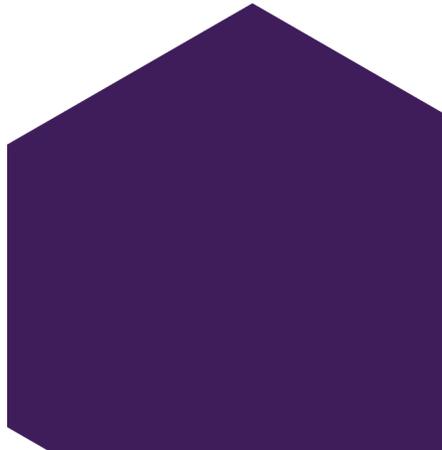
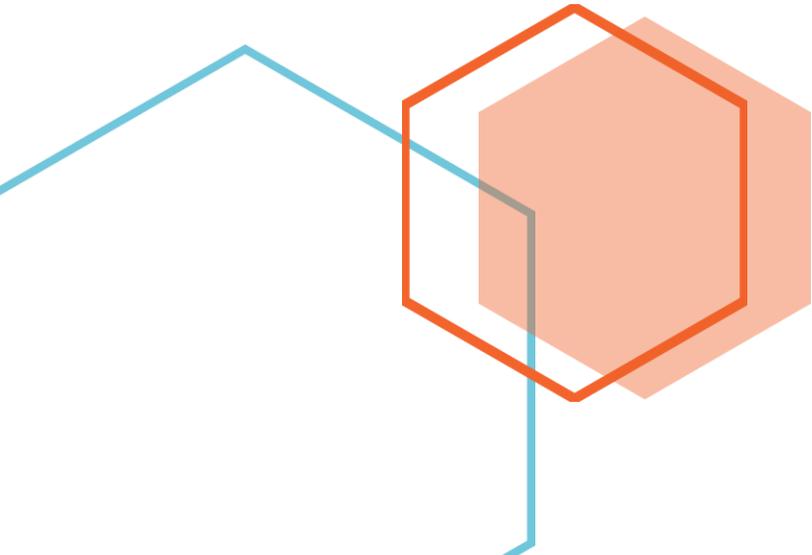




Medical Scientist Skills Review Working Group Report - A



APRIL 2021



Evolution of the Medical Scientist Skills Review Working Group

The Medical Scientist Skills Review Working Group was convened under the auspices of the Academy of Clinical Science and Laboratory Medicine (ACSLM) after a meeting in October 2019 with the then President of the ACSLM, Brigid Lucey, members of the Cellular Pathology Advisory Board (CPAB) and representatives of the Medical Laboratory Scientists Association (MLSA) executive.

The meeting was organised to consider Medical Scientist staff deficits in Cellular Pathology laboratories and the resulting limitations being placed on Cellular Pathology Medical Scientists in terms of scientific role job satisfaction. The meeting included discussions centred on a Scope of Practice for Cellular Pathology / Histology Medical Scientists and on the emerging trend of Non-Medical Scientist staff performing tasks within Cellular Pathology services that would traditionally be performed by Medical Scientists.

There was recognition by all present at the meeting that should this trend continue, it would result in a changed working landscape for Cellular Pathology Medical Scientists. In response to the meeting the President of the ACSLM agreed that the CPAB would instigate a Working Group to further examine the matters raised.

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Working Group Terms of Reference

Defining the Terms of Reference

The first task of the working group was to set out the Working Groups Terms of Reference. This document set out not only the Role/Purpose and accountability of the group but also organisational / housekeeping matters such as the number of meetings per year, meeting quorums, meeting minute circulation etc.

The Terms of Reference were set through a mechanism of on-line meetings, document drafting and discussion by the group members and were finally agreed by all members at the end of August 2020. See Appendix 1 for the full Terms of Reference document.

Purpose of the Working Group

The role of CPAB Medical Scientist Skills Review Working Group is to assess available guidance on the Scope of Practice for Cellular Pathology Medical Scientists and to develop recommendations which will enable Medical Testing Laboratories to relate this guidance to the current Cellular Pathology landscape.

Working Group Objectives

The objectives of the working group are:

- To review Scope of Practice for Cellular Pathology Medical Scientists.
- To document the current Cellular Pathology landscape in terms of the Medical Scientist workforce.
- To develop recommendations that can be employed by Cellular Pathology Laboratories to enhance the role of Medical Scientists with a view to improving the current landscape.
- To support in the creation of stable, sustainable, quality focused and progressive Cellular Pathology services.

Working Group Undertakings

The undertakings of the working group are to:

- Review the Scope of Practice for Cellular Pathology Medical Scientists.
- Review current workforce trends for Cellular Pathology Medical Scientists.
- Develop recommendations to allow Cellular Pathology Laboratories react safely to Medical Scientist workforce trends while safeguarding service provision.

Scope of Practice for Cellular Pathology Medical Scientists

Introduction

The Working Group undertook a desk or literature review process to investigate the requisites of the Scope of Practice for Cellular Pathology Medical Scientists. Literature from the National Regulatory Body for Medical Scientists, CORU, was examined as was literature from International bodies such as Health and Care Professions Council (HCPC) in the UK, the European Association for Professions in Biomedical Science (EPBS) and the Canadian Society for Medical Laboratory Science (CSMLS). Also reviewed was literature from other health professions in Ireland such as the Nursing and Midwifery Board of Ireland (NMBI) and the Irish Society of Physician Associates (ISPA).

Scope of Practice Definition

Scope of Practice is a terminology that describes the procedures, actions, and processes that are permitted for an individual healthcare practitioner. The scope of practice is derived from an individual's education, experience, and specific demonstrated competency. Each jurisdiction has laws, licensing bodies, and regulations that describe requirements for education and training, and define scope of practice.

Professional Bodies and Scope of Practice

CORU

CORU is Ireland's multi-profession health regulator. CORU's role is to protect the public by promoting high standards of professional conduct, education, training and competence through statutory registration of health and social care professionals. CORU was set up under the Health and Social Care Professionals Act 2005 (as amended). It is made up of the Health and Social Care Professionals Council and the Registration Boards, one for each profession named in the Act.

The Minister for Health, Simon Harris TD, confirmed on 9 November 2016, the establishment of and appointment of members to the Medical Scientists Registration Board to regulate the profession of Medical Scientists.

The Medical Scientists Registration Board at CORU has statutory responsibility for:

- Establishing and maintaining a Register of members of the profession.
- Assessing, approving and monitoring training courses for Medical Scientists.
- Establishing the Code of Professional Conduct and Ethics and standards of performance to which Medical Scientists must adhere.

The Code of Professional Conduct and Ethics sets out the standards of conduct, performance and ethics which a registered Medical Scientist must adhere to throughout the course of their work. All registrants must abide by this statutory code and each year registrants will be asked to pledge that they comply with the code.

Within the Code is a summary of responsibilities which are grouped into three categories: conduct, performance and ethics. Responsibilities within the performance category relate to Scope of Practice, specifically responsibility number 9 – see extract below.

“9. Act within the limits of your knowledge, skills, competence and experience

You must:

- a) act within the limits of your knowledge, skills, competence and experience*
- b) practise only in areas in which you have relevant knowledge, skills, competence, experience or are appropriately supervised*
- c) refer the service user, task or request to a colleague or other appropriate professional who has the skills, competence or experience to provide the service where a task or request is beyond your knowledge, skills, competence or experience*
- d) refer the service user, task or request promptly to another professional and transfer any records relating to the service user to the other professional in circumstances where the service user has the right to a second opinion and it is within your authority to make such a referral*
- e) make sure you understand any request from another health or social care professional and only assess, intervene or treat a service user if it is in the service user’s best interest. If this is*

not the case, you must discuss the issue with the service user (if you are engaging directly with the service user) and the practitioner who made the referral before providing any service

- f) be able to justify any decisions you make within your scope of practice. You are always accountable for what you do, what you fail to do, and for your behaviour*
- g) meet professional standards of practice and work in a lawful, safe and effective manner."*

Health and Care Professionals Council, United Kingdom

The regulatory body for Medical/Biomedical Scientists in the United Kingdom (UK) is the Health and Care Professions Council (HCPC).

The HCPC's Standards of Proficiency for Biomedical Scientists document sets out profession-specific standards for Biomedical Scientists. These standards are based around 15 generic statements the first of which references scope of practice.

Registrant Biomedical Scientists must:

"be able to practise safely and effectively within their scope of practice

know the limits of their practice and when to seek advice or refer to another professional"

In addition, the document states the following:

"Once registered, biomedical scientists must continue to meet the standards of proficiency that are relevant to their scope of practice - the areas of their profession in which they have the knowledge and skills to practise safely and effectively.

Your scope of practice is the area or areas of your profession in which you have the knowledge, skills and experience to practise lawfully, safely and effectively, in a way that meets our standards and does not pose any danger to the public or to yourself.

We recognise that a registrant's scope of practice will change over time and that the practice of experienced registrants often becomes more focused and specialised than that of newly registered colleagues. This might be because of specialisation in a certain area or with a particular client group, or a movement into roles in management, education or research.

Every time you renew your registration, you will be asked to sign a declaration that you continue to meet the standards of proficiency that apply to your scope of practice.

Your particular scope of practice may mean that you are unable to continue to demonstrate that you meet all of the standards that apply for the whole of your profession.

As long as you make sure that you are practising safely and effectively within your given scope of practice and do not practise in the areas where you are not proficient to do so, this will not be a problem. If you want to move outside of your scope of practice, you should be certain that you are capable of working lawfully, safely and effectively. This means that you need to exercise personal judgement by undertaking any necessary training or gaining experience, before moving into a new area of practice."

Institute of Biomedical Scientists, United Kingdom

In December 2019, the council of the Institute of Biomedical Scientists (IBMS), the professional body for Biomedical Scientists in the UK, issued a position paper to clarify the expansion of Biomedical Scientist's scope of practice into advanced practice areas such as interpreting and reporting results, making a diagnosis or providing a clinical result.

As Biomedical Scientists increasingly undertake advanced and consultant roles their scope of practice will change and develop considerably from their original point of registration.

"The following information is provided for registrants and their employers to confirm that the training and use of biomedical scientists to undertake advanced roles, including those that are shared with medically qualified pathologists, is not in contravention of Health and Care Professions Council (HCPC) biomedical scientist standards of proficiency. It represents professional development and advancement of scope of practice, which is seen in many of the healthcare professions."

European Association for Professions in Biomedical Science

The European Association for Professions in Biomedical Science (EPBS) was formed in May 1999 at The Hague, Netherlands. This International Non-Profit Association (AISBL) is committed to promoting best practice and ethics for Biomedical Laboratory Scientists throughout Europe.

The aims of the EPBS are to:

- *"promote the maintenance of the highest possible standards of practice within biomedical science*
- *develop the ethical and professional values of the biomedical scientist*
- *support the training and education of the biomedical scientist in order to improve health care provision*

- *foster co-operation between member societies in areas of education, continuing professional development, competences and research*
- *liaise with EU Commission on all issues relevant to biomedical science*
- *utilise this shared knowledge between the societies to the benefit of all."*

The EPBS Policy Statement on Biomedical Scientists, October 2019, outlines the skills, competencies, knowledge, responsibility, autonomy and qualifications of Biomedical Scientists, Specialised Biomedical Scientists and Advanced Biomedical Scientists. The document does not specifically reference scope of practice for Biomedical Scientists.

Canadian Society for Medical Laboratory Science

The Canadian Society for Medical Laboratory Science (CSMLS) is the national certifying body for Medical Laboratory Technologists (MLT) and Medical Laboratory Assistants (MLA), and the national professional society for Canada's medical laboratory professionals.

To become a certified medical laboratory technologist an individual must pass the CSMLS certification exam. This examination focuses on the ability to apply knowledge acquired from accredited educational programmes and is based on eight competency categories. The CSMLS Competency Profile General Medical Laboratory Technologist document details these categories and establishes the scope of practice for medical laboratory technologists in Canada; it restricts Medical Laboratory Technologists to performing only those duties specifically outlined within that competency profile.

Extracts from CSMLS General Medical Technology Competency Profile:

"Code of Professional Conduct[...]Medical laboratory professionals shall practise within the scope of their professional competence.

Category 8, Professional Practice. The medical laboratory technologist meets the legal and ethical requirements of practice and protects the patient's right to a reasonable standard of care. Professional responsibility encompasses scope of practice, accountability, and professional development.[...]8.03 Recognizes limitations of own competence and seeks action to resolve"

Nursing and Midwifery Board of Ireland

The Nursing and Midwifery Board of Ireland (NMBI) is the independent, statutory organisation which regulates the nursing and midwifery professions in Ireland. The NMBI therefore maintains the register of the nurses and midwives registered under the Nurses and Midwives Act 2011.

Scope of practice for nurses and midwives in Ireland is determined by legislation, European Union (EU) directives, international developments, social policy, national and local guidelines, education and the individual practitioner's levels of competence.

The Scope of Nursing and Midwifery Practice Framework provides nurses and midwives with professional guidance and support on matters relating to the scope of their clinical practice. It incorporates a flowchart to help nurses and midwives to define and make decisions about their own scope of practice.

Scope of Nursing and Midwifery Practice Framework extracts:

“Scope of Practice: the range of roles, functions, responsibilities and activities which a registered nurse or registered midwife is educated, competent and has authority to perform.

An individual nurse's scope of practice is dynamic – that is, it will change and grow as they progress in their career.

In determining their scope of practice, nurses and midwives must make judgements about their competency to carry out a role or activity.”

The Irish Society of Physician Associates

The Irish Society of Physician Associates (ISPA) was established by the Royal College of Surgeons in 2015. The first cohort of Irish trained Physician Associates (PAs) entered the Irish healthcare system in January 2018. The scope of practice of a PA varies greatly in different settings including acute hospitals, surgical and medical specialties, GP Practice and private practice. PAs function with a delegate autonomy that is consistent with the Consultants' scope of practice.

Similarly, the UK and US healthcare systems are also transferring some duties from a regulated profession (Consultant/GP) to the PA role within a defined scope of practice and limits of competence. Notwithstanding, the Consultant/GP is the clinician ultimately responsible for the patient.

Scope of Practice Summary Findings

Scope of practice is a term used nationally and internationally across healthcare professions to indicate the tasks/actions that an individual qualified professional is competent to perform. As competence is based on several variable factors (such as education, training, experience etc.) the scope of practice of an individual is unique and can change over time.

None of the jurisdictions or other Healthcare professions reviewed listed a defined set of tasks/actions that a qualified Medical Scientist or Healthcare professional should or should not perform. Rather the decision and accountability to perform or not to perform a task/action rests with the individual healthcare professional.

Scope of Practice Conclusion

It is neither in a medical scientists, laboratory nor patients best interest to set out a defined set of tasks that an individual medical scientist should or should not perform.

Cellular Pathology Landscape for the Medical Scientist Workforce

Introduction

The current Cellular Pathology landscape for the Medical Scientist workforce was determined by means of a survey process. The twenty-four question Microsoft Office Forms survey was distributed to all thirty Cellular Pathology Laboratories in the Republic of Ireland at the end of October 2020. The main areas explored by this survey were Medical Scientist vacancies, Medical Scientist recruitment issues, Medical Scientist task activity and Non-Medical Scientists task activity. The survey also requested respondents to complete a detailed Excel workbook to gauge current and potential future task activities of Non-Medical Scientists in Cellular Pathology Laboratories. See Appendix 2 for the complete list and format of survey questions.

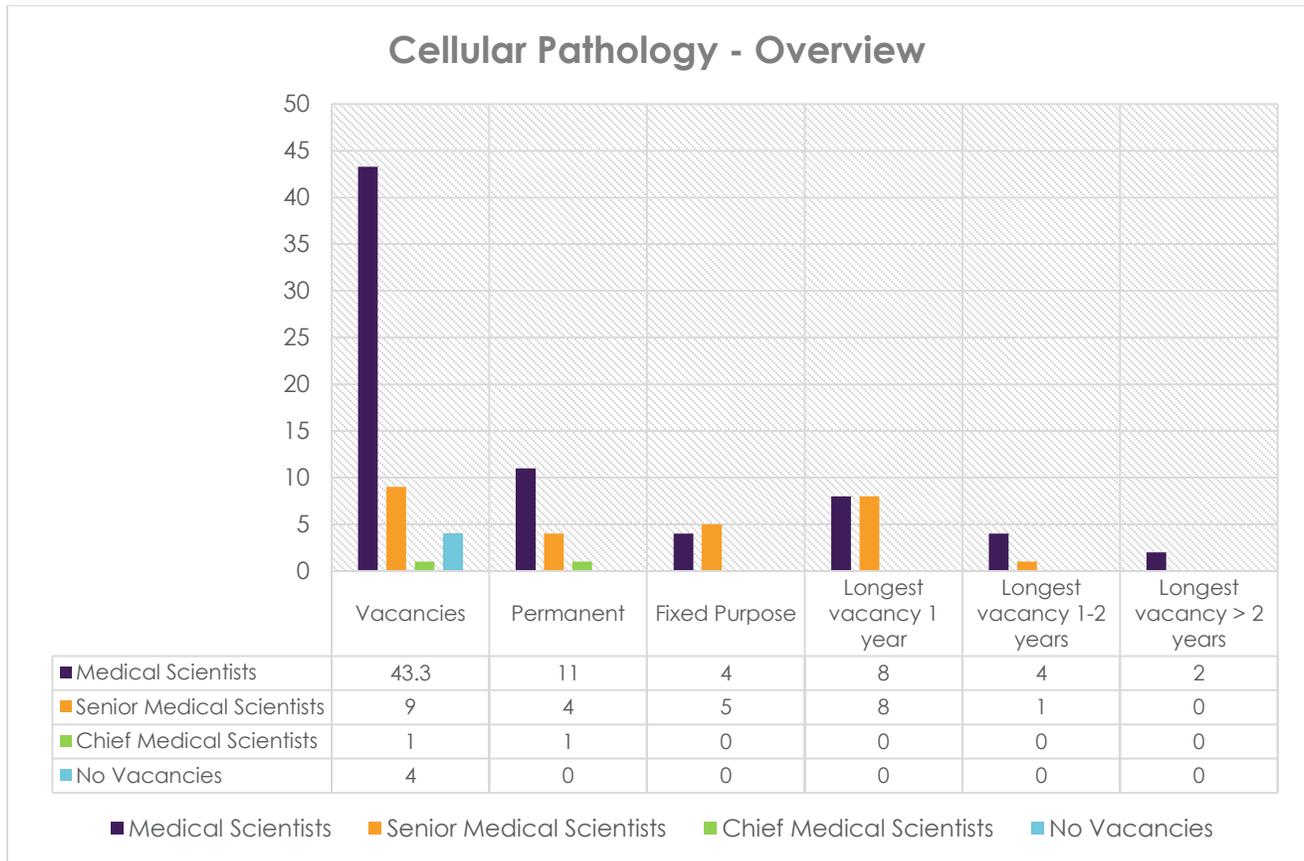
Survey Results

Responses from twenty laboratories (67% response rate) were received for all survey questions, with the exception of question seventeen, and analysed. The survey was based on a similar survey performed by the CPAB in April 2019. Survey results in terms of the extent of vacant posts and Non-Medical Scientist activities were comparable despite the surveys occurring one and a half years apart. Consequently, the landscape identified by the survey results is considered by the Working Group to be persistent rather than transient.

Medical Scientist Vacancies

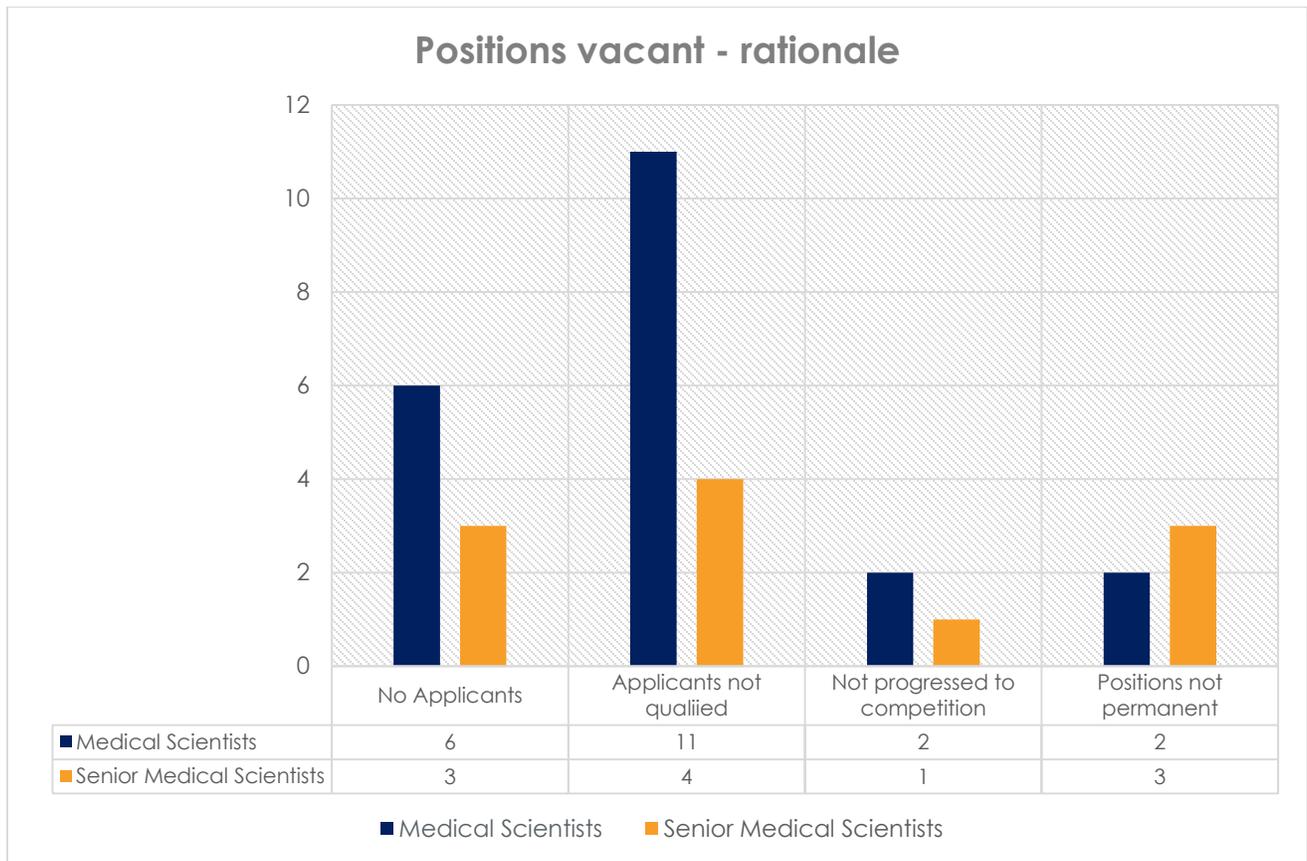
Survey Questions 1 – 4 & 6-7.

80% of the laboratories who responded are experiencing vacancies, largely at the Medical Scientist grade – with 43 posts vacant. There are 10 vacancies in promotional grades with 9 at the Senior Medical Scientist grade and 1 at the Chief Medical Scientist grade. Given the number of Medical Scientist graduates per annum and anecdotal (yet experiential) evidence that a low number of graduates choose the Cellular Pathology discipline these numbers are concerning. Also concerning is the fact that vacancies can last for a year or more and in some instances, vacancies have existed for more than 2 years.



Survey Questions 5 & 8.

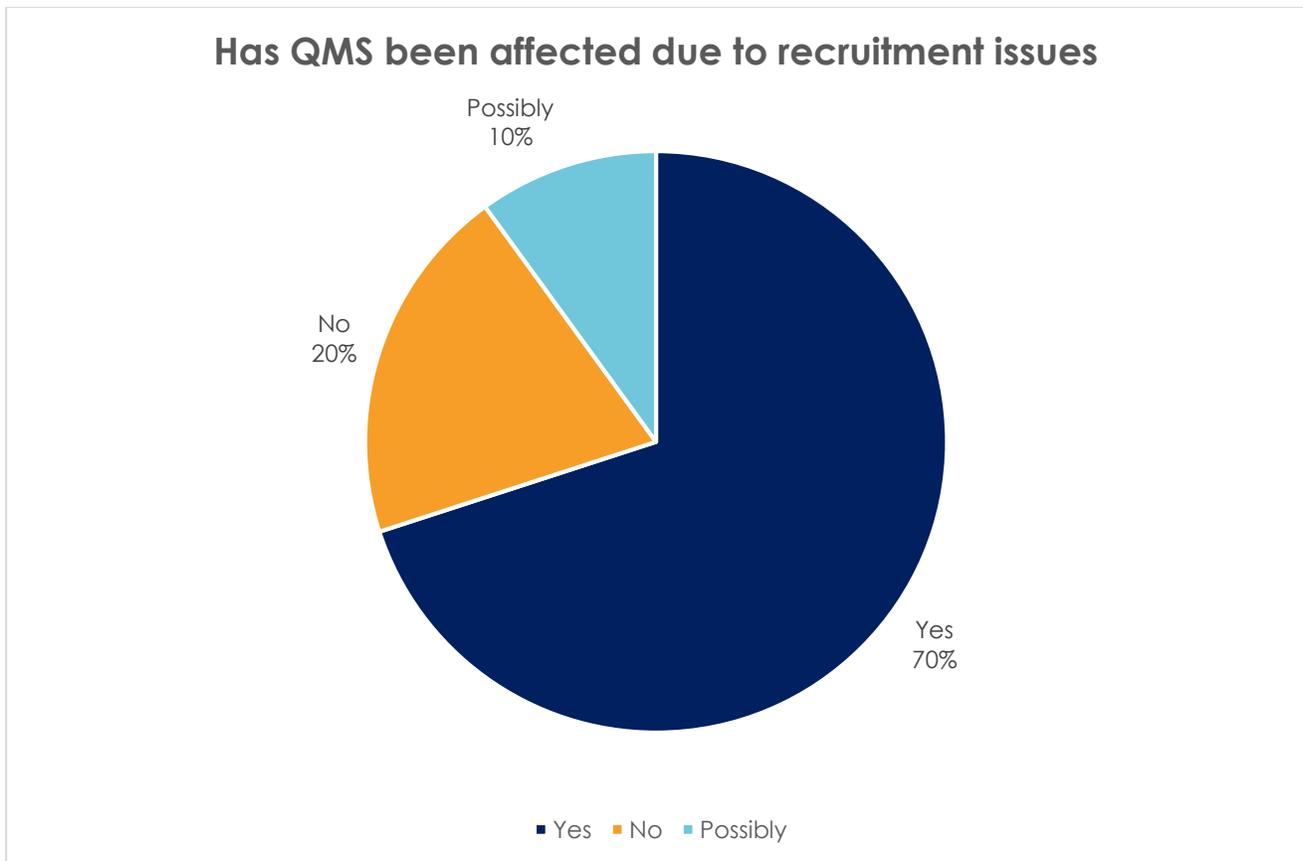
The survey sought to determine why vacancies at both the Medical Scientist and Senior Medical Scientist grades were being experienced. Four possible reasons were provided to respondents experiencing vacant posts. The responses received indicate that there is a lack of available workforce as evidence by either a lack of applicants (n=9) or applicants not being suitably qualified (n=15).



Affect on the Quality Management System

Survey Question 9.

When asked if the recruitment issues or vacancies have affected the Quality Management System within their Cellular Pathology Laboratory 70% of respondents answered in the affirmative with an addition 10% indicating a possible affect. Given the overwhelming importance of a robust Quality Management System in ensuring high levels in quality service provision and the direct impact this can have on patient care this figure is very concerning.



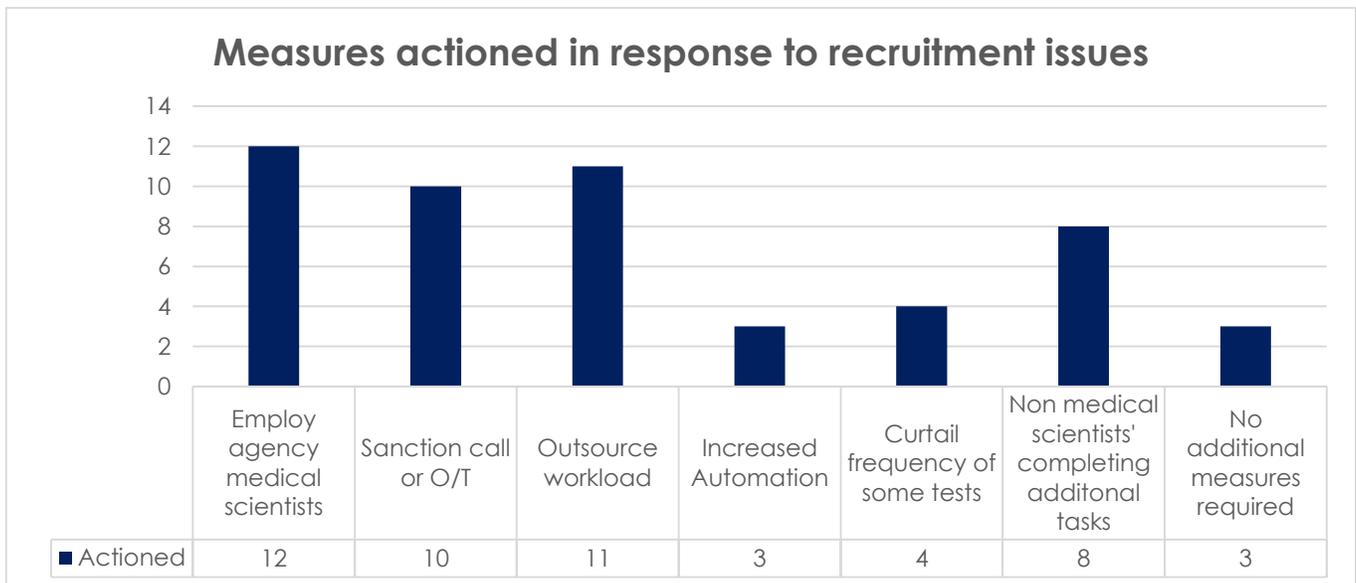
Laboratory Responses to Medical Scientist Vacancies

Survey Question 10.

A few possible measures to mitigate for Medical Scientist vacancies were presented in the survey and respondents were asked to indicate which of these measures have been actioned in their laboratories. Responses indicated that laboratories are usually putting more than one measure in place.

Most of the measures actioned (33 out of 48) result in additional financial costs to the laboratory. These additional costs are somewhat offset by the vacant Medical Scientist posts however the most frequent mitigating action is the employment of agency Medical Scientists (n=12). Given the lack of an available Irish Medical Scientist workforce these agency Medical Scientists are most frequently derived from the United Kingdom and the hourly rates are grossly in excess of the hourly rate of the Department of Health Salary Scale for Medical Scientists.

Several laboratories (n=8) have Non-Medical Scientists completing tasks normally associated with a Medical Scientist and to a lesser extent curtailing services (n=4) and increasing automation (n=3) have been used to alleviate workload pressures associated with vacant Medical Scientist posts.



Survey Question 11.

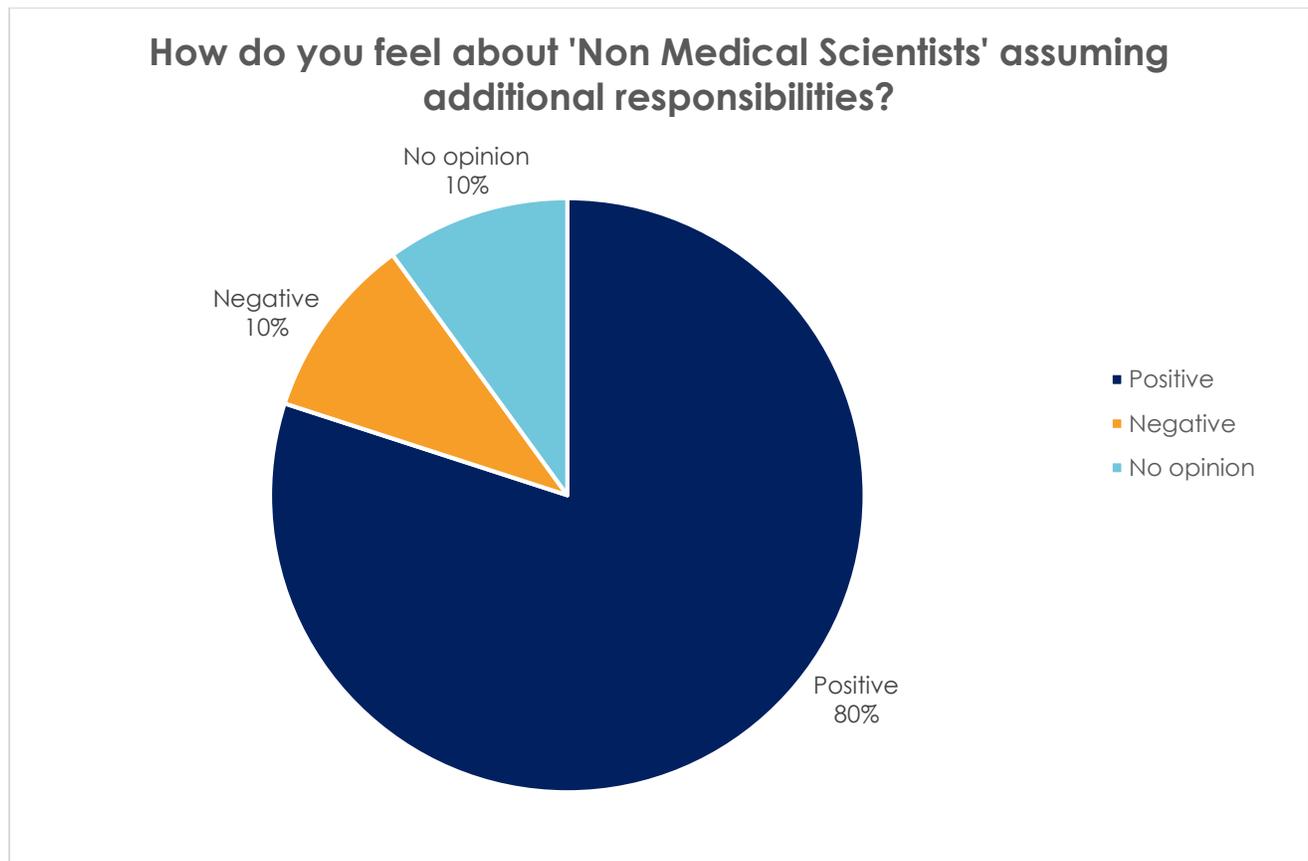
When asked about Medical Scientist recruitment solution there was almost a tie in terms of numbers for four of the proposed survey solutions. Respondents indicated that more than one solution would be required. Most respondents indicated that increasing the number of suitably qualified candidates would be required – this to be achieved through increasing undergraduate numbers in all 3 educational institutions and through a post-graduate accession route. Improving the current work conditions / job satisfaction through allowances for advanced practice (e.g. histodissection) and a Skills Mix with Non-Medical Scientists was also considered to be a beneficial solution.



Skill Mix with Non-Medical Scientists

Survey Question 12.

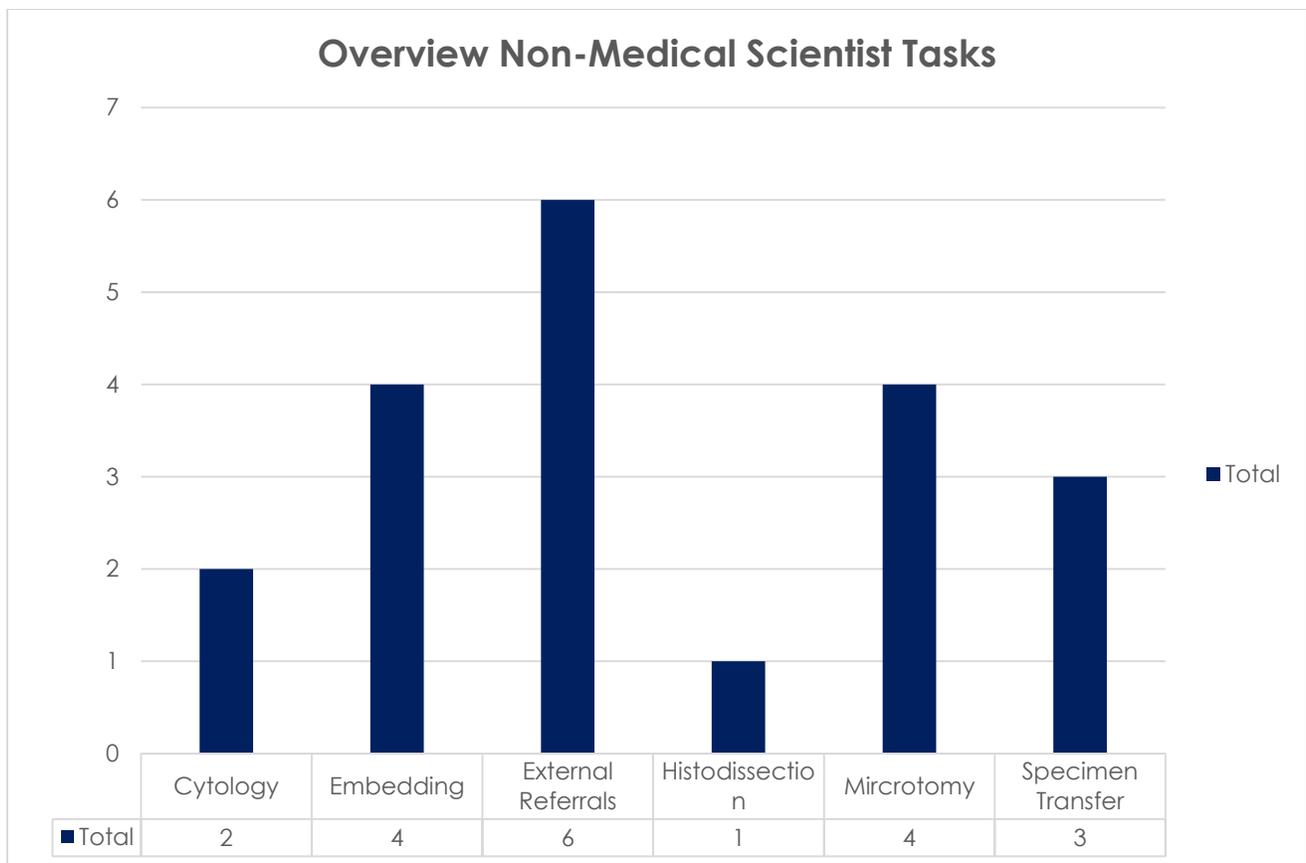
To further explore existing attitudes to a scientific skill mix within the laboratory respondents were asked to indicate if they felt positively or negatively towards Non-Medical Scientists taking on additional responsibilities. An overwhelming majority (80%) of respondents felt positively towards this mitigating measure. 10% of respondents felt negatively and 10% expressed no opinion. The response to this question is seen as convincingly supportive of engaging a Non-Medical Scientist grade to take over tasks traditionally performed by Medical Scientists.



Existing Skill Mix

Survey Questions 13 – 15.

Some Cellular Pathology Laboratories have already explored and implemented a Non-Medical Scientist skill mix and the survey sought to identify what tasks are currently being performed by Non-Medical Scientists in these laboratories. Six laboratories responded that Non-Medical Scientists are processing external referrals i.e. cases/slides received or issued to other Cellular Pathology services for purposes of Multi-disciplinary team meetings, expert review and referral testing. Four respondents indicated that Non-Medical Scientists were engaged in the embedding and microtomy of tissue blocks. Three laboratories have Non-Medical Scientists performing direct specimen transfer, two have Non-Medical Scientists processing cytology cases and one laboratory has a Non-Medical Scientist performing histodissection.



Respondents were asked to indicate the title and salary scale under which these Non-Medical Scientists were employed. The following data was provided.

Titles	Salary Scales
Medical Laboratory Aide	Medical Laboratory Aide
Technologist	Between MLA and Medical Scientist
Associate Practitioner	Clerical grade IV
Medical Laboratory Assistant	

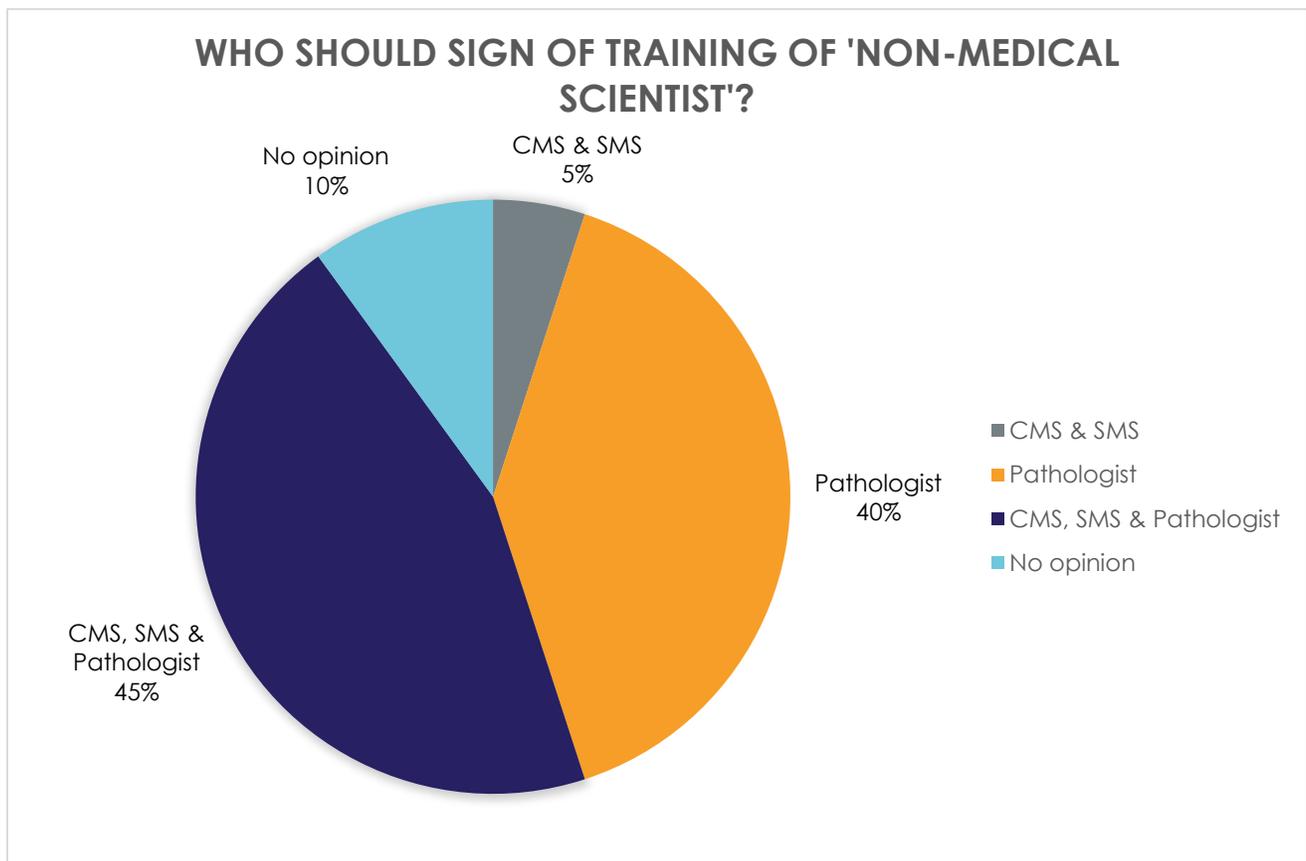
Respondents were also asked to suggest a title or grading that would in their opinion be suitable for use for Non-Medical Scientists undertaking these tasks. The following data was provided.

Suggested Titles	
Trainee Medical Scientist	Medical Laboratory Assistants (MLA)
Intern Medical Scientist	Advanced MLA
Technical Assistant	Histotechnician
Pathology Assistant	Histology Medical Technician
Histology Technicians	Associate Practitioner
	Medical Laboratory Scientific Assistant

Non-Medical Scientist Training

Survey Questions 20 & 21.

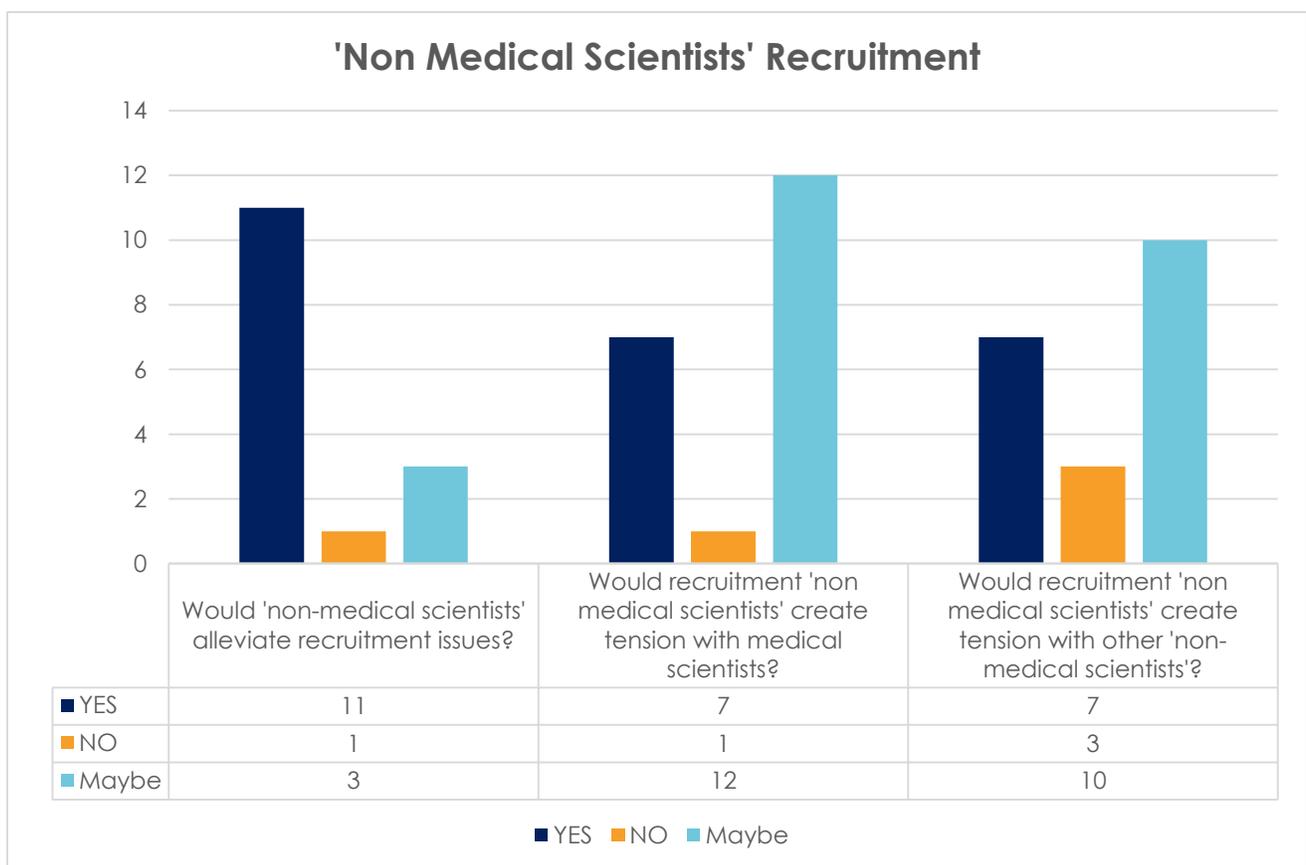
The survey sought to identify the responsibility levels that would be required for training processes relating to a Skill Mix with Non-Medical Scientists. Respondents indicated a nearly even split between the Consultant Pathologist on their own, at 40% and a combination of the Consultant Pathologist, Chief Medical Scientist and Senior Medical Scientist, at 45%. 10% expressed no opinion and 5% indicated Chief Medical Scientist and Senior Medical Scientist sign off would be sufficient. Overall, the responses indicated that Non-Medical Scientist training would need sign off involvement at the Consultant Pathologist level.



Effects of a Skills Mix

Survey Questions 22 – 24.

The final three survey questions sought to explore the possible effect of a change in skills mix in the Laboratory. The majority of respondents indicated that the increased role of Non-Medical Scientists would alleviate recruitment issues. Respondents also indicated that this increased role would likely create tensions with Medical Scientists and with other Non-Medical Scientists.



Survey Question 17.

This question took the form of an excel workbook with 174 distinct tasks undertaken within Cellular Pathology Laboratories. Respondents were asked to indicate which tasks Medical Scientist and/or Non-Medical Scientist staff currently perform. Respondents were also asked to indicate which tasks they thought would be suitable to be performed by an appropriately trained Non-Medical Scientist.

Seventeen of the twenty survey respondents returned workbook data, which has been analysed using a pivot table.

There were some inconsistencies in the replies received with several blank columns recorded.

- Not all the tasks listed (e.g. MOHs, FISH, molecular diagnostics) are common to all laboratories and will therefore appear underrepresented in the final figures.
- For the percentage calculation of Non-Medical Scientist tasks, we used 50% as an indicator to show an indication for/against a particular task.
- For the maybe section, we used a threshold of 25% to indicate that respondents were possibly in favour.
- The results are detailed according to process points typical within a Cellular Pathology Laboratory.
- See Appendix 3 for the tasks queried in the Excel Workbook.

Specimen Reception

- Current tasks are predominately completed by Non-Medical Scientists with a high percentage indication for a future role also.

Cut Up

- There is some acceptance of a Non-Medical Scientist partaking in biopsy transfer with 40% in favour and a further 20% indicating maybe. There are 40% not in favour. 15% of replies indicate role is currently in place for Non-Medical Scientists.
- There is little acceptance of a Non-Medical Scientist undertaking histodissection with 93% not in favour. There are 7% in favour. 15% indicate role is currently in place for Non-Medical Scientists.

Tissue processing

- There is widespread current performance (71%) and future acceptance (100%) of Non-Medical Scientists maintaining Tissue Processors.
- There is a positive indication of current performance (57%) and future acceptance (71%) of Non-Medical Scientists operating tissue processor cycles.
- Respondents are not in favour (86%) of Non-Medical Scientists having administrator rights to edit tissue processing programmes.

Embedding

- There is an indication of an increased role for Non-Medical Scientists in this area.
- 40% of respondents are in favour of Non-Medical Scientists performing manual orientating and embedding of tissue with a further 27% indicating a maybe. 33% are not in favour.
- 56% of respondents are in favour of Non-Medical Scientists operating automated embedding instrumentation with a further 22% indicating a maybe. 22% are not in favour.

Microtomy

- Respondents indicated a varied response to Non-Medical Scientist activity in this area. However, in most areas associated with microtomy almost 30% of respondents indicated that Non-Medical Scientists are already performing the task.
- The most favoured task is the 'microtomy of PMs, large surgical' with 36% of respondents already engaging Non-Medical Scientists to perform this task and 13% indicating a maybe.
- The majority of respondents (70%) do not see a future role for Non-Medical Scientists performing routine microtomy tasks.

H&E Staining

- Respondents indicated a Non-Medical Scientist role in operation and maintenance of automated staining instruments.
- The remainder of tasks related to H&E staining were not indicated by respondents as a Non-Medical Scientist role.

Sorting Blocks and Slides

- Respondents indicated a role for Non-Medical Scientists in the case collation/assembly area with approximately 40% of respondents already employing Non-Medical Scientists for this task and up to 79% of respondents indicating a future role.
- Approximately 15% of laboratories have a Non-Medical Scientist currently completing quality control and final submission of cases for Consultant Pathologist review.

Special Stains

- Respondents indicated a Non-Medical Scientist role in operation and maintenance of automated special staining instruments.
- The majority of respondents are not in favour of Non-Medical Scientists performing quality control, control block preparation/validation and performing manual special stains.

Immunohistochemistry

- Respondents indicated a Non-Medical Scientist role in operation and maintenance of automated immunohistochemistry instruments.
- Respondents were not in favour of Non-Medical Scientists performing tasks such as programme editing, control block preparation/validation, antibody optimisation, case issue to Consultant Pathologists.

Frozen Sections, MOHS, FISH, Molecular

- There are lower respondent numbers for this area as these tasks are not common to all Cellular Pathology Laboratories and a significant amount of the data was returned as blank.
- Of the replies received there is a low indication of a role for a Non-Medical Scientist in these areas.

Cytology

- 15-25% of respondents indicate that Non-Medical Scientists currently perform cytology tasks up to and including slide preparation, quality control checks and case issue to Consultant Pathologists.
- The majority of respondents do not see a future role for Non-Medical Scientists performing cytology tasks. Figures vary from approximately 60 to 70% dependent on task.
- Respondents are not in favour (100%) of Non-Medical Scientists undertaking the screening or reporting of cytology slides/cases.

Discussion

The survey results indicate that there is a pervasive lack of suitably qualified Medical Scientists available for employment in Cellular Pathology Laboratories in Ireland. This data is further supported by figures gathered by the ACSLM in early 2019 which indicated that 32% (42 vacancies out of a total of 131) of all Medical Scientist vacancies occurred in the Cellular Pathology discipline. The same body of work highlighted that there are approximately 70 Medical Scientist graduates produced in the Republic of Ireland per annum (Converse, 2019). This inherent workforce deficit is compounded by naturally occurred increases in the level and range of scientific activity within all disciplines of clinical diagnostic laboratories and in particular Cellular Pathology laboratories. The National Histopathology Quality Improvement Programme's 7th National Data Report evidences that between 2014 and 2019 there was a 24% increase in the number of specimens examined, a 20% increase in the number of blocks processed and a 51.4% increase in the volume of cases requiring immunohistochemical staining.

While the causes of this workforce deficit have not been explored by the Working Group anecdotal evidence indicates that this area of laboratory practice attracts fewer Medical Scientist graduates than the other laboratory disciplines (Microbiology, Haematology, Biochemistry and Blood Transfusion). The retention of those who do initially chose Cellular Pathology is poor. The reasons for this are unclear but issues such as lack of access to additional earnings (such as on-call), perceived lack of career progression, lack of reporting power, and the unchallenging scientific complexity of many of the commonplace tasks are frequently quoted by those in the field.

Previously, the ACSLM Graduate Training Programme acted as a counterbalance to this scenario and played a vital role in increasing the number of qualified Cellular Pathology Medical Scientists who tended to stay working within the discipline. This avenue to qualification as a Medical Scientist was removed by the ACSLM in 2017 as part of the process of the establishment of the Medical Scientists Registration Board under the auspices of CORU. Addressing the diminutive selection of Cellular Pathology as a career discipline for graduates of the Galway Mayo Institute of Technology (GMIT), Technological University Dublin (TUD), and

University College Cork . Munster Technological University (UCC/MTU) degree courses in conjunction with providing alternative routes to becoming a Medical Scientist will be critical in providing the future Cellular Pathology Medical Scientist workforce.

Regardless of its origin if left unaddressed this workforce deficit is likely to further deteriorate and manifest, as it is already for some laboratories, in terms of increased service and patient safety risk. In addition, the current workforce deficiency is placing increasing financial burdens on laboratories (Health Service Executive (HSE), Voluntary and Private alike) as expensive risk mitigation solutions which do not represent value for money are frequently the only option available to resolve the issue.

Laboratories are currently reacting to the Medical Scientist post vacancies in a fractured and unstable manner. The engagement of UK agency Medical Scientists, sanctioning of overtime, and out-sourcing to private entities are frequently engaged as short-term solutions, which become long-term due to the unresolved nature of the deficient workforce. More robust solutions that can be employed by Cellular Pathology services in a controlled manner, regardless of the scope and size of service provision, must be put in place as a matter of urgency to ensure patient safety and to remove the risks associated with vacant posts.

The supervised delegation of appropriate tasks to a Non-Medical Scientist grade is a practical and achievable solution, which would overcome the acute Medical Scientist labour shortage and will enable Laboratories to achieve stable, sustainable and quality focused Cellular Pathology services. In addition, this solution of the supervised delegation of set tasks to Non-Medical Scientist staff would increase the capacity of Medical Scientists to focus on advanced or more complex scientific tasks, e.g. histodissection, molecular diagnostics, digital pathology, which are required to ensure progressive Cellular Pathology services in the Republic of Ireland. Furthermore, elevation of the level of scientific tasks performed by Medical Scientists in Cellular Pathology Laboratories would likely have positive impacts on the recruitment and retention of Medical Scientists in the field.

The question of who the Non-Medical Scientist would be has been considered by the Working Group. The survey findings highlight that the practice of Non-Medical Scientist grades engaging in what would be traditionally seen as Medical Scientist tasks is already being employed by

several laboratories to sustain service provision. Currently there is no common staff title/post for these Non-Medical Scientists with nomenclature/roles such as Medical Laboratory Aide, Medical Laboratory Assistant, Technologist and Associate Practitioner being employed. The salary scales are also inconsistent with Medical Laboratory Aide, Clerical Grade IV and between Medical Laboratory Aide and Medical Scientist being used. The Working Group recommends that this matter is addressed and normalised as a matter of urgency. The staff grade of Medical Laboratory Aide may present the most natural and achievable resolution as this grade is already ubiquitous in Cellular Pathology laboratories and a brief examination of job descriptions for this grade of staff amongst Working Group members does not seem to preclude the undertaking of these tasks by Medical Laboratory Aides.

While the scope of practice review performed by the Working Group evidenced that the introduction of a defined set of laboratory tasks for a Medical Scientist and a Non-Medical Scientist is not in the best interests of the patient, staff member, or the laboratory, the survey results highlighted some of the tasks that might be suitable for supervised delegation. These include tasks such as external referrals, embedding, microtomy and direct specimen transfer. However, this supervised delegation approach does not mean that these tasks should become solely the domain of the Non-Medical Scientist. For a Medical Scientist to provide adequate supervision of Non-Medical Scientists performing any task they must themselves remain proficient. A skills mix or team based approach to task performance would provide a suitable mechanism of operation. For example, at microtomy there would be at least one Medical Scientist providing supervision to the task area – the Medical Scientist performing microtomy themselves and being on-hand to troubleshoot or provide advice to Non-Medical Scientists performing the same task.

Cellular Pathology Medical Scientists already operate within a team based or skill mix structure. Efficient, effective, quality driven laboratory services are only achievable by different grades of staff (Consultant Pathologists, Medical Scientists, Laboratory Aides, Clerical staff etc.) with differing skill sets working together as a team. In many laboratories, these skill sets overlap e.g. specimen labelling, equipment operation, external referrals. Nonetheless, survey respondents indicated that tensions might arise between staff grades if additional tasks were to be added to this overlap. Any change within a workplace can be challenging for staff and management

alike. The most successful change processes involve comprehensive staff engagement and effective communication. Laboratories that chose to engage in the supervised delegation of tasks to Non-Medical Scientist staff must be cognisant of the concerns and tensions that may arise and meaningfully engage with all staff members involved. Notwithstanding, all those involved in the provision of Cellular Pathology service provision should not lose sight of their individual and collective responsibility to provide robust, stable, sustainable, quality focused and progressive Cellular Pathology services. This can only be achieved by recognising the workforce/skill set deficits that exist and embracing the changes that resolve them.

Working Group Recommendations

The working group recommendations are as follows:

Recommendation 1

Supervised Delegation of Tasks to a Non-Medical Scientist Grade

Medical Scientists in Cellular Pathology laboratories are professionally overqualified for some tasks that they currently perform, and this work could be safely delegated to appropriately trained Non-Medical Scientist staff. This would free up Medical Scientist time for more highly skilled tasks such as macroscopic dissection and molecular testing. Thereby, in turn freeing up Consultant Pathologist time as outlined in the Department of Health's National Cancer Strategy 2017-2026 (pg72-74).

The delegation of high volume and relatively low complexity tasks to a Non-Medical Scientist grade would serve to reduce the clinical risks which commonly arise in an understaffed laboratory, decrease the financial burden of employing expensive UK based Agency Medical Scientists and improve the recruitment and retention of Medical Scientists to Cellular Pathology Laboratories.

Delegated tasks may include but are not limited to embedding, microtomy, external referrals (incoming and outgoing) and direct specimen transfer. Non-medical scientist staff must work under the supervision of Medical Scientist staff and by extension Consultant Pathologists. As such any work undertaken by Non-Medical Scientist staff would be performed under the clinical governance of the Consultant Pathologists.

Recommendation 2

Constitution of Supervised Delegation

A comprehensive well documented in-house training programme must be in place to ensure that Non-Medical Scientist staff operate within their scope of practice i.e. they have the knowledge, experience and competency to perform the tasks undertaken.

The ACSLM should consider playing an advisory role in the development of the training programmes or perhaps developing an associate membership for those who have completed an in-house training programme.

Cellular Pathology Laboratories undertaking in-house training must have a clearly defined organogram detailing working, reporting and clinically responsible relationships.

Non-Medical Scientist staff must be subject to the same performance monitoring as all other laboratory staff i.e. ongoing competency assessment, non-conformance monitoring etc.

Additionally, Non-Medical Scientist staff must operate within the laboratory's Quality Management System i.e. the accredited, ISO15189, procedures and processes.

As for all HSE employees, any incidents of clinical negligence arising from an appropriately trained Non-Medical Scientist staff member are insured under the State Claim Agency's Clinical Indemnity Scheme.

Non-HSE entities must ensure that any incidents of clinical negligence arising from a Non-Medical Scientist staff member are appropriately indemnified.

Recommendation 3

Medical Laboratory Aides as the Non-Medical Scientist Grade

The Working Group recommends that the ACSLM engages with the HSE to clarify the job specifications for both Medical Laboratory Aides and Medical Scientists. This will be required to ensure the following:

- there are no impediments to Medical Laboratory Aides undertaking tasks as outlined in Recommendation 1
- there are no impediments to Medical Scientists supervising Medical Laboratory Aides who are performing tasks as outlined in Recommendation 1

If this engagement precludes a system of Medical Scientist supervised delegation of tasks to a Medical Laboratory Aide the HSE must be charged to either provide for a new grade of Non-Medical Scientist staff to undertake this supervised role or generate sufficient, both now and into the future, qualified Medical Scientists to perform the tasks.

Recommendation 4

Cellular Pathology laboratory staff must work within their scope of practice

National and international evidence in the Medical Science and the wider Healthcare field does not support the introduction of a defined set of tasks that a healthcare professional should or should not perform. This analysis is also applicable to Non-Medical Scientists performing tasks in Cellular Pathology Laboratories.

All staff, regardless of grade, working in Cellular Pathology Laboratories should be cognisant of their responsibilities to only perform tasks, which are within their own individual scope of practice.

It is the responsibility of Laboratory Management to foster a culture where staff members are aware of and operate within their scope of practice.

Recommendation 5

Educational Training

A maximum of 100 Medical Scientists graduate every year from Medical Scientist degree courses (National Qualification Framework, Level 8) in GMT, TU Dublin and UCC/MTU. Each year a percentage of these graduates do not take up jobs as Medical Scientists. Further increasing the intake of students at undergraduate level would be a long-term solution to the staffing issues.

The ACSLM should work with the laboratories, educational partners and the HSE to look at ways to increase the amount of undergraduate training places.

Laboratories should also be aware of alternative routes into the profession such as those currently offered by TU Dublin.

Laboratories should facilitate and support Non-Medical Scientist staff who may wish to upskill to become Medical Scientists by undertaking part-time programmes which would enable them to join the CORU register for Medical Scientists.

Recommendation 6

Analysis of the Recruitment and Retention of Medical Scientist Graduates

There is a commonly accepted assumption within the Cellular Pathology community that fewer Medical Scientist graduates chose a career in Cellular Pathology than the other laboratory disciplines and that the retention of those who do initially chose the field is poor. However, there is little hard evidence to support these assumptions.

The Working Group recommends that the ACSLM urgently instigate a working group in conjunction with other responsible parties, such as CORU and the educational institutions (GMIT, TU Dublin and UCC/MTU) to provide hard data around this issue, identify the causes and to provide recommendations on how the matter might be addressed.

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Documents Accessed

Medical Scientists Registration Board Code of Professional Conduct and Ethics, CORU, 22/01/2019.

Standards of Proficiency for Biomedical Scientists, HCPC, 01/12/2014.

Biomedical scientists: freedom to practice Position Statement, IBMS, 17/12/2019.

Policy Statement on Biomedical Scientists, EPBS, 11/10/2019.

Competency Profile General Medical Laboratory Technologist, CSMLS, 01/07/2018.

Scope of Nursing and Midwifery Practice Framework, NMBI, 31/10/2015.

Department of Health's National Cancer Strategy 2017-2026 (pg72-74)

The National Histopathology Quality Improvement Programme's 7th National Data Report 01 Jan – 31 Dec 2019

ACSLM Converse Vol45, issue 1, Spring 2019 (pg 19-20)

Online Resources Accessed Between 01/Sep/2020 and 29/Sep/2020

CORU: www.coru.ie

Health and Care Professionals Council: www.hcpc-uk.org

Institute of Biomedical Scientists: www.ibms.org

European Association for Professions in Biomedical Science: www.epbs.net

Canadian Society for Medical Laboratory Science: www.csmls.org

Nursing and Midwifery Board of Ireland: www.nmbi.ie

Irish Society of Physician Associates: www.irishsocietyofphysicianassociates.ie

APPENDIX 1

CPAB Medical Scientist Skills Review Working Group TERMS OF REFERENCE

Creation Date: 27TH July 2020 by Michelle Griffin

Chairperson: Michelle Griffin

Committee Members:

- Michelle Griffin (Chair), Chief Medical Scientist, UHW – michellee.griffin@hse.ie
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- Aisling O'Connor, Chief Medical Scientist, Mater Private - aoconnor@materprivate.ie

1. Role/Purpose:

The role of CPAB Medical Scientist Skills Review Working Group is to assess available guidance on the Scope of Practice for Cellular Pathology Medical Scientists and to develop recommendations which will enable Medical Testing Laboratories to relate this guidance to the current Cellular Pathology landscape.

The Working Group objectives:

To review Scope of Practice for Cellular Pathology Medical Scientists.

To document the current Cellular Pathology landscape in terms of the Medical Scientist workforce.

To develop recommendations that can be employed by Cellular Pathology Laboratories to enhance the role of Medical Scientists with a view to improving the current landscape.

To support in the creation of stable, sustainable, quality focused and progressive Cellular Pathology services.

The Working Group sets out to achieve:

Summary review of the Scope of Practice for Cellular Pathology Medical Scientists.

Review current workforce trends for Cellular Pathology Medical Scientists.

Recommendations to allow Cellular Pathology Laboratories to safely react to Medical Scientist workforce trends while safeguarding service provision.

2. Term:

The Working Group is effective from 24TH July 2020 and will continue until the Terms of Reference are concluded and submitted to the ACSLM's Cellular Pathology Advisory Body.

3. Meetings:

Frequency of Meetings: The Working Group will meet a minimum of minimum of 4 per annum.

Quorum for Meeting: 4 - Meetings cannot be held in the absence of a quorum.

Schedule of Meetings: After each meeting

4. Administration:

The chair will nominate a deputy from within the group to cover leave or unexpected absences, and the chair will record minutes and co-ordinate meetings. Members should forward agenda items to the Chair in advance of scheduled meetings. Special meetings of the Working Group may be convened depending on the urgency of matters raised or included in the Agenda. Agreement on decisions shall be by consensus.

Distribution of Agenda and Minutes:

Minutes of each meeting, including action points and owners, will be circulated by the chair to all participants no later than one week after the meeting.

5. Accountability:

Working Group Reports To: The group communicates directly with the Cellular Pathology Advisory Body. Any recommendations would need to be ratified by ACSLM Council and the MLSA.

6. Review:

Amendment, Modification or Variation:

This Terms of Reference may be amended, varied or modified in writing after consultation and agreement by group members. The group will review terms of reference every 6 months and approve any revisions

APPENDIX 2

Cellular Pathology – Staffing and Skill Mix Review Survey Questions

1. Do you currently have vacancies for the following positions? Required to answer. Multiple choice.

- Medical Scientist
- Senior Medical Scientist
- Chief Medical Scientist
- Not Applicable

2. How many Medical Scientist positions do you have vacant?. Single line text.

3. Please indicate the length of time of the longest vacant Medical Scientist Position. Single line text.

4. What contract types for Medical Scientist positions do you have vacant?. Multiple choice.

- Permanent Whole time
- Permanent Part time
- Specified purpose (maternity, career break etc)
- Not Applicable

5. The Medical Scientist positions are vacant because. Multiple choice.

- Positions not progressed to competition
- Unsuitable candidates applying
- No candidates applying
- Positions advertised are not permanent positions

6. How many Senior Medical Scientist positions do you have vacant?. Single line text.

7. Please indicate the length of time of the longest vacant Senior Medical Scientist Position. Single line text.

8. The Senior Medical Scientist positions are vacant because.... Multiple choice.

- Positions not progressed to competition
- Unsuitable candidates applying
- No candidates applying
- Positions advertised are not permanent

9. Has recruitment affected maintaining a Quality Management System?. Multiple choice.

- Definitely
- Possibly
- No change
- Not applicable
-
-

10. Have you progressed the following due to recruitment issues?. Multiple choice.

- Hire Agency Medical Scientists
- Outsource work
- Sanction 'call' or OT
- Increased automation
- Curtail frequency of some tests
- "Non-Medical Scientists" completing some Medical Scientist tasks
-
-

11. What do you think will help improve recruitment?. Multiple choice.

- Increasing student numbers from CIT, GMIT & TU Dublin
- Diversifying skill mix with "Non-Medical Scientists" completing more Medical Scientist duties
- Allowances available for performing certified histo-dissection
- Post Grad course to qualify as a Medical Scientist
- New Grading for Medical Scientists to reflect increased roles like histodissection etc.
-
-

12. How do you feel about increasing the role of "Non-Medical Scientists"? Multiple choice.

- Positive
- Negative
- No opinion
-
-

13. Do you currently have "Non-Medical Scientists" involved in any of the below tasks?. Multiple choice.

- Specimen Transfer - small specimens
- Histodissection - medium to large samples
- Embedding
- Microtomy
- Cytology

Processing external referrals

14. if you have any "Non-Medical Scientists" completing the above tasks what is their title?. Single line text.

15. if you have any "Non-Medical Scientists" completing the above tasks what is their pay grade?. Single line text.

16. Do you think "Non-Medical Scientists" require up skilling to perform additional duties?. Multiple choice.

Yes

No

Maybe

17. What duties do you think "Non-Medical Scientists" could complete? PLEASE COMPLETE SEPERATELY ATTACHED EXCEL SHEET Required to answer. Single choice.

Completed excel sheet

18. Would you favour a new "Non-Medical Scientists" grading to reflect additional duties?. Single choice.

Yes

No

Maybe

19. if you are in favour of creating a new "Non-Medical Scientists" grading, what would you call it?. Single line text.

20. Would you be happy to perform the additional training for "Non-Medical Scientists" in-house?. Single choice.

Yes

No

Maybe

21. Who would sign off training for the additional "Non-Medical Scientists" roles?. Single choice.

Chief Medical Scientist

Chief Medical Scientist and role specific Senior Medical Scientist

Pathologist

- CMS, SMS & Pathologist
- Other

22. Do you feel the additional role of "Non-Medical Scientists" would help alleviate some of the staff shortages?. Single choice.

- Yes
- No
- Maybe
-

23. Do you feel the creation of an increased "Non-Medical Scientists" roles would create conflict with Medical Scientists?. Single choice.

- Yes
- No
- Maybe
-

24. Do you feel the creation of an increased "Non-Medical Scientists" roles would create conflict within the "Non-Medical Scientists" grade?. Single choice.

- Yes
- No
- Maybe
-

APPENDIX 3

Cellular Pathology - Staffing & Skill Mix Review Survey Question 17

Task	Medical Scientist	Non-Medical Scientist current	Non-Medical Scientist Future	Comment
Specimen Reception				
Specimen Receipt, Labelling and data entry				
Know how to handle specimens with discrepant or inadequate information eg. unlabelled pot.				
Organising specimen for cut-up				
Procedure for handling cytology specimens				
Procedure for handling referred material (Blocks and slides)				
Cut Up				
Cassette printer operation				
Cassette printer maintenance				
Cassette printer troubleshooting				
Performing histodissection				
Assisting histodissection				
Performing biopsy transfer				
Assisting biopsy transfer				
Specimen storage				
Specimen discard				
Processing				
Operation of the Tissue Processor/s				
Maintenance of Tissue Processor and Disposal of Chemical Waste				
Edit processing programs and troubleshooting				
Reprocess blocks				
Embedding				
Manual embedding centre operation				
Manual embedding centre maintenance				
Manual embedding centre troubleshooting				
Automated embedding system operation				
Automated embedding system maintenance				
Automated embedding system troubleshooting				
Correctly orientate and embed specific tissue types.				
Re-embedding blocks and troubleshooting				
Microtomy				

Task	Medical Scientist	Non-Medical Scientist current	Non-Medical Scientist Future	Comment
Use of manual/automatic microtome				
Manual/automatic microtome troubleshooting				
prepare a paraffin block for sectioning				
Trimming & sectioning large surgical cases including PMS				
Trimming & sectioning biopsies				
Trimming & sectioning core biopsies (prostate, liver, renal, soft tissue etc)				
Trimming & sectioning skin cases				
Cutting deepers, serial and levels				
Sectioning of blocks requested for special stains				
Sectioning of blocks for Immunohistochemistry and FISH				
Troubleshooting difficult to section blocks e.g. hard, brittle, calcified and under processed tissue				
Identify blocks that require re-processing				
H&E Staining				
Automated H&E stainer operation				
Automated H&E stainer maintenance				
Automated H&E stainer troubleshooting				
Automated H&E stainer programme editing				
Manual H&E staining				
H&E IQC				
H&E EQA				
Control block preparation and QMS acceptance H&E				
Control slide preparation and QMS acceptance H&E				
Slide Coverslipping				
Operation of the slide coverslipper and maintenance				
Trouble shooting of the slide coverslipper				
Automated coverslipper programme editing				
Maintenance of the coverslipper				
Manual coverslipping of slides				
Sorting Slides and Blocks.				
Case (slides, blocks, form) collation				
Block check for correct section and full-face				
trouble shoot, incorrect tissue in ,block, missing blocks/slides, mislabelling				
Prepare completed cases for QC at microscope				
Microscopic QC check of control slides				
Microscopic QC check of patient slides				

Task	Medical Scientist	Non-Medical Scientist current	Non-Medical Scientist Future	Comment
Troubleshooting of slides which fail QC check				
Case issue to pathologist H&E				
Case assembly				
Review of case and sign off. Release of case for reporting				
Slide selection for H&E EQA modules				
EQA scheme administration				
Special Stains				
Automated special stainer operation				
Automated special stainer maintenance				
Automated special stainer troubleshooting				
Automated special stainer programme editing				
Performance of manual stains				
Use of controls in specials and control block preparation specials				
Validation of control blocks				
Validation of a special stain				
Batch acceptance of reagents for both the automated stainer and for hand stains				
QC of all special stains (test and control sections)at the microscope				
Participation in Special stains EQA scheme				
Immunohistochemistry				
Cut sections from blocks onto slides with appropriate controls				
Operation of the immunohistochemistry autostainer (e.g. BenchMark Ultra, XT , Dako Omnis, Leica Bond Max)				
Loading slides onto instrument				
Loading reagents onto instrument				
Filling bulk reagents on instrument				
Registering and use of detection kits, dispensers and ancillary reagents on instrument				
Daily, weekly maintenance of instrument				
Decontamination of instrument				
Writing/Editing protocols on instrument				
Troubleshooting errors on instrument				
Removal of slides from instrument post staining				
Preparation of slides for coverslipping				
Preparation of antibodies - from concentrate				
Optimise a new antibody				

Task	Medical Scientist	Non-Medical Scientist current	Non-Medical Scientist Future	Comment
Validation of a new antibody or assay				
Organise/sort slides into cases for QC at microscope				
Know how to interpret staining patterns of each antibody (nuclear, cytoplasmic, membranous)				
Know specific use of controls in immunohistochemistry				
Prepare control blocks				
Validation of control blocks prior to use				
Troubleshoot issues with staining at microscope				
Sign out of immunohistochemistry cases				
Sign out of therapeutic biomarkers.				
Understand tumour staining patterns				
Participation in Immunohistochemistry EQA scheme and/or Interlaboratory comparisons				
EQA scheme/interlaboratory comparison administration				
Preliminary resulting of FISH				
Frozen Sections				
Operation of the cryostat, maintenance, Decontamination and troubleshooting				
Operation of safety cabinet maintenance, Decontamination and troubleshooting				
Performance of Frozen section				
Hand staining frozen section slide for H&E and coverslipping				
Correctly orientate and freeze tissues				
Trimming & sectioning frozen sections				
Frozen section H&E staining and coverslipping				
Troubleshooting performance of frozen sections				
Mohs				
Correctly orientate and freeze Mohs tissues				
Trimming & sectioning Mohs sections				
Mohs staining and coverslipping				
Troubleshooting performance of Mohs				
FISH				
Carry out the procedure for individual FISH runs (e.g. Her2/ ALK/ROS 1/Lymphoma)				
Fluorescent microscope operation				
Fluorescent microscope maintenance				
Fluorescent microscope troubleshooting				
Image capture software operation				
Image capture software troubleshooting				

Task	Medical Scientist	Non-Medical Scientist current	Non-Medical Scientist Future	Comment
Control block preparation and QMS acceptance				
Control slide preparation and QMS acceptance FISH				
Know how to identify normal and tumour cell morphology				
Know how to enumerate or report sepecific FISH cases				
Participation in FISH EQA schemes and/or interlaboratory comparisons				
Preliminary resulting of FISH tests				
Molecular Tests				
Performing PCR molecular tests e.g. BRAF, EGFR, RAS				
Performing NGS molecular tests				
Troubleshooting molecular tests				
Control preparation and QMS acceptance				
Molecular test IQC				
Molecular test EQA				
Preliminary resulting of molecular tests				
Cytology				
Process respiratory samples (Bronchial Brush, Bronchial Wash, Bronchoalveolar Lavage, Sputum)				
Process Fluids				
Process Fine Need Aspirates				
Process CSFs				
Process Flow Cytometry Requests				
Process Joint & Synovial Fluids , Crystals requests				
Preparation of Cell Blocks and Thrombin Clots				
Preparation Of Thin Preps				
Operation of the Thin Prep processor, maintenance and troubleshooting				
Operation of centrifuge, maintenance and troubleshooting				
Operation of the safety cabinet, maintenance and troubleshooting				
Perform PAP and MGG staining				
Changing PAP and MGG stains				
Correctly deal with reagent and specimen spills				
Know how to deal with samples which may harbour category 2, 3 and 4 pathogens				
Autoclaving of glassware				
Preparation of solutions and reagents				
Batch acceptance of reagents cytology				
Arrange slides and cases for QC				

Task	Medical Scientist	Non-Medical Scientist current	Non-Medical Scientist Future	Comment
Know the Quality Control procedures- PAP and MGG control slide check at microscope				
screen all slides, checking for stain quality and preparation quality using UKNEQAS Assessment Criteria				
Case issue to pathologist cytology				
Perform Cellularity check for fluids				
Prepare cytopsins for ancillary tests (e.g. Special stains, IHC)				
Preliminary result of non-gynae cytology slides				
Cervical screening - dual reporting				
Archiving				
Filing of blocks				
Block archive maintenance				
Filing of slides				
Slide archive maintenance				
MDT preparation i.e. collation of materials for MDT				
External referral preparations i.e. collation, documentation, postage of materials				
Ancillary Tasks				
Waste management i.e. hazardous and non-hazardous biological and chemical				
Performing chemical spill clean up				
Performing specimen spill clean up				
Cleaning and autoclaving glassware				
Cleaning specialist areas e.g. histodissection tables				
General laboratory cleaning e.g. bench cleaning, fridge cleaning, freezer defrosting				
Preparation of reagents				
Batch acceptance of reagents				
Delivery receipt, acceptance and stock storage				