

## Prescription Writing Skills of Pre-Clinical Medical and Dental Undergraduate Students

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### ABSTRACT

Objective of this prospective study was to assess the acquisition of prescribing skill of preclinical medical and dental undergraduate students. Prescription writing skills of 258 students of both first and second year of MBBS and BDS students were analyzed through an objective structured practical examination. MBBS student of second year scored 85.01% and 92.82% respectively in physician and drug related component whereas first year MBBS students scored 89.9% and 83.4%. BDS student of first year scored 91.96% and 86.33% in physician and drug related components which is better than second year that scored 83.33% and 77.94% respectively. This study revealed that the students of both courses acquire prescribing skills to a limited extent during preclinical phase. Prescribing errors were found both in physician and drug related components. To minimize the different form of prescribing errors vigorous training in the internship period will help to minimize prescribing errors and improve rational prescribing too.

**Key words:** dental, examination, medical, objective, prescription, student

### INTRODUCTION

Prescribing appropriate drugs in correct doses is an important part by which a physician may influence their patient's health. Both oral and written communication skills are important in the daily work of a physician to the patients. Proper prescription writing, which is an essential skill for doctors in medical specialties, is the primary intervention that doctors offer to the suffering humanity.<sup>1</sup> So, prescribing is one aspect of patient care where it is possible to do considerable harm if not done judiciously. Most junior doctors are unaware of the fact that prescribing errors may contribute to a significant rise in reported hospital adverse events and subsequent medico-legal problems. Unwise prescribing may assume several forms i.e. under, over, inappropriate, irrational and other prescribing errors.<sup>2</sup> So a budding doctor who is

entering the practical field should know how to prescribe safely and correctly and for this the knowledge and understanding, skill and attitude is required by medical graduates.<sup>2</sup> In this aspect knowledge of Pharmacology is the core component of undergraduate (UG) teaching curriculum when students learn about different drug formulations and the art of prescription writing.

In recent past, the method of teaching and learning processes has been changed to impart the teaching based on therapeutic problem aspect. Concern has also been expressed about various teaching programmes which are not providing thorough knowledge of rational drug prescribing.<sup>3</sup>

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Problem based learning (PBL) is one of the recent instructional methods for teaching in various medical colleges as it has been recognized world wide.<sup>4-6</sup> In Nepal, BPKIHS follows a four and half years integrated problem based, community oriented, organ based unit teaching system in preclinical UG course since 1994.

Prescription writing skill, a part of rational prescribing of drug is being taught in Zero unit. It is the only teaching programme related to the subject.

So the aim of the present study was to identify the basic defects in prescribing skill of both bachelor of medicine and bachelor of surgery (MBBS) and bachelor of dental surgery (BDS) undergraduate students.

## MATERIAL AND METHODS

Prospective study of assessment was conducted amongst first and second year MBBS and Dental students of BPKIHS in between August, 2005 to July, 2006.

After three hours of interactive session (LABEX) in unit zero and also at the end of one unit of teaching programme, the performance in prescription writing skill is assessed through a pharmacotherapy OSPE, involving various stations, each station is of five minutes duration. According to Lofholm and Katzung (2001), the prescription is divided in two broad components: physician related and drug related.<sup>6</sup>

**The physician related component is comprised of:**

- Prescriber's identity
- Professional degree and registration no.
- Prescriber's address with telephone no.
- Date of prescription
- Patient's Identity
- Patient's address
- The symbol (Rx), "Take Thou"
- Diagnosis of the disease e.g. Bronchial asthma
- Refill information
- Prescriber's signature

**The drug related component is comprised of:**

- Appropriateness of drug selected
- Strength of drugs
- Dosage form
- Quantity to be dispensed
- Direction for use

Total score of both components was 10. In which 2.5 score was accounted for physician related

components and 7.5 score was distributed for drug related components.

One of the faculty members of the department of Pharmacology assessed prescription writing skill of each student using a check list and score was given accordingly. Each of unit examination consisted of a number of OSPE stations out of which, at least one station comprised of a prescription writing exercise for a particular clinical problem.

The results obtained were statistically analyzed using Chi square test and two tailed students-t test respectively to test the difference between proportion and for continuous variable. P value <0.05 was considered statistically significant.

## RESULTS

The performance of prescription writing skill was assessed amongst a total no. of 258 students, of which 100 were in first year MBBS and 78 in second year MBBS; while 41 in first year BDS and 39 in second year BDS course. Score of different parts of physician and drug related components of both MBBS and BDS students (Table 1-3).

From the result, it is evident that MBBS undergraduate students' score varies from highest 99% to lowest 84% among first year and from 100% to 60.3% in second year in physician related component (Table 1).

Among the different parts of physician related components, students of second year scored only 60.3% in patient address and symbol Rx part whereas first year student who scored 85.0% & 99.0% respectively. These differences are statistically significant. Whereas, students of first year scored significantly less only in prescriber's signature part compared to second year's score (Table 1).

On the contrary, first year MBBS students scored 80% in dosage form and direction for use in drug related component which is statistically significant; this was probably because of their recently acquired knowledge in first year teaching curriculum. Whereas, second year students scored more marks in drug selection and dosage form of drug related component because of the related courses covered in their curriculum and partly due to the clinical aptitude. Based on diagnosis, appropriateness of selection of drug and dosage form were judged against the background knowledge of a particular disease and its correct diagnosis.

But while comparing the total score in individual component, it is seen that students of first year MBBS scored 89.9% and 83.4% in physician and drug related

**Table 1.** Performance in prescription writing skill amongst first and second year MBBS students

S. No.	Component	Medical students	
		First Year (%)	First Year (%)
1	Prescriber's identify	90.0	100.0*
2	Professional degree and registration no.	84.0	93.6
3	Prescriber's address and telephone no.	84.0	84.6
4	Date of prescription	84.0	82.1
5	Patient's Identity	97.0	97.4
6	Patient's address	85.0	60.3†
7	Symbol (Rx) take	99.0	60.3†
8	Diagnosis	92.0	97.4
9	Refill information	99.0	96.2
10	Prescriber's signature	85.0	78.2
<b>Drug related components</b>			
1	Appropriateness of drug selected	97.0	100.0
2	Strength of drug	95.0	71.8†
3	Dosage form	74.0	100.0†
4	Quantity to be dispensed	91.0	97.4
5	Direction for use	60.0	94.9†

\* P &lt;0.05; † P &lt;0.001.

component, while second year MBBS student score 85.0% and 92.82% respectively (Table 3). The second year MBBS students scored higher marks in drug related part but less in physician related part than the student of first year MBBS (Table 4).

The second year BDS student scored less than 70% in refill information and prescriber's signature part in physician related component which is statically significant compared to first year (Table 2). Whereas, in drug related component difference of score is significantly more in second year BDS student than that of first year.

The comparison of total score for both physician and drug related component amongst the students of BDS (Table 3). It is seen that second year students scored 83.3% and 77.94% in physician and drug related components respectively in comparison to first year's score of 91.96% and 86.35%.

**Table 2.** Performance in prescription writing skill amongst first and second year BDS students

S. No.	Component	Dental students	
		First Year (%)	Second Year (%)
1	Prescriber's identify	97.6	94.9
2	Professional degree and registration no.	87.8	79.5
3	Prescriber's address and telephone no.	87.8	89.7
4	Date of prescription	80.5	82.1
5	Patient's identity	100.0	97.4
6	Patient's address	80.5	64.1
7	Symbol (Rx) take thou	100.0	100.0
8	Diagnosis	100.0	97.4
9	Refill information	97.6	84.6*
10	Prescriber's signature	87.8	43.6†
<b>Drug related components</b>			
1	Appropriateness of drug selection	100.0	94.9
2	Strength of drug	87.8	84.6
3	Dosage form	87.8	53.8
4	Quantity to be dispensed	85.4	66.7
5	Direction for use	70.7	86.7

\* P &lt;0.05; † P &lt;0.01. P-value less than 0.05 considered as significant

## DISCUSSION

The study provides an insight into prescription writing skill amongst preclinical MBBS and BDS students. It is quite evident that only a moderate number of students of both the courses are quite aware in every parts physician and drug related components. The second year students made more mistakes in physician related components while students of first year made more mistakes in drug related components (Table 3). The probable reason it is due to lack of revision and practice of prescription writing in second year students. Student of first year made more mistakes in drug related part as they are not sufficiently focused on these parts.

Students of second year BDS made more mistakes more in both physician and drug related components than that of first year. Probable explanation of poor performance of second year BDS students is due to the fact that they have to bear the extra burden of additional work load of dental subjects which are taught simultaneously from the second year.

**Table 3.** Comparison of scoring rate of different component of prescription between years of MBBS and BDS course

Category	No. of student	Scoring rate	
		Physician component %	Drug component %
First year MBBS	100	89.9	83.4
Second year MBBS	78	85.01	92.82
First year BDS	41	91.96	86.34
Second year BDS	39	83.33	77.94

In the present study we find both prescribing error and under prescription which support by the study done by Benzamin and Sequeira et al.<sup>7,8</sup>

## CONCLUSION

Evaluation of prescription writing skills in integrated teaching is an important part of teaching and learning method where students can be focused more to clinical pharmacology and therapeutics and improved their prescribing skills. This type of evaluation should be

included in undergraduate medical and dental curriculum to find out the defects among students.

However outgoing students should also included in this type of evaluation and a vigorous training in the internship period will help to minimize prescribing errors and improve rational prescribing too.

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