Student-run clinics

The future of outpatient neurology practice?

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The ever-increasing age of the population worldwide, together with the range and diagnostic sensitivity of tools used to assess brain and cognitive function, have increased the need for and improved the capabilities of clinical neurology services in hospital settings. In a large metropolitan academic hospital in Melbourne, Australia, since 2014, 3,000 patients with a variety of clinical neurologic issues have been awaiting a triage category 2 appointment prior to being placed on a waiting list to make an appointment to see a neurologist.¹ Currently, our Neurology Department sees 140–150 patients a week in ambulatory outpatient clinics; there are at least 200 new referrals weekly from the primary care physicians in our academic hospital network and an additional 150 new referrals every week from our own and other inpatient departments. These figures highlight how our current weekly 10 subspecialty ambulatory outpatient clinics are unable to cope with potential new patient demand along with ongoing monitoring and provision of rehabilitation facilities for return patients. Each of the subspecialty neurology clinics is staffed by at least one board-certified neurologist (sometimes 2 board-certified neurologists) and a minimum of 2 junior doctors, who in Australia are not necessarily neurology residents. The majority of the junior doctors are basic physician trainees in the first 3 years of basic training in preparation for the fellowship examination at the successful completion of basic physician training as per the Royal Australasian College of Physicians Physician's Readiness to Expert Practise (PREP) program (handbooks.racp.edu.au/#/all). These doctors have not yet entered formal advanced training to become physicians in a variety of disciplines in internal medicine. Many of these young doctors are practicing clinical neurology for the first time in these ambulatory clinics. They are given their own consulting rooms and expected to initiate independent case history, symptoms assessment, and documentation of the interview, under supervision and management advice from a board-certified neurologist attending the relevant clinic. Our program requires additional clinic room space for this plan to be practical and successful.

In Australia, as in many other countries where medical teaching centers are usually in major publicly funded hospitals, there are no additional funds to create extra ambulatory clinics for the expanding population. Thus, there is a growing need to better prioritize patients' problems and further increase productivity. One possible solution is to integrate preceptors (i.e., senior neurologists as supervisors) and medical students more meaningfully into the ambulatory care services in neurology. This might also provide better neurologic education for medical students by allowing them a more interactive and clinically relevant experience, while at the same time making the clinics more efficient and productive.

Such a program has been initiated into neurology clinics at Johns Hopkins University (JHU) in Baltimore, Maryland, and is evaluated in the current issue of *Neurology® Clinical*

See page 474

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Practice. Tanner et al.² examined the educational value, neurologic productivity, and financial cost of enhanced integration of medical students into neurology clinics at JHU. An anonymous student survey of “effective learning experiences” rated 9 out of 43 physician preceptors as “effective teaching preceptors.” Others were rated as “less effective teaching preceptors” based on students’ reporting on the number of patients they interviewed, presented and documented in electronic medical records (EMR). The rankings were significantly associated with the students’ “effective learning experience” and engagement in the clinic, plus had an added benefit to the neurology department of subsequent recommendation of these clinics to other students. Active student participation in case assessment, documentation, and patient management in a separate consulting room enabled preceptors to allocate their additional time towards other billable and financially useful activities in the clinic (e.g., seeing other patients, helping students with formulation of management plans, preparing EEG reports). Students were also exposed to “service management aspects” of neurologic care through this exposure to billable work in ambulatory care.

Overall the program increased throughput of patients as well as financial productivity for individual preceptors who encouraged students to be more independent and interactive with patients, compared to preceptors who limited student involvement, opting for more passive observation in the clinic.

The article by Tanner et al. only reports on a single center study with a small sample and also does not address a number of associated issues. The most important issue relates to patient satisfaction in student–preceptor clinics. It is unclear how the patients felt about student-run clinics and whether they felt confident to trust the judgement of first-year medical students in relation to their neurologic problems. The article does not discuss the types of patients who were seen by students under effective preceptors and less effective preceptors. Did preceptors triage patient complaints and allow independent students mainly to see patients with simple neurologic symptoms and see those with complex neurologic symptoms themselves, thus limiting student experiences? It is also unclear how the degree of competence of students was tested and whether they felt their clinical experience allowed them to achieve theoretical and clinical competence.

The article by Tanner et al. also does not address the issue of preceptor satisfaction, an important issue especially in the context of physician burnout in the current atmosphere of clinical practice globally.³

Did less effective preceptors have less access to additional consulting rooms? What were the practical problems such as finding additional consulting rooms for students? Were students with less access to consulting rooms associated with less effective preceptors? The mean number of charges generated by preceptors was 39% higher (mean increase \$929 ± \$210; 95% confidence interval \$505–\$1,353) per session when a student attended clinic. Thirty surveyed preceptors (48% response rate) made 2 recommendations to improve both clinic work flow and teaching with students in these clinics. Ten preceptors (33%) suggested having more consulting rooms when students were present in the clinic. Eleven preceptors (37%) suggested improving the students’ ability to document in the EMR.

Other similarly formatted patient management clinics have been previously reported. In 2015, Soltani et al.⁴ at the University of California, San Diego, examined the outcome of a medical student-run (student-run clinics with supervision of primary care physicians) universal depression screening, diagnosis, and management program at 2 student-run clinic (SRC) sites. The study demonstrated that students with faculty supervision can successfully implement universal depression screening and management at multiple SRC sites, leading to a clinically significant improvement in depression severity. A year later, Pyles et al.⁵ at Stanford University School of Medicine also addressed patient satisfaction in a single-center, cross-sectional chart review and telephone survey in SRC in dermatology and found that 82.2% of the patients in the program considered the treatment effective. Eighty-four

percent of patients reported that they were likely or highly likely to visit the clinic again in the future.

In a systematic review of 42 published articles on SRC, Schutte et al.⁶ confirmed the value and benefit of SRC for the students as well as the adequate quality of care provided by SRCs in other disciplines including psychiatry, internal medicine, and preventative medicine for needy groups within populations.⁷ In a small study involving Canadian physiotherapists, 7 students and 8 preceptors who volunteered at SRC in Toronto, Canada, between September 2013 and May 2015⁸ concluded that the SRC enhanced physiotherapy students' understanding of their roles and other health professionals' roles, thus improving their knowledge of interprofessional collaboration in ambulatory care.

Despite its limitations, the study by Tanner et al. presents new ideas with immense possibilities for more interesting, engaging, and productive training of neurologists and for efficient use of professional and health care resources. This study indicates that preceptors in neurology clinics were able to provide a rewarding teaching experience to students while maintaining higher clinical productivity. We propose that further pilot studies be conducted in academic centers in other parts of the world as well as in private consulting rooms to test the possibility of transferrable effects of SRC. The potential ability of students to handle EMR documentation is also likely to be welcome relief for many academic health services. Different countries, different health services, and different academic institutions will need to tackle a wide variety of complexities in this process.

We suggest that students can, and perhaps should, be trained with enhanced responsibility for patient care early in their practicums, as is generally the case with nursing and other parahealth professions. Student–preceptor clinics provide a unique opportunity for clinical training that prepares the students for future clinical practice as independent clinicians. Ambulatory care in neurology outpatient clinics would also benefit immensely through student–preceptor partnered clinics, a win–win situation for both parties. Tanner et al. make a strong case to pilot a similar program in Australia and other countries, after adjusting the local setup in services and finances accordingly. There may also be additional benefits of having other parahealth professional students participating in these SRC (physiotherapy, nursing, psychology) and provide additional value to the public and private health systems globally.

The clinical practice of neurology is at a crossroads. Neurologists are being asked to do more with less to meet increasing demands and complexities on a daily basis. As a result, nearly 50% of us are suffering from burnout.^{3,9–11} There is a critical need to train more neurologists globally. In the meantime, students in the clinic provide us with a Band-Aid solution with the advantage of training effective future neurologists.

REFERENCES

1. Wijeratne T. Department of Neurology & Stroke Services. 2017. Available at: westernhealth.org.au/Services/Neurology_and_Stroke/Pages/default.aspx. Accessed July 13, 2017.
2. Tanner JA, Rao KT, Salas RE, et al. Incorporating students into clinic may be associated with both improved clinical productivity and educational value. *Neurol Clin Pract* 2017;7:474–482.
3. Sigsbee B, Bernat JL. Physician burnout: a neurologic crisis. *Neurology* 2014;83:2302–2306.
4. Soltani M, Smith S, Beck E, Johnson M. Universal depression screening, diagnosis, management, and outcomes at a student-run free clinic. *Acad Psychiatry* 2015;39:259–266.
5. Pyles MN, Nkansah N, Sun BK. Patient satisfaction in dermatologic care delivered by a medical-student-run free clinic. *J Am Acad Dermatol* 2016;74:1265–1267.
6. Schutte T, Tichelaar J, Dekker RS, van Agtmael MA, de Vries TP, Richir MC. Learning in student-run clinics: a systematic review. *Med Educ* 2015;49:249–263.
7. Dekker RS, Schutte T, Tichelaar J, et al. A novel approach to teaching pharmacotherapeutics: feasibility of the learner-centered student-run clinic. *Eur J Clin Pharmacol* 2015;71:1381–1387.
8. Passmore A, Persic C, Countryman D, et al. Student and preceptor experiences at an inter-professional student-run clinic: a physical therapy perspective. *Physiother Can* 2016;68:391–397.

9. Levin KH, Shanafelt TD, Keran CM, et al. Burnout, career satisfaction, and well-being among US neurology residents and fellows in 2016. *Neurology* Epub 2017 Jun 30.
10. Busis NA. To revitalize neurology, we need to address physician burnout. *Neurology* 2014;83:2202–2203.
11. Sethi NK. Physician burnout: a neurologic crisis. *Neurology* 2015;84:2098.

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