

THE HEALTHCARE SCIENCE LEADERSHIP JOURNAL

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LEADERSHIP

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WHAT HAVING LONG COVID
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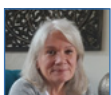
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EDITORIAL

Our attitudes and actions determine who we become as individuals and as leaders. They are formed by, and help to shape, those communities to which we belong. How open are we to change and grow?

An underlying theme in this issue is the importance of authenticity. Our ability to be authentic grows as we develop self-awareness and our understanding of others. It gets worked out in everyday relationships as we come to terms with ourselves and accept and celebrate difference. Acting with respect means helping ourselves and others to be their authentic selves. How we do this will determine not just our own future but that of the communities of which we are a part ^{1,2}.

Effective leaders select **LEADERSHIP APPROACHES** best suited to the situation they are working with. Using examples from a small speciality, **Rebecca Haines** outlines the difference between transformational and servant leadership styles. She examines what each can offer healthcare scientists working with change and team development, and highlights their potential to enable growth in small professions.

In his article **Rangaprakash Muthukumarasamy** applies these styles to supporting and motivating staff during the pandemic and in engaging with issues of equity, diversity and inclusion. He provides practical examples and underlines the importance of day-to-day practice in growing as a flexible and authentic leader.

EMBRACING DIVERSITY involves challenging overt and hidden expectations. What should an individual do when faced with an uncomfortable situation or outright discrimination? How can leaders be sensitive to difference and to others' internal conflicts and enable change?

Robert Farley explores what it means to be an authentic leader as a member of a minority group, quoting from his own experience. Acting as a role model can raise tensions between expressing personal identity and conforming to professional expectations. His article raises powerful questions about how we train and develop leaders to be more inclusive.

Bec Lee introduces us to several characteristics a neurodiverse person might have. She gives examples of what being neurodivergent can feel like and provides ideas for accommodations in the workplace. **Emma Goulding** tackles five myths about ADHD, following her own diagnosis. She explains the underlying way people with ADHD process information and describes the impact of various traits on their behaviour and how they are seen by others.

Sarah Peel describes what it feels to be an introvert and looks at some of the differences between introversion and extraversion. She presents ideas about how introverts might better be included in group meetings and encourages them to take up leadership roles.

Mollie Riley won a Healthcare Scientist Rising Star award in 2022. She charts her **CAREER JOURNEY** from healthcare science student to a joint leadership role in paediatric respiratory physiology, sharing her passion for working with children.

Mollie's portfolio now includes teaching, mentoring and cystic fibrosis research. She encourages other healthcare scientists to explore what they are capable of.

In her **BLOG Charlotte Kemp** reflects on the impact long Covid has had on her life and work after it undermined her abilities and sapped her energy. It was only after accepting the need to rest properly that she found a route to recovery, learning again the value of self care and a balanced life.

Finally **Berne Ferry** brings us up to date with eight years of Higher Specialist Scientist Training. This programme has shown its worth, with trainees enhancing their contributions to the NHS and early alumni taking up leadership roles. She is looking forward to what the next 10 years will bring!

Keith Ison

1. Nelson Mandela interview 2006: the meaning of 'Ubuntu'. <https://www.youtube.com/watch?v=DxOqGJcm-qU>

2. "[A person with ubuntu is] open and available to others, affirming of others ... [having] a proper self-assurance...My humanity is caught up, is inextricably bound up, in yours." Desmond Tutu, *No Future Without Forgiveness*, Rider: 2000.

TRANSFORMATIONAL AND SERVANT LEADERSHIP: LESSONS FOR CLINICAL BIOINFORMATICS GENOMICS AND OTHER HEALTHCARE SCIENCE SPECIALISMS

Introduction

Clinical Bioinformatics Genomics (CBG) is one of the newest healthcare science specialisms. Based mostly within genomics departments, it covers software development, data science and clinical genomic results analysis.

I was in the first cohort of CBG scientist trainees, which finished training in 2016. Our formal leadership progression started mainly with roles in bioinformatics teams, networks and professional groups and its scope has been expanding with time. We also use our knowledge and expertise to influence the decisions of peers and senior colleagues.

As part of my higher specialist scientist training (HSST) I have reviewed two models that could help us further develop leadership in CBG and other specialisms: *Transformational leadership* and *Servant leadership*. How might these models be applied in areas involving rapid innovation and change, such as bioinformatics and genomics? What do they offer to help establish and develop small specialisms and their scientific leaders?

Transformational Leadership

Transformational leadership theory draws on older leadership ideas around power, influence, behaviour and situational factors but stresses the importance of intrinsic motivation. Followers are considered to be motivated to work towards a goal because it is personally rewarding¹. Transformational leaders focus on goals and influence followers to achieve organisational objectives. Its four core components are described in Table 1.

There is evidence that this model is valuable for organisations going through significant change and can improve staff satisfaction in healthcare⁴. This makes it particularly relevant for CBG and other healthcare science specialisms, given their involvement in implementing new technology.

Servant Leadership

Servant leadership reflects values such as integrity, trust, compassion and care that are set out in the NHS Constitution and sit at the core of many healthcare professions' standards⁵. Its implementation has been shown to improve staff and patient satisfaction.

A distinguishing feature of servant leaders is a behaviour that puts others first. They prioritise the individual needs of followers and direct their concern towards the good of their organisation and wider community. A servant leader builds effective teams who are able to contribute to shared organisational objectives.

Table 1: Components of Transformational Leadership with examples relevant to healthcare science (adapted from Gabel, 2013 and Lo, 2018^{2,3})

Idealised influence	Leader is a role model to followers, who aspire to be like them. Leaders provide vision and uphold organisational values and goals, with an emphasis on core principles such as beneficence and non-maleficence. <i>For example, implementing a new laboratory information system linked to the electronic health record, despite opposition, is justified to others on the basis that it will improve patient outcomes.</i>
Inspirational motivation	Leaders motivate and encourage followers. They communicate their vision effectively by their behaviour and verbal and written communication. <i>They take on additional duties in times of staff shortage to ensure patients receive the care they need, then ask others to do the same.</i>
Intellectual stimulation	Leaders provide opportunities for stretch and challenge, encouraging followers to think independently. They foster an environment of openness. They encourage followers to challenge the existing situation, <i>such as suggesting and implementing quality improvement projects to benefit the patient experience.</i>
Individualised consideration	Leaders have genuine concern for their followers. They provide support based on the needs of the individual. <i>For example, they mentor and support staff in their professional development, and recognise accomplishments such as implementing a new project.</i>

A focus on follower needs makes this an attractive model for staff development. In CBG, scientists are first trained in all aspects of the role and then develop specialist interests. To do this effectively, leaders must understand and match the skills, expectations and needs of each follower/team member to available opportunities.

In a small, fast moving specialism scientists have to establish their role and contribute to the wider service whilst also developing and delivering a training curriculum to future scientists and nurturing the careers of others. This requires taking a stewardship role and acting for the good of the profession, an aspect of servant leadership.



Rebecca L. Haines is Clinical Scientist (Clinical Bioinformatics Genomics) at the Genetics Department, Synnovis, Guy's and St Thomas's NHS Foundation Trust, London

Critique of these models in healthcare

A criticism of servant leadership is that focusing on followers' development, and allowing them time to find answers, is impractical when a quick decision is required⁵. This is likely to be a particular problem for those in a patient facing role and underlines the importance of using varied leadership styles.

Employee reward and progression systems are generally focussed on individual achievement and lack suitable incentives for leaders following this model. Those exercising servant leadership risk being left behind with fewer options for career progression, making it less attractive to use this style. This is of considerable concern in specialisms like CBG that have a retention problem⁶.

Individualised consideration

Leaders have genuine concern for their followers. They provide support based on the needs of the individual. For example, they mentor and support staff in their professional development, and recognise accomplishments such as implementing a new project.

Transformational leadership emphasises the role of the leader in influencing followers. A leader's vision may be inappropriate or even unethical but followers may still work towards fulfilling it regardless of the consequences.

Healthcare systems are complex and require leadership at many different levels. Having multiple transformational leaders working with differing visions in a single organisation creates the potential for conflict and ultimately damages the organisation as a whole.

It is important that all leaders in healthcare understand and uphold organisational goals and the importance of teamworking with a common purpose, so they can lead

their followers appropriately⁷. For CBG leaders this includes understanding the goals and expectations of the Genomic Medicine Service and how their work fits with the aims for genomics set out in the NHS Long Term Plan.

Conclusion

Healthcare scientists working in new and rapidly developing specialisms face two pressures. One is to deliver services, the other is to build professional capacity through updating curricula, delivering training at all levels and establishing robust professional standards and support. The first task focuses on organisational needs and the second on people, echoing the emphases of transformational and servant leadership respectively⁸.

The NHS recognises that scientific advances should benefit patients. Both transformational and servant leadership have features that can help healthcare scientists in CBG and other healthcare science specialisms do this more effectively, whether motivating colleagues to work towards organisational goals or acting as stewards of individuals and of their profession. Aspects of both models should be used appropriately by emerging leaders.

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LEADING A DIVERSE TEAM

I lead a team of people who come from many different ethnic backgrounds. What have I been learning about leadership in a diverse setting and how has it worked out in practice?

Sensitivity and integrity

Coming from Indian descent myself, I am aware of how important it is to be sensitive to each person's background and particular needs when in a leadership role. Two things have helped me get better at doing this: developing greater self-awareness of my own behaviours, and putting into practice the moral and ethical principles that I hold as a leader. I have found that being myself, and being open, have helped me gain the trust of my co-workers and demonstrate my authenticity as a leader.

Servant leadership

At various times during the pandemic, most staff in my department became exhausted. They needed extra support to work safely and effectively. My first response was to listen proactively to their concerns, and then look for ways to address their problems. For example, I met up with like-minded peers to voice the needs of all our staff to senior leaders, especially around the need for personal protective equipment. This problem was then resolved appropriately.

Equity, diversity and inclusion

My department contains several teams of qualified therapists and support workers, drawn from multiple professions and ethnic groups. I wanted to improve equity, diversity and inclusion in these teams. For me this means bringing out each individual's particular strengths and talents, in particular providing support to help them overcome challenges and build their career aspirations.

I therefore joined others who are passionate about this agenda to talk about the particular challenges BAME staff face in their day-to-day work. We went on to form a race equality group, which I now chair. It meets to create a psychologically safe space for BAME staff to share their thoughts and emotions, and encourages them to take responsibility for actions to address issues related to equity, diversity and inclusion. Joint achievements include celebrating culture and cultural festivals locally, and raising awareness of race related incidents happening at work. Even discussing a small number of incidents has encouraged staff to become active bystanders, supporting any colleague when a patient or a family member on an in-patient ward is subjecting them to racial abuse. This has created an atmosphere of inclusive shared leadership where each employee's uniqueness is fostered and a sense of belonging created by building and strengthening relationships. This has also supported the wider organisation in serving its mission of inclusion¹.



Rangaprakash Muthukumarasamy is Clinical Service lead for Occupational Therapy & Physiotherapy in Medicine Charing Cross Hospital & St Mary's Hospital, Imperial College Healthcare NHS Trust

Transformational leadership

Mulla and Krishnan^{2,3} found that leaders who demonstrate their ethical values, by taking responsibility and showing honesty, score highly when evaluated against criteria for transformational leadership⁴. However, transformational leadership theory needs to be practised for a significant time to increase followers' empathic concern and behaviours. The authors emphasise therefore that an effective leader should continue to motivate their followers through actively engaging and interacting with them. This helps followers be highly duty orientated and builds a sense of collective identity in the workplace.

I am increasingly mindful that to engage fully with difference and realise the benefits of diversity, I need to be comfortable switching from one leadership style to another as appropriate to the situation. I have found a transformational leadership style particularly helpful when seeking to motivate team members from diverse backgrounds. I spotted a few motivated individuals at different levels of experience, from a support worker to senior qualified staff, who I could coach individually and help to work on their career goals. In order to do this, I made myself approachable and provided consistent support. One outcome was that staff became more successful in

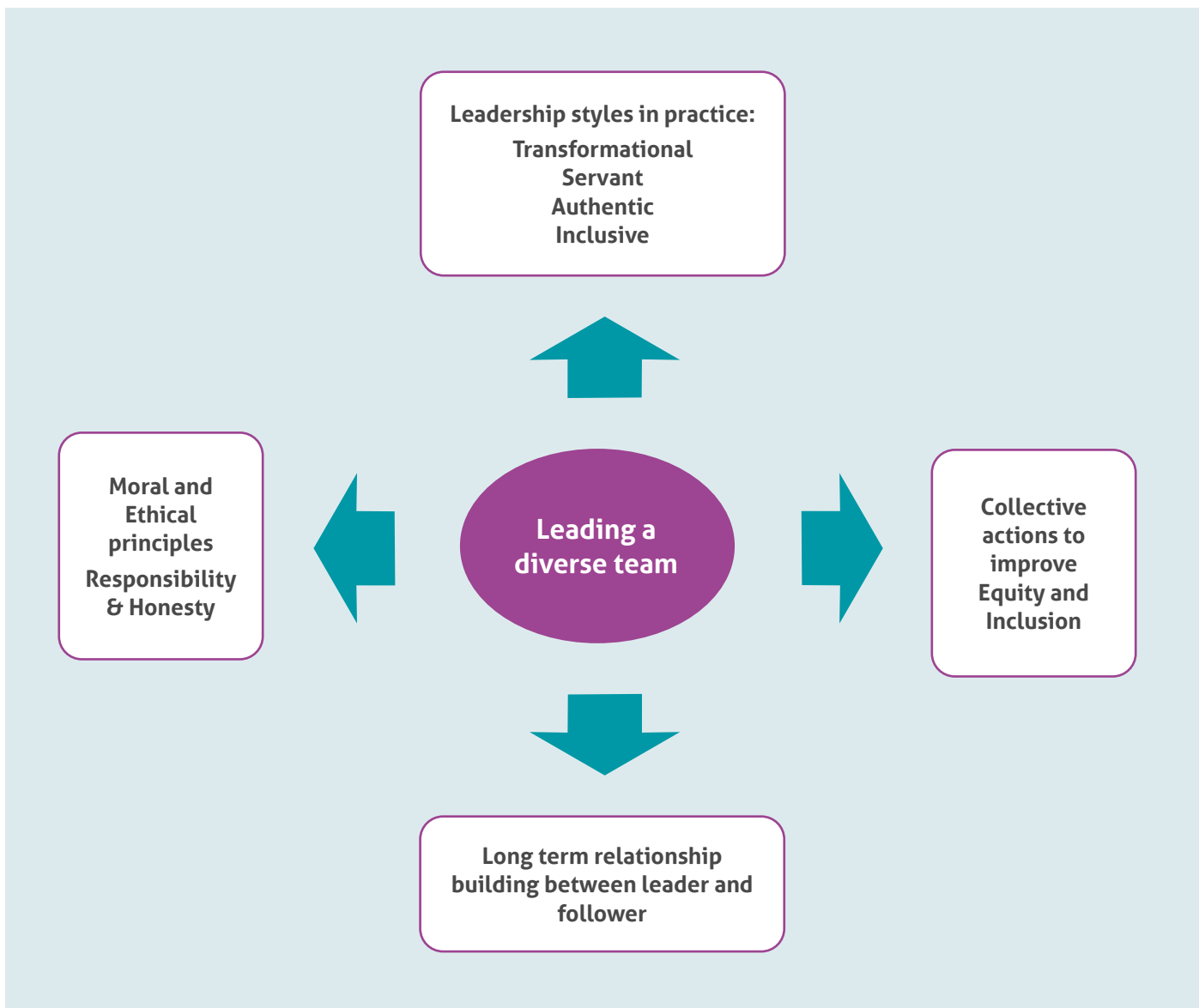
pursuing their short- and long-term goals, with some enrolling on apprenticeship-degree level programmes and also being promoted to the next level in their career.

The need to practise

I have discovered from experience that the best way to explore and develop different leadership styles has been to apply them day-to-day. As I have learned more, it has become easier to switch between styles to best suit the context I have been working in. As a result, I have become increasingly able to contribute to improving diversity and inclusion in my organisation and contribute to creating a better workplace.

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AUTHENTICITY, VISIBILITY AND IDENTITY IN PROFESSIONAL LEADERSHIP: THE CONFLICT BETWEEN LGBTQ+ SELF AND HETERONORMATIVE EXPECTATION

In a previous article, I stressed how important having an understanding of yourself is for anyone who wants to be a truly inclusive leader¹. In this article I consider how awareness and expression of that very same self-identity can be a potential barrier for individuals from minority groups who want to take on leadership roles. This is particularly true for those with hidden characteristics.

Visible role models are known to be vital in attracting underrepresented groups into professions such as science and engineering^{2,3}. However, individuals may have experienced direct discrimination for exhibiting the very characteristics they are seeking to model, especially where these counter societal norms. This hardly acts as an incentive for visibility. The internal conflict between a person's LGBTQ+ self and their professional self may be subtle and complex but nonetheless it is powerful and extremely difficult for anyone to resolve alone. It can be expressed more simply as a struggle to be an authentic, queer person in a predominantly cis-gendered and straight professional environment. This has certainly been my experience. Dealing with it has required much thought and reflection.

I think there are two types of visibility, which most queer people will be very familiar with. One is *premeditated visibility*, a planned and knowing act over which the individual has control. An obvious example is when you grab the Progress flag, crack open the glitter and head off to a Pride march. It could also be the photo with your partner at Pride, sitting on your desk.

A second type is *spontaneous visibility*, where an individual has to make a spontaneous, on-the-spot decision about how visible they want to be. These situations can and do occur at any time without warning, such as in a conversation before a meeting when you are asked about your plans for the weekend.

In a leadership situation in healthcare science, being authentic and visible within the professional context can become a delicate balance between having to lead a cis- straight majority whilst acting as a role model or exemplary ambassador for the LGBTQ+ community. This takes the problem beyond the realms of simple visibility into dealing with other people's actions, expectations and challenges. I was told by one colleague that they 'didn't think I should be doing that in my position'. This



Robert Farley is Head of Medical Physics and Clinical Engineering at Leeds Teaching Hospitals NHS Trust and President of the Institute of Physics and Engineering in Medicine

turned out to be a very important statement in my leadership development, and led to considerable reflection and some very interesting and beneficial discussions.

The challenge with visibility is therefore to understand how much is too much, in the professional context. Clearly giving a professional presentation in Polari⁴ is too much, though there may be occasional exceptions⁵. So where do you go to learn how to be an LGBTQ+ leader in healthcare science? And how do you resolve the conflict between identity and professional self?

There are a very few LGBTQ+ specific leadership courses run in the UK by LGBTQ+ charities. Places on them are limited but

“ I was told by one colleague that they ‘didn’t think I should be doing that in my position’. ,”



The LGBTQ+ Pride (a) and LGBTQ+ Progress (b) flags are powerful and ever- evolving symbols of LGBTQ+ visibility. The Progress flag has become much more common in the UK since the widespread adoption of the LGBTQ+ Pride flag to represent the NHS during the COVID-19 pandemic.

from my experience they are definitely worth enrolling on. Courses which are targeted at a specific minority group can lead to another common misconception, that such training is somehow non-inclusive. It should be pointed out however that the same charities often run so-called ally training

programmes, such as a straight allies’ programme run by an LGBTQ+ charity, for example.

Most generic leadership courses that I have experienced are designed around heteronormative male behaviour, sometimes even those directed at specific underrepresented groups. For example, courses that teach leaders how to be assertive and make yourself ‘big’ when seeking to have authority are arguably just teaching people how to emulate the conduct of straight, white, cis-gendered and able-bodied men in the workplace.

Perhaps it is time to look critically at our leadership offerings in Healthcare Science and ask ourselves whether our leadership courses are genuinely inclusive and not simply trait-based leadership programmes with an EDI offering. Do they truly help underrepresented groups understand, develop and communicate their identity? Do they help members of these groups to simultaneously be themselves and be authentic leaders in Healthcare Science?

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A SHORT INTRODUCTION TO NEURODIVERSITY

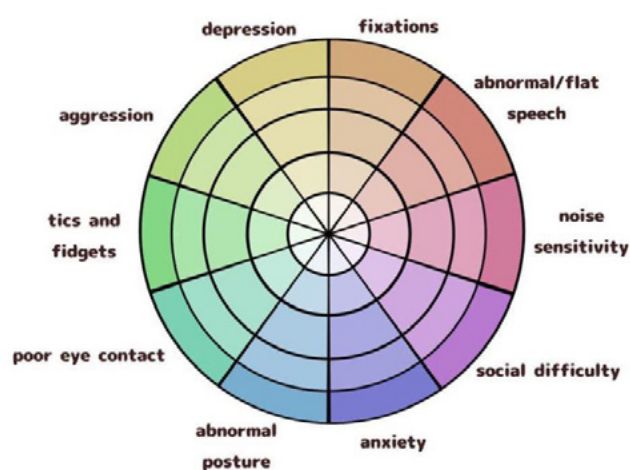
Hello, my name is Bec Lee and I am a 17 year old A-level student studying Biology, Chemistry, Psychology and a self-directed Extended Project Qualification on Transplant Psychiatry. Within the last year and a half, I've been diagnosed with both Autism and ADHD and I'm now taking steps to educate others about these conditions.

Neurodiversity is a term often used to encompass a large group of conditions that affect how someone perceives and interacts with the world. Their view differs from an 'average' or neurotypical perspective. These conditions include Autism, ADHD, Dyspraxia, Dyslexia, Dyscalculia and Tourette's Syndrome.

A major misconception is that a single spectrum exists for each condition, with autism for example ranging from 1 ('mild') to 100 ('severely autistic'). However, a more accurate representation is like the colour palette below¹ where different segments correspond to different issues. An autistic person with acute noise sensitivity, for example, might have every pink colour level filled out, whereas someone less affected might have only one or two. The more levels a person has in a segment, the more prevalent that issue is for them and the more support they need. Every autistic person is different, and in no way do they have the same symptoms and presentation.

The support neurodivergent people may need varies on a case-by-case basis. Building a relationship and being comfortable with a person so that they can trust you with their sensitivities is of utmost importance. Exploring issues by using a rating scale can make it easier for a neurodivergent person to vocalise where they need support. Being asked what you need straight up can be intimidating.

Autism Spectrum Wheel¹



Another unintentionally malicious misconception is that someone can be 'mildly autistic'. This is not accurate, in the same way that having swollen feet and a sore back does not make you 'mildly pregnant'. You can be uncomfortable in social scenarios and struggle making friends but not be autistic. However unlike pregnancy there is no standardised test for autism that can give a scientifically definitive answer! Terms specific to neurodiversity and conditions within its umbrella include allistic, stimming, hyperacusis, interoception, executive dysfunction and masking.

Allistic is a descriptor for non-autistic people.

Stimming refers to repetitive actions done by someone to help them focus, regulate their emotions or bring comfort. This can be seen in various mannerisms. It is extremely personal to the individual how they stim and can be very noticeable. Examples include vocal stimming, flapping hands, jumping and rocking. I'd like to point out that neurotypical people stim too but it tends to be more common with neurodivergent people.

Hyperacusis is when normal noises are processed to be louder within the brain. This can be very noticeable in a lab environment, with for example the whirring of various machines and small sounds such as pipetting or glass clinking.

Interoception is the perception of bodily processes and physical reactions related to internal functioning – think hunger, thirst, toilet needs and more.

Executive dysfunction is an inability to readily carry out executive functions. The main ones affected are working memory, cognitive flexibility and inhibition control.

Masking is the protective suppression of (autistic) traits deemed 'unacceptable' or 'weird'. People do this differently, both in extent and in which social situations it occurs.

Some neurodiversity labels are outdated and it is important to know why. For example, various features have been co-opted by the general population when referring to autistic people, where they are conflated to correspond with IQ and verbal communication skills². For myself, I have tested my IQ several times and the average always comes out in the range of 70 to 90 whereas my academic ability (achieving 8s/9s at GCSE and averaging As at A-level) would indicate my functional intelligence is much higher. Also Asperger's is a highly contentious term. It used to be a formal diagnosis and

some people still do use it. The term originated from a Nazi-affiliate who participated in child euthanasia and it has been linked to the distinction of 'useful' vs 'non useful' autistics³. This term attempts to distinguish 'highly intelligent' autistic people from those with intellectual disabilities, where there is no actual difference.

In a learning environment, a neurodivergent person may experience various challenges. One issue is socialising, which is of massive importance to the culture in workplaces and schools. It plays an important part in how team members work together. Neurodivergent people can experience particular struggles with socialisation and these contribute to 77% of 18-34 year old disabled people feeling lonely and isolated⁴. This is something that has to be addressed, especially in a laboratory or workplace where teamwork is essential.

Another issue is sensory-related overwhelm. As someone who has spent lots of time in clinical environments, I have often experienced a lot of sensory stimulation or the presence of highly concentrated stimuli. Hyperacusis is implicated in many neurodiversity-related conditions because often the 'small sounds' that no-one else can hear, such as a freezer whirring, can upset a sensitive individual's ability to focus. Harsh artificial lighting is another example which can spark headaches or a general lack of focus. Helpful accommodations include being able to wear tinted glasses, sit near a window and wear headphones or sound reducing earphones.

With all neurodivergent conditions there is a risk that overwhelm or general stress triggers a reaction. One is meltdown, when the brain shuts down because it is overwhelmed by a situation(s) or trigger(s). This can result in loss of control over behaviour⁵ and be associated with verbal outbursts – shouting, screaming, crying – or physical reactions such as lashing out, kicking, and a complete aversion to physical touch. The perception that meltdowns are equivalent to temper tantrums is absolutely false. They are not done to gain something, they are not voluntary, and they take extreme amounts of emotional energy from an individual. They are very similar to shutdowns, the next reaction on the scale, where an individual withdraws from everything⁶. The final level is burnout which can stretch for extended periods of time and leave individuals physically and emotionally exhausted. Anyone can experience burnout, but the triggers that contribute to it are experienced more

readily by neurodivergent people. These reactions and what triggers them are extremely personal and they can result in feelings of guilt, stress, and other related emotions. Potential reactions should be discussed with the individual and a care plan, if needed, put in place so that it is clear what to do if the person experiences a crisis.

Something I have tried to emphasise strongly in this article is the importance of individual presentation. No neurodivergent person has the exact same issues and difficulties as another.

Where I struggle with eye contact, someone else may be able to make eye contact easily. My advice for healthcare professionals, or anyone in a leadership role, is that you must prioritise and help with whatever the person has communicated to you unless certain guidelines or safety protocols are in danger of being breached.

“ 77% of 18 to 34 year old disabled people feel lonely and isolated „

If someone is unaware of what help is available, it may be useful to have a library of accommodations and support for anyone to access. I would also stress that while someone seems fine at first, they may struggle later. Regular review is important to ensure support is at the right level. While articles and research are important, the most crucial source of information is the person themselves. Only they can understand exactly what is troublesome or fine for them. Building a trustworthy and professional connection with each person is the best way for healthcare science leaders and colleagues to enable individuals to reach their full potential.

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FIVE MYTHS ABOUT ADHD – A PERSONAL PERSPECTIVE

Attention Deficit Hyperactivity Disorder (ADHD) is itself a misleading term that contributes towards many of the stereotypes and the stigma around it. From my perspective, what is really going on?

1. Attention difference, not Deficit

I *can* and *am* paying *attention*, often to many things at once; the temperature, light, the sound of air-conditioning, people speaking in the next bay, clicks from a keyboard or mouse, someone's phone vibrating on the other side of the office, smells, other people's emotional states... Then, when hyperfocus¹ strikes I can zone in on the task at hand and get a *lot* of work done. Unfortunately, I don't get to choose when that happens!

I don't have a *deficit* of attention. I have a *difference* in the way my brain processes information which makes it difficult to *regulate* my attention in the way that is often required.

From an evolutionary standpoint it is thought that those with ADHD were likely to be responsible for the safety of the 'herd' by keeping watch for subtle changes which might indicate danger.

2. Energetic and spontaneous

The *hyperactive and impulsive traits* of those with ADHD are often a boon during childhood and adolescence, when the devil-may-care tendencies of ADHDers make them great fun to be around. However, they can also encounter difficulties when others expect them to contain their physical and/or mental activity. This results in their being labelled as disruptive, for 'excessive' movement and chatting in certain settings.

Not everybody with ADHD is hyperactive! Girls and adults are more likely to be diagnosed with 'primarily inattentive ADHD', formerly known as Attention Deficit Disorder or ADD.

This is characterised by forgetfulness, apparent lack of focus and disorganisation. Far from the stereotype of 'naughty' schoolboys jumping on desks and disrupting classes, the inattentive ADHDer is more likely to be found gazing out of the window, apparently lost in a daydream.

Hyperactive and impulsive traits are not always obvious to anyone else. Many adults describe their hyperactivity as psychological. For me it often manifests as an overwhelming level of mental chatter and racing thoughts that I cannot escape, despite the exhaustion this causes.

3. Perfectionism

ADHDers are often perfectionists. This may be due to nature or, more likely, is self-nurtured as a mechanism to avoid criticism to which we can be painfully sensitive. This can make seemingly easy tasks feel huge, as we think and overthink which is the best out of all the possible ways a thing could be done. We have difficulties with executive functions, which makes it hard to break goals down into smaller tasks and decide how to sequence these tasks to meet the end goal. Differences in perception of time can cause us to leave things until the last minute. *ADHDers are not lazy.* They are often working way harder than the average neurotypical person just to get through each day!

4. Imaginative, curious and creative

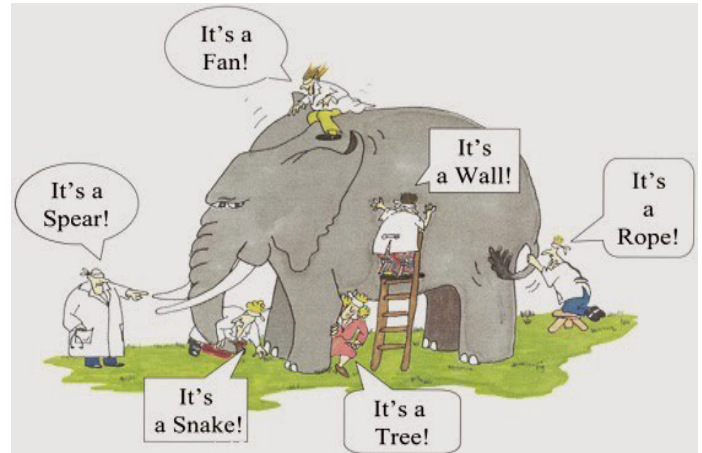
ADHDers are usually 'big picture' thinkers. We can be great at spotting patterns and at problem solving but sometimes, especially if this is coupled with impulsivity, we can miss the finer details.

We are not careless. 'Trying harder' doesn't help and in many cases makes things worse. We need specific strategies to help direct our attention to the things that neurotypical people are able to focus on more easily, if that is something our role requires.



Some things that neurotypical people find normal and easy are incredibly daunting and horrible for those of us with ADHD.

ADDitudemag.com



Emma Goulding works as a HCPC Registered Clinical Scientist and writes from personal experience after having been diagnosed with ADHD in 2021. Now aged 42, late diagnosis has given her and her colleagues a different lens through which to view some of the

challenges she encountered over the course of a 20-year career and much to consider going forward. She is passionate about raising awareness and challenging stigma so that others facing similar challenges need not struggle alone.

5 . Scientists and ADHD

Nikola Tesla, Stephen Hawking and Albert Einstein are just a few of many famous scientists I found who were either diagnosed with or showed strong indicators of having ADHD. It is disappointing if not surprising, given the disparity in diagnosis rates, that I was unable to find a single reference, let alone list, of female scientists with ADHD.

ADHD is not linked to intelligence. It is a neurodevelopmental difference. Many, including me, believe that it is only considered as a disorder/disability because most of the systems we are expected to live within, and parameters upon which we are judged, are designed for neurotypical individuals.

Thank you for taking the time to read more about ADHD. I really believe that as we learn more about each other's strengths and how best to utilise them, the challenges it presents will become less relevant. Maybe one day, hopefully within a few generations, labels and diagnoses won't be needed. Until then they are an important way of finding validation, support and community in a world that can feel alien and bewildering to those struggling without them.

Please share this information with anyone you think would find it interesting or who could do with widening their understanding of neurodiversity. A wealth of further information about ADHD and a huge variety of lived experiences can be found at:

<https://www.additudemag.com>

References

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THE POWER OF THE INTROVERT

I was a painfully shy child. I hated having my photograph taken, closing my eyes to try and stop the camera taking a picture. I was content with one best friend. I was heartbroken when they weren't. To everyone's surprise I came alive on stage, playing the lead in my primary school play. I was able to perform when I knew the lines and everyone else had to sit and be quiet.

I found myself wanting to observe the world but not be in it. This is perhaps central to the creativity of a writer or artist, or indeed scientist. We sit outside of our experiments and we watch. We think far more than we act. We enjoy understanding complexity. We are dreadful at small talk!

It's hard to see that successful people are often outwardly confident. It's hard to hear that getting ahead is all about 'who you know'. Where does this leave us introverts? Should we abandon our innate nature and join the extravert party? Fake it until we make it? This feels like an exhausting prospect. The times when I have tried to be someone I'm not have left me deeply unhappy.

If I respect the quiet, considered remarks of a colleague in a meeting and appreciate the consistency of a thoughtful manager, perhaps others will value those qualities in me?

In her book *Quiet: the Power of Introverts in a World That Can't Stop Talking*^{1,2}, Susan Cain points out that some of the world's most talented people are introverts. Without them we wouldn't have the Apple computer, the theory of relativity and Van Gogh's sunflowers. She shows how society misunderstands and undervalues introverts, while giving them the tools to better understand themselves and take full advantage of their strengths.

Figure 1: The Introvert/Extravert (I-E) Spectrum—from Introversion to Extraversion.

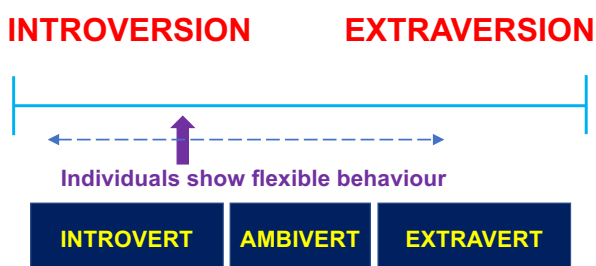
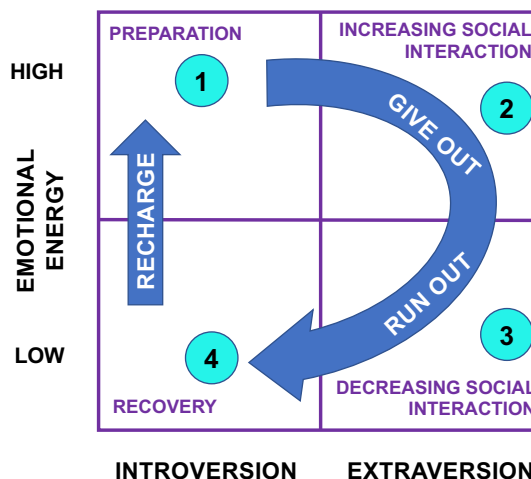


Figure 2: The journey of an Introvert into Extravert behaviour and what happens to their energy



Extravert or Introvert?

A simple view is that extraverts are characterised by engagement with the external world and are stimulated by interaction with people, whereas introverts are quieter, reserved in social situations and need more time alone. Ambiverts sit somewhere in the middle³.

Reality is, of course, more complex and nuanced. Personality theory suggests individuals can change behaviour to better adapt to different situations and can move along a spectrum from introversion to extraversion and back again (Figure 1). People also have

preferred ways of being and tend to revert to a point on the spectrum where they feel comfortable.

Energy and Behaviour

Myers Briggs personality theory uses the same terms (I/E) to describe how people recharge their emotional energy. Introverts mostly do it by spending time alone, whilst extraverts are fired up by being with people⁴. Figure 2 illustrates how introverts can behave as extraverts for a while but will eventually feel their energy draining away and need to spend time alone to recover. Moving further from your preferred mode will use up energy faster.

Leadership advice for introverts

Susan Cain comments that extraverted leaders have been seen as preferable in a Western context. This is in contrast to the value placed on introvert leadership and diverse

approaches in other societies. She emphasises that introverts have lots to offer and provides tips to help them lead well⁵. A good UK on-line toolkit is also available⁶.

Don't let being an introvert stop you being a leader. Surveys suggest more scientists are introverts than extraverts, so you have a head start when it comes to appreciating how your colleagues tick. Just make sure you have extraverts on your team and know how to get the best from everyone. And you can learn to enjoy being up front for limited periods (yes, really!).

Introverts in meetings

'There's zero correlation between being the best talker and having the best ideas.' Susan Cain

Have you noticed that some people stay quiet during meetings? Traditional meeting formats do not play to introverted colleagues' strengths or help them contribute their best ideas. Parabol⁷ has gathered ideas to get the best from everyone. Here are ten particularly helpful to introverts:

- 1 Circulate an agenda in advance
- 2 Encourage and value written input
- 3 Create something for the meeting to discuss, such as a draft proposal
- 4 Start with an icebreaker
- 5 Pose questions to prompt answers and allow people time to respond
- 6 Give people the option to speak and reinforce positive contributions
- 7 Break into small groups
- 8 Build on each individual's expertise
- 9 Have a round of clarifying questions
- 10 Nurture an open and supportive listening environment

Figure 3: Yin Yang symbol



Ancient wisdom

None of this is new. The ancient Chinese Yin Yang symbol (Figure 3) captures the flow of energy and behaviour between activity and reflection typical of everyday I/E states. Note that each half of the symbol contains its embedded opposite, as suggested by Jung³. Every introvert has an internal extravert to help them achieve balance.

Final thoughts

Leadership requires us to remain curious about ourselves and how we and our colleagues may see and experience the world differently. By understanding our preference to introversion or extraversion, we can learn to manage our energy at work and have more creative meetings.

So to my fellow introverts, I say: stay thoughtful, stay serious. Speak your truth quietly and clearly. And to my extrovert friends: there is power in listening to the quietest person in the room.



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5. See <https://www.oprah.com/inspiration/successful-introverts-being-soft-spoken-isnt-a-bad-thing/> and linked articles
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MY CAREER PATH IN PAEDIATRIC RESPIRATORY PHYSIOLOGY – COMBINING RESEARCH WITH CLINICAL PRACTICE

My journey into healthcare science started as an undergraduate at St George's Hospital University of London, where I thoroughly enjoyed the combination of university-led teaching and work-based placements. I graduated in 2017 with a BSc in 'Healthcare science: respiratory and sleep physiology' and with the expertise, skills and confidence to begin a career in respiratory physiology.

Shortly before graduating I applied for, and got, a respiratory physiologist role in the Lung Function department at Great Ormond Street Hospital (GOSH) in London. I chose this option as I wanted to enter the workforce and begin my career straight away. Since starting I have progressed into different roles within the same department. My current role within the clinical team involves performing, reporting, and interpreting a range of lung function tests for different specialities within the hospital. We perform tests so that clinical teams can identify disease early, monitor disease progression and evaluate the impact of therapy.



Mollie Riley *Research Physiologist | CF START Trial and Joint Head of Lung Function Unit Great Ormond Street Hospital for Children*

As young people develop, accompanying changes in their anatomy and physiology add an extra level of complexity to performing and interpreting physiological measurements. Our specialist role as paediatric physiologists requires us to adapt what we do in order to get reliable lung function test results at each stage of growth, from infant to adolescent. I find responding to this challenge incredibly rewarding as it brings added value to my role.

The healthcare setting can often be stressful for patients and staff alike. Despite this, I have always enjoyed working with children. They manage to bring a fun, happy and unpredictable energy to work. No day is the same in paediatrics because no child is the same. I don't think I will ever get tired of finishing an appointment and seeing a little one's face when I say, "Choose a sticker to take home!" The skills I have developed when working and communicating with children have also strongly shaped who and what I am as a healthcare scientist.

In March 2021, I started a new role as joint lead of the clinical department. Although I felt confident and experienced in my skills as a physiologist, I had to learn quickly about management, leadership, and mentoring. I had very supportive and approachable senior colleagues who I regularly went to for advice and direction. I attended a GOSH-run healthcare science mentoring course, which was extremely helpful for learning key tools to use when supporting junior colleagues to achieve their professional goals. I have also extended my continuous professional development into education and teaching activities, which have enhanced my ability to communicate and to coach others. Teaching on external university courses, and running and managing course modules, has helped me learn, grow and adapt my existing leadership skills.

I see a major part of leadership as creating opportunities for others to maximise their skills. A key lesson I keep in mind is the importance of a leader being involved in areas outside their own department. Engagement with the wider healthcare science community also brings opportunities that can be

opened up to junior colleagues, so that they can challenge themselves and develop professionally.

Early in my career I realised I had an interest in patients with Cystic Fibrosis (CF). In my final year at university I carried out a research project in CF, assessing the difference in lung volume as measured by two independent tests. I enjoyed the project so much I went on to present the findings at national and international conferences shortly after graduating! My project also made the lead consultant for the lung function laboratory aware of my interest in research and in monitoring early CF disease. After working in the clinical department for four years, I decided to apply for a part-time research physiologist role in October 2021. Although this meant working in the same setting and performing similar tests, I recognised it would give me an opportunity for a very different way of working.

My research role involves performing a sensitive and non-invasive lung function test called 'multiple breath washout' in pre-school CF children from all over the UK, as part of a large trial. It requires me to develop a new set of skills related to project management and collaborative working that I will continue to use and develop throughout my career.

“ I don't think I will ever get tired of finishing an appointment and seeing a little one's face when I say, "Choose a sticker to take home!" ”



Healthcare Scientist Rising Star award at the Advancing Healthcare Awards 2022

Additionally, the potential to generate new knowledge and contribute to an over-arching project goal motivates me every day. To embrace this opportunity fully, and with support from my lead consultant, I registered for a PhD at University College London's Institute of Child Health in May 2022.

Although I feel I have learnt so much already by being in a research environment, I am now ready to build on this. Working on something completely unique to me will help me evolve as a person and as a researcher. I hope to work with new people and contribute to the understanding of lung function in CF whilst continuing to express the passion and enthusiasm I have for improving the lives of patients and promoting healthcare science research. This latter point is really important to me. I hope that by undertaking a research role and a higher research degree I can help to motivate other respiratory physiologists and healthcare scientists to take this step, to challenge themselves and to branch out of what feels comfortable. We healthcare scientists have so much more to give!

HIGHER SPECIALIST SCIENTIST TRAINING – “THE STATE OF THE NATION”

In healthcare scientist education we hear a lot about STP training, and for good reason: in 2022 this successful programme recruited over five hundred trainees across thirty-one specialties. In this blog however I would like to shine a light on the HSST programme¹ and reflect on how its current trainees and alumni are beginning to impact and reshape their professions.

HSST is a young programme. Its first trainees started in 2014 (Table 1) with the first alumni emerging in 2019. The number of HSST trainees has since risen year on year, with 53 HSST scientific alumni now working in the NHS. 214 NHS departments are currently accredited to train HSST scientists and more apply each year.

Table 1: Nr of HSST specialties, posts and applicants each year

HSST	Combined In Service and Direct Entry		
	Start Year	Total Number of specialties recruited to	Total Number of posts
2022	16	71	120
2021	21	91	102
2020	14	47	51
2019	19	68	74
2018	20	53	55
2017	15	54	54
2016	15	73	81
2015	13	51	58
2014	12	51	53

HSST provides participants with advanced theoretical scientific knowledge. It develops high level clinical and scientific skills and provides teaching and guidance in innovation, professionalism and professional development in the healthcare environment. Training is bespoke, since work-based learning and assessment for scientists at this level cannot be prescriptive. There is no fixed guidance on 'what' or 'how much' and HSST trainees are responsible for their own progress. They learn to be creative in developing their own learning plans and in gathering and recording evidence of competency.

Scientists operating at this level and beyond will be responsible for the adoption, adaption, and delivery of modern and innovative technologies and treatments to improve patient care. This agenda requires excellent communication and persuasive skills that traditionally scientists have found difficult to acquire. The programme is designed therefore to help participants develop as



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leaders and innovators in their specialities, with a great deal of emphasis on effective leadership skills. Though these skills are grown and honed through experience in the workplace, much of the understanding and practical application of underlying leadership theory is provided by the mandatory PGDip in Leadership and Management undertaken by HSST trainees. A module on leadership and quality improvement teaches HSST scientists to look at their work environment critically and systematically and provides them with tools to appreciate drivers, obstacles and opportunities to change by understanding theories of operational management and organisational development. The approach taken to research and innovation widens their appreciation of how to conduct research in the healthcare system and introduces them to methodologies that will support their research endeavours and decision making in any healthcare environment they operate in.

HSST scientists are beginning to populate leadership positions in NHS departments. They are training STP scientists as well as medical and nursing colleagues and are using their skills to contribute to management and research in the wider NHS. On page 20 is a small sample of published papers from HSST trainees that were strongly influenced by learning from the PGDip in Leadership and Management.

At the National School for HCS, we believe that this demanding but exciting training programme has come of age. We look forward with interest to see what the next 10 years produces.

1. <https://nshcs.hee.nhs.uk/programmes/hsst/>

WHAT HAVING LONG COVID HAS TAUGHT ME

After two years of avoiding Covid-19, my husband, two young sons and I all tested positive within a week of each other. In a way, I felt relieved to get it; the anticipation and the wait were finally over. But this feeling of relief was swiftly followed by worry and dread: what was Covid-19 going to mean for me and my family?

My sons recovered quickly and returned to school as soon as their tests were negative. My husband had lingering tiredness for several weeks but was fit enough to go back to work after a few days. But Covid knocked me for six; its effects were like nothing I had ever experienced before. Initially, I spent seven consecutive days in bed with acute flu-like symptoms: sleeping all day as well as all night. This was followed by extreme physical and mental fatigue, heart palpitations and mental fog. So not only was I wiped out physically but I could not think straight either. For someone whose job (and often home-life) consists of solving complex problems all day long, I felt completely incompetent – and it was frightening.

For weeks I could not accept what was happening. I tried to work from home but found it hard to concentrate or find the right words during conversations with colleagues. I kept telling my doctor, "I just need one more week to get back to work"; then halfway through that week I would start thinking about work again and what I needed to do to prepare to go back. I was disrespecting my body and ignoring its needs, driven by fear of judgement by others and my own ego, and this came at a cost. After a few weeks it slowly dawned on me that my attempts to keep going were stopping me from getting any better.



Charlotte Kemp, *Head of Clinical Engineering, Department of Medical Physics & Clinical Engineering, Sheffield Teaching Hospitals NHS Foundation Trust*

My GP finally said "No" to my request for another week, and instead signed me off for three weeks. She also gave me some information to read about long Covid¹. From this I started to appreciate and acknowledge that to recover I had to stop completely, both physically and mentally, and that was okay. I had to hand things over to others and give up control. Only when I stopped fighting my situation and instead accepted it as it was, would I start to get better.

I finally gave up this invisible fight and accepted help. I handed my work over to colleagues and household jobs to my family. I allowed myself to rest. I started practising mindfulness. I sat with my own mind for a while and observed what it did and tried not to judge.

I had no idea of how long I was going to be off work. In the end it took more than two months before I was ready to do daily activities at anywhere near the level I did before. I wanted to go back to work but was not yet ready to operate at full capacity. So I entered the realms of the phased return. My manager helped me limit work activities over a six week 'back to work' period. Had she not done this, I would not have coped – it would have been overwhelming. I needed help to pace the increase in my workload and its complexity, just as you would build up a muscle after a period of inactivity. I developed new strategies and approaches to my working day, such as writing a timetable and DOING what I planned, while resisting distractions and the pull of the "urgent but not important".



Five takeaway lessons:

- 1 Practice self-care: take breaks regularly and make time to rest**
- 2 Find things you enjoy and do them often**
- 3 Work is not everything – life is so much more**
- 4 Practice self-compassion and forgiveness**
- 5 Take responsibility for your own situation and happiness – no one else can**



I am convinced that a phased return was essential for my recovery. It also showed me the value of regular breaks and rests, of the practice of self-care and taking time out to re-charge. My challenge now is to resist the forces driving me to replace self-care activities with those that are “more important” or “more urgent” and avoid being driven by the needs of others. I must also face my long-term addiction to being busy, both physically and mentally. I can see now that being constantly busy is often driven by an unhealthy story that I tell myself: that if I rest, I am not working hard enough and am lazy. Undoing this habit is taking time but I can already see it benefitting my family and my work colleagues, as well as myself.

Everyone must exercise self-care, particularly after a difficult experience. I have learnt that if I do not look after myself then I cannot fully look after anyone else, whether it be my team, my colleagues, my family, or my friends. Something that as I write it seems so obvious, and yet is so rarely practised or celebrated nowadays. I and everyone around me have much more fun when I take a break, appreciate the day, and stop to connect. And I achieve more. After years of overwork, Covid-19 has taught me to slow down, take a breath, reflect, and prioritise where I place my attention – in line with both my duties AND my needs.

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