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The Effect of Clinical Case Presentation Framework Session on Improving Quality and Reducing the Duration of Clinical Case Presentation

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Abstract: It is to enhance medical students' clinical case presentation quality whilst reducing its duration by using the clinical case presentation framework. This is a cross-sectional study that was conducted on third year medical students in Newcastle University Medicine Malaysia (NUMed) between 9th January and 5th July 2019. Twenty-three third year medical students participated in the study during their Obstetrics and Gynaecology rotation. Each of the participants prepared a case presentation to be presented to the audience. The quality scoring was explained to the students and each presentation was timed using stopwatch. Thereafter, feedback and score were given to the presenter after the case presentation. The clinical case presentation framework session was taught, and students were given time to re-do their presentation. Cases were presented again, timed and scored. The changes in presentation timing and quality score were analyzed using SPSS to estimate the effect of the session on the student's clinical case presentation skills. The study shown significant reduction in presentation time from 3.13 minutes to 1.23 minutes after having the session and used the clinical case presentation framework (mean difference 1.9, 95% CI = 1.4–2.5). Out of 10 of the total score, the presentation scores also shown statistically significant improvement in quality of the presentation from 5.61 to 8.87 for pre-session and post-session, respectively, upon using the presentation framework (mean difference 3.3, 95% CI = 2.6–3.9). The framework can improve time and quality of clinical case presentation.

Key words: clinical case presentation framework, presentation time, presentation quality, medical student

1. Introduction

The role of case presentation is one of the most important teaching and learning activities in the clinical setting (Onishi H., 2018). Case presentation is used to enable students to reflect on the cases undertaken during the clinical placement. Medical educators work diligently to facilitate clinical learning by providing room for improvement and allowing their peers as audiences during case presentation to enhance the clinical learning environment. In order to facilitate clinical learning during case presentation, Onishi refers to a specific framework as experiential learning for case presentation and Gruppen's model of clinical reasoning process. However, the framework used in this study is customized upon the researcher vision of clinical case presentation which give them general outlines with no specific plan to follow.

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Some popular frameworks for developing clinical reasoning skills — one-minute preceptor (OMP), SOAP note (for subjective, objective, assessment, and plan) and SNAPPS (Summarize history and findings; Narrow differentials; Analyze differentials; Probe preceptor about uncertainties; Plan management; Select case-related issues for self-study), have been well studied in the outpatient settings. These models can provide opportunities for hospitalist educators to better assess trainees, integrate regular feedback, and encourage self-directed learning. These teaching frameworks can also allow preceptors to provide more focused education to trainees without taking additional valuable time (Cayley WE Jr., 2011).

The SOAP note is a method of documentation employed by healthcare providers to write out notes in a patient's chart, along with other common formats, such as the admission note, it is widely adopted as a communication tool between inter-disciplinary healthcare providers as a way to document a patient's progress (Gossman W., Lew V., Ghassemzadeh S.., 2019). The validity of these notes was challenged, and modification was suggested according to Kibble et al. (2006).

For SNAPPS case presentation model, a learner-centred model for case presentations to the preceptor follows a mnemonic called SNAPPS which consists of six steps: 1) Summarize briefly the history and findings; 2) Narrow the differential to two or three relevant possibilities; 3) Analyze the differential by comparing and contrasting the possibilities; 4) Probe the preceptor by asking questions about uncertainties, difficulties, or alternative approaches; 5) Plan management for the patient's medical issues; and 6) Select a case-related issue for self-directed learning (Wolpaw T. M., Wolpaw D. R., Papp K. K., 2003). SNAPPS a learner centred technique for case presentations facilitated the expression of clinical diagnostic reasoning and case-based uncertainties in the inpatient setting without extending the unusual length of the student case presentations. It also paved way for enhanced self-directed learning (Jain V., Rao S., Jinadani M., 2019).

Comparison of teaching case presentations using SNAPPS or One-Minute preceptor (OMP) revealed differences in the content and discussion of case presentations and in residents' evaluations of the teaching methods. SNAPPS may induce more meaning units related to questions and uncertainties which can give more satisfaction to residents than OMP. Within each teaching method group, there were individual resident differences in the outcome of teaching. For both SNAPPS and OMP, preceptors require a deep understanding of the teaching method and an ability to teach considering the characteristics of the learner. The average presentation speaking rate is about 100–120 words/minute (Changshuan L., 2010). Further studies are needed to investigate the extent to which the learner's characteristics and cultural background affect the case presentation (Seki M., Otaki J., Breugelmans R., Komoda T., Nagata-Kobayashi S., Akaishi Y. et al., 2016).

Case presentation has been an educational tool for physicians, but it has been admired by many students and students were impressed with the case presentation performed by Professors and other professionals (Scully R. E., 2020). Case presentation is now seen as an important learning tool in medical school. However, not much attention has been paid to providing support for educators to teach this difficult task to medical students who are beginners to this form of communication (Chan M., 2015).

This study aimed to evaluate pre- and post-assessment of the "clinical case presentation framework session" in improving the quality and reducing the duration of students' clinical case presentation.

2. Method

This is a cross-sectional study that was conducted on the third-year medical students in Newcastle University

Medicine Malaysia (NUMed) between 9th January and 5th July 2019. All third-year medical students were invited to attend the clinical case presentation framework session during their Obstetrics and Gynaecology rotation, which consist of 102 students that were divided into six rotations in their third year. The session was given after a scheduled teaching of which attendance to this session is voluntary. Using probability sampling, 3 or 4 students out of 17 students in every rotation who attended the session volunteered to participate in the study (n = 23). Informed consent was taken prior to participation and anonymity is maintained. The clinical case presentation framework, teaching session, and scoring scale were developed and assured face and content validity by 5th year students and five lecturers. The study was approved by NUMed Research Ethics Committee and Newcastle Institutional Review Board.

Each participant from the study group will prepare a case presentation to be presented to the audience. The quality scoring was explained to the students, with score from 1 to 10 (1 = poor and 10 = excellent), where each point will be earned by fulfilling the requirement in each section of the clinical case presentation framework. Each presentation will be timed using stopwatch and recorded. Feedback to the presentation was made and a score was given after case presentation. The session will be taught after the case presentation, word count was advised, and the students were given time to re-do their presentation based on the session framework. Cases were presented again, timed and scored. Data were collected from the pre- and post-session presentation for quality scoring and timing. These data were analysed using SPSS Version 26 to compare the pre- and post-session measures for statistical significance using p-value ($p < 0.05$). The changes in presentation timing and quality score will be used to estimate the effect of the session.

3. The Framework

This framework involved ten sections, with each section score 1 point if completed: The framework was designed with the word count adequate for case presentation of 1 to 1.5 minutes should be about 100 to 180 words.

Table 1 Clinical Case Presentation Framework

Section	Items
1	Identify the patient: 1. Name 2. Age 3. Occupation, 4. Race, 5. Presence of family nucleus (Partner or family members for support), 6. Gravida, parity, failed pregnancies and their pregnancy outcome, 7. Duration of pregnancy based on LMP or EDD or scan record, 8. Logistics, 9. Known conditions, their treatment and control, 10. Is the condition or situation planned?
2	What and when the condition happened? (Core conditions: Bleeding, pain, discharge, mass and others like fever, weight loss, etc). Explore the current condition, possible differential diagnosis.
3	How and why did it happen? Case progression, including antenatal care, causes, risk factors, how condition was discovered, when and how did it progress afterwards. Explore the complications due to the disease or treatment.
4	What was done by the patient, medical care and others? Explore where did patient seek care, assessment, any investigations done, their results, treatment given, response to treatment, referrals, reassessment, further investigations, treatment and procedures, or further management plan if known.
5	How is the patient now? (Be specific when looking for relevant symptoms and signs). Explore for bleeding, shortness of breath, pain, fever, co-morbidities, bladder, bowel, breast, baby, bloods, briefing, and contraception plan.
6	PM GODS (Past Medical, Gynaecological, Obstetrics, Drugs, Surgical histories)
7	F F F (Finance, Family history, and Family planning)
8	S S S (Social, Smear, and Sexual)
9	I C E (Ideas, Concerns, and Expectations)
10	Examination (Relevant positive and negative findings)

4. Results

Total of 23 students participated in the study. Pre-session presentation average time was 3.13 minutes (range: 1.4 to 6.05 minutes), meanwhile post-session presentation time was 1.23 minutes (range: 0.44 to 2.09 minutes). Students shown significant reduction in presentation time after having the session and had used the clinical case presentation framework (mean difference 1.9, 95% CI = 1.4 to 2.5), see Table 2 and Figure 1. This support the effectiveness of the framework in achieving good presentation time.

The mean presentation scores for pre- and post-session were shown in Table 2 and figure 2. The presentation scores shown statistically significant improvement in quality of the presentation from 5.61 at pre-session to 8.87 at post-session out of the total score of 10 upon using the framework (mean difference 3.3, 95% CI = 2.6–3.9), supporting that learning and using the framework in clinical case presentation improves the presentation quality.

Table 2 Descriptive and T-test Results Comparing Pre- and Post-Session for Presentation Time and Score (n = 23)

Presentation	Mean (Standard deviation)		t-test	p-value
	Pre-session	Post-session		
Time	3.13 (1.17)	1.23 (0.38)	7.15	$p < 0.001$
Score	5.61 (1.70)	8.87 (1.14)	10.13	$p < 0.001$

5. Discussion

Our study has shown the effectiveness of the clinical case presentation framework in reducing the presentation time after having the session. From my personal observation on students and junior doctors' presentations during both my academic and clinical practice, similarly, as shown in the study results, unplanned case presentation by the medical students lead to poor quality and longer time of its delivery. The extension of time for case presentation, if take more than 3 minutes, will be on the expense of discussion time which will give student less chance to demonstrate their knowledge and critical thinking skill. Due to the time constraints, students tried to squeeze in as much information during the case presentation to make it compact, and some students may adopt fast talking to shorten the time. All these will lead to a very disorganised, jam-packed and rushed presentation. These findings are supported by Irby (2004) that during medical teaching, lecturers are challenged with issues like long and unstructured presentations inclusive of a lot of irrelevant information and longer time, hence, this have an implication for learning the clinical reasoning skill and reducing the teaching, assessment and discussion time (Irby D., Bowen J., 2004).

The clinical case presentation quality has shown to improve significantly from pre- to post-session after students learned to use the presentation framework. Some lecturers will stop the student at certain point during the case presentation and switch to discussion. I noticed that discontinuation of the students' presentation may cause students to panic and fall off the wagon resulting in poor achievements and less credibility of the exam. This is also observed by Westbrook (2010) who stated that "Interruptions and multitasking are implicated as a major cause of clinical inefficiency and error" (Westbrook J., Coiera E., Dunsmuir W., Brown B., Kelk N., Paoloni R. et al., 2010). This observation was supported by Goldberg who acknowledged that time available for presenting the case is rather short, which makes the experience more stressful. Students are evaluated on presentation for their clinical knowledge, efficiency, understanding and care. A well-prepared case presentation enables the listener to understand the patient's condition and generate an appropriate management plan. Good preparation is a skill,

which can be learned, however needs time and practice (Goldberg C., 2020). Students and physicians need a structured method for developing and evaluating clinical summaries of various clinical tasks (Feblowitz J., Wright A., Singh H., Samal L., Sittig D., 2011). This supports our finding that the presentation quality scoring has improved after learning the framework session.

6. Limitations

Our study was conducted in a single site with a small number of participants. Therefore, the results of our study may not be generalized to other settings. Or study relied on students' voluntary participation during each rotation, hence, may raise the possibility of selection bias. Another limitation is due to the administration of the session with pre- and post-assessment that were done on the same day as it was not feasible to give or evaluate the session after students had leave this rotation. To address this limitation, the study design for future studies should be redesigned to administer the pre-session in the beginning of the rotation and post-session assessment at the end of the rotation to give students ample time to practice their clinical case presentation in their clinical teaching rotation before reassessment.

7. Conclusion

The clinical case presentation framework is a successful method to improve medical students clinical case presentation quality and time. Although the framework is used in Obstetrics and Gynaecology rotation, but it has the flexibility to be configurated to various specialities and core presentations. Further study on the framework can be carried out in a larger scale, and tested in different scopes of medical practice, medical schools, and junior resident training.

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