

# Learners' Perspective on the Situation of Bed Side Teaching on the Medical Floor in a Tertiary Care Teaching Hospital

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## Abstract

**Objective:** Decline in bedside teaching is one of the problems that medical education is facing today. It has always been the best modality for effectively imparting clinical skills. It has declined from 75% in 1960s to 8 – 19% today. Various factors notably advancing medical technology are in essence phasing out bedside teaching. Our study was aimed to assess frequency and adequacy of bedside teaching on the medical floor.

**Methods:** This cross sectional study conducted in May 2015 in Mayo Hospital, Lahore included 152 trainee doctors, who gave feedback about various aspects of bedside teaching via a self-administered questionnaire. Frequency of bedside teaching was assessed in terms of number of sessions per week. It was considered adequate if its various aspects including contributions by teachers, learners, allied health professionals and patients were carried out in 70% or more sessions. Z-test was used to compare these aspects to the adequacy criterion. Responses of house officers and postgraduates and male and female doctors

were compared by t-test. P-value < 0.05 was considered significant.

**Results:** Frequency of bedside teaching was reported to be 62.25%. All aspects of bedside teaching were significantly lower than the adequacy criterion (p-value 0.000). The inadequacy was more noticeable by postgraduates (p-value < 0.05).

**Conclusion:** Frequency of bedside teaching was acceptable but the adequacy criterion was not achieved in any of the areas studied.

**Key Words:** Bedside Teaching, Post Graduate Residents, Adequacy, Learner, Ward Round.

## Introduction

Bedside teaching refers to any teaching imparted in the presence of patient. The place could be a ward, emergency department, outdoor or an office setting.<sup>1</sup> It is particularly pertinent to the ward rounds where a team of trainee doctors and paramedics led by a consultant visits the patients on the ward. Other than disease management, this encounter also enables the team leader to act as a role model to impart clinical and communication skills to the trainees and to enhance team work approach between various members of the team.<sup>2,3</sup>

Bedside teaching has remained a vital component of medical education through centuries. The first two principles of Hippocratic method were “to observe all” and “to study the patient rather than the disease”.<sup>4</sup> Al-Razi (Razez) was a master teacher (sheikh) other than being a great physician of medieval age. His students surrounded him in circles while he was treating his patients.<sup>5</sup> The present day ward round could be a continuation of his legacy. In the modern era, Sir William Osler (1849 – 1920) was the greatest proponent of bedside teaching. “To study the phenomena of disease without books is to sail an uncharted sea, while to study books without patients is not to go to sea at all”

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is his famous, quote. He also very aptly said: “medicine is learned by the bedside and not in the class room”.<sup>6,7</sup>

Bedside teaching remained a strong tradition in medical education in the previous century. Approximately 75% of all clinical training was imparted at the bedside in 1960s.<sup>8</sup> Unfortunately, it started to decline in the ensuing decades. Shankel and Mazzaferi found this to be ranging between 15 – 25%.<sup>9</sup> Collin and Casie in 1978 gave a figure of 16%.<sup>10</sup> Relatively recent studies have been more disappointing with scores as low as 8%.<sup>11</sup>

Various reasons have been considered as possibly contributing towards the decline. Rapidly advancing imaging and laboratory techniques have been implicated as one of the reasons for the decline.<sup>12</sup> Rapid turnover of patients leading to increased work load of physicians and decreasing the suitability of patients for bedside rounds was another reason. Noise on the wards was also thought to be a factor.<sup>13</sup> Many physicians considered teaching at the bedside disturbing and troublesome for the patient. Many physicians prefer to teach in the conference rooms which are more comfortable than the bedside. Here, the teachers are in full control of the discussion without any interference from the patient. The imaging studies can be properly viewed. Importantly, a large number of students can be taught at the same time.<sup>13</sup>

The universal trend of declining bedside teaching has been observed in our setup as well. Few studies have been conducted in Pakistan to verify these reflections. Furthermore, in recent years, it has been observed that the clinical and communication skills of trainee doctors have sharply declined. Is this the case of “not going to sea at all” (in the words of William Osler) or of wading in shallow waters only? We therefore planned this study to assess the prevailing situation of bedside teaching in our institution.

## Methods

This cross – sectional survey was carried out during May 2015 in the department of Medicine, Mayo Hospital, Lahore (MHL), a tertiary care teaching hospital affiliated with King Edward Medical University, which is unnecessary Resident doctors (RDs), including house officers (HOs) and postgraduate residents (PG-Rs), working in the Department of Medicine in MHL constituted our study group. RDs with less than 4 weeks experience on the medical floor were excluded from the study group. We contacted 159 RDs for the

study out of which 7 declined to participate, so the final sample comprised of 152 RDs including 83 HOs and 69 PGRs.

A self-designed questionnaire was developed to assess the prevailing situation of bedside teaching on the medical floor in our hospital. The questionnaire comprised of questions grouped in two sections. The first section covered the basic profile of the participants including age, gender, designation and work experience.

The second section was intended to cover the various aspects of bedside teaching during ward rounds. To develop this section, previous studies conducted on the topic were retrieved by literature review and important components of bedside teaching were identified. Senior faculty members of the institution with extensive teaching experience were requested for input so that questions addressing the essential elements of bedside teaching session may be included. The 4 important aspects identified in this regard included contributions from teacher, learner, allied health professionals (AHPs) and patients and their families (PFs).

The teacher’s contribution pertained to the teacher acting as role model and imparting skills by example as well as command of medical knowledge and basic sciences all the while maintaining professional dignity. The learner’s contribution was taken as active learning of bedside skills under direct observation of teacher and receiving feedback on performance.

The presence and contribution of AHPs especially the nursing staff, nutritionist, physiotherapist and pharmacist cannot be disregarded and hence AHPs comprised the third important component. No bedside learning is possible without the patient, so the contribution and handling of PFs formed the final part of the questionnaire.

The study participants were asked to assign a score for each item of the questionnaire on a scale of 0 (lowest) to 5 (highest). Ten RDs were randomly selected for pre-testing the questionnaire and some of the questions were modified to ensure clarity of individual items on the questionnaire.

Frequency of teaching sessions was calculated as average number of sessions conducted per week (mean  $\pm$  SD) and also as percentage of maximum possible weekly sessions. Teaching sessions are possible only on inpatient days while on outpatient days only service rounds are carried out.

Neither the literature nor any of the curricula designed for undergraduate or postgraduate medical teaching define fixed criteria for adequacy of bedside tea-

ching although the time to be spent in the wards is variously documented. We, therefore, opted to adopt an arbitrary criterion of 70% i.e., bedside teaching was considered adequate if its various aspects were addressed in at least 70% of the teaching sessions and all values below this were listed as inadequate.

The study objectives were explained to the participating RDs. Written, informed consent was obtained from each willing participant. Confidentiality was ensured and maintained throughout the study. The data collection instrument was self-administered but the researchers themselves were present to explain and answer any queries and to ensure uniformity of the data collected in line with the objectives. The data collection was undertaken in 8 separate sessions each comprising of 20 participating RDs. Prior to data collection, the study protocol including the data collection instrument was approved by the ethics committee of King Edward Medical University.

Data were entered in Statistical package for social scientists (SPSS) for analysis. Mean and standard deviation of numerical data like age and work experience were calculated while the qualitative variables like gender and designation were presented in the form of frequency distribution and percentages. The mean scores for individual items in section 2 and their groups were calculated. The overall total score was also calculated. All the scores were expressed as mean ± SD and

also as percentage of maximum possible score for each group. The responses of RDs were compared by using the Chi-square test for categorical data and t-test for continuous data. Z-test was used to compare various groups to the adequacy criterion. In all the tests, p-value < 0.05 was set as statistically significant.

### Results

A total of 152 doctors participated in the study and completed the questionnaire. These included 83 (54.6%) HOs and 69 (45.4%) PGRs. Overall there were 91 (59.9%) males but the proportion among HOs and PGRs was different at 48.2% and 73.9% males respectively. The mean ages of HOs and PGRs were 24.16 ± 1.07 years and 28.1 ± 1.96 years respectively. HOs reported their experience on the medical floor as 1.84 ± 1.88 months on average while the mean experience reported by PGRs was 36.68 ± 19.03 months.

The general trend observed was that teaching sessions were held at the bedside on an average of 2.49 ± 1.22 times per week which equals 62.25% of the maximum possible sessions. These teaching sessions were fraught with deficiencies in all the prescribed components (Table 1). The contribution from AHPs was most unsatisfactory (30.96%) while the patients' involvement was relatively better (50.56%) as shown in Table 2.

**Table 1:** Mean Scores Assigned by HOs and PGRs for Individual Items.

S. No.	Parameters	Mean (± SD) Score		p-value
		House Officers	Post Graduate Residents	
	<b>Frequency of Bedside Teaching</b>	2.52 ± 1.29	2.45 ± 1.14	0.731
	<b>Teachers' Participation</b>			
1.	Teacher acted as role model for history taking	2.17 ± 1.42	2.07 ± 1.24	0.661
2.	Teacher acted as role model for clinical examination	2.39 ± 1.37	2.22 ± 1.34	0.447
3.	Teacher acted as role model for communication skills	2.51 ± 1.5	1.88 ± 1.36	<b>0.009</b>
4.	Clinical & basic medicine integrated	2.19 ± 1.37	1.7 ± 1.25	<b>0.022</b>
5.	Teacher remained polite and respectful	3.86 ± 1.29	3.32 ± 1.27	<b>0.011</b>
	<b>Learners' Participation</b>			
6.	Learner observed during history taking	1.83 ± 1.47	1.86 ± 1.48	0.922
7.	Learner observed during clinical examination	1.84 ± 1.51	1.91 ± 1.31	0.764
8.	Learner given appropriate feedback	2.05 ± 1.61	1.93 ± 1.24	0.611

S. No.	Parameters	Mean ( $\pm$ SD) Score		p-value
		House Officers	Post Graduate Residents	
	<b>Participation of Allied Health Professionals</b>			
9.	Nursing Staff Present	3.00 $\pm$ 1.64	2.3 $\pm$ 2.7	0.052
10.	Nursing Staff Contributed	2.16 $\pm$ 1.7	1.09 $\pm$ 1.27	<b>0.000</b>
11.	Other Health professionals' contributed	0.4 $\pm$ 1.03	0.16 $\pm$ 0.44	0.077
	<b>Patients' and their Families' Contribution</b>			
12.	Patient allowed to ask questions	2.3 $\pm$ 1.72	1.38 $\pm$ 1.41	<b>0.000</b>
13.	Families allowed to ask questions	2.28 $\pm$ 1.66	1.43 $\pm$ 1.19	<b>0.001</b>
14.	Patients handled with respect and courtesy	3.49 $\pm$ 1.37	3.2 $\pm$ 1.37	0.188
15.	Families handled with respect and courtesy	3.22 $\pm$ 2.58	2.68 $\pm$ 1.45	0.127

**Table 2:** Comparison of Grouped Factors with the Adequacy Criterion.

Grouped Factors	Observed Value (%)	Z-Statistic	p-value
Teachers' Contribution	48.95	-51.90	0.000
Learners' Contribution	38.07	-78.73	0.000
Health Professionals' Contribution	30.96	-96.26	0.000
Patients' and families' contribution	50.56	-47.93	0.000
Overall Session Adequacy	43.61	-64.07	0.000

All aspects of bedside teaching were found to be significantly deficient when compared with adequacy criterion of 70% by applying Z-test as shown in Table 2.

The PGRs assigned lower scores to majority of the individual items than the HOs (Table 1). Grouping of the items revealed significantly lower scores for PGRs in all aspects except learner's contribution where responses of the two groups were almost same (Table 3).

Gender based comparison was also carried out but it failed to reveal any significant difference among the various grouped factors as well as the overall session adequacy (Table 3).

## Discussion

In our study group, the M: F ratio was relatively balanced among HOs but reversed in favor of males in case of PGRs. Same trend was observed in a previous local study.<sup>14</sup> Whether females do not prefer medical and allied specialties for post-graduation or they are less interested in pursuing a career beyond compulsory house job remains

**Table 3:** Comparison of Grouped Factors Across Designation and Genders.

Grouped Factors	Comparison of House Officers and Post-Graduate Residents			Comparison of Male and Female Doctors		
	House Officers	Post-Graduate Residents	p-value	Males	Females	p-value
Teachers' Contribution (%)	52.43	44.75	0.028	50.37	46.82	0.319
Learners' Contribution (%)	38.15	37.97	0.966	39.71	35.63	0.348
Health Professionals' Contribution (%)	37.03	23.67	0.000	30.84	31.15	0.937
Patients' and families contribution (%)	56.45	43.48	0.001	50.51	50.57	0.995
Overall Session Adequacy (%)	47.57	38.84	0.002	44.38	42.45	0.515

to be elaborated. The age and work experience of PGRs were greater than HOs as expected.

Various aspects of bedside teaching obtained better scores from HOs than PGRs. This is understandable since PGRs are keener in learning, their expectations are much higher and analysis more critical. Similar findings were observed by Tariq et al who compared the views of postgraduates and undergraduates on internal medicine ward rounds.<sup>15</sup>

Gender based comparisons did not show significant difference among the reported scores indicating that male and female doctors have similar ways of thinking and understanding and there is no discrimination among the two at the work place.

We observed 62.25% weekly frequency of bedside teaching. This score is closer to the one seen in 1960's<sup>8</sup> and quite higher than that observed in later studies.<sup>9-11</sup> This shows that our hospital follows the old school thought and a greater emphasis is laid on clinical acumen. This might be due to relative deficiency of diagnostic facilities.

Regarding adequacy, the teaching aspects of ward round had been divided into teacher and learner groups. The scores obtained by both the groups remained lower than the adequacy criterion. In our view, there are multiple reasons for these shortcomings. The clinician teachers especially the senior faculty members have to fulfill multiple responsibilities. The teaching, training and assessment of undergraduates are considered foremost. Many of them are involved in research while others have to perform and supervise diagnostic & therapeutic procedures on a regular basis. Post take work load is a genuine barrier. Nevertheless, few important questions pertaining to teachers remain to be answered. Were they exposed to role models during their training? Do they know the importance of bedside teaching? Are they adequately trained to conduct a teaching ward round? Further studies are required to address these reservations.

The second group i.e. the learners scored even less. Although the trainee doctors present their case histories during the round, their clinical and communication skills are only occasionally directly observed. Thus they enter the profession along with their shortcomings ultimately compromising patient care. If they join in as clinician teachers, these deficiencies result in a vicious cycle. A low trainer to trainee ratio, in addition to the aforementioned factors, is a glaring reality. The learners reported similar deficiency of individual attention by their teachers and had much higher expectations than their current situation in the study by

Tariq et al.<sup>15</sup> Another recent study reported similar findings.<sup>1</sup>

Patient welfare which is the prime objective of medical care is multi-faceted and includes not only active disease management but also provision of multi-disciplinary involvement wherever needed. The presence and synchronization of nutritionist, pharmacist and physiotherapist ensures that all aspects of patient care are being catered for. The presence of nurse and her active participation cannot be over emphasized. They co-ordinate the round and are responsible for execution of all round orders. Unfortunately, in our study, this component was found to be lacking and least score was obtained for the AHPs. Lack of collaboration between physicians and nurses was also highlighted by O'Leary et al.<sup>16</sup> As for nutritionists, pharmacists and physiotherapists, shortage of staff is noticeable. Busby et al observed in their study that AHPs had little involvement in ward round.<sup>17</sup>

The scores obtained for PFs group were slightly better than the other groups in our study. Earlier studies have not emphasized the extent of patient participation. Nair et al reported that patient satisfaction improves when they are actively involved in bedside teaching.<sup>13</sup> Simons et al found no additional stress on patients during bedside sessions after studying their heart rate, blood pressure and plasma norepinephrine levels.<sup>18</sup>

This study had a few shortcomings. The study participants were all working on the medical floor of a single hospital. In this setup, the residents and consultants of each of the four internal medicine units provide complete emergency room care twice weekly in addition to other responsibilities. One third of the working week is hence occupied. Larger scale studies extending to other hospitals may reveal different results.

Due to lack of suitable guidelines, the adequacy criterion of 70% was arbitrarily chosen. This might not be a realistic goal in view of expanding roles of clinician teachers. The absence of consultants', patients' and nurses' perspective was a major shortcoming. Without considering the views of these concerned groups, the results cannot represent the actual situation of bedside teaching.

## Conclusion

This study which gave an account of the learners' perspective found that the frequency of bedside teaching was acceptable but the adequacy criterion was not achieved in any of the areas studied. The impediments

must be identified and efforts put forth to revive this vital component of patient care and medical education.

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