

THE STUDENTS ARE OUR FUTURE: GROWING THE NEXT GENERATION OF PARAMEDIC RESEARCHERS IN CANADA

By: Alan M. Batt PhD(c) MSc CCP1-4, Dugg Steary MA(c) CCP5, Paige Mason BA(Hons.) PCP1,4,6, Trevor Hines Duncliffe BA(Hons.) MA PCP1, C.William Johnston BA(Hons.) PCP 1,4,6, Brad McArthur BHSc CCP1

1. Fanshawe College, Ontario, Canada. 2. Monash University, Victoria, Australia. 3. CQUniversity, Queensland, Australia. 4. McNally Project for Paramedicine Research, Ontario, Canada. 5. Institute of British Columbia, B.C., Canada 6. Ottawa Paramedic Service, Ontario, Canada.

INTRODUCTION

As the paramedic discipline globally moves towards professionalization through professional registration, higher education, and role diversification within the health service, the importance of the paramedic body of knowledge becomes more apparent. This new knowledge, which is owned and directed by paramedics, helps to distinguish the paramedic profession in its own right.⁽¹⁾ The role of paramedic students' research and inquiry in questioning and challenging the nature of paramedic practice is essential to the development of the profession.⁽²⁾ Today's students are our future paramedic leaders, educators and researchers ⁽³⁾, and scholarly output by these students will contribute to the growing paramedic body of knowledge. ⁽⁴⁾ Several initiatives to encourage student-led research can be identified internationally, and locally at Fanshawe College ⁽⁵⁾, Georgian College ⁽⁶⁾, and others. These novice researcher however face barriers to functioning as members of a research team. The provision of education, mentorship, protected time, and funding have all been previously outlined as essential to the success of paramedic researchers ^(2,7-9), and research education is an essential component in the development of paramedic-led research.⁽¹⁰⁻¹³⁾ Grant-Wakefield, describing her experience as a paramedic student undertaking research, states her concern of being a "burden to the research team due to lack of experience and area specific knowledge".⁽¹⁴⁾ Other paramedic student researchers describe similar experiences.^(15,16) Central to the success of these researchers were the provision of ongoing research education and skills development, and mentoring by faculty. In this article we will outline our experiences with student paramedic research at Fanshawe College, and will expand on our previous reporting of this initiative.

EDUCATION

Since 2017 first-year PCP students at Fanshawe College undertake a 15-week (3 hours per-week contact time) 'Introduction to Research Principles' course in their second semester. Several hours of self-directed learning activities are also provided. The course is designed to provide exposure to 13 NOCPs at PCP level, and is aligned to a number of key objectives. These are related to research principles and theories, quantitative and qualitative approaches, literature search and review, statistical analyses, evidence appraisal, delivery of effective presentations, and other issues related to research and scholarly activity. This course is evaluated through the completion of ethics training (TCPS-2 CORE), an article critique, a critically appraised topic (CAT), and the submission of a group research proposal and ethics application. ACP students also complete research education, and are exposed to literature search and review, statistical analyses, and evidence appraisal, which is evaluated through the submission of a group critically appraised topic and public presentation.

Acquiring research skills in education exposes students to the opportunities presented by research and has the potential to influence the course of their professional careers. These opportunities allow paramedics and paramedic students to develop contemporary opinions of the options that are available outside of (or in addition to) the traditionally linear career progression of a paramedic in Canada. Research also provides alternative avenues to create a direct impact on patient's lives outside of front line work.

EXPERIENCE

During the first semester of their second year (semester 3), PCP student groups begin the conduct of their approved primary research studies. Continued research support is provided through this semester. All projects are student led, from identification of the research question, conduct of the literature search and review, and identification of appropriate methods to collect data, to submission of ethics application, data collection and analysis, and preparation of abstracts and manuscripts for submission. Student groups are provided with academic oversight by several of the authors to varying extents. Preliminary findings are presented at a progress research presentation at the end of semester 3, and a draft manuscript is submitted. Over the duration of the final semester (semester 4) students finalize data collection and analysis, and their manuscripts. The semester culminates in the presentation of research projects at the program research day in April of each year. This event is open to the public, streamed live online, and advertised across the region. Student groups can then liaise with faculty regarding manuscript preparation and editing if they intend to pursue publication.

Through the promotion of scholarly activity related to “real-world” practice, students undertake research and scholarly activity that is central to professional practice. This can stimulate important conversations about the importance of professional practice that is based on research. The skills acquired by students can not only increase their appreciation for research, but also improve their ability to appraise evidence, which can potentially lead to improved patient care.

MENTORING AND ROLE-MODELLING

Research education in our programs is delivered by academics with a background in paramedicine. This is not only important for ensuring practice relevance but also functions as a form of role-modelling for students, which is vital in order to identify and support the next generation of paramedic researchers. Program faculty members regularly conduct and lead research studies related to professional and educational issues within paramedicine, which provides further role-modelling behaviour for students. Academic and scholarly achievements by fellow students and alumni also provide students with an important form of peer role-modelling, and demonstrate that paramedic students can be involved in research.

ACHIEVEMENTS

Since 2017 total of 186 students (PCP and ACP) have received formal research methods education. To date 62 paramedic student-led primary research studies, litera-

ture reviews, and CATs have been completed. Students and faculty have been involved in scholarly activity and primary research on topics related to paramedicine including paramedic education, empathy, patient safety, reflective practice, wellbeing, mental health, vulnerable populations, gender equity, and clinical topics including trauma management, and neurological emergencies. These topics have been presented at conferences across Canada, Ireland, the UK, the USA, and Australia, by both students and faculty. A total of 34 students have authored or co-authored articles that have been published in both peer-reviewed and non-peer-reviewed venues. In 2019, we were honoured to host two paramedic student groups from Georgian College as they presented their primary research findings at our program research day.

RATIONALE

Glenn et al. previously discussed the concept of “hooking” first year paramedic students with research (17), through early involvement with research, and encouraging students to discover that research is a core aspect of evidence-based practice. Our approach to research education in this program aims to achieve this “hook”, in particular through the design of the research course. This course is based on three core principles (18):

1. learning is a social and interactive undertaking;
2. learning is maximized when situated in a real and meaningful context;
3. there should be meaningful application of what has been learned.

Paramedic students work in groups, investigate a research topic of interest, and develop the project through to presentation and publication. Student feedback has demonstrated that by the end of the research education course, many students at least appreciate the importance of research to their practice, even if they do not intend to continue as a researcher in the field. Having tangible output in the form of a presentation and potential publications at the end of the project, not merely a grade on a transcript, gives meaning to the entire research process. The research education course itself is continually refined based on feedback from student cohorts, reflecting the fact that this novel approach has scope to improve, and needs to evolve as we progress and learn from its successes and failures.

CHALLENGES

Engaging students in a vocational, diploma-level education program with research is not without its challenges. Studies to date have been largely quantitative in nature, which has resulted in a potentially fatigued target popula-

tion (generally fellow paramedic students), and small sample sizes (peer population is approximately 100 students). Student groups are now beginning to pursue more diverse research approaches, utilising a variety of methodological approaches, and targeting broader populations (e.g., other healthcare students, practicing paramedics).

As faculty members, we too have been challenged, mainly in relation to our role-modelling and mentoring roles. Much of our own research is undertaken voluntarily, and is largely unfunded. This can present significant challenges when trying to balance research activity with other professional commitments such as teaching, and with personal commitments. Recently we have achieved greater success in gaining funding for research activities, from both internal and external funding sources. This is vital in providing support to the entire research program. The limited number of faculty with education and experience in research is also a challenge. In order to ensure continuity of faculty role-models to students, we need to engage our own faculty body in research to a much larger extent. Many faculty members face the same barriers to engagement with research outlined in the literature, including lack of knowledge, concerns regarding clinical care, and lack of support such as protected time and funding.

Paramedicine within Canada as a whole needs to embrace research as an integral component of practice. Engaging students with research is one method to do so. However, upon qualification, there are limited opportunities to engage with research as a practicing paramedic, in particular funded research and education. In order to generate the evidence required to support and if needs be, change practice, we need to equip paramedics with the skills, knowledge and experience to conduct research, but more importantly, we need to support them to generate research “for paramedics, by paramedics”.

CONCLUSION

There is significant future value to be realized from paramedic student research activity, and across our programs we have implemented education and research activity as a means to build research capacity within the system. We posit that paramedic student contributions to the literature are important for both contextualizing and reinforcing research education. Through this practical approach to research education, we hope to encourage students to explore professional issues, develop future research talent within the profession, and signal our future academic leaders.

Disclaimer: The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of any employer or organization. **CP**

REFERENCES

1. Reynolds L. Is prehospital care really a profession? *J Emerg Prim Heal Care*. 2004;2(1-2):6p-6p.
2. Smith G. The importance of student paramedic contributions to prehospital research. *Australas J Paramed*. 2015;12(4).
3. Devenish S. Developing a research culture in paramedic practice. *Australas J Paramed*. 2016;13(4):13-5.
4. O'Meara P. Student research : the future of paramedicine. *Australas J Paramed*. 2014;11(5):11-3.
5. Batt AM, Steary D. Student Paramedic Research at Fanshawe College. *Can Paramed*. 2016;39(3):38-40.
6. Drennan IR. Georgian College Paramedic Research Day. *Can Paramed*. 2019;42(2):19-21.
7. Batt AM, Knox S. Building research capacity among Irish prehospital practitioners. *Irish J Paramed*. 2017;2(2):2-5.
8. Bigham BL, Jensen JL, Blanchard IE. Paramedic-driven research. *Cmaj*. 2010;182(10):1080.
9. Boyle M. Promoting the Next Wave of Paramedic Researchers. *Australas J Paramed*. 2015;12(4):4-5.
10. Centre for Prehospital Research. A National Prehospital Research Strategy. Limerick; 2008.
11. Jansen JL, Soucha D. Canadian National EMS Research Agenda. Ottawa; 2013.
12. National Institute for Health Research. Care at the Scene - Research for ambulance services. London; 2016.
13. Sayre MR, White LJ, Brown LH, McHenry SD. The National EMS research Strategic Plan. *Prehospital Emerg Care*. 2005;9(3):255-66.
14. Lim D, Grant-Wakefield C, Tippett V. Engaging paramedic students in research : A case report. *Australas J Paramed*. 2014;11(4).
15. Webley D. Inspired by Campeau : A pathway through undergraduate paramedic research. In: Student Paramedics Australasia Conference. 2016.
16. Stack H, Graham S, Johnston T. Getting Involved in Research: A Student's Perspective. *Response*. 2016;43(2):36-7.
17. Glenn T, Phillips D, Plews L. Hook, Line and Sinker Introducing Paramedic Students To The World Of Research. In: Student Paramedics Australasia Conference. Sydney; 2016.
18. Terenzini PT. Research and practice in undergraduate education: And never the twain shall meet? *High Educ*. 1999;38(1):33-48.

AUTHORS



Alan Batt is a faculty member in the Paramedic Programs at Fanshawe College, Ont., Canada.
Email: abatt@fanshawec.ca
Twitter: @alan_batt



Trevor Hines Duncliffe is a faculty member in the Primary Care Paramedic Program at Fanshawe College, London, Ont., Canada.
Email: thinesdu@uwo.ca
Twitter: @TrevorHD



Dugg Steary is Lead Educator for the ACP Program at the Justice Institute of British Columbia, BC, Canada.
Email: dsteary@jibc.ca
Twitter: @duggsteary



C. William Johnston is a paramedic with Ottawa Paramedic Service and faculty in the Primary Care Paramedic Program in Fanshawe College, Ontario, Canada.
Email: johnstcw@gmail.com
Twitter: @seewillyj



Paige Mason is a paramedic with Ottawa Paramedic Service and faculty in the Primary Care Paramedic Program in Fanshawe College, Ontario, Canada.
Email: paigmason4@gmail.com
Twitter: @paigemason2



Brad McArthur is Program Coordinator for the Primary and Advanced Care Paramedic Programs at Fanshawe College, Ont., Canada.
Email: bmcarthur@fanshawec.ca
Twitter: @ccpflightmedic



VOLUNTEERS NEEDED



Disaster Response - Water Purification - Field Hospitals - Emergency Medical Care - Search and Rescue

