

Evidence Brief: Pathology

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Produced by the Knowledge Management team Evidence Briefs offer an overview of the published reports, research, and evidence on a workforce-related topic.

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Evidence Brief: Pathology

There may have been an update to this Evidence Brief - to check you are reading the most current version please see the links below:

- [Complete Evidence Brief list – link for Workforce, Training and Education staff](#)
- [Complete Evidence Brief list – link for External staff](#)

There are also more detailed evidence briefs on:

- Haematology
- Healthcare Science

Key publications – the big picture

[Diagnostics: Recovery and Renewal](#)

Source: NHS England

Publication date: October 2020

Professor Sir Mike Richards was commissioned to undertake a review of NHS diagnostics capacity (NHS Long Term Plan). The independent report, *Diagnostics: Recovery and Renewal*, recommends the need for a new diagnostics model, where more facilities are created in free standing locations away from main hospital sites, including on the high street and in retail locations, providing quicker and easier access to tests to a range of tests on the same day, supporting earlier diagnosis, greater convenience to patients and the drive to reduce health inequalities.

p. 12 There should be a major drive to expand the pathology workforce, specifically histopathologists, advanced practitioners and other healthcare scientists, with an emphasis on skill mix. The establishment of training academies/schools should be considered. [Page 41]

See p. 40 “The Pathology workforce”

p. 41 Recommendation 16: There should be a major drive to expand the pathology workforce, specifically histopathologists, advanced practitioners and other healthcare scientists, with an emphasis on skill mix. The establishment of training academies/schools should be considered.

p. 47 Recommendation 22: Regions should oversee work to complete the establishment of the imaging and pathology networks and to develop endoscopy networks and cardiorespiratory networks across the country

See Appendix 5: Pathology (p. 73)

[Haematology workforce survey 2019](#)

Source: The Royal College of Pathologists

Publication date: 2020

As part of the Royal College of Pathologists’ Meeting Pathology Demand series, we carried out a survey of the haematology laboratory workforce, to help determine whether there is the right number of staff with the right skills in the right places to ensure safe and effective high-quality patient care and support. Like many pathologists, haematologists have a role in the direct management and treatment of patients as well as undertaking diagnostic work in the laboratory. This briefing contains the findings of our survey, which was sent to clinical directors and heads of haematology departments across the UK between December 2018 and September 2019. In particular, it focuses on the laboratory, rather than clinical, commitment of haematologists. The British Society of Haematology carried out its own review of the UK haematology clinical workforce over a similar period and we welcome the results of that report.

[The haematology laboratory workforce: challenges and solutions](#)

[Diagnostic cytopathology in the UK 2020](#)

Source: Royal College of Pathologists

Publication date: 2020

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.

[Workforce report](#)

Source: British Society for Haematology

Publication date: March 2020

The [British Society for Haematology's review of the UK haematology clinical workforce undertaken in 2019](#) is the most comprehensive since the 2008 report by RCPATH. Our findings show that clinical haematologists, nurses, laboratory scientists, pharmacists and specialist managers are under increasing pressure to deliver for patients in the NHS as the burden of doing more with less staff impacts the rates of work-related stress, sickness and absence. Review the [key points](#) to understand in more detail the needs and challenges faced by today's multidisciplinary haematology professionals.

[Science in healthcare: delivering the NHS Long Term Plan – The Chief Scientific Officer's Strategy](#)

Source: NHS England

Publication date: March 2020

Healthcare is entering the era of personalised medicine and prevention. Patient care is improving through maximising use of new technology and digital innovations, provision of diagnostics, and treatment closer to the patient. Digital advances, medical technology and diagnostic innovations will continue to change pathways and improve outcomes, with the potential to completely transform how we deliver care. Innovation in diagnostics and scientific services has revolutionised care over the years, from the first vaccine, to in-vitro fertilisation, to the advanced imaging that underpins many of today's clinical services. NHS scientific services are at the heart of this innovation; services that deliver changes to help patients and keep the NHS at the forefront of health innovation. Our ambition is to use the latest digital and technological innovations to embed

new ways of delivering scientific services to improve patient care; delivered by a digitally enabled and intelligence-led healthcare science profession driving change.

[Pathology Networks](#)

Source: NHS England

We have been working with the 29 identified pathology networks, allowing for the transformation of pathology services across the country.

In 2017, we committed to consolidating pathology services in England by proposing 29 hub and spoke networks as analysis showed there is unwarranted variation in how NHS pathology services are delivered to patients because of how they are organised.

More recently, the ambition has widened to use these networks as a key enabler of ambitions outlined in the Long Term Plan.

See also [Pathology Networks Toolkit](#)

[NHS Long Term Plan](#)

Source: NHS

Publication date: January 2019

The NHS Long Term Plan was developed in partnership with those who know the NHS best – frontline health and care staff, patients and their families and other experts.

p. 105 "Delivering pathology and imaging networks to improve the accuracy and turnaround times on tests and scans will make best use of the expanding workforce, and reduce unit costs. In 2018, seven Genomic Laboratory Hubs were established with mobilisation towards consolidated provision.

By 2021, all pathology services across England will be part of a pathology network and, by 2023, we will have introduced new diagnostic imaging networks. The pathology networks will mean quicker test turnaround times, improved access to more complex tests at a lower overall cost and better career opportunities for healthcare scientists and clinicians."

[Meeting pathology demand: Histopathology workforce census](#)

Source: The Royal College of Pathologists

Publication date: September 2018

In 2017, the Royal College of Pathologists carried out a workforce survey of histopathology departments in the UK. Of the three-quarters who responded, only 3 per cent reported they had enough staff to meet clinical demands. For those departments where staffing was inadequate, different ways of coping were used – including employing locums, outsourcing or overtime. If these figures were extrapolated, it could mean that 137 of 158 departments in the UK don't have enough consultant histopathologists to be able to provide the service we expect. Yet workloads have increased and will continue to do so.

Pathologists play a critical role in preventing, diagnosing, treating and monitoring cancer. This increasing workload is a particular concern. Large-scale NHS screening initiatives, such as those for breast and bowel cancers, place rising demands on histopathology services. In addition, the complexity of caseloads is growing, with genomics and molecular predictive tests guiding new therapies. Adding to the list of pressures is an approaching retirement crisis. Currently, a quarter of all staff in histopathology are aged 55 or more, with 9 per cent aged at least 60. It can take up to 15 years to train a pathologist and experienced consultants typically report up to twice as much as newly qualified consultants. The cost of staffing gaps runs into millions of pounds. The survey results show around £9.8m a year is spent on locum posts. This covers 77 posts at an annual average of £127,000 each. In addition, outsourcing could be costing as much as £10m a year. This report looks at the issues, recommends some actions that could help to alleviate the difficulties – both now and in the longer term – and includes comments and case studies from histopathologists working in different areas of the UK.

See also [“The Pathology Workforce”](#)

[Histopathology workforce survey 2018](#)

Source: Royal College of Pathologists

Publication date: 2018

Through our survey, we sought to obtain a realistic idea of the number of vacant posts in the UK in this specialty, and will use the resulting data to influence organisations with the potential to address the problems identified, working towards finding solutions. Ensuring diagnostic services can cope with current and future demand is vital if we are to improve experience and outcomes for patients.

[Pathology GIRFT Programme National Specialty Report](#)

Author(s): Lewis et al.

Source: Getting Right First Time

Publication date: September 2021

What is pathology? Pathology is the study of disease. Staff working in pathology study cells, tissues, blood and other fluids from patients' bodies to investigate, diagnose and monitor disease, and to guide clinicians in treatment. Pathology tests are requested by providers in primary care, the community, and secondary care. Pathology labs in England carry out 1.12 billion tests per year – roughly 20 tests per person in England each year – representing £2.2 billion of NHS funding.¹ Current service organisation In England, 141 trusts include a pathology lab. Most hospitals have a pathology lab; others are supported by labs within a pathology network. Most hospital labs include the 'major' pathology specialties of haematology (including blood transfusion), clinical biochemistry, microbiology and cellular pathology (also called histopathology), which are the focus of this report. The pathology workforce is primarily made up of medically qualified pathologists, clinical scientists and biomedical scientists, working in multidisciplinary teams (MDTs) across the pathology specialties.

See p. 114 for Workforce

Case Studies

[Robert Cast talks about working in Anatomical Pathology](#)

Source: NHS England National School of Healthcare Science
Robert is an Anatomical Pathology Technologist (APT) at King's College Hospital NHS Foundation Trust in the Mortuary Department.

The following are taken from the Pathology Getting It Right First Time report

See p. 108 [Case Study: A successful network development](#)

See p. 117 [Case Study: Biomedical scientists undertaking advanced practice in sample dissection](#)

See p. 146 [Case Study: Drive-through phlebotomy](#)

[National Apprenticeship Week 2023 Ioannis \(Yannis\) Theofanous](#)

Source: Greater Manchester Imaging Network
Publication date: 2023

This week is National Apprenticeship Week, which is week dedicated to celebrating the skills and achievements of apprentices. In this case study we hear from Ioannis (Yannis) Theofanous who works in the Department of Clinical Virology at Manchester University NHS Foundation Trust as a biomedical scientist. Yannis completed his level 6 Health Care Science degree at Manchester Metropolitan University as an apprenticeship. Manchester University NHS Foundation Trust is part of the Greater Manchester Pathology Network.

[Pathology collaboration](#)

Source: NHS Providers
Publication date: March 2022

See p. 6 We advised four trusts from pre- outline business case (OBC) stage on all aspects of their collaborative pathology

provision and procurement of manufacturing execution system (MES) pathology equipment

The Star for workforce redesign

More resources and tools are available by searching for "pathology" in [the Star](#)

Statistics

You can find relevant statistics on the [Health and Care Statistics Landscape](#) under "Health and Care"

National Data Programme

Workforce, Training and Education staff can look at the [National Data Warehouse \(NDL\)](#) SharePoint site to find out more about datasets and Tableau products.

Published Peer Reviewed Research

Advanced practice

[Advanced practitioner in anatomic pathology: The time has come.](#)

Item Type: Journal Article

Authors: Sweeney, Brenda J. and Wilbur, David C.

Publication Date: 2018

Journal: Cancer Cytopathology 126(4), pp. 229-231

Appropriately trained cytotechnologists have been shown to have the skills necessary to safely assist the pathologist in

nontraditional tasks. These advanced-level individuals may be necessary to stem the leakage of traditional pathology services to other specialties or even prevent them from not being done at all. The time has arrived to move this concept forward.

Apprenticeships

[Conference abstract: Mind the Gap: Providing Transferrable Skills Training for NHS Pathology Apprentices](#) Abstract all available

Item Type: Conference Proceeding

Authors: Heath, V. and Jones, S.

Publication Date: 2023

Publication Details: Archives of Disease in Childhood.

Conference: Annual Great Ormond Street Hospital Conference, GOSH 2022. Virtual. 108(Supplement 1) (pp A32-A33); BMJ Publishing Group,

Abstract: Apprenticeship programmes allow employers to grow their own talent and support progression for their employees. In NHS pathology services, healthcare science apprenticeships give staff the opportunity to complete BTECs in healthcare science, a BSc in biomedical science and gain HCPC registration. The education and technical components of apprenticeships are covered by the education provider and employer respectively, however, some transferrable skills are not easily supported in the workplace. This has been exacerbated during the COVID-19 pandemic when pathology laboratories have experienced a significantly higher workload. A funding proposal was successfully submitted to NHS England - London for a 19,000 grant to run three free training days for pathology apprentices in London. These sessions were mapped to the healthcare science apprentice standards and focussed on providing apprentices with evidence for their portfolios and networking opportunities with other apprentices from different Trusts. The three training days were*Science Communication:

covering the science of storytelling and patient experience.*Leadership: covering leadership pathways and inclusive NHS healthcare.*Professional Practice/Research & Innovation: covering constructive feedback, research questions and duty of candour. Training days were well attended by level 2, 4 and 6 apprentices, with two of the three fully booked. In the evaluation 89% of respondents were happy with the structure of the day and all reported that the sessions fulfilled their expectations. Attendees left positive comments about the ability to network with other apprentices. Strong themes throughout the feedback were the commitments of attendees to apply the skills they'd learned in their workplace, but also a lack of prior awareness of these skills. This shows the vital importance of courses like these and providing leadership and communication training to healthcare scientists at all stages of their career.

Education and Training

[A Review of Clinical Laboratory Education, Training and Progression: Historical Challenges, the Impact of COVID-19 and Future Considerations](#)

Author(s): Pearse and Scott

source: British Journal of Biomedical Science

Publication date: April 2023

The COVID-19 pandemic had a wide global impact on society, including the clinical laboratory workforce. This historically underrepresented group of highly skilled professionals have now started to gain the attention they deserve. There had already been dramatic changes to laboratory training over the past 2 decades resulting from advances in technology, changes to service needs, and as a consequence of Pathology reform initiatives. The pandemic has had an additional impact. Higher education institutions and students adapted to emergency remote teaching. Clinical laboratories faced unprecedented challenges to meet COVID-19 testing demands and adjust to

new ways of working whilst maintaining their usual high quality service provision. Training, assessment, and development arrangements had to convert to online platforms to maintain social distancing. The pandemic also had a global impact on mental health and wellbeing, further impacting learning/training. Despite these challenges, there have been many positive outcomes. This review highlights pre- and post-pandemic training and assessment for clinical laboratory professionals, with particular emphasis on Biomedical Scientists, outlining recent improvements among a history of challenges. There is increasing interest surrounding this vital workforce, accelerated thanks to the pandemic. This new public platform has emphasised the importance of quality diagnostic services in the patient pathway and in the response to national crises. The ability to maintain a quality service that is prepared for the future is grounded in the effective training and development of its staff. All of which can only be achieved with a workforce that is sustainable, invested in, and given a voice.

[Higher Specialist Scientific Training in pathology: an overview](#)

Author(s): Ayers and Ferry

Source: College Bulletin (The Royal College of Pathologists)
The five-year, work-based Higher Specialist Scientific Training (HSST) programme is the most senior-level training provision for healthcare scientists. It is open to the four countries of the UK, is managed and delivered by the National School of Healthcare Science (NSHCS), and funded by Health Education England (HEE). It is designed to prepare healthcare scientists for the challenging role of consultant scientist in the NHS, and is supported by an underpinning part-time, doctoral-level programme.

[Teaching, research or balanced? An exploration of the experiences of biomedical scientists working in UK medical schools.](#)

Item Type: Journal Article

Authors: Collett, T.;Capey, S.;Edwards, J.;Evans, D. J.;McLachlan, J. C.;Watson, H. and Bristow, D.

Publication Date: 2021

Journal: FEBS Open Bio 11(11), pp. 2902-2911

Abstract: Driven by demand for high standards in university education, efforts have been made in the UK to address the perceived imbalance between teaching and research. However, teaching is still perceived by many as having less credibility and is attributed less importance. The purpose of our research was to explore how distinct types of academic job profiles ('research' or 'education' focused, or 'balanced') impact on biomedical scientists' perceptions of the lecturer role. Specifically, we investigated the experiences of biomedical scientists in 'post-1990' medical schools, which are known for their commitment to excellence in both research and education. We conducted 22 face-to-face, semi-structured interviews with biomedical scientists in five schools. Focusing on experiences of work, the interviews covered: 'motivations', 'role expectations', 'teaching', 'research' and 'career'. The recorded qualitative data were transcribed and then analysed thematically. Our results, offering an insight into the working lives of biomedical scientists in medical education, suggest that in settings with a dual emphasis on education and research, individuals on 'balanced' contracts can experience a strong pull between research and teaching. In addition to posing significant challenges with respect to workload management, this can impact profoundly on professional identity. In contrast to the balanced role, 'research' or 'education' focused roles appear to have clearer requirements, leading to higher employee satisfaction. We conclude that to assist the educational mission of Higher Education, attention should be paid to balanced contracts, to (a) ensure employee support, (b) mitigate against negative perceptions of teaching, and ultimately, (c) guard against staff attrition. Copyright © 2021 The Authors. FEBS Open Bio published by John Wiley & Sons Ltd on behalf of

Federation of European Biochemical Societies

[Training the Next Generation of Pathologists: A Novel Residency Program Curriculum at Montefiore Medical Center/Albert Einstein College of Medicine.](#)

Item Type: Journal Article

Authors: Hebert, Tiffany Michele; Cole, Adam; Panarelli, Nicole; Hu, Shaomin; Jacob, Jack; Ahlstedt, Jeffrey; Steinberg, Jacob J. and Prystowsky, Michael B.

Publication Date: 2019

Journal: Academic Pathology 6, pp. 2374289519848099

Abstract: Pathology residency training is currently a time-intensive process, frequently extending up to 6 years in duration as residents complete 1 or 2 fellowships following graduation. Innovative training curricula may help address the impending changes in the health-care landscape, particularly future shortfalls in pathology staffing and changing health-care models that incorporate more work within interdisciplinary teams. Montefiore has created a novel residency training program aimed at accelerating the acquisition of competency in pathology, preparing residents for independent practice at the completion of residency training, and providing residents with the requisite adaptability and consultative skills to excel wherever they choose to practice. We describe the implementation of this novel pathology residency training curriculum at Montefiore Medical Center/Albert Einstein College of Medicine and the perception of residents in both the old curriculum and the new curriculum.

[Time for change: a new training programme for morpho-molecular pathologists?](#)

Item Type: Journal Article

Authors: Moore, David A.; Young, Caroline A.; Morris, Hayley T.; Oien, Karin A.; Lee, Jessica L.; Jones, J. Louise and Salto-Tellez, Manuel

Publication Date: Apr ,2018

Journal: Journal of Clinical Pathology 71(4), pp. 285-290

Abstract: The evolution of cellular pathology as a specialty has always been driven by technological developments and the clinical relevance of incorporating novel investigations into diagnostic practice. In recent years, the molecular characterisation of cancer has become of crucial relevance in patient treatment both for predictive testing and subclassification of certain tumours. Much of this has become possible due to the availability of next-generation sequencing technologies and the whole-genome sequencing of tumours is now being rolled out into clinical practice in England via the 100 000 Genome Project. The effective integration of cellular pathology reporting and genomic characterisation is crucial to ensure the morphological and genomic data are interpreted in the relevant context, though despite this, in many UK centres molecular testing is entirely detached from cellular pathology departments. The CM-Path initiative recognises there is a genomics knowledge and skills gap within cellular pathology that needs to be bridged through an upskilling of the current workforce and a redesign of pathology training. Bridging this gap will allow the development of an integrated 'morphomolecular pathology' specialty, which can maintain the relevance of cellular pathology at the centre of cancer patient management and allow the pathology community to continue to be a major influence in cancer discovery as well as playing a driving role in the delivery of precision medicine approaches. Here, several alternative models of pathology training, designed to address this challenge, are presented and appraised. Copyright © Article author(s) (or their employer(s) unless otherwise stated in the text of the article) 2018. All rights reserved. No commercial use is permitted unless otherwise expressly granted.

[Training in molecular cytopathology testing](#) Abstract only*

Author(s): Maxwell and Slato-Tellez

Source: Cytopathology 29(1)

Publication date: 2018

Training in molecular cytopathology testing is essential in developing and maintaining skills in modern molecular technologies as they are introduced to a universal health care system such as extant in the UK and elsewhere. We review the system in place in Northern Ireland (NI) for molecular testing of solid tumours, as an example to train staff of all grades, including pathologists, clinical scientists, biomedical scientists and equivalent technical grades. We describe training of pathologists as part of the NI Deanery medical curriculum, the NI training programme for scientists and laboratory rotation for Biomedical Scientists. Collectively, the aims of our training are two-fold: to provide a means by which individuals may extend their experience and skills; and to provide and maintain a skilled workforce for service delivery. Through training and competency, we introduce new technologies and tests in response to personalised medicine therapies with a competent workforce. We advocate modifying programmes to suit individual needs for skill development, with formalised courses in pre-analytical, analytical and postanalytical demands of modern molecular pathology. This is of particular relevance for cytopathology in small samples such as those from formalin-fixed paraffin-embedded cell blocks. We finally introduce how university courses can augment training and develop a skilled workforce to benefit the delivery of services to our patients.

Equality, Diversity, and Inclusion

[Current and historical trends in diversity by race, ethnicity, and sex within the US pathology physician workforce](#)

Author(s): White et al.

Source: American Journal of Clinical Pathology 154(4)

Publication date: August 2020

Objectives: This study assessed historical and current gender, racial, and ethnic diversity trends within US pathology graduate medical education (GME) and the pathologist workforce.

Methods: Data from online, publicly available sources were assessed for significant differences in racial, ethnic, and sex distribution in pathology trainees, as well as pathologists in practice or on faculty, separately compared with the US population and then each other using binomial tests. Results: Since 1995, female pathology resident representation has been increasing at a rate of 0.45% per year (95% confidence interval [CI], 0.29-0.61; $P < .01$), with pathology now having significantly more females (49.8%) compared to the total GME pool (45.4%; $P < .0001$). In contrast, there was no significant trend in the rate of change per year in black or American Indian, Alaskan Native, Native Hawaiian, and Pacific Islander (AI/AN/NH/PI) resident representation ($P = .04$ and $.02$). Since 1995, underrepresented minority (URM) faculty representation has increased by 0.03% per year (95% CI, 0.024-0.036; $P < .01$), with 7.6% URM faculty in 2018 (5.2% Hispanic, 2.2% black, 0.2% AI/AN/NH/PI). Conclusions: This assessment of pathology trainee and physician workforce diversity highlights significant improvements in achieving trainee gender parity. However, there are persistent disparities in URM representation, with significant underrepresentation of URM pathologists compared with residents.

Career Pathways and Development

[Why Choose a Pathology Career? A Survey of Australian Medical Students, Junior Doctors, and Pathologists](#)

Item Type: Conference Proceeding

Authors: Fielder, T., Watts, F., Howden, C., Gupta, R. and McKenzie, C.

Publication Date: 2022

Publication Details: United States: College of American Pathologists, pp. 903

Abstract: Context.-There is a global decline in medical graduates pursuing pathology careers, resulting in a broadening gap between workforce demand and supply. Objective.-To determine causes of low popularity of pathology as a career and develop strategies to avoid a workforce crisis. Design.-An online survey was distributed and yielded 1247 responses, including 609 Australian medical students from 10 medical schools, 119 prevocational doctors from 10 major teaching hospitals in New South Wales, 175 residents, and 344 pathologists throughout Australia. Results.-Compared with pathology-uninterested peers, students and prevocational doctors interested in pathology careers were more likely to value research opportunities (57 of 166 [34.3%] pathology-interested respondents versus 112 of 521 [21.5%] pathology-uninterested respondents; odds ratio [OR] = 1.91, P, .001), have children (19 of 165 respondents [11.5%] versus 22 of 522 respondents [4.2%]; OR = 2.96, P, .001), and self-identify as introverted (87 of 167 respondents [52.1%] versus 179 of 526 respondents [34%]; OR = 2.1, P, .001). Those uninterested in pathology were more likely to value patient interaction (363 of 524 respondents [69.3%] versus 71 of 166 respondents [42.8%]; OR = 3.02, P, .001). Lack of exposure to pathology was the most-cited reason for rejecting pathology (after lack of patient interaction). There was poor understanding of the role of pathologists and low confidence in the ability to interpret histopathology reports among medical students and prevocational doctors. Negative stereotypes regarding pathologists were identified. Conclusions.-Active interventions increasing exposure of medical students and prevocational doctors to pathology as a career, as well as promotion of research opportunities and potential for work-life balance, are needed to address pending workforce shortages. Copyright © 2022 College of American Pathologists. All rights reserved.

[Views of young dentists on choosing oral pathology specialist as their lifelong career.](#)

Item Type: Journal Article

Authors: Chang, Julia Yu-Fong;Lin, Tzu-Chiang;Wang, Ling-Hsia;Cheng, Feng-Chou and Chiang, Chun-Pin

Publication Date: Oct ,2021

Journal: Journal of Dental Sciences 16(4), pp. 1102-1109

Abstract: BACKGROUND/PURPOSE: Currently, very few young dentists in Taiwan are willing to choose oral pathology specialist as their lifelong career. This study reported the views of young dentists on the profession of oral pathology. MATERIALS AND METHODS: This study exploited the observational method and the questionnaire survey to collect the views of young dentists on the profession of oral pathology in Taiwan. RESULTS: Thirty-five dental trainees or residents filled out the questionnaires. They agreed that the life quality or workload, interest, incidence of medical disputes, accomplishment, future job opportunities, salary level, and possibility to become a clinic owner were important factors that were considered to choose a dental specialist training program. Most (33, 94.3%) of them were sure that they would not choose oral pathology specialists as their lifelong career. The important reasons for not choosing oral pathology specialists as their lifelong career were learning characteristics, insufficient understanding of the work that an oral pathology specialist has to do, poor life quality or heavy workload, lower accomplishment, fewer job opportunities, and a relatively lower salary. The important factors that could increase the young dentists' willingness to consider oral pathology specialist as the lifelong career included increased income, life quality, and future job opportunities and reduced workload for the oral pathology residents and specialists. CONCLUSION: We suggest that the government should build a long-term budget to subsidize oral pathology residents and specialists to further solve the serious oral pathology specialist shortage problem in Taiwan. Copyright © 2021 Association for Dental Sciences of the

Republic of China. Publishing services by Elsevier B.V.

[The impact of a brief clinical experience in pathology on medical student interest and understanding of careers in pathology](#)

Abstract only*

Item Type: Journal Article

Authors: Rafiq, Rumana;Dow, Todd;Hatchette, Jill and Arnason, Thomas

Publication Date: 2021

Journal: Canadian Journal of Pathology 13(4), pp. 34-41

Abstract: Introduction: There is a shortage of pathologists in Canada. With only 1-3% of medical students pursuing a pathology residency, this trend is predicted to continue. Studies have shown that students tend not to consciously reject pathology as a career, but rather fail to recognize it as an option. Current approaches to introducing medical students to pathology careers are not well reported. This study assessed student interest and understanding of pathology careers, before and after the Pre-clerkship Residency Exploration Program (PREP) elective at Dalhousie University. Methods: Forty second-year medical students participate in PREP, a two-week elective that highlights multiple specialties, one of which is pathology. Pathology content in the program includes a half day job-shadowing a pathologist, a half day hospital-based pathology workshop, and a resident career/lifestyle discussion panel. Students' knowledge, attitudes, and behaviours towards pathology careers were assessed using pre- and post-program questionnaires. Results: Thirty-seven students completed the surveys. There was a significant improvement in students' understanding of the daily responsibilities of a pathologist ($p < 0.01$). Students also reported that PREP provided sufficient exposure to the specialty, which allowed them to decide on whether to pursue a pathology residency ($p < 0.01$). There was no evidence that the experience changed student attitudes or behaviours towards actually choosing a pathology residency.

Conclusions: The brief introduction to the clinical practice of pathology through PREP may not improve student recruitment to the specialty, as it did not change students' career preferences. However, this short clinical elective is impactful as it improved students' understanding of pathology careers.

[Clinical scientists' early career choices and progression: a exploratory mixed methods study.](#)

Item Type: Journal Article

Authors: Smith, Megan;Patel, Jaimini;Gay, Sandie;Davison, Ian and Buckley, Sharon

Publication Date: 2021

Journal: BMC Health Services Research 21(1059), pp. (6 October 2021)

Abstract: BACKGROUND: Understanding the influences on healthcare professionals' career choices and progression can inform interventions to improve workforce retention. Retention of health professionals is a high priority worldwide, in order to maintain expertise and meet the needs of national populations. In the UK, investment in clinical scientists' pre-registration education is high and the need to retain motivated scientists recognised. METHODS: We conducted a mixed methods study to investigate the career choices and progression of early career clinical scientists. First job sector and salary of trainees who completed the UK pre-registration Scientist Training Programme (STP) between 2014 and 2019 were analysed using descriptive statistics and Chi-Squared tests. Semi-structured interviews conducted with volunteer practising clinical scientists who completed the programme in 2015 or 2016 were analysed thematically and reviewed for alignment with theories for understanding career choice and workforce retention. RESULTS: Most scientists who completed the STP between 2014 and 2019 obtained a post in the UK National Health Service (NHS) and achieved the expected starting salary. Life scientists were more likely to work in non-NHS healthcare settings than other scientific

divisions; and physiological scientists less likely to achieve the expected starting salary. Experiences during training influenced career choice and progression zero to three years post qualification, as did level of integration of training places with workforce planning. Specialty norms, staff turnover, organisational uncertainty and geographical preferences influenced choices in both the short (zero to three years) and longer term (5+years). Interviewees reported a strong commitment to public service; and some could foresee that these priorities would influence future decisions about applying for management positions. These factors aligned with the components of job embeddedness theory, particularly that of 'fit'. CONCLUSIONS: Training experiences, personal values, specialty norms and organisational factors all influence UK clinical scientists' early career choices and progression. Job embeddedness theory provides a useful lens through which to explore career choice and progression; and suggests types of intervention that can enhance the careers of this essential group. Interventions need to take account of variations between different scientific specialties. [Abstract]

[Conference abstract: Tips for academic pathology trainees \(APT\): A website offering advice for academic pathology trainees and medical students/doctors considering histopathology as a career](#) Abstract all available

Item Type: Conference Proceeding

Authors: Young, P.C., Wright, A., Waterhouse, M., Quirke, P. and Treanor, D.

Publication Date: 2019

Publication Details: Journal of Pathology. Conference: 12th Joint Meeting of the British Division of the International Academy of Pathology and the Pathological Society of Great Britain and Ireland. Harrogate United Kingdom. 249(Supplement 1) (pp S22); John Wiley and Sons Ltd,

Abstract: Histopathology and academic pathology suffer from low

recruitment and high attrition. Resources which promote histopathology have been produced by different organisations, but this makes them difficult to locate by medical students, junior doctors, or doctors from other specialties who are interested in histopathology. Resources offering advice and support to academic pathology trainees are usually delivered as face-to-face meetings; not all trainees are able to attend and the information may not be relevant to trainees until later in their careers. We have created a website, "Tips for Academic Pathology Trainees (APT): a website offering tips for academic pathology trainees, doctors considering histopathology and medical students"

(<http://www.aptvirtualpathology.leeds.ac.uk>). This serves as a single-site, permanent, universally-accessible, comprehensive set of resources for both medical students/ doctors interested in histopathology and academic pathology trainees. Content is divided into 12 main sections: Histopathology; Pre-PhD Fellowships; PhD Fellowships; Clinical Lectureships; Teaching; Networking; Literature-based skills; Finances; Professional Relationships; Patient and Public Engagement; General Research Skills; and Inspiration. Users can submit suggestions, comments or questions via the email

address: aptwebsite@pathsoc.org. The website was officially launched in January 2019 and has been promoted via Twitter and email distribution lists. Two months post-launch, the website has had 809 users and 5131 page views, with most users viewing 6-7 pages per session. Users are from the UK, USA, Canada, India, Ireland and the Netherlands. Promotion is ongoing and website content will be regularly reviewed and updated. The high website-usage figures indicate that the website addresses a previously unmet need. We encourage you to use, promote and engage with the website.

Covid-19

[Impact of COVID-19 on the practice of breast pathologists: a survey of breast pathologists in the UK and Ireland.](#)

Item Type: Journal Article

Authors: Elghobashy, Mirna;Wahab, Lutful;Gunavardhan, Anu;O'Sullivan, Emma;Provenzano, Elena;Deb, Rahul;Pritchard, Susan;Di Palma, Silvana;Ellis, Ian O.;Boyd, Clinton;Pinder, Sarah E. and Shaaban, Abeer M.

Publication Date: Apr ,2023

Journal: Journal of Clinical Pathology 76(4), pp. 234-238

Abstract: AIMS: There is little information on the impact of COVID-19 on breast pathologists. This survey assessed the effect of the COVID-19 pandemic on UK and Ireland-based breast pathologists to optimise working environments and ensure preparedness for potential future pandemics. METHODS: A 35-question survey during the first wave of COVID-19 infections in the UK including questions on workload, working practices, professional development, training, health and safety and well-being was distributed to consultant breast pathologists and responses collected anonymously. RESULTS: There were 135 responses from breast pathologists based in the UK and Ireland. Most participants (75.6%) stated that their workload had decreased and their productivity dropped. 86/135 (63.7%) were given the option of working from home and 36% of those who did reported improved efficiency. Multidisciplinary team meetings largely moved to virtual platforms (77.8%) with fewer members present (41.5%). Online education, including webinars and courses, was utilised by 92.6%. 16.3% of pathologists reported shortages of masks, visors or gowns as the the most common health and safety concern. COVID-19 had a significant negative impact on the physical and mental health of 33.3% of respondents. A small number of pathologists (10.4%) were redeployed and/or retrained. CONCLUSION: The UK and Ireland breast pathologists adapted to the rapid change and maintained

service delivery despite the significant impact of the pandemic on their working practices and mental health. It is important to apply flexible working patterns and environments that improve productivity and well-being. The changes suggested should be considered for long-term shaping of breast pathology services. Copyright © Author(s) (or their employer(s)) 2023. Re-use permitted under CC BY. Published by BMJ.

[The future of the autopsy: will nano-robots replace pathologists?.](#)

Abstract only*

Item Type: Journal Article

Authors: Youd, E.

Publication Date: 2023

Journal: Diagnostic Histopathology (pagination), pp. ate of
Publication: 2023

Abstract: Autopsy practice requires an excellent level of knowledge and understanding of human anatomy, pathology, pathophysiology and clinical correlation, in order to establish the cause of a death. Interpretation of findings during an autopsy is a complicated task, currently limited to a pathologist, but with a severely stretched pathologist workforce in the UK, autopsy practice is under pressure. Accepting these challenges, does future technology make it possible to assist, augment or even replace a pathologist? Can a CT scanner make a pathologist redundant? Can a robot perform an autopsy? Are there better ways to make use of the limited resource of autopsy pathologists? This article discusses the potential of current and future technological developments, alongside some changes to systems of death investigation and employment arrangements that could establish autopsy practice as a professionalised service and a sought after career choice. Copyright © 2023

[How Are We Facing It? Dispatches From Pathology Residents in a COVID-19 Lombardy Hospital.](#)

Item Type: Journal Article

Authors: Cieri, Miriam;De Carlo, Camilla;Valeri, Marina;Belsito, Vincenzo;Lancellotti, Cesare;Roncalli, Massimo and Colombo, Piergiuseppe

Publication Date: 2020

Journal: Frontiers in Public Health 8, pp. 259

Abstract: At the end of February, the Italian National Health Service reported a hot spot of Coronavirus disease in the Lombardy region. COVID-19 is a highly pathogenic viral infection which poses some challenges for healthcare workers. Indeed, Pathology Departments are involved in reorganizing samples' management, from their delivery until their processing, according to National and WHO guidelines. Since Lombardy has been declared COVID-19 hot spot, due to decreasing number of surgical procedures, our Department adopted a policy to reduce personnel, allowing pathologists to work remotely during the outbreak. Lacking clear information about viral load on tissue samples, all human specimens must be considered potentially infectious, as well as patients during post-mortem examinations, and clinical information on COVID-19 status is mandatory. It is also important that Pathology staff receive an adequate training, and adherence to rules should be always accompanied by common sense. Copyright © 2020 Cieri, De Carlo, Valeri, Belsito, Lancellotti, Roncalli and Colombo.

[Cellular pathology in the COVID-19 era: a European perspective on maintaining quality and safety.](#)

Item Type: Journal Article

Authors: Gosney, J. R.;Hofman, P.;Troncone, G. and LopezRios, F.

Publication Date: 2020

Journal: Journal of Clinical Pathology (pagination), pp. Date of Publication: 01 Jun 2020

Abstract: COVID-19 is a zoonotic viral infection that originated in Wuhan, China, in late 2019. WHO classified the resulting pandemic as a 'global health emergency' due to its virulence and

propensity to cause acute respiratory distress syndrome. The COVID-19 pandemic has had a major impact on diagnostic laboratories, particularly those handling cell and tissue specimens. This development carries serious implications for laboratory practice in that safety of personnel has to be balanced against high-quality analysis and timely reporting of results. The aim of this article is to present some recommendations for the handling of such specimens in the preanalytical, analytical and postanalytical phases of laboratory testing and analysis in an era of high COVID-19 prevalence, such as that seen, for example, in the UK, Spain, Italy and France. Copyright © Author(s) (or their employer(s)) 2020. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.

Leadership

[Enhanced model for leadership development for trainees and early career health professionals: insights from a national survey of UK clinical scientists.](#) Abstract only*

Item Type: Journal Article

Authors: Buckley, S.;Smith, M.;Patel, J.;Gay, S. and Davison, I.

Publication Date: 2022

Journal: BMJ Leader 6(3), pp. 212-218

Abstract: INTRODUCTION: The importance of shared or distributed leadership in healthcare is recognised; however, trainees, early career professionals and others for whom the exercise of leadership is a recent development report being underprepared for leadership roles. Trainee clinical scientists exemplify such groups, being both early in their career and in a profession for which clinical leadership is less well established. Their insights can inform understanding of appropriate forms of leadership development for health professionals. METHOD(S): We explored perceptions of leadership and its development for trainee clinical scientists on the UK preregistration Scientist

Training Programme through semi-structured interviews with trainees, training officers, academic educators and lead healthcare scientists; and through an online questionnaire based on the UK multiprofessional Clinical Leadership Competency Framework (CLCF). Responses were analysed statistically or thematically as appropriate. RESULT(S): Forty interviews were undertaken and 267 valid questionnaire responses received. Stakeholders recognised clinical expertise as integral to leadership; otherwise their perceptions aligned with CLCF domains and 'shared leadership' philosophy. They consider learning by 'doing' real tasks (leadership activities) key to competency acquisition, with leadership education (eg, observation and theory) complementing these. Workplace affordances, such as quality of departmental leadership, training officer engagement and degree of patient contact affect trainees' ability to undertake leadership activities. CONCLUSION(S): From our research, we have developed an enhanced model for leadership development for trainee and early career clinical scientists that may have wider applicability to other health professions and groups not traditionally associated with clinical leadership. To foster their leadership, we argue that improving workplace affordances is more important than improving leadership education. Copyright © Author(s) (or their employer(s)) 2022. No commercial re-use. See rights and permissions. Published by BMJ.

[The Association of Pathology Chairs' Pathology Leadership Academy: Experience From the First 2 Years.](#)

Item Type: Journal Article

Authors: Howell, Lydia Pleotis; Markwood, Priscilla S. and Zander, Dani S.

Publication Date: 2019

Journal: Academic Pathology 6, pp. 2374289519826309

Abstract: Leadership development and succession planning are critical to ensure continued strength of academic pathology. The

Association of Pathology Chairs developed the Pathology Leadership Academy to prepare future academic leaders. The purpose of this report is to describe: (1) Pathology Leadership Academy's development and curriculum, (2) how Pathology Leadership Academy has met leadership development needs for individuals and academic departments in its first 2 years, (3) Pathology Leadership Academy's future directions based on program feedback. Results were analyzed from pre- and postprogram needs assessment surveys of pathology chairs and from evaluations from Pathology Leadership Academy participants in the first 2 years. Pathology Leadership Academy curriculum was developed from topics identified as priorities in the chairs' survey. Twenty-eight (90%) of 31 responding participants were very satisfied/satisfied with Pathology Leadership Academy. Of the 18 responding chairs who sent a participant to Pathology Leadership Academy, 11 (61%) reported that Pathology Leadership Academy met their faculty development goal. Of all responding chairs, 13 (32%) of 41 reported uncertainty as to whether Pathology Leadership Academy is meeting chairs' goals. Chairs reported that Pathology Leadership Academy provided value to their faculty through preparation for a future leadership role, enhancing skills for a current role, and enhancing understanding of opportunities and challenges in academic medicine. Most chairs (27/43, 66%) said Pathology Leadership Academy should be offered again; 13 (32%) of 43 were uncertain, and 1 (2%) of 43 said no. Initial experience of Pathology Leadership Academy is positive and promising and provides opportunity for leadership succession planning in academic pathology. Pathology Leadership Academy will use participant and chair feedback for ongoing curricular development to ensure topics continue to address major needs of academic pathology.

New Ways of Working

[Consolidation of pathology services in England: have savings been achieved?](#)

Author(s): Satta and Edmonstone

Source: BMC Health Services 18(862)

Publication date: November 2018

Background: During the last decade, pathology services in England have undergone profound changes with an extensive consolidation of laboratories. This has been driven by some national reviews forecasting a national reduction of costs by £250–£500 million (\$315–\$630 million) a year as a result. The main aim of this paper is to describe the financial impact of such consolidation, with a specific focus on the forecasted savings. A secondary aim is to describe the development of private sector involvement in laboratory services in a traditionally publicly funded healthcare system and the development of pathology staff size. Methods: In the English scenario, the majority of hospitals and laboratories are publicly funded and a survey was sent as Freedom of Information request to all directors of pathology. A descriptive comparison of savings among consolidated and non-consolidated pathology services was made by using the pathology budgets in two different periods (2015 versus 2010), adjusted by inflation and increased activity. Results: The hub-and-spoke model has been implemented as part of the consolidation process of pathology services in England. Consolidated pathology networks have achieved higher savings compared to non-consolidated single laboratories. There has been an increased role of private providers and savings were achieved with negligible personnel redundancies. Conclusions: Consolidated units have on average achieved larger cost savings than non-consolidated units but further analysis with stronger research design is required to independently evaluate the impact of pathology consolidation on both savings and quality.

Recruitment and Retention

[Detecting residents at risk of attrition - A Singapore pathology residency's experience.](#)

Item Type: Journal Article

Authors: Tay, Amos Z. E.; Tang, Po Yin; New, Lee May; Zhang, Xiaozhu and Leow, Wei-Qiang

Publication Date: 2023

Journal: Academic Pathology 10(2), pp. 100075

Abstract: The SingHealth Pathology Residency Program (SHPRP) is a 5-year postgraduate training program in Singapore. We face the problem of resident attrition, which has a significant impact on the individual, program and healthcare providers. Our residents are regularly evaluated, using in-house evaluations as well as assessments required in our partnership with the Accreditation Council for Graduate Medical Education International (ACGME-I). We hence sought to determine if these assessments were able to distinguish residents who would attrite from residents who would graduate successfully. Retrospective analysis of existing residency assessments was performed on all residents who have separated from SHPRP and compared with residents currently in senior residency or graduated from the program. Statistical analysis was performed on quantitative assessment methods of Resident In-Service Examination (RISE), 360-degree feedback, faculty assessment, Milestones and our own annual departmental mock examination. Word frequency analysis of narrative feedback from faculty assessment was used to generate themes. Since 2011, 10 out of 34 residents have separated from the program. RISE, Milestone data and the departmental mock examination showed statistical significance in discriminating residents at risk of attrition for specialty-related reasons from successful residents. Analysis of narrative feedback showed that successful residents performed better in areas of organization, preparation with clinical history, application of knowledge, interpersonal communication and

achieving sustained progress. Existing assessment methods used in our pathology residency program are effective in detecting residents at risk of attrition. This also suggests applications in the way that we select, assess and teach residents. Copyright © 2023 The Author(s).

[Measuring the Efficacy of Pathology Career Recruitment Strategies in US Medical Students](#)

Item Type: Journal Article

Authors: Hernandez, P. V.;Razzano, D.;Riddle, N. D.;Fallon, J. T.;Islam, H. K.;Mirza, K. M.;Pattarkine, R.;Platero, T.;Hermelin, D.;Adem, P. V.;Booth, A. L.;Nachinga, E. M.;Reddy, K. S.;Mares, A. and Lento, P. A.

Publication Date: 2022

Journal: Archives of Pathology & Laboratory Medicine 146(4), pp. 494-500

CONTEXT.-: Multiple articles and surveys in the literature suggest that medical students find a career in pathology undesirable and believe it is disproportionately focused primarily on the autopsy. OBJECTIVE.-: To measure the effect of applied interventions on medical student attitudes about the field of pathology. DESIGN.-: This prospective study involving medical students from first through fourth year was conducted as a pilot study in 2 medical schools in the United States. A 2-part anonymous survey regarding interest in pathology as a career and familiarity with the specialty using a 10-point scale was given to first- and second-year medical students before and after they listened to a 10-minute pathology career presentation. The same survey was given to third- and fourth-year medical students before and after a 4-week pathology elective. RESULTS.-: A total of 121 and 83 students responded to the survey before and after the intervention, respectively. Of the 121 students who responded to the survey before the intervention, 106 (87.6%) had not spent significant time in a pathology laboratory before the intervention. The majority of responses in interest in career,

job responsibilities, and features of pathologists before and after the intervention demonstrated a statistically significant difference ($P < .001$). We compared survey scores of presentation versus 4-week rotation groups before and after the intervention.

Students who experienced the presentation did not differ from students who experienced the rotation in the majority of questions related to interest in career, job responsibilities, and features of pathologists. CONCLUSIONS.-: Our study suggests that pathology exposure strategies can have a beneficial effect on student perceptions of the field and consideration of a career in pathology. Overall, the presentation intervention seemed to have the greatest effect on the first- and second-year students.

[On Pathology Laboratory Recruitment and Retention](#) Full text available with NHS OpenAthens account*

Item Type: Journal Article

Authors: Chiou, P. Z.;Mulder, L. and Jia, Y.

Publication Date: 2021

Journal: American Journal of Clinical Pathology OBJECTIVES: The specific aims of the study are to analyze relationships between the personality traits of laboratory professionals and choice of profession and preferred work settings. METHOD(S): Data from practicing laboratory professionals were collected via a web-based survey tool to gather information about personality types, choice of profession, and work setting preferences among medical laboratory professionals. RESULT(S): Results of the survey showed that INFJ (Introversion, Intuition, Feeling, Judging) is the most common medical laboratory personality type across the various laboratory work settings and that there are no significant differences between the practitioners' personality type and the choice of profession within pathology. The study revealed laboratorians from higher-volume laboratories were 1.2 times more likely to prefer Judging than lower-volume laboratories, and younger medical laboratory practitioners were 2.3 times more likely to gravitate toward Perceiving than their

older counterparts. CONCLUSION(S): The results of this study shed light on how employers can build on the personality preferences of the laboratory workforce to improve personal job satisfaction and laboratory productivity, quality, and work culture. The research implications are useful for laboratory recruitment and retention. Copyright © American Society for Clinical Pathology, 2021. All rights reserved. For permissions, please e-mail: journals.permissions@oup.com.

[Laboratory Staff Turnover: A College of American Pathologists Q-Probes Study of 23 Clinical Laboratories](#)

Item Type: Journal Article

Authors: Novis, D. A.; Nelson, S.; Blond, B. J.; Guidi, A. J.; Talbert, M. L.; Mix, P. and Perrotta, P. L.

Publication Date: 2020

Journal: Archives of Pathology & Laboratory Medicine 144(3), pp. 350-355
CONTEXT.-: Knowledge of laboratory staff turnover rates are important to laboratory medical directors and hospital administrators who are responsible for ensuring adequate staffing of their clinical laboratories. The current turnover rates for laboratory employees are unknown. OBJECTIVE.-: To determine the 3-year average employee turnover rates for clinical laboratory staff and to survey the types of institutional human resource practices that may be associated with lower turnover rates. DESIGN.-: We collected data from participating laboratories spanning a 3-year period of 2015-2017, which included the number of full-time equivalent (FTE) staff members that their laboratories employed in several personnel and departmental categories, and the number of laboratory staff FTEs who vacated each of those categories that institutions intended to refill. We calculated the 3-year average turnover rates for all laboratory employees, for several personnel categories, and for major laboratory departmental categories, and assessed the potential associations between 3-year average all laboratory staff turnover rates with institutional human

resource practices. RESULTS.-: A total of 23 (20 US and 3 international) participating institutions were included in the analysis. Among the 21 participants providing adequate turnover data, the median of the 3-year average turnover rate for all laboratory staff was 16.2%. Among personnel categories, ancillary staff had the lowest median (11.1% among 21 institutions) and phlebotomist staff had the highest median (24.9% among 20 institutions) of the 3-year average turnover rates. Among laboratory departments, microbiology had the lowest median (7.8% among 18 institutions) and anatomic pathology had the highest median (14.3% among 14 institutions) of the 3-year average turnover rates. Laboratories that developed and communicated clear career paths to their employees and that funded external laboratory continuing education activities had significantly lower 3-year average turnover rates than laboratories that did not implement these strategies. CONCLUSIONS.-: Laboratory staff turnover rates among institutions varied widely. Two human resource practices were associated with lower laboratory staff turnover rates.

Research

[Cytotechnologists as coinvestigators in anatomical pathology research.](#)

Item Type: Journal Article

Authors: Kopp, Karla J.; Passow, Marie R.; Del Rosario, Kristina M.; Christensen, Michael R.; O'Shaughnessy, John W.; Bartholet, Mary K.; Francis, Mary E. and Flotte, Thomas J.

Publication Date: 2018

Journal: Cancer Cytopathology 126(4), pp. 232-235

Abstract: BACKGROUND: The amount of time available to pathologists with which to perform research is becoming limited due to an increasing manpower shortage in pathology, decreased reimbursement, and increased workload. This is occurring at the same time as demands escalate for pathologists

to develop new companion tests, correlate the molecular findings with traditional methods, and assist in the development of individualized medicine. This study examined whether cytotechnologists may be integrated into a research team that uses their expertise in understanding pathology and clinical disease to provide interpretations of experiments that traditionally were performed by pathologists. **METHODS:** Cytotechnologists worked with pathologists to choose blocks for tissue microarrays (TMAs) and to interpret immunohistochemically stained TMA slides. The pathologist met with the cytotechnologist to review the study design. The cytotechnologists reviewed the slides and blocks and chose the most appropriate blocks for the TMA. Either 10% or all of the slides/blocks selected for TMA construction were reviewed by the supervising pathologist. The final selections were given to the TMA technologist to make the TMA. A minimum of 10% of the immunohistochemically stained TMA slides were reviewed by the supervising pathologist. **RESULTS:** A total of 32 TMAs were created with 6 cytotechnologists collaborating with 6 pathologists. Immunohistochemical stains of 190 TMAs were interpreted by 4 cytotechnologists collaborating with 3 pathologists. All the TMAs and TMA interpretation data were used successfully for the research for which they were designed. **CONCLUSIONS:** The collaboration of cytotechnologists and pathologists in research can improve the quality of effort and increase satisfaction and productivity. *Cancer Cytopathol* 2018;126:232-5. © 2018 American Cancer Society. Copyright © 2018 American Cancer Society.

Staff Experience and Perspectives

[Survey of UK histopathology consultants' attitudes towards academic and molecular pathology](#)

Author(s): Brockmoeller et al.

Source: *Journal of clinical pathology* 72(6) pp. 399-405

Publication date: 2019

Objective Academic pathology is facing a crisis; an ongoing decline in academic pathology posts, a paucity of academic pathologist's in-training and unfilled posts at a time when cellular pathology departments are challenged to deliver increasing numbers of molecular tests. The National Cancer Research Institute initiative in Cellular & Molecular Pathology commissioned a survey to assess attitudes of cellular pathology consultants towards research in order to understand barriers and identify possible solutions to improve this situation. As cellular pathology is encompassing an increasing number of diagnostic molecular tests, we also surveyed the current approach to and extent of training in molecular pathology. **Methods** The survey was distributed to all UK-based consultant pathologists via the Pathological Society of Great Britain & Ireland and Royal College of Pathologist networks. Heads of Department were contacted separately to obtain figures for number of academic training and consultant posts. **Results** 302 cellular pathologists completed the survey which represents approximately 21% of the total cellular histopathology workforce. Most respondents (89%) had been involved in research at some point; currently, 22% were undertaking research formally, and 41% on an informal basis. Of those previously involved in research, 57% stopped early in their consultant career. The majority of substantive academic posts were Professors of which 60% had been in post for >20 years. Most respondents (84%) used molecular pathology in diagnostic work, independent of where they worked or the length of time in post. Notably, 53% of consultants had not received molecular pathology training, particularly more senior consultants and consultants in district general hospitals. **Conclusions** The survey reveals that the academic workforce is skewed towards senior individuals, many of whom are approaching retirement, with a missing cohort of 'junior consultant' academic pathologists to replace them. Most pathologists stop formal research activity at

the beginning of a consultant career. While molecular pathology is an increasing part of a pathologist's workload, the majority of consultant cellular pathologists have not received any formal molecular training.

Technology and Digitisation

[Computational pathology in 2030: a Delphi study forecasting the role of AI in pathology within the next decade](#)

Author(s): Berbis et al.

Source: eBioMedicine (part of the Lancet Discovery Science)

Publication date: January 2023

Background: Artificial intelligence (AI) is rapidly fuelling a fundamental transformation in the practice of pathology. However, clinical integration remains challenging, with no AI algorithms to date in routine adoption within typical anatomic pathology (AP) laboratories. This survey gathered current expert perspectives and expectations regarding the role of AI in AP from those with first-hand computational pathology and AI experience. Methods: Perspectives were solicited using the Delphi method from 24 subject matter experts between December 2020 and February 2021 regarding the anticipated role of AI in pathology by the year 2030. The study consisted of three consecutive rounds: 1) an open-ended, free response questionnaire generating a list of survey items; 2) a Likert-scale survey scored by experts and analysed for consensus; and 3) a repeat survey of items not reaching consensus to obtain further expert consensus. Findings: Consensus opinions were reached on 141 of 180 survey items (78.3%). Experts agreed that AI would be routinely and impactfully used within AP laboratory and pathologist clinical workflows by 2030. High consensus was reached on 100 items across nine categories encompassing the impact of AI on (1) pathology key performance indicators (KPIs) and (2) the pathology workforce and specific tasks performed by (3) pathologists and (4) AP lab technicians, as well as (5)

specific AI applications and their likelihood of routine use by 2030, (6) AI's role in integrated diagnostics, (7) pathology tasks likely to be fully automated using AI, and (8) regulatory/legal and (9) ethical aspects of AI integration in pathology. Interpretation: This systematic consensus study details the expected short-to-mid-term impact of AI on pathology practice. These findings provide timely and relevant information regarding future care delivery in pathology and raise key practical, ethical, and legal challenges that must be addressed prior to AI's successful clinical implementation. Funding: No specific funding was provided for this study.

[Digitisation will transform the future of pathology](#)

Author(s): Harris

Source: British Journal of Healthcare Management 26(4)

Publication date: April 2020

Technology has become an increasingly vital aspect of healthcare, but its impact on pathology has been particularly profound. Gemma Harris discusses these developments and their potential to transform the nature of the field.

[Digital pathology in the NHS: Experience from a novel digital pathology training and validation study](#)

Item Type: Journal Article

Authors: Williams, B. J.

Publication Date: 2017

Journal: Journal of Pathology 243, pp. S10

Histopathologists are faced with an increasing workload, in terms of case number and case complexity, whilst the specialty is in a period of recruitment and retention crisis. Digital pathology offers a flexible platform for new modes of working, and wider transformational service change. It is increasingly apparent that digital pathology does not just represent the replacement of one diagnostic modality with another, but provides the key to the broader transformation of pathology services. It serves as a

platform to enable novel and flexible working patterns to attract, retain and optimize use of staff, allows rapid access to second opinion, MDT referral and case collaboration, and brings us a step closer to a paperless NHS. Against this background of emergent need, Leeds Teaching Hospitals NHS Trust, in collaboration with the University of Leeds and Leica Biosystems, has completed a novel training and validation study of digital pathology for the primary diagnosis of breast histopathology specimens. Our innovative protocol incorporates early exposure to live digital reporting with the opportunity to gain experience and competence in specialty specific digital diagnosis in a risk mitigated environment. Our breast pathology team have amassed real world digital reporting experience of over 600 cases, in an NHS diagnostic department which ranks amongst the largest in Europe. As a result of this work, our department is now embarking on a pandepartmental, research led digital pathology deployment, in which we hope to demonstrate the benefits of large scale digital pathology adoption in an NHS setting.

[Artificial intelligence as a tool for diagnosis in digital pathology whole slide images: A systematic review](#)

Item Type: Journal Article

Authors: Rodriguez, Joao Pedro Mazuco;Rodriguez, Rubens;Silva, Vitor Werneck Krauss;Kitamura, Felipe Campos;Corradi, Gustavo Cesar Antonio;de Marchi, Ana Carolina Bertolotti and Rieder, Rafael

Publication Date: 2022

Journal: Journal of Pathology Informatics 13, pp. 100138

Abstract: Digital pathology had a recent growth, stimulated by the implementation of digital whole slide images (WSIs) in clinical practice, and the pathology field faces shortage of pathologists in the last few years. This scenario created fronts of research applying artificial intelligence (AI) to help pathologists. One of them is the automated diagnosis, helping in the clinical

decision support, increasing efficiency and quality of diagnosis. However, the complexity nature of the WSIs requires special treatments to create a reliable AI model for diagnosis. Therefore, we systematically reviewed the literature to analyze and discuss all the methods and results in AI in digital pathology performed in WSIs on H&E stain, investigating the capacity of AI as a diagnostic support tool for the pathologist in the routine real-world scenario. This review analyzes 26 studies, reporting in detail all the best methods to apply AI as a diagnostic tool, as well as the main limitations, and suggests new ideas to improve the AI field in digital pathology as a whole. We hope that this study could lead to a better use of AI as a diagnostic tool in pathology, helping future researchers in the development of new studies and projects. Copyright © 2022 The Author(s).

[The need for measurement science in digital pathology.](#)

Item Type: Journal Article

Authors: Romanchikova, Marina;Thomas, Spencer Angus;Dexter, Alex;Shaw, Mike;Partarrieau, Ignacio;Smith, Nadia;Venton, Jenny;Adeogun, Michael;Brettell, David and Turpin, Robert James

Publication Date: 2022

Journal: Journal of Pathology Informatics 13, pp. 100157

Abstract: Background: Pathology services experienced a surge in demand during the COVID-19 pandemic. Digitalisation of pathology workflows can help to increase throughput, yet many existing digitalisation solutions use non-standardised workflows captured in proprietary data formats and processed by black-box software, yielding data of varying quality. This study presents the views of a UK-led expert group on the barriers to adoption and the required input of measurement science to improve current practices in digital pathology. Methods: With an aim to support the UK's efforts in digitalisation of pathology services, this study comprised: (1) a review of existing evidence, (2) an online survey of domain experts, and (3) a workshop with 42 representatives

from healthcare, regulatory bodies, pharmaceutical industry, academia, equipment, and software manufacturers. The discussion topics included sample processing, data interoperability, image analysis, equipment calibration, and use of novel imaging modalities. Findings: The lack of data interoperability within the digital pathology workflows hinders data lookup and navigation, according to 80% of attendees. All participants stressed the importance of integrating imaging and non-imaging data for diagnosis, while 80% saw data integration as a priority challenge. 90% identified the benefits of artificial intelligence and machine learning, but identified the need for training and sound performance metrics. Methods for calibration and providing traceability were seen as essential to establish harmonised, reproducible sample processing, and image acquisition pipelines. Vendor-neutral data standards were seen as a "must-have" for providing meaningful data for downstream analysis. Users and vendors need good practice guidance on evaluation of uncertainty, fitness-for-purpose, and reproducibility of artificial intelligence/machine learning tools. All of the above needs to be accompanied by an upskilling of the pathology workforce. Conclusions: Digital pathology requires interoperable data formats, reproducible and comparable laboratory workflows, and trustworthy computer analysis software. Despite high interest in the use of novel imaging techniques and artificial intelligence tools, their adoption is slowed down by the lack of guidance and evaluation tools to assess the suitability of these techniques for specific clinical question. Measurement science expertise in uncertainty estimation, standardisation, reference materials, and calibration can help establishing reproducibility and comparability between laboratory procedures, yielding high quality data and providing higher confidence in diagnosis. Copyright © 2022 The Author(s).

[A narrative review of digital pathology and artificial intelligence: focusing on lung cancer](#)

Item Type: Journal Article

Authors: Sakamoto, Taro;Furukawa, Tomoi;Lami, Kris;Pham, Hoa Hoang Ngoc;Uegami, Wataru;Kuroda, Kishio;Kawai, Masataka;Sakanashi, Hidenori;Cooper, Lee Alex Donald;Bychkov, Andrey and Fukuoka, Junya

Publication Date: Oct ,2020

Journal: Translational Lung Cancer Research 9(5), pp. 2255-2276

Abstract: The emergence of whole slide imaging technology allows for pathology diagnosis on a computer screen. The applications of digital pathology are expanding, from supporting remote institutes suffering from a shortage of pathologists to routine use in daily diagnosis including that of lung cancer. Through practice and research large archival databases of digital pathology images have been developed that will facilitate the development of artificial intelligence (AI) methods for image analysis. Currently, several AI applications have been reported in the field of lung cancer; these include the segmentation of carcinoma foci, detection of lymph node metastasis, counting of tumor cells, and prediction of gene mutations. Although the integration of AI algorithms into clinical practice remains a significant challenge, we have implemented tumor cell count for genetic analysis, a helpful application for routine use. Our experience suggests that pathologists often overestimate the contents of tumor cells, and the use of AI-based analysis increases the accuracy and makes the tasks less tedious. However, there are several difficulties encountered in the practical use of AI in clinical diagnosis. These include the lack of sufficient annotated data for the development and validation of AI systems, the explainability of black box AI models, such as those based on deep learning that offer the most promising performance, and the difficulty in defining the ground truth data for training and validation owing to inherent ambiguity in most applications. All of these together present significant challenges in the development and clinical translation of AI methods in the

practice of pathology. Additional research on these problems will help in resolving the barriers to the clinical use of AI. Helping pathologists in developing knowledge of the working and limitations of AI will benefit the use of AI in both diagnostics and research. Copyright 2020 Translational Lung Cancer Research. All rights reserved.

Workforce

[An occupational health survey of the UK's mortuary workforce](#)

Author(s): Estrin-Serlui et al.

Source: Occupational Medicine 73(4)

Publication date: May 2023

Background: Mortuaries are predominantly staffed by anatomical pathology technologists (APTs) and pathologists, and the work they undertake carries implicit health risk due to its nature. Until now there has not been a nationwide assessment of the occupational health of these essential workers in the UK. Aims: To assess the current occupational health status and needs of the mortuary workforce in the UK. Methods: We created a bespoke, brief online survey which was approved by the professional bodies representing APTs and pathologists in the UK. The survey was disseminated electronically using these organizations' targeted mailing lists. Results: Two hundred and thirty participants completed the survey, comprising 108 (47%) APTs and 122 (53%) pathologists. Most (89%) respondents reported that they have suffered from occupational health issues, the largest subcategory being musculoskeletal problems (77%). Almost half (48%) of APTs and around one-quarter (26%) of pathologists who responded have taken time off work in the last year because of occupational health problems, with almost one-fifth (19%) of the APTs having taken at least 4 weeks off. Conclusions: A significant number of workhours are lost per year to sick leave resulting from occupational health problems. Respondents' comments highlight issues in workspaces, rest

facilities and staffing, and variability in working conditions across the country. We suggest that future workforce planning should prioritize good occupational health, with nationwide improvements in mortuary design.

[Strong Job Market for Pathologists: Results From the 2021 College of American Pathologists Practice Leader Survey.](#)

Item Type: Journal Article

Authors: Gross, David J.;Robboy, Stanley J.;Cohen, Michael B.;Vernon, Lori;Park, Jason Y.;Crawford, James M.;Karcher, Donald S.;Wheeler, Thomas M. and Black-Schaffer, W. Stephen

Publication Date: 04 01 ,2023

Journal: Archives of Pathology & Laboratory Medicine 147(4), pp. 434-441

Abstract: CONTEXT.-: There has long been debate about whether and when there may be a shortage of pathologists in the United States. One way to assess this is to survey the hiring experiences of pathology practices. A 2018 survey revealed a strong demand for pathologists, with expectations of continued strength. This study updates that prior analysis using data from a 2021 survey of pathology practice leaders. OBJECTIVE.-: To assess the US pathologist job market and examine implications. DESIGN.-: We analyzed data from the 2021 College of American Pathologists Practice Leader Survey. This survey queried practice leaders, including regarding the hiring of pathologists, the level of experience being sought, success in filling positions, and expectations for hiring in the next 3 years. RESULTS.-: Among the 375 surveyed practice leaders (about one-third of all US pathology practices), 282 provided information about pathologist hiring in 2021. A total of 157 of these 282 practices (55.7%) sought to hire at least 1 pathologist in 2021, up from 116 of 256 practices (45.3%) in 2017; the mean number of pathologists hired per practice also increased. In 2021, a total of 175 of 385 positions (45.5%) were to fill new positions, compared with 95 of 249 positions (38.2%) in 2017. Most

practice leaders were comfortable hiring pathologists with less than 2 years of posttraining experience. Practice leaders anticipated continued strong demand for hiring pathologists during the next 3 years. CONCLUSIONS.-: Our analysis confirms that the demand in pathologist hiring is strong and much increased from 2017. We believe, in combination with other job market indicators, that demand may outstrip the supply of pathologists, which is limited by the number of trainees and has remained constant during the past 20 years. Copyright © 2023 College of American Pathologists.

[Pathologists' assistants, an essential healthcare workforce: the experience of a surgical pathology department in Italy](#) Full text available with NHS OpenAthens account*

Author(s): Bortesi et al.

Source: Journal of Clinical Pathology 75(7)

Publication date: 2022

Aims The progressive increase of both the workload and the complexity of laboratory procedures, along with shortage of staff, has made evident the need to increase the efficiency in the pathology departments. To support the pathologists, a new technical professional role, the pathologists' assistant (PA), has been introduced. **Methods** We decided to carry out a retrospective analysis on PAs' performance. This was compared with that of junior/senior pathologists in the amount and type of surgical specimens examined, the number of lymph node retrieved in colorectal resections, the number of cases needing a second grossing procedure and the average time spent in grossing. As the COVID-19 pandemic period in fact resulted in a dramatic reduction of histological cases in our department, we divided PA activities into two periods, according to the COVID-19 pandemic. **Results** 'Simple' specimens made up the majority (92%) of the specimens examined by PAs in pre-COVID-19 period while 'complex' specimens, often neoplastic, represented the minor part (7%). However, 'simple' specimens dropped to

81% and 'complex' specimens rose to 18% in the COVID-19 period, when PAs had the chance to test themselves with more complicated surgical samples, under the supervision of a pathologist. Lymph node retrieval rate and average time spent in grossing are in line with literature data and confirm that PAs performance is comparable with pathologists' one, in selected settings. **Conclusion** In our experience, PA has represented a fundamental time-saving resource for the pathologists, who can devote time almost exclusively to diagnostic reporting.

[Human Sustainability in Pathology Medical Laboratory Workforce](#). Abstract only*

Item Type: Journal Article

Authors: Chiou, Paul Z.

Publication Date: 2022

Journal: Journal of Allied Health 51(3), pp. 229-233

Abstract: While having a dedicated and productive workforce is the cornerstone of a functioning society, the key is sustainability. Allied health laboratory burnout, characterized by mental exhaustion which negatively affects workplace performance, has worsened during the COVID pandemic. For purposes such as these, the issue must be addressed to ensure that the US will have an adequate workforce to meet the laboratory testing needs of an aging population and any potential future pandemics that may arise. The answer to reducing toxic or challenging workplace environments and improving human workforce sustainability is through transparency and anonymous reporting mandates so the data collected from individual laboratories can be reported as a single "human sustainability" score that reflects the health measure of the laboratory. The 10 laboratories with the highest scores could be listed in the laboratory professional magazine's version of "America's Most Admired Laboratories" and the worst performers in the "Improvements-Needed" listing. Companies are inherently competitive, and this forces laboratories to be more cognizant of workforce well-being and

the rate of burnout and work-related chronic conditions. This article outlines how the human sustainability advocacy plan can be implemented using ideas gleaned from Bardach's eight-fold path paradigm.

[Number of pathologists in Germany: comparison with European countries, USA, and Canada.](#)

Item Type: Journal Article

Authors: Markl, Bruno;Fuzesi, Laszlo;Huss, Ralf;Bauer, Svenja and Schaller, Tina

Publication Date: Feb ,2021

Journal: Virchows Archiv 478(2), pp. 335-341

Abstract: The rapid development of pathology is in contrast to a shortage of qualified staff. The aims of the present study are to compile basic information on the numbers of German physicians in pathology and to compare it with the situation in Europe and overseas. In addition, model calculations will shed light on the effects of part-time working models. Various publicly accessible databases (EuroStat) as well as publications of medical associations and professional associations of European countries and the USA/Canada were examined. In addition, a survey was carried out among the institutes of German universities. Figures from 24 European countries and the USA/Canada were evaluated. With one pathologist per 47,989 inhabitants, the density of pathologists in Germany in relation to the population is the second-lowest in Europe (average: 32,018). Moreover, the proportion of pathologists among the physicians working in Germany is the lowest in Europe and at the same time lower than in the USA and Canada (Germany: 1:200, USA: 1:70, Canada: 1:49). The ratio of pathologists to medical specialists is shifted in the same direction. The survey among university pathologists revealed a relevant increase in the workload over the last 10 years. The majority of institutes can manage this workload only with considerable difficulties. With a ratio between specialists and residents of 1:1, the university

institutes show a high commitment in the area of training. The results of this study indicate a shortage of pathologists in Germany that could lead to a bottleneck in large parts of the health system.

[Enhancing the Pipeline of Pathologists in the United States.](#)

Item Type: Journal Article

Authors: Naritoku, Wesley Y.;Furlong, Mary A.;Knollman-Ritschel, Barbara and Kaul, Karen L.

Publication Date: 2021

Journal: Academic Pathology 8, pp. 23742895211041725

Abstract: The shortage of pathologists in the United States has been a topic of discussion for the past 2 decades. At the 2014 Association of Pathology Chairs (APC)/Program Directors Section (PRODS) meeting, a Pipeline Subcommittee (PSC) of the APC Advocacy Committee was formed with the charge of investigating ways to increase the number of highly qualified United States Medical Graduates entering into pathology. Several online surveys were developed to identify the strengths, weaknesses, opportunities, and threats to recruitment into pathology. Two general pipeline surveys were completed; one was issued in 2014 and is discussed in this article. In 2018, the Medical Education Working Group surveyed the Undergraduate Medical Education Directors Section on the state of undergraduate medical education for pathology; pipeline issues are included in this article from the 2018 survey. Medical schools that reported 2% to 5% or more of their graduates going into pathology were compared with schools where less than 1% went into pathology. About one-third of schools producing more pathology residents had Post-Sophomore Pathology Fellowships. Schools that had a faculty member on the curriculum committee that felt they had little or no control were more likely to have fewer graduates going into pathology. Schools having students view an autopsy as a requirement of graduation were more likely to produce graduates going into

pathology. However, none of these characteristics achieved statistical significance. Continued incorporation of best practices for exposure of pathology as a medical specialty as well as outreach to students will be necessary for the future pipeline. Copyright © The Author(s) 2021.

[Reevaluation of the US Pathologist Workforce Size.](#)

Item Type: Journal Article

Authors: Robboy, Stanley J.;Gross, David;Park, Jason Y.;Kittrie, Elizabeth;Crawford, James M.;Johnson, Rebecca L.;Cohen, Michael B.;Karcher, Donald S.;Hoffman, Robert D. 2nd;Smith, Anthony T. and Black-Schaffer, W. Stephen

Publication Date: 07 01 ,2020

Journal: JAMA Network Open 3(7), pp. e2010648

Abstract: Importance: There is currently no national organization that publishes its data that serves as the authoritative source of the pathologist workforce in the US. Accurate physician numbers are needed to plan for future health care service requirements.

Objective: To assess the accuracy of current pathologist workforce estimates in the US by examining why divergency appears in different published resources. Design, Setting, and Participants: This study examined the American Board of Pathology classification for pathologist primary specialty and subspecialties and analyzed previously published reports from the following data sources: the Association of American Medical Colleges (AAMC), the Accreditation Council for Graduate Medical Education (ACGME), a 2013 College of American Pathologists (CAP) report, a commercially available version of the American Medical Association (AMA) Physician Masterfile, and an unpublished data summary from June 10, 2019. Main Outcomes and Measures: Number of physicians classified as pathologists. Results: The most recent AAMC data from 2017 (published in 2018) reported 12839 physicians practicing "anatomic/clinical pathology," which is a subset of the whole. In comparison, the current AMA Physician Masterfile, which is not

available publicly, listed 21292 active pathologists in June 2019. The AMA Physician Masterfile includes all pathologists in 15 subspecialized training areas as identified by the ACGME. By contrast, AAMC's data, which derive from the AMA Physician Masterfile data, only count physicians primarily associated with 3 general categories of pathologists and 1 subspecialty category (ie, chemical pathology). Thus, the AAMC pathology workforce estimate does not include those whose principal work is in 11 subspecialty areas, such as blood banking or transfusion medicine, cytopathology, hematopathology, or microbiology. An additional discrepancy relates to the ACGME residency (specialties) and fellowship (subspecialties) training programs in which pathologists with training in dermatopathology appear as dermatologists and pathologists with training in molecular genetic pathology appear as medical geneticists. Conclusions and Relevance: This analysis found that most sources reported only select categories of the pathologist workforce rather than the complete workforce. The discordant nature of reporting may pertain to other medical specialties that have undergone increased subspecialization during the past 2 decades (eg, surgery and medicine). Reconsideration of the methods for determining the pathologist workforce and for all workforces in medicine appears to be needed.

[Conference abstract: Reclaiming the Autopsy as the Practice of Medicine: A Pathway to Remediation of the Forensic Pathology Workforce Shortage?](#) Abstract all available*

Item Type: Conference Proceeding

Authors: Weedn, V.W. and Menendez, M.J.

Publication Date: 2020

Publication Details: United States: American Journal of Forensic Medicine and Pathology; Lippincott Williams and Wilkins, pp. 242

Abstract: The historically constricted forensic pathology workforce pipeline is facing an existential crisis. Pathology residents are exposed to forensic pathology through the

American Council of Graduate Medical Education autopsy requirement. In 1950, autopsies were conducted in one half of the patients dying in American hospitals and 90% in teaching hospitals, but they have dwindled to fewer than 5%. Elimination of funding for autopsies is a major contributor to the lack of support for autopsies in departments of pathology. Funding may require reclaiming the autopsy as the practice of medicine. Funding of autopsies would rekindle interest in hospital autopsies and strengthen the forensic pathology workforce pipeline. Copyright © 2020 Wolters Kluwer Health, Inc. All rights reserved.

[The evolution from cardiac physiologists to clinical scientists in the UK: A guide to attaining equivalence.](#)

Item Type: Journal Article

Authors: Campbell, B.;Robinson, S. and Rana, B.

Publication Date: 2019

Journal: Echo Research and Practice 6(4), pp. R99-R105

Abstract: At its inception, transthoracic echocardiography (TTE) was employed as a basic screening tool for the diagnosis of heart valve disease and as a crude indicator of left ventricular function. Since then, echocardiography has developed into a highly valued non-invasive imaging technique capable of providing extremely complex data for the diagnosis of even the subtlest cardiac pathologies. Its role is now pivotal in the diagnosis and monitoring of heart disease. With the evolution of advanced practice and devolving care, ordinarily performed by senior doctors, to the cardiac physiology workforce in the UK, significant benefits in terms of timely patient care and cost savings are possible. However, there needs to be appropriate level of accountability. This accountability is achieved in the UK with statutory regulation of healthcare professionals and is a crucial element in the patient protection system, particularly for professions in patient facing roles. However, statutory regulation for staff practising echocardiography is not currently mandatory

in the UK, despite the level of responsibility and influence on patient care. Regulators protect the public against the risk of poor practice by setting agreed standards of practice and competence and registering those who are competent to practice. Regulators take action if professionals on their register do not meet their standards. The current cardiac physiology workforce can be recognised as registered clinical scientists using equivalence process through the Academy for Healthcare Science, and this review aims to describe the process in detail. Copyright © 2019 The authors

[Pathologist's assistant \(PathA\) and his/her role in the surgical pathology department: a systematic review and a narrative synthesis](#) Full text available with NHS OpenAthens account*

Item Type: Journal Article

Authors: Bortesi, M.;Martino, V.;Marchetti, M.;Cavazza, A.;Gardini, G.;Zanetti, E.;Bassi, M. C.;Ghirotto, L.;Costantini, M. and Piana, Simonetta

Publication Date: Jun ,2018

Journal: Virchows Archiv 472(6), pp. 1041-1054

Abstract: In recent decades, various highly qualified individuals have increasingly performed tasks that have historically been handled by physicians with the aim of reducing their workload. Over time, however, these "physician assistants" or "physician extenders" have gained more and more responsibilities, showing that specific tasks can be performed equally skilfully by specialised health care professionals. The pathologist's assistant (PathA) is a highly qualified technician who works alongside the pathologist and is responsible for the grossing and autopsies. This profession was developed in the USA, with formal training programmes starting in 1970 when Dr. Kinney, director of the Department of Pathology of Duke University, Durham, NC, started the first dedicated course. Most institutes in the USA and Canada currently employ these technical personnel for grossing, and numerous papers published over the years demonstrate the

quality of the assistance provided by the PathA, which is equal to or sometimes even better than the performance of pathologists. The PathA can be employed to carry out a wide range of tasks to assist the pathologist, such as grossing (the description and reduction of surgical specimens), judicial autopsies and administrative and supervisory practices within the laboratory or assistance in research, although the diagnosis is always the pathologist's responsibility. Since this role has already been consolidated in North America, part of the relevant literature is altogether out of date. However, the situation is different in Europe, where there is an increasing interest in PathA, mainly because of the benefits of their inclusion in anatomic pathology laboratories. In the UK, biomedical scientists (BMS, the British equivalent of PathA) are involved in many tasks both in surgical pathology and in cytopathology, which are generally performed by medically trained staff. Several papers have been recently published to highlight the role of BMS with the broader public. This report aimed to conduct a systematic review of all the articles published about the PathA/BMS and to perform a narrative synthesis. The results may contribute to the evidence for including the PathA/BMS within a surgical pathology laboratory organisation.

[Clinical roles in clinical biochemistry: a national survey of practice in the UK.](#)

Item Type: Journal Article

Authors: Choudhury, Sirazum M.;Williams, Emma L.;Barnes, Sophie C.;Alagband-Zadeh, Jamshid;Tan, Tricia M. and Cegla, Jaimini

Publication Date: May ,2017

Journal: Annals of Clinical Biochemistry 54(3), pp. 370-377

Abstract: Background Using an online survey, we collected data to present a picture of how clinical authorization is performed in the UK. Methods A 21-question survey was uploaded to www.surveymonkey.com , and responses were invited via the

mail base of the Association for Clinical Biochemistry and Laboratory Medicine. The questionnaire examined the intensity and function of the duty biochemist role and how different types of authorization are used to handle and release results. Results Of 70 responses received, 60 were suitable for analysis. Responses were received from every region of the UK. A typical duty biochemist shift started on average at 8:50, and finished at 17:25. The mean duration was 8 h 58 min. Clinical scientists are the most abundantly represented group on duty biochemist rotas. Higher banded clinical scientists and chemical pathologists covered out-of-hours shifts. Results were handled differently depending on the level of abnormality and the requesting area. Normal results tended to be released either directly from the analyser or after technical then autoauthorization (90%). A greater preference for clinical authorization was seen for abnormal and critical results originating from outpatients (49% and 69%, respectively) or general practice (51% and 71%) than for inpatients (33% and 53%) or A&E (25% and 37%). Conclusions The handling and authorization of biochemistry results varies greatly between laboratories. The role is clearly heterogeneous in the UK. Guidance from the Association for Clinical Biochemistry and Royal College of Pathologists may help to clarify the essential roles of the duty biochemist.

Competency Frameworks

[Development of a core competency framework for clinical informatics](#)

Source: BMJ Health & Care Informatics 28

Publication date: 2021

Objectives Until this point there was no national core competency framework for clinical informatics in the UK. We report on the final two iterations of work carried out in the formation of a national core competency framework. This follows

an initial systematic literature review of existing skills and competencies and a job listing analysis. Methods An iterative approach was applied to framework development. Using a mixed-methods design we carried out semi-structured interviews with participants involved in informatics (n=15). The framework was updated based on the interview findings and was subsequently distributed as part of a bespoke online digital survey for wider participation (n=87). The final version of the framework is based on the findings of the survey. Results Over 102 people reviewed the framework as part of the interview or survey process. This led to a final core competency framework containing 6 primary domains with 36 subdomains containing 111 individual competencies. Conclusions An iterative mixed-methods approach for competency development involving the target community was appropriate for development of the competency framework. There is some contention around the depth of technical competencies required. Care is also needed to avoid professional burnout, as clinicians and healthcare practitioners already have clinical competencies to maintain. Therefore, how the framework is applied in practice and how practitioners meet the competencies requires careful consideration.

[Assessment of management and leadership competencies – chemical pathology](#)

Source: The Royal College of Pathologists

Appropriate formal examination methods for assessing management competencies include selected response items such as Multiple Choice Questions and Extended Matching Questions, which are used in other pathology specialties, and the Short Answer Questions (SAQs) and Essays used in Chemical Pathology.

[Pathology competencies for medical education and educational cases](#)

Author(s): Knollmann-Ritschel et al.

Source: Academic Pathology

Publication date: July 2017

Current medical school curricula predominantly facilitate early integration of basic science principles into clinical practice to strengthen diagnostic skills and the ability to make treatment decisions. In addition, they promote life-long learning and understanding of the principles of medical practice. The Pathology Competencies for Medical Education (PCME) were developed in response to a call to action by pathology course directors nationwide to teach medical students pathology principles necessary for the practice of medicine. The PCME are divided into three competencies: 1) Disease Mechanisms and Processes, 2) Organ System Pathology, and 3) Diagnostic Medicine and Therapeutic Pathology. Each of these competencies is broad and contains multiple learning goals with more specific learning objectives. The original competencies were designed to be a living document, meaning that they will be revised and updated periodically, and have undergone their first revision with this publication. The development of teaching cases, which have a classic case-based design, for the learning objectives is the next step in providing educational content that is peer-reviewed and readily accessible for pathology course directors, medical educators, and medical students. Application of the PCME and cases promotes a minimum standard of exposure of the undifferentiated medical student to pathophysiologic principles. The publication of the PCME and the educational cases will create a current educational resource and repository published through Academic Pathology.

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Where a report/ journal article or resource is freely available the link has been provided. If an NHS OpenAthens account is required this has been indicated. It has also been highlighted if only the abstract is available. If you do not have an OpenAthens account you can [self-register here](#).

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