Original Article

DRUG USE PATTERN IN PRIMARY HEALTH CARE FACILITIES OF KASKI DISTRICT, WESTERN NEPAL

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ABSTRACT

Background: Drug utilization research has been defined by the WHO as 'the marketing, distribution, prescription and use of drugs in a society, with special emphasis on the resulting medical, social and economic consequences. Several studies of drug utilization conducted in many developed countries shows wide evidence of irrational drug use.**Objectives:** To assess the drug use pattern in Primary Health Care (PHC) facilities of Kaski district, Western Nepal. **Methods :**A prospective cross-sectional descriptive study was conducted in 11 PHC facilities of Kaski district using WHO core drug use indicators. **Results:** A total of 301 prescriptions was analyzed. The average age of patients visiting PHC was 33.11 years (female 35.79; male 30.40). The average number of drugs prescribed was 2.29. Percentage of encounters with at least one antibiotic prescribed was 57% whereas encounters with at least one injection prescribed was low 3%. The total percentage of drugs prescribed using generic names was found to be 59.02% and percentage of drugs prescribed from EDL was 85.19% respectively. The average consultation and dispensing time of 109 patients was 2.02 minutes and 42.52 seconds. Only 30% of patients had adequate knowledge of drug whereas none of the drugs were adequately labeled. Percentage of drugs actually dispensed was 89.63%. All health facilities had availability of Essential Drug List (EDL). The total percentage of availability of key drugs in study PHCs was 89.69%. **Conclusion:** The study shows trend toward irrational practice mainly on antibiotics use and non-generic prescribing in most facilities studied. Patient care provided by health facilities studied was insufficient and thus effective intervention program for promotion of rational drug use practice is recommended in PHC facilities.

Key words: Drug utilization studies, Essential drug list (EDL), Primary Health Care center (PHC), Health Post (HP), WHO drug use indicators

INTRODUCTION

Study of drug use pattern is an essential measure in order to access drug utilization.[1,2] Drug utilization research has been defined by the WHO as 'the marketing, distribution, prescription and use of drugs in a society, with special emphasis on the resulting medical, social and economic consequences.[3] Several studies of drug utilization conducted in many developed countries shows wide

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evidence of irrational drug use.[4-7] In a case of developing countries rather more intensive irrational practices of drugs are seen in health sector.[8-11] In Nepal the essential health services are provided by the government through Primary Health Care (PHC) facilities which are separated into three levels i.e. Primary Health Care Center (PHCC), Health Post (HP) and Sub-Health Post (SHP). It delivers services up to the grass root level in rural and urban areas of the country. Studies conducted in different regions of Nepal primary health care system have showed variation in drug utilization practice in PHC [12-15].

Two PHCCs, total of eleven HPs and forty-three SHP has been providing the health care needs of the population of Kaski district, Western Nepal. Studies on PHC facilities in this area is lacking due to various geographical and physical infrastructures, limited facilities and socio-economic problems. The research was conducted to assess the stronger evidence on extent of drug use pattern in PHC facilities of Kaski district and to continue the effort of drug utilization research in Western Nepal.

MATERIALS AND METHODS

A prospective cross-sectional descriptive study was conducted in total 11 health posts of Kaski District starting from the month of June to September 2009. The study was carried out by using standard WHO drug use indicators (which include prescribing, patient care and facility specific indicators as core indicators) and using recommended methodology of WHO.[16] International Network for Rational Use of Drug (INRUD) encounter form was modified as per our requirement and used as a data collection tool to gather data.[17] The modification was made in such a way that the encounter form includes patient indicator (name), age, sex, prescriber, date, health problems description/diagnosis, prescription character (drug name, strength and dose; dispense quantity); patient drug knowledge (when, how much, duration); label (patient name, drug name, when). The consultation time and dispensing time was noted in separate form. Prior to study, specific training was provided to the data collectors and 1 day pilot study was carried out in the nearby PHCC. A totaly 30 sample of patient was selected randomly for study in each facility irrespective of their age and gender. Facilities where average patients per day were very few, patients who visited in health facility within three consecutive working days were taken as sample. Only new outpatients with general illness were included in the study. Patient for DOTS, immunization, pregnancy management, malaria, prophylaxis therapy and chronically ill was not taken for study. Only 10 encounters per health post were noted randomly to measure consultation and dispensing time without the prior knowledge to the prescriber and dispenser that they were been observed. The data after completion were filled up in prescription indicator form, patient care indicator form and calculation of parameters was made by recommended WHO guidelines.[16] Parameters calculated in prescribing indicators were average number of drug prescribed per prescription, percentage of total generic prescribing, percentage encounter who received at least one antibiotics, percentage encounter who received at least one injection and percentage of drug prescribed from Essential Drug List (EDL); In patient care indicators, average consultation and dispensing time, percentage of drugs adequately dispensed, percentage of drug adequately labeled, percentage of patients correct knowledge of drugs were calculated and availability of national essential drug list/formulary and percentage availability of key drugs were calculated as facility specific parameters. At the end of data collection, all data were tabulated in summary sheets and the result obtained through the simple calculations was disseminated immediately to health post members. All the data were entered on to computer MS Excel 2007 using validation command and finally data were transformed into Statistical Package for Social Sciences (SPSS) version 16 for further analysis.

RESULTS

A total of 301 prescriptions were collected from PHC facilities and were analyzed for various parameters which includes prescribing, patient care and facility indicators. Out of total number of patient visiting PHC facilities, the numbers of females were 151 and male were 150. The average age of female patients visiting PHC was found to be 35.79 (SD 22.23) and average age of male patients was 30.40 (SD 22.65). The average age of all the patients was found to be 33.11(SD 22.62). The average number of drugs prescribed per encounter from all the PHC facilities studied was found to be 2.29 (SD 1.12). 57% of the total patients received at least one antibiotic in their prescription and only 3% of patients received at least one injection in their prescription. The total percentage of drugs prescribed in generic was found to be 59.02% and

percentage drug prescribed from EDL was 85.19%. In order to asses average consultation and dispensing time a total of 109 records were taken. The average consultation and dispensing time was found to be 2.02 (SD 1.02) minutes and 42.52 (SD 25.53) seconds respectively. Only 30% of patients have adequate knowledge of drug. However, percentage of patient knowledge on parameter 'when' was 74.55%, whereas knowledge on parameters 'how much and duration' were 66.70% and 40.87% respectively. Total percentage on adequate labeling was nil in all the health facilities studied. Considering when as only the parameter of labeling the percentage of labeling was 27.65%. Percentage of drugs actually dispensed was 89.63%. All the HPs studied had the availability of essential drug list. The total percentage of availability of key drugs on HPs studied was 89.69%.

TABLE -1: Who Core Drug Indicator Summary ResultRrEPO

Number of cases	Prescribing Patient care	301 301(consultation and dispensing 109)
Average number of drugs prescribed		2.29
Percentage of drugs prescribed by generic name		59.02%
Percentage of encounters with an antibiotics		57 %
Percentage of encounters with injection prescribed		3%
Percentage of drugs prescribed on essential drug list		85.19%
Average consultation time		2.02min
Average dispensing time		42.52sec
Percentage of drugs actually dispensed		89.63%
Percentage of drugs adequately labeled		0%
Percent correct patient knowledge of drugs		30%
Availability of essential drugs list or formulary		Yes
Perentage availability of key indicator drugs		89.69%

DISCUSSION

Drug use indicator as defined by WHO has provided easy and convenient measures to assess optimal drug use in health facilities in this study. The demographic details of patient attending health care facilities shows not much variation between male and female attending the health facilities in comparison to the other studies conducted in various

areas [18,19] reflecting that the prevalence of disease was higher among adult patient in this region during the study period.

The average number of drug prescribed was similar with the result obtained in other study at PHC in Nepal i.e Kathmandu (2.1) , Surkhet (2.2) , Terai (2.2).[14,20,21] In Study conducted at health facilities of twelve developing countries wide variation in

average drug prescribing was seen ranging 1.3 in Equador and Tanzania and 3.8 in Nigeria.[8] However studies on private and tertiary health sector shows comparatively higher number of drug prescription on average.[22-24] This variation might be due to variability in health care delivery system, socio-economic profile and morbidity and mortality profile of the population. Poly-pharmacy was prevalent up to some extent in most of health facilities studied i.e. >2 drugs.

Percentage encounter with antibiotics was found similar to other similar studies conducted at health care facilities in various other regions of Nepal.[20, 21, 25] In contrast with study conducted at developing countries like southern Sudan, Nigeria, India; this result is relatively lower.[8,9,26] WHO recommends that about 15-25% of antibiotic encountered is expectable in the countries where an infectious disease is more prevalent.[27] It shows that overuse of antibiotics is wide spread in most of the PHC facilities studied. Failure of determining severity of illness, peer norms, pressure of pharmaceutical promotion, fear of bad outcomes and economic incentives of prescriber and dispensers, lack of regulation and enforcement were found to be probable reason for antibiotic overuse.

Percentage of injection prescribed was appropriate and far less than other studied conducted in PHC facilities in Nepal and other developing countries.[8,14, 20, 21, 26]

Percentage of drug prescribed using generic name was found to be 59.02%. The result was similar to previous study conducted in PHCC of Kaski , Surkhet and Terai region of Nepal [20,21,25] However, was better than that in PHCC of Kathmandu and other private and tertiary health sector.[14,19] With regards to study conducted at other developing countries like India, Saudi Arabia, Bahrain it was comparatively high.[18,26,28-30] Prescribing by generic name is recommended by WHO as it enables selection of more alternatives and also has major impact in cost minimization. The factor influencing low generic prescribing may be due to poor regulation and enforcement, drug promotion and less number of generic drug productions in Nepal.

The percentage of drug prescribed from EDL was satisfactory and more or less similar to study conducted at PHC in various regions in Nepal [14,20,21] but in contrast with private sector it is preferably higher.[19,22,24] The result was also found comparatively higher than some similar studies conducted in India.[18,26] EDL drug prescribing is essential in the sense that it decreases amount of unwanted drug prescription, escalates price, and promotes RUD. The main drawback for non-EDL prescribing in health facilities studied was irregularity of drug supply at health centers. The prescribing indicator summary of all PHC under study is shown in Table 2.

TABLE- 2: Prescribing indicators summary of all 11 PHC (Health Post) under study (n d'' 30)

Health Post no.	People age in Years Mean (SD)	No. of drug prescribed per patients encounter Mean (SD)	% of patients encounter with prescription for		% of drug prescribed by generic name	% of drug Prescribed on EDL
			Antibiotics	Injection		
1.	30.80 (24.56)	2.17 (1.20)	67	0	51.33	91.44
2.	21.68 (16.69)	1.68 (0.82)	37	5	90.35	98.24
3.	40.40 (21.85)	2 (1.13)	47	0	51.66	76.66
4.	39.13 (23.61)	2.93 (1.46)	87	3	49.44	72.16
5.	25.45 (20.27)	1.61 (0.66)	9	0	48.38	87.63
6.	32.70 (20.85)	1.87 (0.73)	57	0	67.50	78.33
7.	39.74 (29.36)	2.78 (1.15)	56	7	61.91	77.09
8.	32.23 (17.19)	2.43 (1.04)	47	0	46.33	89.94
9.	36.76 (23.51)	2.55 (1.12)	59	0	52.58	91.95
10.	29.80 (22.00)	2.77 (1.04)	60	10	64.61	90.16
11.	35.97 (22.13)	2.10 (0.96)	50	7	73.33	83.33
Total	**33.11 (22.62)**	**2.29 (1.12)**	**57**	**3**	**59.02**	**85.19**

The average consultation time and dispensing time was shorter than previous studies that were conducted to in terai district of Nepal[21] and several other developing countries but was higher than that conducted in Bangladesh and Bhopal district of India.[8,18] The dispensing time was found to be 42.52 second which was less than the previous study conducted in other regions of Nepal.[14,20,21] But the time was longer than study conducted in Brazil (18.4 seconds) and Bangladesh (23 seconds).[8,31] However, in this study the average consultation and dispensing time was much less than standards in most of health facilities studied. It reflects no proper counseling for patients regarding disease and drug therapy during the time of prescribing and dispensing. The prime reason found were laziness of prescriber and dispenser, lack of patient curiosity about the disease and drug information, in some cases busy patient flow, lack of training.

Only 30% of the patients have adequate knowledge about the drugs dispensed to them. The result was similar to that obtain by Kafle et al, in their study in terai district 28.6% but was less than other study conducted in other region of Nepal.[14,20,21,24] Similar study conducted in Asir region of Saudi Arabia also show low patient knowledge [29] whereas in study conducted at Bhopal district in India shows high patient knowledge about drugs i.e. 87.1%.[18] Generally high percentage of patient knowledge is required for promotion of rational drug use by patient.[27] Health facilities 2, 8,9,10 had shown remarkably low patient knowledge about drugs. In this study low patient knowledge achieved was due to poor educational background of patient, inadequate labeling, inappropriate counseling by the medical personnel and dispensers at health facilities studied.

The adequate labeling status was found to be nil. However 27.61% of labeling was found for parameter when but no labeling for parameters patient name and drug name were carried out in any health facilities studied. A similar result was found in study conducted at PHC of terai region of Nepal.[21] Adequate labeling according to WHO standards was also found less in some similar studies in India, Sudan and Brazil.[8,18,31] Labeling has an important role for promotion of rational drug use. The reasons involve lack of training and laziness of medical personnel in PHC facilities.

The percentage of drugs actually dispensed was 89.63%. In similar study conducted in terai district of Nepal showed that 81% of prescribed drugs were dispensed.[21] Study conducted at Brazil showed only 60% of total prescribed drug were dispensed.[31] Similarly study conducted at Bhopal district India had shown 74.9% of drugs actually dispensed.[18] Drug dispensed in this study is found satisfactory. High percentage of drug dispensed shows that effective service management in the health facilities.

In this study, a copy of EDL or formulary was present in every PHC facilities unlike the study conducted by Costa et al,[18] and the availability of key drug was found to be 89.69% which was satisfactory. This defines drug management in health facilities was in accordance with national standard and based on the prevalence of disease in the region. The patients care and facility indicator summary is shown in Table-3.

TABLE-3: Patients care indicators and facility indicators summary for all 11 PHC (health Post) under study

Health post no.	Average consultation time n=10 Min/ (SD)	Average dispensing time n=10 Sec/ (SD)	% of patients correct knowledge of drugs (n ≤30)	% drug adequately dispensed (n≤30)	% availability of key drug
1.	2.00 (0.90)	30.90 (9.33)	37	94.78	93.3
2.	1.07 (0.44)	24.00 (11.00)	11	100	80
3.	2.43 (1.49)	38.12 (20.69)	53	75.00	93.3
4.	1.59 (0.99)	58.30 (33.07)	20	76.22	80
5.	1.83 (0.89)	30.70 (15.64)	58	91.94	93.3
6.	1.90 (0.89)	48.00 (19.60)	70	94.44	93.3
7.	2.50 (0.80)	73.00 (20.84)	30	69.44	87
8.	2.37 (1.16)	41.50 (12.03)	13	92.44	93.3
9.	1.69 (0.87)	47.00 (41.49)	3	89.37	87
10.	2.44 (1.16)	40.09 (27.84)	0	96.67	93.3
11.	2.37 (0.82)	35.50 (16.23)	40	100	93.3
Total	2.02 (1.02)	42.52 (25.53)	30	89.63	89.69

*% adequate leveling was nil in all health facilities studied.
*All health facilities had the copy of EDL or Formulary

In Conclusion, the study shows trend toward irrational practice mainly on antibiotics use and non-generic prescribing in most of health facilities studied. Patient care provided by health facilities studied was insufficient and thus effective intervention program for promotion of rational drug use practice is recommended. However, study has certain limitation as the study was conducted for short period of time. The study was conducted in eleven health post only so the result cannot be considered as an outcome of the entire level of PHC facilities of Kaski district.

ACKNOWLEDGEMENT

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