

## Medical Affairs Policy & Procedure

**Title/Service:** Proton Beam Radiotherapy (PBRT)

<b>Revised</b>	
<b>Reviewed</b>	01/23/04, 06/02/06, 11/16/07, 11/21/08, 12/28/09, 07/27/10, 09/16/2011
<b>Developed</b>	01/23/04
<b>Policy Committee Approval</b>	09/16/2011

### **Description:**

Proton Beam Radiotherapy is a method of delivering radiation to diseased tissue while limiting damage to adjacent normal tissue, since proton beams have less scatter than other sources of radiation.

### **Indications of Coverage:**

Proton Beam Radiotherapy is considered medically necessary for any of the following indications:

- A. Melanoma of the uveal tract (iris, choroids, or ciliary body)
- B. Chordoma or chondrosarcoma of the skull base or cervical spine
- C. Intracranial arteriovenous malformations not amenable to other forms of treatment
- D. Pituitary neoplasms

### **Limitations of Coverage:**

- A. Review contract and endorsements for exclusions and prior authorization or benefit requirements.
- B. If used for a condition/diagnosis other than is listed in the Indications of Coverage, deny as experimental or investigative.
- C. If used for a condition/diagnosis that is listed in the Indications of Coverage, but the criteria are not met, deny as not medically necessary.

### **Documentation Required:**

- Documentation supporting an appropriate diagnosis

## **Rationale:**

Studies comparing PBRT to conventional RT found no difference in survival rate; however, because there is less scatter, PBRT minimizes collateral damage to adjacent structures and allows increased RT to the site of disease. PBRT has been shown to be especially effective in treating disease next to structures where surgery or conventional radiation is not possible. The studies regarding the use of PBRT for prostate cancer have not shown improved outcomes with the use of PBRT when compared to standard treatment.

## **References:**

1. Agency for Healthcare Research and Quality (AHRQ). Research reviews. Particle beam radiation therapies for cancer. Sep 2009. Available at: [www.effectivehealthcare.ahrq.gov/ehc/products/58/173/particle%20beam%20mainreptrev11-09\(r\).pdf](http://www.effectivehealthcare.ahrq.gov/ehc/products/58/173/particle%20beam%20mainreptrev11-09(r).pdf). Accessed: 29 Aug 11.
2. American College of Radiology. Expert Panel on Radiation Oncology-Prostate Work Group. Reston (VA): American College of Radiology (ACR). Available at: [www.acr.org/SecondaryMainMenuCategories/quality\\_safety/app\\_criteria.aspx](http://www.acr.org/SecondaryMainMenuCategories/quality_safety/app_criteria.aspx). Accessed: 29 Aug 11.
3. Blomquist E, Bjelkengren G, Glimelius B. The potential of proton beam radiation therapy in intracranial and ocular tumours. *Acta Oncol.* 2005;44(8):862-70.
4. BlueCross BlueShield Association (BCBSA) Technology Evaluation Center (TEC). Proton Beam Therapy for Prostate Cancer. TEC Assessment Program. Vol. 25, No. 10. Chicago IL: BCBSA; 2008 Sept. Accessed Mar 11, 2010. Available at: [www.bcbs.com/blueresources/tec/vols/25/25\\_10.pdf](http://www.bcbs.com/blueresources/tec/vols/25/25_10.pdf). Accessed: 29 Aug 11.
5. Damato B, Kacperek A, Chopra M, Sheen MA, Campbell IR, Errington RD. Proton beam radiotherapy of iris melanoma. *Int J Radiat Oncol Biol Phys.* 2005 Sep 1;63(1):109-15.
6. Gudjonsson O, Blomquist E, Nyberg G, Pellettieri L, Montelius A, Grusell E, Dahlgren C, Isacson U, Lilja A, Glimelius B. Stereotactic irradiation of skull base meningiomas with high energy protons. *Acta Neurochir (Wien).* 1999;141(9):933-40.
7. Kodjikian L, Roy P, Rouberol F, Garweg JG, Chauvel P, Manon L, Jean-Louis B, Little RE, Sasco AJ, Grange JD. Survival after proton-beam irradiation of uveal melanomas. *Am J Ophthalmol.* 2004 Jun;137(6):1002-10.
8. MacDonald SM, DeLaney TF, Loeffler JS. Proton beam radiation therapy. *Cancer Invest.* 2006 Mar;24(2):199-208.
9. National Cancer Institute (NCI). Factsheet. Radiation Therapy for Cancer: Questions and Answers. Aug 25, 2004. Available at: [www.cancer.gov](http://www.cancer.gov). Accessed: 29 Aug 11.

10. Ross J, Al-Shahi Salman R. Interventions for treating brain arteriovenous malformations in adults. Cochrane Database of Systematic Reviews 2010, Issue 7. Art. No.: CD003436. DOI: 10.1002/14651858.CD003436.pub3. Available at: [www2.cochrane.org/reviews/en/ab003436.html](http://www2.cochrane.org/reviews/en/ab003436.html). Accessed: 29 Aug 11.

*Approved by the Medical Director*