

# Urinary cytology: Illustrating The Paris System for reporting urine cytology

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The Paris System (TPS) is a standardised, comprehensive system for reporting urinary cytology. It was developed over several years and published in 2016 by a team of cytopathologists, surgical pathologists and urologists. It recognises the two distinct pathways of neoplastic transformation of urothelium, as well as cytology's ability to reliably detect high grade urothelial neoplasia but not low grade urothelial neoplasia.

## Clearer diagnoses

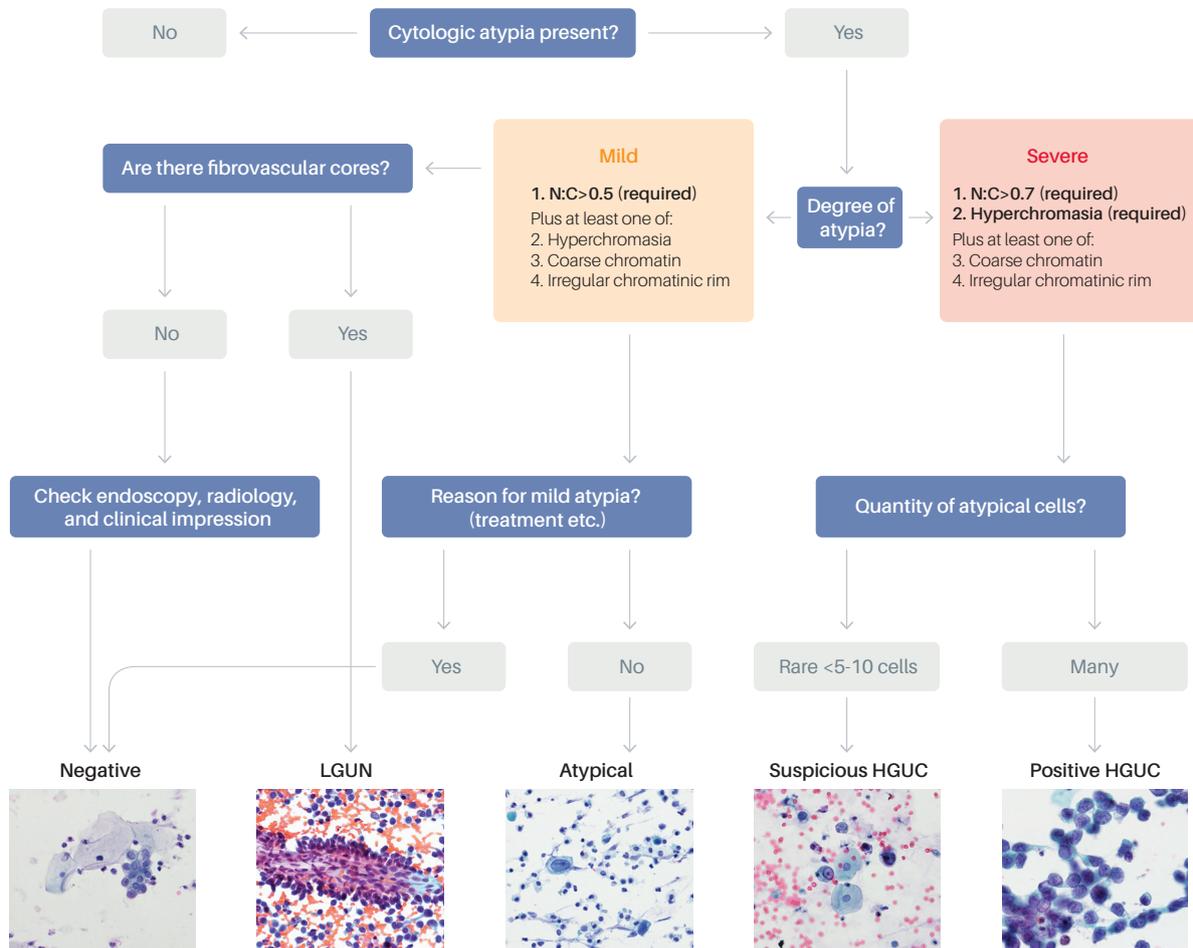
TPS has been developed to accurately and clearly communicate cytological findings, and to provide a clear diagnostic, therapeutic and clinically relevant management path for clinicians based on these findings. It also enables standardised inter-institutional reporting that reflects the current understanding of the pathogenesis of urothelial neoplasia.

TPS defines the cytomorphologic criteria for seven diagnostic categories, which are briefly explained below.

### Diagnostic categories for TPS for reporting urinary cytology

Category	Description
Non-diagnostic/unsatisfactory	Very few urothelial cells available for assessment, repeat specimen maybe appropriate. An assessment of adequacy is inherent in the sensitivity and accuracy of the test and is an interplay of volume, specimen collection type (voided or instrumented), cellularity and cytomorphological findings. The specimen is considered adequate if atypical cells are noted, regardless of how few.
Negative for high grade urothelial carcinoma (NHGUC)	No abnormal cells seen
Atypical urothelial cells (AUC)	The issue in the atypical category is one of extent of the cytological changes, where there are some changes in the urothelial cells but the clear cut cytological features of malignancy aren't seen
Suspicious for high grade urothelial carcinoma (SHGUC)	Cellular criteria for malignancy may be present but insufficient cells may be present
High grade urothelial carcinoma (HGUC)	All cytological criteria of malignant changes are present. Please note the lesion may still be in situ
Low grade urothelial neoplasm (LGUN)	This will be an infrequent report as it needs tissue fragments from a papillary lesion to be present
Other: primary and secondary malignancies and miscellaneous lesions	This recognises the infrequent occurrence of non-transitional cell carcinomas

## Approach to diagnosis in urinary tract



### Relative risk of the diagnostic categories outlined in the Paris System, based on studies to date

Category	Risk of Malignancy (%)	Management
Insufficient urothelial cells for assessment	<5-10	Repeat cytology, cystoscopy in 3mo if increased clinical suspicion
Negative for high-grade urothelial carcinoma	0-10	Clinical follow-up as needed
Atypical urothelial cells	8-35	Clinical follow-up as needed Potential use of ancillary testing
Suspicious for high-grade urothelial carcinoma	50-90	More aggressive follow-up, cystoscopy, biopsy
Low-grade urothelial neoplasm	~10	Need cystoscopy and biopsy to further evaluate grade and stage
High-grade urothelial carcinoma	>90	More aggressive follow-up, cystoscopy, biopsy, staging
Other malignancy	>90	More aggressive follow-up, cystoscopy, biopsy, staging



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