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A comparison of the quality of care provided and the rational use of drugs in rural public health facilities and private shops

K. A. Holloway[1]
B. R. Gautam[2]

ABSTRACT

The problem of insufficient funding undermining health care in Nepal has led to greater emphasis being placed on the private sector for service delivery. This study compared the quality of service provided by primary health care public facilities and private shops (the main private primary health care alternative) in rural remote areas of hilly E. Nepal. A cross-sectional survey was done and WHO indicators used. It was found that public facilities provided better access and value for money than shops. Provided adequate levels of drug availability were maintained, public primary health care facilities offered better quality of care than private shops, where there was often misuse of drugs particularly antibiotics due to irrational self-medication or patients not buying what they had been prescribed. However, in many public facilities (not supported by any agency apart from HMG) drug availability was poorer than in the larger shops, leading to a similar misuse of drugs, especially antibiotics, as occurred in shops. When considering strategies to decrease the misuse of antibiotics it may be easier to address poor drug availability in public facilities than change patient-retailer behaviour in shops. The poor dispensing process and large number of people not knowing how to take their drugs are two serious problems, needing urgent action, in both the public and private sectors.

Keywords: public facilities, private drug shops; prescribing habits; quality of care, drug use.

INTRODUCTION

An inability to spend the minimum US $12 per capita on primary health care in the public sector recommended by World Bank (World Bank 1993) undermines primary health care in Nepal. As a result there is a lack of essential drugs and manpower contributing to poor quality of care, irrational use of drugs and low utilization in public primary health care

[1] Former Drug Scheme Coordinator, Britain Nepal Medical Trust (BNMT), PO Box 9, Biratnagar, Morang 56601, Nepal.
Fax: 00 977 21 25232 E-mail: bnmt@npl.healthnet.org

[2] Personnel Manager (Former Drug Scheme Manager), BNMT

Address for Correspondence: K.A. Holloway, 90 Shirley Drive, Hove, Sussex BN3 6UL, UK. Tel.: 00 44 1273 553491.

facilities (Tamang & Dixit 1992). Since there is a lack of drugs in public health facilities and self-medication is very common (Kafle & Gartoulla 1993), many drug transactions occur in shops. It is estimated that over 82.8% of all drug transactions in Nepal take place in the private sector (Sheak 1997). There has been much discussion world-wide concerning how to finance and provide health care. It has been said that internal inefficiency of public programmes and insufficient spending on cost-effective health activities contributes to the lack of funds (World Bank 1987) and that the fee-charging private sector usually provides higher quality health care than the often free public sector (World Bank 1993). Therefore the World Bank supports an increasing role for the private sector including the institution of user fees, using non-government resources and decentralising government health services (World Bank 1987).

The irrational use of drugs is one major source of inefficiency and non cost-effectiveness within the health sector world-wide. Both providers, including prescribers, dispensers and retailers, and consumers use drugs irrationally (Laing 1990, Hogerzeil et al 1993, Gilson et al 1993, Greenhalgh 1987, Hardon 1987). In Nepal a number of studies have shown irrational use of drugs in public primary health care facilities (Holloway 1996, DDA/GTZ 1997), by private practitioners (DDA MOH 1993/4) and by drug retailers (Holloway & Gautam 1998A). Nepal, unlike some developing countries, does have regulations concerning only licensed prescribers prescribing and licensed sellers selling. However, as in India where the regulations are often ignored (Greenhalgh 1987), enforcement of the regulations is difficult. There have been attempts to improve the quality of care and rational use of drugs by providing training programmes in the public sector and in the private sector for drug retailers (Kafle et al 1992). However, no studies have demonstrated a sustained change in behaviour following training.

Although it has been suggested that the private sector may provide higher quality care (World Bank 1987) there is evidence that the rational use of drugs may be poorer in private facilities (Gilson et al 1993). In Nepal there have been no studies comparing the quality of care and rational use of drugs in the private and public sectors. The aim of this study was to compare the quality of care and the rational use of drugs between public health facilities and private drug retailers - the two main providers of allopathic care at the primary health care level in rural areas. In the present context of insufficient funding for the public sector and consequent turning towards the private sector for more health care provision, it is of great importance to know how the quality of care compares between the two, particularly at the primary health care level, which is all that is available to the vast majority of the population.

At present HMG/N provides an annual indent of drugs which lasts 3-5 months (MOH & MLD 1995) and is dispensed free of charge in public facilities. In order to address the problem of insufficient drugs and funds, HMG/N plans to institute a community drug programme (CDP), where user fees are charged for drugs and all the money collected is controlled by local village development committees (MOH & MLD 1995). There are a number of other drug schemes in Nepal that have been charging user fees and using the money to supplement drugs in the public health facilities (Kafle 1992). Britain Nepal Medical Trust (BNMT) is an INGO that runs, in cooperation with HMG's MOH, drug scheme projects. One of the projects, cost sharing drug schemes (CSDS), runs in public health facilities where a nominal fee of Rs. 7-9/– per patient, on average, is charged and the money used by BNMT to supply more drugs (Holloway 1996, Holloway & Gautam 1997 & 1998B). The other project, Hill Drug Scheme (HDS), runs in private retail shops (Holloway 1996, Holloway & Gautam 1998A). BNMT sells drugs to selected supervised retailers at cost price plus 10% for handling and the retailer sells to the patient for a further 12.5% mark-up ie. the patients pay cost price plus 22.5% for their drugs. During 1996 an evaluation of BNMT's drug schemes was undertaken. As part of this evaluation a comparison was made between drug scheme and non-drug scheme (CSDS and non-CSDS) public facilities and drug scheme and non-drug scheme (HDS & non-HDS) private shops. These comparisons are described elsewhere (Holloway

& Gautam 1998A & B). For the sake of completion and for ease of reference to descriptions elsewhere the results for all 4 types of facility are reported here. However, it is the overall comparison between public health facilities and private shops at the primary health care level that is the main objective of this article. The reporting of 2 situations in the public sector (CSDS & non-CSDS) and 2 situations in the private sector (HDS & non-HDS) helps to give a more balanced comparison between the two sectors and also some insight into possible strategies for improvement in the future.

METHOD

The study took place in 52 public health facilities and 37 private shops in hilly E. Nepal. The public health facilities included 36 CSDS ones (33 Ilaka health posts & 3 district hospitals) in 3 districts and 16 non-CSDS ones (14 health posts & 2 district hospitals) in 7 districts. Although the non-CSDS facilities were spread over 7 districts (14 facilities in 5 non-CSDS districts & 2 facilities in 2 CSDS districts) the analysis treated them as one "district" or group. The private shops included 16 HDS ones and 21 non-HDS ones spread over 8 districts. The study design was a cross-sectional survey done over a period of 5 months in early 1996. All CSDS facilities and functional HDS shops were selected. The non-CSDS facilities that were nearby HDS shops and the commercial non-HDS shops that were nearby either HDS shops or CSDS facilities were selected.

At each health facility or shop, the following data collection activities were done:

1. A consecutive sample o f up to 30 exiting patients or customers, who had been prescribed and dispensed or sold one or more drugs and who were 12 years of age or more, were interviewed;
2. Stock checks were done;
3. Consultation and dispensing episodes were observed for up to 30 customers; in 21 shops the number of customer-retailer episodes observed was less than 10.
4. Health facility staff and retailers were interviewed.

Nine interviewers were trained for 1 month and supervised by 3 team leaders who were BNMT staff. The authors supervised activities every 2 weeks in the field. Data was entered into Epi-Info which was used for simple analysis. WHO rational drug use and quality of care indicators were used (WHO 1992, WHO 1993). Since the customer flow in some shops was so low that less than 10 people could be observed and interviewed, analysis of all patient interview data was done at the level of the individual patient/customer and not at the level of the facility. The level at which the analysis was done for other data is indicated in the results section.

RESULTS

The results section is divided into 2 sections addressing:

1. quality of the service provided;
2. rational use of drugs.

Quality of the service provided

Table I compares the money patients paid with the value of drugs patients received in public health facilities and private shops. For the purposes of this study generic drugs of different brands were priced the same. It can be seen that in public facilities patients paid 17-30% of the value of drugs they received whereas in shops they paid 136-180% of the value of drugs they received. Thus, not surprisingly, value for money is much greater in public facilities than in private shops. In the case of non-CSDS public facilities the amount patients receive is likely to vary according to drug availability, which will vary according to when the annual drug indent arrives. This study took place 2-6 months post annual drug indent when there was limited drug availability. Patients are likely to receive more drugs just after the indent arrives and less drugs just before the indent arrives.

Table I: Costs vs fees paid per patient. (Interview Data)

Cost Details per patient (NRs)	*Public Sector HMG HPs/ Hosp*		*Private Sector Shops*	
	CSDS[1] *n=943*	*Non-CSDS n=449*	*HDS n=211*	*Non-HDS n=383*
Drug cost/ patient	17-27	13	11	15
No. items dispensed	1.4-2.1	1.2	1.3	1.3
Actual Fee paid	7-9	2	15	27

[1] The range covering 3 CSDS districts is given.

Some indicators of socio-economic status of the patients attending health facilities and shops are shown in table II. Compared to the general population, educational level and land ownership of all facility users was higher. However, people using shops and hospitals appeared to have greater educational level, literacy, land ownership and access to sanitation than those using health posts. Women used all facilities, particularly shops, less than men. Thus it appears that poor people's access to private shops is less than to public health facilities. This is likely to be associated with the greater amounts of money that must be paid in shops.

Table II: Socio-economic status
(Interview Data)

Patient Characteristics	*Public Sector HMG HPs & Hosps*		*Private Sector Shops*		*General Population HMG statistics*
	CSDS n=943	*Non-CSDS n=449*	*HDS n=211*	*Non-HDS n=383*	
% < 5 years	15-20	18	21	11	15
% Female	44	49	42	43	50
% Tribal	58	47	43	57	>46
Av. Family size	6.9	6.9	6.9	6.9	5.4
% Literacy	44 HP 56 Hos	43 HP 51 Hos	58	62	45
% < SLC	90 HP 82 Hos	93 HP 83 Hos	80	76	98
% < 1 hr. access	55	61	65	47	-
Landowners:					
% owning land	96	98	97	96	82
av. plot ropani	31	29	33	34	22
% in agriculture	84 HP 69 Hos	79 HP 73 Hos	71	75	91
% patients:	85	90	87	87	-
< 30 mins. to water	53 HP	49 HP	64	60	-
using a latrine	66 Hos	62 Hos			

Drug availability was measured by doing stock checks during supervisory visits done on average 3 times per year. A stock check in non-CSDS facilities could only be done once approximately 2-6 months post indent. A stock check could not be done in non-HDS shops so stock availability was estimated as a minimum level of availability according to what drugs were sold in 9 commercial shops where the number of customers interviewed was more than 10. This resulted in the commercial shops in the larger bazaars only being included since the 12 other smaller shops in villages had insufficient patient flow. Table III shows that drug availability was much better in CSDS facilities as compared to non-CSDS facilities and shops. Judging the availability in commercial shops is difficult since the data is not strictly comparable. Nevertheless the availability of cotrimoxazole in the commercial (non-HDS) shops of larger bazaars was at least as good as in CSDS facilities. It is very likely that the larger shops in bazaars would have better drug availability than the smaller shops in villages due reasons of access, investment and customer load. 14 out of the 16 HDS shops were in the villages and so were equivalent in terms of patient flow to the 12 smaller commercial shops.

Table III: Drug availability.
(Observation & Interview Data)

Drugs observed to be out of stock, on average, during any one visit	*Public Sector HMG HPs & Hosps*		*Private Sector Shops*	
	CSDS n=33	*Non-CSDS[2] n=16*	*HDS n=16*	*Non-HDS[3] n=9*
No. therapeutic groups[1]	1.3	3.2	4.3	<5.4
Cotrimoxazole tablets or syrup	0.1	0.3	0.4	<0.1
PPF Injection	0.1	0.2	0.6	<0.7
No. therapeutic groups absent during last 3 months according to health staff/retailer	4.4 N=63	10.3 N=23	6.1 N=19	2.7 N=38

1 Drugs were divided into 13 therapeutic groups as follows:
antibiotics, procaine benzyl penicillin (PPF) injection, cotrimoxazole, eye ointment/drops, benzyl benzoate, whitfield ointment, oral rehydration salt, intravenous fluids, analgesics, antihelminthics, metronidazole, iron/folic acid & antacid.

2 A stock check could only be done once for non-CSDS facilities approx. 2-6 months post-indent.

3 A stock check could not be done for non-HDS facilities so an estimate was done based on what was sold from those shops where more than 10 customers were interviewed. Therefore the figures for commercial shops are not absolute values but represent the maximum values below which the true values must lie. Further these figures are only representative of the commercial shops in the larger bazaars and not of those in the villages.

N Number of health workers/retailers interviewed.

n Number of health facilities/shops.

Health worker and retailer views about stock-outs in the past 3 months appeared to correlate with actual stock-outs assessed from observation. Thus CSDS health workers mentioned fewer items being out of stock as compared to non-CSDS health workers and HDS retailers and stock check confirmed fewer items being absent in CSDS facilities as compared to non-CSDS facilities and HDS shops. The low number of items mentioned as being out of stock would suggest that larger commercial shops had drug availability comparable with CSDS facilities and much better than non-CSDS facilities and smaller shops.

Quality of Care and Rational Drug Use

Table IV summarises the quality of care and the rational use of drugs at the health

facilities and shops. Patient contact-time was about twice as long in public health facilities as compared with shops. The dispensing process in terms of errors and the very few written instructions given was similar in all public facilities and shops. Labelling dispensed drugs was not seen anywhere. 37-48% of shop users knew the name of the drug they wanted to buy as opposed to less than 20% of health post users. Despite knowing the drug they wanted 23-25% of patients/customers did not know how to take their drugs immediately on exiting the shop. The % of patients with correct knowledge was marginally poorer in CSDS facilities where more drugs were prescribed but was similar in non-CSDS facilities and shops where fewer drugs were dispensed/sold.

When looking at the number of drug items dispensed/sold to patients it is pertinent to consider drug availability as well as whether the facility is private or public. Thus in CSDS public facilities where drug availability was good more drugs were dispensed and a greater proportion of prescribed drugs were dispensed in comparison with non-CSDS facilities where drug availability was poorer. In shops the number of items sold was less than in CSDS facilities although similar to that in non-CSDS public facilities. These differences are likely to be due to a number of reasons. Firstly, most of the patients in shops were self-medicators and may have had less serious problems needing fewer drugs as compared to those patients attending health posts. Secondly, of those shop customers who did have prescriptions, 30-40% of the prescribed drugs were not sold. This may have been due to poor drug availability particularly in HDS shops but it is also very likely to be due to the expense. Lack of cash was mentioned by all retailers as the major reason for customers not buying all the drugs prescribed. Thirdly, where drug availability was poor, as in non-CSDS facilities, only 54% of prescribed items were dispensed as compared to CSDS facilities where drug availability was good and 83% of drug items were dispensed. Antibiotic and injection usage followed a similar trend to the number of items per patient dispensed/sold. Of those people dispensed/sold antibiotics, the majority in shops and non-CSDS public facilities did not receive a full course. As afore-mentioned, cash was the likely reason in shops and poor drug availability the likely reason in non-CSDS facilities.

Table IV: Rational drug use and quality of care.
(Observation & Interviewing)

WHO Indicator	*HMG HPs & Hosps*		*Shops*	
	CSDS	*Non-CSDS*	*HDS*	*Non-HDS*
Patient Contact Time (mins) (Consultation+Dispensing)[1&3]	7.9[1]	6.2[1]	3.4[3]	3.8[3]
Dispensing process:				
* % episodes with:				
- written instructions[1&5]	13%[1]	0%[1]	11%[5]	7%[5]
- dispensing errors[2]	8%	13%	15%	21%
- a prescription[3]	100%	100%	22%	12%
* % prescribed items dispensed[2]	83%	54%	60%	71%
Patient Behaviour:				
* % patients not knowing dosing schedule[3]	35%	28%	25%	23%
* % patients wanting a specific named drug	19%	16%	48%	37%

Prescribing:				
* Average no. items per patient dispensed/sold [3]	1.7	1.2	1.3	1.3
* % patients dispensed/sold antibiotics [3]	46%	31%	28%	23%
* % patients prescribed/sold injections [3]	9.2%	6.0%	4.7%	4.7%
* for those patients prescribed/sold antibio tics, % not given a full course [4]	33%	70%	79%	85%

1 Analysis done at the level of the health facility or shop. Sample sizes were 33 for CSDS, 16 for non-CSDS, 16 for HDS and 21 for non-HDS.

2 Analysis done at the level of each drug that was dispensed according to a prescription. Sample sizes were 1453 for CSDS, 504 for non-CSDS, 67 for HDS and 95 for non-HDS. The sample sizes in the shops are smaller since most drugs were sold without prescription.

3 Analysis done at the level of the individual patient. Sample sizes were 943 for CSDS, 449 for non-CSDS, 211 for HDS and 383 for non-HDS.

4 Analysis was done at the level of the patient receiving cotrimoxazole or tetracycline antibiotics only. Sample sizes were for 249 for CSDS, for 43 for non-CSDS, 24 for HDS and 33 for non-HDS.

5 Analysis was done at the level of the individual patient excluding those for whom it was not known whether written instructions had been given or not. Sample sizes were 211 for HDS and 374 for non-HDS.

Table V:
(Interview Data)

Health Worker & Retailer Characteristics	*Public Sector HMG HPs & Hosps*		*Private Sector Shops*	
	CSDS n=78	*Non-CSDS n=35*	*HDS n=19*	*Non-HDS n=41*
Qualification [1]				
HA/SAHW	9%	15%	0%	0%
CMA/ANM/IN	53%	58%	5%	7%
VHW/MCHW/FCHV	12%	15%	0%	10%
DDA	1%	0%	32%	12%
Other	3%	3%	16%	12%
None	22%	9%	47%	59%
Access to Books				
Any Book	54%	51%	63%	17%
SDTS/DDA Handbook [2]	13% [3]	7%	42%	17%
Refresher Training in the last one year	55%	63%	11%	5%

1 Excludes one health worker and one retailer whose qualifications were not known.

AHW = Auxiliary Health Worker; ANM = Auxiliary Nurse Midwife; VHW = Village Health Worker; MCHW = Maternal Child Health Worker; DDA = Dept. Drug Administration's Orientation Course for Retailers.

2 SDTS = Standard Drug Treatment Schedule for Health Posts (DDA 1993)

DDA Handbook = Handbook for Drug Retailers 1992 (DDA 1992) or Guide Book for Drug Retailers & Wholesalers 1994 (DDA 1994).

3 Excludes 7 health workers in CSDS & 22 health workers in non-CSDS facilities who did not know whether the Standard Drug Treatment Schedule was in the health post or not.

Relevant educational characteristics of public sector health workers and private drug retailers is shown in table V. The majority of prescribers in public facilities were CMAs who

had received a 1-year training in health. However in shops the majority of people had no relevant training. Similarly in the public sector about half the people had received some form of health training in the last 1 year as opposed to 5-11% in the private sector. Access to any technical book was much higher in public facilities than in non-HDS shops. The figures in HDS shops are not directly comparable here since BNMT had distributed books to all these shops.

CONCLUSION

Comparison of the services offered by public facilities and private shops is difficult since the case-mix patterns are likely to be different and it was not possible in this study to compare this. However, certain comparisons are relevant despite this particularly in a climate of greater emphasis on the private sector. Further, with only a minority of the population using public facilities and the majority of drug transactions taking place in the private sector, a comparison of the two major sources of allopathic primary health care in rural areas is relevant.

Value for money in terms of drugs received for money spent and length of time spent with a health worker or retailer was significantly greater in public facilities than in shops. Further, the personnel in public facilities were considerably more qualified than those in shops even taking into account the possible different types of patients they had to deal with. Thus the majority of retailers had no health qualification at all and this must affect their capacity to advise customers adequately concerning even the simplest over-the-counter drugs. About half the public health workers had received a refresher training in some health field within the last 1 year as compared to 5% of commercial retailers. Similarly, many health workers in the public sector but very few commercial retailers, had access to reference books. Despite the better qualifications of health workers as compared to retailers their dispensing practices were very poor. This in turn is partly reflected by the large numbers of people not knowing how to take their medicines immediately on exiting from the public health facility or shop. If 23-35% of people do not know how to take their drugs immediately on exiting the facility, how many more do not know after 1 hour or 1 day ? At the very best at least one-third of people are non-compliant due to lack of knowledge concerning dosing schedules. This is not only a waste of drug resources and patient money it may also be harmful to the patient in terms of untreated illness, unnecessary side-effects and antibiotic resistance.

Access in public facilities was better than in shops, the socio-economic status of customers attending shops being higher than those attending public facilities. Thus people attending shops were more educated, had more land and better access to drinking water and sanitation than those attending health posts. It is likely that the higher charges in shops deter poorer people. The majority of people attending shops did not have a prescription and this would also suggest that the shops were catering to a different clientele than the health posts. One of the differences between health post and shop users may be the presenting problem. However, other differences include the ability to pay, educational level and the fact that many more shop customers than health post users knew what drug they wanted.

Drug availability had a major effect on the quality of care and the rational use of drugs. The larger commercial shops and all CSDS facilities appeared to have reasonable drug availability. However, despite drug availability in commercial (non-HDS) shops there was irrational use of drugs in terms of antibiotics not being sold in full course and many prescribed items not being dispensed. In non-CSDS facilities where drug availability was poor there was a similar misuse of antibiotics and prescribed items not being dispensed. The giving of antibiotics in insufficient dosage is very serious and likely to lead to antibiotic resistance. When some prescribed items are not dispensed it is not certain that the most important item is dispensed. Indeed it maybe the cheapest least important item only that is dispensed. Thus public facilities offered better care than shops in terms of the rational use of drugs if drug availability was maintained. If drug availability was not maintained the irrational use of drugs was similar in private and public facilities. When planning

strategies to improve the rational use of drugs in communities it could be argued that maintaining drug availability in a limited number of public facilities maybe easier to do than changing retailer-patient behaviour in many thousands of private retail shops.

In summary, quality of care was low in both the private and public sectors. However, provided drug availability was maintained the public sector offered better quality primary health care and greater access than the private sector in rural remote areas where there is no allopathic alternative to health posts/district hospital or private shops. Lack of drugs in many public (non-CSDS) facilities undermined the quality of care. The misuse of antibiotics, the poor dispensing process and the large numbers of people not knowing how to take their drugs properly are of serious concern. There is an urgent need to find strategies to address these problems in both sectors.

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