Digital surgical pathology is now universally accepted as equivalent to traditional microscopy for diagnostic accuracy but digital cytopathology is not. Reasons include:

- Cytopathology specimens contain three dimensional cell groups and dispersed cells at different focal planes.
- There are also a variety of cytological specimen types and preparation methods, the diversity of which can produce a challenge when digitising the glass slides.

Specimen and slide selection: What makes a good glass cytopathology slide also makes a good digital slide.

Need: Good cellular preservation, with glass slide and coverslip to be free of marks; ideally recent staining.

Avoid: Dense tissue fragments, heavily red cell-contaminated slides or overstained slides, clotted samples, scant material, plastic coverslips, material that is poorly spread, unevenly spread, thickly spread or over-cellular.

Preparation of the selected glass slide

Glass slides need:
- Cleaning with isopropryl alcohol then soft tissue wipes to remove dust, fingerprints and diagnostic screening marks
- Demarcating, defining or 'marking-up' of suitable areas on the glass slide prior to scanning

Scanning

Pap-stained wet fixed specimens usually contain cells in multiple focal planes and need z-stacking.

Editing

Checking the final WSI to identify problems and troubleshoot issues with the scanner or slide itself. WSI may be cropped to remove non-focused or non-diagnostic areas. Improve practitioner technique at specimen collection (e.g. minising trauma to reduce red blood cell contamination or removing fragments for embedding) and during laboratory preparations, based on the points above will improve quality of WSI.

Scanning technology

RCPAQAP’s latest scanning technology (Metasystems/Zeiss) analyses cell distribution topography. This allows those specimens with a wide range of cell distribution focal planes to be rejected prior to scanning in z-axis.