

Histological grade (Required and Recommended)

Reason/Evidentiary Support

Prostate cancer in transurethral resection specimens is graded according to similar principles as in needle core biopsies since, like needle biopsies, transurethral resection of the prostate (TURP) does not sample the entire tumour. Since transurethral resection of the prostate mainly samples the transition zone, cancers arising in this part of the prostate are over-represented in TURP specimens. However, peripheral zone tissue is sometimes also resected and large peripheral zone cancers may involve the transition zone. Thus, TURP specimens include the same spectrum of cancers as needle biopsies, albeit with a different distribution. For example, small low-grade transition zone cancers are more often detected by TURP than by needle biopsies.

It has been demonstrated that the Gleason score of cancer detected at TURP predicts cancer-specific survival^{1,2} and local progression.³ Grading of cancer in TURP specimens was not specifically addressed in the International Society of Urological Pathology (ISUP) 2005 revision. In one study however, conventional Gleason score was compared to modified Gleason score including the highest Gleason grade regardless of amount.¹ Both were independent predictors of cancer-specific survival in multivariate analysis but conventional Gleason score showed slightly stronger correlation with outcome. No studies have been done on the validity of the ISUP 2014 grading system on TURP detected cancer but there is no reason to assume that this grading would not be valid when applied on TURP specimens. Moreover, the issue of how to deal with tertiary patterns is unresolved as there is not enough evidence at present to prove its validity. It is therefore required that the ISUP grade (Grade group) should be reported together with the Gleason score. Percent Gleason patterns 4 and 5 has been reported to predict cancer-specific survival independently of Gleason score.¹

TURP is sometimes done for palliative reasons in patients with locally advanced prostate cancer. These cancers have usually been treated with androgen deprivation and a common reason for the TURP is that the tumour has become hormone refractory. It is important that information about the hormonal treatment is given on the request form. Prostate cancer showing morphological signs of hormonal treatment should not be graded as the treatment effect can mimic a higher grade. However, these tumours are almost invariably high-grade cancers.

The grade groups and associated definitions are outlined in Table 1.

Both the Gleason score and the ISUP grade (Grade group) should always be reported for the sake of clarity.

Table 1: ISUP grading system, core/needle biopsies and TURP specimens

ISUP grade (Grade group)	Gleason score	Definition
Grade 1	2-6	Only individual discrete well-formed glands
Grade 2	3+4=7	Predominantly well-formed glands with lesser component (*) of poorly- formed/fused/cribriform glands
Grade 3	4+3=7	Predominantly poorly-formed/fused/cribriform glands with lesser component (**) of well-formed glands
Grade 4	4+4=8	Only poorly-formed/fused/cribriform glands
	3+5=8	Predominantly well-formed glands and lesser component (*) lacking glands (or with necrosis)
	5+3=8	Predominantly lacking glands and lesser component (**) of well-formed glands (or with necrosis)
Grade 5	9-10	Lack gland formation (or with necrosis) with or without poorly formed/fused/cribriform glands

* Any component of the high-grade pattern (i.e. even if less than 5%) is included in the grade.

** The low-grade pattern is included in the grade only if it is at least 5%.

References

- 1 Egevad L, Granfors T, Karlberg L, Bergh A and Stattin P (2002). Percent Gleason grade 4/5 as prognostic factor in prostate cancer diagnosed at transurethral resection. *Journal of Urology* 168(2):509–513.
- 2 Cuzick J, Fisher G, Kattan MW, Berney D, Oliver T, Foster CS, Moller H, Reuter V, Fearn P, Eastham J and Scardino P (2006). Long-term outcome among men with conservatively treated localised prostate cancer. *Br J Cancer* 95(9):1186-1194.
- 3 Eastham JA, Kattan MW, Fearn P, Fisher G, Berney DM, Oliver T, Foster CS, Moller H, Reuter V, Cuzick J and Scardino P (2008). Local progression among men with conservatively treated localized prostate cancer: results from the Transatlantic Prostate Group. *Eur Urol* 53(2):347-354.