

- 2 the *scholarship of discovery* refers to the pursuit of inquiry and investigation in search of new knowledge;
- 3 the *scholarship of integration* consists of making connections across disciplines and, through this synthesis, advancing what we know;
- 4 the *scholarship of application* asks how knowledge can be practically applied in a dynamic process whereby new understandings emerge from the act of applying knowledge through an ongoing cycle of theory–practice–theory, and
- 5 the *scholarship of engagement* connects any of the above dimensions of scholarship to the understanding and solving of pressing social, civic and ethical problems.

Without putting too fine a point on it, it seems to be readily apparent that universities must maintain the rigour that has served society well for over half a millennium, but must change the definitions of that rigour as they enter a 21st century calling for a more engaged academy. Properly managed, this transition will benefit both the academy and the societies they

serve. Medical schools and, in particular, the initiative represented in the paper ‘Socially responsible medical education: innovations and challenges in a minority setting’ should be on the leading edge of this transition.

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Primary prevention for future doctors: promoting well-being in trainees

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In the current volume of *Medical Education*, a national study of residents in the Netherlands found that 21% fulfilled stringent criteria for moderate to severe burnout and only 27% were highly engaged in their work.¹ Prins *et al.* examined correlations between the subscales of the Maslach Burnout Inventory and the Utrecht Work

Engagement Scale in order to identify characteristics (e.g. gender, age) that might compromise residents in terms of their own well-being and ability to provide optimal care.¹ They found that type of specialty (mental health) and work setting (rehabilitation centres) were risk factors. Pertinent to this commentary, the

authors called for solutions and interventions that might reduce residents' vulnerability to burnout.¹ These suggestions also fit with recommendations in a Canadian Medical Association (CMA) policy paper on doctor health and well-being published in 2001.² The CMA noted that 'physicians need to manage professional and personal stress to maintain their own health and well-being and to maximise their ability to provide quality health care to their patients'. We agree and believe that stress reduction training is one way to achieve these laudable and related goals.

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Medical students and residents undergo arduous training, often experience psychological distress and have difficulty maintaining their physical health.³ Burnout in trainees has been linked to depression, avoidant coping styles, and negative attitudes towards the self and others.⁴ Burnout in medical students has been shown to be inversely correlated with empathy.⁵ Shanafelt *et al.*⁶ found that residents with the highest levels of burnout were the most likely to report that they perceived their personal needs as 'inconsequential'. Residents displaying 'alexithymic' traits, or the inability to recognise or describe emotions, were more likely to score higher on measures of burnout.⁷ In the Dutch sample, Prins *et al.* found that 30% of residents surveyed scored high on emotional exhaustion, 38% scored high on depersonalisation and 14% scored low on personal accomplishment.¹ Correlations between these subscales and those from the measure of work

engagement lay in the expected directions (e.g. emotional exhaustion was moderately strong and negatively related to vigour; personal accomplishment was moderately strong and positively related to all engagement subscales). Given that burnout in medical students progressively develops over the course of medical education, with prevalences of moderate to high degrees of burnout in Years 1, 2 and 3 of 22%, 37% and 41%, respectively,⁸ this group merits attention.

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Teaching 'mindfulness', a state of consciousness that allows a person to be fully present in the moment to the self, other and the situation is one of various ways of promoting well-being in doctors that has evidence-based support.⁹ A structured programme entitled Mindfulness-Based Stress Reduction (MBSR) has been taught to medical students and doctors for 20 years at the University of Massachusetts Medical School in the USA.¹⁰ In a randomised clinical trial, Shapiro *et al.*¹¹ found that after attending the MBSR, health care professionals reported reduced stress levels, increased quality of life and more self-compassion. Rosenzweig *et al.*¹² extended this work with a larger sample size of medical students ($n = 140$) and a parallel cohort control ($n = 162$) and showed similar results.

Teaching 'mindfulness', a state of consciousness that allows a person to be fully present in the moment to the self, other and the situation, can promote well-being in doctors

We view the provision of the MBSR in medical school or during residency as a form of primary prevention that may not only benefit students, residents and doctors in practice, but also the patients they treat. Medical student, resident and doctor burnout and depression probably affect patient outcomes. In one cross-sectional investigation, residents who scored highly on the depersonalisation aspect of a burnout scale indicated that they provided at least one type of suboptimal care, at least monthly (odds ratio = 8.3; 95% confidence interval 2.6–26.5).⁶ Similarly, Halbesleben and Rathert¹³ found that depersonalisation was associated with patient outcomes of lower satisfaction and longer post-discharge recovery time. In a survey of 890 Israeli specialists, Shirom *et al.*¹⁴ reported a significant negative association between emotional exhaustion (one aspect of burnout) and quality of patient care.

Over a decade ago, Stewart¹⁵ elucidated the connection between effective doctor–patient communication and patient health outcomes (i.e. emotional health, symptom resolution, physiological measures and pain control) in a meta-analysis of 21 studies. He argued that in order for optimal communication to occur, doctors must be 'mindful' of themselves, the patient and the context. Connelly¹⁶ used case studies to illustrate how being present and aware during a medical visit is critical for efficient and effective patient care. Thus, a programme such as MBSR could help residents be less vulnerable to burnout, be more engaged in their work, relate better to their patients and, possibly, facilitate better outcomes.

In order for optimal communication to occur, doctors must be 'mindful' of themselves, the patient and the context

The 'culture' of clinical training engenders self-critical and self-sacrificing attitudes and practices in doctors. This raises the question: Can we afford to allow future doctors to be overwhelmed by stress? Why should we not offer support and guidance while they are in medical school or training as residents as a means of preparing them for the highly demanding, high-stakes profession upon which they are embarking? Bringing to the clinical encounter presence and compassion along with expertise and competence are likely to impact doctors' satisfaction with their work, patients' satisfaction with their care, and their mental and physical outcomes – outcomes that we all care about.

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