

Evidence Brief: Healthcare Science

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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: Healthcare Science

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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](#)

Healthcare science covers a broad range of topics and professions. There are also more detailed [evidence briefs](#) on the following topics:

- Cancer
- Cancer diagnostics
- Echocardiography
- Genomics
- Haematology
- Imaging and Radiology
- Genomics
- Pharmacogenomics
- Ophthalmology

Key publications – the big picture

[Topol Review: Progress on the recommendations](#)

Source: Health Education England

Publication date: February 2023

Published in 2019, the Topol Review presented a compelling vision for preparing the healthcare workforce to deliver the digital future, where technology can help address the big healthcare challenges, through augmenting the workforce, driving productivity, and ultimately releasing more time to care for patients. The COVID-19 pandemic accelerated changes in the way care was delivered beyond our expectations, transcending digital transformation to become a top priority for NHS policy makers and leaders, demonstrated at the peak of the pandemic where 70% General Practitioner consultations took place either online or by telephone, compared to 30% consultations prior to the pandemic (Royal College of GPs, 2021). This has presented both opportunities and challenges for delivering the digital future in the context of the Topol Review recommendations.

[Healthcare science – education and training provision: baseline review](#)

Source: Scottish Government

Publication date: October 2022

This baseline review explores healthcare science education in Scotland to better understand this landscape. It has resulted in 6 key themes which will inform the national workforce strategy for health and social care in Scotland commitment to undertake a HCS Education scoping review.

[Radiotherapy workforce census Summary Report 2021](#)

Source: Institute of Physics and Engineering in Medicine

Publication date: June 2022

The aim of this report is to show how the current Radiotherapy workforce is coping terms of staffing levels, including establishment, vacancies and age profiles.

The census data shows that the Radiotherapy workforce is currently managing to provide an adequate service, however it had little to no provision for training and service development. It is often struggling to recruit technologists, especially in engineering and many responses reported experiencing difficulty in finding maternity and sick cover, leaving services strained.

[Return to practice for healthcare professionals](#)

Source: NHS Employers

Publication date: 13th May 2022

Information and resources on return to practice for healthcare professionals, practising psychologists and healthcare scientists.

[Report on the 2021 survey of the Diagnostic Radiology and Radiation Protections Workforce](#)

Source: Institute of Physics and Engineering in Medicine

Publication date: April 2022

This data is compiled from IPEM's Diagnostic Radiology and Radiation Protection Survey 2021, carried out in March 2021 with a capture date of 26th March. An invitation to respond was sent to all heads of Diagnostic Radiology and Radiation Protection (DR&RP) services in the UK, including NHS (58 services) and Independent providers (6 services).

[T Levels in health and healthcare science report: successful industry placement models in action](#)

Authors: Miller, Julie

Source: Northern Care Alliance NHS FT

Publication Date: 2022

Abstract: The report commissioned by the Gatsby Charitable Foundation, brings together case study models for placement management, developed to suit the requirements of NHS

institutions working with their local T Level providers. These models range from individual agreements between a single T Level provider and an NHS organisation, through to Integrated Care System agreements between 25 or more partner organisations. While the report focuses on placements for health and healthcare science opportunities, the models may be applied across roles in the NHS, such as digital, business, administration and finance. The report also contains advice from current industry placement hosts on common placement queries and highlights the support available to employers. The report is designed to help employers implement successful T Level industry placements, build future talent in support of the NHS Long Term Plan and meet NHS workforce needs.

[The radiologist and nuclear medicine Third edition](#)

Source: The Royal College of Radiologist

Publication date: 2022

This document addresses the specific issues related to radiologists working in a nuclear medicine environment.

The purpose of this document is to guide Fellows and members of The Royal College of Radiologists (RCR), clinical and medical directors and regional specialty advisers in job planning and at appointment committees.

[Pathology Getting It Right First Time](#)

Source: GIRFT

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

[Radiology Getting It Right First Time](#)

Source: GIRFT

Publication date: November 2020

Recent years have seen a consistent, ongoing growth in demand for radiology services. In 2012/13, there were just over 35 million radiological examinations performed across the NHS in England. By 2018/19, that had risen to over 43 million. The fastest growth has been in the more complex modalities – MRI and CT. In April 2012, there were 250,000 CT scans undertaken a month; by March 2019, this had doubled. For MRI, the increase over the same period was from around 170,000 a month to 320,000.

There seems little doubt that this pattern of growth will continue. Radiology is being used earlier and more extensively in the diagnostic pathway. It is at the heart of a growing number of screening programmes and health checks. At the same time, the use of interventional radiology is soaring, offering incredibly precise and minimally invasive surgery.

See section 2 "Maximising capacity"

[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 also supplementary information pack](#)

[Genome UK: the future of healthcare](#)

Source: GovUK

Publication date: September 2020

Strategy setting out the vision to extend the UK's leadership in genomic healthcare and research.

[The role of the Haematology/ transfusion consultant scientist in the delivery of clinical and laboratory haematology services: an education and training solution and a workforce solution](#)

Source: National School of Healthcare Haematology Working group

Publication date: September 2020

Haematology is a diverse and complex clinical and laboratory specialism comprising a wide range of multi-professional roles and expertise. The report aims to identify 'service gaps' that medically qualified consultant haematologists have been unable to fulfil because of recruitment issues, gaps in specialist expertise issues or workload pressures. The report has been researched and written by a 'task and finish group' of scientifically and medically qualified haematologists (a sub-group of the Haematology Workforce Working Group of the National School for Healthcare Science (NSHCS) in Health Education England (HEE)). It forms part of a larger report to be presented

to the joint NHSEI and HEE's Pathology subgroup which is part of the larger diagnostic group in HEE/NHSEandI.

[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.

[The Topol Review: Preparing the healthcare workforce to deliver the digital future](#)

Source: NHS

Publication date: February 2019

The Topol Review outlined recommendations to ensure the NHS is the world leader in using digital technologies to benefit patients. It will involve implementing technologies such as genomics, digital medicine, artificial intelligence and robotics at a faster pace and on a greater scale than anywhere else in the world.

[The 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.

[Healthcare science in NHS Wales: Looking Forward](#)

Source: NHS Wales

Publication date: 2018

Healthcare science represents a broad range of professions that act within the health arena. The health service is a continuum from public health, through primary to secondary and tertiary care. This reflects the journey that we will each travel in our lives from good health to poor health; from self-management, presentation, assessment, diagnosis, treatment to recovery – healthcare science plays an important role for patients in each of these phases. Whether patient facing, within the laboratory or other setting healthcare scientists play an integral role in determining and providing care. Healthcare science professions represent a rich and diverse group of over 50 disciplines. The profession continues to evolve in response to emerging innovations through new scientific techniques and discoveries, and as new care pathways and service models are developed and commissioned. Healthcare scientists have a significant role to play in introducing bold new models of seamless care, harnessing innovation using evidence to drive redesign and increasing value for patients and the wider system. Healthcare scientists have a significant role in leading, defining, designing, developing and delivering multi-professional collaborative high quality applied research in the NHS. As expert practitioners, healthcare scientists contribute to the education and training of other healthcare professionals, adding to the knowledge base and understanding of the NHS workforce facilitating improved care and better outcomes for patients and better value from NHS resources. The healthcare scientist of the future will undoubtedly have a more influential role and continue to make an ever-

increasing contribution to all aspects of healthcare planning and delivery in NHS Wales.

[Histopathology workforce survey 2018](#)

Source: Royal College of Pathologists

Publication date: 2018

A UK-wide survey of histopathologists was conducted in 2017, to provide the College with a comprehensive a picture of Britain's pathology workforce.

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.

[Cancer and diagnostics](#)

Source: Health Education England

The Cancer and Diagnostics programme exists to support the implementation of national cancer strategies and HEE's Cancer Workforce Plan.

Case Studies

[Extended phlebotomy service](#)

Source: CQC

Publication date: April 2022

Leeds Teaching Hospitals NHS Trust (LTHT) has five hospital sites. Every week the phlebotomy team sees an average of 10,000 patients across those sites.

[Radiography skill mix to increase imaging capacity and capability](#)

Source: CQC

Publication date: April 2022

Mid Yorkshire Hospitals is a large multicentre acute NHS trust. It provides a full range of secondary care services, and tertiary burns and spinal injuries rehabilitation services.

The driver for change was increased imaging referrals, particularly in CT and MRI. This, combined with a drive to decrease waiting times, placed pressure on the radiology department. To develop new pathways and utilise roles effectively the trust needed a different way of staffing the department.

[Providing a consultant radiographer to a breast imaging services](#)

Source: CQC

Publication date: April 2022

Shrewsbury and Telford Hospital NHS Trust had a shortage of radiologists. This was causing problems to the way breast imaging services were delivered.

[Piloting industry style placements: Yeovil District Hospital NHS Foundation Trust](#)

Source: NHS Employers

Publication date: 4th October 2021

Yeovil District Hospital NHS Foundation Trust (YDH) worked in partnership with its local college, Yeovil college, to pilot industry placements with BTEC health and care students. These industry placements gave local students an opportunity to experience working in a healthcare setting for an extended period of time (45 days). This meant that they were able to see and understand a healthcare setting, become part of a team and gain valuable experience in the NHS.

[Delivering clinical T Level industry placements: Frimley Health NHS Foundation Trust](#)

Source: NHS Employers

Publication date: 13th January 2021

Find out how Frimley Health NHS Foundation Trust piloted T Level industry placements in a range of clinical settings.

[Healthcare science case studies](#)

Source: National School of Healthcare Science - Health Education England

- [Diagnostic Radiology and Radiation Protection Physics](#)
- [Cardiac Science](#)
- [Medical Device Risk Management](#)
- [Biomedical Science](#)
- [Biomedical Science](#)
- [Anatomical Pathology](#)
- [Clinical Fellow](#)

[STP case studies](#)

Source: National School of Healthcare Science - Health Education England

[PTP case studies](#)

Source: National School of Healthcare Science - Health Education England

[HSST case studies](#)

Source: National School of Healthcare Science - Health Education England

[Apprenticeship case studies](#)

Source: National School of Healthcare Science - Health Education England

[NHS Staff Case Studies](#)

Source: Academy for Healthcare Science

We are delighted to share with you some staff case studies shared by the Office of the Chief Scientific Officer.

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**”

Include any other useful relevant sources to statistics

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

[Role extension in advanced ultrasound practice: A framework approach and case study](#)

Item Type: Generic

Author: Reeve, R., Higginson, A., Ball, C., Beable, R. and Smith, M.

Publication Date: 2023

Publication Details: Ultrasound, 31, (1) pp.4-10. , United Kingdom: SAGE Publications Ltd.

Abstract: Introduction: Role extension into novel areas of ultrasound practice can be challenging for health care

professionals. Expansion into existing areas of advanced practice typically occurs using established processes and accredited training; however, in areas where there is no formal training, there can be a lack of support for how to develop new and progressive clinical roles. Topic Description: This article presents how the use of a framework approach for establishing areas of advanced practice can support individuals and departments with safely and successfully developing new roles in ultrasound. The authors illustrate this via the example of a gastrointestinal ultrasound role, developed in an NHS department. Discussion(s): The framework approach comprises three elements, each interdependent upon and inform each other: (A) Scope of practice, (B) Education and competency and (C) Governance. (A) Defines (and communicates) the role extension and area(s) of subsequent ultrasound imaging, interpretation and reporting. By identifying the why, how and what is required this informs (B) the education and assessment of competency for those taking on new roles or areas of expertise. (C) Is informed by (A) and is an ongoing process of quality assurance to safeguard high standards in clinical care. In supporting role extension, this approach can facilitate new workforce configurations, skill expansion and enable increasing service demands to be met. Summary: By defining and aligning the components of scope of practice, education/competency and governance, role development in ultrasound can be initiated and sustained. Role extension utilising this approach brings benefits for patients, clinicians and departments. Copyright © The Author(s) 2022.

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

Item Type: Generic

Author: Campbell, Brian, Robinson, Shaun and Rana, Bushra

Publication Date: 2019

Publication Details: Echo research and practice, 6, (4) pp.R99-R105. , England:

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.

[Developing radiographer roles in the context of advanced and consultant practice](#)

Item Type: Generic

Author: Field, L. J. and Snaith, B. A.

Publication Date: 2013

Publication Details: Journal of Medical Radiation Sciences, 60,

(1) pp.11-15. , United Kingdom: Blackwell Publishing Ltd (E-mail: customerservices@oxonblackwellpublishing.com).

Abstract: Skill-mix initiatives have provided opportunities for radiographers to develop roles and achieve their potential, thus contributing to radiographer retention rates and increased job satisfaction. This reflective article explores two radiographic roles within an interprofessional context including the implications for confidence, competence, and future sustainability. These were reporting roles which extended into two modalities, one into bone densitometry and another into ultrasound. This article discusses how successful skill mix can benefit the individual, their department, and NHS organization and that role expansion can develop a more dynamic and resourceful workforce with transferability of skills and attributes. © 2013 The Authors. Journal of Medical Radiation Sciences published by Wiley Publishing Asia Pty Ltd on behalf of Australian Institute of Radiography and New Zealand Institute of Medical Radiation Technology.

Capacity

[Ultrasound clinical teaching capacity in England: A scoping exercise](#)

Item Type: Generic

Author: Harrison, G. and Beardmore, C.

Publication Date: 2020

Publication Details: Radiography (London, England : 1995), 26, (1) pp.3-8. , Netherlands:

Abstract: INTRODUCTION: The United Kingdom has a sonographer shortage. Health Education England are working with stakeholders to address these shortages and increase clinical capacity for sonographer education. The aims of this survey were to ascertain current sonographer staffing levels, estimate staffing requirements in five years' time and review current clinical placement capacity., METHODS: An on-line

survey was used to explore the aims of the study. Questions included current and predicted sonographer staffing requirements and clinical capacity for teaching ultrasound. Free text comments were available for expanding on responses., RESULTS: Of 72 completed responses the mean sonographer vacancy rate was 2.65 and the predicted number of sonographers needed to provide the service in five years was 4.6. Departments were teaching an average of two sonographers and 2 non-sonographers. A small number of departments had further capacity for sonography student training which was not being utilised for reasons including limited capacity, inadequate staffing levels or competing demands of teaching other health care professionals. Extended working days and weekend training lists were used to increase capacity, along with rolling programmes for teaching sonographers and the use of simulation., CONCLUSION: The survey supported previous publications that have shown sonographer shortages in England and this is predicted to increase over the next five years. Departments were teaching a similar number of sonographers as other health care professionals. Many experienced competing demands, which challenged their ability to increase clinical capacity., IMPLICATIONS FOR PRACTICE: Suggestions for increasing capacity are provided to help grow the sonography workforce. With the advent of new sonography programmes the departments with spare capacity could be utilised to support clinical practice for sonography students in need of a placement on a direct entry programme. Copyright © 2019 The College of Radiographers. Published by Elsevier Ltd. All rights reserved.

[Staffing in hospital transfusion laboratories: UKTLC surveys show cause for concern](#) Abstract only*

Item Type: Generic

Author: Bolton-Maggs, P., Mistry, H., Glencross, H. and Rook, R.

Publication Date: 2019

Publication Details: Transfusion medicine (Oxford, England), 29, (2) pp.95-102. , England:

Abstract: OBJECTIVES: To monitor minimum standards in hospital transfusion laboratories in relation to qualifications, training, competency and the use of information technology over time against published recommendations., BACKGROUND: The United Kingdom Transfusion Laboratory Collaborative was formed in 2006 with representatives from relevant organisations and has published standards for transfusion laboratory practice. The standards are set to ensure safe transfusion laboratory practice. Regular surveys are performed to see the extent to which laboratories are able to meet these standards and where any problems lie., METHODS: An electronic survey is sent to hospital transfusion laboratories on a single mid-week day in the spring and is repeated every 2 years from 2011, to be completed by the lead in transfusion for the day. The questions cover staffing, training, funding and workload., RESULTS: Transfusion laboratories are having difficulty with staffing, particularly recruitment of suitably trained biomedical scientists, and with funding and time for training and education. Laboratory errors reported to the Serious Hazards of Transfusion haemovigilance scheme (SHOT) have not decreased with time, related to the under-resourced workforce., CONCLUSION: Problems in laboratory staffing and expertise in hospital transfusion laboratories need to be urgently addressed. The transfusion laboratory provides a key service to hospitals. The Blood Services in England and Wales are developing supportive strategies. Copyright © 2019 British Blood Transfusion Society.

[Personnel flux and workplace anxiety: Personal and interpersonal consequences of understaffing in UK ultrasound departments](#)

Item Type: Generic

Author: Miller, P. K., Waring, L., Bolton, G. C. and Sloane, C.

Publication Date: 2019

Publication Details: Radiography (London, England : 1995), 25, (1) pp.46-50. , Netherlands:
Abstract: INTRODUCTION: By 2013, the UK government's Migration Advisory Committee had determined sonography to be a formal shortage speciality, and understaffing remains a key concern for research in the domain. This paper, emergent of a qualitative study funded by Health Education North West, explores unit managers' perspectives on the present state of UK ultrasound. The focus herein falls upon the personal and interpersonal consequences of this circumstance for individuals working in specific understaffed departments., METHODS: A thematic analysis informed by a Straussian model of Grounded Theory was utilised; N = 20 extended accounts provided by ultrasound department leads in public (n = 18) and private (n = 2) units were collected and analysed accordingly., RESULTS: The global themes addressed herein describe (a) how both inter-departmental movement of senior sonographers and early retirement, within a nationally understaffed picture, impacts upon local knowledge economies, and (b) how such staffing instabilities can undermine the day-to-day confidence of managerial staff and practicing sonographers alike., CONCLUSIONS: It is personnel flux, rather than simple short-staffing, that is reported to cause the greatest social-psychological problems for both managers and sonographers. The issues raised herein require further examination from the perspective of sonographers themselves, in order to corroborate the views of the managers interviewed. Copyright © 2018 The College of Radiographers. Published by Elsevier Ltd. All rights reserved

[Optimising diagnostics through imaging informatics: costs and opportunities](#)

Item Type: Journal Article

Authors: Culpan, Gary and McIntosh, Bryan

Publication Date: 2017

Journal: British Journal of Healthcare Management 23(4), pp. 146-149

Abstract: Increasing diagnostic capacity is a national priority to expedite the timeliness and appropriateness of patient treatment interventions. Imaging-encompassing a range of technologies including X-ray, CT, MRI, nuclear medicine and ultrasound-is a key diagnostic service and central to decision-making in most, if not all, disease pathways. However, imaging is an expensive discipline accounting for an estimated 3-5 per cent of the annual NHS budget. As a result, it is imperative that we maximise service efficiency while optimising patient outcomes. Introduction]

Career Pathways

[A study to investigate undergraduate diagnostic radiographer preferences and expectations of clinical role development: Quantitative findings](#) Abstract only*

Item Type: Generic

Author: Manning-Stanley, A. and Kirby, M.

Publication Date: 2022

Publication Details: Radiography (London, England : 1995), 28, (2) pp.319-324. , Netherlands:

Abstract: INTRODUCTION: Whilst United Kingdom (UK) student ambitions for role development have been surveyed previously, no literature has explored their specialisation preferences. This study aimed to explore these ambitions and preferences in final year diagnostic radiography undergraduates at a Higher-Education Institute (HEI) in the North-West of England., METHODS: University ethical approval was granted for a survey-based study. A questionnaire consisting of 4 closed questions and 6 open questions was distributed in paper format after a taught session. Responses were collated and summarised in Excel (descriptive statistics), and transferred into SPSS (inferential statistics)., RESULTS: The response rate was 75.6%

(n = 34/45). Respondents were predominantly female (73.5%), had A-level as their highest qualification (79.4%) and were of 'school-leaver' age (76.5%) at the start of the degree. By overall total, preferences were for reporting (n = 24/101; 23.8%), computed tomography (CT) (n = 20/101; 19.8%) and MRI/ultrasound (both 12/101; 12.5%). CT had more first choices (n = 8) than reporting (n = 7). 73.5% anticipated specialising in less than 2 years, and 100% within 4 years., CONCLUSION: Other than a larger percentage having A-level as their highest qualification, the participant demographics were similar to the UK radiography workforce. Reporting, CT, MRI and ultrasound are the specialisation preferences of final year undergraduate diagnostic radiography students. Expectations for the timeline of role development were slightly more ambitious than previously found., IMPLICATIONS FOR PRACTICE: Identification of reporting as the preferred area of specialisation is a novel finding in the context of UK HEIs. Harnessing this ambition will help meet the goals of successive government policy. Ensuring the ambitions of graduate diagnostic radiographers can be satisfied has clear implications for staff retention within the NHS. Copyright © 2021 The College of Radiographers. Published by Elsevier Ltd. All rights reserved.

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

Item Type: Generic

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

Publication Date: 2021

Publication Details: BMC health services research, 21, (1) pp.1059. , England:

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 0-3 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 (0-3 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. Copyright © 2021. The Author(s).

[Improving support for young biomedical scientists](#) Abstract only*

Item Type: Generic

Author: Alberts, Bruce, Hyman, Tony, Pickett, Christopher L., Tilghman, Shirley and Varmus, Harold

Publication Date: 2018

Publication Details: Science (New York, N.Y.), 360, (6390)

pp.716-718. , United States:

ISSN/ISBN: 1095-9203

Over the past several years, we and others in the biomedical research community have become increasingly concerned that younger scientists are not being adequately supported as independent academic investigators and that, of equal importance, these newly launched investigators are being strongly discouraged from tackling novel scientific problems (1–6). Both issues can prevent talented trainees from aspiring to careers in biomedical research, despite the extraordinary opportunities offered by new technologies and recent discoveries. We view this situation as an existential threat to our profession, demanding that we urgently confront the underlying problems. It is widely recognized that career pathways for young scientists have changed dramatically and that over 80% of those who receive biomedical Ph.D.'s today will be employed in positions other than academic faculty (1, 5). The U.S. National Academies of Sciences, Engineering, and Medicine recently released a report that addresses many important aspects of these cultural changes (7). Here we focus on the problems faced by those who will renew the ranks of academic research faculty, with proposals that complement the recommendations in that report. Drawing on lessons from Europe and the United States, we propose three steps that could be taken by funding agencies, specifically the U.S. National Institutes of Health (NIH) but also

others across the world, to support young investigators in more constructive and effective ways.

Covid-19

["It has been the most difficult time in my career": A qualitative exploration of UK obstetric sonographers' experiences during the COVID-19 pandemic](#)

Item Type: Generic

Author: Skelton, E., Smith, A., Harrison, G., Rutherford, M., Ayers, S. and Malamateniou, C.

Publication Date: 2023

Publication Details: Radiography (London, England : 1995), 29, (3) pp.582-589. , Netherlands:

Abstract: INTRODUCTION: Substantial changes were made to the provision of pregnancy ultrasound services during the COVID-19 pandemic with the intention of minimising virus transmission and maintaining service continuity. Published literature describing the impact of the pandemic on obstetric sonographers is predominantly quantitative in nature, however statistics cannot fully convey sonographers' voices. This study aimed to gain a deeper understanding of the lived experiences of UK obstetric sonographers performing pregnancy ultrasound scans during the pandemic., METHODS: A UK-wide, online, anonymous cross-sectional survey on Qualtrics XM TM was open to responses between 9th March and 6th May 2021. Whilst this survey contained some quantitative elements, open questions were included to capture additional qualitative detail from respondents about their perceptions and experiences of scanning during the pandemic. Key themes were generated from free text responses using thematic analysis., RESULTS: Written responses were received from 111/138 sonographers participating in the survey. Five themes were generated, depicting the impact of the pandemic on obstetric sonographers: 1) continuity in a crisis; 2) decisions about me, without me; 3)

battle scars - the lasting damage of COVID-19; 4) what people think I do vs. what I really do; and 5) the human touch. A cross-cutting theme was sonographers' feelings of disconnection from senior figures and expectant parents which created a sense of abandonment and distrust., CONCLUSION: Survey respondents' self-reported experiences of ineffective leadership and management, and perceived lack of understanding of the complexity of the sonographer role are potential contributory factors in the high levels of moral injury and occupational burnout reported within the workforce during the pandemic. Copyright © 2023 The Author(s). Published by Elsevier Ltd.. All rights reserved.

[Participatory peer research exploring the experience of learning during Covid-19 for allied health and healthcare science students](#)

Item Type: Generic

Author: Daly Lynn, J., Ramsey, L., Marley, J., Rohde, J., McGuigan, T. -M, Reaney, A., O'Neill, B., Jones, A., Kerr, D., Hughes, C. and McFadden, S.

Publication Date: 2022

Publication Details: PLoS ONE, 17, (10) pp.e0276180. , United States: Public Library of Science.

Abstract: Introduction The teaching and learning experience of allied health and healthcare science students has altered because of the Covid-19 pandemic. Limited research has explored the experience on the future healthcare workforce using participatory research design. The aim of this study was to explore the impact of a global pandemic on the clinical and academic experiences of healthcare student using a co-production approach with student peer researchers. Methods A participatory research approach adopting online focus groups facilitated by students trained as peer researchers was adopted. First, second and final year students from occupational therapy, physiotherapy, podiatry, healthcare science, diagnostic radiography and imaging, radiotherapy and oncology, and

speech and language therapy were recruited to six focus groups. Data generated through focus groups were analysed thematically using the DEPICT model to support a partnership approach. Results Twenty-three participants took part in six focus groups. The themes identified were: rapid changes to learning; living alongside Covid-19 and psychological impact. Students preferred blended learning approaches when available, as reduced peer interaction, studying and sleeping in the same space, and technology fatigue decreased motivation. Conclusion Due to rapid changes in learning and the stress, anxiety and isolation created by the pandemic, managing study, personal life and placement resulted in a gap in confidence in clinical skills development for students. Students took their professional identity seriously, engaged in behaviours to reduce transmission of Covid-19 and employed a range of coping strategies to protect wellbeing. A challenge with the move to online delivery was the absence of informal peer learning and students indicated that moving forward they would value a hybrid approach to delivery. Higher Education should capitalise on innovative learning experiences developed during the pandemic however it is important to research the impact this has on student skill acquisition and learning experience. Copyright © 2022 Daly Lynn et al. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

[The impact of the COVID-19 pandemic on clinical guidance and risk assessments, and the importance of effective leadership to support UK obstetric sonographers](#)

Item Type: Generic

Author: Skelton, Emily, Malamateniou, Christina and Harrison, Gill

Publication Date: 2022

Publication Details: Journal of medical imaging and radiation sciences, 53, (4) pp.S107-S115. , United States:
Abstract: INTRODUCTION: The COVID-19 pandemic had a profound impact on the provision of obstetric ultrasound services, leading to the publication of new guidance and requirement for individual departmental risk assessments in the UK. The impact of these changes on clinical practice for UK obstetric sonographers is not currently well reported in published literature., METHODS: Obstetric sonographers working in the UK (n = 138) used the Qualtrics XMTM platform to complete an anonymous, online questionnaire about their experiences during the pandemic. Participants responded to closed-type questions about national guidance, risk assessment and their perception of support, and provided additional detail about their experiences in these areas through free-text response options., RESULTS: Over 90% of respondents were aware of or had read guidance issued by professional organisations, although challenges for its implementation in departments were identified. These were commonly related to the clinical working environment and included limitations on physical space (76.3%), time constraints (67.5%) and ventilation (61.3%). Sonographers felt most supported by their ultrasound colleagues (83.5%) and line managers (41.2%). They felt least supported by senior management and leadership personnel (60.8%), other antenatal colleagues (51.5%) and professional organisations (41.2%)., CONCLUSION: Obstetric sonographers will need support from the wider service team and professional organisations to facilitate post-pandemic recovery of the workforce. Formal clinical supervision programmes may be beneficial in facilitating a more holistic approach to peer-support, although there is currently limited evidence of their use in sonographic practice. Copyright © 2022. Published by Elsevier Inc.

[Impact of COVID-19 on nuclear medicine in the UK](#) Abstract only*

Item Type: Generic

Author: Dizdarevic, Sabina, Abdulla, Mahdi, Sewedy, Taha, Weston, Charlotte, Oxley, Caroline, Croasdale, Jilly, Redman, Stewart, Vinjamuri, Sobhan, Mayes, Christopher, Flux, Glen, Ward, Mike, Graham, Richard and Buscombe, John

Publication Date: 2021

Publication Details: Nuclear medicine communications, 42, (2) pp.138-149. , England:

Abstract: PURPOSE: COVID-19 brought about unprecedented challenges to healthcare, with nuclear medicine (NM) being no exception. The British Nuclear Medicine Society (BNMS) COVID-19 survey assessed the impact of the first wave of pandemic on NM services in the UK. With COVID-19 resurge compounded by seasonal winter pressures, we reflect and share lessons learnt from the first wave of pandemic to guide future strategy., METHODS: A questionnaire consisting of 34 questions was sent out to all BNMS members over 2 weeks in May 2020, to evaluate the impact of 'lockdown', RESULTS: One hundred thirty-eight members (92 sites) from a multidisciplinary background responded. There was a 65% reduction across all services; 97.6% of respondents reported some reduction in diagnostic procedures and 71.3% reduction in therapies; 85% worked with a reduced workforce. The North East of England, Greater London and South East and Wessex were most affected by staff absences. The North East reported the highest number of COVID-19 positive staff; London reported the greatest lack of testing. The reported time required to clear the backlog was 1-12 months. Seventy-one percent of participants used BNMS COVID-19 guidance., CONCLUSION: The first wave caused a major disruption of NM service delivery and impacted on the workforce. The departmental strategies should tailor services to evolving local and regional differences in prevalence of COVID-19. A blanket shutdown of services with a 'one size fits all' strategy would likely have a severe impact on future delivery of NM and health services in general. Timely testing of staff and

patients remains of paramount importance. Copyright © 2020 Wolters Kluwer Health, Inc. All rights reserved.

Diversity, Inclusion and Participation

[Career self-efficacy disparities in underrepresented biomedical scientist trainees](#)

Item Type: Generic

Author: Chatterjee, Deepshikha, Jacob, Gabrielle A., Varvayanis, Susi Sturzenegger, Wefes, Inge, Chalkley, Roger, Nogueira, Ana T., Fuhrmann, Cynthia N., Varadarajan, Janani, Hubbard, Nisaan M., Gaines, Christiann H., Layton, Rebekah L. and Chaudhary, Sunita

Publication Date: 2023

Publication Details: PloS one, 18, (3) pp.e0280608. , United States:

Abstract: The present study examines racial, ethnic, and gender disparities in career self-efficacy amongst 6077 US citizens and US naturalized graduate and postdoctoral trainees. Respondents from biomedical fields completed surveys administered by the National Institutes of Health Broadening Experiences in Scientific Training (NIH BEST) programs across 17 US institutional sites. Graduate and postdoctoral demographic and survey response data were examined to evaluate the impact of intersectional identities on trainee career self-efficacy. The study hypothesized that race, ethnicity and gender, and the relations between these identities, would impact trainee career self-efficacy. The analysis demonstrated that racial and ethnic group, gender, specific career interests (academic principal investigator vs. other careers), and seniority (junior vs. senior trainee level) were, to various degrees, all associated with trainee career self-efficacy and the effects were consistent across graduate and postdoctoral respondents. Implications for differing levels of self-efficacy are discussed, including factors and events during training that may contribute to (or undermine) career self-

efficacy. The importance of mentorship for building research and career self-efficacy of trainees is discussed, especially with respect to those identifying as women and belonging to racial/ethnic populations underrepresented in biomedical sciences. The results underscore the need for change in the biomedical academic research community in order to retain a diverse biomedical workforce. Copyright: © 2023 Chatterjee et al. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Education and Training

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

Item Type: Generic

Author: Pearse, Claudia and Scott, Sheri

Publication Date: 2023

Publication Details: British journal of biomedical science, 80, pp.11266. , Switzerland:

Abstract: 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. Copyright © 2023 Pearse and Scott.

[Snapshot of ultrasound imaging in basic anatomy and physiology teaching in the United Kingdom and Republic of Ireland: perceptions, obstacles, and solutions](#)

Item Type: Generic

Author: Graham, Emma C., Sweeney, Eva M. and Johnson, Christopher D.

Publication Date: 2022

Publication Details: Advances in Physiology Education, 46, (4) pp.630-636. , United States:

Abstract: We have used ultrasound imaging and technology as a tool for nonclinical teaching of basic physiological concepts for several years and are aware anecdotally that only a few others in the United Kingdom and Republic of Ireland (UK/ROI) are also using ultrasound with this intention in physiology and anatomy teaching. To better understand what areas ultrasound is used for by others, along with what barriers might exist to its use, we reached out to colleagues in UK/ROI institutions instructing on

anatomy and physiology courses by asking them to complete a survey regarding their experiences. Relatively few institutions (9%) reported using the technology in this way but covered physiology and anatomy teaching in most major body systems. The perception of responding educators overall is that, overwhelmingly, ultrasound offers a useful addition to the teaching of physiology and anatomy and is very popular with students. Barriers to its implementation were identified, including unfamiliarity with equipment and potential uses. Lack of funding for equipment and staff, issues with class sizes, and lack of curriculum time were also identified. Despite these potential impediments, most nonusers were interested in finding out about the uses of ultrasound as a teaching tool. We conclude that the teaching community would benefit from wider dissemination of local practices. NEW & NOTEWORTHY We surveyed UK and Republic of Ireland institutions to establish the extent of ultrasound use in teaching undergraduate modules with significant anatomy or physiology content. Responses indicate that although ultrasound is used for a wide variety of systems, only a small proportion of courses use ultrasound for teaching. There is widespread interest in its use, with the main barriers being unfamiliarity with potential uses and the technology. We endorse further dissemination of this teaching practice.

[What is the scope of teaching and training of undergraduate students and trainees in point of care testing in United Kingdom universities and hospital laboratories?](#)

Item Type: Generic

Author: Peters, Lee, Sergio Da Silva, Ana and Newton, Philip Mark

Publication Date: 2022

Publication Details: PLoS one, 17, (8) pp.e0268506. , United States:

Abstract: Point of care testing (POCT) is an analytical test performed by a healthcare professional outside of a conventional

laboratory. The global POCT market was valued at US\$ 23.16 billion in 2016 and is forecasted to grow to US\$ 36.96 billion in 2021. This upward trend for POCT has increased workload for pathology departments who manage POCT. This research aims to characterize and analyse the teaching and training of POCT at United Kingdom (UK) universities on Institute of Biomedical Science (IBMS) accredited biomedical science degrees, and at UK hospital laboratories. A freedom of information (FOI) request was sent in 2018 to all 52 UK universities with an accredited IBMS Biomedical science degree to request information on teaching of POCT, with a 100% response rate. Further FOI requests were sent to all National Health Service (NHS) hospital pathology departments in the UK, regarding POCT training provided to trainee Biomedical scientists, with a 97% response rate. Twelve of the degrees contained no POCT teaching, with a further 9 having no specific POCT teaching. Sixty-six laboratories confirmed that there was no POCT training. The university teaching hours varied between 0 and 35 hours. The median time spent teaching POCT at university was 2 hours. The laboratory teaching hours varied between 0 and 450 hours. The median time spent teaching POCT in hospital laboratories was 3 hours. A content analysis of the learning outcomes provided by 29 universities showed that only 61% (84/137) were measurable and 26% (36/137) of the learning outcomes used action verbs that have previously been listed to be avoided in learning outcome writing. Only 9% (13/137) of outcomes specifically described POCT, with 8 of these being measurable. The findings demonstrate that although this is a commonly required skill for biomedical scientists, there is a clear lack of POCT teaching and training in the UK. To meet the new Quality Assurance Agency for Higher Education (QAA) guidelines, but most importantly to ensure the workforce is fit for the needs of the current healthcare system, the quality and quantity of POCT teaching and training needs to improve.

[Enhancing trainee clinical scientists' self-regulated learning in the workplace](#)

Item Type: Generic

Author: Smith, Megan, Buckley, Sharon and Davison, Ian

Publication Date: 2022

Publication Details: The clinical teacher, 19, (5) pp.e13513. , England:

Abstract: BACKGROUND: Trainee health professionals must be competent self-regulated learners, particularly when learning in busy, unpredictable clinical settings. Whilst research indicates self-regulated learning (SRL) is influenced both by learners' individual actions and their interactions with others, how these combine to foster SRL requires further exploration. We have used Zimmerman's learner-focused SRL model and the situative perspective of communities of practice (CoPs) to investigate how UK trainee clinical scientists regulate their learning. Our aims were to develop a holistic understanding of SRL in the clinical workplace incorporating both individual and social aspects and to suggest ways of maximising learning for trainee clinical scientists and other health professionals., METHODS: Semi-structured interviews were conducted with 13 trainees on the Scientist Training Programme. Transcripts were analysed both inductively and deductively (abductively) using Zimmerman's model and CoPs to explore how trainees regulate their learning., RESULTS: Thematic analysis yielded four themes: approach to learning, engagement and execution of tasks in practice; self-reflection and reaction; and autonomy and role construction. Themes linked concepts from Zimmerman's model and CoPs, as illustrated by our trainee-workplace congruence model. Our model suggests optimal conditions for SRL, and we highlight the importance of trainers in supporting trainee development., CONCLUSIONS: Our trainee-workplace congruence model links concepts from Zimmerman's model and CoPs to provide a framework for understanding how trainee clinical scientists regulate their learning and navigate its social aspects. Whilst

trainees must take responsibility for their learning, trainers can facilitate SRL through attention to trainee-workplace 'fit' and encouraging trainee participation in communities of practice. Copyright © 2022 The Authors. The Clinical Teacher published by Association for the Study of Medical Education and John Wiley & Sons Ltd.

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

Item Type: Generic

Author: Collett, Tracey, Capey, Steve, Edwards, James, Evans, Darrell J., McLachlan, John C., Watson, Helen and Bristow, David

Publication Date: 2021

Publication Details: FEBS open bio, 11, (11) pp.2902-2911. , England:

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.

[Genomic Education at Scale: The Benefits of Massive Open Online Courses for the Healthcare Workforce](#)

Item Type: Generic

Author: Bishop, Michelle, Miller, Edward, McPherson, Amelia, Simpson, Siobhan, Sutherland, Stuart and Seller, Anneke

Publication Date: 2019

Publication Details: Frontiers in genetics, 10, pp.1094. , Switzerland:

Abstract: To support the delivery of the UK's 100,000 Genomes Project, Health Education England's Genomics Education Programme developed a suite of resources, including a 3-week Massive Open Online Course (MOOC) on whole genome sequencing via the FutureLearn platform. This MOOC is a synchronous learning event, with course educators and mentors (NHS healthcare science trainees in genomics) facilitating the experience in real time. Crucially, the platform allows participants to interact and learn from each other's experiences. The evaluation of the course was considered from the learners' and mentors' perspectives. Perceptions of course relevance were examined through analysis of learner comments made throughout the course and responses to an end-of-course

survey. Evaluation of mentors' experiences focused on how prepared they felt to undertake their role and the value and benefit of their experience. Data was collected through a mixed methods study after the first two runs of the course. Here we present findings from 440 learners who provided end-of-course reflections, 360 learners who completed the post-course survey and 14 mentors who facilitated the course. The course met learners' needs by providing a greater understanding of whole genome sequencing and the application of this technology in healthcare. Learners also highly valued the engagement with mentors. Mentors appreciated the experience and identified areas of professional development gained through the mentoring experience. Our findings show that a team of specialist healthcare course mentors engaging with a range of different healthcare professional MOOC learners in online conversation can enhance the learners' experiences and provide a beneficial continuing professional development opportunity for mentors. Copyright © 2019 Bishop, Miller, McPherson, Simpson, Sutherland and Seller.

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

Item Type: Generic

Author: Maxwell, P. and Salto-Tellez, M.

Publication Date: 2018

Publication Details: *Cytopathology* : official journal of the British Society for Clinical Cytology, 29, (1) pp.5-9. , England:

Abstract: 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 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. Copyright © 2017 John Wiley & Sons Ltd.

Genetic Counsellors

[The experiences of UK-based genetic counsellors working in mainstream settings](#)

Item Type: Generic

Author: Quinn, Ellie and Mazur, Katherine

Publication Date: 2022

Publication Details: *European journal of human genetics* : EJHG, 30, (11) pp.1283-1287. , England:

Abstract: Most UK-based genetic counsellors (GCs) work within clinical genetics services; yet there is a small and expanding group of GCs working within other clinical specialties, termed "mainstream" GCs. To our knowledge there have been no projects to date examining the experiences of mainstream GCs working in the UK. The aim of this workforce evaluation was to explore the experiences of mainstream GCs. Online surveys were sent to mainstream GCs to obtain general demographic information and baseline data regarding experiences of working

in these roles. Those who completed the surveys were then invited to take part in online focus groups. Data was transcribed and analysed using thematic analysis to draw out major themes that arose from the discussions. Major themes were found to be: "Benefits", "Challenges", "Career Progression" and "Support". Overall, participants expressed enjoyment of their roles and described key benefits of working in a clinical specialty, including autonomous working and developing expertise. Still, career progression was limited in many cases due to issues obtaining professional registration, lack of support, and unclear definition of the mainstream GC role. Findings are brought together as a list of suggestions to support this subset of the profession going forward. We hope these findings could be of utility to both employers and policymakers when advancing the national provision for mainstream genomic services. Copyright © 2022. The Author(s), under exclusive licence to European Society of Human Genetics.

[The role of genetic counsellors in genomic healthcare in the United Kingdom: a statement by the Association of Genetic Nurses and Counsellors](#)

Item Type: Generic

Author: Middleton, Anna, Marks, Peter, Bruce, Anita, Protheroe-Davies, Liwsi, King, Cath, Claber, Oonagh, Houghton, Catherine, Giffney, Claire, Macleod, Rhona, Dolling, Claire, Kenwick, Sue, Scotcher, Diana, Hall, Georgina, Patch, Christine and Boyes, Laura

Publication Date: 2017

Publication Details: European journal of human genetics : EJHG, 25, (6) pp.659-661. , England:

Abstract: In the United Kingdom, genetic counsellors work together with clinical geneticists and clinical scientist colleagues within specialist genetics services, but they also often work in multidisciplinary teams (MDTs) outside of such services. There, they contribute genetic knowledge together with expert

understanding of how to communicate genetic information effectively. They can offer education and support to the MDT, while providing management advice for both affected patients and the extended at-risk family members. As genomic technologies are implemented across many disciplines within healthcare, genetic counsellors are playing a key role in enabling non-genetic health professionals learn, understand and integrate genomic data into their practice. They are also involved in curriculum development, workforce planning, research, regulation and policy creation - all with the aim of ensuring a robust evidence base from which to practise, together with clear guidelines on what constitutes competence and good practice. The Association of Genetic Nurses and Counsellors (AGNC) in The United Kingdom (UK) and Republic of Ireland is committed to supporting genetic counsellors, across all sectors of healthcare and research, as they help deliver genomic medicine for the patient, family and world-class health services. European Journal of Human Genetics advance online publication, 22 March 2017; doi:10.1038/ejhg.2017.28.

[A prospective cohort study assessing clinical referral management & workforce allocation within a UK regional medical genetics service](#)

Item Type: Generic

Author: Benjamin, Caroline, Houghton, Catherine, Foo, Claire, Edgar, Chris, Mannion, Gail, Birch, Jan, Ellis, Ian and Weber, Astrid

Publication Date: 2015

Publication Details: European journal of human genetics : EJHG, 23, (8) pp.996-1003. , England:

Abstract: Ensuring patient access to genomic information in the face of increasing demand requires clinicians to develop innovative ways of working. This paper presents the first empirical prospective observational cohort study of UK multi-disciplinary genetic service delivery. It describes and explores

collaborative working practices including the utilisation and role of clinical geneticists and non-medical genetic counsellors. Six hundred and fifty new patients referred to a regional genetics service were tracked through 850 clinical contacts until discharge. Referral decisions regarding allocation of lead health professional assigned to the case were monitored, including the use of initial clinical contact guidelines. Significant differences were found in the cases led by genetic counsellors and those led by clinical geneticists. Around a sixth, 16.8% (109/650) of referrals were dealt with by a letter back to the referrer or re-directed to another service provider and 14.8% (80/541) of the remaining patients chose not to schedule an appointment. Of the remaining 461 patients, genetic counsellors were allocated as lead health professional for 46.2% (213/461). A further 61 patients did not attend. Of those who did, 86.3% (345/400) were discharged after one or two appointments. Genetic counsellors contributed to 95% (784/825) of total patient contacts. They provided 93.7% (395/432) of initial contacts and 26.8% (106/395) of patients were discharged at that point. The information from this study informed a planned service re-design. More research is needed to assess the effectiveness and efficiency of different models of collaborative multi-disciplinary working within genetics services.

Health and Wellbeing

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

Abstract only*

Item Type: Generic

Author: Estrin-Serlui, T., Bailey, D. and Osborn, M.

Publication Date: 2023

Publication Details: Occupational medicine (Oxford, England), , England:

Abstract: 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. Copyright © The Author(s) 2023. Published by Oxford University Press on behalf of the Society of Occupational Medicine. All rights reserved. For Permissions, please email: journals.permissions@oup.com.

[Challenges of a negative work load and implications on morale, productivity and quality of service delivered in NHS laboratories in England](#)

Item Type: Generic

Author: Osaro, Erhabor and Chima, Njemanze

Publication Date: 2014

Publication Details: Asian Pacific journal of tropical biomedicine, 4, (6) pp.421-9. , China:

Abstract: The National Health Service (NHS) is a term used to describe the publicly funded healthcare delivery system providing quality healthcare services in the United Kingdom. There are several challenges militating against the effective laboratory service delivery in the NHS in England. Biomedical scientists work in healthcare to diagnose disease and evaluate the effectiveness of treatment through the analysis of body fluids and tissue samples from patients. They provide the "engine room" of modern medicine with 70% of diagnosis based on the laboratory results generated by them. This review involved the search of literature for information on working condition of biomedical scientist in the NHS in England. Laboratory service delivery in the NHS in England faces numerous daunting challenges; staffing levels in the last few years have become dangerously low, less remunerated, relatively less experienced and predominantly band 5's, multidisciplinary rather than specialty based, associated with working more unsocial hours without adequate recovery time, de-banding of staff, high staff turnaround, profit and cost driven rather than quality. These factors has resulted in burn out, low morale, high sickness absences, increased error rate, poor team spirit, diminished productivity and suboptimal laboratory service delivery. There is the urgent need to retract our steps on unpopular policies to ensure that patient care is not compromised by ensuring adequate staffing level and mix, ensuring adequate remuneration of laboratory staff, implementing evidenced-based specialty oriented service, determining the root cause/s for the high staff turnover and implementing corrective action, identifying other potential sources of waste in the system rather than pruning the already dangerously low staffing levels and promoting a quality delivery side by side cost effectiveness.

New roles

[UK physician associate primary care placements: staff and student experiences and perceptions](#)

Item Type: Generic

Author: Hoggins, R., Scott-Smith, W. and Okorie, M.

Publication Date: 2018

Publication Details: International journal of medical education, 9, pp.286-292. , United Kingdom: NLM (Medline).

Abstract: Objectives: To provide an insight into the experiences and perceptions of physician associate students and primary care staff involved in primary care educational placements in the United Kingdom. Method(s): A qualitative study was conducted. Data were collected from focus groups and semi-structured interviews with eight first year physician associate students and six primary care staff in two general practice surgeries in East Sussex, United Kingdom. Recruitment was via purposeful sampling. Thematic Analysis was used to identify themes. Result(s): Three themes were identified: perceptions of the physician associate role, interprofessional working, and the physician associate course structure and placements. Staff demonstrated a lack of familiarity with the physician associate programme and there was a risk of unrealistic expectations. Overall, staff and students were positive about their experiences. However, students expressed anxiety over a large amount of learning in a short timeframe, the perceptions of others, and the reluctance of staff to train them in phlebotomy skills. In addition, students were unsure about their career aspirations for the future. Conclusion(s): Participants were positive about their experiences however students expressed a number of anxieties, with a scope to improve interprofessional education. Practice staff demonstrated an overall lack of knowledge of the curriculum and physician associates in general leading to a risk of unrealistic expectations. Further studies on these themes with a larger sample size across relevant training institutions in the

United Kingdom is required to explore this further.

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: Generic

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

Publication Date: 2022

Publication Details: BMJ leader, 6, (3) pp.212-218. , England:

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., METHODS: 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., RESULTS: 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., CONCLUSIONS: 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.

[Next Generation Leaders Programme: A Multi-Methods Evaluation of a Leadership Development Programme for Biomedical Researchers](#)

Item Type: Generic

Author: Kingsley-Smith, Harry, Short, Sarah, Kotze, Koot and Lyons, Oscar

Publication Date: 2022

Publication Details: Advances in medical education and practice, 13, pp.1547-1554. , New Zealand:

Abstract: Background: Biomedical scientists have become de facto leaders for their research teams. Theories of expert leadership suggest that the specialist knowledge and credibility these researcher-leaders bring to their roles can lead to improved performance. Formal leadership development for biomedical researchers remains uncommon, and it is unclear whether existing leadership development programmes achieve improved individual and organisational outcomes. Our study evaluates the effectiveness of a single centre leadership development programme for biomedical researchers using a mixed-methods approach., Methods: 26 biomedical researchers participated in an 8 month single centre multidisciplinary

leadership development programme. Participants completed prospective pre-test, retrospective then-test and traditional post-test self-assessments using the Primary Colours Questionnaire (PCQ) and Medical Leadership Competency Framework Self-Assessment Tool (MLCFQ). Pre-post pairs and then-post pairs were analysed for changes using Wilcoxon signed-rank tests and compared with a parallel mixed-methods evaluation organised by Kirkpatrick levels., Results: There were significant increases in 3/7 domains and 1/5 tasks of leadership in the PCQ, in both pre-post and then-post paired assessments. There were statistically significant but small increases in 2/7 domains of the MLCFQ. The mixed-methods data showed positive outcomes at all Kirkpatrick levels. Participants said the programme was relevant, interesting and well-organised, with 63% reporting increased confidence and motivation. Participants had a significant change in behaviour, spending 1-2 hours per week on group projects, which were successfully implemented locally. 42% of participants expected these projects to continue beyond the programme., Discussion: This study demonstrates a local leadership programme can have positive impact within a biomedical research centre despite time and financial constraints. We encourage future studies to utilise a mixed-methods approach to evaluating the impact of leadership development programmes. Copyright © 2022 Kingsley-Smith et al.

New ways of working

[Best practice standards for the delivery of NHS infection services in the United Kingdom](#)

Item Type: Generic

Author: Ratnaraja, Natasha V. D. V., Davies, Angharad P., Atkins, Bridget L., Dhillon, Rishi, Mahida, Nikunj, Moses, Samuel, Herman, Joanne, Checkley, Anna, Partridge, David and Llewelyn, Martin J.

Publication Date: 2021

Publication Details: Clinical infection in practice, 12, pp.100095. , England:

Abstract: Infection expertise in the NHS has historically been provided predominantly by hospital-based medical microbiologists responsible for provision of diagnostic services and advice to front-line clinicians. While most hospitals had consultant-led microbiology departments, infectious diseases departments were based in a small number of specialist centres. The demand for infection expertise is growing in the NHS, driven by advances in medical care, increasing awareness of the impact of antibiotic resistant and healthcare associated infections and threats from emerging infectious diseases. At the same time diagnostic services are being reorganised into pathology networks. The Combined Infection Training (CIT) is delivering a consultant workforce with expertise both in laboratory diagnostic practice and delivery of direct patient care. These changes create challenges for delivery of high quality infection expertise equitably across the NHS. They also offer an opportunity to shape infection services to meet clinical and laboratory demands. To date there has not been an attempt to bring together a single set of best practice guidelines for the requirements of an infection service. This document sets out seven standards. These are written to be practical and flexible according to the diverse ways in which infection expertise may be required across the NHS. It has been prepared by the Clinical Services Committee of the British Infection Association drawing on published evidence and guidance where they exist and on the group's extensive experience of delivering infection services in hospitals across the NHS. It was then refined with input from the RCP Joint Specialist committee (JSC) and the RCPATH Specialist Advisory Committee (SAC) and through consultation with the RCPATH membership. It has been endorsed by the Royal College of Pathologists and the Royal College of Physicians. It will be reviewed annually by the CSC and updated as additional evidence becomes available. Crown Copyright © 2021 Published

by Elsevier Ltd on behalf of British Infection Association.

[Andrology and accreditation - an opportunity for Cytologists](#)

Abstract only*

Item Type: Generic

Author: Holland, L. and Maddox, A.

Publication Date: 2019

Publication Details: Cytopathology : official journal of the British Society for Clinical Cytology, , United Kingdom: NLM (Medline).

Abstract: The change to HPV testing as the primary screening modality is under way or imminent in the Cervical Screening Programmes (CSP) of the UK nations. This will necessitate major structural changes in all cytopathology laboratories, both in those that continue to provide a service to the CSP and those that do not. This article describes the development (from an existing service) and subsequent United Kingdom Accreditation Service (UKAS) accreditation of andrology testing in a District General Hospital setting, describing key areas for development and utilising cytopathology and histopathology staff of various grades and thus providing one avenue of skill redeployment for those cytopathology staff who will no longer provide morphological screening expertise to the CSP. This article is protected by copyright. All rights reserved.

[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: Generic

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

Publication Date: 2018

Publication Details: Virchows Archiv : an international journal of pathology, 472, (6) pp.1041-1054. , Germany:

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 PAtH/BMS within a surgical pathology laboratory organisation.

[Evidence for models of diagnostic service provision in the community: literature mapping exercise and focused rapid reviews](#)

Item Type: Generic

Author: Chambers, Duncan, Booth, Andrew, Baxter, Susan K., Johnson, Maxine, Dickinson, Katherine C. and Goyder, Elizabeth C.

Publication Date: 2016

NIHR Journals Library.

Abstract: **BACKGROUND:** Current NHS policy favours the expansion of diagnostic testing services in community and primary care settings., **OBJECTIVES:** Our objectives were to identify current models of community diagnostic services in the UK and internationally and to assess the evidence for quality, safety and clinical effectiveness of such services. We were also interested in whether or not there is any evidence to support a broader range of diagnostic tests being provided in the community., **REVIEW METHODS:** We performed an initial broad literature mapping exercise to assess the quantity and nature of the published research evidence. The results were used to inform selection of three areas for investigation in more detail. We chose to perform focused reviews on logistics of diagnostic modalities in primary care (because the relevant issues differ widely between different types of test); diagnostic ultrasound (a key diagnostic technology affected by developments in equipment); and a diagnostic pathway (assessment of breathlessness) typically delivered wholly or partly in primary care/community settings. Databases and other sources searched, and search dates, were decided individually for each review. Quantitative and qualitative systematic reviews and primary studies of any design were eligible for inclusion., **RESULTS:** We identified seven main models of service that are

delivered in primary care/community settings and in most cases with the possible involvement of community/primary care staff. Not all of these models are relevant to all types of diagnostic test. Overall, the evidence base for community- and primary care-based diagnostic services was limited, with very few controlled studies comparing different models of service. We found evidence from different settings that these services can reduce referrals to secondary care and allow more patients to be managed in primary care, but the quality of the research was generally poor. Evidence on the quality (including diagnostic accuracy and appropriateness of test ordering) and safety of such services was mixed., **CONCLUSIONS:** In the absence of clear evidence of superior clinical effectiveness and cost-effectiveness, the expansion of community-based services appears to be driven by other factors. These include policies to encourage moving services out of hospitals; the promise of reduced waiting times for diagnosis; the availability of a wider range of suitable tests and/or cheaper, more user-friendly equipment; and the ability of commercial providers to bid for NHS contracts. However, service development also faces a number of barriers, including issues related to staffing, training, governance and quality control., **LIMITATIONS:** We have not attempted to cover all types of diagnostic technology in equal depth. Time and staff resources constrained our ability to carry out review processes in duplicate. Research in this field is limited by the difficulty of obtaining, from publicly available sources, up-to-date information about what models of service are commissioned, where and from which providers., **FUTURE WORK:** There is a need for research to compare the outcomes of different service models using robust study designs. Comparisons of 'true' community-based services with secondary care-based open-access services and rapid access clinics would be particularly valuable. There are specific needs for economic evaluations and for studies that incorporate effects on the wider health system. There appears to be no easy way of identifying

what services are being commissioned from whom and keeping up with local evaluations of new services, suggesting a need to improve the availability of information in this area., FUNDING: The National Institute for Health Research Health Services and Delivery Research programme. Copyright © Queen's Printer and Controller of HMSO 2016. This work was produced by Chambers et al. under the terms of a commissioning contract issued by the Secretary of State for Health. This issue may be freely reproduced for the purposes of private research and study and extracts (or indeed, the full report) may be included in professional journals provided that suitable acknowledgement is made and the reproduction is not associated with any form of advertising. Applications for commercial reproduction should be addressed to: NIHR Journals Library, National Institute for Health Research, Evaluation, Trials and Studies Coordinating Centre, Alpha House, University of Southampton Science Park, Southampton SO16 7NS, UK.

Patient and staff experience

[Blood sampling in adult critical care: a mixed methods study](#)

Abstract only*

Item Type: Generic

Author: Lennox, Sarah and Bench, Suzanne

Publication Date: 2022

Publication Details: International journal of orthopaedic and trauma nursing, 45, pp.100923. , England:

Abstract: There are few studies exploring blood sampling practice in critical care. In particular, the views of nursing staff are missing from the literature. The aim of this mixed methods study was to understand blood sampling practice at a single centre National Specialist Orthopaedic NHS trust in London, England. Following an audit of sampling practice over a four-week period, two focus group discussions explored nurses' views and experiences. Daily blood samples were in keeping with

volumes reported in other studies of a similar size and nature, with routine sampling practice common. Although we did not seek associations between data sets, the daily reported losses from blood sampling may be a contributory factor in patients' overall post-operative haemoglobin fall resulting in blood transfusion. Four key themes emerged from the qualitative focus groups: training and responsibility, influences and impacts, nursing time and errors. The routine nature of blood sampling practice may be specific to the elective setting, but raises questions around the need for a more patient centred, needs based approach. In addition to reducing the number of potentially unnecessary tests, small-volume phlebotomy tube (SVPT), closed sampling systems and increased use of Point of Care Testing (POCT) should be considered. Education and development of clear localised protocols could also help reduce the amount of unnecessary blood taken from patients in elective adult critical care settings. Copyright © 2022 Elsevier Ltd. All rights reserved.

[Recontacting in clinical practice: an investigation of the views of healthcare professionals and clinical scientists in the United Kingdom](#)

Item Type: Generic

Author: Carrieri, Daniele, Dheensa, Sandi, Doheny, Shane, Clarke, Angus J., Turnpenny, Peter D., Lucassen, Anneke M. and Kelly, Susan E.

Publication Date: 2017

Publication Details: European journal of human genetics : EJHG, 25, (3) pp.275-279. , England:

Abstract: This article explores the views and experiences of healthcare professionals and clinical scientists in genetics about the existence of a duty and/or responsibility to recontact former patients when the genetic information relevant to their health, or that of family members, changes in a potentially important manner. It is based on N=30 semi-structured interviews guided

by vignettes of recontacting scenarios. The sample included healthcare professionals in the United Kingdom from different medical specialties (clinical genetics, other 'mainstream' specialties now offering genetic testing), and scientists from regional genetics laboratories. While viewing recontacting as desirable under certain circumstances, most respondents expressed concerns about its feasibility within the current constraints of the National Health Service (NHS). The main barriers identified were insufficient resources (time, staff, and suitable IT infrastructures) and lack of clarity about role boundaries and responsibilities. All of these are further complicated by genetic testing being increasingly offered by mainstream specialties. Reaching a consensus about roles and responsibilities of clinical specialties with regard to recontacting former patients in the light of evolving genetic information, and about what resources and infrastructures would be needed, was generally seen as a pre-requisite to developing guidelines about recontact.

Recruitment and retention

[The Most Valuable Resource Is Time: Insights From a Novel National Program to Improve Retention of Physician-Scientists With Caregiving Responsibilities](#) Abstract only*

Item Type: Generic

Author: Jones, Rochelle D., Miller, Jacquelyn, Vitous, C. A., Krenz, Chris, Brady, Kathleen T., Brown, Ann J., Daumit, Gail L., Drake, Amelia F., Fraser, Victoria J., Hartmann, Katherine E., Hochman, Judith S., Girdler, Susan, Libby, Anne M., Mangurian, Christina, Regensteiner, Judith G., et al

Publication Date: 2019

Publication Details: Academic medicine : journal of the Association of American Medical Colleges, 94, (11) pp.1746-1756. , United States:

Abstract: PURPOSE: To enhance understanding of challenges related to work-life integration in academic medicine and to inform the ongoing implementation of an existing program and the development of other interventions to promote success of physician-scientists., METHOD: This study is part of a prospective analysis of the effects of the Fund to Retain Clinical Scientists (FRCS), a national program launched by the Doris Duke Charitable Foundation at 10 U.S. institutions, which provides financial support to physician-scientists facing caregiving challenges. In early 2018, 28 of 33 program awardees participated in semistructured interviews. Questions were about challenges faced by physician-scientists as caregivers and their early perceptions of the FRCS. Multiple analysts reviewed deidentified transcripts, iteratively revised the coding scheme, and interpreted the data using qualitative thematic analysis., RESULTS: Participants' rich descriptions illuminated 5 interconnected themes: (1) Time is a critical and limited resource, (2) timing is key, (3) limited time resources and timing conflicts may have a particularly adverse effect on women's careers, (4) flexible funds enable reclamation and repurposing of time resources, and (5) FRCS leaders should be cognizant of time and timing conflicts when developing program-related offerings., CONCLUSIONS: Programs such as the FRCS are instrumental in supporting individuals to delegate time-consuming tasks and to control how they spend their valuable time. Qualitative analysis suggests that access to and command of valuable time resources are crucial to career advancement, research productivity, and work-life flexibility, especially during critical time points along the physician-scientist trajectory.

Research

[Development of a framework and research impact capture tool for nursing, midwifery, allied health professions, healthcare science, pharmacy and psychology \(NMAHPPs\)](#)

Item Type: Generic

Author: Newington, Lisa, Wells, Mary, Begum, Samina, Lavender, Andy J., Markham, Sarah, Tracy, Oliver and Alexander, Caroline M.

Publication Date: 2023

Publication Details: BMC health services research, 23, (1) pp.433. , England:

Abstract: BACKGROUND: There is an ambitious target to create a UK clinical academic workforce representing 1% of clinicians from nursing, midwifery, the allied health professions, healthcare science, pharmacy and psychology (NMAHPPs). Understanding and recording the impact that clinical academics make across healthcare services is crucial if we are to grow, value and support this highly skilled workforce group. However, it is currently difficult to systematically record, collate and report the impacts associated with NMAHPP research activity. The aims of this project were to i) develop a framework outlining the impacts that were important for key stakeholder groups, and ii) create and pilot a research impact capture tool to record these impacts., METHODS: The framework was developed from the existing literature. It was refined, remodelled and approved by multidisciplinary stakeholder involvement, including patient and public representatives, healthcare managers and research-active clinicians. The framework was converted into a series of questions to create an electronic research impact capture tool, which was also refined through feedback from these stakeholder groups. The impact capture tool was piloted with research-active clinicians across a large NHS Trust and its associated organisations., RESULTS: The impact framework contained eight elements: clinical background, research and service improvement activities, research capacity building, research into practice, patients and service users, research dissemination, economics and research funding, and collaborations. Thirty individuals provided data for the research impact capture tool pilot (55% response rate). Respondents reported a range of

positive impacts representing all elements of the framework. Importantly, research-activity appeared to be a key driver for recruitment and retention in the sample population., CONCLUSIONS: The impact capture tool is a feasible method of recording the breadth of impacts associated with NMAHPP research activity. We encourage other organisations to collaboratively use and refine our impact capture tool, with the aim of standardising reporting, and facilitating discussions about research activity within clinical appraisal. Pooling and comparing data will also allow comparison between organisations, and assessment of change over time or after implementation of interventions aimed at supporting and increasing research activity. Copyright © 2023. The Author(s).

Upskilling

[Evidence of expert clinical practice among nuclear medicine non-medical staff: a scoping review](#) Abstract only*

Item Type: Generic

Author: Elliott, James E. G., Roldao Pereira, Luisa, Bell, Kim S. and Barnden, Tristan

Publication Date: 2023

Publication Details: Nuclear medicine communications, 44, (3) pp.169-177. , England:

Abstract: OBJECTIVE: This scoping review concerns expert clinical practice (ECP) by nuclear medicine practitioners (NMP), encompassing radiographers, technologists and nurses. ECP is typically demonstrated by clinical skills with higher levels of autonomy and responsibility traditionally fulfilled by physicians. The Advanced Clinical Practice (ACP) framework by Health Education England (2017) specifies ECP as one aspect of advanced role progression. This scoping review aims to identify and categorise the extent and type of the existing NMP ECP evidence to support the establishment of Nuclear Medicine ACP., METHODS: PubMed, Cumulative Index to Nursing and

Allied Health Literature, and Ovid Medline were searched for peer-reviewed literature published between 2001 and 2021 using extended and advanced practice as key terms alongside nuclear medicine and each NMP profession. Due to the sparsity of results, conference abstracts from prominent international societies were also searched. Studies were independently reviewed and graded for inclusion by four NMP., RESULTS: Of the 36 studies that met the inclusion criteria, 80.6% were conference abstracts and 66.7% were single-centres studies. Commonly reported NM ECP activities included image interpretation, cardiac stressing and therapies. Less reported activities include ordering complementary diagnostic procedures, invasive procedures and physical examinations. The United Kingdom presented itself at the forefront of NMP ECP publications., CONCLUSION: This study demonstrates evidence of NMP ECP across a variety of clinical roles. The dominance of conference abstracts highlights NMP ECP as an emerging area of role extension and a potential preference for information dissemination by NMP. Greater research into specific NMP ECP activities is required particularly studies of greater sample size and robusticity. Copyright © 2022 Wolters Kluwer Health, Inc. All rights reserved.

[Embedding new technology into clinical ultrasound practice: Is role extension for sonographers the key to improving patient pathways?](#) Abstract only*

Item Type: Generic

Author: Parker, Pamela, Edwards, Hazel, Twiddy, Maureen, Whybrow, Paul and Rigby, Alan

Publication Date: 2023

Publication Details: Ultrasound (Leeds, England), 31, (2) pp.84-90. , United States:

Abstract: Introduction: MicroUS is a new imaging technique that may have potential to reliably monitor prostate disease and therefore release capacity in MRI departments. Firstly, however,

it is essential to identify which healthcare staff may be suitable to learn to use this modality. Based on previous evidence, UK sonographers may be well placed to harness this resource., Topic: Currently, there is sparse evidence on the performance of MicroUS for monitoring prostate disease but early findings are encouraging. Although its uptake is increasing, it is believed that only two sites in the UK have MicroUS systems and only one of those uses just sonographers to undertake and interpret this new imaging technique., Discussion: UK sonographers have a history of role extension dating back several decades and have proven repeatedly that they are reliable and accurate when measured against a gold standard. We explore the background of UK sonographer role extension and postulate that sonographers are best placed to adopt and embed new imaging techniques and technology into routine clinical practice. This is of particular importance given the dearth of ultrasound focussed radiologists in the UK. To effectively introduce challenging new work streams, multi-professional collaboration in imaging, alongside sonographer role extension, will ensure precious resources are maximised thus ensuring optimum patient care., Conclusion: UK sonographers have repeatedly demonstrated reliability in many areas of role extension in various clinical settings. Early data indicate that the adoption of MicroUS for use in prostate disease surveillance may be another role suited to sonographers. Copyright © The Author(s) 2022.

[Should midwives learn to scan for presentation? Findings from a large survey of midwives in the UK](#) Abstract only*

Item Type: Generic

Author: Barnfield, L., Bamfo, J. and Norman, L.

Publication Date: 2019

Publication Details: British Journal of Midwifery, 27, (5) pp.305-311. , United Kingdom: MA Healthcare Ltd (Dulwich Road, London SE24 0PB, United Kingdom).

Abstract: Background Undiagnosed breech presentation in

labour is associated with fetal morbidity and mortality, and may cause significant maternal anxiety. With increasing availability of scan machines, ultrasound is now widely used in UK maternity settings. Bedside presentation scans are usually undertaken by junior doctors, often leading to delays and frustration among staff and patients. Aims To assess local practices and attitudes towards midwives scanning for presentation. Methods A nine-question anonymous online survey was first disseminated by email locally, and then via social media. It was open to all UK non-sonographer midwives and midwifery students. A total of 870 responses were received between January and April 2018. Findings The survey highlighted significant variation in practice across the UK. Of those who did not scan for presentation, 85.2% felt that being able to do so would improve their practice, with the majority of respondents highlighting improvements in patient safety and satisfaction as well as workflow. Conclusions This demonstrates that demand exists for a postgraduate or accredited short course to teach midwives how to safely and accurately scan to assess fetal presentation. Copyright © 2019 MA Healthcare Ltd. All rights reserved.

Workforce

[A national survey of the radiotherapy dosimetrist workforce in the UK](#)

Item Type: Generic

Author: Blackler, Nicola, Bradley, Karen E., Kelly, Charles, Murphy, Steven, Cross, Carole and Kirby, Mike

Publication Date: 2022

Publication Details: The British journal of radiology, 95, (1139) pp.20220459. , England:

Abstract: OBJECTIVES: To undertake a national survey of the Radiotherapy Dosimetrist workforce within the UK; examining different attributes and experiences, comparing results with published evidence within the literature., METHODS: A national,

anonymised survey was undertaken between Dec 2020 and end of Feb 2021; employing a mixed-methods approach and blend of closed, open-ended answer choices and free-text comments. Questions included range of training routes and job titles; registration status; job tasks and engagement with Continuing Professional Development (CPD)., RESULTS: A total of 223 individuals responded. Nearly half were trained via therapeutic radiography; approximately, a fifth through a clinical technologist/physics routes. Most (70%) had Dosimetrist in their job title. Nearly 70% were statutorily registered, and almost a fifth were in the voluntary register of Clinical Technologists. Most job tasks were in treatment planning - with 57% spending over 70% of their time there. Most notably, 29% were not involved in any CPD scheme. No published evidence showed the same aspects identified here., CONCLUSIONS: Our survey showed a unique profile of the Radiotherapy Dosimetrist workforce in the UK, with a variety of training routes and statutory registration status. Nearly, a third were not engaged in a CPD scheme - adding to the current discussion that perhaps all Dosimetrists should be statutorily registered, for ensuring safe and effective clinical practice., ADVANCES IN KNOWLEDGE: A novel and unique national survey of Dosimetrists working in Radiotherapy in the UK is presented, leading to new insights into current training routes, registration status, job tasks and CPD engagement and needs.

[Report of the 2020 British Nuclear Medicine Society survey of nuclear medicine equipment, workforce and workload](#) Abstract only*

Item Type: Generic

Author: Irwin, Andy G., Turner, Christine L. and Redman, Stewart

Publication Date: 2022

Publication Details: Nuclear medicine communications, 43, (6) pp.731-741. , England:

Abstract: The British Nuclear Medicine Society (BNMS) survey represents the only resource that brings together detailed information on equipment, workforce and workload from the practice of nuclear medicine in the UK. This article is a report of the most recent BNMS survey which was collected during 2019 and 2020. The survey used two methods to collect data: for equipment and workforce, participants created or updated existing online records; for workload information, respondents were asked to submit 12 months of data from local radiology information systems. Following the survey, the BNMS database contained a total of 191 sites (63% of known sites) having either equipment or workforce data or both. In total 39 centres provided workload data which included over 175 000 examinations. A combination of automated tools and visual inspection were used to clean, sort and validate submitted data into formats that allowed further analysis and extraction of useful parameters. Results are presented that the authors believe may be useful for nuclear medicine professionals and other stakeholders. Potential applications include benchmarking for service review and equipment replacement/updating. The survey represents a valuable resource that might be used by the BNMS secretariat to respond to specific queries from BNMS members. Copyright © 2022 Wolters Kluwer Health, Inc. All rights reserved.

[Current pressure on the UK imaging workforce deters imaging research in the NHS and requires urgent attention](#) Abstract only*

Item Type: Generic

Author: Rodrigues, J. C. L., O'Regan, T., Darekar, A., Taylor, S. and Goh, V.

Publication Date: 2022

Publication Details: Clinical radiology, 77, (12) pp.913-919. , England:

Abstract: Medical imaging is a multidisciplinary specialty, combining clinical expertise from medical physics, radiography, and radiology, and plays a key role in patient care. Research is

vital to ensure the care delivered to patients is evidence-based, and is a core component of clinical governance; however, there are pressures on the imaging workforce, which are significantly impeding imaging research. This commentary presents a research gap analysis pertaining to the multidisciplinary imaging workforce on behalf of the National Institute for Health Research (NIHR) Imaging Workforce Group. Data were summarised from membership surveys of the Royal College of Radiologists, Society and College of Radiographers, and Institute of Physics and Engineering in Medicine; national reports; and feedback from NIHR Clinical Research Network Imaging Champions meeting in 2020/2021. Common barriers to delivering research were found across the multidisciplinary workforce. The key issues were lack of staff, lack of time, and lack of funding to backfill clinical services. Given the ongoing workforce shortages and increasing clinical demands on radiologists, diagnostic radiographers, and medical physicists, these issues must be tackled with a high priority to ensure the future of clinical research within the NHS. Crown Copyright © 2022. Published by Elsevier Ltd. All rights reserved.

[The role of radiation protection societies in tackling the skills shortage and development of young professionals and researchers](#) Abstract only*

Item Type: Generic

Author: Bryant, Peter A.

Publication Date: 2021

Publication Details: Journal of radiological protection : official journal of the Society for Radiological Protection, 41, (3) , England:

Abstract: Over the last 10 years there have been increasing concerns raised about a potential skills gap in the field of radiation protection (RP). Noting these concerns in 2019, the Society for Radiological Protection, the UK's Chartered Professional Body, launched a study to determine the RP

demand in the UK going forward along with the capacity of the profession. The initial results show that over 50% of the SRP membership retires in the next 10-15 years, coupled with an increase in RP demand across the nuclear fuel cycle, medical sector and advancement of new technologies or applications requiring RP advice. This provides strong evidence supporting the concerns of a future skills gap. This paper presents a framework highlighting three core objectives that need to be met to resolve the skills gap. A review of the existing initiatives being undertaken by the Society of Radiological Protection to meet these objectives is included, identifying both areas of good practice and areas for further work and development. A key theme in tackling this challenge has been identified as the need to foster greater collaboration between RP professionals, and organizations both within the UK and abroad, such as IRPA, national societies, employers, academia and industry. This brings a unique opportunity to direct efforts and resources toward a common goal, allowing the sharing of good practice, whilst reducing the strain and burden on any one organization. Another key output of the review was the need to embrace new and innovative solutions to developing our profession and importantly inspiring and communicating into the future of the profession. Copyright Creative Commons Attribution license.

Workforce planning

[Radiographer reporting: A literature review to support cancer workforce planning in England](#)

Item Type: Generic

Author: Culpan, G., Culpan, A-M, Docherty, P. and Denton, E.

Publication Date: 2019

Publication Details: Radiography (London, England : 1995), 25, (2) pp.155-163. , Netherlands:

Abstract: OBJECTIVE: Clinical Imaging contributes to screening, diagnosis, planning and monitoring of treatment and surveillance

in cancer care. This literature review summarises evidence about radiographer reporting to help imaging service providers respond to Health Education England's 2017 Cancer Workforce Plan project to expand radiographer reporting in clinical service provision., KEY FINDINGS: Papers published between 1992 and 2018 were reviewed (n = 148). Evidence related to dynamic examinations (fluoroscopy, ultrasound) and mammography was excluded. Content was analysed and summarised using the following headings: clinical scope of practice, responsibilities, training, assessment, impact in practice and barriers to expansion. Radiographer reporting is well established in the United Kingdom. Scope of practice varies individually and geographically. Deployment of appropriately trained reporting radiographers is helping the NHS maintain high quality clinical imaging service provision and deliver a cost-effective increase in diagnostic capacity., CONCLUSION: Working within multiprofessional clinical imaging teams, within a defined scope of practice and with access to medical input when required, reporting radiographers augment capacity in diagnostic pathways and release radiologist time for other complex clinical imaging responsibilities. Copyright © 2019 The College of Radiographers. Published by Elsevier Ltd. All rights reserved.

Competency Frameworks

[Career framework for healthcare scientists](#)

Source: Academic of Healthcare Sciences

The main career levels in Healthcare Science

[Curriculum Library](#)

Source: Health Education England National School of Healthcare Science

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