Indian J Med Res 135, May 2012, pp 675-677

Correspondence

Monitoring an interventional programme of drug utilization in a health facility of Delhi

Sir,

The Delhi Drug Policy for National Capital Territory (NCT) was constituted in 1994[1]. For its effective implementation a step by step approach was adopted. To start with an essential drug list (EDL) was formulated which has since been revised every two years. As part of the implementation of the Delhi Drug Policy, training programmes are being conducted at regular intervals, to increase the awareness about the components of Rational Use of Drug amongst prescribers working in the health facilities of Delhi[1]. However, it is important that these intervention programmes be monitored and evaluated as only then can the impact if any, be assessed. The analysis of data collected following the monitoring of a health facility of Delhi after one such intervention is presented here. The objectives of this study were to *(i)* analyze the prescriptions for completeness of information like the presence of OPD number, name, age and sex of patient, diagnosis, name, dose and duration of prescribed drugs; *(ii)* calculate various prescribing indicators[2] like percentage of drugs prescribed by generic name, average number of drug per encounter, percentage drugs with antibiotics prescribed, percentage drugs with combinations, and percentage of drug prescribed from essential drugs list of Government of NCT, Delhi; and *(iii)* compare pre- and post-intervention changes in prescription writing with respect to completeness of prescription and rational use of drugs.

A pre-intervention study was carried out by Department of Pharmacology in a 500-beded Deen Dayal Upadhaya, a tertiary care hospital. Over a four week period random prescriptions were collected from the Out Patient Department (OPD) of the hospital. The patients after collecting the prescriptions were briefly interviewed. The contents of the prescription were collected in a pre-tested proforma[3] and the following points were noted:

(i) Completeness of the prescription, *(ii)* Data for prescribing indicators including number of drugs, whether drugs are prescribed by their generic names, use of antibiotics, *etc.*, and *(iii)* Data related to patient care indicators *e.g.*, patient's understanding of the prescription, drugs dispensed or not, labelling of the dispensed drugs, *etc*.

The time of patient spent with the doctor and the dispenser was also observed. This was calculated by observing the time taken by prescriber with the patient over 100 contact points and subsequently calculating the average time for consultation. Similarly 100 contact points between the patient and the pharmacist were also observed and the average calculated.

The pre-intervention data were collected in a random fashion from the OPD. Trained pharmacists were recruited for collection of data. In the pre-intervention phase 300 prescriptions were collected. The data thus collected, were analyzed according to the WHO Criteria for analyzing data in a health care facility[2]. Analysis was done both collectively and department-wise.

A two-day training programme for the Medical Officers (n=60) from the Departments of Medicine and Surgery was conducted by Department of Pharmacology, Maulana Azad Medical College, New Delhi. The topics for the workshop included concepts of essential drugs, rational/irrational prescribing, how to choose drugs rationally based on the WHO model of Guide to Good Prescribing[4], antibiotic policy for hospitals, and drug advertisements by pharmaceutical companies. Sessions were interactive and both simulated and actual prescriptions were used for discussions. Resource persons included clinical pharmacologists, physicians, surgeons, gynecologists and pharmacists. The participants were shown the data collected during the pre-intervention phase and areas

Table. Prescription pattern and patient care indicators in pre- and post-intervention phases

Prescribing indicators	Pre-intervention			Post-intervention (immediate)		Post-intervention (after 1 month)	
	General*	Medicine	Surgery	Medicine	Surgery	Medicine	Surgery
Average no. of drugs per encounter	2.2	2.8	2.3	2.5	1.9	2.6	2.3
% of drugs prescribed as generics	34.8	15.1	20.3	46.2	34.4	46.2	28.2
% of encounters with an antibiotics	43.0	20.0	83.3	35.4	87.8	53.3	60.0
% of antibiotics prescribed	22.3	6.9	34.2	14.1	45.3	20.0	25.3
% of drugs prescribed from EDL	78.1	81.4	86.3	82.5	89.0	92.5	78.8
% of drugs prescribed as combinations	18.3	30.2	2.7	23.0	10	17.5	14.1
Patient care indicators	**Pre-intervention**			**Post-intervention (immediate)**		**Post-intervention (after 1 month)**	
	General	Medicine	Surgery	Medicine	Surgery	Medicine	Surgery
% of drugs actually dispensed	72.7	68.6	75.3	71.7	78.2	90.0	81.6
% of drugs actually labelled	0	0	0	0	0	0	0
Patient knowledge of correct dosage (%)	66.9	74.4	78.1	71.7	81.3	88.8	88.7

*Collection of prescription from OPDs of all departments; EDL, essential drug list

where improvements can be made were highlighted and discussed. For example, prophylactic use of antibiotics prior to surgery to reduce post-operative wound infections was highlighted during the discussion by the surgeon and the physician highlighted use of drugs by their generic name. The last session was devoted to making projects based on the knowledge and skills acquired during the workshop.

Two post-intervention data sets were collected from OPD prescriptions in a similar way as the pre-intervention data. However, this time prescriptions were collected only from the Departments of Medicine and Surgery. The first post-intervention data set was collected one week after the conclusion of the workshop and the second one month after the workshop, to assess the retention effect of the training. These data sets were analyzed in the same manner as the pre-intervention data.

There was a decrease in the average number of drugs prescribed during the two post-intervention phases. In the department of Medicine, the average reduced to 2.5 and 2.6, respectively from 2.8. The corresponding decrease in the average in the department of Surgery was 1.9 from 2.3 in the immediate post-intervention phase. This effect was however, not sustained in this department, as it reached to 2.3, similar to that observed in the pre-intervention period (Table). A sustained effect was seen in the percentage of drugs prescribed as generics. Marginal effect was observed in the per cent of drugs prescribed as combinations; this effect was, however, not sustained. A continuous increase in the prescription of drugs from the EDL was observed in the department of Medicine; this rose to 92.5 per cent during the second post-intervention phase. This sustained effect could not be seen in the department of Surgery (Table).

There was an improvement in the number of drugs prescribed from EDL in the one month post-intervention period. There was no change in the antibiotic prescribing behaviour nor was any attempt made to write a prescription completely, in either of the departments. There was an improvement in the number of drugs actually dispensed. This increased to 90 per cent in department of Medicine during one month post-intervention, indicating an increase in the availability of drugs. There was also an improvement in the knowledge of patients regarding the correct dosage of drugs to be administered. This could be due to increased awareness at the pharmacist at the time of data collection, leading to a more conscious effort to communicate with the patient. An important observation was the total absence in the practice of labelling the drugs being dispensed.

Drug utilization data help to monitor the drug prescribing practice[5]. For example, majority of acute respiratory infections are of viral aetiology, but prescribing antimicrobials for these illnesses is a common phenomenon[6]. In our study, there was no reduction in number of antibiotics prescribed, which

could be attributed to inadequate stress laid down on this issue during the workshop. Prescription audit at various centres (government or private) has revealed indiscriminate use of antibiotics, non-steroidal inflammatory drugs and injections[7-9]. Also when problems are identified, strategies can be developed to improve drug use. Strategies for effective implementation of the outcomes from a drug utilization study can result in improved patient care and increased availability of resources[10].

It is evident that a single intervention is not sufficient and repeated workshops/symposia need to be carried out. Irrational prescribing amongst health providers is universal. It is not easy to change the behavioural pattern of the prescribers. One of the ways to overcome this is to educate the prescribers and update their knowledge regularly[11]. It is also important to find the reason to resist any change. This may require focussed group discussions, formation of drugs and therapeutics committees and developing ways to have greater responsibility and accountability.

Limitations of the present study were lack of control group, one study site and lack of application of statistics. Randomized control design studies should be conducted to advocate or address issue of impact solely because of intervention. When trying to assess effects of intervention, one should be realistic about what changes to look for in the evaluation. Changes in knowledge and understanding might take place soon after the education input. However, changes in behaviour and health usually take longer to achieve. Thus, both short term and long term evaluations need to be done to assess the impact.

Acknowledgment

The author thank the WHO-EDP India, DSPRUD for not only providing the financial support but also for help in the conduct of the intervention program, Prof. R. Roy Chaudhury, President, DSPRUD, for his support, and Head of the Department of Pharmacology, MAMC, New Delhi for facilitating collection of data and training. Authors also thank Shri Dushyant for his help in the collection of the data.

Uma Tekur & Bhupinder Singh Kalra*
Department of Pharmacology
Maulana Azad Medical College
Bahadur Shah Zafar Marg
New Delhi 110 002, India
**For correspondence*:
drbskalra@gmail.com

References

1. Drug Policy of the National Capital Territory of Delhi, April 1994. Available from: *http://delhi.gov.in/wps/wcm/connect/DolTHealth/health/related+links/drug+policy+of+delhi*, accessed on April 27, 2012.
2. World Health Organization. *How to investigate drug use in health facilities: Selected drug use indicators*. EDM Research Series No. 7. Department of Essential Drugs and Medicines Policy, Geneva: WHO; 1993 (reprint 2006). Available from: *http://apps.who.int/medicinedocs/en/d/Js6169e/5.2.html#Js6169e.5.2*, accessed on June 21, 2011.
3. How to investigate the use of medicines by consumers: A practical Manual. Department of Essential Drugs and Medicines Policy, Geneva: World Health Organization and University of Amsterdam 2004. Available from: *http://apps.who.int/medicinedocs/en/d/Js6169e/*, accessed on June 21, 2011.
4. deVaries TPGM, Henning RH, Hogerzeil HV, Fresle DA. *Guide to good prescribing - A practical manual*. Geneva: World Health Organization; 1994.
5. MSH/WHO/DAP. *Managing drug supply*, 2nd ed. Hartford, CT: Kumarian Press; 1997.
6. Kumari Indira KS, Chandy SJ, Jeyaseelan L, Kumar R, Suresh S. Antimicrobial prescription patterns for common acute infections in some rural & urban health facilities of India. *Indian J Med Res* 2008; *128* : 165-71.
7. Patel V, Vaidya R, Naik D, Borker P. Irrational drug use in India: A prescription survey from Goa. *J Postgrad Med* 2005; *51* : 9-12.
8. Rehan HS, Lal P. Drug prescribing pattern of interns at a government healthcare centre in northern India. *Trop Doct* 2002; *32* : 4-7.
9. Rishi RK, Sangeeta S, Surendra K, Tailang M. Prescription audit: Experience in Garhwal (Uttaranchal), India. *Trop Doct* 2003; *33* : 76-9.
10. The use of essential drugs. *World Health Organ Tech Rep Ser 722*; 1985.
11. Bapna JS, Tripathi CD, Tekur U. Drug utilization in the third world. *Pharmacoeconomics* 1996; *4* : 286-94.