

Impact of Rational Drug Use Training Programme Among Doctors

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Abstract: To promote and evaluate Rational Use of Drugs (RUD) among doctors of Employees' State Insurance scheme, Bangalore, India was the aim. The study involved conducting baseline, and post evaluation study of prescribing indicators, patient care indicators, and facility indicators using WHO core drug indicators after imparting training on Rational Use of Drugs (RUD). About 53 dispensaries in Bangalore were taken for the study. Baseline studies were conducted in seven urban and two rural dispensaries. 80 doctors from 22 dispensaries were included for training program, which formed the intervention. Subjects such as STG, EDL, ABC/VED analysis, pharmacovigilance, and rational use of antibiotics were dealt. A post evaluation was conducted in randomly chosen dispensaries with trained doctors, which was compared with control dispensaries data, and with baseline dispensaries data to check the improvement in prescribing practices.

Post evaluation was conducted after 3 months after the training. The post evaluation data were compared with baseline study data. The prescribing indicators such as average number of drugs prescribed per encounter was reduced after the training, and percentage of drugs prescribed from KSED, and WHO EDL were increased after the training, but were not statistically significant. The percentage of drugs prescribed by generic name was not changed even after training. The indicators such as percentage of prescription encounters with antibiotics, percentage of prescription encounters with injections, percentage of prescription encounters with NSAIDs, percentage of prescription encounters with vitamins, were reduced significantly after the training ($p < 0.05$). The training of doctors on RUD was a tool to implement rational drug use among practitioners. This successful training program for ESI doctors has paved the way for implementing for other ESI dispensaries in Karnataka, India.

Introduction

WHO definition of rational use of drugs is "The rational use of drugs requires that patients receive medicines appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time, and at the lowest cost to them and the community".¹

Many developing countries have a limited budget allocated to healthcare especially for drug procurement. Therefore it is imperative to optimise expenditures for drug purchases by selecting an essential drug list, and promoting rational use of drugs.

Since WHO published the first report on the selection of essential drugs in 1977, the concept of essential drugs has been widely applied. It has provided a rational basis for drug procurement at national level, and for establishing drug requirements at various levels within healthcare system.²

Common types of irrational use of drugs include non-compliance with health worker prescription, self medication with prescription

drugs, overuse and misuse of antibiotics, overuse of injections, and overuse of relatively safe drugs, use of unnecessary expensive drugs, and poor patient compliance, poly pharmacy.

The factors underlying the irrational use of drugs are patient's misleading beliefs, patient's demands and expectation, prescribers lack of education and training, heavy patient load, pressure to prescribe, and drugs shortage.

The impacts of irrational use of drugs are reduction in the quality of drug therapy leading to increased morbidity and mortality, waste of resources leading to reduced availability of other vital drugs, and increased costs, increased risk of unwanted effects such as adverse drug reaction, and emergence of drug resistance.¹

The WHO-India program on the Rational Use of Drugs, which has been going on for almost 20 years in India aims at promoting rational prescribing through a multi-pronged strategy, which includes interventions to correct drug use problems, adoption of Essential Drug List, development of Standard Treatment

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Guidelines, determining and restricting irrational prescribing.²

In order to achieve this, the prescriber, and dispenser has to be trained in rational drug use. The training of ESI doctors is the first of its kind in India and this pioneer project will create awareness on many administrators to conduct this training program in their hospitals.

Employees' State Insurance (ESI) Scheme of India is the country's first integrated multi-dimensional social security scheme tailored to provide social protection to workers and their dependants, in the organised sector, in contingencies, such as, sickness, maternity and death or disablement due to an employment injury or occupational hazard.

ESI scheme was first integrated following the promulgation of the ESI Act 1948 on 24th February 1952 at Kanpur and Delhi. At present Employees' state insurance scheme is implemented at about 680 centers in the country so far, over 2.30 lakh employers now come under the purview of the Act. Basic health care services are provided through 1443 ESI dispensaries, 337 diagnostic centers, and about 3000 panel clinics.³

In Karnataka the Scheme was started on 27th July 1958 at Bangalore with strength of 12 ESI dispensaries. There are totally 7,73,000 insured persons and about 40,00,000 of their family members, nine ESI Hospitals, 131 ESI dispensaries all over Karnataka (in all 4 divisions).

Drugs are selected and tenders are finalized centrally in Delhi but the selected manufacturers make the supply locally. However, some States have their own arrangements (tender & supply) for procurement of drugs for the ESI (M&B) Scheme. There are 47 dispensaries in Bangalore urban, and six dispensaries in Bangalore rural division. Training of these doctors in Rational Use of Drugs will improve the standards of these dispensaries and quality of prescribing, dispensing etc.³

Hence as a pilot study, dispensaries from Bangalore were taken for the study. The results of this will indicate the need for the training of other doctors of ESI all over Karnataka.

Materials & Methods

Baseline: Representative samples of health facilities (seven urban and two rural) from Bangalore were

taken randomly for the baseline study. From each facility at least 100 encounters constituting total of 900 (prescription) patients data were taken in a predesigned form prospectively. WHO core drug use indicators was used.

Intervention: A one-day training on rational drug use (RUD) was given to 71 doctors from randomly selected 22 dispensaries in three batches. This formed the intervention. The following topics were covered during the training.

Drug information for promotion of Rational Use of Drugs and identifying & understanding the drug use problems, effective use of Standard Treatment Guidelines, Essential Drug Concept, Pharmacoeconomics, Drug Budgeting & Expenditure Planning, Pharmacovigilance, Current issues in treatment of infections and Rational Use of Antimicrobials.

The trained doctors were given a training manual, a copy of

Table 1: Consolidated report of prescribing indicators results of all dispensaries included in the study.

Prescribing Indicators	Baseline Group	Control Group	Post Evaluation Group	Statistical significance
No of health facilities	9	5	5	
Average number of drugs prescribed/encounter	2.7	3	2.5	NS
Average % of drugs prescribed by generic names	53%	40%	52%	NS
Average % of encounters with an antibiotics prescribed	34%	45%	25%	S
Average % of encounters with an injection prescribed	29%	28%	19%	S
Average % of drugs prescribed on KSED L	78%	74%	84%	NS
Average % of drugs prescribed on WHO EDL	41%	37%	44%	NS
Average % of encounters with vitamins prescribed*	52%	47%	27%	S
Average % of encounters with NSAIDs prescribed*	73%	77%	51%	S

*Additional Indicator added to check the misuse of the NSAIDs and vitamins.

NS Not Significant (no statistically significant difference between the baseline and post evaluation group)

S Significant (Statistically significant difference between the baseline and post evaluation group)

*The indicators such as vitamins and NSAIDS are included because of excessive usage found in all dispensaries. The Iron tablets given to pregnant, and anemic patients were excluded from the study.

Standard Treatment Guidelines (STG), Essential Drug List (EDL), and WHO guide to good prescribing.

Post evaluation: Four urban, and one rural health facilities were taken randomly both in post evaluation group and control group i.e, both trained and non-trained dispensaries. From each facility at least 100 encounters were taken in a predesigned form prospectively. WHO core drug use indicators used in baseline study was used for post evaluation study.

This was a prospective study carried out from October 2004 to June 2005. Analysis were done using WHO Core drug use indicators⁴

The following indicators were studied.

Prescribing indicators

Average number of drugs per encounter, percentage of drugs prescribed by generic name, percentage of encounters with an antibiotic prescribed, percentage of encounters with an injection prescribed, and percentage of drugs prescribed from essential drugs list or formulary.

Patient care indicators

Average consultation time, average dispensing time, percentage of drugs actually dispensed, percentage of drugs adequately labeled, and patients' knowledge of correct dosage.

Facility indicators

Availability of copy of essential drugs list or formulary, and availability of key drugs.

Statistical analysis

The data were compared using student t-test.

Results

The data showed that, there was no statistically significant difference in all the WHO indicators measured between baseline and control group, indicating that all the data were similar in baseline and control group i.e., before training.

Antibiotics use in Acute Respiratory Tract Infections (ARTI) and ORS use in diarrhea

A sample of 100 prescriptions each was taken from all the selected dispensaries to study the pattern of drug use in ARI and Diarrhea. The prescriptions of ARI containing antibiotic were 100, 87 and 97 in baseline, control and post evaluation group respectively. The prescriptions of diarrhea containing ORS were 0, 53, and 36 in baseline, control and post evaluation group respectively.

Discussion

Rational Use of Drugs among healthcare professionals is still a problem in India. The irrational prescribing is very common among prescribers. Poly pharmacy, overuse of antibiotics, misuse and overuse of injections, short consultation time, inadequate education and training of prescribers, lack of monitoring system, and poor patient compliance are common patterns of irrational use of drugs.

One of the reasons for this is the pressure from pharmaceutical industry on doctors. Medical detailing leading to irrational prescribing practices influences the doctors. This is very common in both private, and government hospitals.

Reducing irrational use of drugs at health facilities in India is not easy since there are constraints, such as lack of resources, lack of patients knowledge and habits as well as demographic constraints, prescriber's resistance to change the habits, lack of monitoring and prescription audit.

On the other hand, in ESI dispensaries the patients pay from their salaries, the patient demand is more. Hence not only the education of doctors, consumer/patient education should be given to patients on proper usage of medicines. As far as the availability of the drugs, the ESI dispensaries are better compared to public health facilities.

Table 2: Consolidated report of patient care & facility indicators results of all dispensaries included in the study.

Patient Care Indicators	Baseline Group	Control Group	Post Evaluation Group	Statistical significance
Average Consultation time (minutes)	1.7	2.0	1.8	NS*
Average Dispensing time (seconds)	26	27	25	NS
Drugs actually dispensed	100	100	100	-
Adequately labeled	0	0	0	-
Knows Dosage	38	31	40	NS
Average of key drugs (%)	55	64	78	S*
Availability of Essential drugs List & Standard treatment guidelines	No	No	No	-
Awareness on Drug Information center	No	No	No	-

*NS Not Significant S Significant

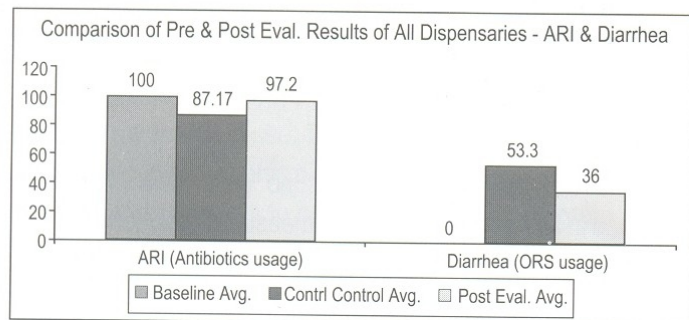


Figure 1: Comparison of pre & post evaluation results of all dispensaries ARTI & Diarrhea

The one-day training on RUD may not have much expected impact on prescribing attitudes. Though there was a change seen in prescribing indicators after the training, a constant ongoing CME's on RUD should be imparted for sustaining this. Hospitals should allocate funds for implementing such ongoing programs. The pharmacists play a vital role in rational drug use among patients. Proper patient counseling will improve patient's non-compliance, and patient demand on certain medication such as injections, vitamins, and NSAIDs use can be reduced. But in this study, the pharmacists were not trained in drug store management / counseling aspects / good dispensing practices. Hence there were no changes in patient care indicators from baseline data. Facility indicator showed that after the training the copy of STG and EDL was seen in doctors who underwent training.

Drugs and therapeutic committees (DTC) have been successfully running in many of the developed countries. But it is questionable in many of developing countries including India.⁵ This is due to traditional training or lack of training or not knowing the purpose of the committee functions. The committees are used, as paper committee and do not do anything effectively to the hospital except purchasing of drugs. Along with the pharmacists training at dispensary level, the doctors and pharmacists of the ESI tertiary care hospital should be given training on DTC.

The training of rational drug use imparts only knowledge to doctors, but this not enough to change the behavior of the irrational practices. The programs should be complemented with constant supervision, medical audit, regulatory measures, financial incentives, and public education.⁶

Though there cannot be any drastic changes expected out of this training. But this study can be a starting point to instill rationality in prescribing at least in few doctors.

Conclusion

The results indicate that there was improvement in some aspects

of RUD after the training but not in all aspects. Periodical training of pharmacists and doctors on rational use of drugs is necessary. The rational prescribing and dispensing can be achieved to a great extent from the procurement to prescribing by making EDL and STG specifically for ESI.

The current training was given only to doctors. Future training should include pharmacists to expect overall changes from prescribing to dispensing.

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