2007 QRRO Clinical Performance Measures (CPM)

Radiation Oncology – Prostate

Measure #P_CM1- Use of high energy linear accelerators (>=6MV) in men with non-metastatic prostate cancer treated with external beam radiotherapy (photons or protons).

Type of Measure: This measure is appropriately used as a quality improvement measure.

Clinical Performance Measure
Quantifiable Measure: Percentage of patients with non-metastatic prostate cancer who receive treatment with protons or high energy photons (>=6MV).
Numerator: Patients with non-metastatic prostate cancer who receive treatment with protons or high energy photons (>=6MV).
Denominator: Patients with non-metastatic prostate cancer who receive external beam radiotherapy.
Denominator exclusions: None
Rationale for the measure: Previous population-based analyses have decreased recurrence rates when megavoltage energies >= 6MV are used. (1)
The following clinical recommendation statements are quoted verbatim from the referenced clinical guidelines and represent the evidence base for the measure: “prostate cancer must be treated with high energy linear accelerators...if optimal results are to be obtained” (1)
QRRO Survey Form Questions: I1 - 34, 40

References

1. Hanks GE. External-beam radiation therapy for clinically localized prostate cancer: patterns of care studies in the United States. NCI Monogr 1988;(7):75-84.

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Radiation Oncology – Prostate

Measure #P_CM2: Use of dose levels >= 75 Gy (or CGE) for non-metastatic intermediate and high-risk prostate cancer treated with external beam radiotherapy alone.

Type of Measure: This measure is appropriately used as a quality improvement measure.

Clinical Performance Measure
Quantifiable Measure: Percentage of patients with non-metastatic intermediate and high-risk prostate cancer treated with external beam radiotherapy alone who receive >=75 Gy (or CGE).
Numerator: Patients with non-metastatic intermediate and high-risk prostate cancer treated with external beam radiotherapy alone who receive >=75 Gy (or CGE).
Denominator: All patients with non-metastatic intermediate and high-risk prostate cancer treated with external beam radiotherapy alone.
Denominator exclusions: Medical co-morbidities (e.g. Coumadin therapy)
Rationale for the measure: Multiple randomized trials have been published that indicate lower rates of recurrence with doses above 74 Gy (or CGE). (1-4)
The following clinical recommendation statements are quoted verbatim from the referenced clinical guidelines and represent the evidence base for the measure: “For patients with intermediate- or high risk disease, doses between 75-80 Gy appear to provide improved PSA-assessed disease control” (5)
QRRO Survey Form Questions: I1 - 1, 12,15, 34, 51, 55, 59, 63, 72, 73, 201 - 212, 213

References

1. Dearnaley DP, Sydes MR, Graham JD, Aird EG, Bottomley D, Cowan RA et al. Escalated-dose versus standard-dose conformal radiotherapy in prostate cancer: first results from the MRC RT01 randomized controlled trial. Lancet Oncol 2007; 8(6):475-487.

2. Kuban DA, Thames HD, Levy LB, Horwitz EM, Kupelian PA, Martinez AA et al. Long-term multi-institutional analysis of stage T1-T2 prostate cancer treated with radiotherapy in the PSA era. Int J Radiat Oncol Biol Phys 2003; 57(4):915-928.

3. Peeters ST, Heemsbergen WD, Koper PC, van Putten WL, Slot A, Dielwart MF et al. Dose-response in radiotherapy for localized prostate cancer: results of the Dutch multicenter randomized phase III trial comparing 68 Gy of radiotherapy with 78 Gy. J Clin Oncol 2006; 24(13):1990-1996.

4. Zietman AL, Desilvio ML, Slater JD, Rossi CJ, Jr., Miller DW, Adams JA et al. Comparison of conventional-dose vs high-dose conformal radiation therapy in clinically localized adenocarcinoma of the prostate: a randomized controlled trial. JAMA 2005; 294(10):1233-1239.

5. National Comprehensive Cancer Network (NCCN). Clinical Practice Guidelines in Oncology: Prostate Cancer. Version 2.2007. Available at: www.nccn.org/professionals/physician_gls/default.asp

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Radiation Oncology – Prostate

Measure #P_CM3: Androgen suppression therapy concurrent with external beam radiotherapy for high risk disease (T3 or Gleason 8-10 or PSA > 20)

Type of Measure: This measure is appropriately used as a quality improvement measure.

Clinical Performance Measure
Quantifiable Measure: Percentage of patients with high risk prostate cancer (T3 or Gleason 8-10 or PSA > 20) treated with external beam radiotherapy that receives androgen suppression therapy.
Numerator: Patients with high risk prostate cancer who receive androgen deprivation therapy concurrent with external beam radiotherapy.
Denominator: All patients with high risk prostate cancer who receive external beam radiotherapy.
Denominator exclusions: Medical comorbidities (e.g. symptomatic cardiovascular disease)
Rationale for the measure: Multiple randomized trials including men with high risk prostate cancer have documented improved outcomes when androgen suppression therapy is used concurrent with external beam radiotherapy. (1-4)
The following clinical recommendation statements are quoted verbatim from the referenced clinical guidelines and represent the evidence base for the measure: “Patients with high-risk cancers are candidates for…the addition of neoadjuvant +/- adjuvant androgen deprivation therapy for a total of 2-3 years” (5)
QRRO Survey Form Questions: I1 - 1, 12, 13, 15, 25, 26, 28, 32, 34, 201 - 212, 213, 227, 229

References

1. Bolla M, Collette L, Blank L, Warde P, Dubois JB, Mirimanoff RO et al. Long-term results with immediate androgen suppression and external irradiation in patients with locally advanced prostate cancer (an EORTC study): a phase III randomized trial. Lancet 2002; 360(9327):103-106.

2. Denham JW, Steigler A, Lamb DS, Joseph D, Mameghan H, Turner S et al. Short-term androgen deprivation and radiotherapy for locally advanced prostate cancer: results from the Trans-Tasman Radiation Oncology Group 96.01 randomized controlled trial. Lancet Oncol 2005; 6(11):841-850.

3. D'amico AV, Chen MH, Renshaw AA, Loffredo M, Kantoff PW. Androgen suppression and radiation vs. radiation alone for prostate cancer: a randomized trial. JAMA 2008; 299(3):289-295.

4. Pilepich MV, Winter K, Lawton CA, Krisch RE, Wolkov HB, Movsas B et al. Androgen suppression adjuvant to definitive radiotherapy in prostate carcinoma--long-term results of phase III RTOG 85-31. Int J Radiat Oncol Biol Phys 2005; 61(5):1285-1290.

5. National Comprehensive Cancer Network (NCCN). Clinical Practice Guidelines in Oncology: Prostate Cancer. Version 2.2007. Available at: www.nccn.org/professionals/physician_gls/default.asp

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2007 QRRO Clinical Performance Measures (CPM)

Radiation Oncology – Prostate

Emerging Measure #P_EM1 - Dose-volume histogram evaluation recording dose to PTV, bladder and rectum in men with non-metastatic prostate cancer treated with external beam radiotherapy (photons or protons).

Type of Measure - This measure is appropriately used as a quality improvement measure.

Clinical Performance Measure
Quantifiable Measure: Percentage of patients with non-metastatic prostate cancer who receive treatment with external beam radiotherapy (photons or protons) in whom there is documentation of DVH constraints, etc. that are incorporated into the treatment planning process.
Numerator: Patients with non-metastatic prostate cancer who receive treatment with external beam radiotherapy (photons or protons) in whom there is documentation of DVH constraints, etc. that are incorporated into the treatment planning process.
Denominator: Patients with non-metastatic prostate cancer who receive treatment with external beam radiotherapy (photons or protons).
Denominator exclusions: None
Rationale for the measure: There is increasing evidence that dose-volume relationships are associated with the risk of complications. (1-3)
The following clinical recommendation statements are quoted verbatim from the referenced clinical guidelines and represent the evidence base for the measure: Guidelines pending
QRRO Survey Form Questions: I1 - 34, 44, 46, 47

References

1. Söhn M, Yan D, Liang J, Meldolesi E, Vargas C, Alber M. Incidence of late rectal bleeding in high-dose conformal radiotherapy of prostate cancer using equivalent uniform dose-based and dose-volume-based normal tissue complication probability models. Int J Radiat Oncol Biol Phys. 2007 Mar 15;67(4):1066-73. Epub 2007 Jan 26.

2. Jackson A, Skwarchuk MW, Zelefsky MJ, Cowen DM, Venkatraman ES, Levegrun S, Burman CM, Kutcher GJ, Fuks Z, Liebel SA, Ling CC. Late rectal bleeding after conformal radiotherapy of prostate cancer. II. Volume effects and dose-volume histograms. Int J Radiat Oncol Biol Phys. 2001 Mar 1;49(3):685-98.

3. Tucker SL, Cheung R, Dong L, Liu HH, Thames HD, Huang EH, Kuban D, Mohan R. Dose-volume response analyses of late rectal bleeding after radiotherapy for prostate cancer. Int J Radiat Oncol Biol Phys. 2004 Jun 1;59(2):353-65.

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Radiation Oncology – Prostate

Emerging Measure #P_EM2 - Post-implant dosimetric assessment (D90, V100) following low dose rate brachytherapy

Type of Measure: This measure is appropriately used as a quality improvement measure.

Clinical Performance Measure
Quantifiable Measure: Percentage of patients with non-metastatic prostate cancer who receive low dose rate brachytherapy in whom a dosimetric assessment is performed and documented in the medical record.
Numerator: Patients with non-metastatic prostate cancer who receive low dose rate brachytherapy in whom a dosimetric assessment is performed and documented in the medical record.
Denominator: Patients with non-metastatic prostate cancer who receive low dose rate brachytherapy.
Denominator exclusions: None
Rationale for the measure: There is increasing evidence that post-implant dosimetry is associated with lower rates of recurrence. (1-4)
The following clinical recommendation statements are quoted verbatim from the referenced clinical guidelines and represent the evidence base for the measure: The American Brachytherapy Society "recommends that postimplant dosimetry should be performed on all patients undergoing permanent prostate brachytherapy for optimal patient care." (5)
QRRO Survey Form Questions: I1 - 94, 106

References

1. Kollmeier MA, Stock RG, Stone N. Biochemical outcomes after prostate brachytherapy with 5-year minimal follow-up: importance of patient selection and implant quality. Int J Radiat Oncol Biol Phys 2003; 57(3):645-653.
2. Papagikos MA, deGuzman AF, Rossi PJ, McCullough DL, Clark PE, Lee WR. Dosimetric quantifiers for low-dose-rate prostate brachytherapy: is V(100) superior to D(90)? Brachytherapy 2005; 4(4):252-258.
3. Potters L, Huang D, Calugaru E, Fearn P, Lee L, Kattan MW. Importance of implant dosimetry for patients undergoing prostate brachytherapy. Urology 2003; 62(6):1073-1077.
4. Zelefsky MJ, Kuban DA, Levy LB, Potters L, Beyer DC, Blasko JC et al. Multi-institutional analysis of long-term outcome for stages T1-T2 prostate cancer treated with permanent seed implantation. Int J Radiat Oncol Biol Phys 2007; 67(2):327-333.
5. Nag S, Bice W, DeWyngaert K, Prestidge B, Stock R, Yu Y. The American Brachytherapy Society recommendations for permanent prostate brachytherapy postimplant dosimetric analysis. Int J Radiat Oncol Biol Phys. 2000 Jan 1;46(1):221-30.

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2007 QRRO Clinical Performance Measures (CPM)

Radiation Oncology – Prostate

Emerging Measure #P_EM3 – Daily target localization.

Type of Measure: This measure is appropriately used as a quality improvement measure.

Clinical Performance Measure
Quantifiable Measure: Percentage of patients with non-metastatic prostate cancer who receive treatment with external beam radiotherapy (photons or protons) in whom there is evidence of some form of daily target localization (e.g. BAT, fiducial markers, Calypso, etc).
Numerator: Patients with non-metastatic prostate cancer who receive treatment with external beam radiotherapy (photons or protons) in whom there is evidence of some form of daily target localization (e.g. BAT, fiducial markers, Calypso, etc).
Denominator: Patients with non-metastatic prostate cancer who receive treatment with external beam radiotherapy (photons or protons).
Denominator exclusions: None
Rationale for the measure: There is increasing evidence that the prostate moves between and within treatment fractions and that the prostate moves independent of pelvic bony anatomy. Strategies that account for prostate motion will allow for a reduction in the CTV to PTV margin which should decrease late effects without compromising efficacy. (1-3)
The following clinical recommendation statements are quoted verbatim from the referenced clinical guidelines and represent the evidence base for the measure: None
QRRO Survey Form Questions: I1 - 34, 43

References

1. Kupelian PA, Langen KM, Willoughby TR, Zeidan OA, Meeks SL. Image-guided radiotherapy for localized prostate cancer: treating a moving target. Semin Radiat Oncol. 2008 Jan;18(1):58-66.

2. de Boer HC, van Os MJ, Jansen PP, Heijmen BJ. Application of the No Action Level (NAL) protocol to correct for prostate motion based on electronic portal imaging of implanted markers.Int J Radiat Oncol Biol Phys. 2005 Mar 15;61(4):969-83.

3. (3) Nederveen AJ, van der Heide UA, Dehnad H, van Moorselaar RJ, Hofman P, Lagendijk JJ. Measurements and clinical consequences of prostate motion during a radiotherapy fraction. Int J Radiat Oncol Biol Phys. 2002 May 1;53(1):206-14.