



Community-based revolving drug funds - The way forward ?

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ABSTRACT

Lack of drugs due to insufficient government (HMGN) funds undermines primary health care in Nepal. In order to address this problem, a number of organizations have been operating local revolving drug funds. HMGN now plans a national drug re-supply system, the Community Drug Programme (CDP), based upon community-controlled revolving drug funds. This paper looks at the experience of the various drug schemes operating in Nepal with a view to finding "lessons learnt" that can be used in the planning process for the CDP. The paper incorporates a comparative study of the various drug schemes based upon data collected at health facilities and any involved organizations. Prescribing, quality of care, access, financial data, community involvement and sustainability were looked at and discussed. It was found that there was a trade-off between sustainability and quality of care. An example of a revolving drug fund is then worked through in steps showing the various issues that must be addressed. This example shows that provided HMGN continues to supply an annual drug indent (worth the same amount) and if village development committees provide a small subsidy (within the amounts recommended for health by HMGN) then patients need only pay a nominal user fee, no more than 50% of the wholesale cost of the drugs. This is considerably less than that recommended by the CDP and is advantageous in terms of patient access. Recommendations include that (1) item user fees, not more than 50% of the cost of the drugs, are charged, (2) the cost of drugs is shared between central government (HMGN), local communities (village development committees) and individual patients, and (3) the establishment of district drug stores under the control of district health office and the district development committee be established.

Keywords: Community Drug Programme; Drug Schemes; Cost; Nepal.

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INTRODUCTION

The problem of funding by government of primary health services in many developing countries became so acute that the Bamako Initiative, involving the charging of user fees, was launched in 1987 (UNICEF 1988). It was recognized that governments could not sustain adequate primary health care services using their own funds alone but must look for alternative funding sources. One alternative is the community. Since the Bamako Initiative was introduced many countries have charged user fees in order to raise funds for running services and improving the quality of care. In some cases, as in the Bamako Initiative, it was hoped to raise funds, not only to cover drug re-supply, but also to invest in other areas of health care (UNICEF 1988). In other cases only cost recovery for the service provided (eg. drugs) was attempted.

The charging of user fees did not raise the funds it was hoped for, being very low in many cases (Foster & Drager 1988, Cross *et al* 1986). In sub-Saharan Africa, rarely did user fees contribute more than 5% of ministry of health (MOH) running costs (Creese 1990). Reasons for low revenue collection included the large costs involved in collecting the fees and the mismanagement of funds (Cross *et al* 1986). Where collected monies were sent to central government they were not used locally to improve services and where they were kept locally often there was insufficient local capacity (in terms of manpower & skills) to manage the revolving funds (Foster & Drager 1988).

The effect of user fees on the quality of care (regardless of what monies are collected) is also uncertain. For example, in some

cases utilization increased when drug availability improved (Litvack & Bodart 1993, Fryatt *et al* 1995) and, in other cases it decreased (Waddington & Enyimayew 1989 & 1990, Cumbi 1989). Reasons for decreased utilization include both an inability to pay the fees (McPake 1993) and an unwillingness to pay for poor quality of care. Villagers in Nepal have cited lack of drugs, poor quality of care and distance as reasons for not using the government-run health posts (Chalker *et al* 1990). Often user fees have not been associated with improved services. For example, monies raised through user fees have often not been used to purchase drugs, drug availability remaining poor (HMG/WHO 1995).

Just as important as the raising of more funds, is the efficiency with which presently available resources are used. Irrational use of drugs is one area of inefficiency. It maybe by provider (Laing 1990, Hogerzeil *et al* 1993, Gilson *et al* 1993) or consumer (Greenhalgh 1987). Irrational drug use in Nepal (Holloway & Gautam 1997, Kafle *et al* 1996) contributes to the poor quality services and wastes the drugs which are in such short supply. The cost of irrational prescribing maybe very high. In one study in Nepal, up to 50% of the cost of the drugs was wasted through irrational prescribing (Holloway & Gautam 1998a).

User fees, themselves, may have an effect on the efficiency with which available resources are used as in, for example, prescribing. Many countries charge a single fee per prescription or patient visit for ease of administration. However, this kind of charging system has been shown to be associated with irrational over-prescription

possibly due to consumer demand (Fryatt *et al* 1995, Holloway & Gautam 1997). Fees per drug item (covering a full course of each drug) have been shown to be easy to administer and to be associated with less over-prescription & cost savings of up to 20% (Holloway & Gautam 1998a).

The Community Drug Programme

Nepal has long suffered from a lack of essential drugs, manpower and other facilities all of these contributing to poor quality of care and low utilization (Tamang & Dixit 1992). The World Bank recommends governments to spend a minimum of US\$12 per capita on primary health care (World Bank 1993), but per capita expenditure on health in Nepal (including foreign donation) in 1995 was only about US\$2 (MOH 1995). Until the present, the government of Nepal (HMGN) has supplied essential drugs to health posts and hospitals once per year. These drugs, for which no charge to the patients is made, often run out after 3-5 months (MOH & MLD 1995) and there are insufficient government funds to address this problem. Therefore, there is a need to find alternative funding sources & one option is community financing. HMGN is now planning to introduce user fees in a nationwide revolving drug scheme programme, the Community Drug Programme (CDP), with the aims of: (1) providing year-round drug availability, and (2) promoting the rational use of drugs (MOH & MLD 1995). It is intended that local communities will operate their own revolving drug funds and re-supply and will charge patients for drugs at 15% below local retail price ie. at 1% above wholesale price (excluding drug transport costs).

Piloting of the CDP started in 3 districts during 1997-98 with the help of UNICEF. To date there have been a number of problems in implementation such as lack of suitable manpower, both in the MOH and in local communities and much debate over various aspects of the CDP eg. the fee level. Thus the way forward is not certain. There are a number of schemes in Nepal that have been charging user fees and operating their own revolving drug funds to supplement the annual government indent of drugs in public health facilities. These schemes have been running in different ways and are described in detail elsewhere (Cross *et al* 1996, Kafle 1992). Although these schemes are quite diverse, their experience is of great relevance to the planning and implementation of HMGN's CDP. The purpose of this paper is to draw on the experiences of the various drug schemes and apply general lessons learnt in the context of the proposed CDP thereby stimulating discussion.

The Britain Nepal Medical Trust (BNMT) is an INGO that has been running various kinds of drug scheme in the Eastern region since 1980. The authors worked for many years running the drug schemes of BNMT. During 1996-97, BNMT undertook an extensive evaluation of its drugs schemes with the objective of finding a suitable future direction. As part of this evaluation, the authors visited a number of other drug schemes during 1996-97 with the express purpose of learning first hand about other schemes and their problems, making comparisons between the different schemes and using the lessons learnt in the modification of the BNMT drug schemes. It is the findings resulting from the BNMT

evaluation (published elsewhere but referred to here) and the visits to other drug schemes, together with the authors' own experiences, that form the basis of this article. The list of issues discussed is not exhaustive. Rather only those issues felt to be of relevance to the immediate future planning of the CDP are included.

METHODS

The methods used for the internal evaluation within BNMT's drug schemes have been described in detail elsewhere (Holloway 1998, Holloway & Gautam 1998a and b, 1999) and will not be described here again. The visits to the other drug schemes all bar one occurred during September 1996 and one (the INF scheme) in September 1997. An attempt was made to assess the different schemes according to the same criteria as used in the BNMT drug scheme evaluation. Each visit involved:

1. a visit to the organization running the drug scheme and discussion with staff operating the scheme;
2. a visit to at least one health post (HP) where the drug scheme was operating and (a) reviewing available HP records concerning patient attendance, drug procurement and money collection; (b) having discussions with staff of HMGN and the supporting organization if any; (c) directly observing drug availability and quality of care;
3. review of reports or other documentation concerning the individual schemes.

Unlike the data from the BNMT internal evaluation, the data collected on these visits was necessarily much less complete, being collected over a period of one day as opposed

to months, and relying on records that were not set up in advance for such a purpose. However, as previously explained, the purpose of collecting such data was to gain a broad understanding of the underlying advantages and disadvantages of the various types of schemes. In such a way it was hoped to identify relevant and practical options for a future CDP. It is not the purpose of this paper, nor is it possible with incomplete data, to discuss the merits and demerits of different individual schemes. Therefore the different schemes are, where possible, not discussed individually but according to type (as shown below) and any data presented is done so to illustrate a point of discussion not to make a judgement.

The following characteristics were looked at:

1. Financial information including drug cost recovery, drug cost per prescription and average (cash) cost to the patient, extracted from HP records of the previous one year.
2. Drug availability in terms of the number of therapeutic groups (out of a possible 13 groups) absent from the facility store & dispensary.
3. Access in terms of facility utilisation & per capita attendance.
4. Environment in terms of manpower & remoteness of the facility.
5. Quality of care in terms of consultation and dispensing processes observed for one day per facility. Lack of physical examination, dispensing errors or the potential for errors such as unlabelled drugs in the dispensary were regarded as poor quality of care.

6. Prescribing habits using WHO indicators (WHO 1993) and based upon 30 patient episodes recorded in the patient register on the day prior to the visit.
7. Monitoring & supervision.

Drug Schemes of Nepal

The following drug schemes were visited.

1. *UMN Insurance Scheme in Lalitpur district*
HMGN supplied a reduced annual drug indent and people paid an annual premium (used to pay for supplementary drugs) and a nominal registration fee of NRs. 1-3/- (not necessarily used to pay for supplementary drugs) at each visit to the HP. There was some subsidy towards the cost of supplementary drugs by the outside donor, United Mission to Nepal (UMN).
2. *Cost-Sharing Schemes*
HMGN supplied an annual drug indent and patients paid nominal user fees (NRs. 1-10/- per patient on average) at each visit to the public health facility. Also according to different schemes:
 - a. an outside donor subsidised the cost of supplementary drugs eg., Save the Children Fund, SCF (UK), Baglung, and BNMT in Bhojpur, Khotang, Panchthar & Taplejung districts;
 - b. the interest from seed money was used to subsidise the purchase of supplementary drugs eg., WHO/HMGN drug scheme, International Nepal Fellowship (INF) Burtibang community development project.
3. *Cost "Bearing" Schemes*

Table I: Drug Scheme Characteristics

Patients paid "higher" user fees which were set so as to cover the full cost of all supplementary drugs (and sometimes a great deal more) used in public health facilities. Schemes could have:

- a. the usual annual HMGN drug indent eg, Japanese Agency for International co-operation (JICA) primary health care project in Bhaktapur district and Sishuwa HP in Kaski district;
- b. no annual HMGN drug indent eg, UNICEF scheme in Nuwacot district - which had stopped functioning at the time of the visit.

4. *Health facilities with no drug scheme*

HMGN supplied an annual drug indent and patients paid either nothing or a nominal registration fee (NRs. 1-3/- per patient) at each visit to the facility, the money collected not usually being spent on drugs eg. most HPs in Nepal.

5. *Private Shop Schemes*

Patients bought drugs from private shops at the full cost, with a profit level for the retailer, and without either subsidy from HMG (in the form of an annual drug indent) or subsidy for drugs from donors. The profits varied according to the type of shop, being lower in the Hill Drug Scheme operated by BNMT and higher in commercial shops.

RESULTS

Table I shows a summary of the characteristics of the different drug schemes.

Characteristics	Insurance Scheme (UMN)	Cost Sharing Schemes		Cost Bearing Schemes (Sishuwa, JICA) ²	Public facilities with no scheme	Private Shops
		No seed money (BNMT & SCF)	Seed money (WHO & INF)			
Remoteness ¹	Yes	Yes	Some	No	Yes	Some
User fees	NRs. 50-100 annual family premium	Flat prescription fee or fee per drug item (full course)	Flat prescription fee for drugs	Fee per smallest drug unit @ 20% below to 15% above retail price	No fee for drugs	Fee per smallest drug unit @ retail price +/- profit
Drug Availability * Number of therapeutic groups (out of 13) absent ³	<1.0	1.3 -BNMT >3.0 -SCF	>3.0	<1.0	>3.0	>3.0
* Non-essential drugs	No	No - BNMT Few- SCF	No - INF Few - Kaski	Yes	No	Yes
Quality of care consultation and dispensing processes	good	poor	poor	poor	poor	poor
Prescribing: Av. no. items/prescription	1.7	1.8-2.5	1.3-2.5	1.7-1.8	1.2	1.3
% prescriptions-antibiotics	37	48-68	45-65	50	31	23
% prescriptions-injections	5	15	21-30	2-30	6.0	4.7
Access (per capita attendance)	0.3-0.6	0.2-0.3	0.2-0.4	0.2-0.4	0.2	-
Financial Aspects						
*Av. cost to the patient (NRs)	10-20 (if 5 visits/family)	7	2-3	20-30	0-3	15-27
*Av. drug cost/patient (NRs)	12-14	14-30	12-21	13-25	13	11-15
*% drug cost recovery	50%	25-30%	17-58%	96-117%	0%	136-180%
Manpower						
*staffing	Full HMG+UMN	Incomplete HMG	Incomplete HMG	Full HMG	Incomplete HMG	Private retailers
*supervision	Clinical & managerial	Managerial	Little or none	None	None	None
Management System						
*HP records	good	good	poor	poor	poor	poor
*patient record of fee paid	No	Yes	No	Yes	No	Sometimes
*district drug re-supply	Yes	Yes	No	No	No	-
Sustainability	No	No	No	Yes but poor quality of care, questionable access & replicable in non-remote areas only	-	-
Community involvement	fair but facilitated	limited	limited	limited	none	none

¹ This is dependent on the facilities visited by the authors & was defined as the HPs being more than 1 hour's walk from a road.

- ² The UNICEF scheme in Nuwacot had stopped functioning and so is not included here. Drug availability in Nuwacot was poor as no drugs had been purchased, utilisation was only 2-4 patients per day and few were no longer being charged.
- ³ Drugs were divided into 13 therapeutic groups as follows: antibiotics, procain benzyl penicillin (PPF) injection, cotrimoxazole, eye ointment/drops, benzyl benzoate, whitfield ointment, oral rehydration salt, intravenous fluids, analgesics, anti-helminthics, metronidazole, iron/folic acid & antacid.

Drug Availability

Most schemes had no formal monitoring system to assess drug availability merely relying on the anecdotal evidence of supervisors. This made it impossible to assess long-term drug availability in many schemes either from reports or asking project staff. Table I shows that fewer therapeutic groups were absent in schemes where there was much donor supervision (UMN & BNMT) or in the less remote cost-bearing schemes (in Bhaktapur & Kaski districts). In remote HPs without outside supervision of procurement, drug availability was poor, more than 3 therapeutic groups being missing. These findings are similar to those found previously (Cross *et al* 1996, HMG/WHO 1995). In the less remote cost-bearing schemes, where there was little supervision of local procurement, many non-essential drugs were also available. Health workers and local committee members were reluctant to limit their purchases to essential drugs only, a finding similar to that found in BNMT (BNMT 1998).

Good drug availability appeared to depend on a number of factors:

1. An outside donor agency employed its own staff at the HP to purchase and use the drugs eg., UMN Insurance Scheme. Alternatively, an outside agency facilitated, monitored and supervised drug

purchase and use eg., BNMT cost-sharing schemes. In both these cases, the organizations ran central stores from which HPs could receive drugs. This is not replicable under HMGN.

2. The HP was situated near to wholesalers and had a full complement of motivated local staff as in Sishuwa and Bhaktapur. This is not the case for most HPs in Nepal.
3. The HP support committee gave the HP In-charge the freedom to use the cash from user fees to purchase drugs without first asking the committee's permission, as in Sishuwa. This arrangement required trust between the parties and is probably only possible if the HP In-charge is local.

Quality of Care

Only UMN and BNMT were regularly monitoring the quality of care and prescribing habits. In the case of UMN, quality of care was maintained at a high level through employment of their own staff at the HP. Rational prescribing resulted in fewer items, antibiotics and injections being prescribed and lower average prescription costs (NRs. 12-14/-) in UMN as compared to the other drug schemes (NRs. 14-30/-) where drug availability was good. As expected, fewer drug items were prescribed and prescription costs were lower where drug availability was poor, as seen in HPs without a drug scheme

and in the remoter "seed money" drug scheme HPs with little outside supervision. Where charging per unit (tablet) was done, 25% of patients were observed not to buy the amount prescribed. Most schemes concentrated on money collection and drug purchase at the expense of quality of care. Where there had been an attempt to promote rational drug use by training health workers and HP support committees, as in SCF (UK), the effort had not been sustained and so improvements were lost after withdrawal of donor support (SCF (UK) 1996).

Apart from the insurance scheme where UMN, not HMGN staff, were providing care, quality of care during the consultation and dispensing processes was poor. Physical examination was inadequate, sometimes there being no examination couch. There was no labelling of dispensed medicines and often patients were given insufficient instruction. In some cases medicines were stored in the dispensary in unlabelled or wrongly labelled containers.

Access

HP utilization is known to be low throughout Nepal and was low in all drug schemes visited. Outpatient visits as a % of population is 0.18 in Eastern Nepal (MOH 1995). Assuming that household coverage to some degree equates with utilization, the UMN Insurance Scheme appeared to have the highest per capita utilization rates of 0.28-0.60 (Harding 1993). This is likely to be associated with the better quality of care. Other schemes that had higher utilization rates than average included BNMT, where drug availability was better than average; INF, where there was an accompanying integrated

development programme (Payne 1994), and the schemes operating in less remote but more populated areas (Bhaktapur & Kaski districts). Although there is much evidence world-wide that where cost prices (as opposed to nominal fees) are charged, access of the poor is reduced (McPake 1993, Russell & Gilson 1995), none of the schemes charging higher prices (Sishuwa, JICA & Nuwacot), had adequately investigated this. The BNMT evaluation showed that access to HPs of the poor and disadvantaged was lower than other group but that this was not due to the nominal user fees but due to other reasons such as distance and poor quality of care (Holloway & Gautam 1998b). It was also shown that access to shops charging cost prices was much less as compared to HPs charging nominal fees (Holloway & Gautam 1999). Fee exemption systems were usually poorly monitored and misuse by richer less needy people and health workers has been reported both worldwide (Russell & Gilson 1995) and in Nepal (Holloway 1998).

Financial Aspects

In all the schemes visited, income came from charging the patients' user fees and in some cases from Bank interest. None of the VDCs was using any part of its NRs. 500,000/-, HMGN budget to subsidize the purchase of drugs. Where high user fees were charged, such as cost price per unit (tablet) as in Sishuwa and Bhaktapur, high drug cost recovery figures of over 100% were achieved but probably at the expense of equity. Further, good cost recovery did not always equate with good drug availability since many HP support committees were good at collecting funds but not at spending it

(HMG/WHO 1995). Where low nominal fees were charged, cost recovery was low, often less than 30%. In UMN, the good quality of care and rational use of drugs resulted in relatively high drug cost recovery of 50% despite the relatively low fees charged. Irrational prescribing in the presence of good drug availability and nominal flat prescription fees resulted in high prescribing costs eg, NRs. 30/- per prescription in one BNMT district. The item - fee BNMT districts had prescription costs similar to those in the other drug schemes (apart from UMN) shown in table I.

Manpower

Lack of HMG manpower undermined all the schemes' efficiency. Only in the WHO drug scheme were all the activities performed by HMG staff. In all the other schemes, excepting UMN and UNICEF, HMGN staff performed all the activities within the HP but outside agencies performed much of the District Health Officer's role of monitoring and supervision. Where there was no outside agency doing supervision, supervision was lacking with a consequent fall off in quality of care eg., irregular drug purchase in the cost sharing WHO/HMG scheme and stocking of non-essential drugs in the cost-bearing schemes. Where HMG staff did do all the drug scheme activities, as in Sishuwa, the scheme was heavily reliant on there being a full complement of HP staff who were local and therefore much more accountable to the HP support committee. A full complement of local HP staff is a rare occurrence in remote areas and therefore, it is unlikely that this situation could be replicated elsewhere. All the HP staff complained of the extra work involved in running drug schemes.

Management System

In order to operate revolving funds successfully, an efficient management system with attendant recording and information system is needed. Within HMGN, supervisory capacity (with attendant information systems) for other aspects of health services was developed during the period of the vertical programmes (eg., TB control, EPI, family planning). Unfortunately, this was not the case for drug re-supply and use, as is indicated by the absence of information concerning drug purchase, money collection and prescribing from the health management and logistic management information systems (HMIS & LMIS).

In BNMT, the use of drugs and money was monitored through carbon copy prescriptions, a dispensing register and a prescription account form. Thus drugs could be "followed" from the store through the dispensary and to the patient and a check could be made that the correct amounts of fees had collected. Misuse of collected money and drugs is not uncommon (Holloway 1998, SCF (UK) 1996). In most of schemes, there was no recording system to monitor how drugs and money were used and it would have been impossible to detect certain types of misuse. Where the recording system was sufficient for monitoring to occur, it appeared that such monitoring was often not done. Apart from BNMT, only UMN operated a dispensing register, all the other schemes assuming that once drugs had left the store they were dispensed to the patients. This may not be so and BNMT has found, for example, such drugs being sold to shops

(Holloway 1998). For all systems charging fees that vary, a system is needed to check that the correct amount is charged. BNMT used carbon copy prescriptions, where the fees charged were also recorded, to monitor this. Where patients were charged per unit (tablet), as in Sishuwa HP and in the JICA scheme, bill receipts (with carbon copies) were issued. Both these systems allowed not only prices charged to be checked but also whether what the health workers say they dispensed was the same as what the patients received.

Only the UMN and BNMT schemes addressed the logistical problem of district drug re-supply in remote areas. Even if HP staff and local communities were extremely efficient at drug purchase (which they are not), it is difficult to see how drug purchase from wholesalers, many days travel away, could be managed. This is particularly so if the purchases are relatively small as would be the case for many HPs. There was no functioning HMGN-run district drug purchasing system in operation in any of the areas visited, (despite a budget in some districts).

Sustainability

None of the schemes visited offered a good service as well as sustainability and replicability. The more sustainable a scheme was, the less good the service was or there was a trade off in terms of replicability. For example, the cost-bearing drug schemes (Sishuwa & JICA) had high sustainability in terms of manpower, drug (HMGN+supplementary) cost recovery and drug availability, but there was a trade-off in terms of irrational drug use and the system was not replicable in most HPs in Nepal.

Sustainability appeared to depend upon:

1. sufficient manpower
2. sufficient income from fees and other sources
3. rational use of drugs
4. efficient management system

The inability of HMGN to monitor and supervise drug schemes led many organizations to express the view that the way forward in running sustainable drug schemes is to hand over responsibility to the community. Indeed HMGN's own CDP plans to do just this. However, the role of the community and the HP support committees in all the schemes visited was limited. All of them were involved in setting fees and procuring drugs. Nevertheless, without facilitation, many of them did not purchase drugs with the money they had collected. None of them were involved in any proper supervision of the HP or indeed understood the activities involved in managing the drug schemes. Concerning audit not organized by outside agencies, only Sishuwa HP support committee had organized an audit and this only once in 5 years. Although many schemes tried to involve local communities (mostly through the VDCs & in BNMT's case the DDC also), none of the schemes was integrated into the established political structure of the local communities ie., the Village Development Committees (VDCs) and the District Development Committees (DDCs).

LESSONS LEARNT FOR A FUTURE CDP

The review of the drug schemes serves to show the complexity of problems involved. No single scheme is both sustainable and providing improved quality of care. Many of the problems, such as lack of HMGN manpower and resources and lack of capacity

at community level are irremediable in the short-term. So what lessons can be learnt that are of practical national relevance in the short-term ? The problem is approached by asking the question:

"How can we set up a national drug scheme to encourage improved:

1. drug availability;
2. quality of care including drug use;
3. patient access and HP utilization;

that is sustainable and feasible within the near future and the constraints existing in Nepal ?"

The 3 areas are inextricably linked. Improved drug use will lead to improved drug availability and HP utilization. In order to improve drug use and availability, there must be a reliable nearby source of drugs and a locally feasible system of procurement and distribution. The problem is approached by discussing the possibility of cost sharing for drug supply between central government HMGN (the annual drug indent), local government (Village Development Committees, VDCs) and patients. Thus, supplementary drug purchase would be funded by (a) VDC donation, and (b) appropriate patient user fees.

All the drug schemes with good drug availability benefited from some degree of subsidy for the purchase of supplementary drugs. Decentralization has been HMGN policy for some time and HMGN's CDP incorporates this concept. In support of decentralization, HMGN Ministry of Local Development (MLD) has been issuing all Village Development Committees with NRs. 500,000/- per year for local development initiatives. The MOH has issued recommendations that 5% of the budget

(NRs. 25,000/-) be spent on the local HP (MOH 1994) and the MLD recommends that at least NRs. 6000/- be spent on health (MLD 1994). On what aspects of health will this money be spent ? Might not supplementary drug purchase be one suitable area ?

HMGN's CDP proposes to charge patients 15% below local retail price for drugs so requiring little further subsidy. However, will patients be willing to pay so much - little less or possibly more than shops for some products - when the quality of care remains low ? Evidence suggests that utilization will drop off with this level of fee. If HP utilization falls, not only will the objective of improved access and utilization not be met, there will also be difficulty in running the revolving funds. If patients do not come, drugs will not be sold and the revolving funds may not revolve. Communities may not be willing to participate in the running of revolving funds where drugs may expire and their investment lost. Therefore let us work through some examples to see whether it is really necessary to charge patients 15% below local retail price and what degrees of VDC subsidy would really be needed assuming HMGN continued the annual drug indent.

Revolving Drug Fund Examples

All the calculations done in these examples are based on real data from the health posts (HPs) and district hospitals operating with BNMT's Cost Sharing Drug Schemes.

Step 1: Calculation of the annual drug requirement

Annual drug requirement = Drug cost per patient X number of patients

According to BNMT data (Holloway 1998):

- * the average amount of drugs dispensed per patient
 - = NRs. 15 if very rational drug use } Outpatients (OPD)
 - = NRs. 30 if very irrational drug use } in HPs or
 - = NRs. 20-25 if average drug use } hospitals
 - = NRs. 75-165 (120/- average) } Inpatients (IPD)
- * the average annual patient attendance
 - = 2,000–5,000 (average 3,500) per HP per year
 - = 15,000 OPD } per district hospital per year
 - = 1,000 IPD } per district hospital per year

Therefore assuming average drug usage and patient attendance:

Annual HP drug need (OPD only) = $3500 \times 25 =$ NRs. 87,500/-

Annual Hospital drug need in OPD	15000×25	NRs.
=	=	375,000/-
in IPD =	1000×120	NRs.
	=	120,000/-
	=	NRs. 495,000/-

Step 2: Apportioning the annual drug requirement between sources.

These examples assume that HMGN will continue with the annual drug indent in the same amount. If it does not, then this source of money would have to be found elsewhere. The user fees are deliberately set slightly higher in the hospital than the HP in order to encourage patients not to by-pass the HP and because of the greater financial need of hospitals due to higher patient attendance and inpatient treatment.

HP example:

* HMGN Annual Drug Indent:	=	NRs. 50,000/-
* User fees @ 40% of cost price of drugs	$87,500 \times 0.4 =$	NRs. 35,000/-
* VDC subsidy = annual drug need – other sources =	$87,500 - 50,000 - 35,000$	= NRs. 2,500/-
Annual drug need	=	NRs. 87,500/-

Hospital example:

* HMGN Annual Drug Indent:	=	NRs. 180,000/-
* User fees @ 50% of cost price drugs =	$495,000 \times 0.5 =$	NRs. 247,500/-
* VDC subsidy = annual drug need – other sources =	$495,000 - 180,000 - 247,000 =$	NRs. 68,000/-
Annual drug need	=	NRs. 495,000/-

Step 3: Finding the funds at local VDC level.

In the above examples based on the average (Ilaka) HP and district hospital, a VDC would have to find only NRs. 2,500/- per year to subsidize the drugs in its local HP. Assuming that a district hospital serves all VDCs and that there are say 70 VDCs per district, then a further NRs. 1000/- per VDC per year given to the hospital would be sufficient to cover all unmet drug costs there. A total of NRs. 3,500/- per VDC per year is well within recommended MOH guidelines for use of the VDC budget from HMGN. Should local circumstances vary such that money from the VDC budget not be used then such a sum is well within local capacity to raise. Local VDCs have suggested the following fund raising activities (Holloway 1998):

1. charging a nominal fee per school child at admission time; $50\% \text{ of drug costs in hospitals} = 25 \times 0.5 = \text{NRs. } 12.5/-$
2. charging a nominal fee per landowner at land revenue collection time;
3. charging a small fee per passport application.

The VDCs have more fund-raising capacity than the district development committees (DDCs) even though VDC activity maybe nominally supervised by the DDCs. Therefore these examples suggest subsidy from the VDC although there is no reason why subsidy through the DDCs should not be managed.

Step 4: Setting the appropriate user fee.

The type of fee and the level of the fee need to be considered. Since the type and level of fee can affect prescribing habit, patient utilization and ultimately the amount of money collected and the viability of any revolving fund, it is appropriate to guide communities in the choice of fee. It is not appropriate to leave communities unadvised in their choice of fee since inappropriate choices based on lack of information could result in the failure of the revolving funds.

OPD example

Average drug cost per OPD patient (HPs & hospitals) = NRs. 25.0/-

Average amount to be charged per OPD patient to raise:

40% of drug costs in HPs = $25 \times 0.4 = \text{NRs. } 10.0/-$

These amounts can be raised by a number of different fee systems. A "flat" prescription fee would involve merely charging NRs. 10/- per prescription in HPs or NRs. 12-13/- per prescription in hospitals. However, it has been shown that a "flat" prescription fee is associated with over-prescription and large costs due to irrational drug use as compared to item fee systems (Holloway & Gautam 1997 & 1998a). Therefore a "flat" prescription fee is not recommended, although this has been the commonest type of fee charged in HPs in Nepal to date.

Fees per drug item **covering a full course of each item** are used by BNMT. Assuming that the average patient receives 2 drug items, then if the same fee were charged whatever the item (a 1-band item fee), each item would be charged at NRs. 5 (10/2) per drug item in HPs and NRs. 6-7 (12.5/2) per drug item in hospitals. Alternatively the item fees could be split into 2 bands, expensive items being charged at a higher rate than cheap items but each fee still covering a full course of each item (a 2-band item fee). Expensive items might include antibiotics and injections and cheap ones, aspirin and paracetamol. Assuming that the average patient receives one expensive and one cheap item, then expensive drug items could be priced at NRs. 7/- and cheap ones at NRs. 3/- in HPs. In hospitals expensive items could be charged at NRs. 9/- and cheap ones at NRs. 5/- in hospitals. One and two band item fees covering a full course of each item have been

shown to be easily implemented and supervised (Holloway 1998).

Fees per unit (eg., tablet) of drug item are used by Sishuwa and the JICA drug schemes and HMGN's CDP. Disadvantages of this kind of fee system include the extra calculation (which can be time consuming) to be done by health workers, the increased difficulty of checking whether correct fees have been charged and the likelihood of incomplete courses of drug items

being dispensed due to a reluctance of patients to pay the full fees. Nevertheless fees for individual drugs could be calculated annually in advance and posted on a "price-list" to be used in the health facility. In order to try to reduce incomplete courses of drugs being dispensed calculation need only be shown for the number of units that are consistent with rational drug use. An example is shown below, all the numbers being in NRs.

Table II: Price List @ 40% Drug Cost Prices¹

DRUG NAME	UNIT RATE (NRs)	NUMBER OF UNITS eg., tablets, capsules, injections.								
		2	3	4	5	6	10	15	20	30
Cotrimoxazole 480 mg tab	0.5				2.5		5.0		10	
Tetracycline 250 mg cap	0.5								10	
PPF 4 Lakh injection	4.0				20		40			
Paracetamol 500 mg tab	0.2				1.0		2.0	3.0	4.0	6.0
Dimagel tablet	0.11				0.5		1.0		2.5	
Mebendazole tab 100 mg	0.5					3.0				
Metronidazole tab 200 mg	0.25							3.75		7.5
Scaben lotion 10 ml	0.5	1.0	1.5	2.0						
ORS 1 Packet	1.25	2.5	3.75	5.0						
Normal saline 1 bottle	10.0	20	30							

¹ Prices according to HMGN drug indent rates in 1997.

IPD example

Average drug cost per IPD hospital patient = NRs. 120/-

One fee system would be to charge half the total drug bill at the end of the stay. However, many hospitals prefer to charge a fee per day which reduces the chances of patients absconding before payment. A fee

per day to raise the required amount could be calculated as follows:

Average length of stay of IPD patient (Holloway 1998a) = 5 days
 Average drug cost per IPD patient per day = 120/5 = NRs. 24/-
 Average amount to be charged per IPD patient to raise 50% of IPD drug costs = 24X0.5 = NRs. 12/day

Step 5: Varying the Assumptions

The revolving funds described above rely on several assumptions such as the annual health facility utilization and drug costs per patient. Varying these will alter the degree of subsidy needed by VDCs. Since the HMGN annual drug indent is the same for each health facility of the same level, regardless of catchment population or patient load, it follows that there will be fewer drugs to go between more patients in HPs with higher patient attendance as compared to lower attendance. In other words, if subsidy per patient drug costs via the HMGN drug indent is less, then subsidy via other sources - must be greater. This could be achieved through higher user fees or higher VDC contributions. Increasing the user fees maybe unwise. The levels of user fee chosen in the above examples maybe near the maximum that people would be willing to pay bearing in mind the poor quality of care. Higher prices may allow local shops to undercut the price in health facilities for some items and so draw patients away. This would be counter-productive resulting in poorer quality of care (self-medication in shops as opposed to prescription in HPs), reduced access to HPs and undermining of local revolving drug funds. Table III below shows the variation between patient attendance and VDC subsidy assuming that user fees are charged at NRs. 10/- or NRs. 13/- per patient (whatever fee system is used) and that

the average drug cost per patient is NRs. 25/-. Also included in the table is an average per capita attendance (number of OPD visits as a % of catchment population) equivalent to different levels of attendance. To calculate per capita attendance it was assumed that the average rural VDC had a catchment population of 20,000. A higher per capita attendance is an indication of better service. Greater patient attendance resulting in need for greater levels of VDC or outside subsidy is no reason to wish for decreased attendance.

It can be seen from table III that subsidy from the VDC budget alone (according to ministry of health recommendations) is feasible up to a patient attendance of 6,000 per HP per year charging user fees at 50% of the cost price of the drugs or NRs. 13/patient. There are very few HPs indeed in rural areas with patient attendance figures more than this. Table IV shows the same calculations assuming the same user fees ie. NRs. 10 and 13 per patient but assuming that more rational prescribing habits can be achieved such that drug costs are only NRs. 20/patient. Here drug costs for up to 8000 patients per year can be covered between user fees of NRs. 13/patient and a subsidy from within the VDC government budget.

Table III: Variation in VDC subsidy & patient utilization at Ilaka HPs assuming each patient receives drugs worth NRs. 25/- and the annual drug indent is NRs. 50,000/-

<i>Patient attendance per year</i>	<i>Per capita patient attendance</i>	<i>Annual drug need</i>	<i>User fees @ NRs. 10/Patient</i>		<i>User fees @ NRs. 13/patient</i>	
			<i>Amount from fees</i>	<i>Amount from VDC</i>	<i>Amount from fees</i>	<i>Amount from VDC</i>
2000	0.10	50,000	20,000	0	26,000	0
3000	0.15	75,000	30,000	0	39,000	0
4000	0.20	100,000	40,000	10,000	52,000	0
5000	0.25	125,000	50,000	25,000	65,000	10,000
6000	0.30	150,000	60,000	40,000	78,000	22,000
7000	0.35	175,000	70,000	55,000	91,000	34,500
8000	0.40	200,000	80,000	70,000	104,000	46,000
9000	0.45	225,000	90,000	85,000	117,000	58,000
10000	0.50	250,000	100,000	100,000	130,000	70,000

Table IV: Variation in VDC subsidy and patient utilization at Ilaka HPs assuming each patient receives drugs worth NRs. 20/- and the annual drug indent is NRs. 50,000/-.

<i>Patient attendance per year</i>	<i>Per capita patient attendance</i>	<i>Annual drug need</i>	<i>User fees @ NRs. 10/Patient</i>		<i>User fees @ NRs. 13/patient</i>	
			<i>Amount from fees</i>	<i>Amount from VDC</i>	<i>Amount from fees</i>	<i>Amount from VDC</i>
2000	0.10	40,000	16,000	0	26,000	0
3000	0.15	60,000	24,000	0	39,000	0
4000	0.20	80,000	40,000	0	52,000	0
5000	0.25	100,000	50,000	0	65,000	0
6000	0.30	120,000	60,000	10,000	78,000	0
7000	0.35	140,000	70,000	20,000	91,000	0
8000	0.40	160,000	80,000	30,000	104,000	6,000
9000	0.45	180,000	90,000	40,000	117,000	13,000

10000	0.50	200,000	100,000	50,000	130,000	20,000
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The assumption of table IV where the average drug costs are only NRs. 20/patient is not unreasonable. Such prescribing has been achieved in the BNMT drug schemes where item fees (covering a full course for each item) were charged and where only HMGN health workers were running services at the HPs and there was no prescribing supervision (Holloway 1998). Further, NRs. 20/patient still allows for NRs. 3-7 margin per patient for irrational prescribing and other wastage since expected costs per patient, based upon HMGN's Standard Drug Treatment Schedule, were reported as NRs. 13-17 in 1996 (Holloway & Gautam 1998a).

Drug transport costs are not included in the above figures and obviously need to be taken into account. This could be covered by charging an extra NRs. 1/- in the registration fee. For the more remote HPs with lower patient attendance, a VDC subsidy for drugs may not be needed but could be used for drug transport.

The calculations presented above only cover Ilaka HPs and district hospitals. They do not cover sub-HPs or primary health centres. For the latter, the revolving fund examples are likely to work since the HMGN annual drug indent is higher at NRs. 75,000/- than the indent to Ilaka HPs, yet the patient attendance is often not higher than the examples presented here. In the case of sub-HPs where the HMGN annual drug indent is smaller at Rs. 25,000/- per year there maybe greater shortfalls where attendance is higher. However, most sub-HPs have annual

attendance figures less than 4000 in which case, as shown in table IV the subsidy needed would be within the VDC budgetary amounts. Since sub-HPs are supposed to have an emphasis on prevention and promotion and not on curative medicine and since the drug list is more limited, drug costs per patient should be less than that in Ilaka HPs or hospitals ie. not more than NRs. 20/patient even allowing for irrational drug use.

CONCLUSIONS

There is no disagreement that the HMGN annual drug indent is insufficient and that supplementary drug re-supply funded by alternative non-HMGN sources is needed. All the drug schemes tried to address this problem although the only alternative funding sources used were fees for service (user fees), insurance premiums (not easily replicable) and the interest from seed money (provided by donors). Other forms of alternative funding such as local taxation had not been investigated.

None of the drug schemes visited by the authors were replicable nation-wide and none of them both sustainable and offering good quality of care. In all schemes, neither HMG nor the HP support committees were able to supervise the drug schemes adequately and many of the schemes were undermined by poor HMGN staffing in the HPs. None of the HP support committees were using any part of the HMGN-provided VDC NRs. 500,000/- budget to help finance drug schemes. Many of the management systems used did not allow for the easy detection of drug or money

misuse and were monitoring only patient attendance, money collected and drugs bought. Even the presence or absence of drugs was only irregularly monitored. Such monitoring is inadequate to ensure efficient drug management, money collection and quality of care. Only UMN & BNMT drug schemes addressed the problem of district drug re-supply. Donor-provided district drug re-supply systems are unsustainable but without such a system drug procurement in remote areas is logistically impossible.

There was usually a particular focus to a drug scheme and as a result there were various trade-offs, eg.,:

1. higher fees and cost recovery plus lower equity versus lower fees and cost recovery plus increased equity;
2. less outside supervision, greater internal sustainability and poorer quality of care versus more outside supervision, less internal sustainability and greater quality of care.

Since HMGN was unable to supervise drug schemes adequately, many organizations expressed the view that the way forward in running sustainable drug schemes is to hand over responsibility to the community. Indeed HMGN's planned Community Drug Programme plans to hand over responsibility to the community. However, what do we mean by handing over to the community ? It is said that the community is willing and able to pay (Cross *et al* 1996) although only a few talk about willingness to pay in relation to quality of care (Harding 1993). It is also said that HP support committees in some schemes such as are run by UMN and WHO/HMG are active

(Cross *et al* 1996) but was is meant by "active" ? Many reports cite the number of committee meetings organized as an indication of "activity" without considering the output of the meetings. In most schemes there may have been regular meetings but there was often very little output (in terms of drug procurement, monitoring and supervision, solving problems and making decisions) and virtually none without outside facilitation.

What output is expected ? Responsibility for running revolving drug funds requires regular involvement in basic drug scheme activities such as doing stock checks, checking drug purchase bills or checking the HP records of monies collected. Only by involvement in such activities could sufficient understanding be gained to supervise adequately. However, the HP support committees will never have the technical expertise for some aspects of supervision. Further, such systems ultimately rely on the presence of HMGN staff to provide patient care. At present such staffing is inadequate so leading to poor quality of care. Also, the staff are not accountable to the committees, although this situation may change in the future if decentralization progresses to the stage where VDCs have the capacity and authority to hire and fire. It is difficult to see how drug schemes can be run sustainably when HMGN is unable to play an adequate role in managing, monitoring or supervising drugs schemes and communities have neither the capacity nor authority to do so, and the lines of accountability between the two are so undefined.

The advent of HMGN's decentralization policy may signal a new era for developing a

sustainable national drug re-supply system. The presence of a government budget at VDC level and the capacity of VDCs for raising funds locally means that for the first time there is sufficient alternative funding to pay for all the supplementary drugs needed at primary care level without subsidy by local outside organizations or patients having to pay more than nominal fees. This is only so provided HMGN continues the annual drug indent at its present rate. A total fee per patient of NRs. 10-13/- is still only about half the average daily income, found in one study to be NRs. 23/- for 79% of households (Kafle & Gartoulla 1993). The calculations clearly show that it is **not** necessary to charge patients 15% below local retail price ie. 1% above wholesale price. Indeed were such charges to be made it is not clear whether the HMGN annual drug indent would continue since HPs could, in theory, achieve 100% cost recovery for drugs including their transport and fee exemptions for the poor.

Although it may be possible for VDCs to use their budgets to subsidize supplementary drugs, many may be very reluctant to do so. This may be for a number of reasons. They may feel drug availability at the health post is low priority or they may have no confidence in the HPs or health workers. Certainly this may become the case if they receive no support from the district authorities and HMGN. Nevertheless it has been shown that coverage of drug costs by local taxation plus user fees is more efficient than user fees alone (Diop *et al* 1995) and therefore VDC financial support should be sought. Further, people may be more likely to work actively in a scheme to which they have committed their own money

as opposed to one to which they have not. Thus if VDCs give some of their own money they may take their responsibilities concerning drug re-supply at the HP more seriously. VDC commitment will only work if their capacity is raised. This will require on-going training, supervision and facilitation. Who will do this ? Outside donors could help in this but ultimately HMGN will have to take on this role, which will need resources and recognition within the MOH and MLD organizations.

The revolving drug fund calculations do depend on the assumption that only NRs. 20-25/- worth of drugs will be dispensed on average to patients. This assumption is dependent upon HPs adhering to the essential drug list of Nepal. However, it was found that many HP staff and support committees did not wish to do this but wished instead to stock expensive antibiotics and tonics. It may be however, that when they contribute their own VDC money to the revolving fund that they will become sensitive to the issue of cheaper essential drugs as compared to expensive non-essential ones. Nevertheless this is an issue for HMGN since many of their own staff are reluctant to adhere to the essential list.

The choosing of an appropriate user fee is critical. Inappropriate "flat" prescription fees may encourage over-prescription with resulting high costs. Inappropriately high fees may decrease patient access and also cross the price threshold above which people are unwilling to pay, especially in the context of poor quality of care. If patients do not come, the revolving funds may not revolve and communities may lose their investment and

interest in operating revolving drug funds. It is not reasonable to expect local communities to understand all the issues involved in choosing appropriate user fees for their local facilities. Therefore guidelines are needed. Open unguided choice by communities concerning user fees may result in failure of the revolving drug funds and loss of communities' trust.

The role of the District Development Committees (DDCs) in the CDP is not well defined. In many of the drug schemes there was no role of the DDC at all. One role for DDCs could be to link the lines of accountability between VDCs, health workers, and the district health office. Without such accountability, it would be difficult to manage cases of drug or money misuse by health workers and in such circumstances VDCs would be unlikely to contribute their money for long. Another role for the DDC maybe one of coordination. It may be asked what need is there for general coordination ? One reason might be to negotiate similar fees throughout the district. The unreasonable raising of fees in one HP, in order to persuade patients to use a neighboring HP and so save VDC money, could be avoided.

One serious difficulty found in all the drug schemes was the problem of drug re-supply to the district from outside. As mentioned earlier good drug availability was dependent on wholesalers being nearby to the HPs or an outside agency managing the logistics for drug supply from outside the district. Many districts are many days travel from wholesalers and there is no outside agency managing district supply. In such places how will VDCs and their HPs manage drug purchase in a timely manner at reasonable

cost ? A further problem is one of managing district hospital drug re-supply and revolving drug funds. It is likely that district stores will be needed in many districts. DDCs, sufficiently supported by the Ministry of Local Development, maybe suitably placed to work together with the district health office to manage this. The presence of a district drug store will also allow the level of drug expiry to be kept low by drug redistribution. With VDCs buying many of their own drugs they may not be happy with giving away drugs even if they cannot use them themselves. A system of exchange within the district could be managed within the context of a district store. Purchasing as a district, as opposed to individual HPs, will also allow economies of scale in terms of the freight and staff per diem costs involved in drug purchase and transport.

RECOMMENDATIONS

In summary, the running of drug schemes is extremely complex. It has not been possible to run a sustainable drug re-supply system due to lack of resources and manpower and an inability of HMGN to properly supervise activities in district and at the HP. The coming of the CDP and decentralization into HMGN policy allows a fresh chance to develop a sustainable drug re-supply system. The following recommendations are made:

1. The cost of supplementary drugs should be shared between central government (indent), local government (VDC) and patients (nominal user fees).
2. The user fees should not be set at more than 50% of the cost of the drugs and 40% will be sufficient for many HPs.

3. Item fees should be charged rather than flat prescription fees since they promote rational prescription and reduced costs. Item fees covering a full course are easier to administer and encourage the use of full courses of drugs as compared to charging per unit (tablet).
4. District stores are necessary for efficient drug re-supply to HPs and hospitals in remote districts. This needs to be addressed urgently by HMGN. Accountability to the local community can be increased by involving and supporting the DDCs in the running of these stores.
5. The involvement of local communities in running the CDP can only be increased by huge continuing investment to raise local capacity and skills and, ultimately, integration of the existing political structure of VDCs and DDCs into health service provision.
6. There will always be a need for technical involvement by HMGN. To this end there is an urgent need to include in the ministry of health organogram a supervisory capacity for the supply and use of drugs and to revise the information systems so as to include data on drug purchase, money collection, drug consumption and prescribing.
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