

# Canadian Medical Education Journal

---

## Major Contributions

### Patients as teachers: Evaluating the experiences of volunteer inpatients during medical student clinical skills training

### Les patients comme enseignants : évaluer les expériences des patients hospitalisés bénévoles durant la formation sur les habiletés cliniques des étudiants en médecine

MD Elfassy,<sup>1</sup> LJ Duncan,<sup>2</sup> A Green,<sup>1</sup> H Sun,<sup>1</sup> T Guimond, K Tzanetos,<sup>1,3</sup> J Nyhof-Young<sup>1,4</sup>

<sup>1</sup>Faculty of Medicine, University of Toronto, Ontario, Canada

<sup>2</sup>Faculty of Health Sciences, McMaster University, Ontario, Canada

<sup>3</sup>University Health Network, Ontario, Canada

<sup>4</sup>Office of Assessment and Evaluation, MD Program, University of Toronto, Ontario, Canada

Published ahead of issue: July 30, 2020; published December 7, 2020

CMEJ 2020, 11(6), e8-e16, Available at <http://www.cmej.ca>

© 2020 Elfassy, Duncan, Green, Sun, Guimond, Tzanetos, Nyhof-Young; licensee Synergies Partners

<https://doi.org/10.36834/cmej.70158>

This is an Open Journal Systems article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/2.0>) which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited

---

## Abstract

**Purpose:** Early patient encounters in medical education are an important element of clinical skill development. This study explores the experiences of volunteer inpatients (VIPs) participating in clinical skills training with junior medical students (JMS) solely for educational purposes.

**Methods:** Following first-year medical students practicing history taking and clinical examinations with VIPs at Toronto General Hospital (TGH) and Toronto Western Hospital (TWH), patients completed a questionnaire and a short audio-recorded interview. This study used a mixed methodological approach. A 5-point Likert-scaled survey queried satisfaction regarding the recruitment process, student and faculty interactions and patient demographics (e.g. age and educational background). A 10-minute follow-up interview investigated patient perspectives. Survey responses were correlated to patient demographics and descriptive thematic analysis summarized trends in patient perspectives.

**Results:** Of 93 consenting VIPs, 66% were male and 58% participated at TGH. The mean overall experience was positive (4.76 and 4.93 at TGH and TWH, respectively). Three themes emerging through thematic analysis were Not "Just" a Medical Student, Patient as Teacher, and Promoting Best Practices. VIPs reported positive experiences when

they were adequately informed of the VIP role during recruitment, and when students exhibited confidence, interest, and respect throughout the session.

**Conclusion:** Study results provide clarity about VIP experiences with JMS and lay a foundation for improved patient satisfaction and best practices within clinical skills curricula in the health professions.

---

## Résumé

**Objectif :** L'exposition clinique précoce en éducation médicale est un élément important du développement des habiletés cliniques. Cette étude explore les expériences de patients hospitalisés bénévoles (PHB) qui participent à la formation sur les habiletés cliniques des étudiants de 1<sup>re</sup> année en médecine (ÉJM) à des fins purement éducatives.

**Méthodes :** Après que les étudiants de première année aient effectué des anamnèses et des examens cliniques auprès de PHB à la Toronto General Hospital (TGH) et à la Toronto Western Hospital (TWH), les patients ont répondu à un questionnaire et ont fait une courte entrevue audio qui a été enregistrée. Cette étude a utilisé une approche méthodologique mixte. Un sondage basé sur l'échelle de Likert à 5 points a évalué le degré de satisfaction en ce qui a trait au processus de recrutement, aux interactions entre les étudiants et le corps professoral et aux caractéristiques démographiques des patients (p. ex. âge et niveau d'instruction). Une entrevue de suivi de dix minutes a permis d'examiner le point de vue des patients. Les réponses du sondage ont été mises en corrélation avec les caractéristiques démographiques des patients et une analyse thématique descriptive a résumé les tendances liées aux perspectives des patients.

**Résultats :** Sur les 93 PHB consentants, 66 % étaient des hommes et 58 % d'entre eux ont participé à la TGH. En moyenne, l'expérience générale s'est avérée positive (4,76 et 4,93 à la TGH et à la TWH, respectivement). Les trois thèmes qui ont émergé de l'analyse thématique sont: pas « seulement » un étudiant en médecine; le patient comme enseignant et, la promotion des pratiques exemplaires. Les PHB ont rapporté avoir eu des expériences positives lorsqu'ils étaient bien informés de leur rôle durant le recrutement et lorsque les étudiants faisaient preuve de confiance, d'intérêt et de respect tout au long de la session.

**Conclusion :** Les résultats de l'étude apportent des clarifications en ce qui a trait aux expériences des PHB avec les étudiants en première année de médecine, et ils jettent les bases qui permettront d'améliorer la satisfaction des patients et les meilleures pratiques du programme de formation en habiletés cliniques dans les professions de la santé.

---

## Introduction

The early patient encounter is an important aspect of Undergraduate Medical Education (UME).<sup>1</sup> Surveys of junior medical students (JMS) (i.e. pre-clerkship students) report positive experiences and improved clinical skills when learning within a clinical environment.<sup>2,3</sup> JMS have valued their interactions with real patients, describing their learning as more authentic, focused, and meaningful.<sup>4,5</sup> They also described an improved ability to communicate therapeutically, build rapport, and express empathy.<sup>6,7</sup>

From the patient perspective, numerous studies have demonstrated an overall positive patient response to medical student participation in their care.<sup>9,10,11</sup> One study showed that when JMS were integrated into a

patient's care team, patients maintained high levels of satisfaction with their care.<sup>9</sup> The most common reason cited for positive attitudes towards medical student involvement was a desire to contribute to the education of others. Conversely, concerns around privacy and increased length of office visits resulted in negative patient feedback.<sup>11</sup> Other patients interviewed by first-year medical students believed they benefited from the process, noting the therapeutic nature of discussing their illness in depth.<sup>12</sup> Similar studies at the University of Toronto demonstrated that 89% of patient volunteers assessed by JMS for educational purposes enjoyed the experience. Of these patients, 94% reported a positive volunteer experience and communicated willingness to participate again.<sup>13,14</sup>

Evidently, early patient interaction in UME confers benefit to both JMS and patients themselves. However, few studies have evaluated patients volunteering to participate in the teaching of JMS who are not involved in their care; available research is limited to outpatients affiliated with organizations that enroll volunteers in the community, and who may be compensated for their time.<sup>6,12,13</sup> For decades, UME has relied on inpatients to volunteer their time to participate in clinical skills training for JMS.<sup>15</sup> Nonetheless, volunteer inpatient (VIP) experiences have not been thoroughly explored.

Physician tutors in the Integrated Clinical Skills (ICE) curriculum at the University of Toronto regularly recruit consenting VIPs at local teaching hospitals for educational interactions with JMS; however, no standard recruitment method currently exists. For example, many tutors will go to the ward the morning of the clinical skills session and recruit their patients or those of colleagues to be interviewed and examined by medical trainees. In the authors' (MDE, LD, AG) previous experiences as JMS interacting with such volunteers, patients often appeared uninformed about the volunteer process, asking, "Why are you asking me these questions?" or "Why don't you look up the answers in my chart?" We would then repeat the interaction's purpose, concerned that patients felt uninformed or uncomfortable during the encounter. Similarly, others have proposed that VIPs may feel pressured to participate by feelings of owing the doctor or staying in their good graces.<sup>15</sup>

Thus, a knowledge gap exists regarding VIP experiences in UME, particularly when sessions are unrelated to patient care. We used a convergent parallel mixed methods study design to evaluate VIP experiences with first-year pre-clerkship medical students practicing history taking and physical examinations for strictly educational purposes. By concurrently using both survey and interview data, we set out to develop a more thorough and integrated understanding of VIP encounters and the resulting patient satisfaction levels. Our goal was to provide insight into VIP experiences, thereby revealing necessary considerations to promote a better, more patient-centered clinical skills curricula. We anticipate that lessons learned will be relevant to other medical schools and health professional training programs that work with VIPs.

## Methods

### *Curriculum content*

Each Friday, approximately 260 first-year University of Toronto medical students engage in the ICE curriculum to learn clinical skills from physician tutors, and then practice them with standardized patients and VIPs. Two subsets of first-year students are located at Toronto General Hospital (TGH) and Toronto Western Hospital (TWH), two large downtown Toronto teaching hospitals affiliated with the University Health Network that serve diverse patient populations. ICE physician tutors recruit and consent adult, English-speaking inpatients from among their own patients and those outside their circle of care to participate in a clinical history and/or physical examination with medical students. ICE students divide into groups of six, each led by a faculty physician tutor. The groups then further divide into subgroups, typically of two students (but ranging between one to six students), to practice their interview and physical examination skills with a preselected VIP. The resulting clinical skills session between the VIP and students is standard hospital educational practice. However, for our study, Research Assistants (RAs) (non-medical students) collected post-encounter satisfaction data from consented VIPs. Research Ethics Board approval was obtained from the University Health Network.

### *Research elements*

A questionnaire and follow-up interview were developed and validated after a review of the literature and in consultation with education scientists, program leadership, and JMS. Consensus was reached, and the materials were then validated with two VIPs. RAs were trained to administer both components in a standardized fashion.

**Questionnaire:** A 10-minute questionnaire asked about VIPs' demographics, encounter factors (e.g. time students spent with participants, number of students present), and satisfaction. Satisfaction sub-scale scores were generated for recruitment (composed of 5 questions), clinical interaction (5 questions), interview (5 questions), physical examination (5 questions) and overall experience (3 questions), by averaging the 5-point Likert-type items within each survey sub-scale. The completed

questionnaire content guided the subsequent 10-15-minute, audio-recorded patient follow-up interview.

**Interview:** The interview guide consisted of open-ended prompts such as: “Tell me about your experience working with the students today”; “why did you agree to participate with the student(s)?”; “how did you feel with the student(s)?”; “what do you think could have been done to improve your experience?” RAs also asked VIPs to elaborate on any outliers scored in the questionnaire (i.e. anomalous ratings).

**Procedure**

**Recruitment:** Physician tutors were recruited and consented to the study prior to the teaching session. Generally, one RA was assigned to a group of six students and their physician tutor. The tutor informed the RA once the JMS completed the patient interaction; RAs did not observe the private JMS-patient interactions. The RAs then entered the room, recruited and consented each patient to the study, and administered the questionnaire and interview. Four to six RAs and one site lead were at both TGH and TWH each week.

**Consent:** This study was carried out in accordance with the Declaration of Helsinki,<sup>16</sup> including but not limited to ensuring privacy, confidentiality and obtaining informed consent. Written consent was obtained from all VIPs.

**Data analysis**

**Quantitative analyses:** Questionnaire responses were coded into Excel spreadsheets and descriptive Statistics (measures of central tendency and dispersion) were performed (R version 3.5.3,<sup>17</sup> with the Tidyverse package<sup>18</sup>). Patient satisfaction was compared to gender, age, how the patient was feeling, number of students present, physician presence, and student time spent with the patient. Spearman rank-order correlational analyses were performed between normally and non-normally distributed variables respectively, comparing satisfaction level with continuous variables (e.g. patient age and student time spent with patient).

**Qualitative analyses:** Audio recordings were transcribed, and descriptive thematic analysis performed, based on grounded theory methods developed by Glaser and Strauss.<sup>19</sup> Two independent researchers iteratively analyzed each interview line-

by-line to generate initial codes, which were then then grouped into categories based on common properties. Constant comparison was used to generate overarching themes in the data, and data saturation was achieved. The resulting coding framework was reviewed by the entire research team and finalized via consensus. The entire dataset was then reanalyzed using the finalized coding scheme until all data were coded and accounted for.

**Results**

**Volunteer in-patient demographics**

Of 93 total VIP encounters, one patient participated twice, resulting in 92 participants. Of these, 61 were male (66.3%), and 54 (58.1%) participated at Toronto General Hospital. Education level varied among participants; the majority (80%) completed high school. No statistically significant differences existed between hospital sites regarding age, gender, or education. Demographic data are presented in Table 1.

**Table 1. Inpatient demographic information**

	N(%) n = 93
<b>Age (Mean ± SD)</b>	58.4 (18.2)
<b>Gender</b>	
Male	61 (66.3)
Female	31 (33.7)
<b>Education</b>	
≤ 8 <sup>th</sup> grade	3 (3.3)
Some High school	4 (4.4)
Completed High school	19 (21.1)
Some Postsecondary	14 (15.6)
Completed Postsecondary	40 (44.4)
Completed Postgraduate	10 (11.1)
<b>Hospital Site</b>	
Toronto General Hospital	54 (58.1)
Toronto Western Hospital	39 (41.9)

**Patient feedback questionnaire results**

**Encounter factors:** A majority of VIPs (66 or 71.0%) completed both the physical examination and medical interview, a quarter (23 or 24.7%) the medical interview only, and 4 (4.3%) a physical exam only. About three quarters of the VIPs (68 or 73.1%) reported that the recruiting physician was not their own; a quarter (25 or 26%) were recruited by their providing physician, and the remainder were unsure. The majority (61 or 66.3%) of encounters had two students present; 18 (19.6%) had three or more students, and 13 (14.1%) had only one student. About

half (50 or 53.8%) of VIPs reported that physicians were not present; about a quarter (22 or 23.7%) of encounters had physicians present throughout; and 21 (22.6%) had physicians present some of the time. Encounter duration varied: 44 (47.3%) were between 21-40 minutes, 33 (35.5%) between 0-20 minutes, and 16 (17.2%) greater than 40 minutes. Patients reported a low average fatigue score of 2.3 (SD 2.1) on a 10-point scale (0 being not at all tired and 10 extremely tired). Fatigue scores were not found to be related to the length of encounter duration in a linear model, ( $p = 0.342$ ) nor when alternate models using different cut-off points for greater fatigue beyond a specific length were used as the predictor ( $p$ -values ranged from 0.240 to 0.889). Encounter factors are presented in Table 2

**Table 2: Clinical encounter factors**

Encounter Factors	
Task, N = 93	
Physical Exam	4 (4.3%)
Medical Interview	23 (24.7%)
Both	66 (71.0%)
Patient Recruited by Providing Physician, N = 93	
Yes	25 (26.9%)
No	46 (49.5%)
Unsure	22 (23.7%)
Number of Students Present, N = 92	
1	13 (14.1%)
2	61 (66.3%)
3+	18 (19.6%)
Physician Present, N = 93	
Yes	22 (23.7%)
No	50 (53.8%)
Sometimes	21 (22.6%)
Encounter Duration (min), N = 93	
0-20	33 (35.5%)
21-40	44 (47.3%)
>40	16 (17.2%)
Patient Fatigue Rating [mean (SD)], N = 93	
Rating from 1-10	2.3 (2.1)

**Recruitment, clinical interaction, medical interview, and physical examination**

**Overall rating by site:** Participants at both hospitals rated their experiences (e.g. recruitment, clinical interaction, medical interview, physical examination, and overall rating) very positively, (4.7 or higher out of 5). They reported statistically significant differences between hospital sites, where TWH was rated slightly higher for clinical interactions ( $p = 0.012$ ), physical examinations ( $p = 0.020$ ), and overall rating (0.033). See Table 3.

**Table 3: Overall satisfaction scores by site**

Encounter Feedback	Mean, SD	Mean, SD	N = 93
Scores	TGH	TWH	$p$ value
Recruitment	4.69 (0.46)	4.84 (0.27)	0.065
Clinical Interaction	4.77 (0.35)	4.93 (0.19)	0.012*
Medical Interview	4.83 (0.35)	4.91 (0.23)	0.215
Physical Examination	4.79 (0.39)	4.97 (0.18)	0.020*
Overall Rating	4.76 (0.44)	4.93 (0.24)	0.033*

*P values were generated from t-tests. P values < 0.05\* were considered significant*

**Qualitative results**

VIPs provided both positive and constructive feedback regarding their experience. They provided rich commentary and supportive critique to improve the sessions. Three overarching themes emerged: Not “Just” a Medical Student, Patient as Teacher, and Promoting Best Practices.

**Theme 1: Not “just” a medical student**

The strong bedside manner of JMS was commented on very favourably and often by VIPs, specifically as it relates to the unique human element that students brought to the interactions. It appeared that student emphasis on being “just” a medical student did a disservice to the student-patient relationship, despite VIPs being understanding of this lack of professional confidence given their early stage of clinical training.

**Student bedside manner:** Bedside manner describes a doctor’s approach or attitude toward a patient. JMS’ strong bedside manner was commented on very favorably and often: “If they’re going to be doctors, they’re going to get top points for bedside manner.” VIPs identified contributing student qualities and skills, emphasizing the human element that medical students brought to the clinical interactions: “They even warned me sometimes that they had cold hands, so I really appreciated that. We’re all humans and that kind of made me feel more comfortable.” Another patient explained: “They came to sound my chest, and then they talked to me. Just making me feel human, and not like some sort of number on a chart. ‘Cause you can get lost in the shuffle of the hospital, and they didn’t make me feel that way”. A strong bedside manner involved showing VIPs respect and by being patient throughout their interactions: “They were very patient. They let me talk.”

One family member commented:

They just took their time and being compassionate and respectful of the individual's dignity if you will. Like having to take your clothes off and expose yourself when there are younger people in the room could be somewhat intimidating at her age, but they covered her up and did it in the most respectful manner that they could. It was done very nicely.

**Professional confidence:** Several VIPs identified a lack of student confidence as an area for improvement. They understood that students possessed minimal clinical experience, but noted that projecting professional confidence helps put VIPs at ease. One VIP suggested that students should try to appear more confident than they truly may feel: "Go into it with even some false confidence...if someone comes in and they're obviously very nervous, it's kind of unsettling to you...That's a piece of advice: 'Fake it till you make it!'" Another VIP highlighted that students repeatedly explaining that they were "just first year medical students" could detract from both students' and VIPs' experience. They suggested: "Say that they're first year the one time, but maybe not too continuously, because then it kind of takes away from the fact that they're examining and that they're becoming doctors."

### **Theme 2: Patients as teachers**

Having the opportunity to share their illness narrative was both important and educational for VIPs, and the JMS demonstrated attitudes and behaviours that made the VIPs feel heard. VIPs felt that providing JMS with these early clinical interactions was an important educational experience and that their stories served as strong teaching tools in preparing JMS with the skills needed to understand the needs of their future patients.

**Patient illness narrative:** Many VIPs enjoyed the opportunity to teach medical students about their illnesses and unique medical journeys. One VIP described the importance of this: "I just feel that it's important being able to teach other people but also to explain about my disease, because it's a rare condition." Some VIPs saw the experience as a helpful exercise in understanding their own hospital and medical history: "I think it was informative for both myself and the medical students. Basically, after

explaining my medical history to them, it gave me a deeper realization of what my health status was." Finally, VIPs appreciated opportunities to ask questions and gain information from the students. "There are things that I didn't understand before, that I understand now. The nurses here have so much stuff to do, and I got the chance to ask questions. [...] the experience is great... you get to ask questions that you wouldn't really ask otherwise."

**Feeling listened to:** Many VIPs expressed satisfaction because they felt listened to by the students: "The students seemed very interested in my story, and so, most people are happy when people seem interested in their story." Students accomplished this in several ways, including the use of engaged body language: "They were very attentive, listening to every word I was saying. There were noises going on in here and not once did either of their heads turn in that direction of the noise." They also showed interest in both medical and non-medical information provided by VIPs: "I know that sometimes I do go off on tangents, and then I asked if he wanted me to get back on track with more medical issues and he said no, which is wonderful because then you know he's listening."

**Contribution to medical education:** A large proportion of VIPs felt that their contributions were important to improve physician education. They enjoyed providing students with hands-on experience. One said, "I feel that it's so important that the doctors get a personal perspective...if they would get more experiences like this, that could really help them understand the needs of the patients." Another explained, "I think it's very important for students to get in front of real-life patients, how they're feeling, what's going on and what they're experiencing at bedside." Similarly, VIPs felt positively about their contributions as a way to improve medical care both for themselves and for future patients: "I think it's a good experience knowing it could potentially help someone else and the future doctors."

### **Theme 3: Promoting best practices**

The majority of session improvements identified by VIPs were related to deciding whether or not to volunteer, with specific mention of timing of recruitment and information provision.

**Recruitment timing:** The time provided to each VIP to decide to volunteer was not standardized; it varied among recruiting physicians. Several VIPs reported having only a few minutes to consent, and more time to make this decision would have been appreciated: “Well it was sudden... I didn’t really have any warning before... Just give a little time, I’d say. Instead of coming suddenly and saying, we’re going to do this.” They enjoyed the experience nonetheless: “Yeah, probably maybe a day earlier rather than the morning of. But yeah, it was great.”

**Information provision:** Discrepancies existed in the information patients received about being a VIP. Some recalled receiving no information: “I wasn’t informed at all.” Others may have received incomplete information: “I wasn’t aware there was going to be a physical portion... he may have mentioned it, and maybe I didn’t hear it.” Multiple patients recommended providing both printed and verbal information ahead of time.

## Discussion

This study aimed to better understand the experiences of patients who volunteer to be assessed by first-year medical students practicing clinical skills for educational rather than patient care purposes. Methodological triangulation demonstrated strong agreement between quantitative and qualitative datasets and allowed for a robust account of our findings.

Similar to previous studies, our results demonstrated that volunteering was a positive experience for these VIPs, as demonstrated by a high overall satisfaction rating of 4.73 and 4.93 out of 5 at the two hospital sites. Satisfaction was unrelated to various encounter factors (e.g. time students spent with participants, number of students present), suggesting that together these factors are optimal.

Although both hospital sites showed similarly positive scores, statistically significant differences existed such that TWH scored slightly higher in clinical interaction, physical examination and overall scores. This difference may be due to the increased complexity and severity of illness of patients at TGH, which is a quaternary care, research-intensive hospital. However, the overall satisfaction levels were remarkably positive in both sites.

Our qualitative themes enabled a deeper understanding of survey responses and elucidated pertinent context. In general, VIPs reported feeling listened to, described the students as having generally good bedside manner, and felt they were contributing to patient care and medical education. One area of feedback was for the JMS to exude more confidence in their encounters.

A key area for improvement elicited from the interviews was our VIP recruitment process. Some patients reported a lack of information provision regarding the volunteer process; they felt they had insufficient time or information to decide to participate. Although this concern did not appear to reduce VIPs’ satisfaction, we are utilizing this insight to improve the consent process to ensure patients more completely understand and appreciate their volunteer role. While no respondents indicated feeling pressured to volunteer, recruiting physician tutors need to also emphasize that participation is completely voluntary, and will not impact patient care. The University of Toronto MD Program is currently developing written information pamphlets for patients to reinforce the verbal recruitment messages of tutors. Ideally this multimodal approach will allow patients more means and time to absorb information regarding the volunteer process and have their questions answered. We anticipate developing faculty development materials for new tutors.

## Study limitations

Our study was conducted in two large academic urban teaching hospitals; thus our patient sample may not be generalizable to inpatients in community based or rural settings (e.g. respondents were mostly high school graduates or higher); however, our large and diverse sample and triangulation of survey with interview data gives us confidence in our results.

Our study may have an inherent selection bias; inpatients who agreed to be study volunteers may be more or less satisfied than other VIPs. However, given our diverse respondent demographics, the broad range of opinions and perspectives offered, and reaching data saturation, we believe that our sample is representative and provides worthwhile data. Since no between group comparisons were planned, a sample size calculation was not indicated, but we had

a robust sample size ( $n = 92$  inpatients). Our results are proving informative for enhancing local medical education practice, and we believe our lessons learned have practical implications for other healthcare professional training settings.

The logistics of this large, two-site, patient-centred study were complex, and we were unable to obtain broader student perspectives than those in the research team about student experiences in the clinical encounter, a worthwhile future endeavor.

### Conclusions

In conclusion, VIPs with the ICE curriculum at the University of Toronto report their experiences as overwhelmingly positive. Specifically, our qualitative results revealed several themes explaining such positive ratings. These included; Not “Just” a Medical Student, Patient as Teacher, and Promoting Best Practice. Further, satisfaction ratings were highly positive across diverse encounter factors including patient demographics, fatigue, number of students present, physician presence, and student time spent with the patient. This suggests that current educational encounter factors are already optimal.

Our study findings may also provide valuable lessons for other health professional training programs using volunteer inpatients in their curriculum. Our current VIP recruitment process could be improved. Study respondents occasionally reported a lack of information regarding the volunteer process, and some felt that more time or information for participant decision-making would have been helpful. Therefore, we recommend that the consent process prior to an educational interaction provide VIPs with detailed verbal and written information regarding the VIP role. Ideally, our future VIPs will receive recruitment information pamphlets and have sufficient time to review the information and ask questions prior to consenting to the clinical interaction. This may serve to further increase patient satisfaction, and as importantly, ensure the best possible ethical practices and experiences during the clinical training of medical students with their highly valued volunteer inpatient collaborators.

As interactions with VIPs are often the first clinical encounters in UME, future research should evaluate the impact of these seminal experiences for JMS. This may expose gaps in knowledge or preparation, and

offer valuable insight to continue to shape clinical skills curricula and JMS' comfort, and further promote VIP satisfaction.

Conflicts of interest: The authors have no conflict of interest to disclose.

Notes on contributors: MDE, LD and JNY were responsible for the inspiration and development of this study. MDE, LD, AG, HS, KT, JNY coordinated data collection. TG conducted statistical analysis. All authors were involved in the writing and editing of this paper.

Acknowledgements: We gratefully acknowledge the work of our Research Assistants in collecting data from volunteer inpatients: Mila Brankovan, An Nguyen, Tanvii Sharma, Angelique Shek, Kathryn Taberner, Evangeline Tsagarakis, Amna Ahmed, Nivetha Chandran, Mariam Issa, Kaja Williams, and Sumaiya Yasmeen. We thank our VIPs for their contributions to this study.

### References

1. Dornan T, Littlewood S, Margolis SA, et al. How can experience in clinical and community settings contribute to early medical education? A BEME systematic review. *Med teach*, 2006, 28(1), 3-18. <https://doi.org/10.1080/01421590500410971>
2. Godefrooij MB, Diemers AD, Scherpbier AJ. Students' perceptions about the transition to the clinical phase of a medical curriculum with preclinical patient contacts; a focus group study. *BMC med educ*, 2010, 10(1), 28. <https://doi.org/10.1186/1472-6920-10-28>
3. Wenrich MD, Jackson MB, Wolfhagen I, Ramsey PG, & Scherpbier AJ. What are the benefits of early patient contact? A comparison of three preclinical patient contact settings. *BMC med educ*, 2013, 13(1), 80. <https://doi.org/10.1186/1472-6920-13-80>
4. Bell K, Boshuizen HP, Scherpbier A, & Dornan T. When only the real thing will do: junior medical students' learning from real patients. *Med educ*, 2009, 43(11), 1036-1043. <https://doi.org/10.1111/j.1365-2923.2009.03508.x>
5. Bokken L, Rethans JJ, Jöbsis Q, Duvivier R, Scherpbie A, & van der Vleuten C. Instructiveness of real patients and simulated patients in undergraduate medical education: a randomized experiment. *Acad med*, 2010,



- 85(1), 148-154.  
<https://doi.org/10.1097/ACM.0b013e3181c48130>
6. Ali NB, Pelletier SR, & Shields HM. Innovative curriculum for second-year Harvard-MIT medical students: Practicing communication skills with volunteer patients giving immediate feedback. *Adv Health Sci Educ*, 2017, 8, 337.  
<https://doi.org/10.2147/AMEP.S135172>
  7. Graungaard AH, & Andersen JS. Meeting real patients: A qualitative study of medical students' experiences of early patient contact. *Ed for prim care*, 2014, 25(3), 132-139.  
<https://doi.org/10.1080/14739879.2014.11494263>
  8. Cooke F, Galasko G, Ramrakha V, Richards D, Rose A, & Watkins J. Medical students in general practice: how do patients feel? *The British j of gen prac*, 1996, 46(407), 361-362.
  9. Isaacson JH, Neides D, Mayer M, & Nottingham K. Patient perceptions of having 1<sup>st</sup>-and 2<sup>nd</sup>-year medical students involved in their care. *Teaching and learning in medicine*, 2014, 26(2), 164-167.  
<https://doi.org/10.1080/10401334.2014.883988>
  10. Kiefer C, Turner JS, Layman SM, Davis SM, Besinger BR, & Humbert A. Introducing medical students into the emergency department: the impact upon patient satisfaction. *West J Emerg Med*. 2015, 16(6), 894  
<https://doi.org/10.5811/westjem.2015.9.27255>
  11. Vaughn JL, Rickborn LR, & Davis JA. Patients' attitudes toward medical student participation across specialties: a systematic review. *Teaching and learning in medicine*, 2015, 27(3), 245-253.  
<https://doi.org/10.1080/10401334.2015.1044750>
  12. Thistlethwaite J. E., & Cockayne, E. A. Early student-patient interactions: the views of patients regarding their experiences. *Med teach*, 2004, 26(5), 420-422.  
<https://doi.org/10.1080/01421590410001696443>
  13. Schroeder T, Dhatt R, Hudson J, Nyhof-Young J. Investigating socio-cultural barriers to volunteerism in a medical school volunteer patient program: A program development project. *University of Toronto med j*, 2014, 92(2), 42-46.
  14. Leung A, Nyhof-Young J, James J. Impact of volunteering in medical teaching on patient volunteers' sense of social support. *CCME*. Quebec City, QC. April 20-23, 2013.
  15. Barnes HV, Albanese M, & Schroeder J. Informed consent: The use of inpatients as teaching-patients for sophomore medical students. *J of med ed*, 1980, 55(8), 698-703.  
<https://doi.org/10.1097/00001888-198008000-00008>
  16. World Medical Association. World Medical Association Declaration of Helsinki: Ethical principles for medical research involving human subjects. *JAMA*. 2013, 310(20), 2191-2194.  
<https://doi.org/10.1001/jama.2013.281053>
  17. R Core Team R: *A language and environment for statistical computing*. R Foundation for Statistical Computing, Vienna, Austria. 2019, Available at <https://www.R-project.org/> [Accessed on April 1, 2020].
  18. Wickham H. Tidyverse: Easily install and load the 'Tidyverse'. R package version 1.2.1. 2017. Available at <https://CRAN.R-project.org/package=tidyverse> [Accessed on April 1, 2020].
  19. Glaser BG, & Strauss AL. *Discovery of grounded theory: Strategies for qualitative research*. Routledge, 2017.  
<https://doi.org/10.4324/9780203793206>