THE HEALTHCARE SCIENCE LEADERSHIP JOURNAL

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In this issue

EDITORIAL

Welcome to this second issue of the *Journal*. Like the first, it contains a range of articles around the theme of leadership in Healthcare Science. It is also appropriate that some of these are related to leadership education and development, given that the National School for Healthcare Science celebrates its 10th anniversary this year.

This edition comes out when the COVID-19 pandemic is still very much a concern. Hence, we begin and end with articles that reference its impact. *Helen Meese* starts by describing how she coordinated the rapid setting up of a volunteer engineering workforce to help manage equipment in the Nightingale hospitals. Although these engineers were not needed in the end, the process provides useful lessons in responding under pressure. And in our final contribution, *Berne Ferry* in her second blog gives her view on the pandemic's impact on the visibility of healthcare scientists and its relationship to the diagnostics programme in England.

> **"We all need support and encouragement, particularly when starting out on a new career, and it can be difficult at times to know if what you are doing is right for you"**

In between these two articles, we have structured this issue into three sections.

First, we consider aspects of **leadership at different career stages.** We all need support and encouragement, particularly when starting out on a new career, and it can be difficult at times to know if what you are doing is right for you. *Paraskevi Markou* reflects on how mentoring helped her find direction early on in her career.

New challenges help keep us engaged and developing throughout our life. For *Namir Al Hasso*, it was a sideways step to becoming a Healthcare Scientist Fellow that unlocked new avenues and opportunities to develop his own leadership potential and that of others. And *Kerry Tinkler* sets out some of the experiences and lessons that helped her travel the long journey from trainee healthcare scientist to Clinical Director.

Secondly, our contributors focus on **skills and knowledge** that help leaders lead. Healthcare scientists on the Higher Specialist Scientist Training programme are applying their learning to a dizzying array of workplace projects. *Chris Sibley-Allen* shows in his project write-up how theory learned on the HSST course helped him lead a change initiative. Then *Jude Savage* enthuses about the way human factors training enhances the value leaders bring to patient safety, and makes a case for its inclusion in professional regulation.

One way healthcare scientists can learn more about leadership is through involvement in a professional body. *Philip Morgan*, Chief Executive of the Institute of Physics and Engineering in Medicine, describes his corporate approach to updating its strategy. His article also gives an insight into general strategic development. Strategy also is central to a thought-provoking piece by *Patricia Oakley*, who looks at key issues facing the NHS and discusses what healthcare science leaders should be concentrating on now.

Lastly, we return to **leadership education and development**, and the importance of continued learning. The NHS needs healthcare scientists to take up wider leadership roles and *Wendy Reid* stresses the importance of high-quality leadership development in equipping healthcare scientists to do this. She also highlights the value of multi-professional evaluation-based learning. Finally, *Sue Fergy* describes her own journey into leadership education and her experiences of delivering training to healthcare scientists. She also sets out her future vision for what good development support to Healthcare Science leaders might look like.

We were encouraged by how well the first issue of this *Journal* was received and want to thank readers for their helpful feedback. This included suggestions for topics to cover and offers of contributions. We hope you like this edition of the *Journal* and welcome your enquiries and comments – please send them to admin@ahcs.ac.uk.

"I NEED YOUR HELP" – LEADING TOGETHER

Dr Helen Meese CEng MIMechE MIPEM MWES

"I need your help!" is not an unusual request for an engineer to receive, but when it comes from the Scientific Director NHS England (London region), you know it's serious. The question was succinct: "Where are we going to get more engineers to help deal with potentially thousands of patients?"

On the 23rd March 2020 the UK went into lockdown in an effort to slow the rate of infection from COVID-19. Progression of the virus was rapid. It was clear even at that point that medical technology would be crucial to tackling it. Within days, industry and academia had come together to create consortiums to build ventilators; students were 3D printing everything from visor frames to touch free door openers; and individuals were brainstorming ways in which viral spread could be mitigated.

In a coordinated effort not seen outside wartime, the NHS, supported by the Army and industry, set about developing new hospitals across the country (ultimately seven in total) to cope with a rapidly increasing number of patients. These were named Nightingale Hospitals after the leading light of wartime field nursing. In London, while the media frenzy focused on the herculean task of turning a conference centre into a 4000-bed infirmary, a team of healthcare scientists was quietly figuring out how to supply medical devices and equipment at scale and at speed for what could become the largest hospital in the UK.

Following that initial call for assistance, I suddenly found myself responsible for finding a cohort of engineers across London and the Southeast to support the clinical engineers tasked with delivering technological services at London's Nightingale Hospital.

I think there's a moment in everyone's working life when they scream inwardly, "I have no idea what I'm doing!" but then nod sagely, smile and answer, "Of course, that's not a problem." It's at that point that every hour of studying, every day spent hands-on in your chosen profession and every minute striving to achieve, just coalesces. And so I began to make a few calls to people I knew. I thought, "If we can start off with a few engineers from my own Institution, then that's bound to get the ball rolling."

Fortunately, my role as the then vice-chair of the Biomedical Engineering Division at the Institution of Medical Engineers (IMechE) enabled me to reach out to colleagues in other organisations. Before long I was making a call to the Royal Academy of Engineering, asking how they might help me get the message to all 38 Professional Engineering Institutions in the UK. There was no hesitation: the response was, of course, "How can we help?"

I now had to ensure that we had a strong line of communication between the Healthcare Science (HCS) team at the London Nightingale and the network of organisations that was being established. To do that I applied a systems-driven approach to identify what was needed and how we were going to train these engineers for the work ahead. Most importantly, we had to mitigate any risk to them in terms of contact with potentially contaminated equipment or infected people. We also had to make sure they were appropriately trained so they would benefit, and not be a hazard to, the Nightingale HCS team.

Working with the team, we began to define a job description for what this 'engineer' would look like, describing tasks they would undertake and skills they would need. By evaluating existing job descriptions from a range of existing clinical engineering roles and defining specific requirements for the Nightingale environment, an 'Auxiliary Engineering Support' role was developed.

With help from staff in the Royal Academy of Engineering's policy team I put together a database, supporting statements and information for Professional Engineering Institutions (PEIs) so they could clearly understand the requirements and circulate it to their members. With the database set up, the PEIs informed, and social media messages posted, I waited with bated breath to see if anyone would sign up.

I didn't have to wait long. Within 48 hours, we had over 600 people enrol! Over the course of the next month that number reached over 1,000 as the call widened across the whole of the UK.

The first cohort of 15 was selected a few weeks later to begin training and take up posts at the London Nightingale. Training involved a one-day online course followed by four days at the site. The plan was that individuals would buddy-up with clinical engineers and redeployed healthcare scientists. We had just reached the point where they were about to start when the decision was taken to change the nature of the Nightingales, as the expected number of patients wasn't materialising. Regardless of this, we had demonstrated that in a national emergency and with just a few people a safe and reliable technological service could be established within weeks – which was a truly remarkable achievement!

Leading into the Future

I am very proud to be an engineer. Wherever there is a problem that needs a solution, engineers are there! Whether they are building aircraft, designing skyscrapers or servicing a vital signs monitor, whenever society says, "I need your help!", they respond with action. Despite the difficult circumstances of the pandemic, the engineering community rapidly took on new roles and responsibilities to enable others to achieve their goals. That, for me, has been wonderful. *Contd on page 5...*

REFLECTIONS ON EARLY CAREER MENTORING

“This has helped me stay inspired”

Evi Markou is a trainee medical physicist in Kent. Here she reflects on her recent experience of early-career mentoring.

“What is my career going to be like? Is it worth committing to this training for the long-term or will I change my mind in the future? Am I going to be stressed and unhappy if I aim for senior positions in my profession? And who am I looking up to?”

Such questions, and a lucky acquaintance, made me try my professional body’s mentoring scheme. I submitted a simple application form and was allocated an experienced mentor. At our initial meeting, we agreed that confidentiality and openness were key. As a mentee, I would be able to fully convey my concerns and be open to solutions. My mentor was there to listen, understand and suggest possible goals for the next meeting. These sessions would carry on until I felt my questions were resolved.

Talking to my mentor helped to normalise the insecurities I felt from being at such an early stage in my career. As a trainee I had started by simply observing, trying to learn from and follow up on my colleagues’ routine work and projects. During the first year I continually looked back at my progress but was growing impatient and disappointed. It seemed to be taking me such a long time to gain enough expertise in medical physics to make an impact or even cover the routine work of the department efficiently. I was also concerned about the next steps in my training, and where I wanted my career to go.

Discussing these concerns with my mentor, I was reminded to have patience and allow time for the fruits of my training to unfold and to reveal future opportunities. I heard about my mentor’s own experiences within the NHS and how their feelings and experiences were similar when they were at my career stage. “Enjoy getting lost!” I was advised – and this suggestion still helps me when I find myself exploring new situations, both inside and outside the work setting!

These mentoring conversations also helped me re-evaluate my career expectations and the timeframes I was trying to set for myself. I began to appreciate the many options my profession provides for career routes and development, from purely scientific to largely managerial, and how that could evolve into an exciting lifetime journey. I realised that I need not feel bound to follow my initial career choice or follow a specific order of premeditated steps, but instead could be open to changes along the way.

I also noticed that my motivation was becoming restored. First, I found a strong sense of purpose - to help treat people and be part of their healing process. Growing into the training increased my contribution to the service my department provides and helped me begin to feel what it means to deliver and be accountable for part of a patient’s treatment. While I think that motivation can fluctuate in every kind of work, being motivated by delivering patient care can inspire me even on the most challenging of days.

Finally, in trying to satisfy my desire for a role model I actively sought to work more closely with people whose working practice I admire. I observed their individual attributes and skills, which grew my appreciation of the value in different ways of working and gave me a picture of a broader role-model I could aim to follow. This has helped me stay inspired and recognise which areas I want to develop as my career progresses.

Eds: Many professional bodies and organisations support formal and/or informal mentoring and coaching. This support can be invaluable at any career stage.

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Through this experience I have learnt that leadership is about working together - not about any one individual. By signing up to apply their own experiences, knowledge and passion to help save the lives of tens of thousands of people, engineers both inside and outside the NHS helped achieve an almost impossible goal.

I would especially like to recognise the immense effort and leadership of Ruth Thomsen, Basit Abdul and Jo Young, as well as all the HCS teams I have had the pleasure of working with in the last 18 months. It was that togetherness and shared vision that produced the leadership we needed.

The future is expected to be nothing short of amazing when it comes to medical devices and technology, with the pace of change expected to accelerate because of the current pandemic. The Nightingale experience has shown that realistic and long-term leadership within the NHS must be driven by clinicians and healthcare scientists together, enabling both to advocate for and implement innovations to ensure patients have a safe passage through our healthcare system.

In the words of Simon Sinek, “The true value of a leader is not measured by the work they do. A leader’s true value is measured by the work they inspire others to do.”

FINDING OPPORTUNITIES FOR LEADERSHIP DEVELOPMENT

Namir Al Hasso, Clinical Scientist, STP Training Programme Director and East of England Associate Dean for Healthcare Science, shares his leadership journey

During my NHS career as a Healthcare Scientist in Life Sciences, I have worked in related specialties including haematology, blood transfusion, specialist coagulation and genomics. My career path continued to evolve due to local restructuring and my interest in further self-development. Since my NHS training did not cover leadership, I felt that my leadership knowledge was underdeveloped for a senior scientist in the NHS. I was also looking for a new and different challenge, so applied for and started as one of five Fellows in the NHS London Medical Directorate in June 2019, working with the Scientific Director for London.

This Fellowship offered incredible developmental opportunities. It also brought significant challenges. I had to travel between my home in Cambridge and my office in central London but found I could use commuting time to reflect on my fellowship progress, career aspirations, life and where to go next. Another challenge was the language used in NHS England/Improvement. It took around three months to become comfortable with the management jargon!

At the start of my fellowship there were some team bonding and building activities. As an introvert and a private person, I found it challenging to create a personal story about my life, values and purpose and present it to my peers. However I felt that this sharing was vital in building a new team out of individuals from diverse backgrounds and scientific interests. It also started the process of creating psychological safety[1,2] that is so vital for team success and productivity.

I completed the NHS Leadership Academy Edward Jenner Programme[3] at the beginning of my fellowship. The Practical Skills for Education and Leadership (PSEL) Programme and the PSEL Plus programme were also part of my leadership journey. These three programmes were immensely educational and supportive, particularly the PSEL programmes designed for healthcare scientists[4].

Attending further events stimulated my thinking and was rewarding for both the fellowship project and my leadership development journey. I have taken opportunities to attend meetings, conferences, and events that encouraged me to think differently and "outside the box". Two important lessons for me are:

- that leadership is about leading and empowering teams
- good leaders seek to understand their team members and embrace their diversity.

The NHS Long Term Plan[5] priorities included improving services for patients with cardiovascular disease and stroke. The Elective Care Transformation Programme[6] identifies what local Health and Care Systems can do to support the national cardiology challenge. My fellowship project aimed to facilitate Cardiac Physiology healthcare scientist-led clinics in primary and secondary care, refining the elective care referral process and reducing unnecessary referrals to cardiology consultants. This approach has been implemented successfully in different parts of the country, although with some discrepancies between regions.

Healthcare Science Fellows at the London Leadership Academy Event 2019. Namir is on the left.

Although progress with my project came to a standstill with the arrival of COVID-19 in 2020, the pandemic created new opportunities for me as a London Healthcare Science Fellow. I had the great pleasure of working with the Scientific Director and the medical directorate to support London Pathology networks during this critical time. After my fellowship finished I started a new role working for the National School of Healthcare Science, where I am very excited to be part of the team helping to build leadership development for healthcare scientists.

Healthcare scientists play a vital role in the diagnosis and treatment of patients. Their leadership development is critical. NHS leaders and organisations must embrace individual healthcare scientists who seek growth and leadership development, and must make leadership training an essential component of all healthcare scientist training in the NHS.

1. *The Fearless Organisation; Professor Amy Edmondson; Wiley.2019.*
2. *https://www.ccl.org/articles/leading-effectively-articles/what-is-psychological-safety-at-work/*
3. *https://www.leadershipacademy.nhs.uk/programmes/the-edward-jenner-programme/*
4. *PSEL programme: https://www.ahcs.ac.uk/2018/11/01/mining-hidden-gems-2018-psel-evaluation/*
5. *The NHS Long Term Plan: https://www.longtermplan.nhs.uk/*
6. *https://www.england.nhs.uk/publication/transforming-cardiology-elective-care-services/*

MY JOURNEY FROM TECHNICIAN TO CLINICAL DIRECTOR

Kerry Tinkler, Clinical Director at Moorfields Eye hospital, sets out some of the experiences and lessons that helped her on her way.

My school was an inner-city community college where I was one of only a handful of pupils to go to university. I loved physiology, and graduated with a degree in it from Sunderland University. I then worked as a pharmacy assistant while deciding what I wanted to do with my life! I knew I wanted to work in healthcare so when a research technician role in physiology came up in my hometown, I jumped at the chance. The salary was less than I was earning in the chemists but I hoped it would lead me into a career in the NHS.

I was working at Leicester Royal Infirmary as an Assistant Technical Officer (ATO) equivalent to a band 2 now. I loved it. I collected transcranial Doppler readings from patients having vascular surgery and analysed the results. My boss Julia Smith was inspirational. She encouraged me to get more involved with research, as did the vascular surgeons, and I became a published author for the first time!

I enjoyed my time in medical physics but I really wanted a more overtly patient-facing role. A Trainee Clinical Vascular Scientist post was advertised in Portsmouth and I didn't hesitate. I really enjoyed working with patients and felt I was making a difference to their quality of life. I finished my three-year training in the Vascular Lab at Kings College Hospital and became an Accredited Clinical Vascular Scientist. The physics was tough for me but with support from the fabulous Colin Deane and David Goss I passed all the exams, and with lots of hard work and support from my supervisor Marisa Mason I also completed my MSc in Doppler ultrasound.

The Royal Free advertised for a Head of their Vascular Studies lab in 2000. While I would have liked a couple more years' experience in a senior clinical role, it was an opportunity not to be missed – professional head of department posts don't come up very often. It was my first management role. I loved working with the team to develop the service, bring in new trainees and watch their healthcare science careers grow, and had a huge amount of support from Prof George Hamilton and his surgical colleagues. I took every opportunity that was presented to me, including joining the executive board of my professional body, the Society of Vascular Technology, becoming President. I learnt so much from these roles, which also provided many networking opportunities. I made some lifelong friends too!

> **"It was not easy studying at evenings and weekends while working all week but I would certainly do it again if I were to go back."**

Then I was encouraged and supported by the trust's Deputy CEO Charles Bruce to put my head above the parapet and apply for a part time job leading my hospital's 18 Week Wait programme. Reducing patient waits meant working across clinical pathways and with professional groups outside vascular surgery and healthcare science. This new world of operational management took me well outside my comfort zone but taught me a great deal about what is involved in running a hospital.

I completed my Doctorate in medical imaging while working full time, in May 2014. It was not easy studying at evenings and weekends while working all week but I would certainly do it again if I were to go back. My Doctorate opened up the world of commissioning to me and I developed a new GP direct access pathway, a fantastic experience. I also went on a year's part time secondment with the Chief Scientific Officer (CSO) Professor Dame Sue Hill's team. It was an incredible experience, moving from acute sector clinical work, management and commissioning to the world of national policymaking. It broadened my understanding of the challenges faced by the CSO, whom I admire incredibly: she has moved the Healthcare Science agenda on so much in what is predominantly a medically led environment. Although it was extremely hard work and a very steep learning curve, I loved the time I spent there and took so much learning from it into the next stages of my career.

A few years later I applied to lead a new national quality programme for physiological science services and was seconded to the Royal College of Physicians part time for one year, which turned into six! I absolutely loved developing the Improving Quality In Physiological diagnostic Services (IQIPS) programme. I discovered that ensuring the quality of services for our patients is my passion! I enjoyed bringing together professional bodies, commercial and NHS providers, primary care colleagues and, most importantly, the patient voice to develop consensus on the standards. It was frustrating at times but, as clinical lead, I worked alongside the programme's Chair, Sir Duncan Nicol. I admired his ability to lead a room and turn the most challenging of conversations around. He taught me so much about leadership and integrity and I am very lucky to still have his mentorship. I remain proud of the IQIPS programme and have loved seeing it grow, transform, and develop. It is now hosted by the United Kingdom Accreditation Services (UKAS).

My final secondment was with the Academy for Healthcare

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Clinical support leadership team 2021

Me in the Lake District

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Science (AHCS). I joined the Academy as a Non-Executive Director for Physiological Sciences. I nearly didn't apply as I thought there would be so many more experienced and brighter candidates than me. Shortly afterwards I was encouraged to apply for the position of Executive Director for Clinical Standards and also became the Registrar. My time at the AHCS was so rewarding and it was wonderful to be part of the evolution of Healthcare Science education, training and regulation. It gave me a better understanding of the Royal College and professional body landscape and I started to understand some of the political differences and their impact on the pace of change. I also learned that my passion remained patients and the workforce. After introducing equivalence pathways to registration for healthcare scientists who had not followed traditional training programmes, and after leading on accreditation of the AHCS register by the Professional Standards Authority, I felt I had reached the milestones I had set out to achieve. After four years out, it was time to consolidate my learning and move forward again at Trust level to focus on patient care and workforce development.

"Don't be held back by your fears; have fun and do the things you believe in"

An NHS Jobs search brought up an advert for what is now my current role, Clinical Director for Clinical Support Services at Moorfields Eye Hospital NHS Trust. I initially dismissed the idea, as the world of Ophthalmic and Vision Science didn't feature anywhere in my portfolio. But after some encouragement from my partner, I decided to call the Chief Operating Officer to discuss the role. He suggested I apply, and the rest is history! I absolutely love my job, even though there were times at the beginning when I wondered, "What have I done?" I went from being an expert in my clinical field with amazing networks to having no credibility, knowing very little about the service, not being able to 'talk clinical' and having no relationships or history in the world of ophthalmology.

This job has been a steep learning curve for me. I wanted to bring to Moorfields my generic skills and experience of leadership, quality and safety, service improvement, and regulation. It was a struggle at first. After starting I did the usual things: listen, fact find, review, consolidate, restructure and modernise. I made some 'brave' choices and wasn't always popular - but leadership can be a lonely place sometimes! I am very proud of all the incredible professional, operational, and quality leads across Clinical Support Services at Moorfields. The Executive team and Board have been supportive of my strategy, and I hope I have demonstrated some added value as I have built relationships with many of the ophthalmology clinical leads.

We are entering a new phase of development: to design, build and operate a new, purpose-built centre of excellence for eye care. This is a joint initiative between Moorfields Eye Hospital NHS Foundation Trust, the UCL Institute of Ophthalmology and Moorfields Eye Charity that provides an opportunity to transform services and the workforce using a new build as the enabler for change. We are bringing together clinical services, research and education, and designing services fit for a future centre of excellence.

Writing this has article has been cathartic for me. It has revealed several themes running through my career: building relationships, listening to and learning from others, and taking opportunities even when they seem out of reach. I have been very fortunate, but have also worked hard and taken many knockbacks along the way. I have probably learned more from projects that didn't get off the ground than ones that did. My advice for those just starting out is: don't be held back by your fears; have fun and do the things you believe in, your passion and drive will show through; be tenacious, brave, kind and authentic. One final piece of advice, something that I am not sure I have always achieved - make sure you get your work life balance right, too.

FROM THEORY TO PRACTICE: LEADING A DIGITAL IMPROVEMENT PROJECT

Chris Sibley-Allen, Nuclear Medicine Physicist and HSST trainee at Guy's and St Thomas' Hospitals London, applies leadership theory to digital improvement.

The digital, technological and scientific evolution of the National Health Service continues in areas such as Genomics, Digital Pathology, Artificial Intelligence, Robotics and Quantitative Imaging[1]. Effective leadership is needed to ensure practical, safe delivery of these new technologies that can help catalyse more integrated multi-disciplinary working across multiple organisations. What does this look like?

Healthcare scientists on the Higher Specialist Scientist Training (HSST) programme were asked recently to review academic research on leadership to address the question: 'What relevance do theoretical leadership models have in practice?' This article briefly explores the application of two models to a digital upgrade project in a nuclear medicine department.

Background

Clinical management of patients in diagnostic and therapeutic nuclear medicine relies on expert input from clinical technologists, who perform imaging procedures; medical doctors, who interpret images and other results; medical physicists who review software configuration and carry out validation and quality assurance checks; and software suppliers. Thus in 2019, when the aging software platform in my department was becoming obsolete, the upgrade needed to be carefully managed so that all our stakeholders were engaged. My role as system administrator put me in a position of multi-disciplinary leadership for this project. The first thing I needed to do was ask for help! I invited all interested stakeholders in the department to a meeting to discuss the change. Meetings became monthly with small groups each focussing on upgrading specific items of software. A functioning model of leadership evolved, closely resembling two academic leadership models discussed in the HSST programme.

Two leadership models

Situational leadership is a widely used model[2,3] with a clear framework. A leader identifies the task specific development level of each individual and adjusts their own leadership behaviours accordingly. These behaviours can be directive, supportive, coaching or delegating. For example, I could fully delegate the job of reviewing a new piece of software to a colleague with extensive experience in this area, whereas a relatively junior member of staff might better be suited to a coaching style, with a higher level of support and direction.

Situational leadership is a straightforward model that depends on the skill level of both leader and follower. However, it requires leaders to make an accurate assessment of the experience, level of practice and motivation of those in their team. Developing this skill was an important part of my own practical learning. Doing this poorly can have an adverse effect on the team's ongoing engagement. Also, situational leadership has a more obvious limitation. Why should someone from another professional or organisational team accept direction, coaching, support, or delegation from an outsider?

Transformational leadership is an alternative approach which may be more suited to a multi-professional environment. A transformational leader focuses on shared values and goals, providing inspirational motivation, intellectual stimulation and individualized consideration to followers[4,5]. Transformational leaders have a vision for

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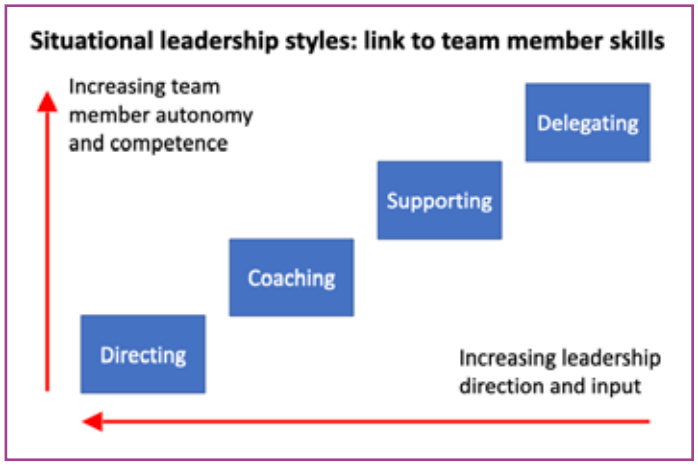


THE USE OF HUMAN FACTORS IN LEADERSHIP AND IMPLICATIONS FOR REGULATION

Judith Savage, Deputy Registrar, Registration Council for Clinical Physiologists, considers the Human Factor.

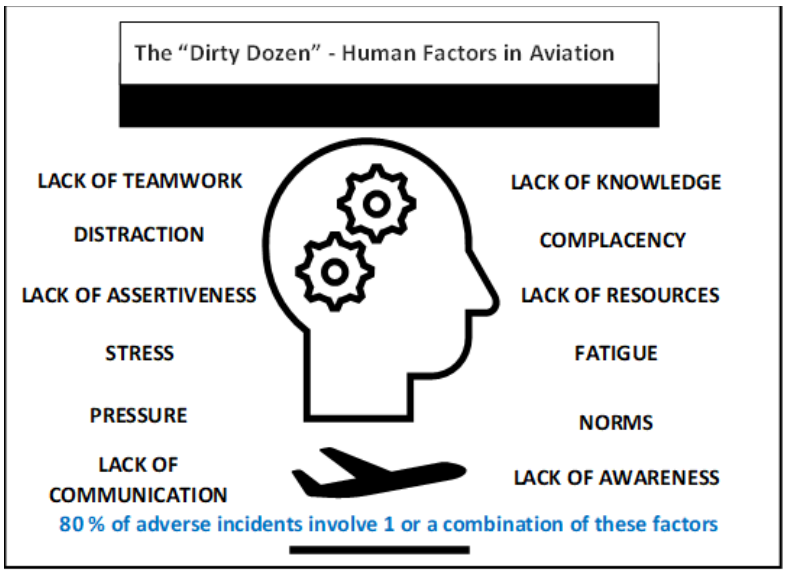
Human Factors (HF), also known as ergonomics, is a recognised scientific discipline.

However, knowledge of the subject varies widely amongst the Healthcare Science workforce. The World Health Organisation[1] defines it as:

"The study of all the factors that make it easier to do the work in the right way."

This requires analysis of three fundamental elements and the interactions between them: the human/worker, the task to be performed, and the environment/workplace in which it is done. It incorporates many sciences including anatomy, physiology, psychology, anthropometrics, and biomechanics.

In the safety orientated industries of Aviation, Oil production and Maritime, HF knowledge is essential for those in leadership roles and is embedded in these industries' operation, development, and culture. It is also part of mandatory training for many working in these fields. The introduction of this science has revolutionised approaches to safety. In aviation, for example, the US Federal Aviation Administration has noted that, "80 percent of maintenance errors involve human factors. If they are not detected, they can cause events, worker injuries, wasted time, and even accidents"[2].



Whilst safety is fundamental to patient care, the adoption of HF in the management of safety has not been widespread across healthcare. The good news is that the winds of change have started to blow. Health Education England (HEE) commissioned and published the first NHS-wide Patient Safety Syllabus in 2021. This Syllabus emphasises a proactive approach to identifying risks to safe care that also takes account of both systems thinking and human factors. Learning materials are being made available on the e-Learning for Health platform for NHS staff, starting from August 2021[3].

As a healthcare leader, how can you use the science of HF to improve safety in all aspects of patient care? This is a complex subject and gaining the knowledge required for practical implementation may feel formidable. The first step is to gain awareness of the basic principles.

Many words used in HF are already familiar to us. They include stress, fatigue, inadequate knowledge, and ineffective communication. These terms form four of the twelve "dirty dozen", a phrase popularised in 1994 by the Federal Aviation Administration to describe factors that individually or in combination lead to 80% of avation safety incidents.

The remaining eight factors are: lack of assertiveness, lack of awareness, lack of teamwork, lack of resources, complacency, norms, pressure, and distractions. Learning more about "the dozen" is an excellent place to start[4]. These factors are easy to understand and relate to healthcare and patient safety incidents without the need for in depth study.

Essential to identifying these factors was maintaining a culture of openness. Only by honest analysis of what contributed to incidents, some resulting in mass fatalities, could enough be learned to implement effective countermeasures. Honest analysis can only occur where a "just culture" prevails: one that supports all staff to be open about mistakes within a culture of fairness and learning, and does not allow a blame culture to prevail. Few workers in healthcare and other industries deliberately set out to make mistakes. *Contd on page 11...*

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Analysing incidents in context and learning from them is essential to prevent reoccurrence, difficult as it is to look back at what contributed to a potentially fatal incident. Individuals work within a system and all relevant elements should be examined, to take a systems approach to safety.

As a leader you can apply these principles to all aspects of your work. Examples include the intelligent design of rotas and clinical spaces; making sure your own communications are effective and clear; and introducing and propagating a culture of openness and a just response.

When things go wrong, as unfortunately we know they will, leaders must be committed to investigating why and responding without the requirement to lay blame. One measure of an organisation's maturity is how well it implements this ethos and how widely that ethos prevails across the different aspects of its work.

The wider implications for healthcare regulation are essentially that organisations providing care must show adequate knowledge of Human Factors and demonstrate how this approach has been incorporated into their policies, procedures and culture. An example in Fitness to Practice cases would be to show that HF have been considered in case deliberations and referenced in outcomes. Another requirement is to show that learning has occurred and been shared appropriately, without compromising confidentiality.

Having received extensive Human Factors training in healthcare in 2016, I can honestly say that it is a liberating, insightful and fascinating subject. It is also likely to enhance every aspect of your leadership as well as delivering the lasting cultural change in healthcare needed to improve patient safety outcomes. Enjoy the journey!

1. *World Health Organisation - Who Safety Curriculum - https://www.who.int/patientsafety/education/curriculum/who_mc_topic-2.pdf*
2. *Federal Aviation Administration- AMT_Handbook_Addendum_Human_Factors.pdf (faasafety.gov) https://www.faasafety.gov/files/gslac/courses/content/258/1097/AMT_Handbook_Addendum_Human_Factors.pdf*
3. *Health Education England - Patient Safety | Health Education England (hee.nhs.uk) https://www.hee.nhs.uk/our-work/patient-safety*
4. *See for example: https://www.youtube.com/watch?v=xb_sAWn5woE and https://www.youtube.com/watch?v=jfTGfLlse_O*

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the future they are working towards. They seek to transform accepted norms, enhance trust among their followers and positively reinforce strengths without dwelling on individual weaknesses[6,7]. Similarly the followers can also transform the leader. In this fashion, the regular meetings with the upgrade project group were a forum to explore the shared goals and motivations of the team. My original focus was to upgrade the software. However, two important group goals emerged during the project meetings. First, to develop software training materials and a quality culture around medical device software; and second, to foster a stronger decision-making structure for changing diagnostic imaging protocols. The project resulted not just in updating the software but in addition, the co-production of comprehensive training materials. This also had the indirect benefit of broadening the team's understanding of clinical software and added a wider perspective to risk assessments of its use.

Conclusion

How we conceptualise and apply leadership ideas is a major factor in getting the best possible outcomes. A blend of situational and transformational leadership models appeared to be most suited to my example. In your own workplace, do you use elements of these leadership styles? Which model would suit your own work environment best, and when? Good leadership is ultimately something that is learned through trial and error, and leaders need to have a range of leadership styles that they can use flexibly when responding to change. Academic leadership models can help us in this journey by offering insights into what may work well in particular situations.

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STRATEGIC DEVELOPMENT: HOW ONE PROFESSIONAL BODY IS DOING IT

Phil Morgan, Chief Executive of the Institute of Physics and Engineering in Medicine, shares his experience of developing a new strategy for this professional body.

The Chief Executive of a professional body answers to everyone when it comes to performance: to their boards, their members, volunteers, and staff; their beneficiaries, if they are a charity; and a kaleidoscope of stakeholders. This makes for long and detailed job descriptions! Essentially though, a Chief Exec needs to set the direction and create the conditions for success, with the first element, namely, the development of a strategy for the organisation, being the most critical.

Strategy has a really important role to play. As membership organisations, we are expected to act as the 'voice' of our members and promote their professional interests. We also need to be sustainable over the long term while carrying out many other functions and roles. These challenges are made more complex by the need to work with both the history and present context of the organisation. But the essence of strategy development is to create a focus, choosing what you will and will not do to fulfil your purpose. Creating a new level of focus can reinvigorate an organisation and push it to higher levels of performance.

This summer the Institute of Physics and Engineering in Medicine (IPEM) published its strategic overview for 2021-2025[1].The experience of developing it might be useful to share.

Time and scope

Having started as IPEM's new Chief Executive in January 2020, I needed to get to grips with the organisation, including its risk profile, aspirations, and challenges. The previous strategy had expired but I argued that it should be extended for 12 months to allow me to research and develop ideas. This gave stakeholders reassurance that ongoing work would continue and that major issues for the organisation would be tackled.

In learning about IPEM, I began to appreciate the opportunity. A new strategy needed to focus the efforts of a small organisation that was spread across a wide range of activities. This process would be a chance to 'rebrand' as we worked on a new assessment of our mission, vision and values. This meant that work on the strategy began with a very clear focus on IPEM's purpose, 'to improve health through physics and engineering in medicine'.

Co-creation

Membership bodies are stakeholder-rich environments. As well as formal governance structures and volunteers, there will be groups of members with strong feelings about the organisation. Although strategy cannot be created effectively by a cast of thousands, it is important to ensure that members can engage with the process.

In previous roles, I found 'Horizon Scanning' workshops useful for engaging large groups of stakeholders in identifying themes for the future. But in mid-2020 the COVID pandemic made it impossible to set up a large gathering, and many IPEM members were fully engaged on the frontline in the national effort to boost NHS capacity. We had to find another way. I used online whiteboard tools to allow members the opportunity to comment, enabling us to create a basic horizon scan and SWOT[2] analysis. It was difficult to capture people's attention, but we gathered hundreds of comments which gave us good material to reflect upon. I augmented this with in-depth interviews with a range of people from a variety of backgrounds and relationships with IPEM. The output of this stage was a clearer idea of the organisation's priorities.

I used the goal of developing a refreshed statement of 'mission, vision and values' to bring together a range of stakeholders in online workshops. Our own research, combined with that of the design agency briefed to develop a new look for IPEM, gave us more material to reflect on and took us right back to first principles. These workshops helped us to understand the priorities which our stakeholders wanted us to consider and allowed us to drill down and seek to understand what 'good' looks like. Through this process, the key elements of our strategy emerged:

Leadership – the impact we have as a charity for and on behalf of our members;

Professional Development – how we support professionals to serve the public; and

Community – the home and sense of belonging ourmembership can give them.

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Planning for performance

I wanted the new strategy to take effect immediately, so chose not to make it public until we had completed a process of operational planning. My preference is for decentralised planning, empowering managers to devise and deliver their own means of meeting our challenges and opportunities. I gave our staff in IPEM a general outline for their plans and regularly met with them to discuss their ideas. I sought to provide a supportive environment for their work with the aim of breaking the big picture goals down into concrete targets and 'lead measures' – the activities that ultimately deliver success.

Our three strategic elements gave rise to a range of plans:

1. **Leadership** will be delivered through a Communications Plan;
2. **Professional development** will be driven by our Plan for the Management of Professional Knowledge, through education, training and scientific meetings; and
3. **Community Plan** covers membership, registrations, and volunteer management.

What next?

The IPEM 2025 strategy was published on our website this summer. This is the first stage. We are moving rapidly to relaunch our website and will be developing a further strategy that focuses on science, engineering and the future operating environment for IPEM members. With a solid strategic foundation, we can then tackle the next big challenge of driving growth in membership, audience, customer base and impact. IPEM's chief risk is our reliance on income from its journals and other publication activities. Being stronger in other areas of the organisation will allow us to manage any threat to our publishing income in the long run.

In the end, setting a new direction for IPEM took around 18 months. I believe that we gave ourselves the time and space needed to create a strategy that has the potential to push the organisation to go further and faster. Importantly, it provides focus. We have identified the route to delivering our purpose over the next four years and we can see our priorities more clearly. I say 'we' because it involved members of IPEM from start to finish, and I hope we will all see the impact of this work in a relatively short space of time.

1. *https://www.ipem.ac.uk/AboutIPEM/IPEM2025.aspx*
2. *See https://en.wikipedia.org/wiki/SWOT_analysis*

DEVELOPING HEALTHCARE SCIENCE SERVICES: WHAT LEADERS NEED TO ADDRESS

A personal opinion from Dr Patricia Oakley, Strategic Service and Policy Analyst, Kings College London.

The COVID-19 pandemic has shown how critical Healthcare Science (HCS) services are in clinical decision-making. It has also consumed so much time and energy that it has left few resources for Healthcare Science service leaders to do much planning. However, with the prospect of the pandemic's effects waning over the next year as population immunity levels build, and with the experiences gained in designing and delivering rapid response diagnostic, clinical and support services at scale since early 2020, Healthcare Science leaders might reasonably be expected to draw on their collective knowledge of the last 18 months to develop their local integrated service strategies for the next 5 years. These strategies will need to show the level of investments required to develop services to enable delivery of the public health goals set out in the NHS Long-Term Plan for the English service, and its equivalents in Wales, Scotland, and Northern Ireland.

For the English service, we do not yet know the legal details of how the proposed local Integrated Care Services (ICSs) will work but while we wait for the law, and its accompanying Standing Orders and Standing Financial Instructions, we might reasonably assume that the newly appointed ICS Chief Officers and Finance Directors will expect their healthcare science leaders to be developing their service strategies and investment plans this year, ready for April 2022.

To inform what a local ICS Board Healthcare Science Strategy might include, we could focus on what policymakers and the government consider to be one of the big issues for the 21st century: the impact of generational decline. This is the number of people expected to die each year as the baby boomers, those born between 1946 and 1964, work through the system. Life expectancy has improved for most because of the state's investments in public services since the late nineteenth century, but death will inevitably come. The Office for National Statistics (ONS) has projected the number of baby boomers dying will peak in 2044, nearly a century after the birth rate spiked.

The consequences for providing health and social care for the next 25 years are often discussed. They have been summarised in three key reports which should form the cornerstone of any local strategy. These are: *A review of recent trends in mortality in England*, published by Public Health England in 2018; the *Dilnot Report – Fairer Care Funding*, published in 2011; and the *NHS's Long Term Plan*, published in 2019. There are equivalents in each of the other three countries of the UK.

What matters locally is the gradient of the projected death curve between now and Peak Death in 2044. This varies across the United Kingdom, so the ICSs in England, and the Boards for Wales, Northern Ireland, and Scotland, will need to quantify the relationship of their local death curve's gradient to their local projected incidence rates for cancer, cardiovascular disease, and mental health disease - dementia and Alzheimer's – which are the main drivers of local morbidity and mortality rates.

A rapid and accurate diagnostic and imaging service is the key to providing good therapeutics and improvements in the quality of life in these priority disease areas, so an impact analysis of what this all means for each local Service is required. We also have major commercial investments in progressing complex data collection and management and increased computational capacity and capability to draw upon. Added to this, we have the NHS's recent strategic investments in the five Centres of Excellence[1] which are developing different aspects of the diagnostic and imaging service where machine learning routines are being developed to support improved clinical decision-making and therapeutics.

So, what do we want local leaders to work on as they develop their Healthcare Science Service strategies? I offer three related bundles of issues for consideration:

- improve service design and delivery to embrace the new efficiency-gaining technologies and associated underpinning informatics and predictive analytics
- recognise and mitigate the impact of such service design changes on embedded social and human factors, to ensure they improve safety and error finding and enable staff to learn new roles and work routines
- recognise and mitigate the impact of changes to the above on embedded power systems and domains of expertise, to ensure boundary conflicts are reduced and effective arbitration techniques are employed to ease tensions.

It is tempting to look at this as a 'pick and mix' menu - but the most important thing is to make sure the ICS or Board sees the proposals as an integrated package of investments and development. This is because redesigning and streamlining different strands of diagnostic, imaging, clinical and support delivery services into a highly geared technology and informatics-enabled operation changes the parameters of the embedded safety system, and its associated error-finding and learning systems. The risk is

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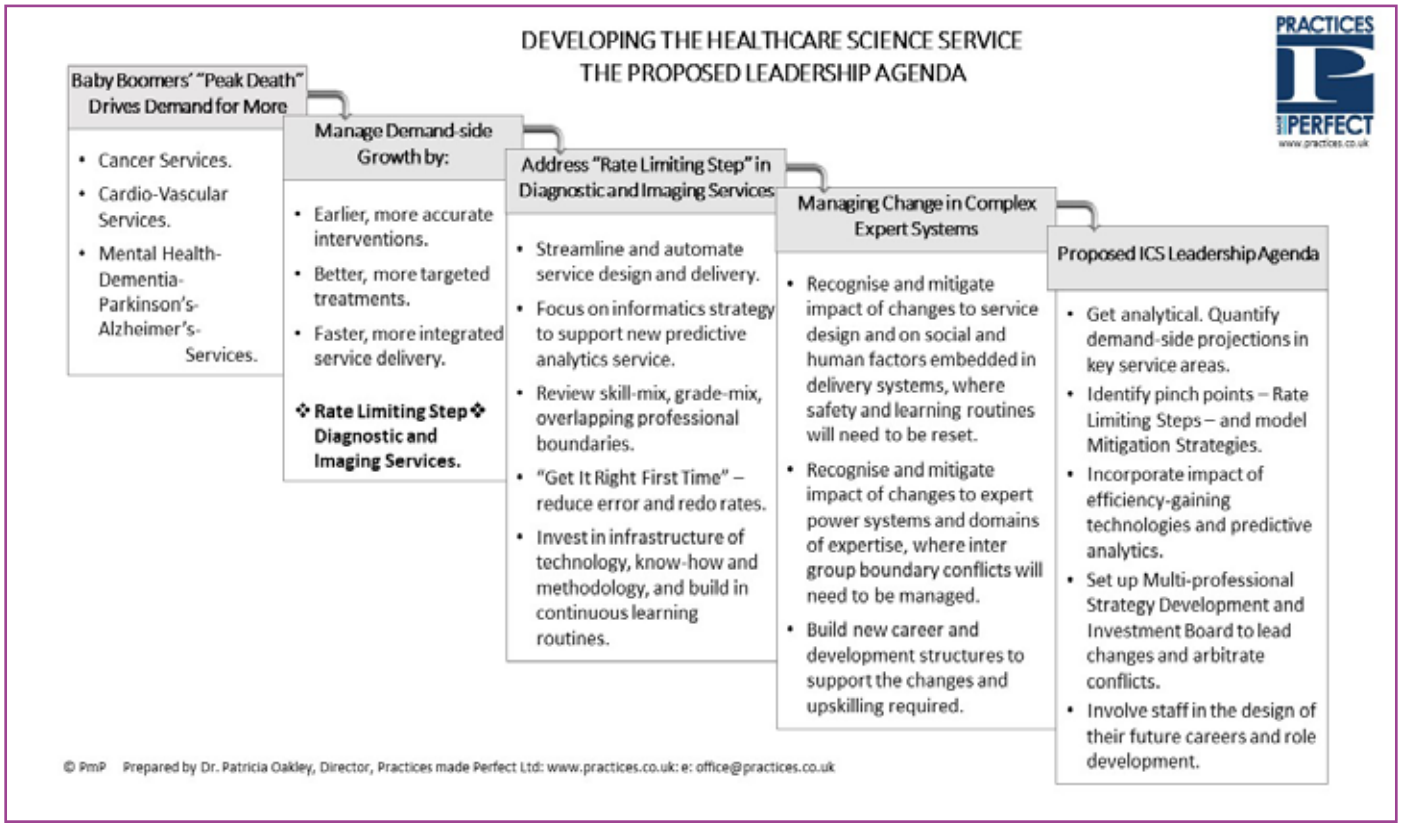

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that naively introducing new technologies and informatics, while ignoring or paying lip service to how staff work and behave, will change the risk profile and increase the chances of a serious service failure.

Research and inquiries over many years in the airline, maritime and pharmaceutical industries demonstrate the importance of addressing the social as well as the technical systems of complex work routines that involve many types of experts. Such expert systems, with their unique cultures, norms and rules, collective memory, and local know-how, are established over many years. They are sometimes hard to penetrate, let alone change, but as they can act as powerful braking and disruptive forces they need to be addressed.

At an individual level, any disruption to how workers see themselves and how they relate to others in and between their reference groups, affects their motivation and whether they are content with their jobs and careers. In addition, changes to the hierarchical structure of power and the nature of expertise and its boundaries as services develop will give rise to disputes. The power systems that run through the NHS have been so long in the making that they can act as potent isomorphic forces which erode the authority of any local change, no matter how worthy.

Fortunately, we do not start with a blank sheet of paper. The NHS's surgical and maternity services have been the focus of many enquiries looking closely at what happens when things go wrong in pressurised, real time, multiple expert decision-making systems. Risk mitigation programmes which draw on human factors and socio-technical systems theories, although at different stages of maturity, have shown how improvements to complex systems can be made and sustained.

However, there is more to do. Recent cases of intra and intergroup conflicts around who owns, and therefore governs, a new domain of expertise demonstrate how disruptive it can be when the underlying isometric forces are ignored. Disputes between cardiovascular surgeons and interventional radiologists, for example, demonstrate the potency of such forces and the potential costs of ignoring them.

To conclude: 'Peak Death' is already baked into the system. Amazon Web Services and Google's quantum computing are realities. Service redesign and workforce development to get the necessary efficiency gains while improving patient care need investment. A 'pick and mix' approach will not do. Locally, Healthcare Science Service leaders need to energise the debate, get analytical and make friends with powerful stakeholder groups, especially medical staff, and advocate their case.

Life is tough but the pandemic has taught us that health care staff rise to a challenge and that they deliver. I am optimistic that we will get improved care and as a baby-boomer myself, I am looking forward to an even longer period of active and happier life.

Dr Patricia Oakley is a Strategic Service and Policy Analyst and Research Fellow at King's College London with over 35 years' health and public service experience in strategic, operational and policy research and development. She has worked extensively with national policy-makers and Trust boards, executive directors, senior clinicians, service managers and clinical practitioners, including those in healthcare science, in developing strategy to deliver affordable and effective public services.

1. *See for example: https://www.med-technews.com/news/government-announces-five-new-ai-centres-of-excellence/*

HEALTHCARE SCIENCE IN LEADERSHIP EDUCATION

Professor Wendy Reid, Director, Education & Quality, Medical Director, Health Education England.

The first thing to say is that I am not a Healthcare Scientist – so it is legitimate to ask why I am writing this article. My clinical training was in Obstetrics & Gynaecology and during that and my subsequent consultant role in a university teaching hospital I became aware of people who were not doctors, nurses or midwives, often hidden down obscure corridors and who were often referred to as, 'I would go and see xxx - they're the real experts in this'. At that stage there was little knowledge of, or cohesive education and training in, the wider professional teams we now know are vital for healthcare. I soon realised that the healthcare scientists I met were not only the ones with the answers that clinicians were seeking but were also a source of debate and challenge. It was during my later career that the Multi-Disciplinary Team meeting became commonplace, particularly in the field of Gynae-Oncology when the formalised role of many of my healthcare scientist colleagues became evident. However, how they got to where they were, what their education and training comprised, and where they 'fitted' in the system of care was never explored or explained. Even when postgraduate medical education was the focus of several learned independent reports there was almost never a mention of how medical doctors would actually learn how to work in multi-professional teams and who might be in those teams, let alone lead them; although at least there was an emerging consensus that team work was important.

It was not until I began to work for Health Education England (HEE) that I got to hear about Healthcare Science education. The programme, Modernising Scientific Careers, was the most obvious starting point and gave me the opportunity to work with the Chief Scientific Officer, Professor Dame Sue Hill. Indeed, watching her navigate the system at the highest level, raise the profile and role of scientists in the health service and ensure that pathways are flexible and adaptable has been both an inspiration and a privilege.

The reason I am writing is because of my experience as Director of Education and Quality in HEE. I have led the introduction of a quality assurance framework that enables students and learners to report on the environment in which their clinical training takes place. This is the first fully multi professional quality assurance process for healthcare education in the NHS in England. Its linchpin is the National Education and Training Survey (NETS) in which all students and learners, including healthcare scientists, can have their say about their learning experiences. There is no weighting for any individual profession and we can see data that reflects experiences at local and service level. The National School of Healthcare Science has input to the survey and its quality processes at all stages and has shaped how we get data from smaller professions. Hearing the voices of the whole team in their learning environments is vital if we are to raise the quality of patient care through education and training.

The constant challenge of getting the healthcare workforce in the right numbers, with the right skills and in the right place is such that traditional modelling of consultant and nursing numbers is no longer sophisticated enough to reflect how we care for patients. Although HEE has been successful in increasing the number of doctors training to be GPs, and there are significant increases in undergraduate medical and nursing places, the need to think about workforce transformation and the whole team leads us to look more closely at the knowledge and skills required to do the job– rather than delivering education packages regardless of future patient needs. Healthcare science is helping to lead the way on this by introducing integrated educational pathways and new relevant and flexible curricula. It can be uncomfortable to challenge the status quo but we have seen how working across traditional professional boundaries enabled the NHS to meet challenges in the Covid-19 pandemic. Leadership from a wide variety of individuals was vital in ensuring staff were supported, patient care was delivered, and research needed to move on was conducted. No one profession has the monopoly on leadership within the NHS, at any level. All our future workforce needs the opportunity to learn the fundamentals of leadership and to develop their skills in this area of clinical practice, in the same way we would expect for other areas of professional life.

A revitalised public interest in science following COVID-19, combined with a surge in applications to university and other healthcare courses, gives us an opportunity to increase awareness of careers in healthcare science. Leaders across the NHS will need to be brave and nimble as we address the backlog of clinical cases, the ongoing demands of Covid-19, and meet the needs of patients with complex multi morbidities while stepping up our impact on population and public health. The NHS needs leadership that is as varied as our patients and that comes from all parts of the service. The roles played by healthcare scientists in clinical teams, local management directorates and beyond are supported by an excellent education framework and career opportunities. Personally, I hope to see more healthcare scientists in leadership roles across the whole service.

THINGS NOT ALWAYS GOING TO PLAN IS A KEY ELEMENT OF LEADERSHIP

In conversation with Dr Sue Fergy, Consultant in Healthcare Education.

In your early career you were an ICU nurse. What then took you into education?

As a Registered Nurse, I was involved in teaching student nurses and learners and really enjoyed it. Consequently, I qualified as a clinical teacher and worked for two years alongside student and staff nurses, supporting ward-based clinical learning. There I saw a gap between theory and practice. This provided me with an opportunity to develop the teaching and facilitation skills of permanent members of the Ward team and to strengthen the educational ethos on wards. I then undertook a degree in education and registered for a part-time PhD exploring the value of clinical practice.

> **"I find healthcare scientists to be bright, creative, on the ball, conscientious and to have real energy and enthusiasm for their work."**

I moved into the university sector and began to work with other disciplines ranging from radiographers to social workers. I also developed weekend study schools and taught on mentorship and leadership programmes at postgraduate level, while assessing clinical practice and finding out how best to help everyone learn. I became very learner-focused: Health Education England (HEE) refers to 'educators' and 'learners', rather than 'teachers' and 'students'. Everyone should continue to be a lifelong learner, and as educators we learn from those we facilitate.

What did you do next?

I was seconded from my university to NHS London, to help nursing prepare to become a graduate profession. How could we keep the existing workforce engaged, enthusiastic and feeling that their practical skills and prior experience were valued? This work underlined the need for nurses to have a significantly higher public profile – very much as I believe healthcare scientists need now. Both professions find it difficult to fully quantify and articulate the range, value and impact of what they do. The NHS often pays more attention to what is easy to measure rather than to what is important.

Have you been involved in other roles?

After 25 years, I left university to work independently. I became a Project Manager at the Patients' Association, hearing the patient's voice through researching the quality of patient experiences. My work there ranged from investigating the profound lack of understanding patients can have about their treatment and their medication to investigating the impact of underlying staff attitudes and values on patients' experiences.

How did you hear about Healthcare Science?

I became clinical education lead at HEE London in 2014. The purpose of our team was to develop NHS faculty and enhance clinical education and leadership. I first came across healthcare scientists in 2015, although at the time I was not sure what they all did! I met Ruth Thomsen at a conference, and she explained that healthcare science was an umbrella term for 52 different disciplines. Both Ruth and I were new to our roles and she had a vision for developing healthcare scientists. This led us to create, deliver and evaluate a new leadership programme specifically for healthcare scientists, PSEL[1].

What is PSEL ?

PSEL (Practical Skills for Education and Leadership) is an experiential leadership programme - frequently followed by a series of Action Learning Sets - designed specifically for healthcare scientists. It was initially piloted in London then, following evaluation, it was funded to be delivered nationally. We continue to receive positive feedback, with participants reporting that it provides significant practical value to them in their leadership and educational roles. In 2020, we had to stop on site delivery because of the pandemic but then successfully transformed the

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face-to-face format into an interactive, experiential online one. We have also created a follow up programme, PSEL+, to meet a demand for additional leadership training.

How easy is it to deliver leadership development to healthcare scientists?

I find healthcare scientists to be bright, creative, on the ball, conscientious and to have real energy and enthusiasm for their work. Individuals are often unsure what to expect initially on an experiential programme but soon step out of their comfort zone. I love seeing people engage with the programme and develop their ideas and thinking, working out how to apply new models, frameworks and knowledge to their workplace. This willingness to try out something new and share the results makes our work as facilitators very rewarding and enjoyable. Approximately 500 scientists have undertaken the PSEL programme since 2016.

Can it be challenging?

Delivering the programme is always interesting and stimulating. Online delivery is different to doing it in person but it has certain merits, such as no travelling. At times, technological glitches can be challenging and occasionally participants find it difficult to engage or keep focused when they are in their home or office environment. Sometimes children, dogs and colleagues appear but I feel that this adds to the authenticity of the programme. Things not always going to plan is a key element of leadership!

What leadership issues do healthcare scientists face?

Funding is one. Traditionally, leadership development has not been seen as essential for healthcare scientists and individuals have struggled to get support. Another particular NHS challenge can be an underlying reluctance to change how things are done, often from a concern to avoid risks but sometimes because of vested interests. This can make it difficult for those wanting to lead service developments and try out new ideas. Another perennial NHS problem is addressing underperformance; leaders need to be ready and equipped and supported to take action and begin those difficult conversations. Similarly, workplace bullying and harassment are troubling behaviours regularly revealed by the NHS Staff Survey. It takes skilled leaders to shape healthy work cultures.

How would you like the future to be?

Funded leadership development should be part of every healthcare scientist's career journey, with additional development and support for those in educational and formal leadership roles. Multiple development opportunities should be on offer, including mentoring, taught courses and 1:1 coaching, that support flexible career pathways and personal and professional growth. Strong, compassionate leadership should ensure that everyone is supported to do their best work and achieve their full potential.

1. Practical Skills in Education & Leadership for Healthcare Scientists. For more information, see an evaluation of the first cohort of programmes at https://www.ahcs.ac.uk/wp-content/uploads/2018/11/Mining-Hidden-Gems-2018-PSEL-Evaluation.pdf

REFLECTIONS ON THE IMPACT OF THE PAST TWENTY MONTHS

Professor Berne Ferry is the National Dean for Healthcare Science and Head of the National School of Healthcare Science, and on the Journal's Editorial Board.

For this second edition of the Journal, I want to reflect on the impact the last 20 months has had on the way our fellow NHS professionals and the public see scientists. I believe that both our colleagues and NHS patients are more aware of the science behind patient care and want to engage with the scientists involved in tests and treatments. The opportunities for healthcare scientists to share more about their work are immense.

COVID-19 has indisputably increased the visibility of healthcare scientists. It has given patients and NHS colleagues more insight into the diverse and critical roles they deliver. This visibility has been further highlighted by a key report published shortly after the second lockdown came into force, in November 2020.

The *Richards report* shines a light on diagnostics and its future[1]. It identifies healthcare scientists as a key part of the diagnostics workforce and says, "The Covid-19 pandemic has further amplified the need for radical change in the provision of diagnostic services but has also provided an opportunity for change." In an associated physiological measurement workshop Richards also wondered why "it has taken 73 years for the NHS to understand the central importance of diagnostics to every patient pathway." I do not know why, but I do know that it is in the diagnostic arena of the NHS that around 90% of healthcare scientists undertake their work.

We – healthcare scientists – are generally a discreet and unassuming bunch. We can work happily at perfecting and delivering diagnostics and treatment support, in some cases directly with patients and often, in pathology, with patient tissues. Often we have not seen ourselves as leaders when in fact we are superbly good at leading. During COVID, healthcare scientist roles and leadership proved to be particularly vital in efforts to combat the pandemic in the UK.

Healthcare scientists were – and still are – involved in services across all frontline areas: contributing to COVID-19 testing, maintaining and decontaminating ventilators and other equipment, imaging patients and so much more. Clinical engineers, for example, provided expertise and led the ventilator challenge with support for crucial logistics and equipment operation, and alongside their medical physics colleagues were key in setting up field hospitals. Getting a grip on who had or didn't have coronavirus and the immune status of patients relied on pathology scientists. They not only developed COVID tests and performed them on tens of millions of people, but continue to do so. Pathology scientists around the country worked with academic scientists, contributing to many different clinical trials and vaccine developments. NHS genetic scientists have been working closely with microbiology labs throughout the NHS and Public Health England to identify and track variants of concern thrown out by the virus.

On a personal level, my friends and neighbours can now spell 'Immunology' and even have a vague idea of what the immune system does in the body! My family cheerfully discuss PCR and R values in general conversation and tell me that they now have some inkling about what I have been up to over the last forty years! More importantly, I think people are now a lot less afraid of science, even a little interested in it, and will have a go at talking about it. This is brilliant, and it bodes well for STEM development in the future.

Whereas COVID-19 and "following the science" might have helped the public be less afraid of scientists (and science itself), it has also helped to soften the image people have of us. The government and senior NHS decision makers are also now learning about the vital and leading role of scientists through a greater understanding of diagnostics. Promoting the importance of diagnostics in enabling more efficient and faster patient journeys will further highlight the critical role of healthcare scientists in the NHS.

The newly formed NHSE/I Diagnostics programme has five workforce pillars: Pathology, Genomics, Physiological Measurement, Imaging and Endoscopy. Healthcare scientists are not only critical to all these clinical specialties but constitute most of the workforce delivering services in pathology, physiological measurement and genomics. There has never been a more opportune time for scientists and technical staff in healthcare science to show how brilliant and vital their work is to patient care and the future of the NHS. It is now up to healthcare scientists to step into the light and take a more visible place alongside our NHS professional colleagues in medicine, nursing, dentistry, the allied health professions and pharmacy. I look forward to seeing that happen.

1. *Diagnostics: Recovery and Renewal – Report of the Independent Review of Diagnostic Services for NHS England.* https://www.england.nhs.uk/publication/diagnostics-recovery-and-renewal-report-of-the-independent-review-of-diagnostic-services-for-nhs-england/

NEWS ROUND UP

GETTING SERIOUS ABOUT SUSTAINABILITY POST-COP26

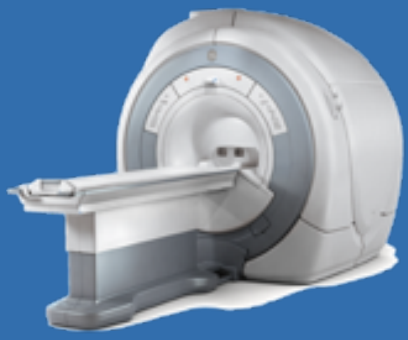
Healthcare is a big emitter of carbon dioxide. The NHS published ***Delivering a 'Net Zero' National Health Service*** in October 2020 and is ramping up efforts to reduce its environmental impact.

Ultimately it is those working in healthcare organisations who will drive local changes and make the difference. Healthcare scientists have been showing leadership in this area already and here are some of their ideas you could build on to help achieve change:

- Write to manufacturers. Encourage them to reduce their environmental impact in areas such as production, packaging and transport. Remind them that the NHS is starting to look hard at emissions throughout its supply chain. Involve your professional body and colleagues from other organisations.
- Estimate the carbon footprint of different procedures, to help target actions to reduce emissions. One group obtained £10k in funding from the North West Greener Innovation Fund for a project to do this across multiple centres.
- Explore the use of re-usable items. One department estimates that re-usable sterile gowns could save up to £10k per year and 86,000 kg of carbon dioxide emissions.
- Reduce electricity consumption, for example by putting unused PCs to sleep between 6pm and 8am.
- Stop the use of disposable polystyrene cups. Give re-useable cups to patients. Push for a change from plastic to wooden/bamboo cutlery in the canteen. Optimise waste segregation, which can also slash costs.
- Raise awareness. Set up a "Green Ambassadors" scheme, where a member of staff leads discussions about sustainability with colleagues and helps implement changes. Develop and feed into local Green Plans. Host cycling awareness events.
- Appoint a ranger to lead on care of green spaces, to benefit biodiversity and also patient and staff wellbeing.

More information is online, for example at the ***Green NHS*** and in the ***Healthier Planet, Healthier People*** campaign website.

NEW UK MEDICAL DEVICE REGULATIONS



Most healthcare scientists use medical devices as part of their work. The Medicines and Health products Regulatory Agency (MHRA) has been consulting on the approach it should adopt to drawing up the UK's own regulations following exit from the EU. The formal MHRA consultation closes on 25th November 2021. There are likely to be further opportunities to provide input over the coming months, especially on issues of concern. More information will be posted on the MHRA website.

INNOVATION FELLOWSHIPS

The Innovation Fellowship: Devices for Dignity Programme is a twelve-month opportunity for qualified Healthcare Scientists working within the NHS in England and Wales with a least one year of post-qualification experience. It will provide experience in innovation and focus on digital technologies for diagnosis or monitoring. It aims to give Fellows the knowledge, skills, and confidence to develop, evaluate, and implement new technologies, and the ability to initiate and lead their own technology innovation projects. Fellows commit to one-day-per-week protected study time. Closing date for applications is 14th December 2021. Go to: ***https://devicesfordignity.org.uk/about-us/healthcare-science-innovation-fellowships/***

HONORARY FELLOWS TO THE ACADEMY FOR HEALTHCARE SCIENCE

The Academy for Healthcare Science has recently reviewed and updated its policy for Honorary Fellows.

The AHCS appoints a maximum of 10 Honorary Fellows per annum in recognition of their outstanding contribution to the Academy and / or the wider field of Healthcare Science.

The appointment of Honorary Fellows is a responsibility of the AHCS Professional Bodies Council. It is based on the assessment of nominations submitted in compliance with the procedure described in the updated policy document, which will be made available on the AHCS website.

Timescales for Honorary Fellowship nomination, assessment and award are as follows:

1st February
Call for Stage 1 nominations

15th March
Close of Stage 1 nominations

15th April
Assessments of Stage 1 nominations completed and nominators of those proceeding to Stage 2 informed

1st June
Stage 2 nominations closed

15th July
Assessments of Stage 2 completed. Nominators and nominees informed of outcomes

TBD
Awards ceremony, date fixed annually

Nominations should be confidential and be known only to the nominator, supporter and AHCS Honorary Fellowship Panel members.

The President / Chair of the AHCS Professional Body Council will notify (via AHCS Admin) the new Honorary Fellows of their award and arrange a suitable occasion for presentation of a certificate confirming the award.