The Royal College of Pathologists
Pathology: the science behind the cure

Diagnostic cytopathology in the UK

A survey of cytopathology practice

Introduction

To gain a better understanding of the practice and reporting of all types of diagnostic cytopathological specimens in the UK, the College carried out a survey at the request of the Cytopathology Sub-Committee (SC), with input and support from the British Association for Cytopathology (BAC), Institute of Biomedical Science (IBMS) and the Conjoint Board for Cytology (CJB).

This briefing contains the findings of the survey, which was sent to 145 lead cytologists or heads of cellular pathology departments in hospital trusts or similar institutions in the UK between 30 June 2020 and 31 October 2020. (The original deadline of 1 September 2020 was extended owing to the COVID-19 pandemic.) Individuals were identified from the College's membership database.

The individuals responding were asked to ensure that all those who report cytopathology outside of the cervical screening programme (i.e. cytopathology often referred to as diagnostic or non-gynaecological cytopathology) were included in the responses where relevant.

No such data collection has been performed before and the results of this survey are intended to become a baseline for any future cytopathology data collections.

The results of our survey will help facilitate discussions about current and future cytopathology service provision, as well as help shape cytopathology education and training.

What is cytopathology?

Cytology is the study of individual cells of the body, as opposed to histology, which is the study of whole human tissue itself. Strictly speaking, cytology is the study of normal cells and cytopathology is the examination of cells in the context of disease.

The human body is made up of millions of cells and these can be sampled and looked at under the microscope, after suitable preparation, to help diagnose medical conditions. This involves looking at the individual cells for abnormal changes of both the nucleus and the cytoplasm (body) of the cell. The nucleus contains the genetic material that controls the cell, and determines what type of cell it will become, but it also controls behaviour.

Changes in the nucleus, gauged by changes in its size, shape and the appearance of the nuclear material (chromatin), can be assessed by a trained cytologist and used to diagnose possible cancer or pre-cancer. ‘Pre-cancer’ means cell changes that, if left untreated, may develop into cancer. Cytopathology can also be used to diagnose many non-cancerous medical conditions such as infections and systemic diseases.

There are two main branches of cytopathology. The first is generally referred to as gynaecological cytopathology, which involves the assessment of pre-cancerous and, occasionally, cancerous changes of the cervix (mouth of the womb) such as in cervical cancer screening.

The second is generally referred to as non-gynaecological or diagnostic cytopathology and involves diagnosing medical conditions in other tissues of the body. Samples received by laboratories can be obtained using various methods. For example, through collection (e.g. a urine sample), by brushing the area with a sampling device (e.g. cervical sample and some lungs samples) or through the use of a needle inserted into a body site (termed a fine needle aspiration or FNA), which can be done for nearly every part of the body.

Cytopathology is widely used in medicine for the prevention and diagnosis of disease. In 2019−20, over 3,200,000 cervical screening samples were taken in England as part of the cervical screening programme. There is no accurate figure available for the use of cytopathology in other tissues, but it is used on a daily basis to help diagnose cancerous and non-cancerous conditions of the respiratory, urinary and gastrointestinal (GI) tracts, as well as thyroid gland, salivary glands and lymph nodes, to name but a few.

Adapted from the British Association for Cytopathology.[1]

Who are cytopathologists?

Relatively few pathologists report cytopathology samples only and cytopathology samples are reported by a mix of trained staff. Cytopathologists are medically qualified pathologists who report cytopathology samples. They usually do this as part of an overall cellular pathology workload and also report histology samples. In some departments, SAS (specialty and associate specialist) doctors may also report cytopathology (and histology) as part of a departmental reporting team. Non-medical staff in pathology laboratories receive and process cytopathology samples for interpretation down a microscope and reporting. Biomedical scientists (BMS) often pre-screen cytopathology samples prior to pathologist reporting, to help identify cell changes of clinical significance. BMS with further qualifications in cytopathology can also report certain negative types of cytopathology samples, i.e. those holding the Diploma in Extended Practice (DEP). BMS holding the Advanced Specialist Diploma (ASD) can report certain negative and positive cytopathology samples at consultant level alongside their consultant medical pathologist counterparts.

Response rate and analysis

Of the *original* 145 organisations who were sent a copy of the survey:

- **73** responded (50%)
- **20** started but did not complete the survey (14%)
- **39** did not respond to the request (27%)
- **13** responded to say that there was no cytopathology service, cytopathology was outsourced, or it was not appropriate for the organisation to respond (9%)

The final total of laboratories potentially able to reply was **132** and the final response rate to our survey was **55%** (73 organisations).

College staff and the Chair of the Cytopathology SC analysed the results and prepared draft findings for initial discussion. Following clinical interpretation, discussions within the College's Cytopathology SC and discussions with the IBMS Cytology Specialist Advisory Panel, CJB and BAC, the final report was prepared for publication.

The survey (see Appendix A) was in four sections (A–D), with 33 questions in total. Section A (questions 1–5) identified the person completing the survey and described details of the laboratory. Section B (questions 6–7) allowed for data on staffing and age profiles of existing senior cytopathology laboratory staff. Section C (questions 8–32) concerned laboratory workload, specimen handling and preparation, and tests undertaken, as well as aspects of service and reporting. Section D (question 33) was a free text comment area.

The response rate to each question varied and not all questions were answered by all respondents.

Findings

Section A: individual and laboratory details

This section provided details of the person and laboratory completing the survey.

The 73 responding laboratories were spread across the UK as follows:

England	**65** (89%)
Scotland	**4** (5.5%)
Wales	**3** (4.1%)
Northern Ireland	**1** (1.4%)

People completing the survey for their laboratories identified themselves as:

Consultant cellular pathologist	**61** (83.6%)
Consultant cytopathologist	**4** (5.5%)
Biomedical scientist	**6** (8.2%)
Consultant biomedical scientist	**2** (2.7%)

Section B: staffing and time allocated to cytopathology reporting

Responses for the consultant age profile were received from 69 laboratories, with 401 consultants identified as working in laboratories from the survey replies. The data confirms that most cytopathology is undertaken by pathologists who identify as cellular pathologists (i.e. not as a cytopathologist) and report cytopathology as part of a general cellular pathology workload.

82% of the consultants have between 0.5 and 2.0 programmed activities (PAs) allocated to cytopathology reporting, and 5.5% indicated that they had no allocated cytopathology time within their job plans. A typical consultant job plan comprises ten PAs per working week, each of four hours. The age profile is similar to that of the age range identified in the recent RCPath Histopathology workforce census.[2] Nearly a third (28%) of the consultant workforce is over 55.

Section C: workloads, specimen handling, reporting and training

Numbers of samples

Most respondents were able to supply some workload information. However, some did indicate that owing to time constraints and/or inability of the LIMS system (laboratory information system), they could not supply full data (n=5). Some respondents faced difficulty in producing the granularity of data required to answer the questions. For example, urine samples could not be consistently split into sample types. To some degree, this was also evident in the data for peritoneal washings versus ascitic/abdominal fluid and bronchial washings versus lavage samples. The data has been analysed as submitted.

The number of responses for the numeric workload data varied but they show that nearly all laboratories process urine, respiratory, serous fluid, cerebrospinal fluid (CSF) and several site FNA samples. GI brushings (at any site) were reported by around a third of laboratories and about 50% reported synovial fluids for crystals, with about 33% reporting more (e.g. cell counts) on these samples. Only 19 laboratories indicated that they reported brain smears, which reflects the specialist nature of neuropathology services.

The data suggests that the 61 laboratories who responded to this question reported a total of 185,690 cytopathology samples in 2019, at an average of 3,044 samples per laboratory. This would suggest a potential cytopathology workload in the UK (if pro-rated up) of approximately 402,000 samples.

Stains

As would be expected, most samples were stained with a Pap and/or MGG stain for examination, depending on specimen site and type. Samples that were processed by a liquid-based cytology (LBC) technique were invariably stained by a Pap stain only. Fluids and FNAs were invariably stained by both Pap and MGG stains. Notably, four laboratories indicated that they also processed an MGG stain for their urines and varying numbers of laboratories produced an H&E stain for some sample types − the most common being for respiratory endobronchial ultrasound (EBUS) samples (18 of 68; 26.5%). This might reflect 'direct to cell blocks' formalin EBUS samples rather than traditional cytopathology samples. The use of H&E has not been advocated as a cytopathology stain for many years (see RCPath guideline G086 Tissue pathways for diagnostic cytopathology) and it is surprising that its use is still so common.

Preparation types and slide numbers

Most laboratories used direct smears, cytopsins and/or ThinPrep LBC preparation techniques. For serous fluid and urine samples (where the number of slides produced is at the discretion of the lab), most laboratories produced one slide for examination, but 20% of laboratories produced two slides per urine sample. When an LBC technique was used, it was overwhelmingly the ThinPrep type of LBC rather than SurePath (approximately 91% vs 9%, respectively). When an LBC technique was used, 92% of laboratories produced one slide for reporting, and only 8% produced two or more. When a cytospin was prepared, most laboratories produced one slide. Just under 20% of laboratories produced one if it was a urine sample and around 50% of laboratories produced two slides if it was a respiratory sample, but over half (approximately 60%) produced two slides if the sample was a serous fluid or a CSF sample. The Megafunnel technique was used by only a handful of laboratories, with the commonest being voided urine and biliary brushings (five laboratories each).

ROSE

Just under 38% of laboratories indicated that they were able to offer a rapid onsite evaluation (ROSE) service. The person undertaking this was roughly equally split between a BMS and a pathologist. ROSE is useful in helping ensure cytopathology samples are suitable for reporting and potentially other analysis by allowing feedback to the clinician while they are taking the sample. This ensures that further samples can be taken if needs be or, if the sample is adequate, that no more samples need to be taken.

It was mostly offered for head and neck FNAs (71%), FNA lymph nodes (65%) and lung EBUS (38%). Other body sites/systems were less often supported by this service. Most laboratories (83%) did not assist with slide preparation, irrespective of offering a ROSE service. Practically all FNAs were taken by a clinician or radiologist, with very few (7%) being taken by a pathologist. If they were taken by a pathologist, they were mostly performed freehand without the use of ultrasound (75%).

Cell blocks/immunohistochemistry

Nearly all (94%) laboratories indicated that they use or make cell blocks from cytopathology samples. 65% of laboratories do this routinely for EBUS samples, reflecting the use of these samples for further ancillary testing in lung cancer treatment. About 29% of laboratories routinely produce a clot for most serous fluids or FNA samples, with up to 70% only producing them (depending on sample/body site) on request from the reporting cytologist.

94% of laboratories undertake immunohistochemistry (IHC) on cytopathology samples and, of these, 98.5% were performed on cell blocks. IHC performed directly on cytopathology samples appeared relatively uncommon (3% for LBC preps, 7.5% for direct smears and 18% for cytospins).

Ancillary molecular testing

Just under 45% of laboratories indicated that they were performing some analysis for targeted therapies on cytopathology samples. Many current clinical pathways, especially in respiratory medicine for example, stipulate the need for such analysis on samples from non-small cell lung carcinoma. This does show a significant opportunity to expand the utility of cytopathology specimens for such tests when a histology sample is either not available or may not contain a tumour. As to the type of testing performed, about 31% of all laboratories in the survey carried out IHC for targeted therapy on respiratory samples and 19% on lymph node samples. Overall, around 20% of laboratories performed cytogenetics, fluorescence in situ hybridisation (FISH) or single gene analysis on their respiratory samples and about 14% performed next generation sequencing on respiratory samples.

71% of laboratories sent samples away to another lab for these types of analyses. This may be for several reasons, for example a lack of expertise or equipment, or centralised hub reporting. Of those that did, this was again invariably for respiratory samples.

Similar analysis can be undertaken from cytopathology samples from other sites. The next most common after respiratory samples were lymph node samples with 7% of laboratories performing ancillary molecular testing on these samples.

Cytopathology reporting

For samples with histology reported contemporaneously with a cytopathology sample, approximately 41% of laboratories reported they would usually wait for the histology report before reporting the cytopathology but if they thought the cytopathology was diagnostic, they would report it separately. 30% of laboratories had no policy for this. Many laboratories (48%) report cytopathology samples separately from other site-specific reporting teams (e.g. GI, urology), with only 9% reporting cytopathology as part of a site-specific team. The remainder used a combination of the two. Respiratory, breast, gynaecological, GI and urology samples were the most likely to be reported using a team approach. This shows variation in the approach of laboratories, and may reflect departmental workloads and staffing levels, as well as levels of expertise.

Training

Just under 80% of laboratories had trainee pathologists rotating through their department. Of those laboratories, approximately 30% stated that their trainees had an interest in diagnostic cytopathology. Just over 17% stated that their trainees had an interest in taking the Certificate of Higher Cervical Cytology Training (CHCCT) examination, which relates to cervical cytopathology reporting and is not directly relevant to other cytopathology reporting.

Andrology

Of the responses, just over 17% of laboratories did not know which department performed andrology. Of those that did know, 54% replied that cellular pathology departments undertook this, and 29% indicated that another department carried out this work, usually either a microbiology or a fertility service/in vitro fertilisation unit.

Conclusion

This is the first nationwide survey of diagnostic cytopathology practice in the UK. It is apparent that some struggled to provide accurate data at the granularity requested or found it difficult to produce the numeric data from their lab systems. It is also apparent that some aspects of their cytopathology services were not well known to the person completing the survey, which was invariably a consultant cellular pathologist.

The timing of the survey was during the COVID-19 pandemic , but all the data that was asked for was from the calendar year 2019, so would not have been affected by variations in workload or practice brought about by the pandemic. Despite these limitations, the data does provide a snapshot of cytopathology practice in the UK. It shows much commonality of practice, but does also highlight variation, albeit based on an overall 55% response rate. The recent RCPath guideline *Tissue pathways for diagnostic cytology*[3] does not appear to have been fully implemented yet. Its adoption would help reduce unnecessary variation in sample handling, preparation and reporting.

The survey highlights that the vast bulk of cytopathology reporting in the UK is done by pathologists as part of an overall cellular pathology workload – only 5.5% of the pathologists who responded identified themselves as cytopathologists. Approximately 25% of BMS staff were planning to sit either the DEP or ASD in cytopathology. The future model of cytopathology must factor this in and ensure sufficient material for training, education and maintaining competence for all staff involved in cytopathology service provision.

The ability to deliver any service depends on local resources and requirements, and the data must be interpreted with this in mind. The data allows self-comparison of individual laboratories with UK-wide practice and RCPath's *Tissue pathways for diagnostic cytology*[3] and its recommendations. The data can be used to inform future training and education as this survey provides us, for the first time, with a national overview of the types of samples and preparations trainees are most likely to be exposed to. The findings will also help ensure that FRCPath cytopathology exams cover the sample types, preparations and stains that trainees are exposed to during their cytopathology rotation.

It is intended that this survey will be repeated during 2022 to help us build on the data from this survey, acting as a baseline that can help assess any possible changes in service delivery. Future surveys will allow us to assess the implementation of relevant guidance and reporting systems, with greater refinement of questions.

Summary

- 83.6% of pathologists reporting on cytopathology samples are general cellular pathologists.
- 28% of pathologists reporting on cytopathology samples are over 55 years of age.
- The cytopathology workload in the UK (based on survey findings and if pro-rated up) is approximately 402,000 samples per year.

- H&E staining is still in use for some sample types despite it not being advocated as a cytopathology stain for many years and its use going against College guidance.
- Less than 45% of laboratories perform analysis for targeted therapies on cytopathology samples, i.e. IHC, FISH, single gene analysis.
- 80% of laboratories had trainee pathologists rotating through their department.

Moving forward

The survey highlighted that cytopathology samples are mostly reported by general cellular pathologists and not by specialised cytopathologists. Given the age profile data on pathologists collected from this survey and other College surveys,[2] trainee pathologists and consultant pathologists need to be encouraged to report cytopathology samples. It is also recognised that an increase in the number of BMS holding higher level cytopathology qualifications (DEP or ASD) would help fill staffing and service gaps. This work is ongoing between the College and IBMS.

Despite guidance going back to 2010 stating that H&E staining for cytopathology samples was not advocated, the survey showed that some laboratories are still using H&E staining. Awareness of guidance in this area needs to be improved, along with adoption and greater adherence through accreditation and other quality processes. This is ongoing through the College structures and guidance, as well as in collaboration with other cytopathology bodies and structures (IBMS, CJB and BAC).

Many laboratories undertake some molecular analysis of cytopathology samples, however there is scope to increase its utility. The development of such services will need monitoring given the development of specialised laboratories and genomic centres to ensure a quality and timely service. This work is ongoing between the College and other professional bodies, such as UKAS, NICE and NHS guidance.

The data and results from this survey in general will be shared across the College, and our improved knowledge of the services offered by laboratories, particularly for sample types and processing techniques, will help inform College curriculum and examinations development. It is the intention of the Cytopathology SC to repeat this survey, to build on our findings and to help assess cytopathology service changes and developments.

References

1 British Association for Cytopathology. *What is cytology?* Available at: www.britishcytology.org.uk/go/about-us/what-is-cytology

2 Royal College of Pathologists. *Meeting pathology demand: Histopathology workforce census*. Published 2018.

3 Royal College of Pathologists. *Tissue pathways for diagnostic cytopathology (G086)*. Published October 2019.

Appendix A

RCPath Survey on Diagnostic Cytology practice in the UK 2020

There are many changes happening across the UK to cellular pathology services, and cytology services in particular. There is a need to better understand the use and reporting of all types of diagnostic cytological specimens within the UK to facilitate discussions about current and future cytology service provision, as well as help shape cytology training.

This survey, organised by the Royal College of Pathologists, is being sent to the lead cytologist to complete, with one return per laboratory service. No such data collection has been performed before that we know of. We would be grateful if the lead cytologist ensures that all those who report cytology, outside of the cervical screening programme – that is, cytology often referred to as diagnostic or non-gynaecological cytology – are included in the responses where relevant in this questionnaire. Many questions are tick boxes, but some will require more information and data collection.

The data we are asking for relates to the calendar year 2019.

Please note that you can save the survey part way through, before pressing 'Done' and return to it at a later time, so you can complete it in sections rather than all at one time. Please note that this will need to be at the same computer as when you started.

Also note that a field can be left blank if you have no data or the question does not apply, rather than having to click on 'No'.

Please complete this survey by Tuesday 1 September 2020.

Please submit your response by the closing date, even if you have not managed to collect a full data set. Receiving as many responses as possible will allow all relevant professional bodies to gain a better understanding of current cytology practices in the UK. We are asking for some individual and departmental information to ensure we do not double count or unintentionally misunderstand the data we receive. This information will be kept confidential.

We hope you can find time to complete the survey and we thank you in anticipation for doing so. The survey has been constructed from the professional bodies listed below, all with a keen interest in cytology. The data will be analysed anonymously, and data will be shared in an anonymised format with the bodies below for maximum use of this data.

If you have any questions, please contact: fiona.addiscott@rcpath.org

Thank you in anticipation.

RCPath Cytopathology Sub-committee
IBMS Cytology Specialist Advisory Panel
Cytology Conjoint Board
British Association for Cytopathology

Key: * indicates mandatory question

Section A: Contact details

Please provide this information to ensure we do not double count data.

* 1. What region are you working in within the UK? (Please indicate.)

- East Midlands
- East of England
- Kent, Surrey and Sussex
- London
- North East
- North West
- South West
- Thames Valley
- Wessex
- West Midlands
- Yorkshire and the Humber
- Wales
- Scotland
- Northern Ireland

* 2. What institution do you work in? Please give name of your Trust/hospital.

* 3. What is your main work title? (Please indicate.)

- Consultant Cellular Pathologist
- Consultant Cytopathologist
- Associate Specialist
- Consultant Biomedical Scientist
- Clinical Scientist
- Biomedical Scientist
- Other (please specify) _____

* 4. Name _____

* 5. Email address _____

Section B: Staffing

Please provide details relating to medical consultants and then scientific staff.

6. Please provide details of all Pathologists involved in reporting diagnostic cytology, i.e. any cytology apart from cervical cytology. (Please add rows as required.)

	Age (five-year age bands e.g. 30 & under, 31–35, 36–40, 41–45, …61–65, 66 & over)	**PAs allocated to diagnostic cytology (please indicate typical week e.g. 0, 0.5, 1, 1.5, 2 …7, 7.5, 8 & above)**
Pathologist 1		

Pathologist 2		

Any comments felt applicable: _____

7. Please provide details of scientific staff involved in diagnostic cytology screening/ reporting. (Please add rows as required.)

	AfC Band (e.g. BMS Band 5, 6, 7; Clin Sci Band 6, 7, …9; Cytoscreener Band 5, 6, 7)	**Age (five-year age bands e.g. 20 & under, 21–25, …61–65, 66+)**	**Diag-nostic cyto prep? (Yes / No)**	**Holder of DEP in NG? (Y / N)**	**Holder of ASD in NG? (Y / N)**	**Planning to take DEP in NG? (N/A, Y / N)**	**Planning to take ASD in NG? (N/A, Y / N)**	**Diag-nostic cytology screening role? (Y / N)**	**Diag-nostic cytology reporting role? (Y / N)**
Post 1									
Post 2									
Post 3									
Post 4									

Section C: Workload

Please provide information relating to your department

8. Please indicate the number of diagnostic cytology samples that your department received for calendar year 2019, where applicable. If no samples received, please leave blank. (Please enter a number. Decimals, percentages, and non-numeric characters are not accepted.)

Diagnostic cytology sample	**Number of samples received**
Urine – voided	
Urine – instrumented	
Respiratory – washings	
Respiratory – brushings	

Respiratory – lavage	
Respiratory – sputum	
Serous – pleural	
Serous – ascitic	
Serous – pericardial	
Serous – peritoneal washings	
GI brushings – biliary	
GI brushings – oesophageal	
GI brushings – gastric	
GI brushings – colonic	
Synovial – crystals only	
Synovial – crystals and cell count	
Synovial – more than crystals and cell count	
CSF – for cytology	
Brain smears	
FNA – Lung EBUS/EUS	
FNA – EUS pancreas	
FNA – thyroid	
FNA – salivary gland	
FNA – lymph node	
FNA – breast	
FNA – liver	
FNA – soft tissue	
FNA – other	
Andrology – infertility	
Andrology – post-vasectomy	

9. Please indicate what types of stains you perform on these cytology samples (not including any clots etc made from them) in a “usual” case. N.B., answer for 'yes' or leave blank for 'no'.

Diagnostic cytology sample	**Pap**	**Romanowsky**	**H&E**
Urine – voided			
Urine – instrumented			
Respiratory – washings			
Respiratory – brushings			
Respiratory – lavage			
Respiratory – sputum			
Serous – pleural			
Serous – ascitic			
Serous – pericardial			
Serous – peritoneal washings			
GI brushings – biliary			
GI brushings – oesophageal			
GI brushings – gastric			
GI brushings – colonic			
Synovial – crystals only			
Synovial – crystals and cell count			
Synovial – more than crystals and cell count			
CSF – for cytology			
Brain smears			
FNA – Lung EBUS/EUS			
FNA – EUS pancreas			
FNA – thyroid			
FNA – salivary gland			
FNA – lymph node			

FNA – breast			
FNA – liver			
FNA – soft tissue			
FNA – other			
Andrology – infertility			
Andrology – post-vasectomy			

10. Please indicate what type of preparation is normally used for each sample type and usual number of slides per case per stain. N.B., we ask about direct spread and cytospin in this table, and cover LBC SurePath, LBC ThinPrep and Megafunnel in the table below. N.B., answer for 'yes' or leave blank for 'no'.

Diagnostic cytology sample	**Direct spread**	**Usual no. of slides/case/stain**	**Cytospin**	**Usual no. of slides/case/stain**
Urine – voided				
Urine – instrumented				
Respiratory – washings				
Respiratory – brushings				
Respiratory – lavage				
Respiratory – sputum				
Serous – pleural				
Serous – ascitic				
Serous – pericardial				
Serous – peritoneal washings				
GI brushings – biliary				
GI brushings – oesophageal				
GI brushings – gastric				
GI brushings – colonic				
Synovial – crystals only				
Synovial – crystals and cell count				

Synovial – more than crystals and cell count				
CSF – for cytology				
Brain smears				
FNA – Lung EBUS/EUS				
FNA – EUS pancreas				
FNA – thyroid				
FNA – salivary gland				
FNA – lymph node				
FNA – breast				
FNA – liver				
FNA – soft tissue				
FNA – other				
Andrology – infertility				
Andrology – post-vasectomy				

Comment: _____

11. Please indicate what type of preparation is normally used for each sample type and usual number of slides per case per stain.

Diagnostic cytology sample	**LBC SurePath**	**Usual no of S/C/S**	**LBC ThinPrep**	**Usual no of S/C/S**	**Mega-funnel**	**Usual no of S/C/S**
Urine – voided						
Urine – instrumented						
Respiratory – washings						
Respiratory – brushings						
Respiratory – lavage						
Respiratory – sputum						
Serous – pleural						
Serous – ascitic						

Serous – pericardial						
Serous – peritoneal washings						
GI brushings – biliary						
GI brushings – oesophageal						
GI brushings – gastric						
GI brushings – colonic						
Synovial – crystals only						
Synovial – crystals and cell count						
Synovial – more than crystals and cell count						
CSF – for cytology						
Brain smears						
FNA – Lung EBUS/EUS						
FNA – EUS pancreas						
FNA – thyroid						
FNA – salivary gland						
FNA – lymph node						
FNA – breast						
FNA – liver						
FNA – soft tissue						
FNA – other						
Andrology – infertility						
Andrology – post-vasectomy						

Comment: _____

12. Does another department, apart from the cellular pathology department, perform andrology in your Trust? (Yes / No / Don't know)

13. If yes, please specify which department?

14. Does your cytology service offer Rapid On Site Evaluation (ROSE) or Rapid On Site Assessment (ROSA) for samples? (Yes / No / Don't know)

15. If yes, who undertakes this?

- BMS
- CBMS
- Pathologist
- Clinician
- Other (please specify) _____

16. If Yes, what sample types does your department offer ROSE/ROSA on?

- FNA – EBUS/EUS
- FNA – EUS pancreas
- FNA – thyroid
- FNA – salivary gland
- FNA – lymph node
- FNA – breast
- FNA – liver
- FNA – soft tissue
- FNA – other
- Other sample (please specify) _____

17. Does your cytology service provide staff to help prepare slides in clinical areas without offering a ROSE/ROSA service? (Yes / No)

18. Does your cytology service perform cell blocks on cytology material? (Yes / No)

19. If Yes, state which ones are routinely done or on demand by a reporting cytologist. N.B., answer for 'yes' or leave blank for 'no'.

	Routinely	**On demand**
Urine – voided		
Urine – instrumented		
Respiratory – washings		
Respiratory – brushings		
Respiratory – lavage		
Respiratory – sputum		
Serous – pleural		
Serous – ascitic		
Serous – pericardial		
Serous – peritoneal washings		

GI brushings – biliary		
GI brushings – oesophageal		
GI brushings – gastric		
GI brushings – colonic		
Synovial – crystals only		
Synovial – crystals and cell count		
Synovial – more than crystals and cell count		
CSF – for cytology		
Brain smears		
FNA – Lung EBUS/EUS		
FNA – EUS pancreas		
FNA – thyroid		
FNA – salivary gland		
FNA – lymph node		
FNA – breast		
FNA – liver		
FNA – soft tissue		
FNA – other		

20. Does your cytology service undertake immunohistochemistry on cytology samples? (Yes / No)

21. If Yes, which sample types?

- Direct smears
- Cytospins
- LBC samples
- Cell blocks
- Other (please specify) _____

22. Does your laboratory perform analyses for targeted therapy on cytological material? Please include immunohistochemistry (e.g. PD-L1), cytogenetic (e.g. ALK FISH) and molecular genetic analysis (e.g. single gene or Next Generation Sequencing analysis for EFGR mutations, KRAS mutations etc). Please exclude hormone receptors for breast or gynaecological samples. (Yes / No)

23. If yes, which ones? N.B., answer for 'yes' or leave blank for 'no'.

	IHC for targeted therapy	**Cyto-genetics /FISH**	**Single gene analysis**	**NGS**	**Other**
Urine – voided					
Urine – instrumented					
Respiratory – washings					
Respiratory – brushings					
Respiratory – lavage					
Respiratory – sputum					
Serous – pleural					
Serous – ascitic					
Serous – pericardial					
Serous – peritoneal washings					
GI brushings – biliary					
GI brushings – oesophageal					
GI brushings – gastric					
GI brushings – colonic					
Synovial – crystals only					
Synovial – crystals and cell count					
Synovial – more than crystals and cell count					
CSF – for cytology					
Brain smears					
FNA – Lung EBUS/EUS					
FNA – EUS pancreas					
FNA – thyroid					
FNA – salivary gland					
FNA – lymph node					

FNA – breast					
FNA – liver					
FNA – soft tissue					
FNA – other					

Please expand if “other” is marked. _____

24. Do you send cytology samples away for some/all of the above analyses? (Yes / No)

25. If Yes, which samples and for what? N.B., answer for 'yes' or leave blank for 'no'.

	IHC for targeted therapy	**Cyto-genetics /FISH**	**Single gene analysis**	**NGS**	**Other**
Urine – voided					
Urine – instrumented					
Respiratory – washings					
Respiratory – brushings					
Respiratory – lavage					
Respiratory – sputum					
Serous – pleural					
Serous – ascitic					
Serous – pericardial					
Serous – peritoneal washings					
GI brushings – biliary					
GI brushings – oesophageal					
GI brushings – gastric					
GI brushings – colonic					
Synovial – crystals only					
Synovial – crystals and cell count					
Synovial – more than crystals and cell count					
CSF – for cytology					

Brain smears					
FNA – Lung EBUS/EUS					
FNA – EUS pancreas					
FNA – thyroid					
FNA – salivary gland					
FNA – lymph node					
FNA – breast					
FNA – liver					
FNA – soft tissue					
FNA – other					

26. If a cytology sample has a paired current histopathology sample, does your department have a policy on how these are reported? Please indicate which one applies:

a) Always wait for knowledge of the histology report before reporting the cytology sample
b) Sometimes wait for the histology report but would report the cytology if considered diagnostic
c) Always report the cytology regardless of how diagnostic but suggest wait for the histology report in equivocal cases
d) Always report the cytology without knowledge of the histology report
e) No policy.

27. Are cytology samples reported separately or are any reported together with the histology in site specific teams?

- Separately
- Site specific teams
- Combination of the above

28. If site specific teams, please indicate which ones:

- Respiratory
- Gynaecological
- GI (including hepato-biliary)
- Breast
- Urology
- Other (please specify) _____

29. Does your cytology service have trainee pathologists rotating through it? (Yes / No)

30. If Yes, do any:

- Have plans/are intending to take the CHCCT in cervical cytology Yes No

- Have a major interest in diagnostic cytology Yes No

Comment: _____

31. Who performs FNAs in your institution? Please indicate who and what sites. N.B., answer for 'yes' or leave blank for 'no'.

	Pathologists	**Clinician**	**Radiologist**
Lung			
Head and Neck			
Thyroid			
GI (incl liver/pancreas)			
Breast			
Gynae tract			
Soft tissue			

Other (please specify) _____

32. For Pathologists who perform FNAs:

- Do you use an ultrasound for all FNAs? Yes No
- Do you use ultrasound for some FNAs? Yes No
- Do you only perform free hand FNAs (no use of ultrasound)? Yes No

Section D: Free text

Any comments you wish to make which would add value to this survey.

33. Please provide comments here

Thank you for completing this questionnaire. Your help is invaluable.

If you have any questions, please contact Fiona at Fiona.addiscott@rpcath.org or telephone 020 7451 6726

Dr Paul Cross **Chair, Cytopathology SC**
Dr Esther Youd **Assistant Registrar**

Pathology: vital to patient care

Pathology is the study of disease.

Pathologists work with frontline hospital clinicians, primary care practitioners and patients to prevent, identify, treat and monitor diseases.

Pathologists are involved in the diagnosis of disorders affecting every organ of the body, from before birth to after death.

The work of pathologists and clinical scientists is vital for effective healthcare. The majority of
tests requested by doctors will be performed and interpreted by a clinical scientist or medically qualified pathologist.

Pathologists carry out millions of tests every day and are involved in almost all patient care pathways within the NHS.

About the Royal College of Pathologists

The College works with pathologists at every stage of their career. We set curricula, organise training and run exams, publish clinical guidelines and best practice recommendations, and provide continuing professional development.

We engage a wide range of stakeholders to improve awareness and understanding of pathology and the vital role it plays in everybody's healthcare. Working with members, we run programmes to inspire the next generation to study science and join the profession.

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