

Evidence Brief: Histopathology

Contents

Key publications – the big picture	2
The Star for workforce redesign.....	3
Statistics.....	3
National Data Programme.....	4
Published Peer Reviewed Research.....	4
Career Pathways.....	4
Covid-19.....	5
New ways of working.....	6
Staff experiences.....	7
Technology.....	8
Workforce.....	9
Competency Frameworks	11
*Help accessing articles or papers.....	11

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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There are also more detailed [evidence briefs](#) on the following topics:

- Cancer
- Healthcare Science
- Pathology

Key publications – the big picture

NHS Long Term Workforce Plan

Source: NHS England

Publication date: August 2023

p. 72 • Diagnostic support: AI has the potential to free up clinical time and improve accuracy and efficiency of diagnostics in services such as ophthalmology, imaging, pathology and dermatology by acting as a first reader on images and eventually automating some clinical decisions where safe to do so. One example is the use of first reader AI technology, which will support the radiology workforce and accelerate diagnostic screening times. E

p. 77 An example of innovative technologies being accelerated to improve flow of clinical data and process across a pathway is the Diagnostics Digital Capability Programme, where investment and support into pathology and imaging networks to implement new technologies is expected to increase productivity across imaging and pathology services by up to 10% by March 2025. Investment is also expected to enable faster turnaround times for diagnostic test results (supporting the delivery of national service delivery standards, such as urgent faster diagnosis standards for suspected cancer cases and six-week diagnostic waits), improved patient and staff experience, and reduced outsourcing spend.

Lung Cancer – GIRFT National Specialty Report NHS Futures

log in required

Source: Getting It Right First Time (GIRFT)

Publication date: April 2022

p. 82 An opportunity to review workforce modernisation should not be overlooked as this may be the key to unlocking some of the challenges which impact on service delivery and care. Services should ensure that they have development opportunities for staff, making use of innovative roles such as

radiographer reporting, pharmacist prescribers, assistant practitioners and nurse-led clinics, especially where vacancies exist and recruitment has been challenging. Far too often, teams reported that simple solutions such as flexibility of job description or role, banding on Agenda for Change or invest to save opportunities blocked obvious solutions. Unless trusts invest in a people plan for the NHS these problems will continue to impede quality improvement. For example, we heard from one team of their proposed solution to a significant shortage of consultant histopathologists involving the introduction of enhanced biomedical scientist roles with the opportunity for career development, additional training and enhanced responsibility. The team were unable to progress this business case for such reasons and the impact on overall morale of the staff was palpable

Pathology – GIRFT Programme National Speciality Report

Source: Getting It Right First Time (GIRFT)

Publication date: September 2021

Using information provided by the RCPATH and the Institute of Biomedical Science (IBMS), we identify challenges in the pathology workforce, and suggest ways to approach these. We especially look at ways to upskill and retrain a variety of staff to take on higher-level work, and create a more diverse and flexible workforce, ready to meet future challenges.

Diagnostics: Recovery and Renewal

Source: NHS England

Publication date: October 2020

See p. 40 The Pathology workforce

5.23 Histopathology has been seriously challenged for several years due to the increasing numbers of samples (e.g. related to bowel and prostate cancer) and increasing complexity of testing. Perinatal pathology services, which are delivered by highly specialist paediatric post mortem centres and involve post

mortems and histopathological examination, are under severe strain due to lack of trained pathologists. Genomic analysis is also increasingly being undertaken on cancer samples. This may necessitate taking of additional biopsies and will result in additional workload for histopathology laboratories.

[Estimating the cost of growing the NHS cancer workforce in England by 2029](#)

Source: Cancer Research UK

Publication date: October 2020

Over the last 50 years, the UK has made significant progress in improving survival outcomes for people diagnosed with cancer. In the 1970s, only 1 in 4 cancer patients would survive their disease for ten years or more. By 2010, this had risen to 2 in 4, and survival outcomes continue to improve.¹ There are several drivers for this, from the introduction of screening programmes and innovative treatments to ongoing improvements to health care pathways – all of which has been underpinned by the continued and tireless efforts of staff from across the NHS. See p. 10-11 The histopathology workforce is forecast to decline. The results of the economic modelling show that achieving a growth of 45 per cent may be more difficult in some professions than others. For example, in clinical and medical oncology, if current trends continue this workforce would only need to grow by a further net addition of 57 staff to meet the 45 per cent growth scenario. However, in diagnostic radiography, an estimated additional 2,591 staff would be needed in addition to the existing trend. The modelling shows that, without any new intervention, the number of histopathologists is expected to reduce by 2 per cent by 2029. Therefore, to meet a 45 per cent growth, the profession would require 580 more staff at a potential maximum cost to HEE of £118 million.

See p. 36 Histopathology

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

Source: Royal College of Pathologists

Publication date: 2018

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.

[Genomics in Histopathology](#)

Source: Genomics Education Programme

Advances in genomics are shaping the field of histopathology in a number of ways. In cancer, genomics is enabling more precise diagnosis, treatment and risk prediction. The work of the histopathologist now regularly includes integrating both morphological and genomic information in order to inform clinical decisions. Genomics is also enabling progress in terms of better sub-typing of cancers and the development of targeted treatments.

The Star for workforce redesign

More resources and tools are available 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

Career Pathways

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

Item Type: Generic

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

Publication Date: 2022

Publication Details: Archives of Pathology and Laboratory Medicine, 146, (7) pp.903-910. , United States: College of American Pathologists.

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.

[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 only*

Item Type: Generic

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

Publication Date: 2019

Publication Details: Journal of Pathology, 249, pp.S22. , Netherlands: 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.apr.virtualpathology.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

[Cellular pathology practice in the era of COVID-19 pandemic-related lockdowns - Experience from a tertiary hospital: A retrospective observational study](#)

Item Type: Generic

Author: Alorjani, Mohammed, Matalka, Ismail, Baker, Shaden

Abu, Al-Khatib, Sohaib, Al Bashir, Samir and Al-Qudah, Mohammad

Publication Date: 2021

Publication Details: Annals of medicine and surgery (2012), 63, pp.102155. , England:

Abstract: BACKGROUND: The COVID-19 pandemic had many implications on healthcare services, including cellular pathology. The pandemic-related lockdown was applied in Jordan from March to May 2020. King Abdullah University Hospital (KAUH) was chosen to provide care for COVID-19 patients during that period. Since there was no experience in dealing with COVID-19 patients, the hospital maintained some essential services but canceled elective surgeries and procedures. The rationale was to prioritize care for COVID-19 patients and to provide better adherence to infection control policies and protect non-infected patients and healthcare workers. The purpose of the present study is to investigate the impact of COVID-19 pandemic restrictions on cellular pathology practice patterns at KAUH., METHODS: This is a retrospective observational study conducted at KAUH. All cellular pathology reports during the 2020 national lockdown were retrieved. The total numbers of specimens including types and procedures were recorded. Data were compared with the corresponding data in 2019 when there was no pandemic and when hospital and laboratory services were run in full capacity., RESULTS: 2020 lockdown period showed a 57.9% reduction in the total number of specimens received at the cellular pathology laboratory as compared to the corresponding period of 2019 (1400 versus 3322). Emergency procedures have represented 99.1% of the service during the lockdown with a remarkable diversity shift., CONCLUSION: There was a significant drop in the number of specimens dealt with at KAUH cellular pathology laboratory during the COVID-19 pandemic-related national lockdown. We learned from this pandemic how to adapt to such circumstances by adjusting our way of working to reach the best level of staff safety while

maintaining highly productive work. Implementing digital pathology platforms, working from home strategies and alternative training methodologies have emerged as an essential need. Copyright © 2021 The Authors.

New ways of working

Consolidation of pathology services in England: have savings been achieved?

Author(s): Satta and Edmonstone

Source: BMC Health Services Research 18(862)

Publication date: 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.

Conference abstract: Auditing the practice of a healthcare scientist in training to report gastrointestinal surgical specimens

See p. 37

Author: Horne, J. and Green, B.

Publication Date: 2016

Publication Details: Journal of Pathology, 240, pp.S37. , Netherlands: John Wiley and Sons Ltd.

Abstract: Purpose of the Study: In 2012, a joint histopathology working group from the Royal College of Pathologists (RCPATH) and Institute of Biomedical Science (IBMS) began a pilot study to train healthcare scientists in the reporting of gastrointestinal (GI) surgical specimens, which in 2015 became a full qualification. The training maps that of medical histopathology trainees, albeit to a much narrower breadth. At the end of stage C, after a minimum of 3 years, trainees sit an exit exam, set and marked at equivalent level to FRCPath part 2. Method(s): During stages A-C, number of patient requests reported, trainee diagnosis, final diagnosis and accuracy of diagnosis was audited. During stages B-C the consequences of any diagnostic errors was also audited. Summary of Results: There was an annual increase in number of patient requests reported, consistent with gained experience and confidence. During each stage diagnostic accuracy increased (82.5% vs 91.4% vs 96.5%) whilst inaccuracy decreased (10.1% vs 3.9% vs 0.7%). There was a decrease in the severity of diagnostic errors made as experience developed (8.5% vs 2.9%). Most errors would have caused no or minimal harm. 9 diagnostic errors would have caused moderate harm. No diagnostic errors causing major harm were made in either stage of training. Conclusion(s): Careful auditing of reporting accuracy

and diagnostic errors is a useful tool for monitoring the progress of histopathology trainees. The decrease in incorrect diagnoses and diagnostic errors by stage C demonstrates the development of this trainee and demonstrates the ability of healthcare scientists to safely report gastrointestinal surgical specimens after a period of appropriate training. Healthcare scientists are a key part of the existing histopathology workforce. This development will allow them to become integrated members of the clinical histopathology team delivering a high quality service to patients.

Staff experiences

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

Autor(s): Brockmoeller et al.

Source: Journal of Clinical Pathology 72 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.

[Current experience and attitudes to biomedical scientist cut-up: results of an online survey of UK consultant histopathologists](#)

Abstract only*

Author(s): Simmons et al.

Source: Journal of Clinical Pathology 64(4)

Publication date: 2011

Aims To assess the current utilisation of biomedical scientist (BMS) surgical specimen cut-up in the UK and attitudes of consultant histopathologists to the practice. Methods Email invitations were sent to all UK consultant histopathologists to participate in an online survey (SurveyMonkey) assessing attitudes to and utilisation of BMS surgical specimen cut-up. Results 463 individual replies were received (35% response rate) from 1320 invitations to participate, covering 181 UK

histopathology departments. A majority of the respondents were either fully in favour of BMS cut-up (52.7%), or in favour but with some reservation (46.2%). Only five respondents (1.1%) were completely opposed to BMS cut-up. 267 (57.7%) respondents reported that their BMS staff loaded biopsies only. 148 (32%) reported BMS cut-up of more complex benign specimens, and 83 (17.9%) reported BMS handling of orientated skin specimens. Only 39 (8.4%) reported that BMS staff in their departments currently cut-up larger cancer resections. Conclusions This survey is representative of current BMS cut-up practice in the UK. The majority of UK consultant histopathologists replying to this survey support BMS cut-up to some degree, but utilisation of BMS cut-up is rather limited and patchy at present. Cost, staffing constraints, perceived quality issues and individual consultant preferences are cited as reasons for limited uptake currently. Recognised benefits of promoting BMS cut-up include better use of consultant time, enhanced team working, BMS job satisfaction and career progression, and better adherence to standard operating procedures.

Technology

[Applications of artificial intelligence in prostate cancer histopathology](#) Abstract only*

Item Type: Generic

Author: Busby, D., Grauer, R., Pandav, K., Khosla, A., Jain, P., Menon, M., Haines, G. K., Cordon-Cardo, C., Gorin, M. A. and Tewari, A. K.

Publication Date: 2023

Publication Details: Urologic Oncology: Seminars and Original Investigations, , United States: Elsevier Inc.

Abstract: The diagnosis of prostate cancer (PCa) depends on the evaluation of core needle biopsies by trained pathologists.

Artificial intelligence (AI) derived models have been created to address the challenges posed by pathologists' increasing

workload, workforce shortages, and variability in histopathology assessment. These models with histopathological parameters integrated into sophisticated neural networks demonstrate remarkable ability to identify, grade, and predict outcomes for PCa. Though the fully autonomous diagnosis of PCa remains elusive, recently published data suggests that AI has begun to serve as an initial screening tool, an assistant in the form of a real-time interactive interface during histological analysis, and as a second read system to detect false negative diagnoses. Our article aims to describe recent advances and future opportunities for AI in PCa histopathology. Copyright © 2022

[Role of digital pathology in diagnostic histopathology in the response to COVID-19: results from a survey of experience in a UK tertiary referral hospital](#)

Author(s): Browning et al.

Source: Journal of Clinical Pathology 74(2) pp. 129-132

Publication date: 2021

The COVID-19 pandemic has challenged our diagnostic services at a time when many histopathology departments already faced a diminishing workforce and increasing workload. Digital pathology (DP) has been hailed as a potential solution to at least some of the challenges faced. We present a survey of pathologists within a UK National Health Service cellular pathology department with access to DP, in which we ascertain the role of DP in clinical services during this current pandemic and explore challenges encountered. This survey indicates an increase in uptake of diagnostic DP during this period, with increased remote access. Half of respondents agreed that DP had facilitated maintenance of diagnostic practice. While challenges have been encountered, these are remediable, and none have impacted on the uptake of DP during this period. We conclude that in our institution, DP has demonstrated current and future potential to increase resilience in diagnostic practice and

have highlighted some of the challenges that need to be considered.

Artificial intelligence in digital pathology: a roadmap to routine use in clinical practice Abstract only*

Item Type: Generic

Author: Colling, Richard, Pitman, Helen, Oien, Karin, Rajpoot, Nasir, Macklin, Philip, Snead, David, Sackville, Tony and Verrill, Clare

Publication Date: 2019

Publication Details: The Journal of pathology, 249, (2) pp.143-150. , England:

Abstract: The use of artificial intelligence will transform clinical practice over the next decade and the early impact of this will likely be the integration of image analysis and machine learning into routine histopathology. In the UK and around the world, a digital revolution is transforming the reporting practice of diagnostic histopathology and this has sparked a proliferation of image analysis software tools. While this is an exciting development that could discover novel predictive clinical information and potentially address international pathology workforce shortages, there is a clear need for a robust and evidence-based framework in which to develop these new tools in a collaborative manner that meets regulatory approval. With these issues in mind, the NCRI Cellular Molecular Pathology (CM-Path) initiative and the British In Vitro Diagnostics Association (BIVDA) have set out a roadmap to help academia, industry, and clinicians develop new software tools to the point of approved clinical use. © 2019 Pathological Society of Great Britain and Ireland. Published by John Wiley & Sons, Ltd. Copyright © 2019 Pathological Society of Great Britain and Ireland. Published by John Wiley & Sons, Ltd.

Workforce

The important role of the histopathologist in clinical trials: challenges and approaches to tackle them Abstract only*

Author(s): Provenzano et al.

Source: Histopathology 76(7)

Publication date: March 2020

High-quality histopathology is essential for the success of clinical trials. Histopathologists have a detailed understanding of tumour biology and mechanisms of disease, as well as practical knowledge of optimal tissue handling and logistical service requirements for study delivery, such as biomarker evaluation, tissue acquisition and turnaround times. As such, histopathologist input is essential throughout every stage of research and clinical trials, from concept development and study design to trial delivery, analysis and dissemination of results. Patient recruitment to trials takes place among all healthcare settings, meaning that histopathologists make an invaluable contribution to clinical trials as part of their routine day-to-day work that often goes unrecognised. More complex evaluation of surgical specimens in the neoadjuvant setting and ever-expanding minimum data sets add to the workload of every histopathologist, not just academic pathologists in tertiary centres. This is occurring against a backdrop of increasing workload pressures and a worldwide shortage of histopathologists and biomedical scientists. Providing essential histopathology support for trials at grassroots level requires funding for adequate resources including histopathologist time, education and training, biomedical scientist and administrative support and greater recognition of the contribution made by histopathology. This paper will discuss the many ways in which histopathologists are involved in clinical trials and the challenges faced in meeting the additional demands posed by trial participation and potential ways to address this, with a special

emphasis on the UK model and the Cellular–Molecular Pathology Initiative (CM-Path).

Realistic technician staffing requirements in a histopathology laboratory via an innovative workload method Abstract only*

Author: Bergamaschi, M. and Coccini, G.

Publication Date: 2011

Publication Details: Pathologica, 103, (1) pp.1-3. , Italy:

Abstract: INTRODUCTION: It is well recognized that efficiency is one of the most important objectives of clinical governance. The correct determination of personnel required plays a central role in health economics. Inadequate staffing of clinical laboratories may compromise quality and throughput, whereas excess staff can uselessly increase costs. This study was undertaken to determine the most reliable and easily applicable method for determination of staffing requirements in a histopathology laboratory., METHODS: Three published methods, namely the weighted workload model, standard time-based and audit benchmarking methods, were compared. The strengths and weaknesses of each method is described with the purpose of identifying the best approach., RESULTS: There are only three relevant published methods, and even these are not appropriate for current requirements. In particular, they may be based on data that is not readily available (calculation of standard time) or may use outdated patterns (using weighted workload) or nonstatistical benchmarks. Although benchmarking was widely used in U.S. even in a period of a crisis in this area in the late 1990s, its major flaw consists of excluding the most influential variables., DISCUSSION: In summary, we tried to formulate a new method based on organizational activities and their categorization into sub-activities, each of which contributes to the calculation of the total time required to perform all activities and accurately determine the number of technicians required.

Staffing benchmarks for histology laboratories

Author(s): René J. Buesa

Source: Annals of Diagnostic Pathology 14(3)

Publication date: June 2010

This article summarizes annual workloads for staff positions and work flow productivity (WFP) values from 247 human pathology, 31 veterinary, and 35 forensic histology laboratories (histolabs). There are single summaries for veterinary and forensic histolabs, but the data from human pathology are divided into 2 groups because of statistically significant differences between those from Spain and 6 Hispano American countries (SpHA) and the rest from the United States and 17 other countries. The differences reflect the way the work is organized, but the histotechnicians and histotechnologists (histotechs) from SpHA have the same task productivity levels as those from any other country (Buesa RJ. Productivity standards for histology laboratories. [YADPA 50 552]). The information is also segregated by groups of histolabs with increasing workloads; this aspect also showed statistical differences. The information from human pathology histolabs other than those from SpHA were used to calculate staffing annual benchmarks for [pathologists](#) (from 3700 to 6500 cases depending on the histolab annual workload), pathology assistants (20 000 cases), staff histotechs (9900 blocks), cutting histotechs (15 000 blocks), histotechs doing special procedures (9500 slides if done manually or 15 000 slides with autostainers), dieners (100 autopsies), laboratory aides and transcriptionists (15 000 cases each), and secretaries (20 000 cases). There are also recommendations about workload limits for supervisory staff (lead techs and supervisors) and when neither is required. Each benchmark was related with the productivity of the different tasks they include (Buesa RJ. Productivity standards for histology laboratories. [YADPA 50 552]) to calculate the hours per year required to complete them. The relationship between workload

and benchmarks allows the director of pathology to determine the staff needed for the efficient operation of the histolab.

Competency Frameworks

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.

*Help accessing articles or papers

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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