“How can medical education be improved for the benefit of the patient?’’

Jack Gamble
Jack.gamble055@gmail.com

Medical education is replete with voyaging metaphors - undergraduates embark upon their ‘first steps’ to become a doctor, then after several years must decide which ‘training pathway’ they will set off upon, whilst senior clinicians must constantly demonstrate they are continuing along their ‘lifelong learning journey’. But if the General Medical Council’s National Training Survey is to be believed, this educational journey is an Odyssean one – an arduous and brutal expedition that tests the limits of human endurance, with foul and wicked dangers at every turn. Their most recent ‘State of medical education and practice in the UK’ report opens with these gloomy lines, *“UK health services are in a critical state and those who work within them are at breaking point…Doctors in training are now more likely to be at high risk of burnout than any other group”*.(1) In these dire circumstances, how can medical education be rescued, not only for the wellbeing of trainees, but ultimately, for the benefit of the patient?

In order to survive the unpredictable and chaotic journey of medical education, a wise and experienced guide is needed. This essay argues that the practice of clinical mentorship holds significant promise for cultivating compassionate, insightful and capable physicians. A typical description of mentorship speaks of “influence, guidance, or direction”(2) but a precise definition is elusive. In order to appreciate its multifaceted aspects, and to demonstrate how these may be relevant within medical education, mentorship will be explored within three different contexts –the world of the artisan, the athlete and the advocate – before addressing objections and suggesting some routes of implementation.

<u>Mentorship: The Artisan</u>
Japanese swordsmithing, guitar luthiery and Orthodox icon woodcarving appear at first glance to share little in common with clinical medicine. However, these are highly specialised crafts that rely on novices committing to lengthy apprenticeships under a distinguished master craftsman prior to embarking upon independent practice. This apprenticeship model has a rich history within medical education, and was the norm throughout the early modern period in Europe. However, in the last two centuries, the rapid expansion of biomedical discovery has moved the locale of learning to the academy.(3,4)Whilst resulting in more rigorous standards within the profession, this has led to the loss of the master-apprentice dynamic.

The analogy of a master imparting rare and complex skills through close-quarters tutelage extends well to procedural clinical specialties. Mentorship in technical skills is vital to achieving clinical excellence - observing an expert’s proficiency, and then attempting to replicate the task under their scrutiny. However, the current assumption is that healthcare service provision in itself produces the requisite environment for mastery. The emphasis is placed upon an isolated individual learner simply ‘getting their numbers up’. But this is fatally flawed. Psychologist K. Anders Ericsson’s seminal paper ‘The Role of Deliberate Practice in the Acquisition of

Expert Performance'[5] popularised the concept of elite performers requiring ten thousand hours of deliberate practice before attaining mastery in a chosen domain. Whilst the notion of ten thousand hours of training has gained traction, the deliberate nature of the practice has not. Quantity, not quality, has gripped the popular imagination. In contrast, the expert surgeon observes their student, makes subtle technique adjustments and gives specific advice to prevent reinforcing bad habits and to nurture good ones. Patients do not want to suffer under mediocre doctors, and they do not want to be practiced on. Contemporaneous feedback ensures quality and patient safety, whilst also maximising the learning potential of the encounter.

Mentorship: The Athlete

Any discussion of high performance must pay homage to the sporting arena. It is unsurprising that elite athletics has such a degree of overlap with the medical sphere. In the acute specialties, the ability to perform complex demanding tasks in a rapidly changing environment is required nearly every day of the week. And yet, whilst Team Sky invested millions of pounds into sports psychologists, ergonomic advancements and the pursuit of marginal gains in order to win a cycling trophy,[6] clinicians with human lives in their hands are often left to work it out for themselves.

Medical students memorise algorithms to manage emergencies, but, in stark contrast to their nursing student peers, have little experience of the practicalities of enacting the resuscitation. To make matters worse, current team configurations conspire against clinicians. The medical emergency team, who respond to the most critically unwell patients in the hospital, have been described as an example of a 'smash team'[7] - individuals who do not work together regularly and may never have met, who are called together at a moment's notice to manage a time-critical crisis situation in an unfamiliar location with no prior preparation. This is in contrast with elite sports teams who develop a shared mental model by spending an impressive proportion of their lives together - rehearsing tactics, perfecting plays and analysing performances.

This highlights the need for coaching medical teams through simulation. This allows the testing of a learner's knowledge and their procedural skill, but crucially affords a window into their non-technical capabilities – how they interact with their environment, especially other participants. Once again, feedback from a mentor is what develops quality. Granular critique of their situational awareness, non-verbal communication and choice of words can elevate not only how an individual performs, but how the wider healthcare team performs as a unit. Patient-centred outcomes are improved less through individual brilliance and more significantly through effective teamwork.

Mentorship: The Advocate

It is evident that any implementation of mentorship involves a significant amount of time. And time, as the adage goes, is money. Is mentorship worth the investment? It is worthwhile to turn to a sector where value is unambiguously assessed by its ability

to drive revenue. The corporate world uses mentorship as a crucial method of professional development. 84% of US Fortune 500 companies use one-to-one mentoring programs, and the top 50 companies use them without exception.[8] In many instances, this involves an experienced professional championing a junior colleague, supplying them with opportunities for career progression alongside sage advice.

This professional mentorship role has been replicated under the guise of an educational supervisor. However, in contrast to a long-term mentor who is actively engaged and invested, educational supervisors are transitory and beholden to a mountain of administrative tasks. A vision of impactful advocacy would feature a seasoned clinician who journeys alongside their mentee. Over the course of several years, they would be able to use their professional connections to open doors and opportunities. They would also utilise their own insights to guide students and residents through the various paths and pitfalls that they have personally experienced. This has enhanced relevance for non-UK medical graduates. The 'hidden curriculum'[9] is incredibly difficult to navigate for the uninitiated, and many cultural norms and social conventions are opaque to outsiders, and simply 'obvious' to insiders. Senior clinicians, particularly those who themselves have walked in these shoes before, have a unique position to guide, support and effect change where necessary.

It is in these relationships of trust and psychological safety that meaningful reflection may take place. Formal channels for facilitating reflection have garnered scepticism following the Bawa-Garba case, where concerns have been raised over the alleged weaponisation of her personal reflections.[10] As a result, trainees are wary of recording anything other than vanilla narratives that outline banal lessons learnt. The wisdom and reassurance of a doctor further on up the road displaying their own vulnerability and weakness can allow for fruitful discussion and significant change. This is crucial not only for personal wellbeing and career longevity, but also for enhancing future patient care.

Brave New World?

In the midst of these treacherous waters comes the sweet Siren song of the tech-evangelists. To quote Irving Berlin with minor adjustment, *"anything you can do, AI can do better"*.[11] On face value, it is hard to argue against. Anyone with enough idle time and curiosity to sample ChatGPT could be forgiven for thinking that if anything can improve medical education, it is artificial intelligence (AI). Assistive technologies such as Nerveblox™ have used deep learning techniques to process ultrasonographic images and overlay sonoanatomical labels in real time. This has great promise for safely teaching novices how to perform peripheral nerve blocks. Students have described using large language models as a study sparring partner, prompting the chatbot to present a realistic exam viva scenario in a conversational format. At an organisational level, curriculum organisation, exam question setting and admissions could be all be efficiently streamlined.

AI is not without its drawbacks. It is expensive to integrate at an institutional level, its clinical conclusions require thoughtful evaluation (not simply blind acceptance) and its use raises a legion of ethical challenges. However, many of these are hiccups that will likely be overcome. But AI will not overcome its fundamental limitation of non-humanness. Its Achilles' heel is precisely mentorship's greatest strength. Doctors do not care for bits or bytes – they care for flesh and blood. Aspiring healers need to be disciplined in the art of compassionate care, being taught how to speak with comfort and candour. Patients, because they share with us their innate and inescapable humanity, do not simply care about the technical quality of their care, but how they were made to feel throughout it. Greying physicians pass on the secrets of this art, precisely because machines cannot robotically reduce this to an algorithmic science.

Implementation & Concluding Thoughts

A mentoring revolution within medical education would consist of both systemic and behavioural change. As with anything, system alterations are more difficult, less exciting, but have greater capacity for lasting change. Mentorship takes time, which is one of most precious commodities in the National Health Service. The pressure on trainers is immense – they have been found to be more likely to be dissatisfied than their non-trainer counterparts.[1] A greater mentoring workload could only be achieved if more resources and time were given to accommodate. Royal Colleges would also be able to creatively economise the administrative burdens placed upon tutors, in an effort to maximise the usefulness of learning encounters. This could all be facilitated with the help of various AI tools. Similarly, easing workload pressures for resident doctors would be essential for allowing them to maximise learning opportunities, in addition to considering the significant impact that non-physician medical staff have on training opportunities.

In conclusion, a wise and steady hand is needed to steer learners through these unchartered waters. Whilst the rise of AI may have many applications within medical education in the coming decades, it is through the intentional instruction of veteran clinicians that skilled, competent and compassionate doctors are developed. Despite all that is thrown at them, clinicians, like Odysseus, are enduring - "*strong in will to strive, to seek, to find, and not to yield*"[12] to mediocrity and complacency. Their thirst for mastery and hunger to teach should not be presumed upon but encouraged and supported within our institutional frameworks, primarily because medical education is inseparably intertwined with patient wellbeing.

References

1. General Medical Council, 2024. *The state of medical education and practice in the UK: Workplace experiences*. London: General Medical Council.

2. Merriam-Webster, n.d. *Mentorship*. [online] Available at: https://www.merriam-webster.com/dictionary/mentorship [Accessed 8 Jul. 2025].
3. Dornan, T., 2005. Osler, Flexner, apprenticeship and 'the new medical education'. *Journal of the Royal Society of Medicine*, 98(3), pp.91–95.
4. Ahluwalia, S., Fenton, T., Roder, C., Spurling, L.F., Cork, S.C., Winnett, G. and Bishop, P., 2024. The medical doctor (degree) apprenticeship. *Medical Teacher*, 46(12), pp.1561–1567.
5. Ericsson, K.A., Krampe, R.T. and Tesch-Römer, C., 1993. The role of deliberate practice in the acquisition of expert performance. *Psychological Review*, 100(3), pp.363–406.
6. Syed, M., 2015. *Black box thinking: Marginal gains and the secrets of high performance*. London: John Murray.
7. Dworkis, D., 2020. *The emergency mind: Wiring your brain for performance under pressure*. Los Angeles: The Emergency Mind Project.
8. MentorcliQ, 2021. *Fortune 500 | 2022*. [online] Available at: https://www.mentorcliq.com/fortune-500-2022 [Accessed 8 Jul. 2025].
9. Lawrence, C., Mhlaba, T., Stewart, K.A., Moletsane, R., Gaede, B. and Moshabela, M., 2018. The hidden curricula of medical education: A scoping review. *Academic Medicine*, 93(4), pp.648–656.
10. Emery, L., Jackson, B. and Herrick, T., 2021. Trainee engagement with reflection in online portfolios: A qualitative study highlighting the impact of the Bawa-Garba case on professional development. *Medical Teacher*, [online] Available at: https://doi.org/10.1080/0142159X.2021.1933964 [Accessed 8 Jul. 2025].
11. Berlin, I., 1946. ‘Anything you can do (I can do better)’. *Annie Get Your Gun* [musical].
12. Tennyson, A.L., 1842. ‘Ulysses’. *Poetry Foundation*. Available at: https://www.poetryfoundation.org/poems/45392/ulysses [Accessed 8 Jul. 2025].