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The Role of Non-Physician Health Care Professionals in the Education of Medical Students at Satellite Campuses

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Abstract

Phenomenon: Satellite campuses of medical schools in Canada introduce smaller communities to new medical learners. Non-physician health care professionals (NPHCPs) in regional hospitals may have had little prior exposure to learners. Lack of clarity regarding the role of the medical student is a barrier that hinders interprofessional collaboration. The purpose of this project was to examine the educational relationship between students and NPHCPs in regional hospitals.

Approach: Surveys were distributed to NPHCPs of various disciplines at two community hospitals in Waterloo Region. A second survey was distributed to medical students attending a satellite medical campus of McMaster University.

Findings: Surveys completed by 141 NPHCPs identified the following themes: frequent student interaction, no orientation to students, uncertainty of roles, willingness to teach, and barriers to teaching. Student surveys demonstrated frequent interactions, lack of familiarity of their role by NPHCPs at regional hospitals, desire to learn from NPHCPs, and specific teachable procedures.

Insights: NPHCPs and medical students agree that interprofessional medical education can improve patient care, communication and the quality of education. While there is interest in involving NPHCPs in teaching, orienting NPHCPs to the roles of students in regional hospitals may improve relationships and allow informal teaching opportunities.

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Keywords: interprofessional education; regional medical school; medical education; assessment; teaching

Introduction

Over the past decade medical schools across Canada have introduced satellite campuses at regional sites, with goals to expand the enrolment capacity of existing medical schools as well as to address the maldistribution of physicians across geographical areas.¹ Training more students outside of densely populated urban areas has been demonstrated to influence the decision to remain or seek out work in smaller, underserved communities.¹ As satellite medical campuses become established in communities, the local hospitals inevitably experience

an influx of student learners, creating a need to increase engagement of community preceptors.² Most local physicians – having been through medical school themselves – will be familiar with the roles and learning objectives of students. However, students frequently interact with non-physician health care professionals (NPHCPs; i.e., nurses, dietitians, pharmacists, physiotherapists, etc.) who may not be familiar with the role of a medical student as part of the healthcare team, or their scope of practice as it pertains to patient care.

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Common themes have emerged in the literature with respect to the teaching of medical students by NPHCPs. Benefits identified with NPHCPs being involved in medical education include providing support and sharing the time burden with busy physician educators, improving the quality of education while controlling costs,³ enhancing attitudes towards and understanding of healthcare roles, and improved interprofessional teamwork.^{4,5} In addition, NPHCPs identify an increase in job satisfaction and personal enjoyment derived from teaching students.⁶

While many NPHCPs are involved in the teaching of medical students, barriers to effective teaching include a lack of guidance and training, an increase in workload and lack of provision of protected time to teach students,⁶⁻⁸ students' negative attitudes towards nurses,^{5,9} as well as negative perceptions about receiving teaching from NPHCPs instead of physicians.

It is inevitable that NPHCPs and medical students interact during the provision of patient care, and invariably, there are mixed reports of the quality of interactions and relationships. Lack of information regarding student learners-- such as their current knowledge level, needs and interests of learners, as well as their competencies and expectations-- have been identified in the literature as recurring challenges for NPHCPs working with medical students.^{6,10} This concern may be of particular significance in communities that are exposed to medical students for the first time through satellite medical school campuses. Little research has been undertaken to understand the particular challenges experienced by medical students and NPHCPs in regional or community hospitals.

Our primary objective was to examine the current educational relationship between medical students and NPHCPs at community hospitals associated with satellite medical campuses. In understanding the relationships, we sought to identify barriers that could be addressed to improve interprofessional education (IPE) of medical students in the clinical setting. We hypothesized that based on individual student experiences at the Waterloo Regional Campus (WRC) of McMaster University; NPHCPs

working within the regional hospitals had limited experience working with medical students, creating a possible gap in collaboration and learning.

Methods

Study design

This was a cross-sectional study of medical students and NPHCPs. It was developed using a quality improvement (QI) framework and was reviewed by the Program for Interprofessional Education and Research (PIPER) and the Quality Improvement Boards at participating hospitals. In order to evaluate the current experiences, role familiarity, and participation in medical student education of NPHCPs at local hospitals, we generated an online survey that included both close-ended questions (multiple choice, Likert, rank order) and open-ended questions with space for respondents to include more detail if they wished (Appendix 1). Similarly, we generated a second survey to evaluate medical student experiences working with NPHCPs in regional hospitals, with emphasis on their experiences being taught by NPHCPs and their attitudes towards receiving further teaching (Appendix 2). Questions were vetted by members of the Professional Advisory Committees of both hospitals, and by members of the Program for Interprofessional Education and Research (PIPER) and Michael G. DeGroote School of Medicine Waterloo Regional Campus faculty. The completion of both surveys was voluntary, with the incentive of being entered into a draw for a \$50 gift card. This study was granted a waiver of formal REB approval due to a ruling of low risk and institutional support as a quality improvement project.

Study settings and participants

The WRC is a satellite campus of the Michael G. DeGroote School of Medicine at McMaster University. Situated in Kitchener, Ontario, the campus admitted its first class of fifteen students in 2007 and since has grown to admit approximately twenty-eight students to each incoming class. Medical students at the WRC complete their core clerkship training at three main community hospitals.

An online anonymous survey for NPHCPs was distributed December 2014 via email through the Professional Advisory Committees at two affiliated regional hospitals. Another online anonymous survey was distributed to medical students at the WRC in March 2015. All students were eligible to participate, leading to a potential sample size of 83 medical students.

Variables and data analysis

Closed-ended question responses were analysed using a four-point Likert scale. Open-ended question responses were manually coded by two research authors and grouped into the following three deductive categories determined *a priori*: (1) Perceived barriers to NPHCP involvement in medical education, (2) Perceived benefits to NPHCP involvement in medical education, and (3) Potential teachable moments for medical students. The *post hoc* analysis further quantified each category into various emergent themes: (1) Time, attitude, workload, logistics, role and attitude for perceived barriers, (2) Patient safety, patient care, medical education, interprofessional communication and relationships, understanding of roles for perceived benefits, and (3) Skill-based, patient case, documentation, role explanation, shadowing as potential teachable moments. Descriptive statistics were generated for each analysis using Microsoft Excel (Microsoft, Redmond, WA).

Results

NPHCP Survey Results

As the online survey was distributed by hospital administration, we were unable to determine the number of potentially eligible participants. We received 141 completed surveys that were included in the study and in the final analysis. The majority of responders were female (86%, $n = 122$) and from nursing staff (51%, $n = 72$), although responses were received from 18 different professions (Table 1). Almost ninety percent of respondents indicated that they had encountered medical students in their work ($n = 119$), with 33% of these indicating that they encounter medical students at least once per week ($n = 44$). Almost all (99%, $n = 117$) of respondents,

however, indicated that they had never received formal training regarding their role when encountering medical students.

Responses to a question regarding the scope of practice of medical students revealed a lack of clarity about the abilities and limitations of medical learners, particularly in regards to writing orders, communicating diagnoses and test results, and performing practical skills (Table 2). The majority of respondents (90%, $n = 120$) indicated that it would “probably” or “definitely” be beneficial to have these roles and responsibilities clarified. A large number of respondents (81%, $n = 96$) also felt their profession had a role in teaching medical students.

Potential foreseeable barriers to their participation in medical education included time constraints (48%), student attitudes (21%), and the perception of increased workload (11%). Many respondents felt teaching medical students would increase their workload (60% in the short term, 50% in the long term). However, Figure 1 demonstrates that NPHCPs also acknowledged potential benefits (“probably” and “yes” answers) to patient safety, patient care, interprofessional communication, and the quality of medical education (80%, 67%, 86% and 77% respectively).

Student Survey Results

Of the 83 eligible students at WRC, 67% ($n = 56$) were included in the study. 5 participants did not complete the entire survey. There was an equal distribution in responses between the three classes. Most respondents (94%, $n = 49$) indicated that they have encountered NPHCPs in clinical practice. Nursing, pharmacy and social work were the most frequently encountered professions, while spiritual care and speech language pathology were encountered less often. Figure 2 demonstrates respondents felt most familiar with the roles of nursing, pharmacy, physiotherapy, and social work, and were less familiar with the roles of spiritual care, speech, and language.

Figure 1.

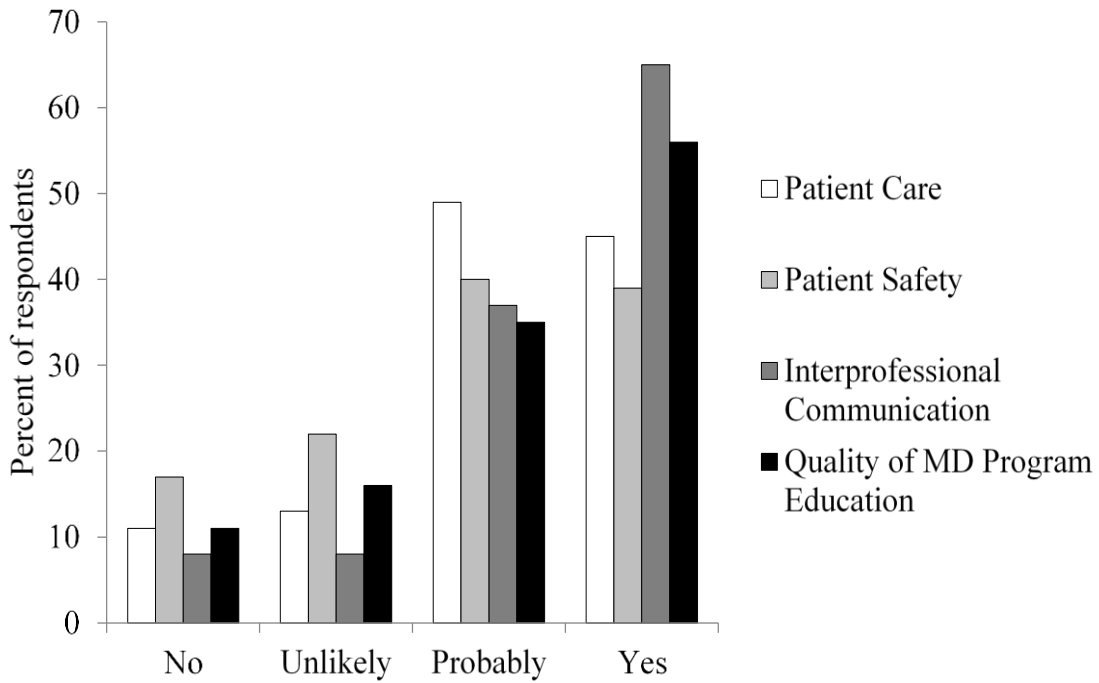
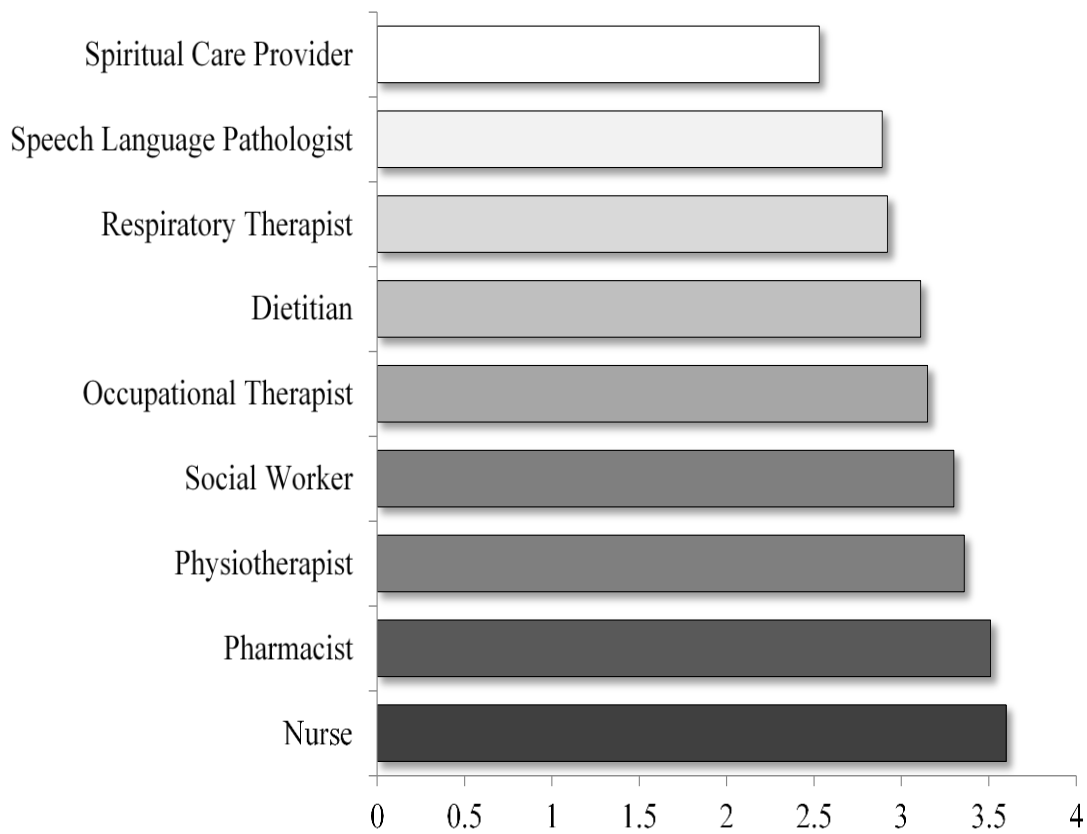


Figure 2.

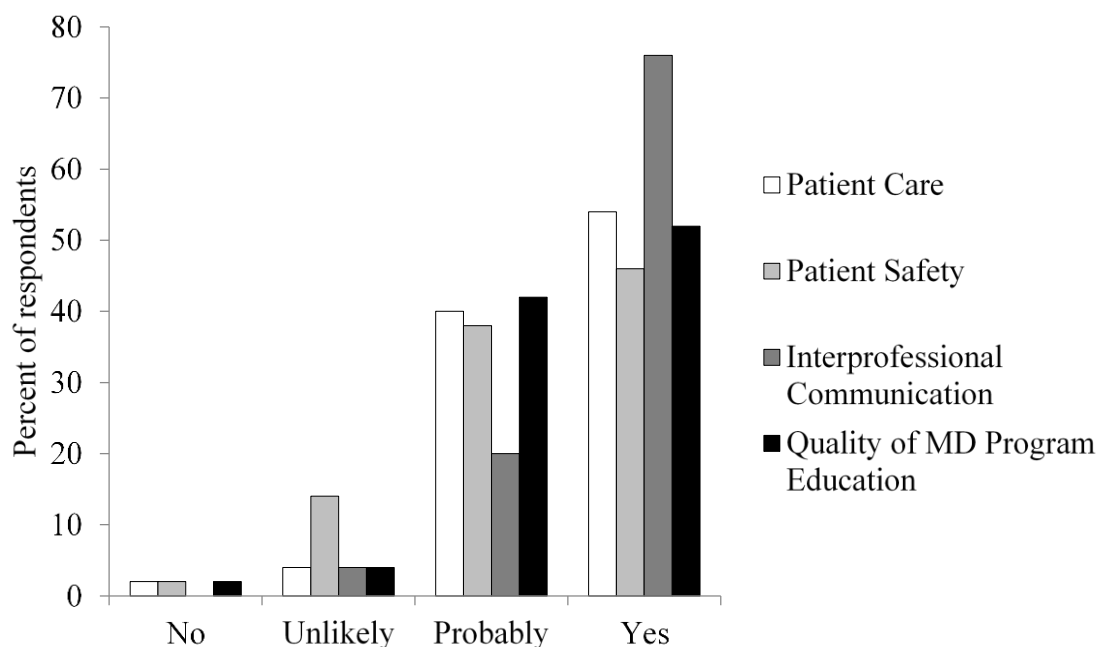


Students indicated that they felt there was overlap between their scope of practice as medical students and the skills and responsibilities of various healthcare professions, particularly in the fields of nursing, pharmacy, social work and respiratory therapy. Many of the respondents acknowledged the expertise each profession had for the overlapping skills. 88% of respondents indicated that they felt NPHCPs had a direct role in the education of medical students (n = 45), and 94% indicated that they would be open to receiving teaching from NPHCPs in clinical practice (n = 48). Potential “teachable moments” identified by medical students fell under the following themes: demonstrating or supervising a procedural skill, discussing patient care, reviewing documentation, discussing scope of practice, or shadowing an NPHCP. Furthermore, procedural skills, swallowing assessments, medication interactions, dietary considerations and mobility support were frequently cited by respondents as specific concepts and/or procedures they would like to receive instruction from an NPHCP. Internal Medicine was cited the most ideal rotation to receive teaching from NPHCPs (76.5%, n = 39). Other rotations that were

most favourable include Pediatrics, Intensive Care, Psychiatry, Emergency and Obstetrics. Students preferred to learn from nurses and pharmacists the most.

Figure 3 shows that most respondents (n = 50) felt that incorporating NPHCPs into the education of medical students would lead to improved (i.e. “probably” and “definitely” responses) to patient care (94%), patient safety (84%), interprofessional communication (96%), and higher quality of MD program education (94%). Additional benefits of teaching from NPHCPs identified by medical students were a greater appreciation of the roles of NPHCPs, better understanding of the multidisciplinary resources available to patients, more positive interprofessional relationships, and a broad, well-rounded undergraduate medical education with increased proficiency in clinical skills. Students identified similar barriers as the NPHCPs to this additional teaching: time constraints, logistics, lack of clarity of the medical student role, and attitudes of the NPHCPs and MD preceptors.

Figure 3.



In comparing their experiences at a regional campus to those at a larger academic centre, many respondents identified that NPHCPs in larger academic centers were more familiar with their role as medical students compared to those in regional sites (53%, n = 32). There was no difference in frequency of interactions with NPHCPs, variety of NPHCPs encountered, or how active NPHCPs were in the training of medical students.

Discussion

To our knowledge, this is the first study to investigate the particular challenges that regional medical students face when interacting with NPHCPs at regional or community hospitals as compared to larger academic centres. Firstly, there is a paucity of understanding regarding medical students' roles and responsibilities in a hospital setting. This is evidenced through the self-assessments completed by the health professionals and through our survey questions that required them to correctly identify certain competencies and responsibilities of medical students. The reason for this gap in knowledge is likely multifactorial, but may include a lack of previous exposure to medical students, as many NPHCPs at newer satellite campuses may have never have worked with medical students prior to the creation of the campus. The survey also revealed that nearly all NPHCPs surveyed had not received any orientation to working with medical learners, suggesting that this may represent a previously unidentified gap in planning when introducing new satellite campuses. As Distributed Medical Education models are being expanded across Canada, planning committees should consider incorporating this demonstrable gap in preceptor and staff preparation, as it may have important impacts on patient care and safety, in addition to the quality of medical education experience.

Furthermore, our study showed students perceived very little difference between the number and variety of interactions with NPHCPs at regional and larger teaching centers. However, students felt that NPHCPs at larger academic centers had a better understanding of their abilities and limitations. Their doubts appear to be well-founded, as the results of our survey showed that NPHCPs were frequently

unaware that students were not able to give verbal or written orders. Undoubtedly, this confusion may create a scenario whereby patient safety could be compromised, as there may be confusion in proceeding with treatment orders that have not yet signed by a physician. Until NPHCPs in regional hospitals understand the roles and limitations of a medical student, effective teaching and collaboration within health care teams may be hindered. To this end, we have begun a trial of disseminating this information in the form of posters located in physician and nursing work stations inside community hospitals detailing "working with a medical student". Other strategies may include online training modules or supplementary handouts given out during the hiring process for new staff.

Themes that were generated *post hoc* from the survey sent to medical students indicate that students are keen on engaging with and learning from NPHCPs. Specific skills they would like to be taught by NPHCPs, as well as which specific health care providers they would ideally like to learn them from were identified. The teaching of specific skills has been noted in the literature to improve attitudes and relationships between medical students and nurses, leading to better interprofessional collaboration.³⁻⁶ These learning objectives could be incorporated into the undergraduate medical education program to prepare students, provide comprehensive education, and to improve interprofessional relationships. For example, formal teaching labs or sessions led by NPHCPs could be conducted with students of other health care professions e.g. nursing students.

Limitations

This study is limited to an analysis of NPHCPs working at regional and community hospitals and students at a regional medical school campus. The ideal study would have included NPHCPs and medical students from larger academic centres to allow for a thorough comparison of the four groups. In particular, the answers NPHCPs gave regarding the limitations and abilities of a medical student could have been compared. Despite this, the fact the 8 out of 11 questions were answered with fewer than 60% correct responses show that NPHCPs at regional sites

do not confidently know what medical students can and cannot do.

In addition, the school and hospital administration were not surveyed to determine if any formal orientation of hospital staff was implemented prior to the introduction of learners when the regional campus was first opened in 2007. It is possible that previous hospital department leads had the relevant information about medical learners, but current workers did not receive any formal orientation. Furthermore, in a larger academic setting, it is unknown if newly hired NPHCPs receive formal job orientation regarding the presence of medical learners, or if this knowledge comes from colleagues "on-the-job."

Conclusion

This study sought to evaluate the experiences of medical students and NPHCPs at community hospitals associated with satellite medical campuses. The lack of clarity regarding the role of a medical student in hospitals presents a rectifiable barrier at regional medical school campuses that may improve interprofessional collaboration and patient care and safety. Prior to working with NPHCPs, the student's role as a member of the health care team and within hospitals needs to be clarified. The usage of formal online teaching modules, orientation handouts or posters in hospital workspaces are some strategies that may be able to bridge this gap in knowledge.

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