

# Tumour Grading

## Communication Trumps Precision

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 University Hospital of Wales  
 Cardiff, UK



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## BAUP Advanced Bladder Pathology Course

### Wakefield, 18-19 September 2025

DAY 1	DAY 2
08.30 – 09.55 Registration and self-study microscopy	08.30 – 09.30 Self-study microscopy
09.55 – 10.00 Welcome	09.30 – 10.00 Flat urothelial lesions
10.00 – 10.30 Principles of bladder pathology <i>Prof Mahul Amin</i>	10.00 – 10.30 Issues in staging TURBT specimens <i>Prof Mahul Amin</i>
10.30 – 11.00 Subtypes of urothelial carcinoma <i>Dr Murali Varma</i>	10.30 – 10.45 Discussion
11.00 – 11.15 Discussion	10.45 – 11.00 BREAK
11.15 – 11.30 LUNCH BREAK	11.00 – 12.00 Small Group Interactive Sessions
11.30 – 12.30 Small Group Interactive Session	12.00 – 13.00 LUNCH BREAK
12.30 – 13.30 Grading of urothelial carcinoma <i>Dr Pedro Oliveira</i>	13.00 – 13.30 Immunohistochemistry in Bladder pathology <i>Dr Ashish Chandra</i>
13.30 – 14.00 Mimics of Bladder cancer <i>Dr Murali Varma</i>	13.30 – 14.00 Non-epithelial tumours and tumour-like lesions <i>Dr Mahul Amin</i>
14.00 – 14.30 Handling and reporting of cystectomy specimens <i>Dr Selma Bhattarai</i>	14.00 – 14.15 Discussion
14.30 – 15.00 Discussion	14.15 – 15.15 Quiz cases discussion
15.00 – 15.15 BREAK	15.15 – 15.30 BREAK
15.15 – 15.30 Small Group Interactive Session	15.30 – 16.30 Small Group Interactive Sessions
15.30 – 16.30 Self-study microscopy	16.30 – 17.30 Self-study microscopy

**Register @ [baup.org.uk](http://baup.org.uk)**

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## Tumour grading

### Critical prognostic parameter

- **Prostate**
  - Surveillance vs RP
- **Bladder**
  - Surveillance vs BCG
- **Endometrium**
  - Surveillance vs Chemo
- etc etc etc .....

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## Tumour grading

### Lecture outline

- Issues with current grading practice
- Alternative approach to grading

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## An alternative approach

A little less about the  
**SPECIMEN**

A lot more about the  
**PATIENT**

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**Unlike a stamp album  
pathology report has practical utility**

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## Food for thought



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## Alternative approach to grading

- **Bladder cancer grading**
  - General grading issues
  - Can be extrapolated to other tumours
- **Prostate cancer grading**
  - Specific issues

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## Alternative approach to grading

- Why different approach?
- What different approach?
- Clinical utility of this approach

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## Tumour grading: current focus Is this really appropriate?



**Accuracy**

Correct cut-off



**Precision**

Exact cut-off



**Reproducibility**

Reproducible cut-off

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## Tumour grading Accuracy overrated?



**Risk increases with increasing grade**



**Higher-risk tumours may need Rx**

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## Tumour grading Accuracy overrated?

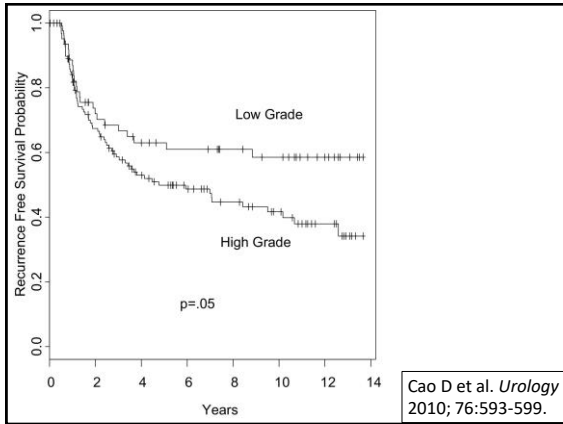
- Risk increases with increasing grade
- Higher-risk tumours may need treatment
- **Minimum risk warranting Rx?**
  - No consensus where the cut-off should be

? ? ?

**Low-grade**

**High-grade**

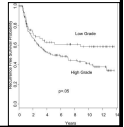
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## Grading outcome data

- Based on patient cohorts
- Reflects outcome of obvious cases
  - Not affected by borderline cases
    - Randomly distributed across groups
    - Similar outcome: effect cancelled out



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## Tumour grading Accuracy overrated

- Arbitrary cut-offs

**Low-grade**

**High-grade**

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## Hypertension

Diagnosis	Systolic (top)	Diastolic (bottom)
Normal	<120	<80
Prehypertension	120-139	80-89
Stage 1 Hypertension	140-159	90-99

140 (hypertension) not different from 139 (prehypertension)

Lowering to 130 could reduce underdiagnosis/underRx

- Risk of overdiagnosis/overtreatment

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EUROPEAN SOCIETY OF CARDIOLOGY®



BLOOD PRESSURE CATEGORY	SYSTOLIC mm Hg (upper number)
NORMAL	LESS THAN 120
ELEVATED	120 - 129
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 1	130 - 139
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 2	140 OR HIGHER
HYPERTENSIVE CRISIS (consult your doctor immediately)	HIGHER THAN 180

### Systolic BP 135

- Europe: prehypertension
- USA: stage 1 hypertension

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## Tumour grading Accuracy overrated

- Arbitrary cut-offs

**Low-grade**

**High-grade**

← Increasing risk of overRx

→ Increasing risk of underRx

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### Tumour grading

#### Precision necessary?

- Need to get agreed cut-off precisely right?

**Low-grade**      **High-grade**

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### Tumour grading

- Bad end of LG behaves like good end of HG

**Low-grade**      **High-grade**

Analogous to BP 135-145

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### Tumour grading

#### Precision not necessary

**Low-grade**      **High-grade**

Reasonable to treat as either LG or HG

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### Hypertension

119
139
140
159

- "Normal"
  - No Rx
- "Bad" prehypertension
  - Rx if other risk factors
- "Good" stage 1
  - Rx if other risk factors
- "Bad" stage 1
  - Rx

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### Tumour grading

#### Reproducibility critical?

**Low-grade**      **High-grade**

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### Tumour grade

#### High-grade: good vs bad end

Not really different from LG      Very different from LG

- Distinction critical
- Very high reproducibility

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### Tumour grade

#### Low-grade vs high-grade

**Low-grade**
**High-grade**

Not really different from HG    Not really different from LG

- Low reproducibility
- Distinction not critical

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### Tumour grading

#### Reproducibility not critical

**Low-grade**
**High-grade**

Not critical in morphologically borderline tumours  
 (important only in obvious cases)

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### Limitation of reproducibility studies

- Selection bias
  - Cases
  - Participants

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### Tumour grading

#### The crux of the problem

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### Pathologists and Surgeons

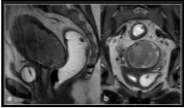
#### The communication gap

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### Surgeons don't do histology

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**Surgeons view radiology**



**but not pathology**

**A communication gap**

FIGURE 1. The renal parenchyma is shown in cross-section. The renal pelvis is the central cavity of the kidney. The renal cortex is the outer layer of the kidney. The renal medulla is the inner layer of the kidney. The renal sinus is the space between the renal cortex and the renal medulla. The renal hilum is the area where the renal vessels enter and exit the kidney. The renal capsule is the outer layer of the kidney. The renal sinus is the space between the renal cortex and the renal medulla. The renal hilum is the area where the renal vessels enter and exit the kidney. The renal capsule is the outer layer of the kidney.

FIGURE 2. The renal parenchyma is shown in cross-section. The renal pelvis is the central cavity of the kidney. The renal cortex is the outer layer of the kidney. The renal medulla is the inner layer of the kidney. The renal sinus is the space between the renal cortex and the renal medulla. The renal hilum is the area where the renal vessels enter and exit the kidney. The renal capsule is the outer layer of the kidney.

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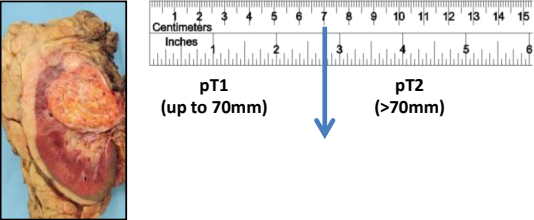
## Tumour grading issue

- Grade is a morphological and biological continuum with arbitrary cut-offs
- Suboptimal communication?

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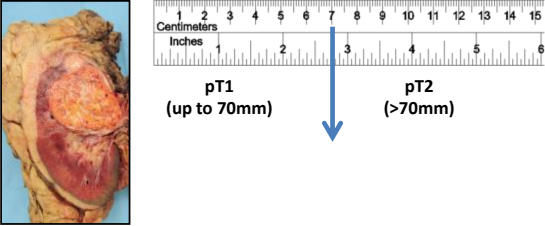
### RCC Staging

**A biological continuum with arbitrary cut-offs**

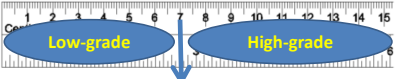


- We report dimension in mm not just stage
  - 69mm (pT1), 71mm (pT2), 152mm (pT2)

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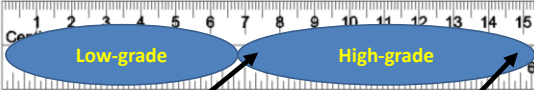


- We report dimension in mm not just stage
- But grade reported as discrete variable



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## Path report: "high-grade"



Essentially the same as LG (could be treated as LG)

Very different from LG (must be treated as HG)

Report may not indicate where an individual case lies within the grade spectrum (cf. RCC stage or hypertension)

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## Pathologists and Surgeons

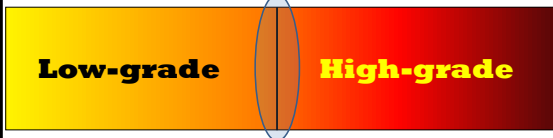
Reports must bridge this communication gap



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## Borderline LG/HG How to report?

- Good HG behaves like bad LG



Reasonable to treat as either LG or HG  
based on patient preference and other risk factors  
Distinction less critical if proper communication

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Viewpoint

Tumour grading: communication is the key

Murali Varma<sup>1</sup>, Brett Delahunt<sup>2</sup>, Liang Cheng<sup>3</sup>, Runjan Chetty<sup>4</sup>,  
Eva Compérat<sup>5</sup>, Vikram Deshpande<sup>6</sup>, Lars Egevad<sup>7</sup>, Theodoros H van der Kwast<sup>8</sup>,  
Antonio Lopez-Beltran<sup>9</sup>, W Glenn McCluggage<sup>10</sup>

- Accuracy over-rated
- Precision not necessary
- Reproducibility not critical

**Proper communication (of message) more important than precision or reproducibility**

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## Clinical utility of this approach

- Urothelial carcinoma grading
- Prostate cancer grading
- (applicable to other tumours too)

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## Grading Ta urothelial carcinoma

- **WHO 1973**
  - G1 – G2 – G3
- **ISUP 1998/WHO 2004**
  - Non-invasive low-grade carcinoma
  - Non-invasive high-grade carcinoma

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## WHO 1973 issue Grade 2 category

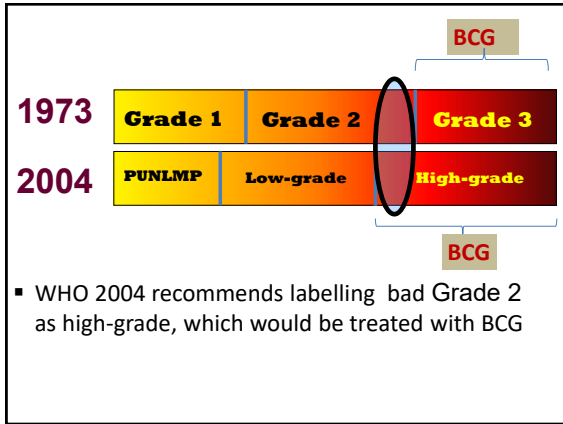
- Large number of tumours end up as G2
- G2 category heterogeneous
  - Significant number of G2 tumours progress

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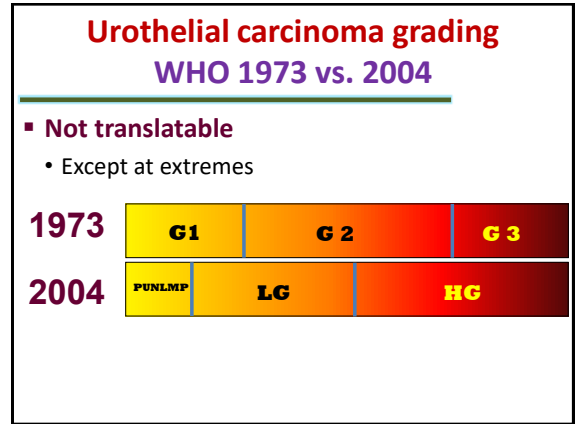
## WHO 2004 Most important rationale: Rx

- G2Ta may have significant progression risk
- Some G2Ta patients should receive BCG

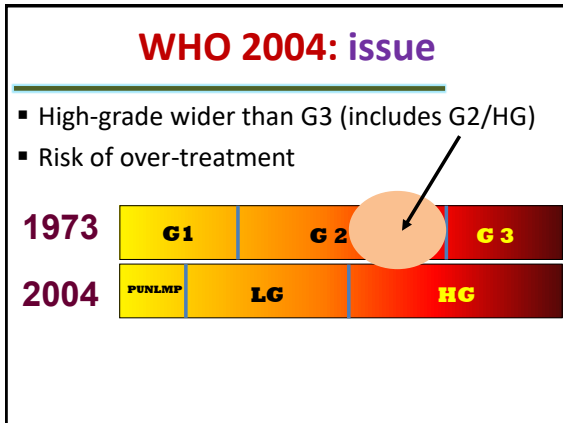
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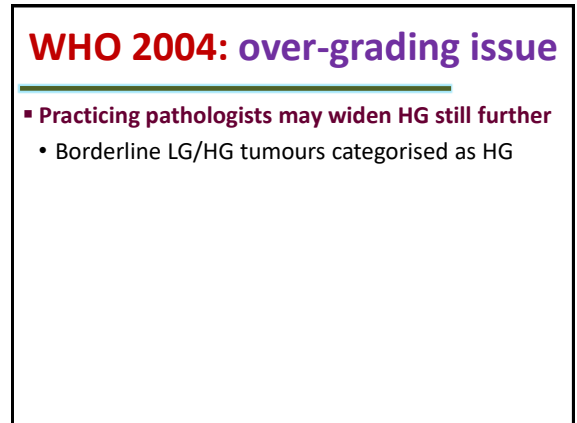
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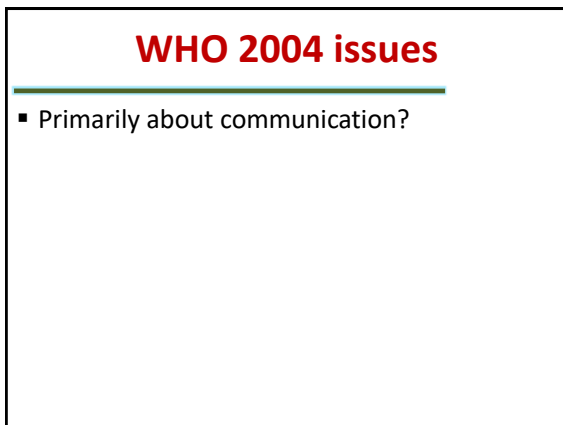
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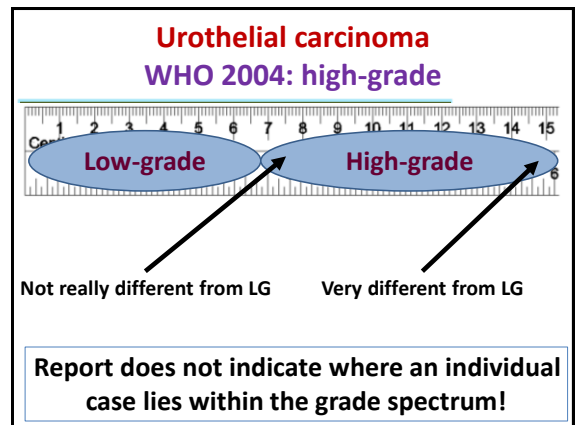
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**Histopathology** 2024;84:421-428

**REVIEW**

**Head-to-Head:**  
**How many categories for grading urothelial carcinoma?**  
 Murali Varma,<sup>1</sup> Eva Compérat<sup>2</sup> & Theodor van der Kwast<sup>3</sup>

<b>Eva</b>	Low grade		High grade	
<b>Theo</b>	Low grade		G2/HG	G3/HG
<b>Murali</b>	G1/LG	G2/LG	G2/HG	G3/HG

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**Histopathology** 2024;84:421-428

**REVIEW**

**Head-to-Head:**  
**How many categories for grading urothelial carcinoma?**  
 Murali Varma,<sup>1</sup> Eva Compérat<sup>2</sup> & Theodor van der Kwast<sup>3</sup>

	WHO-1973 (G1, G2, G3)	WHO-2004 (LG, HG)	Novel 3-tier system (G1/G2-LG, G2-HG, G3-HG)	4-tier system (G1-LG, G2-LG, G2-HG, G3-HG)
<b>Advantages</b>	<ol style="list-style-type: none"> <li>Well validated</li> <li>Risk stratifies T1 UC</li> </ol>	<ol style="list-style-type: none"> <li>Well defined categories</li> <li>Better stratification of G2</li> <li>No middle category "dumping"</li> <li>Fewer cut-off decisions</li> </ol>	<ol style="list-style-type: none"> <li>Well defined categories</li> <li>Better stratification of HG</li> <li>Risk stratifies T1 UC</li> </ol>	<ol style="list-style-type: none"> <li>Well defined categories</li> <li>Better stratification of LG and HG</li> <li>No middle category "dumping"</li> <li>Risk stratifies T1 UC</li> </ol>
<b>Potential issues</b>	<ol style="list-style-type: none"> <li>Poorly defined categories</li> <li>Broad heterogeneous G2</li> <li>Does not distinguish between "good" and "bad" G2</li> <li>Risk of middle category "dumping"</li> </ol>	<ol style="list-style-type: none"> <li>Broad heterogeneous HG</li> <li>Does not distinguish between "good" and "bad" HG</li> <li>Does not risk stratify T1 UC</li> </ol>	<ol style="list-style-type: none"> <li>Broad heterogeneous LG</li> <li>Does not distinguish between "good" and "bad" LG</li> <li>Risk of middle category "dumping"</li> <li>More cut-off decisions</li> </ol>	<ol style="list-style-type: none"> <li>More cut-off decisions</li> </ol>

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**2-tier system better**  
**Arguments in favour**

- More reproducible
- Easier for pathologist
- Better for clinicians
- Corresponds with dual nature of bladder cancer

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**More tiers less reproducibility?**

- k value must be corrected for number of categories**
  - Single tier grading system: 100% reproducibility (and zero clinical utility)!
- Reproducibility between adjacent grades less important with more grade categories**
  - Analogous to reporting % Gleason pattern 4
  - GS 7 split into 11 categories (<10%, 10%, 20% ....)
  - Distinction between 3+3/4+3 less critical if % reported

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**More tiers harder for pathologist?**

- Easier because distinction between adjacent grades less important if more categories reported**
  - LG/HG distinction critical in binary system
  - LG/HG distinction less important if LG and HG categories split

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**More tiers harder for clinicians?**  
**Binary system easier for guidelines?**

- Multiple tiers can be combined**
  - Analogous to Gleason grading**
    - Gleason grades converted to Grade Groups
  - Analogous to bladder tumour size**
    - 3cm cut-off used for risk stratification
    - Tumour size recorded in cm
      - Not as <3cm or >3cm

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## 2 categories corresponds to 2 pathways?

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## Urothelial carcinoma Two pathways

- Low-grade pathway
- High-grade pathway
  
- Biologically different
- Morphologically different
- Genetically different

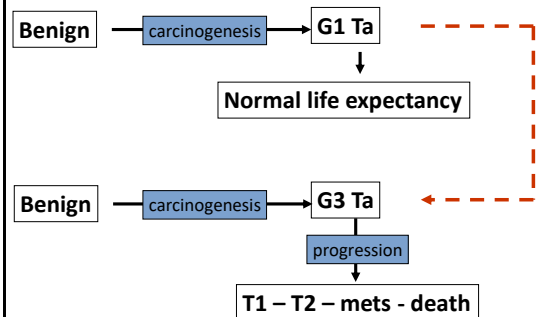
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## Non-invasive (Ta) bladder cancer Natural history

- **G1 Ta papillary urothelial carcinoma**
  - Significant recurrence rate (55%)
  - Progression rare
  - Normal life expectancy
- **G3 Ta papillary urothelial carcinoma**
  - High recurrence rate often as invasive (27%)
  - Significant risk of mets/death (25%)

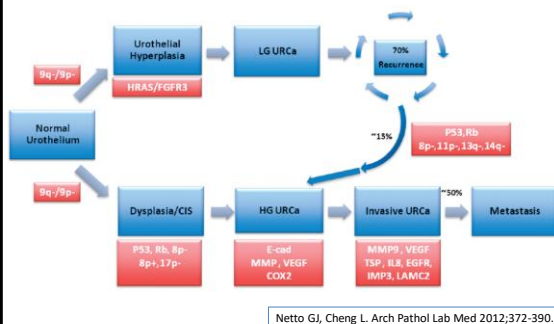
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## Dual pathway model



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## Dual pathway model



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## Urothelial carcinoma Two pathways: different Rx?

- **Low-grade pathway**
  - Focus on avoiding overRx
- **High-grade pathway**
  - Focus on avoiding underRx

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## Urothelial carcinoma Two pathways

- Low-grade pathway
- High-grade pathway
  
- Biologically different
- Morphologically ~~different~~ grey zone
- Genetically different

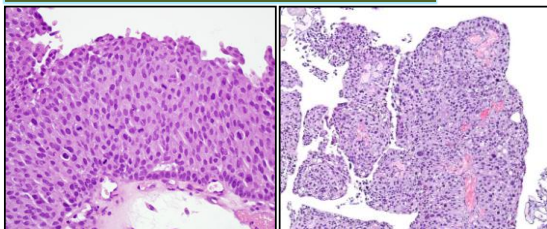
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## 2 categories corresponds to 2 pathways?

- True only at extremes
- Borderline LG/HG may be either pathway

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## Grading bladder cancer Which grading system?



WHO 1973 or 2004?

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## Urothelial carcinoma grading WHO 1973 + 2004

WHO 1973	<b>G1</b>	<b>G2</b>	<b>G3</b>
WHO 2004	<small>PUNLMP</small>	<b>LG</b>	<b>HG</b>
1973 + 2004	<b>G1</b> <b>LG</b>	<b>G2</b> <b>LG</b>	<b>G2</b> <b>HG</b> <b>G3</b>

- Better risk stratification
- Better informed patient and clinician

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## WHO 1973 +2004: issue

- Reporting 2 systems for each tumour cumbersome
- Need a new multi-tier grading system?

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## ISUP expert panel proposal

available at [www.sciencedirect.com](http://www.sciencedirect.com)  
journal homepage: [www.europeanurology.com/eufocus](http://www.europeanurology.com/eufocus)



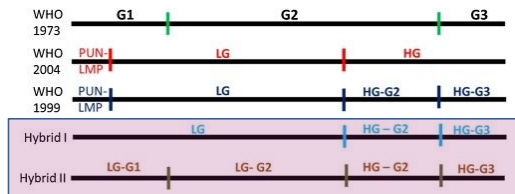
Review – Bladder Cancer

### International Society of Urological Pathology Expert Opinion on Grading of Urothelial Carcinoma

Theo van der Kwast<sup>a,\*</sup>, Fredrik Liedberg<sup>b,c</sup>, Peter C. Black<sup>d</sup>, Ashish Kamat<sup>e</sup>, Bas W.G. van Rhijn<sup>f</sup>, Ferran Algaba<sup>g</sup>, David M. Berman<sup>h</sup>, Arndt Hartmann<sup>i</sup>, Antonio Lopez-Beltran<sup>j</sup>, Henamali Samarutunga<sup>k</sup>, Murali Varma<sup>l</sup>, Liang Cheng<sup>m</sup>

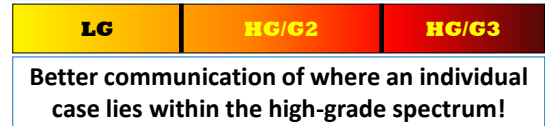
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## ISUP expert panel proposal



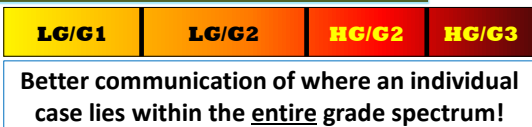
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## ISUP 2022 recommendation Split high-grade



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## My preference Split LG and HG



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## Splitting LG category Clinical significance

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## Non-invasive (Ta) bladder cancer Natural history

- **G3** Ta papillary urothelial carcinoma
  - High recurrence rate often as invasive (27%)
  - Significant risk of mets/death (25%)

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**G3 non-invasive UC: Avoid underRx**

**G3 identified by splitting HG category**

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## Non-invasive (Ta) bladder cancer Natural history

- **G3** Ta papillary urothelial carcinoma
  - High recurrence rate often as invasive (27%)
  - Significant risk of mets/death (25%)
- **G1** Ta papillary urothelial carcinoma
  - Significant recurrence rate (55%)
  - Progression rare
  - Normal life expectancy

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NCCN National Comprehensive Cancer Network® **NCCN Guidelines Version 1.2024 Non-Muscle Invasive Bladder Cancer**

**AUA Risk Stratification for Non-Muscle Invasive Bladder Cancer\***

Low Risk	Intermediate Risk	High Risk
<ul style="list-style-type: none"> <li>• Papillary urothelial neoplasm of low malignant potential</li> <li>• Low grade urothelial carcinoma</li> <li>• Ta and</li> <li>• ≤3 cm and</li> <li>• Solitary</li> </ul>	<ul style="list-style-type: none"> <li>• Low grade urothelial carcinoma</li> <li>• T1 or</li> <li>• &gt;3 cm or</li> <li>• Multifocal or</li> <li>• Recurrence within 1 year</li> <li>• High grade urothelial carcinoma</li> <li>• Ta and</li> <li>• ≤3 cm and</li> <li>• Solitary</li> </ul>	<ul style="list-style-type: none"> <li>• High grade urothelial carcinoma</li> <li>• CIS or</li> <li>• T1 or</li> <li>• &gt;3 cm or</li> <li>• Multifocal</li> <li>• Very high risk features (any):</li> <li>• BCG unresponsive<sup>†</sup></li> <li>• Variant histologies<sup>††</sup></li> <li>• Lymphovascular invasion</li> <li>• Prostatic urethral invasion</li> </ul>

**Table 2: Low-Risk\* Non-Muscle Invasive Bladder Cancer**

Test	1	2	3	4	5	5-10	>10
Cystoscopy	3	12	Annually			As clinically indicated	
Imaging and pathology	• Baseline imaging						
Blood	• Cystoscopy: 3 months, 1 year and annually for at least 5 years						
Urine							

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**G1 non-invasive UC: Avoid overRx**

**G1 identified only if LG category split**

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## Clinical utility of splitting LG

- **LG/G1** definitely not **HG**
- Could be managed more conservatively
  - Less cystoscopic follow-up

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## Clinical utility of splitting LG

- **LG/G1** definitely not **HG**
- Could be managed more conservatively
  - Less cystoscopic follow-up
- **4 tiers** would preclude “middle grade dumping”

**LG/G1**

**LG/G2**

**HG/G2**

**HG/G3**

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## Tumour grading Communication is key

- Implications for other tumours (eg. endometrial)
  - Adoption of a binary system would hamper risk stratification

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## AI for tumour grading Better precision and reproducibility?

- Not necessary?
- “Interobserver” variation between AI algorithms?
- Will not sort out issues of communication and interpretation

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## Gleason grading

- Arbitrary subjective cutoffs in a biological and morphological continuum
- Critical for patient management
- Significant inter(and intra)-observer variation

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## Biopsy Gleason score

3+3 3+4 4+3 4+4 4+5 5+4 5+5

Perfect precision not necessary

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## Borderline Gleason pattern 4

- Good Gleason 7 behaves like bad Gleason 6

Gleason 6

Gleason 7

Reasonable to report as either Gleason score 6 or 7

Reasonable to treat as either Gleason score 6 or 7

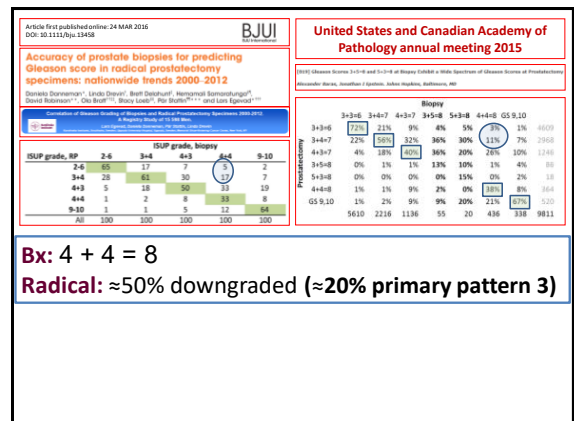
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## Biopsy Gleason score

3+3 3+4 4+3 4+4 4+5 5+4 5+5

Perfect precision not necessary **nor possible**

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BJUI  
United States and Canadian Academy of Pathology annual meeting 2015

Accuracy of prostate biopsies for predicting Gleason score in radical prostatectomy specimens: nationwide trends 2000-2012

Biopsy

Biopsy	3+3=6	3+4=7	4+3=7	3+5=8	5+3=8	4+4=8	GS 9,10
3+3=6	72%	21%	4%	5%	3%	1%	4600
3+4=7	22%	58%	12%	36%	30%	11%	2968
4+3=7	4%	20%	20%	36%	20%	26%	1246
3+5=8	0%	1%	1%	13%	10%	1%	86
5+3=8	0%	0%	0%	0%	15%	0%	26
4+4=8	1%	1%	9%	2%	0%	30%	164
GS 9,10	1%	2%	9%	9%	20%	21%	676
All	5610	2218	1136	55	20	436	338

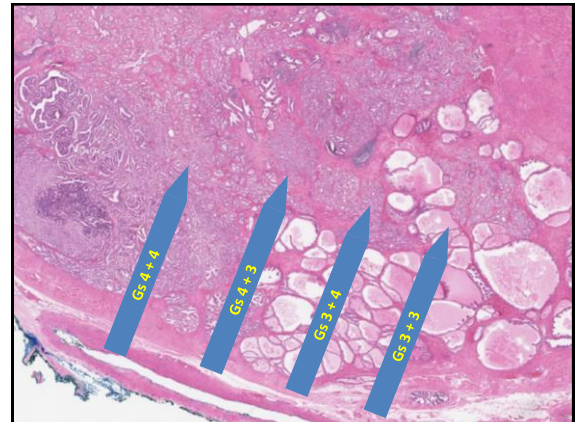
ISUP grade, RP

ISUP grade, RP	2-6	3-6	4-6	5-6	9-10
2-6	65	17	7	5	2
3-6	28	66	30	17	7
4-6	5	21	33	19	1
4-6	1	2	8	33	8
9-10	1	1	5	12	61
All	100	100	100	100	100

Bx: 3 + 4 = 7  
Radical: ≈20% upgraded

Bx: 4 + 3 = 7  
Radical: ≈40% downgraded

85



86

### Borderline pattern 4

- Key is to communicate that the grade is borderline so that patient can be offered options

87

### Reporting borderline GS 6 vs 7 My approach

- Report favoured GS
- Add comment
  - "GS 3+3 (focally bordering on pattern 4)"
  - "GS 3+4 (just amounting to pattern 4)"

88

### Reporting borderline GS 6 vs 7 My approach

- Report favoured GS
- Add comment
  - "GS 3+3 (focally bordering on pattern 4)"
  - "GS 3+4 (just amounting to pattern 4)"


**Use comment only in truly borderline cases**

**Less issue if GS changed on review**

89

### Gleason pattern 4 vs 5

90

 *Am J Surg Pathol* 2015;39:1242-49.

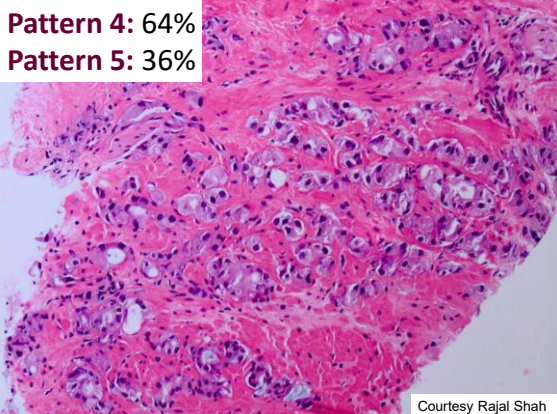
**Diagnosis of Gleason Pattern 5 Prostate Adenocarcinoma on Core Needle Biopsy: An Interobserver Reproducibility Study Among Urologic Pathologists**

Rajal B. Shah, MD,\* Jianbo Li, PhD,† Liang Cheng, MD, PhD,‡ Lars Egevad, MD,§  
 Fang-Ming Deng, MD,|| Samson W. Fine, MD,\*\* Lakshmi P. Kunju, MD,|| Jonathan Melamed, MD,||  
 Rohit Mehra, MD,|| Adeboye O. Osunkoya, MD,\*\* Gladell P. Panser, MD,†† Steve S. Shen, MD,‡‡  
 Toyomori Suzuki, MD,§§ Kiril Triplkov, MD,|| Wei Tian, MD,\* Ximing J. Yang, MD, PhD,\*\*  
 and Ming Zhou, MD, PhD,||

Single cells/cords:  $k=0.369$ .

91

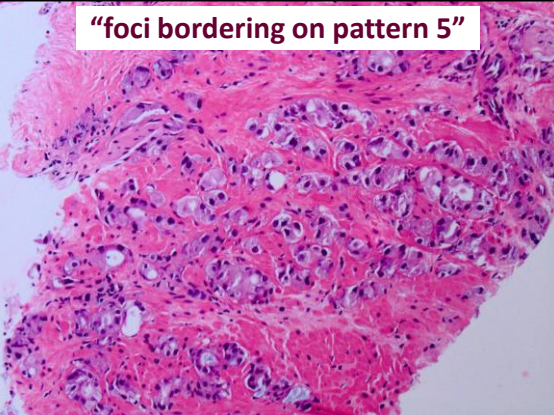
**Pattern 4: 64%**  
**Pattern 5: 36%**



Courtesy Rajal Shah

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**“foci bordering on pattern 5”**



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**“GS 3 + 4 = 7 (bordering on pattern 5)”**

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- AS still an option?
- Prompt re-biopsy if considering AS?

94

**MDT slide review**  
**Grade precision not critical**

---

- Try not to change *borderline* score
- Consider whether reported score acceptable rather than how you would report it
- Reporting pathologist 3+3, my opinion: *borderline* 3+4
  - I would report as 3+3 with foci bordering on 4
  - Biologically same as borderline 3+4

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**Gleason score 7**  
**Reporting percentage pattern 4**

---

- Communication rather than precision

96

## Reporting precise % pattern 4 Impossible

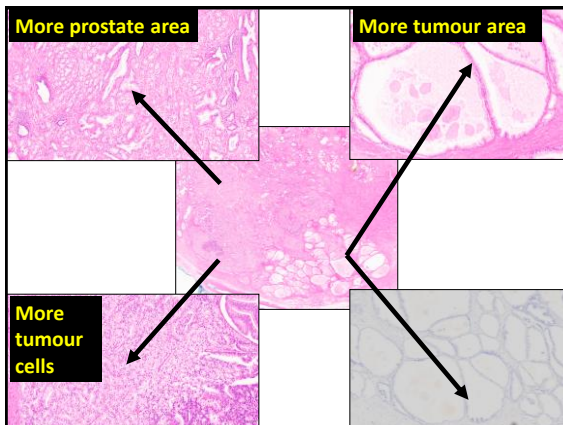
- Mental computation of multiple fields
- What are we comparing to calculate %?

97

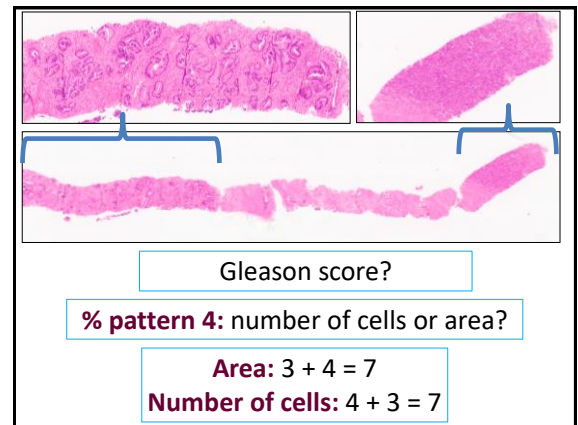
## Percentage pattern 4 Percentage of what?

- What are we comparing?
  - Area of tumour (only tumour)?
  - Area of prostate involved by tumour (tumour + stroma)?
  - Number of tumour cells?

98



99



100

## Gleason score 7: % pattern 4 Rationale

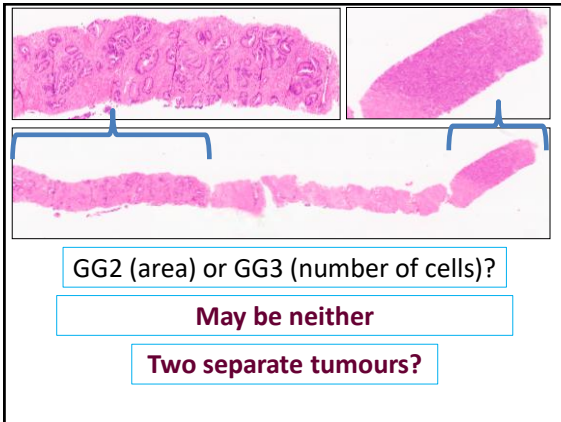
- Communication rather than precision

101

## Reporting % pattern 4 Focus on the message

- <10%: not really different from bad 3+3
- 50%: not really different from good 4+3
- 60%: not really different from bad 3+4
- 90%: not really different from good 4+4

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### Borderline Gleason score

Key is communication and interpretation

- Precision less important than communication (by pathologist) and report interpretation (by clinician)

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### Gleason 4+3 (80% pattern 4)

- Grade Group 3
- At least intermediate risk
- Bone scan to exclude mets
- Precludes active surveillance?

20mm tumour

Gleason pattern 3

Gleason pattern 4

105

### Gleason 4+3 (80% pattern 4)

- Grade Group 3
- At least intermediate risk
- Bone scan to exclude mets
- Precludes active surveillance?

20mm tumour

Gleason pattern 3

Gleason pattern 4

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### 80% pattern 4 (GG3) in a 2mm focus

- Key is to highlight issue at MDT
- AS could still be on the table

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### Positive cores with different grades

Which score to report?

- Overall score?
- Separate GS for each positive core?

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### Cores with different grades Which score would clinicians use?

A. Right apex:	3mm	GS 3 + 3 = 6
B. Right mid:	6mm	GS 3 + 4 = 7
C. Right base:	2mm	GS 4 + 3 = 7
D. Left apex:	10mm	GS 3 + 3 = 6
E. Left mid:	1mm	<b>GS 4 + 4 = 8</b>
<b>Global</b>		<b>GS 3 + 4 = 7</b>

**78% would use highest GS ignoring extent**

Contemporary prostate biopsy reporting: insights from a survey of clinicians' use of pathology data  
Murali Varma,<sup>1</sup> Krishna Narahari,<sup>2</sup> Malcolm Mason,<sup>3</sup> Jon D Oxley,<sup>4</sup> Daniel M Berney<sup>5</sup>  
*J Clin Pathol* 2018;71:874-878

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### Positive cores with different grades Which score to report?

**Separate high-grade tumour**  
Worst score appropriate?

**Single tumour**  
Global score appropriate?

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### Pathology vs Radiology

**Surgeons view radiology**

**but not pathology**

111

**Editorial: Gleason score assignment is the sole responsibility of the pathologist**

Murali Varma, Dan Berney, Jon Oxley, Kiril Trpkov  
*Histopathology* 2018;73:5-7.

112

### Gleason Score assignment is the sole responsibility of the pathologist

- Pathologist is placed to identify the most appropriate score for an individual patient
- Best score may be *Global* or *Worst* based on the pathologist's judgment of the case

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### Positive cores with different grades Global and Worst GS identical in most cases

- 1 core positive
- Global 3+3
- Worst 3+4

114

**Concordance of "Case Level" Global, Highest, and Largest Volume Cancer Grade Group on Needle Biopsy Versus Grade Group on Radical Prostatectomy**  
Kiril Trpkov et al. *Am J Surg Pathol* 2018;11:1522-29.

- 2527 cases
- Global slightly better than Highest (60% vs 57%)

Global and Highest identical in 92%

- Global and Highest different in 180 cases
- In this subset, Global much better than Highest (62% vs 19%)

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**Positive cores with different grades**  
**Which score to report?**

The screenshot shows a slide from a presentation. The title is "Tumour grading: communication is the key". Below the title, there is a list of authors: Murali Varma, Brett Delahunt, Liang Cheng, Runjan Chetty, Eva Compérat, Vikram Deshpande, Lars Egevad, Theodorus H van der Kwast, Antonio Lopez-Beltran, and W Glenn McCluggage. The slide is part of a presentation titled "CLINICAL PATHOLOGY" with a date of "2023:76:291-92".

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**Positive cores with different grades**  
**My approach**

- Default: Global GS
- Add comment (additional GS) if I think there is a separate higher-grade tumour

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