

Analytical abilities of Otorhinolaryngology Undergraduates- Clinical Record Books Review.

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Abstract:

Background: Clinical record books reflects students active participation in clinical education. Evaluation of these books help us to evaluate the students' clinical acumen. It also gives feedback towards teaching and learning process.

Aim: To evaluate medical students ability to derive management plan for patients complaints and to compare inter batch variability

Materials: Systemic randomized review of clinical record books of Otorhinolaryngology undergraduate books

Methodology: A total of 480 case sheets from 48 record books of 4 batches were selected by systematic randomization were scrutinized for completeness of the history, systematic examination and arriving at differential diagnosis and deriving a suitable management plan in a scale of 0-2.

Results: 63.33%, 59.50%, 60.0%, 68.3% completed history recordings, 14.17%, 8.33%, 12.50%, 59.17% Completed the task of examination and arrived at a diagnosis, 0%, 4.17%, 20.0%, 43.33% derived correct management plans in ABCD batches respectively. Statistically significant difference between batches was observed with reference to arriving at a diagnosis and suggesting management plan.

Conclusion: Decreased ability of the students in deriving the suitable management plan in spite of completeness of the history and significant variation in pattern of case recording in between batches were observed.

Introduction:

Medical undergraduates at clinical subjects are expected to note down the symptoms, examine the patient and come to a valid differential diagnosis after analysis and suggest suitable plan of investigation and treatment. This clinical acumen of student comes only with repeated practice at clinics with suitable theoretical knowledge background. This clinical skill can be assessed by various methods like OSCE, OSLER etc. with log books being one among them. But each method of assessment has its own limitation e.g. OSCE assesses student's skills in piece meal than in continuum. Clinical record book has been utilized as the log books for continuous formative assessment of undergraduate student's performance, unfortunately trainees are not required to report outcome data and there is no verification process other than to ask the supervisors whether the logbook has been viewed. Of late log books are used simply as means for students to document their activities¹. Despite the benefits of the log books, their usage in medical education is not well established.

Inspite of disadvantages, logbooks facilitate and

monitor students learning, provide a reward system based on competition among peers, encourage immediate and ongoing interaction between the tutors and the students, provide continuous and objective assessment,^{1,2,3} provide a feedback loop for the evaluation of learning activities. The patient encounter log has been used as a program evaluation tool to track students' clinical experiences.^{2,4,5} In this view clinical record book review has an advantage of assessing the student's ability to interpret and manage given case scenario. Also it can be used as an effective tool to rectify student's mistakes and give feedback at appropriate time. Hence this study was undertaken to review the clinical case records documented by the students and evaluate the analytical abilities of the students.

Aims and Objectives:

To evaluate medical students ability to derive management plan for patients complaints and to compare inter batch variability

Materials and Methods:

Method: Systemic randomized review of Clinical Record Books of Otorhinolaryngology undergraduate

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Methodology:

100 Otorhinolaryngology students who did their rotational clinical postings of batch of 25 students each, submitted their clinical record books during their summative examination. A total of 48 Clinical Record books from 4 batches (12 clinical record books from 25 students batch) were chosen randomly for the study. Each clinical record book contained 10 cases. A total of 480 case sheets were studied and analyzed for the following details. Each case sheet was analyzed in three components. A: Proper recording of patient complaints, B: Systematic examination and arriving at diagnosis, C: Management plan. A scoring pattern (0-2) developed for

recording the students performance under each component (0: Incomplete history, 1: Partially complete history, ²: Complete history under A component, 0: Incomplete examination and improper analysis, 1: Partially correct analysis of symptoms and diagnosis, 2: Complete examination and correct diagnosis / differential diagnosis under B component, 0: Incomplete or incorrect plan of action, 1: Partially correct plan of action and lastly ²: Complete or suitable plan of action under component

Hence a maximum of 6 scores (2x 3 components each) for a single case and 60 scores (6x10case) per clinical record and 600 score (60x12 case records) per

Table 1

Component	Score 0	Score 1	Score 2
A History of the patient	Incomplete history	Partially complete history	Complete history
B Examination and arrival at diagnosis	Incomplete examination and improper analysis	Partially correct analysis of symptoms and diagnosis,	Complete examination and correct diagnosis/ Differential diagnosis
C Plan of management	Incomplete or incorrect plan of action	Partially correct plan of action	Complete or suitable plan of action

interpret the symptoms and examination findings and suggest suitable plan of action. Inter Batch variability, were analyzed statistically.

Results:

The results of the Batch A, B & C in relation to components of learning i.e., completeness of history, diagnosis, plan of action and their scores were tabulated as follows(refer table 2).

Table 3 shows there is statistically significant

difference ($P < 0.05$) between batches of students in arriving at diagnosis and suggesting plan of action. There is no statistically significant ($P>0.05$) difference between the batches in terms of history taking.

When taken analytical skills i.e., students who have completing history and arriving at correct diagnosis a statistically significant value $P 0.000$ was observed and similarly students taking correct history and arriving at plan of action a significant value $P 0.001$ was observed.

Table 2

		0	1	2
Batch A	Completeness of history	0 (0.00 %)	44 (36.67 %)	76 (63.33 %)
	Diagnosis/DD	42 (35.00 %)	61 (50.83 %)	17 (14.17 %)
	Plan of action/investigation	116 (96.67 %)	4 (3.33 %)	0 (0.00 %)
Batch B	Completeness of history	0 (0.00 %)	51 (42.50 %)	69 (57.50 %)
	Diagnosis/DD	30 (25.00 %)	80 (66.67 %)	10 (8.33 %)
	Plan of action/investigation	101 (84.17 %)	14 (11.67 %)	5 (4.17 %)

Batch C	Completeness of history	2 (1.67 %)	46 (38.33 %)	72 (60.00 %)
	Diagnosis/DD	25 (20.83 %)	80 (66.67 %)	15 (12.50 %)
	Plan of action/investigation	70 (58.33 %)	26 (21.67 %)	24 (20.00 %)
Batch D	Completeness of history	0 (0.00 %)	38 (31.67 %)	82 (68.33 %)
	Diagnosis/DD	5 (4.17 %)	44 (36.67 %)	71 (59.17 %)
	Plan of action/investigation	9 (7.50 %)	59 (49.17 %)	52 (43.33 %)

Table 3: Anova tests show following results:

ANOVA						
		Sum of Squares	df	Mean Square	F	P value
Completeness of history	Between Groups	.906	3	.302	1.215	.304
	Within Groups	118.325	476	.249		
	Total	119.231	479			
Diagnosis/DD	Between Groups	45.642	3	15.214	42.561	.000
	Within Groups	170.150	476	.357		
	Total	215.792	479			
Plan of action/investigation	Between Groups	124.523	3	41.508	126.510	.000
	Within Groups	156.175	476	.328		
	Total	280.698	479			

Figure1 : Chart showing comparison of 4 batches performance in relation to each component of case scenario

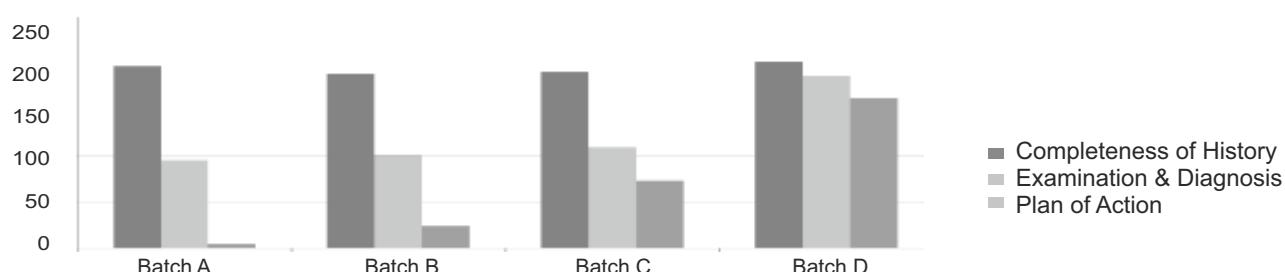
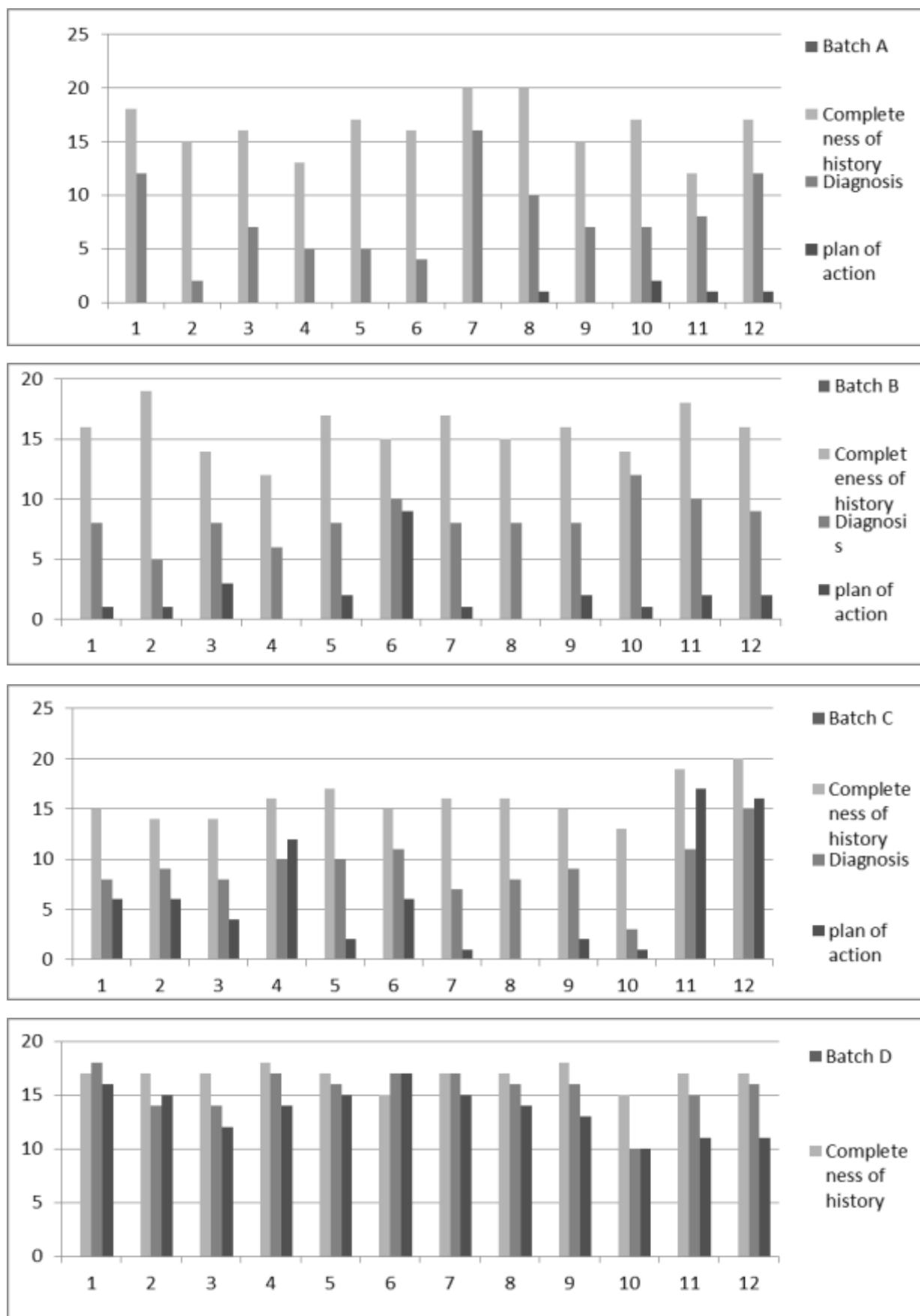


Fig 2: Shows no of students who could achieve scores of 0(incomplete) 1 (partially complete) 2 (complete in three components of case scenarios).



As components A, B and C are interlinked and sequential, i.e., management cannot be planned with incomplete history, such case sheets were removed from the assessment. (42 cases out of 480 case sheets were identified as ABC components were not in sequence, 0 cases from Batch A, 6 cases from Batch B, 12 case sheets from Batch C and 24 cases from Batch D were found)

Discussion:

Medical undergraduate course objectives

At the end of the undergraduate postings at clinical departments, objective is to diagnose the common clinical conditions at the outpatient and manage appropriately. To achieve this objective the student has to undergo clinical training in the form of tutorials, demonstrations, case history taking and case discussions. Even though all the students of the batch have been exposed to the similar clinical exposure, students performance varies in the final evaluation or when given a real life situation. The various factors which influence the variations in the performance are, student related factors like attendance in the postings, the interest levels in the classes, participatory behavior in clinicals, interaction with the patient, teacher related factors like interest level of the teacher in imparting the knowledge, hands on demonstration of the clinical methods, non uniformity in teaching to different batches and other factors like, number of faculty members in the department, clinical workload of the department, number of clinical classes allocated to particular batches, timing of the clinical postings. Study by Stieger Stefan showed that authors gain an insight into the aspects included in the curriculum but not learned by students. But it remained unknown whether the respective knowledge and skills are taught or learned⁶.

In spite of this variability it is expected from the undergraduate to diagnose and manage appropriately in “must know” areas. All students should exercise minimum expected skill levels in these must know cases before being promoted to next level.

Evaluation of clinical analytical skills

Currently various evaluation methods are used for evaluation of clinical analytical skills, with various advantages and disadvantages, one of the recently proposed method of evaluation of clinical training programme is RIME (REPORTER, INTERPRETER, MANGER and EDUCATOR) Here in this model EDUCATOR is the highest level of proficiency a student can achieve in clinical training. But at the level of undergraduate training students are expected to achieve clinical proficiency of MANAGER. This should be achieved at least in all “Must know” areas.

Clinical log books as evaluation tool

Log books and clinical record books are being utilized in evaluation largely for formative assessment. Data from this instrument can be used to assess the nature

of students clinical education.⁷ Clinical record books evaluation will give insight into the progress of student performance. Formats of log books and clinical record books vary from one institution to the other and from one place to the other. Though they follow same guidelines, a fixed clinical record book format will help in reducing the ambiguity in recording the patient details. Clinical record books give an insight into the writing abilities of the clinical work done which may be just recording of the symptoms, analysis of the case study to suggesting the management protocol. This ability differs from one student to other. Clinical record book evaluation in this study suggested that majority of the students have ability to record the patient symptom correctly but have significant lower ability to analyze the symptoms, draw a suitable conclusion and to derive a management protocol study by Bahn TJ et al showed that students also documented similar opportunities for first contact with patients, doing patient histories, and the lack of exposure to procedures².

In a study by Raghoobar-Krieger HMJ, reliability of the log book data is important because they are used to evaluate Students' experiences and inconsistent scores lead to inaccurate results and therefore to incorrect notions about the learning progress of the students, and about the teaching programme³. This variation in documentation of the cases are found because of inter observer variability, learning time of exposure.

In a study by Christopher T. Patricoski honor students and non honor students did not vary in the overall efficiency of recording dictated encounters in log books⁵. Inter batch variability is expected due to variations in time of the clinical case exposure. Surprisingly, students performance was better on encounters with relatively rare clinical conditions in relation to history taking and arriving at logical conclusions, but were expected to perform poor in deriving management protocol. Our study results in terms of clinical competency at planning treatment was similar to Stefen. Study by Stefen showed their results about why students missed some skill levels, because of the unobtrusive nature of the chosen method by using a logbook which basically used the structure clerkships and documents students efforts and not to evaluate teaching outcomes⁶.

Modifications suggested

Inter batch variability could be reduced by fixing the minimum number of clinical case records pertaining to must know areas, change of the format of recording the symptoms and specifically allow the students write plan of action in relation to the case.

Study by Fred W. Markham, showed information concerning students clinical experiences identifies possible deficiencies in educational programs

by identifying the type of patient problems not encountered and procedures not performed by the student⁴. Hence log books can be effectively incorporated in the curriculum for improving outcomes of learning and planning future curriculum designs.

As review of the logbooks need active participation from the teachers as well, much of the burden of reviews can be done electronically as suggested by Yaghobian M study⁹.

In a Study by Laura L. Diachun, author suggested that reflective thinking is a critical component of adult learning and is necessary for the clinicians to improve their clinical competency⁸. They also found this exercise provided evidence of changes in students knowledge and skills, as well as positive changes in their attitude about older patients and those with chronic conditions. Hence incorporation reflection of experiences¹⁰ coloumnin students record book will enhance their critical thinking and writing skills.

Interactive log book pattern will improve the efficacy of this as an evaluation tool as suggested by N.G patil et al et al study, interactive log book pattern can keep better link between student and the tutor and feedback can be given to the learner at the earliest¹¹.

E-log book as proposed by Khorashadizadeh Fatemeh et al, showed constant tracking of students performance.

Limitations of the study

It is a retrospective review of case records. Documentation was reviewed as per the old recording pattern of the clinical record book. Only one batch students clinical record books were reviewed. Increased emphasis to derive plan of action at each patient encounters will improve the completeness of the clinical records. Students belonging to a particular batch who are posted in a clinical posting might not have completed theory classes.

Conclusion:

Clinical record book review shows a decreased ability in deriving the plan of action inspite of complete documentation of patient complaints. There is significant variation in pattern of case recording in between batches.

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