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Medical students need experience not just competence

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Competence does not guarantee capability. The need for medical students to have sufficient clinical experience

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1 Anticipating a serious workforce shortage, the World Health Organisation advocates a paradigm shift in
2 how we prepare clinicians for practice. (1) This editorial is a critical review of medical student education,
3 which supports that recommendation. Curricula vary internationally: students are health workers in some
4 countries and observers in others; they progress from medical school to hospital generalist training in
5 some countries and direct to specialties in others. We acknowledge that variability so far as a limited
6 evidence-base dominated by anglophone publications allows.

7
8 Britain is the main source of evidence about preparedness for practice. This may be because UK students,
9 with little experience of contributing to practice, shoulder heavy clinical responsibilities as foundation
10 trainees (FTs). Despite this inexperience, FTs' supervision may be 'arms-length' when, for example, a
11 hospital specialist delegates patients' generalist care to them. This baptism of fire may explain why
12 an increasing proportion of UK trainees deviate from the intended training pathway. Two thirds of FTs
13 delay entry to specialties, some taking career breaks out of medicine.(2) The staffing gaps that result
14 make patient care discontinuous, impersonal, and potentially unsafe, and incur eye-watering locum costs.
15 Paradoxically, UK trainees break their training to become better trained. Taking a break from training
16 relieves them from work pressures, unsupportive learning environments, unsatisfactory education,
17 disrupted personal lives, and poor psychological health. Some, also, want longer to choose a specialty.(3)

18
19 These factors, though, are an insufficient explanation for the UK's retention problem. Only 10% of
20 trainees (interns and residents) in the US, Netherlands, and New Zealand take career breaks (4–6) despite
21 negative psychosocial experiences.(7,8) The relative immaturity of UK trainees cannot explain their career
22 breaks because students enter medicine direct from high school in the Netherlands and New Zealand too.
23 Trainees leave when a final negative experience 'brings down the tower of blocks'.(9) Negative
24 experiences start in medical school (3) and intensify when students become trainees.(10) Trainees with
25 the least developed coping strategies are worst affected.(11) Those in the UK certainly need coping
26 strategies because the National Health Service, whilst affording excellent training opportunities, operates
27 under formidable pressure. Promises of ever 'safer' healthcare whilst ever less is spent on public services
28 have resulted in expertise being so thin on the ground that work is often shared out rather than
29 supervised. Students need to be very well prepared for work.

30
31 The competency movement has strongly influenced global reforms in medical education.(12) This new
32 paradigm has shifted the arbiter of being ready for work from having accrued sufficient experience to
33 having demonstrated competence, off-the job, in standardised tests. By that objective definition, 100% of
34 UK students are ready to practise 'safely', yet practice is not demonstrably safer. The General Medical
35 Council's survey of UK graduates' experiences of starting work shows that a progressively falling
36 proportion (66% in 2019, compared with 90% or more in the US) find themselves, subjectively,
37 prepared.(13,14) Subjective unpreparedness might be dismissed as 'soft evidence' but this predicts
38 dissatisfaction with training, poor wellbeing, and burnout for up to seven years after qualification.(13)

39
40 The stressors that test medical graduates' preparedness include feeling incapable of managing a heavy
41 workload against the clock, on unfamiliar wards, on call, and lonely; facing criticism and conflict; and
42 managing very sick patients who deteriorate despite treatment. Trainees who have only learned part-
43 tasks (eg writing a simulated prescription) find themselves incapable of performing the whole task
44 (treating a sick patient). Unpreparedness is 'knowing what' but not 'knowing how'. It is having such a
45 fragile professional identity that you cannot admit uncertainty.(15–17) Competent but incapable
46 graduates are sitting ducks for psychosocial harm.

47

There is observational evidence that students can be better prepared by gaining experience in real practice contexts, not just simulation; having longer, better supported experiential attachments; having a placement in a hospital where they will soon work; having generalist rather than specialist experience; and not having constant exam pressures.(18) Narrative evidence suggests that North American students, despite also being in competence-based programmes, have more such experience than UK students. The importance of ensuring that students have had enough experience applies to any job, be it hairdressing, coal-mining, or healthcare. Students become capable trainees by immersing themselves in work, observing and listening, role-modelling, interacting with workers, participating in work practices, being coached, asking and answering questions, reading workplace documents, and writing in them.(19)

This cautionary tale leads us to propose that medical education does not so much need a paradigm change as a stronger implementation of the World Federation for Medical Education's paradigmatic standards. These advocate early, progressively increasing involvement in patient care and experience of taking responsibility.(20) Off-the-job training, observing practice, and a relentless diet of assessments cannot substitute for experience. On the job learning, alone, can actualise students' and trainees' intrinsic motivation to care well for patients.

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We have read and understood the BMJ Group policy on declaration of interests and have none to declare

Contributions

Tim Dornan wrote the editorial and headed the team of authors. Hannah Gillespie and Dakota Armour searched information sources to provide the evidence-base for it. Helen Reid and Deirdre Bennett contributed to the drafting and revision of the editorial. All authors approved all drafts, including the final submitted version.

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References

1. World Health Organization. Global strategy on human resources for health: Workforce 2030 [Internet]. Geneva; 2016. Available from: https://www.who.int/hrh/resources/global_strategy_workforce2030_14_print.pdf?ua=1

- 94 2. General Medical Council. 2019 F2 Career Destinations Survey. London; 2019.
- 95 3. General Medical Council. Training pathways 2 : why do doctors take breaks from their training?
96 2018;
- 97 4. Bustraan J, Dijkhuizen K, Velthuis S, Van Der Post R, Driessen E, Van Lith JMM, et al. Why do
98 trainees leave hospital-based specialty training? A nationwide survey study investigating factors
99 involved in attrition and subsequent career choices in the Netherlands. *BMJ Open*. 2019;9(6):1–8.
- 100 5. Medical Council of New Zealand. The New Zealand Medical Workforce in 2018.
- 101 6. Lu DW, Hartman ND, Druck J, Mitzman J, Strout TD. Why residents quit: National rates of and
102 reasons for attrition among emergency medicine physicians in training. *West J Emerg Med*.
103 2019;20(2):351–6.
- 104 7. van Vendeloo SN, Prins DJ, Verheyen CCPM, Prins JT, van den Heijkant F, van der Heijden FMMA,
105 et al. The learning environment and resident burnout: a national study. *Perspect Med Educ*.
106 2018;7(2):120–5.
- 107 8. Pereira-Lima K, Gupta RR, Guille C, Sen S. Residency Program Factors Associated with Depressive
108 Symptoms in Internal Medicine Interns: A Prospective Cohort Study. *Acad Med*. 2019;94:869–75.
- 109 9. Liang R, Dornan T, Nestel D. Why do women leave surgical training? A qualitative and feminist
110 study. *Lancet*. 2019;393(10171):541–9.
- 111 10. Mata DA, Ramos MA, Bansal N, Khan R, Guille C, Di Angelantonio E, et al. Prevalence of depression
112 and depressive symptoms among resident physicians a systematic review and meta-analysis. *JAMA*
113 - *J Am Med Assoc*. 2015;314(22):2373–83.
- 114 11. Teunissen P, Westerman M. Opportunity or threat; ambiguity in the consequences of transitions in
115 medical education. *Med Educ*. 2011;45:51–9.
- 116 12. Cooke M, Irby DM, O’Brien BC. *Educating Physicians: A Call for Reform of Medical School and*
117 *Residency*. Carnegie Foundation for the Advancement of Teaching. San Francisco: Jossey-Bass;
118 2010.
- 119 13. General Medical Council. Progression Reports: Foundation Year 1 Preparedness. London;
- 120 14. Association of American Medical Colleges: Medical School Graduation Questionnaire 2019 All
121 Schools Summary Report [Internet]. 2019. Available from:
122 <https://www.aamc.org/download/498790/data/2019gqallschoolssummaryreport.pdf>
- 123 15. Illing JC, Morrow GM, Rothwell nee Kergon CR, Burford BC, Baldauf BK, Davies CL, et al.
124 Perceptions of UK medical graduates’ preparedness for practice: a multi-centre qualitative study
125 reflecting the importance of learning on the job. *BMC Med Educ*. 2013;13:34.
- 126 16. Monrouxe L, Bullock A, Cole J, Gormley G. How Prepared are UK Medical Graduates for Practice?
127 Final report from a programme of research commissioned by the General Medical Council
128 [Internet]. 2014. Available from: [http://www.gmc-](http://www.gmc-uk.org/How_Prepared_are_UK_Medical_Graduates_for_Practice_SUBMITTED_Revised_140614.pdf_58034815.pdf)
129 [uk.org/How_Prepared_are_UK_Medical_Graduates_for_Practice_SUBMITTED_Revised_140614.p](http://www.gmc-uk.org/How_Prepared_are_UK_Medical_Graduates_for_Practice_SUBMITTED_Revised_140614.pdf_58034815.pdf)
130 [df_58034815.pdf](http://www.gmc-uk.org/How_Prepared_are_UK_Medical_Graduates_for_Practice_SUBMITTED_Revised_140614.pdf_58034815.pdf)
- 131 17. Lee C, McCrory R, Tully M., Carrington A, Donnelly R, Dornan T. Readiness to prescribe: using
132 educational design to untie the Gordian Knot. *PLoS One* [Internet]. 2020; Available from:
133 <https://doi.org/10.1371/journal.pone.0227865>
- 134 18. Medical Board of Australia and Ahpra. Medical Training Survey 2019. 2020.
- 135 19. Billett S, Choy S. Integrating Professional Learning Experiences across University and Practice
136 Settings. In: Billett S, Harteis C, Gruber H, editors. *International Handbook of Research in*
137 *Professional and Practice-based Learning*. Dordrecht: Springer; 2014. p. 485–512.
- 138 20. Basic Medical Education. WFME Global Standards for Quality Improvement. 2015 Revision.

139 Copenhagen; 2015.
140