

# One minute preceptor as an effective teaching and learning method for pediatric internship: An interventional study

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## ABSTRACT

**Background:** Compulsory Rotating Residential Internship (CRRRI) is an important learning period for medical graduates to become competent registered medical practitioners. Exclusive teaching programs for interns are scarce. During short pediatric CRRRI postings, it is difficult to disseminate the necessary knowledge and skills to manage the common pediatric problems seen in the community by traditional teaching methods. We explored innovative teaching techniques to train the interns in a short time to acquire such basic skills. One minute preceptor (OMP) is a five micro skills clinical teaching, tailored to the learner's needs by motivating them to learn. **Objective:** To implement OMP in our busy pediatric outpatient department (OPD) to train the interns and to know if it is an effective teaching technique. **Methods:** The study group included 15 interns who were posted to pediatric OPD on rotation for a month and never had earlier OMP teaching module. Their learning experience with traditional teaching method was gathered by a validated pre-project questionnaire graded on Likert scale. After 3 OMP sessions with a trained faculty, their learning experience was again collected by a post-project questionnaire. The data were compared and analyzed statistically using stata14 version software.  $p < 0.05$  was considered as statistically significant. **Results:** The average scores of questions went up from 1.3 and 3.1 in pre-project questionnaire to average scores of 2.3 and 4.1 in post-project questionnaire on a 5-point Likert scale. This shows OMP as an effective teaching method over traditional teaching method for interns at pediatric OPD. Preceptor experienced OMP as simple, individualized and focused teaching method to the interns. **Conclusion:** OMP should be implemented in pediatric OPD to train the interns on common pediatric problems.

**Key words:** Compulsory rotating residential internship, Medical education, One minute preceptor, Teaching learning method

Compulsory Rotating Residential Internship (CRRRI) is the most crucial phase for learning practical knowledge by medical graduates. It should be utilized optimally to develop a competent doctor so that excellent health care is delivered to our citizens. Training interns appropriately are essential as they form the initial point of contact with the health-care system in the community. The Medical Council of India describes internship as “a phase of training wherein a graduate is expected to conduct actual practice of medical and health care and acquire skills under supervision so that he/she may become capable of functioning independently” [1].

Internship is a very dynamic phase where the students learn by helping postgraduates and consultants in all the daily activities of patient care such as taking history and examination the patient, writing discharge summaries, and follow-up notes. Basic skills such as administering injections, collecting blood, inserting intravenous cannula, Ryle's tube, urinary catheters, and conducting normal deliveries are acquired during this period [2]. There are no dedicated teaching programs for interns in most teaching hospitals. Their learning is subjective and depends on their personal attributes, medical proficiency, and the support

provided in the hospital environment [2]. Transition from medical students to internship is facilitated by teaching courses in some countries like New South Wales University's “Preparation for Internship” course [3].

The primary aim of this educational research project was to know if one minute preceptor (OMP) is an effective teaching method for the interns so that it can be made as their out patient department curriculum to train them in diagnosing and managing common pediatric diseases seen in the community. Secondary aim was to sensitize the other faculty members so that OMP teaching method can become a routine practice in the OPD.

“OMP” was first introduced as “Five Step Micro skill Model” by Neher et al. in 1999 [4]. This model replaces traditional teaching method at fast ambulatory set ups like OPD. Traditional teaching of students takes approximately 10 min per patient to follow a particular format which includes formal “case presentation by the learner (6 min, 75% of precepting time), followed by preceptor asking clarifying questions based on their opinion (3 min, 25% of the time). Traditional model focuses on missed areas instead of teaching and has no time for feedback. Here, ready-made diagnosis is handed over to the learner due to

a shortage of time rather than helping the student to diagnose by thought processing [5].

OMP is a learner centered model of precepting and has a strategy for efficiently structuring an interaction with a learner. In OMP, learner's reasoning is mainly focused along with gathering the necessary components of the history and physical examination. History is collected by asking patients open-ended questions rather than jumping right into direct questioning. This method not only allows the preceptor to assess learner's knowledge and reasoning but also provides key messages for learning. On evaluation, OMP model allows preceptors to equally or better diagnose patients compared with traditional precepting models, in the same or less amount of time as spent by reviewing patients with learners [5]. The five simple, discrete teaching behaviours or micro skills of OMP model are [4]: (1) Get a commitment from the learner, (2) probe for underlying reasoning, (3) teach general rules (key teaching points), (4) provide positive feedback, and (5) correct errors in reasoning.

## METHODS

This study was conducted in August 2015 at Pediatric OPD, PES Medical College, Kuppam as a trainee assignment project of medical education unit (MEU) training program conducted at CMC Vellore. 5 interns were posted to pediatric OPD every 10 days. Total 15 interns with no earlier OMP sessions were included in the study by nonprobability convenient sampling method. During CRRRI posting to Pediatric Department for a month, interns work at OPD, Pediatric and Neonatal intensive care unit and in pediatric wards on rotation. OPD learning is very useful as they face similar clinical scenarios when they start community practice on their own. As a community doctor, they should be well versed in the art of taking good history, doing thorough clinical examination along with logical interpretation to make the correct diagnosis. In spite of time constraint, busy OPD is a vital place to train the interns. To accomplish this, we replaced the traditional time-consuming teaching method by a new innovative and motivating, teaching technique OMP. Through OMP, it was aimed to make interns learn effectively by thought processing so that they can make reasonably accurate clinical diagnosis of common pediatric problems seen in the community.

At the beginning of their OPD rotation, they were briefed about the project and their verbal consent for including them as subjects in the study was taken. Ethical clearance from the college committee was taken. Interns were asked to fill a validated pre and post-project questionnaire with five grades on Likert scale [6]. Pre-project questionnaire gives fair idea on learners experience on traditional teaching methods such as lectures, symposia, and case discussions which they had earlier. Interns were oriented on OMP by a power point presentation and a role play. Each intern underwent 3 OMP sessions on common OPD case scenarios such as respiratory infections, gastroenteritis, and newborn routine problem during their 10 days OPD postings with the same preceptor on her OPD unit. Preceptor was trained by MEU at CMC Vellore.

Duration of each session was variable, being approximately 5-8 min depending on the complexity of the problem, interpretation and knowledge of the learner and the time availability in the busy OPD. During the OMP sessions, interns were asked to obtain patients presenting symptoms, perform relevant examination and diagnose by thought processing as quickly as possible. Initial two sessions helped the interns to get used to this new teaching method. After the third session, they were asked to fill a post-project questionnaire with same questions as pre-project questionnaire to assess the usefulness of this new educational model.

The data were entered in a Microsoft Excel Sheet and were analyzed using Software stata14 Version. The descriptive statistics of categorical data were analyzed using percentages and frequencies, and the continuous data were analyzed using mean and standard deviation wherever applicable. For inferential statistics, Chi-square and paired t-test was used. For the data that did not follow normal distribution curve Wilcoxon sign rank test was used.  $p < 0.05$  was taken as statistically significant.

## RESULTS

Each intern and a faculty had 3 and 45 OMP sessions, respectively. A total number of learners and sessions were 15 and 45, respectively. As 15 learners filled the same questionnaire twice, before and after the project, total number of subjects was taken as 30. Results are shown after the analysis of pre- and post-project questionnaire which depicts their learning experience with traditional and OMP teaching method, respectively.

## DISCUSSION

After graduation, medical students have to diagnose common pediatric problems and manage them as this forms the cornerstone in their community practice. Duration of pediatric CRRRI is too short and hence innovative and vigorous teaching and training is needed to equip them to acquire such skills.

Fig. 1 compares the mean scores of traditional and OMP teaching method. Questions on diagnosing and managing patients, confidence in diagnosing, communication skills, and learning experience with the teacher have the mean score of 3 in pre-project questionnaire suggesting that they were addressed even in the traditional teaching method. However, the questions such as motivating interns to learn, addressing the learners' needs, addressing the knowledge gaps, giving feedback on improvement, and enhancing their involvement with patient care have lower mean scores with traditional teaching method when compared to OMP teaching method. They were less apprehensive with traditional teaching.

In OMP method, all the questions had higher mean score (Fig. 1), and p-value was found to be significant for all the questions of the questionnaire (Table 1). OMP was better in diagnosing, managing the children with confidence. It motivated and enhanced communication skills; it also addressed their specific learning needs. Their knowledge gaps were assessed and were given feedback to improve, they had better learning experience and

were more committed to the patient care. However, the learners were more apprehensive in OMP teaching method compared to traditional teaching method, which could be due to the assessment of their knowledge gaps by one to one teaching encounter, which can be overcome by repeated sessions. OMP is a vibrant learning activity unlike passive traditional teaching methods.

Ever since OMP was introduced in early nineties in fast ambulatory care set up, it is mostly practiced in western countries. There are only a few studies from our country which shows OMP as an effective teaching and learning module. A study by Kachewar from Maharashtra aimed at teaching the radiology residents by a systematic approach toward performing the ultrasound scan for acute abdomen using OMP was found to be very effective in diagnosing a definite cause for acute pain abdomen [7]. In a study by Gulati HK from New Delhi, on routine teaching of histopathology slides to pathology postgraduates, found OMP to be effective in improving exam skills, communicating the findings, thinking of logical differentials, and in motivating the learner to do self-study; however, they showed OMP to be time consuming [8]. In another study by Harkare et al. from Nagpur on the use of OMP for effective clinical teaching in ear, nose and throat (ENT) for final year MBBS students found implementing OMP as effective teaching and learning method for undergraduates students in ENT [9].

Chan from China in his study on novice teachers in the gross anatomy laboratory found OMP to be very useful for their development as anatomy teacher [10]. Aagaard et al. from the United States of America (USA) in his study on OMP found preceptors' ability to diagnose patients' medical problems correctly was better, and they had greater self-confidence in rating students [5]. In a randomized controlled trial by Furney et al. from the USA on 2<sup>nd</sup> and 3<sup>rd</sup> year internal medicine residents with teaching responsibility found OMP model as a brief and easy-to-administer intervention that provides modest improvements in residents' teaching skill [11].

To summarize, OMP is one such teaching method which helps to channelize learner's thought process for logical analysis of patient's signs and symptoms to make the most accurate clinical diagnosis so that appropriate management plan can be given. This is done by identifying the knowledge gaps in the learner, teaching them the general rules of diagnosing and managing common childhood problems and motivating them to read further by committing them to the patient care and giving them positive feedback. Unlike the other studies which were on postgraduate students, our study was on interns who have short duration of pediatric CRRI, and hence, this period has to be utilized utmost. OMP is more effective teaching tool especially for short postings of interns than postgraduates who are posted for long duration and motivated to learn to pass their examination.

With OMP sessions, the preceptor felt that teaching general rules for diagnosis may last one min but to complete all the five micro skills it will take more time, and hence, only few sessions may be possible in a busy OPD. In spite of time constraints and short pediatric internship, if the entire faculty are trained, interns can have at least one OMP per day so that common case scenarios can be covered. Combining the OMP teaching sessions and patient care may not be acceptable to all patients. OMP is not a substitute for detailed case discussions instead it helps to teach effectively even if time is limited. OMP is an organized, interactive teaching session which helps to improve self-confidence and it also fine tunes the teaching skills of the faculty.

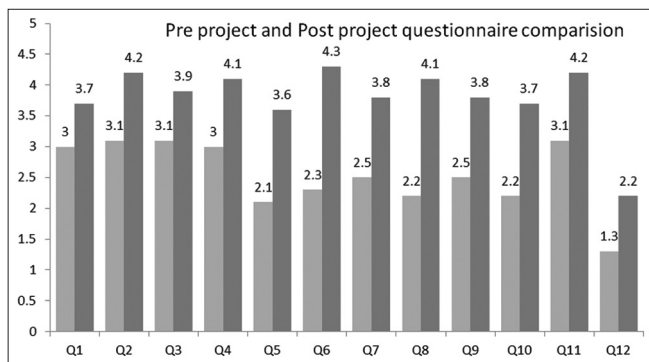


Figure 1: Bar diagram comparing mean score of pre- and post-project questionnaire

Table 1: Differences in the mean scores for each question between pre- and post-project

Questions <sup>#</sup>	Mean±SD		T or Z values	p value
	Pre-test (n=15)	Post-test (n=15)		
1. Did your ability to diagnose the patient by thought processing improve?	3±0.65	3.73±0.70	-2.44	0.0285*
2. Did your ability to manage the patient improve?	3.13±0.52	4.2±0.68	-4.29	0.0007*
3. Does your confidence in dealing with common pediatric diseases improve?	3.06±0.46	3.93±0.79	-3.66	0.0025*
4. Did your communication skills improve?	3±0.75	4.13±0.64	-4.43	0.0006*
5. Did your motivation to learn more about the disease improve?	2.13±0.74	3.67±0.82	-5.99	0.0000**
6. Do you want to implement this teaching method in intern's curriculum?	2.33±0.49	4.33±0.62	-11.83	<0.001**
7. Were your learning needs better addressed?	2.53±0.52	3.8±0.68	-6.97	<0.001**
8. Do you now feel more involved in the patient care?	2.2±0.41	4.06±0.59	-9.72	<0.001**
9. Do you think specific lacunae in your knowledge are identified?	2.53±0.64	3.8±0.77	-5.55	<0.001**
10. Was the feedback during the teaching session useful?	2 (3,2)	4 (4,3)	-3.508	0.0005^
11. Did you have better learning experience with the teacher?	3.07±0.79	4.2±0.68	-3.90	0.0016*
12. Did you feel apprehensive during this teaching method?	1.33±0.49	2.26±0.96	-3.10	0.0077*

<sup>#</sup>Grading on Likert scale: 1. Definitely No, 2. No, 3. Maybe, 4. Yes, 5. Definitely yes. (\*p<0.05, \*\*p<0.001), ^Wilcoxon - sign rank test Median (p75, p25), SD: Standard deviation

This study has a few limitations. This pilot study has small sample size and performed over short period; hence, further study with large number of subjects and conducted for longer duration is needed. During this study period, only three common pediatric problems were dealt on three sessions as other faculty members were not trained to conduct OMP. The results are mainly based on subjective opinion obtained from the feedback forms of interns and objective assessment in the form of improvement in a particular skill was not assessed by an examination. Feedback of the preceptor was not taken by a questionnaire as there was only one preceptor in the study.

## CONCLUSIONS

OMP is effective in training interns the essential skills to diagnose and manage common pediatric problems. Interns prefer this module to be implemented in their pediatric curriculum.

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