Development and Validation of Standardized Clinical Summary Format

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Abstract

Background: The use of a structured guideline in medical education to reach a diagnosis provides accurate information which is relatively free from bias. The purpose of this paper is to assess the performance of medical students using unstructured and structured format in case summary.

Methods: One hundred and sixty- nine medical students in Part III MB; BS Programme in the University of Port Harcourt were studied. There were 83 students in Paediatrics [SP] and 86 students in Obstetrics and Gynaecology [SOG] postings. The students had video recorded presentation of three clinical cases comprising of two paediatrics [PC1&PC2] and one surgical case [SC3]. The summary for the first case [PC1] was done using an unstructured format, while the second case [PC2] was done with both unstructured PC2a and structured PC2b format. The Surgical case [SC3] was done using only the structured format. The discrete pieces of important information in each case were quantified and scored by trained assessors. PC1and SC3 had a total of 16 points each while PC2 had a total of 24 points.

Result: The pre-exposed SOG students scored significantly higher than none-exposed SPG students in PC1 and SC3; $P<0.05$. In PC2 75.1% students scored above 12 points using structured summary format compared to 38.5% students with unstructured format ,$P<0.05$. The students had significantly higher score using structured format in SC3 than PC1.

Conclusion: The use of structured summary format enabled better case summary than unstructured format, and it's transferable across different departments.

Key words: Structured summary format, improved performance, transferable, medical students, Nigeria

Introduction

Clinical Summary is a complete and concise outline of all the important and relevant information, obtained from a full history, physical examination and relevant bed-side and/or laboratory investigations about a particular patient.[1, 2] This process is fundamental forward clinical reasoning by which doctors achieve a defendable diagnosis.[3-11] All diagnostic methods depend on breadth and depth of knowledge, but the application of knowledge is not as straightforward as it seems. The use of algorithms (following a structured guideline to reach a diagnosis) is not welcomed by many doctors, despite their accuracy and relative freedom from bias.[3-5]

However, our casual observation suggested that when clinical information is actively identified and quantified as it is being obtained there is a more complete utilization of the information in the formulation of clinical diagnosis. There is limited study on this subject. We therefore designed a clinical summary format which was structured to assess medical students' performance in case summary.

Methodology

This study was carried out in the University of Port Harcourt, Rivers State of Nigeria. The subjects were all medical students who had passed the part II MBBS, and were doing their Part III MB; BS. programme as block postings in Paediatrics and Obstetrics and Gynaecology departments. The class is normally divided into two equal halves, between the two departments, with each group spending three months in each department. The study was conducted midway into the programme, after students had just switched departments. The students in Obstetrics and Gynaecology [SOG] were already exposed to a systematic active summary format during their 3 months posting in Paediatrics and therefore constituted the study group. The students in Paediatrics [SP] had not been exposed to the format prior to the study, and served as blind controls.

The material for the study was a designed summary format, standardized and structured by the authors such

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that each vital piece of information carried one scoring point (structured summary format). The material had been tested informally on a set of students prior to the study.

Video recorded presentations of real patients were used for the presentation of the full cases under study. Out of the ten patients recorded, three cases were selected, comprising of two paediatrics and one surgical case. The first case, paediatric case 1 [PC1] was used to compare the performance of the pre-exposed and the non-exposed students. The second case, Paediatric case 2 [PC2] was used to compare the effect of use of and non-use of the structured format among both study and control groups. The third case, Surgical case 3 [SC3] was used to determine the transferability of use of the format from paediatric cases to non-paediatric cases.

The cases were presented fully on video in a quiet seminar room under the supervision of the authors. The study was not compulsory, and all the students voluntarily participated. The students were all seated in a seminar room, and well spaced to avoid communication. They were exposed to the 3 cases one after the other. Each case presentation lasted about 10 minutes. Prior to each case presentation, the students were given the appropriate plain sheet or summary format and instructed to listen carefully and write the summary. Fifteen minutes was allowed for the writing of each case summary. For the clinical summary on paediatric case I [PC1] all the groups were given plain sheets of paper, i.e. using an unstructured format. The summary for PC2 was done twice, first with plain sheet [PC2a] and later with the structured summary format [PC2b], shown as Appendix 1. The last surgical case [SC3] was done using only the structured format.

The discrete pieces of important information such as important symptoms, other aspects of the history and signs were scored a point each and quantified such that each case had a total score. Residents who were blind to the study were trained on scoring the case summaries. The first [PC1] and the last [SC3] cases had a total of 16 points each while the second case [PC2] had a total of 24 points.

The results were analyzed and presented in tabular form. Comparisons of the structured and unstructured summary formats were analyzed (cases PC2b / PC2a and cases 3/I). Statistical analysis was done using EPI info version 6, with Chi-square test. P-value of <0.05 was considered significant.

Result

There were a total of 169 medical students comprising of 83 and 86 students in Paediatrics [SPG] and Obstetrics and Gynaecology [SOG] postings, respectively.

Appendix 1.

STRUCTURED CLINICAL SUMMARY FORMAT

PATIENT'S NAME		AGE	SEX
S/No.	SYMPTOMS 0BTAINED [from PC & ROS]	OTHER ASPECTS OF Hx. [from PMH to F&SH]	SIGNS ELICITED [Positives] [from phyiscal examination
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Table I

CONTINGENCY TABLE OF CASE SUMMARY SCORES FOR TWO GROUPS OF STUDENTS

CASE	SCORES	NUMBER IN PAEDIATRICS GROUP SPG [%]	NUMBER IN OBSTETRICS GROUP SOG [%]	Chi sq.	p value
PC1	>8	45 [54.2]	62 [72.1]	4.22	0.040
	8 & less	38 [45.8]	24 [29.9]		(S)
PC2a	>12	32 [38.6]	33 [38.4]	0.02	0.875
	12 & less	51 [61.4]	53 [61.6]		(NS)
PC2b	>12	60 [72.3]	67 [77.9]	0.59	0.441
	12 & less	23 [27.7]	19 [22.1]		(NS)
SC3	>8	71 [85.5]	84 [97.7]	7.38	0.007
	8 & less	12 [14.5]	2 [2.3]		(S)

*Yates' Corrected χ²;

Table II

CONTINGENCY TABLE FOR SCORES USING STRUCTURED AND UNSTRUCTURED FORMATS

CASE	SCORES	USING STRUCTURED FORMAT n [%]	USING UN-STRUCTURED SHEETS n [%]	Chi sq.	p value
SC3 &	>8	155 [91.7]	107 [63.3]	31.33	<0.001
PC1	8 & less	14 [8.3]	62 [36.7]		(S)
PC2a &	>12	127 [75.1]	65 [38.5]	24.23	< 0.001
PC2b	12 & less	42 [24.9]	104 [61.5]		(S)
TOTAL		169 [100]	169 [100]		

Group Summary Scores for Cases

Case I [PC1]: - The total score for students in Paediatrics [SPG] was 712 (mean 8.58) and 819 (mean 9.52) for students in Obstetrics and Gynaecology [SOG]. As shown in Table I, significantly more of the SOG students scored above the average score of 8 points (62 Vs 45, X^2 4.22, P=.0040, at odds ratio = 0.27, 95% confidence limits) compared to students in Paediatrics. Similarly, more SOG students scored above average in the other cases (cases PC2a, PC2b and SC3). While the observed difference was not statistically significant for case PC2, it was significant for case SC3 (84 Vs 71, X^2 7.38, P=.007, at odds ratio = 0.27, 95% confidence limits).

Structured and unstructured format

Case 2: The total scores for students in Paediatrics using structured summary format was 1144 (mean 13.78 points) and 950 (mean 11.45 points) with unstructured format, whereas those in Obstetrics and Gynaecology had a total of 1402 (mean 16.3 points) using structured format, and 1032 (mean 12.0 points) with unstructured format. Among the 169 medical students, 127 (75.1%) students scored above 12 points in case 2 using structured summary format compared to 65 (38.5%) students with unstructured format (Table II). The difference was statistically significant (X^2 = 31.33, P value <0.001, at odds ratio 4.84<29.6, relative risk =2.30).

Transferability of structured format

Cases 3 and 1: One hundred and fifty-five (91.7%) students had above average score of 8 points using structured format in case 3 (surgical) compared to 107 (63.3%) with unstructured format for case I (paediatrics). This difference was statistically significant (X^2 = 24.23, P value < 0.001).

Discussion

An appropriate case summary is a prerequisite to achieving closure in patient's clerking, because incomplete or cluttered summary will result in non-defendable diagnosis. [3,6] To achieve good diagnostic conclusion the physician needs clinical reasoning which is a feed-forward, feedback hypothetico-deductive process involving cue recognition, clinical inferences, hypothesis testing, inquiring planning, the search for evidence and diagnostic formulation[3,4,6-11]. The reasoning in problem solving is mainly in the forward direction, although backward reasoning may be applied when forward reasoning fails to solve the problem. [6-9] In this study, the medical students would have applied forward clinical reasoning to obtain relevant data from the presented cases in order to achieve good case summary.

Medical education involves learning from experts, who are not always the best people to teach because they have become unconscious of the processes that novices and those with intermediate levels of proficiency need to learn. [8,12-18] This calls for the use of a structured guideline which is accurate and relatively free from bias and intuition.[12-14] The structured assessment form should be reproducible and reliable to ensure validity. [19,20] The use of structured format enhances clinical reasoning following medical training, knowledge acquisition, recognition and recall associated with practice of medicine.[21-23]

This study showed that medical students in Obstetrics and Gynaecology [SOG] who were already exposed to a systematic active summary format scored higher in all cases than students in Paediatrics [SPG] who had not been exposed to the format prior to the study. The use of structured summary format enabled medical students to synthesize and analyze all the clinical information obtained from the patient as the students scored higher with structured than unstructured summary format. The structured format consistently yielded a higher score in surgical case, thus confirming its validity.

In conclusion, structured summary format by medical students enhanced better clinical case summary. We recommend its use in medical education to ensure effective learning.

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