Original Article:

Comparison of the Knowledge in Core Policies of Essential Drug List Among Medical Practitioners and Medical Students in Galle, Sri Lanka

Hettihewa LM,
Department of Pharmacology, Molecular Science and Biomedical Unit, Faculty of Medicine, University of Ruhuna, Sri Lanka,
Jayarathna KAKT,
Department of Pharmacology, Faculty of Medicine, University of Ruhuna, Sri Lanka.

Address For Correspondence:
Dr. Lukshmy Manik Hettihewa,
Senior Lecturer & Head/ Department of Pharmacology,
Faculty of Medicine,
University of Ruhuna,
Sri Lanka.
E-mail: menik@med.ruh.ac.lk

Abstract:
Selection of the best and safest medicine should be one of the national economic policies in a country for good health care services. Introduction of detailed module in rational use of medicine (RUM) to pharmacology syllabus needed prior analysis of the existing knowledge among health care workers. Therefore we assessed the knowledge and attitudes of essential drug list (EDL) on medical practitioners (MPs) and medical students (MSs). Forty two MPs and 120 MSs from hospital and Faculty of Medicine were given a pretested structured questionnaire related to core policies of EDL, contents, criteria for selection and time frame for revision in RUM. Our study showed that only 29% of MPs were confident about their knowledge in EDL and 17% of them had marked it as don't know. Study was expanded for quantitative analysis of the knowledge on the core policies of EDL on them. Knowledge on contents, criteria for selection and the time frame for revision of EDL were 63%, 83% and 17% in MPs. Of MSs, 87% had sound knowledge in core contents, 32% in criteria for selection and only 50% of MSs were aware about the correct time frame of revision of EDL. Knowledge in contents of EDL was higher in MSs (87%) than MPs(63&). MPs were not aware about EDL preparing criteria such as inclusion of generic names, common ailment, majority ailments of the people (59%, 56% and 56% respectively). In contrast, MSs had > 93% of the knowledge in all three areas. However MSs had poorer knowledge (32%) in criteria for selection of EDL than MPs (83%). Knowledge in time frame for revision of EDL was 17% in MPs and 50% in MSs. We found that MPs in the service were not convinced about their knowledge in EDL. Deficiency was significant in the core contents of the EDL preparation. Therefore we suggest that MPs need repetitive in-service training programme for practicing of RUM in the national health facilities. We need to reiterative programme in the core curriculum regarding the criteria for EDL selection. Though MSs had good knowledge in content of EDL, they are poor in criteria for selection and time frame for revision.
Key Words: Rational use of medicine; Essential drug list; Core policies; Medical practitioners; Medical students

Introduction:
It has been observed in many countries that the main thrust of prescribing drugs has shifted from the list of cost effective and essential drugs in the procurement systems to the big crisis of irrational prescribing.[1] Prescribing drugs is an essential skill, which is required to be continuously assessed and refined accordingly. It not only reflects the physician's knowledge of pharmacology and pathophysiology but also his/her skill in diagnosis and attitude towards selecting the most appropriate treatment.[2]

The rational prescribing skills of clinicians can be assessed by conducting periodic audits on knowledge by studying drug selection in prescriptions. In a teaching hospital as the medical teachers are the role models for the students, the prescribing behavior of the teachers can affect the students.[3]

There is an urgent need to ensure that patients are always given evidence-based, cost-effective and rational treatments.[2] This can be achieved with the selection of the best and safest the national economic policies in a country for good health care services.[4] As the initial step, there is a need for former analysis of the existing knowledge among health care workers is needed to the inclusion of detailed module in rational use of medicine (RUM) to pharmacology syllabus.[3,4] Therefore the present study was planned to assess the knowledge of essential drug list (EDL)[5,6] and the attitudes on practicing EDL by medical practitioners (MPs) and medical students (MSs).

Material and Method:
It was a prospective, comparative cross sectional survey. The study was carried out at the Teaching Hospital, Karapitiya and Faculty of Medicine, University of Ruhuna. Knowledge on EDL was assessed in 42 MPs and 120 MSs. The ethical clearance was granted by the ethics and review committee of the institution.

The knowledge on EDL was assessed in 42 MPs and 120 MSs using a pretested structured questionnaire related to core policies of EDL, contents, criteria for selection and frequency of revision in RUM. Participants were selected from hospital and faculty staff and students. The students that took part in

this study were finished the whole pharmacology syllabus in their undergraduate curriculum.

Questionnaire is given in Table 1.

Table 1: Questionnaire on assessment of knowledge on rational use of medicine of health personnel

1. **My knowledge on (Good / fair / don't know)**

   a. Standard treatment guidelines/Essential drug list
   b. National formulary/Hospital formulary
   c. Drug and therapeutic committees
   d. Reliable drug information sources

2. **Essential drugs list is (Mark as True/ false)**

   a. List of life saving drugs
   b. List of drugs by generic names
   c. List of drugs required for common ailments
   d. List of drugs required for majority of ailments and people
   e. List of drugs required for priority needs of the population

3. **Core policies to promote more rational use of drugs include (Mark as True/ false)**

   a. Essential drug list
   b. Standard treatment guidelines
   c. Restricting prescribing
   d. Cross sectional supervision, audits and feedback
   e. Sufficient government money

4. **Regarding standard treatment guidelines (Mark as True/ false)**

   a. It consists of clinical features of the illness
   b. It is not necessary to update the STG
   c. Include common treatment practices but not the best practice
   d. Provide guidance to orient new prescribers
   e. It is prepared according to the personnel experience

5. **Criteria for selection of essential drugs are (Mark as True/ false)**

   a. Pattern of prevalent diseases
   b. The training and experience of available personnel
   c. Treatment facilities
   d. Relative efficacy cost and suitability
   e. Latest drug in the market

6. **Which of the following is the most effective intervention to improve prescribing practices (Mark as True/ false)**

   a. Drug bulletin/newsletter
   b. Seminar
   c. Face to face education
   d. Pre service training of the doctors
   e. Drug information from pharmaceutical industry

7. **Strongest evidence comes from the following**

   a. Randomized Controlled comparative trials
   b. Review articles
   c. Meta analysis
   d. Clinical experience
   e. Text books

8. **Basic drug information in formulary is / are**

   a. Dose
   b. Dosing interval
   c. Brand name
   d. Generic name
   e. Clinical indications

9. **How frequently should Essential Medicines List be revised?**

   a. Every quarter
   b. Every two years
   c. Every five years
   d. No revision required
   e. Every Year

Statistical analysis : Analysis was done using microcal origin statistical package.

Results:

1.1 Percentage of knowledge on key policies of RUM
We analyzed the level of knowledge of MPs on RUM under the topics of standard treatment guideline (STG)(A), EDL (B), national formulary/hospital formulary (NF/HF)(C), drugs and therapeutic committees (DTC)(D) and reliable drug information sources (RDIS)(E).
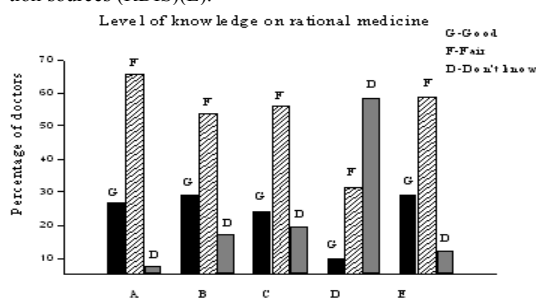

Figure 1: Level of knowledge in key policies on RUM of 42 MPs

The level of knowledge in key policies on RUM of 42 MPs were assessed. The percentages of MPs who were confident on their knowledge were 26.83%, 29.27%, 24.39%, 9.76% and 29.27% on STG, EDL, NF/HF, DTC and RDIS respectively. Some of MPs were convinced or not at all aware of STG in 7.32%, EDL in17%, NF/HF in19.51%, DTC in 58.54% and RDIS in 12.2%.

1.2 Percentage of knowledge of MPs and MSs on ELD
One of our main objectives was to find the shortage extent of the RUM module by identifying the deficiency factors. So we further compared the extent of knowledge of contents, criteria for selection and time frame for revision in both MPs versus MSs using a questionnaire.

Table 1: Percentages of knowledge in contents, criteria for selection and time frame for revision in EDL

	Doctors	Students
Contents	63.38%	86.63%
Criteria for selection	83.5%	32%
Frequency of revision	17%	50%
Mean	54.63%	56.21%

In both study groups values are given as percentages.

1.3 Comparison of percentage of knowledge on key policies of EDL before and after the questionnaire
Some of the MPs were confident on their knowledge on core policies of EDL (29.27%).but the percentage of their true knowledge were 54.63% according to the values of our study. So the gap analysis was conducted between those two values.

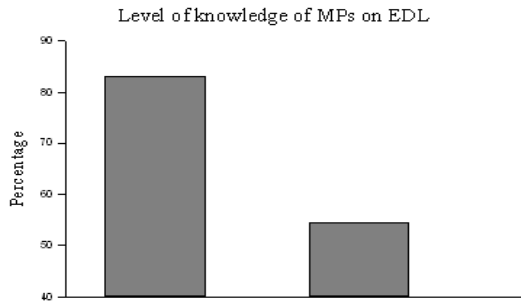We decided to identify the group of MPs who were not on a correct evaluation on their knowledge.

Level of knowledge of MPs on EDL

Figure 2: Gap analysis in the knowledge of EDL of MPs of their assessment and with our analysis

We have identified a gap analysis in the knowledge of EDL of MPs of their assessment and with our analysis.(Figure 2)

2. Analysis of knowledge in different areas of EDL among MPs and MSs

We extended our study to do a detailed analysis of the knowledge of EDL by dividing it into contents, criteria for selection and time frame for revision in both groups.

2.1 Percentage of knowledge on contents of EDL

Good knowledge on contents of EDL is an important requirement for health care workers in practicing RUM. One of the basic problems which contributes to the irrational prescribing is the medical students are not adequately instructed[1].So we decided to find the level of knowledge of MSs and MPs on contents of EDL. Figure 4 show that the level of knowledge in the contents of EDL includes life saving drugs (A), generic names (B), Drugs required for common ailment(C), drugs required for majority of ailment (D) and drugs required for priority need (E).
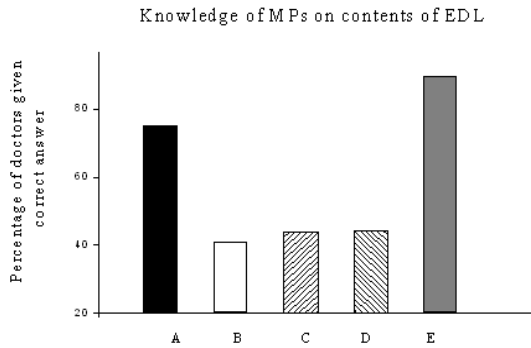
Knowledge of MPs on contents of EDL

Figure 3a: **Knowledge on contents of EDL in MPs**

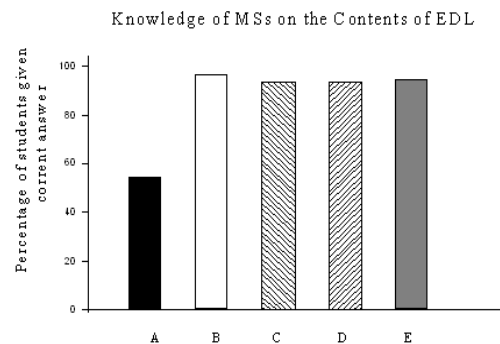Knowledge of MSs on the Contents of EDL

Figure 3b: Knowledge on contents of EDL in MSs

We analyzed the knowledge on contents of EDL in MPs. Figure 3a shows the values were 75% in life saving drugs, 41% in

generic names, 44% in both drugs required for common ailment and drugs required for majority of ailment and 90% in drugs required for priority need.

Figure 3b shows that the knowledge on life saving drugs (54%), generic names (96%), drugs required for common ailment(94%), drugs required for majority of ailment(94%) and drugs required for priority need(95%) among MSs.

2.2 Percentage of knowledge used on criteria for selection of EDL

There are WHO recommended criteria for selection of EDL. So we analyzed the knowledge of criteria for selection; Pattern of prevalent diseases (A), the training and experience of available personnel (B), treatment facilities (C), relative efficacy cost and suitability (D) and latest drug in the market (E) in MPs and MSs. Taken all factors together we found that MPs had 83.5% and MSs had 32% in knowledge in all 5 criteria for selection of EDL.
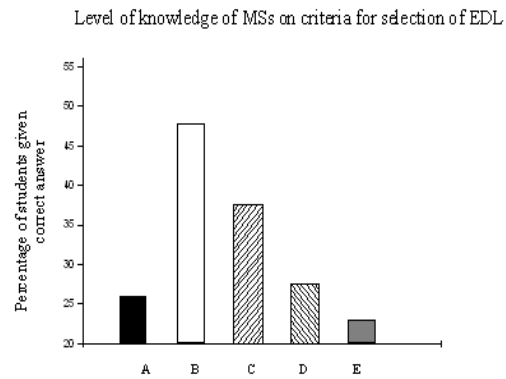
Level of knowledge of MSs on criteria for selection of EDL

Figure 4a: **Knowledge on criteria for selection of EDL in MPs**

Level of knowledge of MPs on criteria for selection of EDL
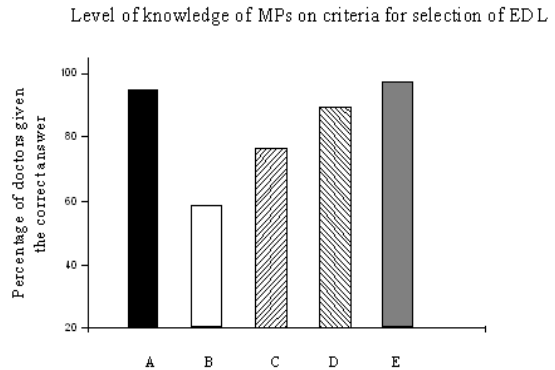

Figure 4b: Knowledge on criteria for selection of EDL in MSs

The knowledge on criteria for selection of EDL among MPs and was analyzed (Figure 4a). Extent of knowledge was 95% in pattern of prevalent diseases, 59% in the training and experience of available personnel, 76% in treatment facilities, 90% in relative efficacy cost and suitability and 97% in latest drug in the market.

Figure 4b shows the level of knowledge of MSs on different criteria for the selection of EDL. This figure shows that the knowledge was 26%on pattern of prevalent diseases, 48% on the training and experience of available, 38% on treatment facilities, 28% on relative efficacy cost and suitability and 23% on latest drug in the market.

2.3 Level of knowledge on time frame for revision

The frequency of revision is an important fact in preparing the EDL. Our study showed that the knowledge of MPs on time

frame for revision of EDL was very low (17%). The knowledge of MSs (50%) on time frame for revision was higher than that of MPs.

3. Comparison of knowledge between MPs and MSs

3.1 Comparison of the knowledge of contents of EDL between MPs and MSs.
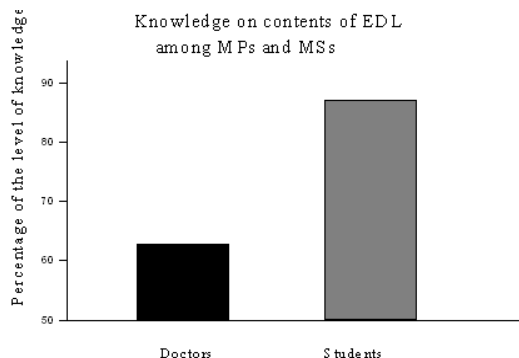

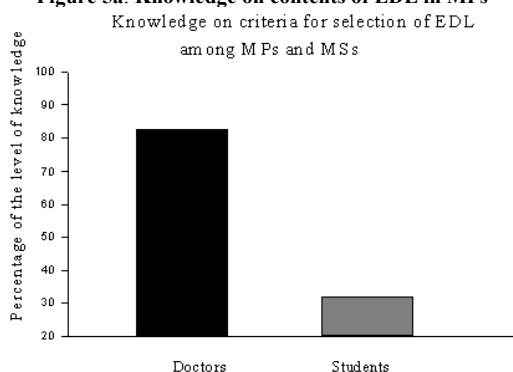**Figure 5a**: Knowledge on contents of EDL in MPs

Figure 5b: Knowledge on criteria for selection of EDL in MPs and MSs

We compared the level of knowledge of MPs and MSs on contents of EDL. (Figure 5a) The values were 63% and 87% on MPs and MSs respectively.

3.2 Comparison of the knowledge on criteria for selection of EDL

Figure 5b shows that the knowledge of MPs (83%) on criteria for selection of EDL is higher than the knowledge of MSs (32%).

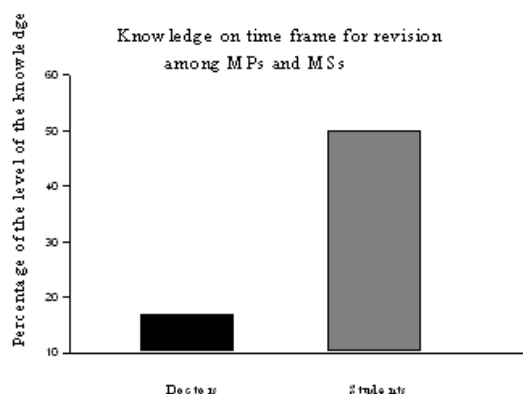### 3.3 Comparison of the knowledge on time frame for revision of EDL

Figure 5c: Knowledge of MPs and MSs on time frame for revision

The knowledge of MSs (50%) on time frame for revision was higher than that of MPs (17%). (Figure 5c)

Discussion:

Rational use of medicine is an important area in modern medical practice. Essential drug list is one of the key concepts in it. The knowledge of health care workers needs evaluation at timely interval for the improvement of teaching curriculum of pharmacology. We found that the proficiency of knowledge in EDL in MPs was 29% and 54% of study group assumed that they have a fair knowledge. In contrast 17% of MPs had revealed that they are not aware about EDL. However we evaluated them and found that the overall level of knowledge on EDL in MPs was 55% (63%, 83% and 17% in contents, criteria for selection and time frame for revision respectively).

Results of our study suggest that the knowledge on content areas such as generic names, drugs required for common ailments and drugs required for majority of ailment were less than 50% in MPs. In contrast, the knowledge in MSs in same contents was more than 90%. We found that knowledge on life saving drugs was 75% in MPs and 54% in MSs and knowledge in the drugs required for priority need showed a significant amount in both groups (>90%). We understand that they are not fairly convinced about the some of the selection criteria of EDL. We further feel that even though they have got the exposure of the knowledge during the undergraduate phase the practicality and usage with the concept are not well understood.

We noted that significant percentage of MPs and MSs were deficient in comprehension in inclusion criteria of generic names, drugs required for common ailment / majority of ailment. As we all understand the importance of having knowledge, and applicable skills in EDL are the guidelines considered to advance their skills for better approach in clinical setting. When we compare knowledge in all subcategories in EDL students had a higher score and this can be enlightened by their recent exposure to fresh knowledge of pharmacology. Therefore we suggest that repetitive in service program could be greatly valuable as an enhancement strategy in practical usage of EDL concept.

It was interesting to see that though there are a stumpy knowledge in general contents of EDL among MPs, knowledge in criteria for selection of EDL among MPs was 83%. Students had very low knowledge on all criteria for selection of EDL (32%).

Time frame for revision of EDL is a very important factor in practicing RUM and EDL should be revised at timely interval for better management of health economy of the country. If not, it becomes incongruous not only for the current requirement of the patients and increase the health cost unnecessarily.

Taking overall finding in our data base we suggest that pharmacology curriculum should be ensured of the current needs and the scarcity of important areas. We strongly believe that students should be skilled on EDL selection and the implementation of skill development practical sessions on EDL are greatly recommended.

For the enhancement of good knowledge in EDL concepts and practical skills in doctors needs frequent appraisal of the EDL concepts and amendment if any identified at timely interval which can improve the recalling of the knowledge. We believe that this process can make the EDL concept more familiar to them.

Internship is a period of medical apprenticeship under the supervision of a consultant. They are expected to learn clinical skills, perform some clinical procedures and demonstrate a good clinical judgment to arrive at patient management decision. All the medical officers including intern medical of-

ficers are in need of an intervention programme that might improve their knowledge on EDL as well as the application skills in RUM. We recommend that theoretical and practical teaching coupled with frequent assessment of the knowledge and skills acquired by the students, would likely improve their practicing EDL. Very little research on EDL is reported in the world and we could not compare our results with other similar works. Creation of altitudes on practicing EDL is an important issue in improving practice of EDL. It should be started in medical student level. Authorities should be sophisticated that practicing EDL will be cost effective to the government. As we are studying the rational use of medicine we plan to extend our study to analyze the level of knowledge on other areas of RUM such as STG, NF/HF, DTC and RDIS.

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