

## AN EVALUATION OF A STUDENT-LED FACULTY-SUPPORTED INTER-PROFESSIONAL STUDENT MEDICAL-NURSING EDUCATION CONFERENCE (SMEC)

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### ABSTRACT

**Purpose:** There are relatively few student-led medical conferences worldwide. A group of medical and nursing students from Yong Loo Lin School of Medicine, National University of Singapore, organized an annual student-led faculty-supported inter-professional Student Medical-Nursing Education Conference (SMEC), which consisted of plenary talks, lectures and workshops, and a scientific competition. This research focused on the evaluation of workshops conducted during the 8th SMEC 2012.

**Method:** The authors used various process variables to survey the conference participants on the educational value of the 4 plenary lectures and 20 workshops, half of which were run by experienced healthcare professionals and the other half by current seniors or recent graduates.

**Results:** A total of 270 medical and nursing students completed the survey. Good to excellent educational value was reported for most of the workshops. Higher educational value was associated with use of props (correlation coefficient,  $r=0.733$  and  $0.568$ ), adherence to workshop topic/focus ( $r=0.608$  and  $0.815$ ) and openness of presenter to questions ( $r=0.555$  and  $0.453$ ).

**Conclusion:** A student-led, faculty-supported inter-professional conference organized by medical and nursing students had good to excellent self-reported education value in helping their fellow medical and nursing students learn about various healthcare disciplines and prepare for medical and nursing school.

### Keywords:

**Medical education; Medical student; Nursing education; Nursing student; Student-run; Interprofessional; Conference; Workshops**

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### INTRODUCTION

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The educational journey to becoming a healthcare professional is vastly different from those in other professions in terms of acquiring skills and professional behaviours, and adjusting to the demands of medical/nursing school can be stressful. Hence, it is important to allow medical and nursing students to discuss their experiences and expectations in a forum or a small-group setting so that they can gain deeper insight into life in medical/nursing school and the healthcare profession. It is in this setting that a group of medical professionals from Yong Loo Lin School of Medicine (YLLSoM), National University of Singapore (NUS), saw the need for a medical education conference for students. The Student Medical Education Conference (SMEC) was hence formed in September 2005 as an effort to involve medical undergraduates more intimately in the process of learning in an institution of higher education.

SMEC is an annual faculty-supported inter-professional and student-centred conference designed for undergraduate medical students from YLLSoM. The first two SMECs were jointly organised by the YLLSoM Medical Education Unit and NUS Medical Society (MedSoc), and led by academic physicians. Subsequent SMECs were then handed over to be organised mainly by students under NUS MedSoc. Since then, the planning and execution of the programme have been managed by YLLSoM's student leaders and SMEC stands as one of the few student-led and student-targeted conferences. Each SMEC is centred on a theme related to medical education or the healthcare profession. The theme for the 8th SMEC was "The Human Touch". The conference typically begins with plenary lectures by speakers such as the Dean and Vice Dean of YLLSoM, followed by workshops run by experienced healthcare professionals, where the invited speakers from different specialties share their personal experiences in various disciplines. The programme concludes with workshops where current senior and recently graduated students are invited as speakers to share their thoughts on how best to prepare for medical school. This series of workshops and lectures are organised to allow current senior and recently graduated students and experienced professionals to share best practices in learning and training during medical school.

SMEC mainly caters to the new incoming batches of medical students in the hope of exposing first-year medical students early to the medical education system. Organised near the start of the school term for the medical students, the SMEC guides students in the process of learning in an institution of higher education. Although participation in SMEC is purely voluntary and no academic credit is given for participation, participation rates, measured as attendance for at least one talk during the conference, have been above 80 percent among the first-year students.

For the 8th SMEC held in 2012, enhancements to the original

SMEC programme were introduced. The target audience was expanded to include graduate medical students from the Duke-NUS Graduate Medical School (Duke-NUS), and nursing students from the Alice Lee Centre for Nursing Studies (ALCNS). The current Nanyang Technological University Lee Kong Chian School of Medicine was not included as it was only open in 2013, a year after the 8th SMEC. Duke-NUS is a partnership between Duke University School of Medicine, Durham, North Carolina, USA and the National University of Singapore (NUS) and admitted its first cohort in 2007 [1]. It models its four-year curriculum after Duke University, Durham, USA, with the third year being dedicated to research. Duke-NUS only admits students who have already earned their bachelor's degree, unlike YLLSoM, which is an undergraduate medical school with a 5-year curriculum modelled after the traditional British medical undergraduate system, admits only pre-baccalaureate students. ALCNS was founded in 2005 to address the demand for graduate nurses in Singapore and the region, and it is a department within the YLLSoM [2]. It commenced its 3-year undergraduate Bachelor of Science in Nursing programme in 2006.

In 2012, Duke-NUS was invited to participate in SMEC to increase its relevance to a national level, and ALCNS was included in the organisation of and participation in SMEC to promote inter-professional education, which plays a key role in building teamwork between future doctors and nurses.<sup>3</sup> Thus, the programmes of both workshops and plenary talks were modified to include nursing content and the conference was renamed the Student Medical-Nursing Education Conference whilst retaining the original acronym, SMEC. Hence, the 8th SMEC had a special emphasis on interprofessionalism by allowing the medical and nursing students to interact with one another throughout the conference, attend workshops with both medical and nursing components, and listen to scientific poster presentations by students from different faculties/schools. Lastly, a scientific component was introduced in 2012, and this ran parallel to the entire conference. The scientific poster competition aimed to emphasise the usefulness, relevance and importance of research in the early stages of medical education. Students presented research projects and competed for prizes, which were judged by distinguished clinical researchers.

Despite the uniqueness and novelty of SMEC, no study has thus far been conducted for the previous SMECs to evaluate its overall educational value for student participants and the process measures that influence it. However, programme evaluation is crucial in understanding the process measures that contribute to the outcome of the conference to better guide future improvements to the programme<sup>1</sup> and aid in future planning of such conferences. Thus, in this paper, we evaluated the learning value of four plenary lectures and 20 workshops run by experienced healthcare professionals and current senior or recently graduated students, and the process measures associated with student evaluation scores for the workshops.

## METHODS

We conducted a study to evaluate the educational value of the four plenary lectures and 20 workshops held during the 8th SMEC in 2012, of which ten were run by experienced healthcare professionals and the other ten were run by current senior or recently graduated students, and correlate process measures with the educational value of workshops. The 8th SMEC was chosen for this study as it was the only conference where almost all participants were recruited for the study and where our questionnaire, elaborated below, was implemented. The participants attended all four plenary lectures before being separated into their respective workshops. Due to the small number of plenary lectures, the process measures, together with its educational value, were not analysed for the plenary lectures. This study was carried out using an anonymous self-administered questionnaire on all medical and nursing students from YLLSoM, Duke-NUS and ALCNS who participated in the conference, including student facilitators who were student volunteers from YLLSoM. Ethical approval for the study was obtained from the NUS Institutional Review Board.

The questionnaire was adapted from one used by Prince et al that assessed the association between process measures (features of Mortality and Morbidity case reviews) and outcome (perceived educational value by general surgery residents).<sup>2</sup> Questions in our questionnaire were used to measure process variables within each of the 20 workshops held during the conference, namely the level at which (1) props, such as Microsoft Powerpoint slides, illustrative drawings and in the case of the workshop on respiratory medicine and critical care, personal protective equipment, were used to teach students; (2) presenter adhered to his/her own workshop topic/focus; (3) presenter used personal experiences to educate; and (4) presenter was open to questions. For these four questions, the following Likert scale was used: 1=poor, 2=below average, 3=average, 4=good, 5=excellent. Other process questions asked included: (1) use of picture/slides for illustrative purposes to aid learning (yes/no); (2) number of audience members directly questioned; (3) number of questions directed from students to presenter; (4) number of attempts to use incentives to encourage audience interactions (e.g. giving prizes); and (5) amount of time (in minutes) dedicated to audience interaction. Student facilitators were trained to observe the presenter throughout the workshop and measure the process variables in a standardised manner. The SMEC organising committee conducted training for these student facilitators and the training included a detailed run-through of the questionnaire and standardisation of point allocation. For example, there was a consensus to standardise point allocation to the "amount of time dedicated to interactive segment" as one point awarded for every 5 minutes spent on the interactive segment. Two student facilitators were assigned to each workshop. Both student facilitators assessed the process measures for each workshop independently and the average score was calculated.

A separate set of questions was also developed to measure the

overall educational value of plenary lectures and workshops. Participants were asked to rate the usefulness, enjoyment and overall educational value of each of the four plenary lectures. For the workshops run by experienced healthcare professionals, participants were asked to what extent the workshop helped them gain a better understanding of the healthcare discipline. For the workshops run by current senior or recent graduate students, participants were asked to what extent the workshop helped them to become better prepared for medical/nursing school. All plenary and workshop questions on overall educational value used the same five-point Likert scale as used by student facilitators: 1=poor; 2=below average; 3=average; 4=good; and 5=excellent.

The mean and standard deviation of process measures and overall education Likert values of plenary lectures and workshops were calculated. We conducted correlational analysis between process measures and overall educational value for the ten experienced healthcare professional run workshops (understanding of healthcare discipline) and the other ten current senior or recent graduate run workshops (preparedness for medical or nursing school). Taylor's system of categorising the Spearman correlation coefficient values were adopted in this study: values less than 0.35 were considered as weak correlation, 0.36 to 0.67 as moderate correlation, and 0.68 to 0.89 as strong correlation.<sup>3</sup> All statistical analyses were performed using the Statistical Package for Social Sciences (SPSS, IBM, USA) and statistical significance was set at the conventional  $p < 0.05$ .

## RESULTS

### Characteristics of Conference Participants

All students who participated in the 8th SMEC completed the survey instrument [participation rate = 100% (270/270) for both medical and nursing students], of which three subjects did not provide details on gender or institution. The profile of student participants is detailed in **Table 1**. In terms of gender, there were more females than males (56.6% vs. 43.4%). Most of the participants were medical students (235/267, 88.8%) while 11.2% (30/267) were nursing students from ALCNS. A large proportion of the participants were first-year students (91.0%). Of the 20 student facilitators (2 per workshop), 18 (90.0%) completed the workshop process measure survey. Nevertheless, there was at least one student facilitator who completed the survey for each workshop.

### Plenary Lectures

The 8th SMEC opened with lectures by four plenary presenters: the Dean of YLLSoM; the Student Chairperson of the 8th SMEC; a nationally respected professor in surgery; and the current President of NUS MedSoc. The mean scores for all four plenary lectures ranged from 3.56 to 4.28 for usefulness, 3.51 to 4.47 for enjoyment and 3.60 to 4.38 for overall educational value.

### Workshops

The mean overall educational value score rated by student participants (**Table 2**) for the experienced healthcare professional run

**Table 1: Characteristics of study population**

Characteristic	Student participants, n (%) <sup>*</sup>		
	Medical students (YLLSoM and Duke-NUS) (n=237)	Nursing students (ALCNS) (n=30)	Total (n=267) <sup>*</sup>
<b>Gender</b>			
Male	113 (47.7%)	3 (10.0%)	116 (43.4%)
Female	124 (52.3%)	27 (90.0%)	151 (56.6%)
<b>Year of Study</b>			
1st	222 (93.7%)	21 (70.0%)	243 (91.0%)
2nd-5th	15 (6.3%)	9 (30.0%)	24 (9.0%)

<sup>\*</sup>Three subjects did not provide details on gender or institution. Only valid percentages shown.

Abbreviations: YLLSoM — Yong Loo Lin School of Medicine; NUS — National University of Singapore; ALCNS — Alice Lee Centre for Nursing Studies

workshops ranged from 4.06 to 4.64 whereas those for current senior or recent graduate run workshops had a lower range from 3.72 to 4.57. Seventeen out of the 20 workshops achieved good to excellent ratings (>4 on the Likert Scale). For the ten workshops run by experienced healthcare professionals, all students generally achieved a good or excellent understanding of the healthcare discipline that the workshop focused on. This was especially so for the social medicine and palliative care workshops which had a mean score of 4.64 and 4.63 respectively. Of the ten workshops run by current senior and recently graduated students, seven workshops were rated as “good” or “excellent” in preparing them for medical school.

For workshops run by experienced healthcare professionals, there was a strong positive correlation between workshop process measures and the overall educational value scores for the extent of use of props to teach students ( $r_s=0.733$ ), and a moderate positive correlation for adherence to own workshop's topic or focus ( $r_s=0.608$ ) and openness of presenter to questions ( $r_s=0.555$ ) (**Table 3**). On the other hand, for the workshops run by current-senior and recently graduated students, there was a strong positive correlation between workshop process measures and the overall educational value scores for adherence to own workshop's topic or focus ( $r_s=0.815$ ) and a moderate positive correlation for the extent of use of props to teach students ( $r_s=0.568$ ) and openness of presenter to questions ( $r_s=0.453$ ).

## DISCUSSION

Our study was novel in examining the efficacy of a student-led, faculty-supported inter-professional conference organised by medical students for other fellow medical students. The findings suggest that participants prefer specialist speakers to be more interactive and visual, and this could be attributed to the fact that first-year students are new to medical school and may not completely understand all the content of the presentation. The use of props to illustrate and educate is probably an especially useful tool in helping the new incoming medical students understand the talk. This parallels the finding in a study by Pacala et al<sup>7</sup> which found that the overall value and teaching effectiveness of a teaching session was rated excellently by students in part due to

Table 2. Mean overall educational value scores of conference workshops

Workshops (N=20)	Mean overall education value score (standard deviation)*
<b>Run by experienced healthcare professionals (n=10)</b>	<b>Understanding the healthcare discipline</b>
Medical (palliative care)	4.63 (0.49)
Medical (emergency medicine)	4.39 (0.89)
Medical (surgery)	4.44 (0.51)
Medical (paediatrics)	4.06 (0.57)
Medical (psychiatry)	4.54 (0.58)
Medical (respiratory medicine and critical care)	4.59 (0.50)
Medical (oncology)	4.44 (0.61)
Medical (social medicine)	4.64 (0.50)
Medical (bioinformatics)	4.23 (0.60)
Nursing (maternal health)	4.55 (0.52)
<b>Run by current senior or recently graduated students (n=10)</b>	<b>Preparedness for medical school</b>
Student 1 (recently graduated doctor who was an army medical officer)	4.52 (0.63)
Student 2 (recently graduated doctor who led the setting up of a bursary award for needy medical students)	4.43 (0.57)
Student 3 (current senior medical student who was the preceding year's SMEC Chairperson)	3.96 (0.62)
Student 4 (current senior medical student who was active in translational research)	4.10 (0.62)
Student 5 (current senior medical student who was active in supporting overseas cleft palate surgery projects)	4.43 (0.63)
Student 6 (current senior medical student who was active in health policy research)	4.57 (0.53)
Student 7 (current senior medical student who was the President of the YLLSoM's Medical Society)	4.46 (0.51)
Student 8 (current senior medical student who was active in public health research)	3.72 (0.67)
Student 9 (recently graduated doctor who was the former President of YLLSoM's Medical Society)	4.54 (0.52)
Student 10 (current senior nursing student who is a nursing student leader)	3.70 (0.76)

\* Five-point Likert scale used: 1=poor; 2=below average; 3=average; 4=good; and 5=excellent.  
Abbreviations: SMEC — Student Medical-Nursing Education Conference; YLLSoM — Yong Loo Lin School of Medicine.

the use of numerous props, suggesting that teaching aids increase the efficacy of teaching new medical students. Additionally, open discussions are useful for students' learning given that they enable students to clarify their doubts, and reaffirm and refine their understanding of the topic under discussion.

In contrast, participants preferred senior student and alumni speakers to adhere closely to the workshop topic at hand, namely, how to prepare well for medical school. This is understandable as most first-year students are interested to find out more about what to expect in their future years in medical/nursing school. As such, future speakers could be more interactive via the use of illustrative props, keeping their workshops as relevant as possible, and setting aside time for questions from students.

There are many workshops and conferences held worldwide to discuss issues centring on medical education, but only a few are

Table 3. Correlation between process measures and overall educational value of workshops

Workshop process measure	Spearman correlation coefficient	
	Workshop by experienced healthcare professionals (Understanding the healthcare discipline)	Workshop by current senior or recently graduated students (Preparedness for medical school)
Extent to which presenter used props to teach students*	0.733	0.568
Extent to which presenter adhered to own workshop topic/focus*	0.608	0.815
Extent to which presenter used personal experiences to educate*	-0.066	0.267
Extent to which presenter was open to questions*	0.555	0.453
Use of pictures/slides for illustrative purposes to aid learning†	0.175	0.087
Number of audience members directly questioned	-0.026	-0.025
Number of questions directed from student to presenter	-0.059	-0.332
Number of attempts to use incentives to encourage audience interaction	-0.424	0.069
Amount of minutes dedicated to audience interaction	0.118	-0.156

\* Five-point Likert scale used: 1=poor; 2=below average; 3=average; 4=good; and 5=excellent.  
† Yes/no.

organised by the students themselves.<sup>8</sup> In YLLSoM, the SMEC is a well-established student-led conference organised and executed entirely by a student-run committee. It is also the first official NUS MedSoc event that incoming first-year students participate in once they enter medical school. We were encouraged by the data findings in which student participants gave a generally positive rating for all the various segments of the conference. From the data collected, SMEC has endowed medical and nursing students with knowledge of a specialty via the specialist-run workshops. They seem to have value in providing incoming students with direction and insight, allowing these junior medical/nursing students to understand the different career paths after their years in medical school. SMEC may also help prepare students adequately for life in medical school, allowing incoming medical and nursing students to integrate smoothly into their curriculum despite the large paradigm shifts they experience given that they have just graduated from high school. Lastly, SMEC may play a role in strengthening bonds between ALCNS nursing students and YLLSoM and Duke-NUS medical students. This will be valuable considering all three groups of students will be working closely together in the Singapore healthcare system in future.

Our study, however, has its limitations. There were challenges in ensuring the accuracy of the data collected from the student facilitators. Although student facilitators were in charge of measuring the many variables, concurrent measurement of all these variables may not have been completely comprehensive. In addition, having only two student facilitators evaluating each workshop may have reduced the precision of our process variable values. The small representation of the Duke-NUS and ALCNS



students also made it difficult to compare data between students from different institutions. Lastly, this study focused mainly on the immediate outcomes of SMEC on participants, but future studies can be expanded to evaluate intermediate and long-term outcomes of SMEC as well.

## CONCLUSION

Overall, a student-led, faculty-supported inter-professional conference organised by medical and nursing students for fellow medical and nursing students has “good” to “excellent” self-reported education value in helping students to learn about various healthcare disciplines and better prepare for medical and nursing school. For conference workshops, higher educational value was associated with use of props, adherence to workshop topic/focus and openness of presenter to questions. We hope our experience will inspire students from other medical and nursing schools to consider organising their own student-led conference as students themselves are probably the best organisers of a conference that caters to fellow students.

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All authors meet the International Committee of Medical Journal Editors (ICMJE) criteria pertaining to authorship: making significant contribution to design, collection, analysis and interpretation of data for the study; drafting and revising the manuscript; providing final approval for publication of article; coming to an agreement with regard to all aspects of work involving the study.

### Declaration of Conflicts of Interest

The authors declare that they have no conflict of interest in relation to this article.

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