [Group Service Agreement (GSA), Evidence of Coverage, Certificate of Coverage, Summary Plan Description (SPD) or similar plan document] may differ significantly from the standard benefit plans upon which these Coverage Policies are based. For example, a participant's benefit plan document may contain a specific exclusion related to a topic addressed in a Coverage Policy. In the event of a conflict, a participant's benefit plan document **always supercedes** the information in the Coverage Policies. In the absence of a controlling federal or state coverage mandate, benefits are ultimately determined by the terms of the applicable benefit plan document. Coverage determinations in each specific instance require consideration of 1) the terms of the applicable group benefit plan document in effect on the date of service; 2) any applicable laws/regulations; 3) any relevant collateral source materials including Coverage Policies and; 4) the specific facts of the particular situation. Coverage Policies relate exclusively to the administration of health benefit plans. Coverage Policies are not recommendations for treatment and should never be used as treatment guidelines. Proprietary information of CIGNA. Copyright ©2010 CIGNA

Coverage Policy

CIGNA covers proton beam therapy (PBT) as medically necessary for the treatment of localized cancer of the prostate (i.e., cancer that is confined to the prostate). CIGNA considers proton beam therapy to be clinically equivalent, but not clinically superior, to conventional external beam radiation therapy for the treatment of localized cancer of the prostate.

Coverage for proton beam therapy for the treatment of localized prostate cancer may depend upon the applicable health benefit plan definition of medical necessity. Many health benefit plans administered by CIGNA contain definitions of medical necessity which include a cost comparison component.* Because proton beam therapy for the treatment of prostate cancer is significantly more expensive than conventional external beam radiation therapy but is not clinically superior, it is considered not medically necessary under those plans. For health benefit plans which contain definitions of medical necessity that do not include a cost comparison component, proton beam therapy may be covered as medically necessary for the treatment of localized prostate cancer (i.e., cancer that is confined to the prostate).

Note: If conventional external beam radiation therapy is available in-network, but proton beam therapy is not, then proton beam therapy for the treatment of prostate cancer is not covered as an in-network benefit because proton beam therapy is not considered to be clinically superior to conventional external beam radiation therapy for the treatment of localized prostate cancer.

Proton beam therapy for the treatment of prostate cancer may be covered ONLY as an out-of-network benefit in plans which provide out-of-network benefits.

***As an example, some benefit plans administered by CIGNA define Medically Necessary/Medical Necessity, in pertinent part, as "not more costly than an alternative service or sequence of services at least as likely to produce equivalent therapeutic or diagnostic results as to the diagnosis or treatment of that individual's illness, injury or disease."**

General Background

Cancer of the prostate is typically a cancer in older men and responds well to treatment. Treatment options include active surveillance (i.e., watchful waiting), surgical excision, radiation therapy (e.g., conventional radiation therapy, brachytherapy, intensity-modulated radiation therapy [IMRT]), hormonal therapy, and cryoablation (American Cancer Society, 2010; National Cancer Institute, 2010; National Comprehensive Cancer Network®, 2010).

Proton beam therapy (PBT) is a form of stereotactic radiosurgery that delivers a focused dose of radiation energy to the targeted area while surrounding normal tissue receives minimal radiation. PBT releases its highest percentage of energy at the end of its path (i.e., Bragg peak), depositing 100% of the dosage at the targeted tissue. In contrast, conventional external beam radiation therapy (EBRT) delivers radiation to all involved tissue, diseased and normal, and targeted tissue receives 60–70% of the intended dose (Nguyen, et al., 2008; Smith, et al., 2006; MacDonald, et al., 2006; Chen and Girvigian, 2005). PBT is an accepted treatment modality for prostate cancer, but its use has not been proven to result in better outcomes (e.g., overall survival, disease-specific survival, long-term survival, total recurrence-free survival) compared to conventional radiation therapy. Some studies have reported more complications (e.g., rectal bleeding, hematuria, urethral stricture) following PBT.

U.S. Food and Drug Administration (FDA)

Proton beam therapy systems are approved by the FDA as a 510(k) class II "medical device designed to produce and deliver a proton beam for the treatment of patients with localized tumors and other conditions susceptible to treatment by radiation" (FDA, 2006). Examples of these devices include the Proton Therapy System (Ion Beam Applications, Philadelphia, PA) and Optivus Proton Beam Therapy System (Optivus Technology, Inc., San Bernardino, CA).

Literature Review

The safety and efficacy of PBT for the treatment of prostate cancer are supported by systematic reviews (Lodge, et al., 2007; Olsten, et al., 2007), randomized controlled trials (Zietman, et al., 2010; Zietman, et al., 2005), non-randomized comparative studies (Slater, et al., 2004), case series (Mayahara, et al., 2007; Nihei, et al., 2005) and retrospective reviews (Gardner, et al., 2002; Schulte, et al., 2000).

Studies comparing PBT alone to conventional radiation therapy, brachytherapy or IMRT are lacking. Studies have primarily compared outcomes following photon (i.e., conventional) radiation therapy to photon therapy plus a proton boost. Overall, studies have reported that outcomes from treatment with PBT were as good as, but not better than conventional radiation therapy. In a systematic review, Brada et al. (2009) stated that there is currently no objective evidence of benefit in any of the important outcome measures for protons compared with photons".

In a 2010 technology assessment on radiation therapy for prostate cancer, the Agency for Healthcare Research and Quality (AHRQ) concluded that "definitive benefits of radiation treatments compared to no treatment or no initial treatment (i.e., watchful waiting, active surveillance) for localized prostate cancer could not be determined because available data were insufficient". AHRQ reported that data on comparative effectiveness between different forms of radiation therapy (RT) including brachytherapy, two-dimensional RT (2DRT), three dimensional conformal RT (3DCRT), intensity modulated RT (IMRT), image-guided RT (IGRT), stereotactic body RT (SBRT), and PBT are inconclusive as to whether one form of radiation therapy is superior to another in overall or disease-specific survival. They found no comparative trials evaluating the role of particle therapy (e.g., PBT).

In a technology assessment on brachytherapy and PBT for the treatment of clinically-localized, low-risk prostate cancer, the Institute for Clinical and Economic Review (ICER) (2008) stated that randomized controlled trials do not exist that compare the benefit and/or harm between brachytherapy, PBT, IMRT and active surveillance. PBT studies were mainly in the form of single-center case series and “extremely limited in providing robust evidence on either biochemical failure or rates of acute and chronic toxicities of treatment”. Reported rates of freedom from biochemical failure included 69%–99% for PBT (n=6 studies) and 79%-95% for IMRT (n=7 studies) within a 1.5–6 year time period, and 45%–73% (n=7 studies) for active surveillance within a 5–15 year follow-up. For radiation-induced malignancies, ICER reported an estimated 1% lifetime attributable risk following IMRT and PBT compared to 0.5% for brachytherapy. A meta-analysis of toxicities revealed that the rate of late gastrointestinal (GI) toxicities included 16.7% following PBT, 6.6% following IMRT, and 4.0% following brachytherapy. ICER stated that the “review of clinical effectiveness provided the base case assumption that the effectiveness of brachytherapy, IMRT and PBT are equivalent”. A clear pattern of significant clinical superiority was not found for any treatment modality.

Professional Societies/Organizations

American Cancer Society (ACS): In their discussion of radiation therapy for prostate cancer, the ACS (2010) states that protons may be able to deliver more radiation to the prostate while doing less damage to normal tissue. Early results are promising, but long-term advantages over external beam radiation have not been proven.

American College of Radiology (ACR): On an appropriateness criteria scale of one to nine, with nine being the most appropriate treatment, the ACR rated proton beam therapy as a level seven therapy for the treatment of prostate cancer. They stated that newer conformal radiation therapy methods, including PBT, “have allowed radiation oncologists to improve the therapeutic ratio by lowering the dose to surrounding critical structures while simultaneously safely escalating the dose to the disease target” (Michalski, et al., 2006). PBT was not listed as a treatment option for locally advanced, high-risk prostate cancer (Lee, et al., 2006), for node-positive prostate cancer or following radical prostatectomy (Rossi, et al., 2010; Pollack, et al., 2006; Lawton, et al., 2006).

American Urological Association (AUA): The guidelines on the management of prostate cancer published by the AUA (2009) discussed external beam radiation therapy (EBRT) as a treatment option for prostate cancer. According to AUA, randomized trials have guided the use of radiation dose escalation and hormone therapy. Hormone therapy and EBRT may be indicated in men with a Gleason score of seven or higher or a PSA greater than 10 nanograms per milliliter. When indicated, radiation dose escalation may be accomplished by “CT scan for treatment planning and either a multileaf collimator, intensity modulated radiation therapy (IMRT) or proton radiotherapy using a high-energy (6 mega-Volts or higher) photon beam”.

National Cancer Institute (NCI): The NCI (2010) lists PBT as a treatment option under clinical evaluation due to a lack of supporting data. NCI states “although proton therapy could theoretically improve the therapeutic ratio of prostate radiation, allowing for an increase in dose to the tumor without a substantial increase in side effects, no randomized controlled trials have been conducted to compare its efficacy and toxicity with those of other forms of radiation therapy”.

National Comprehensive Cancer Network® (NCCN®): NCCN (2010) states that PBT can be used as an alternative radiation source for the treatment of prostate cancer, but it is not recommended for routine use. Clinical trials have not reported data that “demonstrates superiority or equivalence of proton beam compared to conventional external beam for treatment of prostate cancer”.

Summary

Although a number of prostate cancer patients have been successfully treated with proton beam radiation therapy, there is insufficient evidence in the published peer-reviewed scientific literature to support clinical superiority of proton beam therapy (PBT) over conventional external beam radiation therapy in terms of long-term outcomes, side effects and complications. Studies that have compared conventional radiation therapy to PBT or with a PBT boost did not report a significant improvement in long-term survival rate, overall survival rate, or disease-free survival rate. Some studies reported the occurrence of more severe complications following PBT.

Coding/Billing Information

Note: This list of codes may not be all-inclusive.

Covered when medically necessary:

CPT [®] * Codes	Description
77520	Proton treatment delivery; simple, without compensation
77522	Proton treatment delivery; simple, with compensation
77523	Proton treatment delivery; intermediate
77525	Proton treatment delivery; complex

ICD-9-CM Diagnosis Codes	Description
185	Malignant neoplasm of prostate
233.4	Carcinoma in situ of prostate

*Current Procedural Terminology (CPT[®]) ©2010 American Medical Association: Chicago, IL.

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Policy History

Pre-Merger Organizations	Last Review Date	Policy Number	Title
CIGNA HealthCare	12/15/2007	0252	Proton Beam Therapy for Prostate Cancer

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Connecticut General Life Insurance Company has acquired the business of Great-West Healthcare from Great-West Life & Annuity Insurance Company (GWLA). Certain products continue to be provided by GWLA (Life, Accident and Disability, and Excess Loss). GWLA is not licensed to do business in New York. In New York, these products are sold by GWLA's subsidiary, First Great-West Life & Annuity Insurance Company, White Plains, N.Y.