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RATIONAL PHARMACEUTICAL MANAGEMENT PROJECT NEPAL PHARMACEUTICAL ASSESSMENT FINAL REPORT

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Rational Pharmaceutical Management Project
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INTRODUCTION

OVERVIEW OF THE RATIONAL PHARMACEUTICAL MANAGEMENT PROJECT (RPM)

Principals

The Rational Pharmaceutical Management Project (RPM) is a component of the United States Agency for International Development's (USAID's) Health Financing and Sustainability Project Based in Washington DC, RPM is a centrally funded activity managed by the Office of Health of USAID's Research and Development Bureau

RPM is made up of two cooperative agreements designed to support collaboration between two US based institutions with internationally recognized records of achievement in drug management USAID awarded the Pharmaceutical Management CA awarded under competitive procedures to Management Sciences for Health (MSH) as No HRN-5974-A-00-2059-00, with the work to be carried out by MSH's Drug Management Program USAID awarded the Pharmaceutical Information Cooperative Agreement to the United States Pharmacopeia as No HRN-936-5974-A-00-2052-00

Mission

RPM's mission is to enhance sustainability and reduce waste by promoting managerial efficiency and improvements in the allocation and use of resources in pharmaceutical systems To accomplish this, RPM will work through a number of mutually supporting interventions, including

- Policy dialogue and reform
- Long- and short-term technical assistance (TA)
- Specialized training
- Applied research
- Information dissemination

RPM will apply these interventions in three priority technical areas

1. Establishing and automating drug registration systems
2. Rationalizing procurement and inventory management in the public sector
3. Expanding drug information resources and promoting rational drug use

How RPM Will Work

To carry out this mission, USAID has allocated to RPM core funds sufficient to carry out six country assessments, and to follow this up with six long-term interventions in the three priority technical areas summarized above The actual distribution of the six long-term interventions will be managed pragmatically, depending on USAID's priorities and needs For example, USAID may choose to carry out three interventions in each of two countries, or it may be that three countries will each have two interventions

RPM will carry out the long-term interventions through periodic visits by short term technical assistance, working in close collaboration with host country Ministry of Health (MoH) counterparts, the USAID Mission staff and technical assistance resources The local TA may be provided through either the commercial or Non-government Organization (NGO) sectors Within this framework, RPM's core funds can be applied for the following purposes, in accordance with mutually agreed upon work plans

- Short-term TA by RPM staff or consultants
- Specialized training for counterpart staff
- Provision of computer hardware and software, as required, to support specific interventions
- Support for local TA, from the commercial and NGO sectors, to help push work forward between visits by RPM staff

Short or long-term technical assistance from RPM to countries that are not part of the core-funded interventions portfolio may be activities which RPM will carry out for purposes of accomplishing its

mission will include

1. Country assessments
2. Selection of long-term intervention countries
3. Formulation of country work plans that describe specific programs of activities to be carried out in the priority technical areas and define the roles to be played by RPM, MoH, USAID Mission and local TA organizations
4. Evaluation plans, based to the extent possible on quantitative measures, to be built into the country work plans
5. Implementation and ongoing evaluation to take place over three to three and one half year periods

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SECTION 1 SUMMARY OF RPM OPPORTUNITIES

I. RPM Assessment and Strategy Methods

A Purpose and Scope of Assessments

As foreseen in the introduction, pharmaceutical sector assessments, carried out by RPM staff, are the basis upon which

1. USAID selects countries to participate in the Project
2. Plans for long-term intervention programs are formulated

Areas of pharmaceutical management to be covered by the assessments include

- Public Sector Drug Supply System
- Drug Policy, Legislation and Regulation
- Formularies and Essential Drug Lists (EDL)
- Drug Information and Drug Utilization
- Private Sector Pharmaceutical System

RPM country assessments are designed to collect both qualitative or descriptive information on operations in each of these areas, and quantitative measures of performance The quantitative measures, 33 in number, are intended to serve both as baselines for purposes of project evaluation, and as bench marks for making comparisons among countries (Since September 1992, through RPM, as well as other activities, the MSH Drug Management Program has collected reasonably complete sets of measures in five other countries, including Guatemala, Ecuador, El Salvador, the Eastern Caribbean States and Mozambique)

B Assessment Tools

RPM country assessments are based on the use of standard tools, which include

- Data collection instruments and protocols
- Sample surveys of clinical facilities to measure gross indicators of drug use
- Lists of tracer lists of commonly used and "essential" drugs to measure procurement efficiency and product availability

C Assessment Methods

At the planning stage, RPM Country Assessments were foreseen as standard exercises to be carried out by two person teams which would require one month for completing data collection, plus an additional two weeks or so for writing up the results The first two assessments carried out under the project have been in Ghana and Nepal As events have unfolded, the situations in the two countries have obliged rather different approaches and levels of effort

In Ghana, the Ministry of Health is planning a major overhaul of its pharmaceutical management system, for which it hopes to attract major support from the World Bank and the Netherlands government At the request of the Ghanian MoH, RPM made a more thorough than planned assessment, fielding a team of four short-term consultants who took extensive quantitative measures at the central level, and in three of the country's five regions The result has been an in-depth study, empirically based on current data, and which is complete for purposes of project planning and evaluation

There are some similarities between Nepal and Ghana, particularly in the sense that Nepal is in the midst of a major reorganization of the Ministry of Health, and is conducting discussions with various donors to determine ways in which they might assist In Nepal, however, there was already scheduled for the month of August 1993 an Essential Drug Program (EDP) Review, to be carried out by the World Health Organization (WHO)/Geneva's Drug Action Program (DAP) One output of this effort would be an overall plan of activities to carry out in both the public and private sectors

Given this development, and given its own plans to assist MoH in the general area of logistics management, the USAID Mission to Nepal requested that RPM collaborate with WHO's planned EDP Review, rather than conduct a separate exercise of its own It was also felt, both at USAID/Washington and WHO/Geneva that a substantial amount of recent documentation was already available on drug management in Nepal, and that this material should be reviewed and synthesized before any major new data collection activities were undertaken

Consequently, USAID/Nepal requested the participation of one RPM staff member to collaborate with the WHO/DAP team for the three week duration of their assessment, and remain in Nepal for an additional two weeks, for the purpose of advising the Mission on the best options for work in drug management It has also been understood that recommendations to USAID/Nepal should be within the framework of the overall plan proposed by WHO

In view of the circumstances summarized above, the primary means of data collection have been interviews and review of extant documents, conducted primarily in Kathmandu Many of the documents reviewed have been recent or current (One World Bank Report, which yielded a substantial amount of information on storage and distribution, was prepared in July 1993) The result has been a comprehensive and up-to-date description of drug management in the public sector All five of the topics which RPM has intended to be covered have been covered, and 23 of the 33 standard measures have been collected

The information collected has been more than sufficient for defining a possible program of RPM activities for Nepal It is noted, however, that for purposes of baseline data and program evaluation, certain important gaps remain These gaps concern quantitative measures of performance in drug availability, inventory management and indicators of drug use It is felt that these deficiencies could easily be made up in the early phases of program implementation, and that specific activities to cover this have been included below

The team which carried out this work consisted of Doctors Prem Gupta and Paul Spivey from the WHO/Drug Action Program, and Mr James Bates from the USAID/RPM Project In general, the division of labor was as follows

- Mr Bates covered the Public Sector Drug Supply System, and, prepared the RPM Opportunities Assessment
- Dr Gupta covered Drug Policy, Legislation and Regulation, Regulatory Control and Quality Assurance, and the Private Sector Pharmaceutical System
- Dr Spivey covered Formularies and Essential Drugs List, and Drug Information and Drug Utilization

II Summary of Pharmaceutical Indicators for Nepal

The Nepal Country Assessment produced 23 of the 33 standard indicators These are presented in figure one, along with data collected in five other countries

A comparative discussion of these results is not being presented in this draft of the report RPM and R&D/Health staff are now in the process of pulling together and interpreting the results of all six countries for which data are available When the results of this work are available, they will be provided to all interested parties

FIGURE 1

COMPARISON OF INDICATOR RESULTS

TOPICS AND INDICATORS	COUNTRY					
	NEPAL	GHANA	EL SALVADOR	GUATEMALA	ECUADOR	JAMAICA
ONE POLICY, LEGISLATION AND REGULATION						
1 Existence of National Drug Policy	Yes	No	No	Yes	Yes	Yes
2 Existence of components of drug legislation	Yes	Yes	Yes	Yes	Yes	Yes
3 Proportion of sampled products registered or licensed	Not Meas d	Not Meas d		93%	100%	79%
4 Type of registration system	Manual	Manual	Manual	Comp ized	Mixed	Manual
5 Law regarding generic substitution	No Law	No Law	No law	No law	No law	No law
TWO FORMULARY/ESSENTIAL DRUGS LISTS						
1 # drugs on national formulary		222	284	428	438	1010
2 # drugs on sub–set EDL	259	No List	200	50	237	VEN lists**
3 Existence of National Formulary and/or EDL with basic therapeutic information revised within last 5 years	Yes	No	Yes	Yes	Yes	Yes
4 % of visited public facilities with most current formulary or ED Manual at public sector facilities	Not Meas d	45%		30%	25%	100%
THREE. PUBLIC SECTOR PROCUREMENT						
1 Existence of policy to limit public sector procurement to items on National Formulary or EDL	Yes	Yes	Yes	Yes	Yes	Yes
2 Coverage by centralized system for routine procurement of public sector drugs	Yes % Not Avbl	Yes % Not Avbl	80%	27%	< 50 0%	80%
3 % of average international price paid for last regular procurement of indicator drugs	63%	79%	114% 172%	164–371 %	161%	145%
4 % of MOH drugs purchased through competitive methods	50%	87%	>80%	10%	45%	95%
FOUR PUBLIC SECTOR LOGISTICS						
1 % variation between inventory records and physical stock at central warehouse.	Not Meas d	0 0%	0%	5%	26%	48%
2 Availability in warehouses and health facilities of a set of tracer drugs.	Not Meas d	100%	94% 81%	93%	38%	100%
3 % of time out of stock for sets of tracer d ugs	Not Meas d	6%	23% 39%	32%	79%	27%
FIVE DRUG UTILIZATION						
1 Population per public health facility	15 600	34 308	14 430	8 529	6 310	5 800
2. Average number of drugs prescribed per curative encounter	2 1	4 3	2 2	1 4	1 3	2 4
3 % of drugs prescribed by generic names	44%	59 4%	72%	72%	37%	40%
4 % of patients receiving injections	5%	55 7%	7%	13%	19%	3 7%
5 % of patients receiving antibiotics	43%	46 6%	32%	27%	27%	30%
SIX. PRODUCT QUALITY ASSURANCE						
1 Use of WHO Certification Scheme	Limited	Limited	No	Limited	Yes	Limited
2. Existence of functioning system of reporting product quality complaints	No	No	No	No	No	No
SEVEN PUBLIC SECTOR BUDGET AND FINANCE						
1 Public sector pharmaceutical expenditure per capita	Not Meas d		$6 55	$3 93	$0 09	$1 98
2. Public sector revenue from pharmaceutical cost recovery per curative encounter	$0 02 – 0 12	Not Meas d	$0 18	Not Meas d	Not Meas d	Not Meas d
3 % of total government expenditures used for health budget	3 6%	14 1%		15%	7 5%	3 4%
4 % of total government health expenditures used for pharmaceuticals	Not Meas d	Not Meas d		26%	1 3%	6%
EIGHT PRIVATE SECTOR PHARMACEUTICAL ACTIVITY						
1 Population per licensed private sector drug outlet		3 438	5436	4 605	3 419	9 700
2 Drug outlets per government drug inspector	222	262	0	947	13	63
3 Value of total private sector pharmaceutical sales per capita	$1 61	Not Meas d	$11 09	$10 98	$7 87	$10 28
4 Total value of drug market, public and private sectors per capita	Est $30 6 Mil	Not Meas d	$17 64	$14 91	$7 96	$12 27
5 % of products on National Formulary which are manufactured or co–manufactured locally	7%	70%		71%	50%	15–20%
6 Percentage of instances where an antibiotic was available from a licensed outlet without a prescription	Not Meas d	65%	100%	100%	100%	

* Ghana CMS purchases only there were also substantial direct purchases by regional stores and health facilities
**Jamaica health facilities have individual VEN lists which are functionally equivalent to sub–set essential drugs lists.
Grey shading indicates information was not collected in the survey

III USAID/Nepal Health Activities and Concerns

A Current Health and Family Planning Activities

The USAID/Nepal's Health and Family Planning Portfolio consists of the following activities

- **Expanding delivery of health and family planning services** through provision of training, equipment, supplies and technical assistance For health, attention is directed at national Control of Diarrhoea Disease (CDD), Acute Respiratory Infection (ARI) and Vitamin A programs, and for family planning, the focus is on assuring availability of voluntary surgical contraception services (sterilization and NORPLANT) and temporary methods of contraception

- **Training for care providers based on a two phase strategy,** of which the first phase will be development and implementation of an in-service clinical training program, and the second phase will be the introduction of a pre-service reproductive health education component into the medical and nursing school curricula

- **Support for logistics management,** including long- and short-term technical assistance, information systems design and installation, minor renovations to existing warehouse space, and support for disposal of outdated and unusable equipment

- **Information, education and communications (IEC) interventions** aimed at reaching the segment of the population with an unmet need for family planning, to be accomplished through three broad strategies, including building capacity in His Majesty's Government (HMG) and NGO sectors, improving quality and quantity of client/provider interactions, and targeted use of mass media

- **Private sector family planning services** promoted through NGO networks, private medical practitioners, and support for contraceptive retail sales

The Mission's primary vehicle for assisting the Ministry of Health is the bilaterally funded Child Survival and Family Planning Project, which receives technical support under a contract with John Snow, Incorporated (JSI) JSI has offices in Kathmandu and Hetauda, and a technical staff which includes three long-term advisors In the past, this team has focused on strengthening MoH's capacities for its delivery of health services

On the family planning side, it has participated in activities for providing an adequate mix of contraceptives, including IUD insertions, administration of Depoprovera and the establishment of year-round voluntary surgical contraceptive services in 15 priority districts

On the child survival side, the team assists with the design and implementation of national CDD, ARI and Vitamin A Programs, and with the implementation of the National Female Community Health Volunteer Program

Looking to the future, USAID/Nepal has made a commitment to assisting the MoH in the planning and implementation of a comprehensive logistics management system This will be done by combining inputs from the bilateral Child Survival and Family Planning Project and the centrally funded Family Planning Logistics Management Project (FPLM) The FPLM Project is also managed by JSI, out of the organization's Washington office This assistance in logistics will be a major new initiative for the Mission, and for this purpose JSI has placed an experienced public health logistics specialist as the Chief of Party of the bilateral project He will coordinate the initiative on behalf of the Mission

B Possible Niche for RPM

RPM staff member Bates briefed USAID/Nepal on the results of the WHO/USAID EDP Review

USAID/Nepal concurs that the RPM Project offers specialized expertise and resources in drug management which would contribute to efforts to develop a broad based MoH logistics management system, and that the proposed assistance would complement the support available under the bilateral Family Planning and Child Survival Services Project (FPCSS) and centrally funded FPLM mechanisms now in place

USAID has indicated that it would welcome core funded RPM Project assistance in Nepal The Mission has also stressed, however, that such RPM involvement must be carefully integrated into the overall effort to upgrade MoH's logistics services

In proposing this strategy, the Mission also makes the following points

- To insure the success of this initiative, RPM project assistance would be incorporated into a comprehensive work plan to be developed collaboratively by MoH, JSI and the RPM Project

  FPCSS's local presence enhances the probable impact of RPM assistance by assuring continuity for activities between RPM TA visits, and extending the reach of interventions begun at the central level with RPM resources down through the regional, district and clinical facility levels, using FPCSS's resources

- The application of bilateral resources from the FPCSS Project, for the purpose of supporting RPM activities, is the functional equivalent of "matching funds," and substantiates the Mission's own commitment to assist MoH in making measurable progress in improving drug management

IV Ministry of Health Concerns

The WHO/USAID EDP Review took place at a hectic time for MoH counterparts The recent floods and relief efforts understandably diverted the attention of senior decision makers There have been, however, opportunities to present findings and discuss possibilities for follow-up The WHO members of the team, Dr Gupta and Dr Spivey, conferred with the Minister of Health prior to departure, and he was generally supportive of the findings and general recommendations which they presented Their report will not reach MoH for about two months, however, pending reviews by WHO decision makers in New Delhi and Geneva

Having concurred with Bates' recommendations, and having made clarifications concerning how RPM could fit into the USAID/Nepal portfolio, Mission staff arranged separate briefings with two key MoH decision makers Dr Sheak, Chief of the Department of Drug Administration, and Dr Singh, Chief of the newly formed Logistics Management Division (LMD)

Bates' presentation to Doctors Sheak and Singh consisted of two parts The first part was essentially a paraphrasing of the findings of the WHO/USAID EDP Review, organized in a "good news/bad news" format The second part listed possible activities that could be carried out with RPM Project resources, as part of the overall USAID assistance package in logistics Both Bates and USAID staff indicated that these activities were being presented for discussion only, and that no commitments of RPM resources could be made until these proposals have been reviewed by USAID Washington and RPM Project Management The suggested activities, consistent with RPM's technical priorities, may be summarized here as

- Assistance in computerizing the drug registration system
- Assistance in rationalizing procurement and inventory management
- Assistance in drug information and communications for rationalizing drug use

In general, both Dr Sheak and Dr Singh agreed that the types of activities proposed were appropriate, and would welcome such assistance from USAID In the course of discussion, a number of issues were raised, some by MoH participants and some by USAID participants Among them are the following

- USAID's assistance in logistics management is welcome The Ministry of Health has just begun its reorganization efforts, however, and the responsibilities of the Logistics Management Division are not yet clearly defined In particular, the allocation of responsibilities between the Logistics Management Division and five Regional Health Directorates for the planning and execution of drug procurement is not yet clear
- Staffing is a particular problem at this point in time Under the reorganization, LMD is supposed to have 28 staff members As of August 26, 1993 when the meeting with LMD Director Dr Singh took place, only five were in place, including Dr Singh himself It is not known when the others will come, or what skills they will bring

- Certain planning activities for logistics management have already been scheduled, notably a workshop on management of contraceptive supplies, to be held in collaboration with the FPLM Project in September

- In general, both MoH and USAID want to move ahead with the design and implementation of a comprehensive effort to improve logistics management A decision regarding RPM Project participation is needed as soon as possible

- There are also some generic issues concerning the Ministry of Health that must be kept in mind concerning any work that may be contemplated Based on interviews and review of reports, it appears that efforts to improve logistics management systems in the past have been constrained by

  - Lack of staff in key positions at the central and regional levels

  - Frequent transfers, making it difficult to sustain improvements brought about through training interventions This problem has been particularly acute in the case of computer training

  - Lack of supervision and monitoring, to help bring about sustained improvements in such key functions as storage, stock control and rationalization of drug use

- Under the recent reorganization of the MoH, permanent positions (in lieu of temporary "development staff" positions) have been created for logistics management, and a commitment has been made by the Ministry to minimize staff turnovers

V Relevant Activities of Donors and International Agencies

- The **WHO/Geneva Drug Action Program** is preparing an overall country work plan for strengthening essential drug management All recommendations made in this report are intended to fit in with and support that plan It is likely that in the near future the plan will focus on developing and implementing the national drug policy

- The **WHO Country Program** is providing drugs for the expanding network of Sub-health Posts In the past, it has provided funds to support health post based drug cost recovery schemes

- **United Nations Children Fund (UNICEF)** has supported a broad range of activities in essential drug management, including central level activities to revise and print the Essential Drug List, production of health worker manuals, some of the content of which concerns drug use, drug retailer training, local production of oral rehydration salts (ORS), and provision of drugs for 700 Sub-health Posts

- ***Kreditanstalt fur Wiederausbau*** **(KFW)**, the German agency, is considering contributions to the essential drug supply, probably to support the Sub-health Posts, but the details are not available yet

- The **World Bank** is planning a major health and family planning services project, and appears to be especially interested in the logistics infrastructure

VI Recommendations Concerning Possible RPM Activities

A Purpose of this Section

There are needs to be addressed in drug management in Nepal's public sector that fall within the RPM Project's technical mandate The purpose of this section is to describe a program of activities which could produce sustainable, measurable improvements in the drug management system

Just as there are needs, however, there are also limitations on resources to consider RPM's capacity is limited to about six long-term country interventions with core funds The countries in which these interventions will take place have not yet been selected It is stressed, therefore, that no commitment on the part of RPM can be made at this time The program description presented below, is one part of an assessment of feasibility, rather than a concrete proposal

B Assumptions

In describing a possible program of activities, the following assumptions are made

1. RPM resources may only be used for activities that fall within the Project's three technical priority areas, which are Drug Registration, Procurement and Inventory Management, and Drug Information and Rational Use

2. RPM Project inputs must be coordinated with the inputs of other projects which USAID/Nepal is bringing on-line to assist MoH with an overall program of improvement in logistics services Specifically, the latter include the bilateral Family Planning and Child Survival Services Project and the centrally funded Family Planning Logistics Project

3. Bringing about measurable improvements in MoH's drug management operations will ultimately require work at the central, regional, district and clinical facility levels

The resources which RPM has to offer are best suited to interventions at the central and regional levels Concerning divisions of labor between RPM and FPCSS, the following operating assumptions are made at this time

- RPM staff and consultants would collaborate in designing (or redesigning) the MoH logistics system at all levels, paying special attention to those components which are directly involved in drug management

- RPM staff and consultants would carry out selected implementation activities, within the context of the overall plan, at the central and regional levels

- FPCSS staff and consultants would be responsible for implementation activities at the district and clinical facility levels

- RPM and FPCSS staff would share responsibility for evaluation activities, in accordance with an overall evaluation plan, at all levels of the system, that is, central, regional, district and clinical facility levels

4 It is feasible to carry out certain activities on a national scale Examples of such activities would be computerization of the drug registration system, design and implementation of drug needs, quantification tools to be used by the Logistics Management Division and the Regional Health Directorates

For other activities, however, the practical problems involved would require a phased approach to expanding geographical coverage For example, implementation of improved storage and stock control procedures or communications activities for rationalization of drug use would have to be carried out on district by district or region by region bases

For these types of activities, the scales of geographic coverage will eventually have to be specified as targets for program planning purposes In the meantime, the program plan presented below assumes that activities of these types will be implemented in one region comprising about 15 districts

C Procurement and Inventory Management

1 TECHNICAL JUSTIFICATION

The areas of procurement and inventory management are characterized by some clear achievements which are obscured by a long list of problems On the positive side may be noted the following

- MoH's principal procurement mechanism, the region's annual procurement from Royal Drugs, Limited (RDL) and Sajha Sewa Swasta, is yielding good prices, averaging about 60% of indicator prices from international public service suppliers
- Through this mechanism, MoH has the capacity to execute the purchases, make deliveries and redistribute drugs within a 12 month period
- Major procurement decisions are decentralized to the regional level, which in theory allows for adjusting the procurement to local circumstances
- Important segments of the MoH drug budget appear to have increased substantially over the last seven years or so Corrected for inflation, the Health Post indents have approximately doubled

There are a number of persistent problems, however, which prevent MoH from obtaining the maximum value from its achievements Included among them are the following

- Little information is available to inform regional and central level procurement decision making, and informants report a tendency to simply repeat the preceding year's orders
- The general practice is to provide all Health Posts with exactly the same annual consignment of drugs, regardless of the sizes of individual posts or their workloads
- For most essential drugs, there is no mechanism by which Health Posts may resupply themselves if they run out between annual shipments
- Stock control measures at storage facilities are weak in many cases There is virtually no recovery of information on consumption or balances
- Storage conditions and stock arrangement are often poor, resulting in high probable losses from expiration and deterioration

2 BASIC RECOMMENDATION

Design and implement a package of measures for rationalizing procurement planning, improving the flow of information, and improving storage conditions and stock control measures

3 GOVERNMENT ACTION NEEDED

MoH decision makers, and particularly the chief of the Division of Logistics Management would need to approve the specific recommendations for work to be carried out in this area

4 USAID CONCURRENCE

USAID/Nepal has already defined the circumstances under which it would support a possible program of RPM activities in Nepal In order to go forward with the activities suggested below for procurement and inventory management, it would be necessary for USAID to concur that it supports the overall strategy for strengthening MoH logistics services, and approve them as elements of an RPM country program

5 RECOMMENDED RPM ACTIVITIES

The contents of a list of recommended activities in the areas of procurement and inventory management is very much conditioned by three factors, which have already been touched upon To summarize, they are USAID/Nepal's stipulation that any RPM activities carried out in this country should be coordinated as part of a larger package of USAID support for improving MoH logistics services, that RPM's inputs should be compatible with, and complementary to, those of two other projects already on-line to help with the logistics effort, that is, the bilateral FPCSS Project and the centrally funded FPLM Project, and the assumption that the particular resources which RPM has to offer are best suited to central and regional level activities

In view of all this, it is recommended that RPM staff and consultants should

1. Assist with the design and execution of interrelated studies to quantify the commodity and financial resources currently available for essential drug supplies, estimate on the basis of appropriate factors the total national requirements for essential drugs and calculate their costs, and compare resources with estimated requirements and quantify any surplus or gap which may exist

   In carrying out this activity, special attention should be paid to the implications of HMG's ambitious plans to create a network of 3,179 Sub-health Posts by 1997

2. Collaborate with the Logistics Management Division and the Regional Health Directorates to develop practical drug needs quantification tools which may be applied for determining purchase requirements, and optimizing the consignments of drugs to Health Posts, based on their individual circumstances

3. Collaborate in training staff to use the quantification tools, field test them, and modify them according to need

4. The work with the quantification tools will probably require providing computer equipment and software, and computer training to the Logistics Management Division in at least one Regional Health Directorate

5 Installation of computer equipment also requires making arrangements for periodic servicing Two local groups which can provide this support have been identified

6 This assessment has not produced baseline data on drug availability, stock control and storage conditions that are suitable for project evaluation purposes RPM staff should collaborate to design studies for collecting the required data, train data collectors and field test instruments, and help compile the results

7 In the same vein, collaborate with all concerned parties in the design and implementation of evaluation plans

8 Collaborate with MoH counterparts, FPCSS and FPLM staff to review the current situation with respect to stock control measures, flow of information on drug consumption and balances, and storage conditions, and propose a realistic package of formats, routines and other measures for overcoming major deficiencies

9 In line with the preceding recommendation, pay special attention to assessing the feasibility of establishing district level depots for "most essential drugs," perhaps 20 in number This would provide a mechanism for the resupply of VEN-vital products in between the annual drug shipments

10 It is possible, that as part of a three year work plan, and given the current real progress in the implementation of manual routines for stock control and monitoring of consumption and balances, there may eventually be a need for a computer based inventory control system, such as that represented by the INVEC (MSH-developed inventory control software)

In the meantime, however, such an intervention would probably be premature for essential drugs, though perhaps not for contraceptives or vaccines With this caveat in mind, RPM staff should collaborate in developing strategies for the appropriate phasing in of computer assisted activities Such activities would be supported by the hard- and software provided for the drug needs quantification activities summarized in points four and five, above

11 In line with the package of system design work summarized in points seven, eight and nine above, RPM staff should assist in formulation of implementation plans, and be prepared to participate in implementation activities at the central and regional levels RPM staff should be prepared, however, to provide some degree of input to MoH counterparts, FPCSS staff, and other USAID sponsored collaborators who would have primary responsibility for implementation at district and sub-district levels

D Recommendations Concerning Drug Registration

1 TECHNICAL JUSTIFICATION

HMG's Department of Drug Administration (DDA) operates a manual drug registration system containing entries for almost 12,000 drug items, including 10,059 modern, 431 homeopathic, 1,545 *Aryuvedic*, and 57 *Unani* products The system also contains information on 51 domestic manufacturers, 956 authorized importers and about 8,000 wholesalers and retailers

Since the system is manually operated, information retrieval is slow and difficult For example, it took DDA staff several days to come up with the descriptive statistics summarized above, and even then they kept changing In its present form, the system may have some utility as a regulatory measure, but it is almost useless as a tool for guiding and implementing policy Two examples are given below

- Section 3 2 of the draft drug policy says that, "in order to make the nation self-sufficient in the production of essential drugs, necessary help and facilities will be provided to all manufacturers by adopting a policy of mutual co-operation among the concerned ministries " Yet, when DDA staff were asked for a list of domestic manufacturers who already produce products on the Essential Drug List, they were hard put to produce an accurate accounting

- With the overall number of registered products approaching 12,000, certainly some experts in regulatory policy would advise DDA to establish criteria for limiting registration of new products, or even de-registering some currently approved products, with a bias in favor of essential drugs Yet, as the registration system actually functions, it would be extremely time consuming to determine which of the thousands of brand names represent essential drugs, and which represent other products It is unclear how many of the 12,000 products are still being marketed

2 BASIC RECOMMENDATION

Computerize the drug registration system

3 GOVERNMENT ACTION NEEDED

MoH decision makers, and particularly the chief of the Department of Drug Administration, would need to approve the specific recommendations for work to be carried out in this area

4 USAID CONCURRENCE

USAID/Nepal has already defined the circumstances under which it would support a possible program of RPM activities in Nepal In order to go forward with this activity, it would be necessary for USAID to concur that it supports the overall strategy for strengthening MoH logistics services and approve it as an element of an RPM country program

5 RECOMMENDED RPM ACTIVITIES

RPM staff and consultants should

1 Consult with DDA staff and produce a detailed profile of their needs in terms of drug registration software Special attention should be given to policy objectives, and information and reporting requirements for supporting them

2 Help DDA to evaluate the suitability of the existing WHO/PAHO software and other software, and to determine what modifications are required

4 Provide computer hardware that is suitable for managing a drug registration data base In sum, this means an IBM compatible computer with a 486 micro processor and at least an 80 megabyte hard disk A wide carriage dot matrix printer would also be required, if one is not already available

5 Generic computer training for DDA staff may be required, and periodic servicing of the hardware and software will be required (As noted, two local groups capable of providing this support have been identified)

6 Modify software as needed and install the registration software which is selected and train staff in data entry and report generation routines

7 Enter data in the program DDA staff should be trained to do this and involved in the process, but it is probably best to engage a local contractor to do most of this work Once the data base is set up and backed up, DDA staff would be responsible for maintaining it

8 Access to current drug information is needed to assure that product registration applications are properly reviewed by DDA staff Given the recurrent expense of maintaining a library of medical journals and texts, it is suggested that once the drug registration system is installed, an electronic database of drug information should be made available on the computer system RPM can assist with this through providing United States Pharacopeia drug information using CD ROM technology, or through an international service providing access to medical drug information databases by modem The CD ROM option would probably be more cost-effective

9 Provide periodic short-term TA to monitor progress and support implementation Such TA would focus not only on software program operations, but also on the use of the data generated to inform policy dialogue on essential drug management

E Drug Information and Rational Use

1 TECHNICAL JUSTIFICATION

The situation in Nepal with respect to drug information and rational use is rather similar to what has been described above for Procurement and Inventory Management and Drug Registration That is, there are some very significant achievements counterbalanced by a number of persistent problems

On the positive side, may be counted the following

- There exists an Essential Drug List (EDL) composed of 259 generically named products
- A "Standard Drug Treatment Schedule" (SDTS), provides guidance on how to use the drugs on the list
- It appears that the vast majority of drugs procured and distributed by MoH are products on the EDL The restriction of supplies to EDL products is one of the most tangible and important contributions which MoH could possibly make to rational drug use, because it restricts the availability of inappropriate products within the health services delivery system
- There has existed for ten years in Nepal an innovative program for training drug retailers in such skill areas as safe maintenance of supplies and appropriate prescribing practices

And yet, while the measures summarized above meet the test of "necessary conditions" for success, they are far from "sufficient " Examples of problems that persist include the following

- Unbiased, current drug references are not available in most clinical facilities, nor is such information available to officials and committees who develop drug lists and make procurement decisions
- A recent study covering five districts revealed that 54% of clinical facility staff were not aware of the EDL and 88% were not aware of the SDTS
- Insufficient supplies of drugs at clinical facilities, or even the perception of insufficiency, contributes to such inappropriate behaviors as
    - prescribing and dispensing incomplete courses of treatment, and
    - prescribing drugs by brand name from retail pharmacies

- Even at the most prestigious hospitals in Kathmandu, there are few or no controls over the prescribing practice to promote rational prescribing from the EDL, meaning that, in practice, the all-important medical opinion leadership in rational drug use is lacking

- And finally, human resource management issues within the MoH system, which have already been mentioned, greatly constrain efforts to improve prescribing behavior These include

  - vacancies in care provider positions in many clinical facilities,

  - frequent transfers which can nullify the effects of communications interventions, and

  - reported absence of monitoring and supervision, which means that the periodic interactions between prescribers and medical opinion leaders, that are known to be requirements for positive behavior change, simply do not take place

2 BASIC RECOMMENDATION

Determine appropriate mechanisms for increasing access to current drug information at all levels of the system Develop and test managerial, regulatory and communications interventions for rationalizing drug use that are appropriate to the local situation Because of the types of human resource management issues summarized above, this is much easier said than done

3 GOVERNMENT ACTION NEEDED

MoH decision makers, and particularly the chief of the Department of Drug Administration, would need to approve the specific recommendations for work to be carried out in this area

4 USAID CONCURRENCE

USAID/Nepal has already defined the circumstances under which it would support a possible program of RPM activities in Nepal In order to go forward with the activities suggested below for rational drug use, it would be necessary for USAID to concur that they support the Mission's overall strategy for strengthening MoH logistics services, and approve them as elements of an RPM country program

5 RECOMMENDED RPM ACTIVITIES

When intervening to change prescribing patterns, a three stage process is required The **first stage** is quantitative "indicator surveys" to document basic patterns of drug use Such surveys have already been carried out in Kathmandu Valley The **second stage** is to use qualitative methods, including observation, surrogate patients, depth interviews and focus groups to identify the reasons for inappropriate drug use behaviors Once major problems and the reasons underlying them have been specified, the **third stage** is designing, testing and implementing interventions to bring about desired behavior changes

RPM should assist country staff in analyzing their drug use situation with particular emphasis on the underlying factors that account for irrational behaviors Based on the outcomes of this work, interventions could be undertaken to address problem behaviors As noted above, such interventions are likely to include managerial, regulatory or communications approaches Care must be taken to identify the combination of approaches most appropriate to the Nepal situation

Specifically, RPM staff and consultants should be prepared to assist with the following

1 As was the case with drug registration, MoH staff involved in activities for rationalizing drug use will require access to up-to-date drug information RPM can assist with setting up a computerized drug information data base, probably based on CD ROM technology This would include installing hard and software and training local staff in its use An important question to be resolved is the best location in which to set up this "drug information center " Possibly, it could be located within DDA, in which case, this activity would be coextensive with the drug information data base for registration, as discussed on page 17 It is also possible that Tribhuvan University Medical School is the best location This question will need to be resolved through discussion with appropriate parties among MoH, the University and the donor community

2 It is recommended that MoH develop and publish a "formulary manual" to provide the appropriate range of information for the products on the National List of Essential Drugs MoH should insure that enough copies are printed to cover workers, primarily physicians, at all health care facilities There should also be enough copies for medical students in their last year of training RPM could assist with the development and publication of such a formulary manual

3 RPM could also work with MoH counterparts to make a determination as to whether or not the currently available editions of the Standard Drug Treatment Schedule are suitable as tools to support interventions to rationalize drug use The 1988 edition for Health Posts examined for this assessment is an unattractive, unillustrated black and white document which does not call attention to priority health or prescribing problems

DDA is in the process of revising the SDTS, and it would be appropriate to pause now, and consider what publication formats could best support future activities

4 Carry out a review of recent and current health worker training activities and produce a summary which provides the following information for each activity

- Messages that relate to drug use
- Training methods
- Coverage achieved
- Current status of the activity
- Results of evaluation activities, if any

5 Based in part on the foregoing, and in part on technical priorities established through discussion with MoH counterparts, develop a list of topics that should be covered in a program of rational drug use interventions Examples might include drug therapy for targeted health problems such as diarrhoea or ARI, or perhaps most abused drugs such as tetracycline or other products known to be overprescribed

6 Assist in a review of the existing body of research to determine whether or not the data now available are sufficient for formulating useful messages for change For example, if it is determined that interventions to rationalize drug use for ARI should be a priority, is it known with sufficient precision what current prescribing practices are for respiratory problems? What mistakes are most frequently made? And what are the factors that account for them?

7 If additional research is required, assist in its design and execution

8 Based on the outcomes of all of the forgoing steps, RPM staff should assist in the formulation and testing of interventions for rationalizing drug use Illustratively, such interventions might be characterized by combinations of face-to-face communications, printed materials and periodic follow-up to reinforce a set of basic messages, audit with feedback, or regulatory measures, such as limiting prescribers to a certain number of prescriptions

Special attention will have to be paid to the problems of achieving follow-up and evaluation in an environment where monitoring and supervision are rare and difficult to carry out

9 In keeping with assumptions on the divisions of labor discussed above, once interventions of rationalizing drug use are developed, FPCSS Project resources would implement them at district and sub-district levels RPM staff would assist with ongoing evaluation activities

VII. Potential Local Collaborators

The following local organizations have been identified as potential sources of technical assistance and project management support for RPM Project activities, should any take place in Nepal

- The bilateral **Family Planning and Child Survival Services Project** FPCSS is managed on behalf of USAID/Nepal by John Snow, Incorporated, and brings along a substantial capacity in logistics management overall, plus capacity to orchestrate and support activities at district and clinical facility levels

- The NGO **New Era**, which has substantial experience in running projects for USAID New Era's most relevant recent experience is work on family planning services information systems at district and clinical facility levels

- Two commercial sector computer consultancy firms identified by the USAID Management Office as having given good results in the recent past **Mercantile Office Systems** and **Professional Computer Systems**

- The Nepal chapter of the **International Network for Rational Use of Drugs (INRUD)** This group is led by Professor K K Kafle of Tribhuvan University, who carried out some recent and well-regarded studies in various areas of drug management

SECTION 2. PHARMACEUTICAL SECTOR ASSESSMENT

VIII Public Sector Pharmaceutical Supply System

A Procurement

1 FINANCING

Neither interviews with HMG informants nor review of existing reports and documents produced a comprehensive summary of total public sector expenditures for drugs The principal sources of financing include the MoH operating and development budgets, major donors such as USAID, UNICEF, WHO, United Nations Family Planning Agency (UNFPA), and NGOs such as the United Mission to Nepal, the Britain Nepal Medical Trust and the Save the Children Fund One source summarizes the problems involved in reconstructing expenditures as follows

> *First for HMG, the gap between budget and actual expenditures is substantial, with actual expenditures in some categories being less than 50% of budget allocations In addition HMG accounting rubrics and program budgeting sometimes make it difficult to separate drug expenditure from those for pesticides food or other expendable medical supplies Finally depending on the use of funds and the funding mechanism donor and [NGO] contributions are sometimes reflected in HMG financial statements and sometimes not reflected in these statements* (1)

The funding sources summarized above finance drug procurement for the five Regions plus the centrally managed programs, which include Family Planning/Mother-Child Health, Malaria, Public Health (for leprosy), EPI, Curative Medicine, Epidemiology, Nursing and Central Health Laboratory (Note At the time this study was undertaken, the Ministry of Health was beginning a major reorganization While it was apparent that there would be significant changes in organizational nomenclature, it was not clear precisely what the changes would be Accordingly, the old names of the centrally managed programs have been retained in this report)

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The largest stream of funds for pharmaceuticals is that which supports the annual regional drug procurement, and is composed of allocations from HMG's regular and development budgets Informants at the newly organized Logistics Management Division stated that for fiscal year 1992/93, the combined allocation from these two sources, for all Regions, was NR 59,500,000 plus an additional NR 2,000,000 for a central buffer stock, all of which was spent This amounts to US$ 1,255,102 The budget for 1993/94 is expected to be almost the same, but without the buffer stock allocation For 1992/93, the budgets for different types of clinical facilities were

- District Hospitals NR 180,000 or US$ 3,673
- Ilaka Health Posts NR 49,000 or US$ 1,000
- Static Health Posts NR 24,500 or US$ 500
- Primary Health Care (PHC) Centers NR 50,000 or US$ 1,020
- Sub-health Posts NR 30,000 or US$ 612

The District Hospitals, Ilaka Health Posts and Static Health Posts were funded from HMG's regular and development budgets Donors such as WHO and UNICEF provided all drugs or funds for the Primary Health Care Centers and Sub-health Posts

Although the data collected are not sufficient for extensive analysis, it does appear that some portions of HMG's drug budget have grown significantly over the last seven years For fiscal year 1986/87, the drug and medical supplies indent for each of the 740-plus Health Posts then operating was set at NR 11,182 or US$ 532 For 1992/93, the weighted average figure for each of the 141 Static and 675 Ilaka Health Posts was NR 44,766 or US$ 913

Over this same period, however, the cumulative rate of inflation within Nepal is estimated at about 92%, while the exchange rate of Nepali currency for US dollars has risen from 21 to 49 After these factors are taken into consideration, the real rates of increase appear to be about 108% in NR terms and 75% in US dollar terms This apparently positive trend must be interpreted in light of two important factors, which are

- An estimated annual rate of population increase of 2 1%, resulting in a cumulative increase of about 12% over this seven year period (2)
- HMG's ambitious plans to establish 3179 Sub-health Posts between 1992 and 1997 (3)

2 PRINCIPAL SUPPLIERS

HMG's principal sources of drugs are Royal Drugs, Limited (RDL), a parastatal producer, and Sajha Sewa Swastha, a parastatal purchasing cooperative serving the public, private and NGO sectors The policy is that purchases are restricted to products on the Essential Drug List, and the supplier of first choice is RDL Those products which RDL does not produce are purchased on behalf of HMG through Sajha According to informants at the two suppliers, for fiscal year 1992/93, HMG purchased 67 products from RDL and 125 products from Sajha RDL accounted for about 52% of the total value of purchases, and Sajha for about 48%

Sajha procures by restricted tender, soliciting quotations from about 200 pre-qualified multinational, Indian and local suppliers, according to informants Selection of a short list of suppliers from whom to purchase is made by a committee composed of a representative from Sajha, HMG's Curative Division, the Division of Drug Administration and the Nepal Chemists and Druggists Association Specific administrative routines and documentation for this process were not examined, but it was established that all work is carried out manually, and that Sajha uses no computers in its operations

Sajha has storage facilities at Pathalaya and Kathmandu, but it does not maintain a permanent inventory for HMG Rather, it manages one annual procurement for this client, with the suppliers delivering to its own stores From these points, Sajha transports the goods to the five Regional Medical Stores (RMS), in accordance with the respective purchase orders

In terms of prices paid, the results of this approach based on RDL and Sajha, appear to be very good Prices paid by HMG to these suppliers for 16 products were compared with FOB indicator prices, based on averages from 11 public service suppliers The results show a ratio of HMG prices to indicator prices of 0 63 The same comparison was made for 21 products purchased by a prominent NGO working in health The ratio for the United Mission to Nepal's Patan Hospital was 0 61, and thus not significantly different from HMG See figure two

FIGURE 2

DRUG PRICE COMPARISONS (IN US $)

VEN	PRODUCT NAME	FORM	STRENGTH	INDICATOR PRICE	HMG		UMN	
					PRICE	HMG/IND RATIO	PRICE	UMN/IND RATIO
E	ASPIRIN	TAB	300 MG	0.005	0 002	0 453	0 002	0.453
E	ALUMINIUM HYDROXIDE	TAB	250 MG	0 005	0 004	0 889	0 001	0 289
V	AMOXICILLIN	TAB OR CAP	250 MG	0 040	0 021	0 523	0 035	0 877
V	PENICILLIN G	INJ	1 MU	0 192		0 000	0 164	0 856
E	CHLORPHENARAMIN	TAB	4 MG	0 003	0 001	0 310	0 001	0.310
V	DIAZAPAM	INJ	5 MG/2 ML	0 288		0 000	0 167	0 579
V	ERGOMETRINE	INJ	0 5 MG	0 141		0 000	0 118	0 840
E	FERROUS SALT	TAB	60 MG	0 004	0 001	0 270	0 002	0 514
E	HYDROCHLOROTHIAZIDE	TAB	50 MG	0 004		0 000	0 000	0 051
V	ISONIAZID	TAB	100 MG	0 005	0 001	0 298	0 001	0.298
E	MEBENDAZOLE	TAB	100 MG	0 010	0 017	1 729	0 007	0 750
V	ORS	PDR	SACHET	0 099	0 045	0 454	0 045	0 454
E	PARACETAMOL	TAB	500 MG	0 010	0 005	0 485	0 005	0 485
E	PARACETAMOL	SYR	125 24MG/ML	0 006	0 003	0 426	0 003	0 426
V	PROCAINE PENICILLIN	INJ	3 MU	0 372		0 000	0 489	1 314
	PROCAINE PENICILLIN	INJ	4 MU	0 438	0 174	0 397		0 000
V	RIFAMPICIN	TAB OR CAP	150 MG	0 062	0 020	0 317	0 053	0 850
V	STREPTOMYCIN	INJ	1 G	0 172		0 000	0 158	0 920
V	SULPHA/TRIMETHOPRIM	TAB	400/80 MG	0 019	0 016	0 813	0 015	0 802
V	TETRACYCLINE	CAP	250 MG	0 014	0 019	1 336		0 000
V	DOXYCYCLINE	CAP	100 MG	0 039			0 024	0 613
E	TETRACYCLINE EYE OIN	TUB	1%	0 060	0 048	0 788		0 000
V	THIACETAZONE/ISONIAZID	TAB	150/300 MG	0 012	0 006	0 534	0 006	0 517
V	WATER FOR INJ	INJ	5 ML	0 019		0 000	0 012	0 642
					AVERAGE RATIO	0 626	AVERAGE RATIO	0 611

SOURCE INDICATOR PRICES FROM MSH INTERNATIONAL DRUG PRICE INDICATOR GUIDE 1992–93 HMG PRICES FROM THE HMG DEPARTMENT OF HEALTH DIVISION OF LOGISTICS AND MANAGEMENT UMN PRICES FROM THE UNITED MISSION TO NEPAL S PATAN HOSPITAL

3 ROLE OF REGIONAL HEALTH OFFICES

Nepal is divided into five Regional Health Directorates which, in turn, are subdivided into 75 districts Procurement of drugs and medical supplies for 67 districts is managed by the Regional Health Directorates, which have Finance and Procurement Sections and which deal directly with RDL and Sajha For fiscal year 1992/93, the remaining eight districts were allowed, on an experimental basis, to manage their own procurement from a restricted list of 75 suppliers

For purposes of the procurement cycle, the fiscal year, which begins on July 16, is divided into four periods of three months each During the first period, the Regions complete planning and calculations At the beginning of the second period, about November 1, they place their orders with RDL and Sajha The Regions use standard contract formats and pay advances of 40-80% from their accounts with Nepal Bank Limited

By the end of the third period, or in about April, the suppliers should be delivering stock to the Regional Medical Stores The final period, at the end of the fiscal year, is for monitoring the status of deliveries Informants at Sajha, stated that once they place orders with their suppliers, they cannot really adhere to a month to month schedule, but that their contract obliges them to complete deliveries by June 30 in order to receive final payment

Interviews were conducted with staff at the central Region Health Office and other informants, who described the steps they carry out for this cycle as follows

- During July, the Regional Medical Store sends blank requisition forms out to each clinical facility The facilities are supposed to fill them out and send them back to the Procurement Section, there to be consolidated Staff perform these consolidations manually There are no reports from the facilities on consumption or the status of drugs in stock to substantiate these requests Some informants said that, in fact, many facilities never submit their requests, and that the consolidations are substantially based on the previous year's orders

- The Regional Health Directorates receive notification of their budgets for the new fiscal year about August 1 They make up orders for the two suppliers by about November 1, based on the previous year's prices Subsequently, they receive confirmation on the current year's prices, and they revise and submit their final orders

- As the Regional Medical Stores receive shipments, they send receiving reports to the Finance Sections, which make the final payments

Concerning the eight districts that have been allowed to manage their own procurement, no information has been encountered for six of them, but concerning the other two, the following apparently took place in Banke and Morang, the lists of qualified suppliers reached local administrators too late to permit requesting and processing of bids and still receive supplies in time for the normal delivery schedule So, in both cases, local managers placed orders with the nearest RDL and Sajha offices, with deliveries taking place shortly thereafter (4)

4 DRUG NEEDS QUANTIFICATION

There is no officially established process for drug needs quantification The regions' Procurement Units determine order quantities on the basis of

- Amounts budgeted for each category of clinical facility
- The requests from the district and clinical facilities, which are determined on the basis of unknown criteria
- Availability of drugs at the Regional Medical Store

The budget allocations, and hence the quantities allotted, remain constant for each type of facility, regardless of local area variations in health problems, patient load or population served In other words, a sparsely visited facility in the Mountain Ecological Belt will receive exactly the same types and quantities of drugs as a heavily visited one in the tropical Terai Belt A study of 40 Health Posts in five districts revealed extremes of 6,500 to 60,080 in populations served (5)

Some work has been done to make drug allotments for the recently created Sub-health Posts sensitive to these variations In July 1992 the Subcommittee on Essential Drugs developed separate standard drug lists for Sub-health Posts located in the Mountain, Hill and Terai belts In so doing, it took into account the size of average populations to be served by Sub-health Posts in different belts The report of the Subcommittee's work says that health problems prevailing within different belts were also taken into account, but the methods by which this was done are not documented Although the budgetary allotments and drug mixes are the same for all sites within belts, there is variation in types and quantities between belts (6)

This work was carried out at the Central Ministry level to determine needs for 200 SHPs to be supplied by UNICEF Thus, while it is a step in the right direction, it is also a special case Such approaches are apparently not yet being applied on a routine basis for the regular procurement being managed at the regional level

5 ROLE OF THE LOGISTICS MANAGEMENT DIVISION

The Division of Logistics Management is located in the Department of Health Services and has overall responsibility for procurement, distribution and maintenance of all categories of expendable and nonexpendable supplies LMD has three sections, which are

- Indent and Procurement
- Inventory and Supply
- Vaccine Supply

Based on the review of documents published in connection with the MoH reorganization now taking place, and discussion with LMD staff members and senior MoH decision makers, the Division's responsibilities for drug procurement appear to be as follows

- In the recent past, LMD has managed a buffer stock of drugs and packing materials, kept at its warehouse in Kathmandu, which in fiscal year 1992/93 was valued at NR 2,000,000 or about $42,000 Funds for this purpose are not allocated in the 1993/94 budget

- In the past, various centrally managed programs have procured and stored their drugs independently These include, Family Planning/Maternal and Child Health (MCH), Malaria, Public Health (for leprosy), EPI, Curative Medicine, Epidemiology, Nursing and Central Health Laboratory These units obtained drugs through both purchases with HMG funds and negotiations with donors Figure three, summarizes the types of supplies which each manages (7)

  The plan for the future is for LMD to coordinate these separate programs and manage procurement, storage and distribution of their drugs and other supplies to the regional level (It is noteworthy that HMG is implementing a similar consolidation of IEC activities through the National [Health] Training Center)

- The Regional Directorates will continue to plan and execute drug procurement LMD will have certain supervisory responsibilities It is not entirely clear what these will be, however, and this point will touched upon again in the Human Resources Section, below

FIGURE 3

TYPES OF SUPPLIES HANDLED BY THE CENTRALLY MANAGED PROGRAMS

PROGRAM	SUPPLIES
1 FAMILY PLANNING/MOTHER–CHILD HEALTH	* CONTRACEPTIVES CONDOMS PILLS DEPOPROVERA, IUDS AND NORPLANT * MCH DRUGS AND ACCESSORIES * SURGICAL EQUIPMENT
2 MALARIA	* INCECTICIDES DDT MALATHION ICON * DRUGS CHLOROQUINE, PRIMAQUINE * SPRAYING EQUIPMENT
3 PUBLIC HEALTH DIVISION	* CDD ORS AND ORT CORNER EQUIPMENT * ARI TIMERS * SUB HEALTH POSTS DRUGS AND EQUIPMENT * PRIMARY HEALTH CENTERS DRUGS AND EQUIPMENT * NUTRITION WEIGHING SCALES, VITAMIN A AND EDUCATIONAL MATERIALS * HEALTH EDUCATION PRINTED MATERIALS * VHWS VILLAGE HEALTH REGISTERS VHW BAGS * MEDICINE DDS SETS
4 EXPANDED PROGRAM FOR IMMUNIZATION	* VACCINES BCG DPT, POLIO, MEASLES AND TT * EQUIPMENT DEEP FREEZERS REFRIGERATORS, COLD BOXES, ICE PACKS AND GENERATORS
5 CURATIVE DIVISION	* DRUGS FOR HOSPITALS HEALTH CENTERS AND HEALTH POSTS * EQUIPMENT RANGING FROM BEDS TO X–RAY MACHINES
6 EPIDEMIOLOGY DIVISION	* ANTI–SNAKE VENOM ANTI RABIES ???? AND MENINGITIS VACCINE * REHYDRATION IV SOLUTIONS AND ORS
7 NURSING	* TBA SETS
8 CENTRAL LAB	* LAB EQUIPMENT AND REAGENTS

SOURCE KUNWAR AND SHRESTA STUDY OF VOLUMETRIC AND SPACE NEEDS PAGES 3 AND 4

B Storage and Distribution

1 HEALTH SERVICES DELIVERY SYSTEM

HMG is responsible for providing drugs and medical supplies to a health services delivery system consisting of about 1200 clinical facilities Administratively, they are distributed through 75 districts, which, in turn, are grouped under the five Regional Health Directorates In addition, these facilities are distributed across the significantly different Mountain, Hill and Terai Ecological Belts, each of which poses its own formidable difficulties for the delivery of drugs These include geographic dispersion of Health Posts, terrain traversable only on foot or with pack animals (some sites are located at a 24 day trek from their District Health Offices), bad roads, floods, landslides, snowfalls, and finally, limited funds and high costs for local transport See figures four and five

2 STORAGE AND DISTRIBUTION NETWORK

The main features of the drug storage and distribution network are presented graphically by figure six They include

1. The main suppliers, all headquartered in Kathmandu, although drugs do not necessarily enter the distribution network from there

2. The Pathalaya Medical Store, which serves as a transit storage point for drugs and other supplies entering the distribution network from outside Nepal

3. The East-West Highway, which traverses the southern part of the country, and in proximity to which, are situated the five Regional Medical Stores

4. The Regional Medical Stores themselves, through which most supplies pass before being redistributed to the various types of hospitals and Health Posts

FIGURES 4 AND 5

DISTRIBUTION OF HEALTH SERVICES DELIVERY FACILITIES

BY REGION

REGION	SUB HEALTH POST	STATIC HEALTH POST	ILAKA HEALTH POST	HEALTH CENTER	DISTRICT HOSPITAL	ZONAL HOSPITAL	REGIONAL HOSPITAL	CENTRAL HOSPITAL
CENTRAL		45	171	6	15	2	0	5
WESTERN		4	144	2	15	1	1	0
MID WESTERN		16	135	5	9	1	0	0
FAR WESTERN		19	81	1	8	2	0	0
EASTERN		27	144	4	14	3	1	0
TOTALS	+/- 300	141	675	18	61	9	2	5

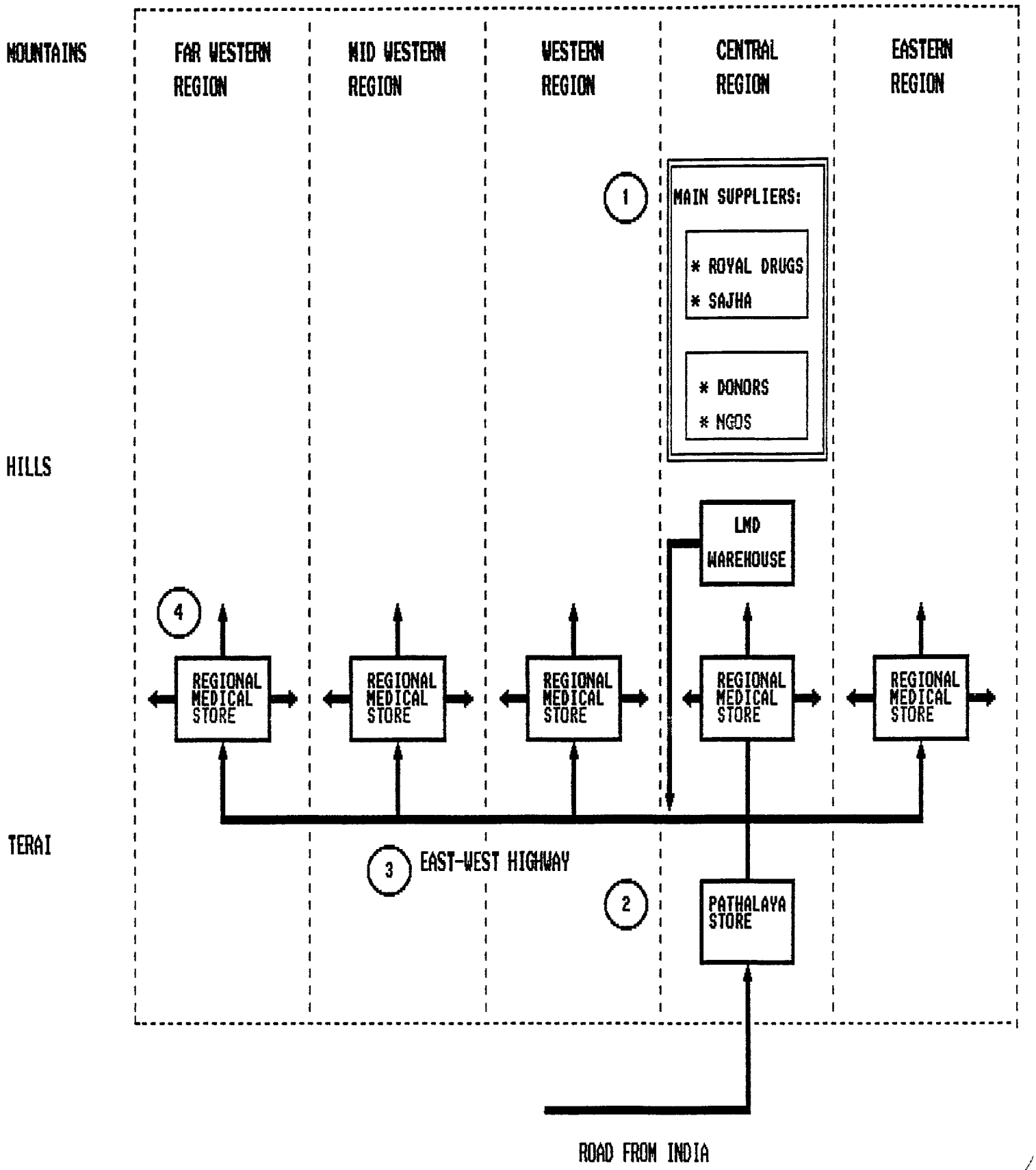
BY ECOLOGICAL BELT

REGION	SUB HEALTH POST	STATIC HEALTH POST	ILAKA HEALTH POST	HEALTH CENTER	DISTRICT HOSPITAL	ZONAL HOSPITAL	REGIONAL HOSPITAL	CENTRAL HOSPITAL
MOUNTAIN		12	144	8	12	0	0	0
HILL		84	351	9	34	0	1	5
TERAI		45	180	1	15	9	1	0
TOTALS	+/- 300	141	675	18	61	9	2	5

SOURCE HMG HEALTH INFORMATION BULLETIN FOR 1992 WITH SOME MODIFICATION TO REFLECT RECENT CHANGES

FIGURE 6

PUBLIC SECTOR DRUG DISTRIBUTION SYSTEM



3 HOW DRUGS ENTER THE DISTRIBUTION SYSTEM

Within the context of the structure summarized above, the following clarifications are made concerning how drugs enter this distribution network

Royal Drugs, Limited RDL ships its products from its factory in Kathmandu directly to the Regional Medical Stores

Sajha Most of the drugs procured through Sajha are of Indian origin, enter the country at Birganj, pass through Sajha's Store at Pathalaya, and are then distributed by Sajha to the RMS (Sajha's Pathalaya Store is distinct from HMG's Medical Store of the same location, and is not shown on the flow chart)

Sajha does procure some drugs from local companies, some of which are located in Kathmandu, and some in Birganj Local products originating in Kathmandu go straight to the RMS Those originating in Birganj pass through Sajha's store at Pathalaya

UNICEF UNICEF procures drugs both from the United Nations International Procurement Agency (UNIPAC) and locally Those arriving from UNIPAC pass through the Pathalaya Medical Store, but they are packaged and addressed to the different Regional Stores

Central Programs A direct review of how the drugs purchased by the central programs enter the distribution system has not been made, but it is thought that the principles summarized above apply That is, products from Royal Drugs go directly to these programs' respective storage facilities in Kathmandu, products from Sajha either go directly to these same sites if purchased locally, or pass through Sajha's Pathalaya store, if coming from abroad, and products purchased abroad by UNICEF pass through HMG's Pathalaya Medical Store

LMD's warehouse in Kathmandu is used for storing a wide variety of expendable and nonexpendable supply items used by HMG LMD is just beginning to take over the coordination of drug supplies for the different central programs As noted above, the plan is that, in the future, these programs' drugs and medical supplies, other than EPI, will be passed through the LMD warehouse Vaccines, because of their special cold chain requirements, will continue to be kept at EPI's storage facilities

4 HOW DRUGS ARE REDISTRIBUTED WITHIN THE DISTRIBUTION SYSTEM

Once drugs have entered the distribution network, they are redistributed down through the regional, district and clinical facility levels The principal modes of redistribution are summarized below

Redistribution of the Regions' Annual Procurement through the Regional Medical Stores Once drugs and medical supplies arrive at the RMS, staff repackage them into separate consignments, addressed to each hospital or Health Post For Health Posts, there is only one shipment annually Informants at the Central Regional Office stated that in the case of the District Hospitals, there are two shipments annually Informants stated that this basic pattern is also followed in the other Regions, but this has not been verified

In general, the practice is for Regional Medical Stores to deliver supplies directly to those Health Posts which are easily accessible from the roads between the RMS and the District Health Offices For the others, which make up a reported 40% of the total, the consignments are dropped at the District Health Offices for redistribution From these points, transport is arranged through local public or private sector means, including lorries, busses, porters and pack animals (8) According to one informant, although arrangements through private sector means are sometimes made at the district level, it would be misleading to imply that this is extensive, and the public sector means tend to predominate

The vehicular and financial resources available to support this redistribution appear limited According to one source, LMD has two Tata three-ton lorries with beds measuring about three by four meters There is one truck each at the Central and Eastern Regional Medical Stores, and one lorry and one pickup assigned to the Midwestern Region Precise information on the sizes and operating status of these vehicles is not available See figure seven Staff at LMD and the Central Regional Office have stated that funds available for transport at the District Health Offices are insufficient For example, the daily rates which HMG is willing to pay porters are below market rates

One source describes the following as the *real problem* with making local deliveries local transport budgets are allocated to the Regional Health Directorates For the 40% of off-road sites, the District Health Offices are supposed to arrange the local transport and be reimbursed by the Regions In many cases, the regions do not process the paperwork in time to make the reimbursements before the end of the fiscal year, after which they lose access to the money Consequently, much, perhaps most, of the money allocated to the regional level for local transport never gets spent This obliges the districts to somehow find transport money from other budget headings, and greatly complicates their book keeping (9)

Redistribution of Drugs Supplied through Central Programs In the past, and presumably this is still true for the moment, the central programs have employed a variety of distribution strategies, including passing their supplies through the Regional Medical Stores, passing them through their own regional level stores, delivering directly to District Health Offices storerooms, and delivering directly to clinical facilities One source's summary of the principal methods of redistribution is given in figure eight

The vehicle resources available to support the distribution of central programs' supplies are listed as including nine lorries and 13 pick up trucks Assignment of these machines by program is summarized in figure seven Some informants believe that the figure of 20 vehicles overall exaggerates the transport resources available within these programs, and that this total probably includes non-operational vehicles

FIGURE 7

SUMMARY OF VEHICLES IN OPERATING OR REPARABLE CONDITION

UNIT	TRUCKS	PICK UPS
CENTRAL LEVEL		
LOGISTICS MANAGEMENT DIVISION	2	
FAMILY PLANNING/MOTHER CHILD HEALTH	1	4
MALARIA	2	2
PUBLIC HEALTH	2	2
EPI		5
CURATIVE	2	
REGIONAL LEVEL		
CENTRAL REGION	1	
WESTERN REGION		
MID WESTERN REGION	1	1
FAR WESTERN REGION		
EASTERN REGION	1	
TOTAL	12	14

SOURCE KUNWAR AND SHRESTHA, "STUDY OF VOLUMETRIC AND SPACE NEEDS ," PAGE 18

IGURE 8

SUMMARY OF CENTRAL PROGRAMS REDISTRIBUTION METHODS

PROGRAM	APPROXIMATE PERCENTAGE OF SUPPLIES SENT TO			
	REGIONAL MEDICAL STORES	PROGRAM S REGIONAL STORE	DIRECT TO DISTRICT	DIRECT TO HEALTH POST
FAMILY PLANNING/MOTHER CHILD HEALTH		80–90	10–20	
2 MALARIA		50	50	
3 PUBLIC HEALTH	25		75	
EPI		79+	20	–1
5 CURATIVE DIVISION				
* DRUGS	90		10	
* EQUIPMENT	25		75	
6 EPIDEMIOLOGY	30		70	
7 NURSING			100	
8 CENTRAL LABORATORY			100	

OURCE KUNWAR AND SHRESTHA STUDY OF VOLUMETRIC AND SPACE NEEDS PAGE 12

5 STORAGE CONDITIONS AND STOCK CONTROL

Unfortunately, due to time constraints and the coincidence of this assignment with the recent flooding, it has not been possible to visit very many storage or clinical facilities Visits have been made, however, to the Central Regional Office, Logistics Management Division warehouse, the District Hospital at Chautara and the Ilaka Health Post at Panchkhal The findings which these visits produced are summarized below

At the Central Region's Office Procurement staff were asked about their knowledge of stock on hand at the RMS They could not provide any information on drugs or other supplies on hand When asked about how they knew whether or not drugs ordered from RDL and Sajha had actually been delivered, they stated that the RMS provided a report to the Finance Section, which Finance used as the basis for payment Finance Section staff were able to produce a file of these receiving reports, as well as summaries of payments to RDL and Sajha

While this is good as far as it goes, the Central Regional Health Office apparently has no regularly exercised mechanism, such as monthly status reports or periodic physical inventory reports, to independently verify that goods listed in the receiving reports either are in stock, or have passed through the RMS Procurement staff do not appear to monitor receipts and issues for inventory management purposes For example, while it is good that Finance would pay only for goods received, there does not appear to be a mechanism to follow-up on missing items and assure that all stock is delivered for the purposes of providing complete consignments to the clinical facilities

In sum, for the Central Region, the monitoring and reporting connections between the Regional Health Office (where procurement planning and financial accountability take place) and the Regional Medical Store (where storage and stock control takes place) appear to be tenuous If the information summarized here is correct, there does not appear to be a paper trail that is adequate for auditing purposes Since, however, the Central Region's RMS was not actually visited, this finding must be regarded as provisional

An important factor contributing to this situation is the distance separating the two work sites The Regional Office is located in Kathmandu, in the Hill Belt, and the medical store is located in proximity to the East-West Highway to the south The other regions have the same configuration See figure nine

At the LMD Office and Warehouse Staff were able to provide files of invoices for incoming stock and issue tickets for outgoing stock Receipts, issues and balances are controlled by means of a register, with a separate page for each item (This would be equivalent to a stock card record file) Staff could not produce any reports of physical inventory They stated that they did take physical counts of stocked stored in their warehouse, and made corrections directly in the register Again, the independent checks required for auditing purposes do not appear to be in place

FIGURE 9

LOCATIONS OF REGIONAL HEALTH OFFICES AND MEDICAL STORES

REGION	LOCATION OF REGIONAL HEALTH OFFICE	LOCATION OF REGIONAL MEDICAL STORE	HOURS OF TRAVEL TIME DRIVING
CENTRAL	KATHMANDU	HETAUDA	6 5
WESTERN	POKHARA	BUTWAL	5 0
MID WESTERN	SURKHET	NEPALGANJ	4 0
FAR WESTERN	SILGADHI	DHANGADHI	4 0
EASTERN	DHANKUTA	DHARAN	2 0

The LMD warehouse, located right next to the Division's office in Kathmandu, appears to be an adequate building which apparently has not flooded so far during this year's rainy season It is well-supplied with shelves, but other equipment appear minimal or lacking Stored there are all manner of supplies and equipment Some drugs provided for the current disaster relief effort are kept there, and apparently some drugs from some of the central programs are beginning to arrive By and large, housekeeping and stock arrangement was poor Neither shelf labelling nor bin cards were in evidence Very reasonably, the staff asked that it be taken into account that a lot of new stock had just been thrust on them, and they have not had time to organize it

Figure ten summarizes the reported storage capacities of this facility, as well as those of the of the central programs from which LMD is taking over logistics responsibility It appears that LMD is expected to consolidate within its facility, supplies now stored at seven different sites (vaccines will remain where they are) It is not yet clear how this will be done The central programs storage facilities were not visited (10)

In the Two Clinical Facilities Visited Stock at the Chautora and Panchkhal sites was stored in small, unventilated rooms Stock was stacked on shelves and floors, with no apparent organizing principal such as alphabetical order or therapeutic grouping In both cases, housekeeping was bad Both of these facilities were able to produce requisitions showing the quantities of stock received Neither had a register or stock record card file When asked if they provided any reports to the District Health Office about their drug and medical supplies, staff at both sites said they did not

Information on Sites Not Visited Fortunately, some information has already been written up on storage conditions at a number of sites not visited, and this is summarized below The documents consulted had very little to say about stock control, however

Space Available at the Regional Level Information from a recent report concerning the space available at the regional level is summarized in figure 11 Continued review of available documents may yet turn up detailed information on storage conditions and stock control measures In the meantime, however, it is not possible to make generalizations

FIGURE 10

SUMMARY OF CENTRAL LEVEL STORAGE SPACE

UNIT	TOTAL SPACE	NUMBER OF ROOMS	SPACE ADEQUATE?**	COMMENTS
LOGISTICS MANAGEMENT DIVISION				
FAMILY PLANNING/MCH	3 543	5	YES	IF JUNK REMOVED
MALARIA	858	4	NO	HEAVILY PACKED
PUBLIC HEALTH	3 688	11	NO	VERANDA AND GARAGES USED
EPI	6,294	15	NO	GARAGES AND RENTED SPACE USED
CURATIVE	2 987	1	YES	
EPIDEMIOLOGY	1 148	4	YES	
NURSING	200	1	YES	
CENTRAL LABORATORY	3 024	6	NO	MEETING HALLS AND WASH ROOMS USED

SOURCE KUNWAR AND SHRESTHA, STUDY OF VOLUMETRIC AND SPACE NEEDS PAGE 8

** BASED ON AUTHORS JUDGEMENT

FIGURE 11

SUMMARY OF STORAGE FACILITIES AT REGIONAL LEVEL

REGION	NUMBER OF DISTRICTS	FACILITY	NUMBER OF ROOMS	SPACE IN SQUARE FEET
FAR WESTERN	9			
DHANGADI		OLD MEDICAL STORE	4	1 904
		NEW MEDICAL STORE	4	2 130
		MALARIA STORE	3	750
TOTAL			11	4 964
MID WESTERN	15			
NEPALGANJ		MEDICAL STORE #1	6	2 486
		MEDICAL STORE #2	2	1 000
		OLD OFFICE BUILDING	7	766
TOTAL			15	4 662
WESTERN	16			
BUTWAL		MEDICAL STORE #1	2	2 180
		MEDICAL STORE #2	2	1 100
BHAIRAHAWA		MALARIA STORE	9	1 024
TOTAL			13	4 304
CENTRAL	19			
HETAUDA		MEDICAL STORE	7	3 086
		MALARIA STORE	2	312
TOTAL			9	3 398
EASTERN	16			
BIRATNAGAR		MEDICAL STORE	6	2 486
		MALARIA STORE	3	578
		EPI STORE	4	440
DHARAN		MEDICAL STORE	27	5 935
TOTAL			40	9 439

SOURCE KUNWAR AND SHERESTHA STUDY OF VOLUMETRIC AND SPACE NEEDS PAGE 11

Reported Conditions in District Health Offices and Health Posts In 1992, a team sponsored by USAID visited six District Stores and ten Health Posts for the purpose of evaluating the storage of contraceptive supplies Their report contains the following summary of the conditions which they found

> *Most of the storerooms were very disorganized and unclean In some cases the storeroom floor was covered with trash boxes and medicines Part of the reason for this was that there were insufficient racks or cabinets Many storerooms also had one type of item scattered in various locations For example in a number of cases, we found condoms in three or four places within the storeroom This resulted in the storekeeper not knowing where stock was located or how much stock was available The conditions of the stores resulted in damage of stock and in some cases, significant wastage*
>
> *In some stores, there were leaks in the roof, broken windows or doors etc This resulted in water damage or damage from insects and rodents The team found several examples of large boxes of condoms that were totally destroyed by mildew or being stored in a damp place or from insect infestation Few storerooms had pallets (11)*

C Human Resources for Supply Management

The new regime at MoH is described in an unofficial translation of the publication *Organization Structure of the Ministry of Health*, which was released by HMG in July 1993 This document attempts to describe how the different units are expected to function through presentation of organigrams, staffing tables and mission statements This section compares, for purposes of drug management, the staffing patterns proposed in this plan with the human resources apparently in place during the month of August 1993

1 LOGISTICS MANAGEMENT DIVISION

Organization Structure divides LMD into three sections, which are, Indent and Procurement, Stores and Supply and Vaccine Supply

Altogether, there is supposed to be a staff of 28, including the Director, Senior Public Health Officers, Pharmacy Officers, Pharmacy/Health Assistants, Electricians, Refrigeration Technicians, Cold Chain Assistants and Loader/Packers

LMD's mission is summarized as follows

The division will perform the following functions to insure a regular supply of medicines, equipment and vaccines for the effective operation of health services programs, in consultation with all health agencies and institutions

Indent and Procurement Section

1 *To manage indent and procurement of all materials considered necessary after reviewing annual statements of requirements received from all agencies*

2 *To manage the purchase of drugs equipment and other supplies by consulting concerned divisions at the appropriate time either periodically semi-annually or annually*

3 *To insure timely supply of drugs, equipment and vaccines to all health institutions of the kingdom through realistic planning and with knowledge of time requirements*

4 *To prepare a supply schedule for standing grant assistance by specifying time of requirement*

Inventory and Supply Section

1 *To manage stores considering nature and quantity of goods to be received and issued at different times*

2 *To keep drugs, equipment and other goods safe and to provide these to offices outside Kathmandu valley (especially drugs) well in advance of expiry dates*

3 *To enquire about and monitor the supply of goods to various institutions to insure appropriate use of those goods*

4 *To save unnecessary expenses in transportation of medicines to Kathmandu to store goods received by surface in Pathalaya and distribute from them there to district health offices*

5 *To inspect handling of stores outside Kathmandu Valley*

6 *To assist other divisions in the supply of drugs equipment and other goods outside Kathmandu Valley*

Vaccine and Supply Section

This division will have responsibility for the proper storage of vaccines and for distribution to various parts of the country, currently under the responsibility of the Expanded Immunization Division In general, the present practice of storage and distribution of immunization will be followed (12)

At present, only five of the 28 positions for the LMD are filled These include the Director, one Pharmacy Officer, one Pharmacy Assistant and two Health Assistants The distribution of these staff between the three sections is unclear, and it appears that everyone is just doing whatever needs to be done pending the assignment of more personnel There are no computers at LMD, nor do any of the staff currently assigned have computer skills

2 REGIONAL HEALTH DIRECTORATES

As foreseen above, supply operations at the regional level are divided into two parts the Procurement Sections, whose names are to be changed to Indent and Supply Coordination Subsections (ISCS), which are located at the Regional Health Offices situated up country, and the Regional Medical Stores, which are located to the south in proximity to the East-West Highway

Organization Structure states that ISCS will have three staff, including a Health Inspector, a Refrigerator Technician and a Cold Chain Assistant

The units' mission is described as follows

1 *It bears responsibility of handling stores of the Regional Directorate*

2 *It handles the medical stores in Pokhara and Surkhet*

3 *It cooperates with and helps Regional Medical Stores*

4 *It manages the vaccine storage*

5 *It monitors whether or not drugs equipment and vaccines are duly supplied* (13)

At the central Regional Health Office, at present, there is in place one staff member, who is a Senior Auxiliary Health Assistant He is the party responsible for compiling the requests from the clinical facilities and preparing the annual orders to be placed with RDL and Sajha He is apparently not yet aware of responsibilities for monitoring supply transactions at the Regional Medical Store or at lower levels of the system This staff member performs all of his work manually, and does not have any computer skills

Meanwhile, next door, the Planning, Monitoring and Data Section has an IBM compatible personal computer with a 286 micro processor This machine has one working 5 25 disk drive and one which is not working, plus a 60 megabyte hard disk There is also an Epson LQ 2500 wide carriage dot matrix printer Software installed on the computer includes WordPerfect, Lotus 1-2-3 and Fox Base There are two staff members who are able to operate this equipment Although they are not yet highly proficient, they appear to be confident and have a reasonable grasp of what computers can do

The chief of the Planning, Monitoring and Data Section (PMDS) states that the computer could be made available for drug management work, and that, in fact, he has in the past considered automating certain tasks, but that there was not much interest in this idea He also said, very reasonably, that he would only support computerizing drug management activities if certain conditions were met These include sufficient training for the operators, manuals to accompany any software that is installed, and a budget for supplies and maintenance

3 REGIONAL MEDICAL STORES

Organization Structure lists 11 staff members for an RMS The position titles are Officer, *Nayab Subba*, Refrigerator Technician, Pharmacist/Health Assistant, Cold Chain Assistant, Driver, *Peon*, Watchman, Loader-Packer, and Typist

An RMS's mission is summarized as follows

> *It is not practical to manage the supply system of drugs and equipment to be supplied at the health institutions within the Kingdom from the central level In view of this the existing five Regional Medical Stores will remain in the proposed structure with the objective of managing distribution at the local level through the medical stores in each region* (14)

As noted, the assessment team did not visit any of the RMSs, but the following summary of staffing levels at these facilities is provided by a 1991 study

> *The approved staffing pattern for a Regional Medical Store includes nine staff members of six categories -- Health Assistant [or] Senior Axillary Health Worker, Accountant Kharidar, Driver Helper and Peon/Loader In the central Regional Store only one post (the Accountant) was found vacant out of the total of sanctioned posts In the Midwestern Regional Store, three posts were vacant The manpower in Far-Western Medical Store was among the worst of the three studied stores Out of ten sanctioned posts only four positions were filled* (15)

4 CLINICAL FACILITIES

It is reported that outside the Kathmandu Valley there are major gaps in the staffing in clinical facilities The same 1991 report cited above concerning RMS staffing, provided the following information for a sample of 40 Health Posts distributed among five districts

> *The manpower situation in the Health Posts was very discouraging The approved staffing pattern for an Ilaka Health Post consists of one Health Assistant (HA) or one Senior Axillary Health Worker (Sr AHW) two Axillary Health Workers (AHW) two Axillary Nurse Midwives (ANM), one Village Health Worker (VHW) for each Village Development Committee (VDC) one Mukhiya and three Peons Cumulatively, 22% of [HA and Sr AHW] 31% of AHW 69% of ANM 7% of VHW and 40% of Mukhiya's positions were found to be vacant* (16)

This is important because making further progress in such diverse drug management activities as monitoring stock levels and consumption, and quantifying needs and rationalizing use, all depend on interactions with Health Post staff To the extent that staff are not in place, progress will be constrained

5 KEY ISSUES IN HUMAN RESOURCES MANAGEMENT

In light of what is proposed in *Organization Structure* and what has been taken in from reports and discussion with local informants, a number of issues emerge which should be taken into account when making plans for improving drug management

1 **Confusion over Organizational Roles** Where drug management is concerned, the most notable finding to emerge from a review of *Organization Structure s* mission statements is that, as written, they

- Allocate all responsibility for drug procurement to the Logistics Management Division
- Appear to contradict the current practice whereby the Regional Health Directorates plan and manage their own annual drug procurement

In response to questions about what is really intended, informants have given contradictory answers, but the consensus seems to be as follows

- The Regions will continue to manage their annual procurement
- LMD will coordinate drug management for the central programs, especially where donor inputs are concerned
- LMD will have some supervisory responsibility over regional supply operations, but specific tasks and means are not yet defined

This matter should be discussed as soon as possible with HMG, and the intended state of affairs should be verified

2 **Absence of Job Descriptions** The mission statements in the *Organization Structure of the Ministry of Health* are constructive in so far as they take into account specific deficiencies in drug management operations that have occurred in the past and propose to correct them They are very general, however, and need to be supplemented with specific job descriptions for each position This would do a lot to help clarify organizational relationships in the new order No HMG informant who was asked could produce a written job description, nor did any party talk as if he or she had ever seen one

3 **Frequent Transfers of Personnel** Related to the previous point is the matter of the relative stability of those staff who are in place It is reported that outside the Kathmandu Valley, transfers of personnel, and especially key personnel, are very frequent Apparently the transfers are not controlled by MoH, but rather by Regional Health Directorates This too will constrain progress, in the sense that staff at clinical facilities, District Health Offices, Regional Health Offices and Regional Medical Stores will all require some degree of training in new routines High rates of staff turnover will limit the effectiveness of such training

4 **Absence of Monitoring and Supervision** Finally, it is reported that monitoring and supervision rarely occur in the MoH system It is understood that this is due to very real problems such as availability of staff and money to support travel, as well as cultural orientations (At present, the per diem is set at NR 35, which is very low) Still, many of the measures to be taken for improving drug management, and especially rational use, require some degree of monitoring and supervision Again, progress will be constrained if innovative means cannot be found to carry these activities out

D Cost Recovery Schemes

1 COVERAGE

There are drug cost recovery schemes operating at a reported 197 sites including five hospitals, 163 Health Posts and 29 Retail Outlets These schemes are sponsored by at least 12 different donors or NGOs, working in collaboration with HMG The most prominent are the WHO country program, with 81 sites, and the Britain Nepal Medical Trust, with 72 The 168 clinical facilities in which cost recovery schemes operate, represent about 14% of HMG's total number of hospitals and Health Posts

Information on drug scheme names, sponsors, coverage and fees is summarized in figure 12 (17)

There are at least a couple of ways to classify the programs now operating **One** is by consumers' mode of payment for drugs Using this approach, three types may be identified

- The *first type* is **full cost recovery schemes**, of which there is but one, and that is the Hill Drug Scheme (HDS), which operates in 29 retail outlets Under this system, local shop keepers in communities not served by retail pharmacies are identified to sell drugs, which are provided by HDS

  HDS sells to the shop keepers at cost plus 10%, and the shop keepers, in turn, resell them to the public at fixed prices, which include a 12 5% profit Through this mark up structure, HDS seeks to recover all costs for product acquisition, transport, administration, and stock losses The drugs provided by HDS are divided into two lists the "P" or Prescription List for products which may only be sold by prescription from an MoH prescriber, and the "G" or General List for products which may be sold over the counter

FIGURE 12

OVERVIEW OF COST ECOVERY SCHEMES

NAME OF SCHEME	SPONSOR	OUTLET TYPE				CHARGE TO PATIENT		% RECOVERY
		HOSPITALS	HEALTH POSTS	RETAIL STORES	TOTAL	TYPE	IN AMOUNT	
REVOLVING COMMUNITY DRUG CO-OPERATIVESUPPLY SCHEMES	WHO	0	81	0	81	FLAT FEE	2	NA
LALITPUT MEDICAL INSURANCE SCHEME	UNITED MISSION TO NEPAL	0	6	0	6	INSURANCE PREMIUM	25-80	74
BHOJPUR DRUG SCHEME	BRITIAN-NEPAL MEDICAL TRUST	1	10	0	11	FLAT FEE	6	25
KHOTANG DRUG SCHEME	BNMT	0	3	0	3	FLAT FEE	1 & 3	NA
TERATHUM COOPERATIVE DRUG SCHEME	NETHERLANDS LEPROSY RELIEF	0	9	0	9	FLAT FEE	2	NA
TAPLEJUNG DRUG SCHEME	BNMT	1	9	0	10	FLAT FEE	3 & 5	21
PANCHTAR DRUG SCHEME	BNMT	1	11	0	12	FLAT FEE	6	37
SURKHET DRUG SCHEME	CANADIAN GOVT	0	7	0	7	FLAT FEE	2	NA
MUSTANG DRUG SCHEME	SOCIAL SERVICE COORD COUNCIL	1	8	0	9	FLAT FEE	1	NA
DOLAKHA DRUG SCHEME	INTEGRATED HILL DEVELOPMENT PROJECT	0	6	0	6	FLAT FEE	2 & 1 PER ITEM	NA
DANKUTTA HEALTH POST SUPPORT PROGRAM	SAVE THE CHILDREN FUND (UK)	0	13	0	13	FLAT FEE	0.25 - 0.50	NA
HILL DRUG SCHEME	BNMT	0	0	29	29	COST PLUS	PRICE PER ITEM	109
	TOTALS	5	163	29	197			

- The *second type* is **cost sharing schemes**, and these are represented by the Revolving Community Drug Cooperative, Mustang, Surkhet, Dolakha, Terhathum, Bhojpur, Panchthar, Taplejung and Khotang schemes, which altogether cover 162 sites Within this group, there are at present three systems for sharing costs and these include flat registration or consultation charge for patient visits, flat charge per prescription, regardless of what is prescribed, and two level charges per prescription, that is, one flat fee for relatively cheaper drugs, and a second higher fee for relatively more costly drugs The objectives of all of these schemes are stated to be about the same, which are, maintenance of year-round supply of drugs in HMG clinical facilities through cost sharing with consumers, and community involvement in the management of the drug supply

- The *third type* is **prepayment schemes**, and here there is only one, which is the Lalitpur Medical Insurance Scheme The premium is paid annually on a household basis and covers the cost of services and drugs at the six Health Posts in which the scheme operates

A **second way** to classify the different schemes now operating is by the logistics strategies which they employ to assure supplies of drugs The best way to illustrate this is to compare the two largest efforts, which are the WHO sponsored Revolving Community Drug Cooperative Supply Schemes and the Britain Nepal Medical Trust (BNMT) sponsored Bhojpur, Khotang, Taplejung, and Panchtar Drug Schemes

- The various BNMT Schemes are supported by a centralized supply and administrative system, which purchases drugs, periodically supplies them to participating clinical facilities, provides supervision and conducts ongoing evaluation of the overall program

  The operating assumption is that a central structure that provides these services is required in order to maintain adequate supplies

- The WHO Scheme provides very little administrative or logistics support after start up Health Post Health Committees, composed of representatives of the communities and Health Post staff were organized at each site Next, capital consisting of the following elements was supplied initial consignments of drugs worth NR 10,000,000 provided by HMG, NR 20,000 in funds to purchase replacement stock provided by WHO, NR 5,000 for preparatory costs provided by WHO, and finally, 13 5% fixed rate bank deposits of NR 50,000 in favor of the individual Health Posts that were opened by WHO, with the intention that the interest income would be available to supplement income from sales for the purpose of replenishing drug supplies Finally, participants at each site were provided with guidelines for managing these assets and making their own purchases of replacement stock The plan was for District Health Office staff to supervise each site once a month

  The operating assumption is that, in view of the difficulty and expense of providing central logistics services, the best way to assure drug supplies is to delegate these activities to the local level

2 EFFECTIVENESS

As noted above, the overall objectives of all these schemes are about the same to maintain a year-round supply of drugs in HMG clinical facilities through cost sharing with consumers, and community involvement in the management of the drug supply The key question is *are any of these schemes achieving these objectives?* In order to answer definitively, it would be necessary to know the answers to certain questions, such as

- Are the adequate stocks of essential drugs being maintained over time at participating sites?
- Are the revenues generated by the various fee structures contributing significantly to drug replacement costs?
- And finally, what is the financial behavior of these schemes over time? Since total cost recovery is not the objective, what level of financial subsidy would be required to maintain capitalization, and consequently, adequate supplies?

The information available for answering these questions is summarized below

BNMT has done a remarkably good job at ongoing program evaluation If the information in their annual report for 1991 is understood correctly, the following seems to be the case, on average, for the cost sharing schemes which they sponsor at 36 sites in Bhojpur, Tablejung, Panchtar and Khotang

- Of total program operating costs, drugs accounted for 55%, and administration and transport for 45%
- The percentage of all these costs recovered was 24%
- For all goods and services provided, therefore, the rate of subsidy would be about 76%, which represents 138% of drug costs (18)

One way of interpreting these findings would be to reason that

1. Although this system as it presently functions is not financially self-sustaining,
2. administrative and transport costs would still be incurred with free drug dispensing, which is MoH's present arrangement,
3. and that the BNMT model is recovering about 45% of product acquisition costs, and therefore,
4. the approach used in Bhojpur, Taplejung, Panchtar and Khotang is probably relatively beneficial when compared to MoH's current approach

Two additional findings which tend to support this line of reasoning are that

- Drug availability is probably much better in the BNMT supported sites than at ordinary MoH clinical facilities In one recent survey covering all sites in Khotang and Bhojpur, about 80% of ten essential products were in stock Comparable data for a control group of ordinary MoH sites was not available, but it is often said on an anecdotal basis that MoH supplies are sufficient for only three to four months
- Patient attendance has tended to increase much faster than population in participating BNMT sites For the long established programs in Taplejung, Bhojpur and Panchtar, increases in attendance ranged from 12 7% to 21 9% between 1990 and 1991, while population growth over the preceding ten year period was less than 5% In the newly established program in Khotang, the rate of increase in 1990, the first year of operations, was 240%

The information summarized above suggests that the BNMT cost sharing model is delivering a number of real benefits, including recovery of about a quarter of the total operating costs, relatively high rates of drug availability and increases in patient attendance

Much less information is available on the **WHO** sponsored cost sharing model than is the case with BNMT This program began with 12 sites in 1986, and has grown to 81 sites at present This program's objectives and strategies for implementation are clearly presented in at least three reports, but very little data was encountered on the key matters of drug availability and financial performance

In 1988 and 1989, evaluations were conducted for the sites at which the program had been implemented This amounted to 12 sites for the 1988 evaluation and 20 sites for the 1989 evaluation, for a total of 32 sites Although the program has expanded to include 81 sites, no additional information on evaluation was encountered (19)

For the 32 sites that have been evaluated, the information available is summarized as follows

- Sites were reviewed after periods of operation ranging from five to 15 months The average amount of money collected per month varied from NR 262 to 2180 or US$ 5 34 to 44 00

- For patient attendance, 13 sites were rated "low," five "normal," and 14 "high" or "increasing "

- Program implementation was rated "satisfactory" or "very satisfactory" at 21 sites, and "not satisfactory" at 11 sites

- 26 of 32 Community Health Committees were rated "active" or "very active," and six were deemed "less active "

- District Health Officers responsible for 23 sites were rated "active," and nine were deemed "indifferent" or "mismanaged "

It is difficult to make much of this information The only financial information is the summaries of monthly incomes, and this provides no answers to such key questions as

- Whether drugs stocks are being maintained

- Whether capitalization is being maintained

There is some indication that patient attendance may be increasing at about half the sites evaluated, but no definition is provided for the indicators used to describe this development In fact, definitions were provided for none of the indicators used in the evaluation report

The decentralized procurement and management model being tested by the WHO sponsored cost sharing program is a logical one, given the geographic and human resource constraints which confront MoH What is lacking in this analysis, however, is data for making useful comparisons with the existing MoH system, the WHO sponsored scheme and the BNMT sponsored scheme

E Discussion and Recommendations Concerning the Public Sector Pharmaceutical Supply System

1 Most of the discussion and recommendations concerning the Public Sector Drug Supply System have already been presented in section VI C , on pages 13, 14, and 15

2 One important topic not discussed in that section is cost recovery schemes In discussion with staff from both MoH and donor organizations, it was apparent that many in Nepal now assume that cost recovery schemes are the best resolution to the problem of *demand for drugs that exceeds HMG's capacity to provide them* This was especially clear at the Seminar on Health Economics and Health Financing, which took place August 23-25

Cost recovery schemes may, in fact, be the best strategy available, but many of the parties who advocate them often talk as if it is already established that they are an effective means of assuring a steady supply of appropriate drugs, and that the schemes now operating are financially viable

I would like to observe that, aside from one study carried out by BNMT which suggested that participating sites in Khotang and Bhojput had in stock, on average, eight out of a sample of ten drugs, I have encountered no documentation demonstrating that the objective of assuring steady supplies is being met Concerning financial viability, we know that BNMT sites recover about 24% of all system costs, but we do not have information to usefully compare that performance with the costs of operating the MoH system or the WHO sponsored Revolving Community Drug Cooperative Supply Scheme

I cannot help but note that worldwide, the experience with drug revolving funds in the public and/or private sectors is that they tend to de-capitalize after relatively short periods of time unless there is a very active monitoring and evaluation program in place

This is not to say that cost recovery strategies hold no promise for Nepal Rather, it is recommended that the operations research be carried out on the different types of schemes now operating, so that some objective assessment of their capacities to provide appropriate drugs, and their costs and required rates of subsidy, may be known **before** strategic decisions are made

IX. Drug Policy and Legislation

A The Department of Drug Administration

The Department of Drug Administration is the branch of the Ministry of Health responsible for overseeing the implementation of policy and legislation, the Essential Drug List, and regulatory and quality assurance measures Prior to the reorganization of the Ministry, DDA had a staff of 52 and was organized into ten sections It is proposed under the reorganization that DDA will have a staff of 32 and be organized into six sections These sections are

- Administration
- Revenue Collection and Finance
- Training and Drug Information
- Drug Registration and License
- Planning and Monitoring
- Quality Control and Research

B National Drug Policy

The HMG, in 1992, constituted a committee consisting of eight members headed by the Secretary of MoH A draft policy document, after undergoing revision, is now ready but is yet to be approved by the government It is essential that the draft drug policy reflect the views of physicians, pharmacists, manufacturers, retail/wholesale dealers, health workers, supply departments and consumer groups This is important because ultimately the success of a policy depends on those who are responsible for its implementation The draft has not yet been discussed, however, with the concerned groups and organizations

It is understood that the draft policy has taken into consideration the comments of various government departments and some NGOs The main elements mentioned in the draft drug policy are essential drugs, drug production, drug information, manpower development, legislation, quality control, supply mechanism, research and development, etc It is hoped that the draft document will be finalized soon and be approved by HMG for implementation

C Legislation

The Government of Nepal enacted legislation to control the production, distribution, sale and export-import of drugs, called the Drugs Act of 1978 Its first amendment was made in 1988 There are 40 sections in the Act and these are arranged in seven chapters The Department of Drug Administration is responsible for the implementation of the Act and other regulations and codes made under the Act To successfully implement the Act and to achieve the objectives laid down in it, HMG has made the following regulations and codes

1 **Regulation on Constitution of the Drug Consultative Council and Drug Advisory Committee 2037 (1980)**

The original composition of the council and the committee was amended in 1985 so that the Chairmen are now from the Ministry of Health instead of Ministry of Forestry

2 **Drug Registration Regulation 2034 (1981)**

These regulations were implemented in 1983 and since then, registration of retail shops, wholesale firms, imported products and other manufacturers and local pharmaceutical companies has been started by DDA

3 **Drug Enquiry and Investigation Regulation 2040 (1983)**

These regulations prescribe the duties, powers and responsibilities of the inspectors, procedure for enquiry, investigation, search, sampling and testing of drugs, etc The implementation started in 1986

4 **Regulation on Standards of Drugs 2043 (1986)**

These deal with the classification of drugs into three categories and the list of various pharmacopeias recognized in the country These regulations were implemented in 1989

5 **Code for Manufacture of Drugs, 2041 (1986)**

This is a detailed document dealing with GMP, and prescribes the nature and quality of premises, equipment, surroundings, records, quality control set up, labelling, etc , in the manufacture of drugs

6 **Code of Sale and Distributions of Drugs (1986)**

Status of implementation is unclear

7 **Code for Advertisement of Drugs**

Status of implementation is unclear

D Traditional Medicines

A variety of medical systems co-exist in Nepal These are Modern Medicine, Homeopathy, *Ayurvedic*, Tibetan, *Unani*, and Faith Healing The last four are regarded as traditional medicine The most prominent of these in Nepal is the Aryuvedic system It is estimated that Ayurvedic drugs worth NR 100 million are consumed in the country

Singh Durbar Vaidyakhana is a public sector *Ayurvedic* manufacturing company under MoH, which produces about 200 items in the form of powders, liquids, pastes, alcoholic preparation, etc About 75% of the products are supplied free in government dispensaries, while 25% of the products are sold in retail market The total production of this company is worth about NR 4 5 million There are several other small manufacturers selling *Aryuvedic* products in the market

E Discussion and Recommendations Concerning Policy and Legislation

1 The WHO/Drug Action Program team made the following observations concerning the National Drug Policy the Policy exists in draft, but it has not yet been approved by the government, nor has it ever been discussed with the various groups that would be affected by it These groups include professional associations, health workers, consumers, health teaching staff, and pharmaceutical manufactures, distributors and retailers In its present form, the draft reads more like a list of procedures and activities, than a statement of policy objectives Topics that need clarification include strategies for promoting domestic manufacturing of essential drugs, regulation and quality control of Aryuvedic medicines, promotion of rational use of drugs, and human resource needs for drug management

The WHO team has recommended that a consultant be recruited to assist MoH with organizing workshops to discuss the policy with concerned groups, and assistance be provided for revision and finalization of the policy document

2 The WHO team also made several observations concerning the existing body of drug legislation Since 1983, the DDA has been responsible for implementing the Drug Act of 1978 Some provisions of the legislation have not so far been enforced These include section 26 pertaining to prices, section 27 pertaining to limiting drug prescribing to physicians, and section 31 pertaining to authorization for chemical tests of new drugs The Act also suffers from certain omissions For example, the law does not require licensing of premises for locally manufactured drugs (only registration of products), and the qualifications of persons in charge of manufacture have not been specified Finally, certain terms used by the Act have not been defined, and these include *sell distribute* and *new drugs*

The WHO team recommended that the Drug Act of 1978 be amended as soon as possible to make up for these deficiencies Although the team did not specifically recommend short-term technical assistance to help accomplish this, it is likely that this would be required Possibly, this work could be added to the terms of reference for the consultant, which WHO has recommended to help with finalizing the drug policy

X Formularies and Essential Drugs Lists

A Current Status of the Essential Drugs List

Keeping in view the guiding principles suggested by WHO, the Essential Drugs Selection Committee, constituted by HMG, identified a list of essential drugs in 1986 The list was revised in 1992 and now has 259 items, of which 235 are the main items, and 24 are the complementary items under various therapeutic groups The list includes dosage forms and their strengths Fourteen expert subcommittees discussed and finalized the lists of drugs suitable for the national, district, health post, sub-health post and primary treatment levels

It is observed that some of the drugs listed in the National list are not included in the WHO Essential Drug List There are 157 drugs included in the list for district level, 77 for health post level and 42 for sub-health post level

A copy of the list is appended as Annex IV

B Discussion and Recommendations Concerning the Essential Drugs List

The WHO team made several observations and recommendations concerning the Essential Drug List The product selection has been well-done The list has been published under the auspices of Department of Drug Administration, but there is no clear mandate or provision for the DDA's involvement in drug use within the MoH services delivery system There is no policy statement concerning the frequency of revision of the list, or who has responsibility for making the revision Another problem is awareness According to one study only 54% of health workers surveyed in five districts knew about the list The WHO team made the following recommendations

1 MoH should amend the duties of DDA to include responsibility for product selection and use of essential drugs within the primary health care sector

2 MoH/DDA should take steps to insure that the revised list is effectively publicized and distributed to health care staff A useful step would be to include the list in basic and refresher training activities

3 A statement should be included in the draft National Drug Policy regarding the frequency of revision of the essential drug list and the parties responsible for these activities

XI Regulatory Control and Quality Assurance

A Registration, Licensing and Inspection

Every local manufacturing firm and the products it manufactures must be registered with DDA according to Drug Registration Regulation 1981 (DRR) Registration started in 1983

1 PROCEDURE FOR REGISTRATION OF DRUG MANUFACTURING FIRMS AND PRODUCTS IN NEPAL

An application is submitted to DDA in Schedule 1 of DRR 1981 for obtaining a letter of recommendation, in order to establish a drug manufacturing operation The application should include a detailed report on technical and financial capacities, along with a floor plan or lay out, and certification that the owners are Nepali citizens In case of joint ventures, a copy of the agreement between the parties is also required The application is examined by a committee of five officers of DDA They record their observations and submit them to the Chief of DDA, who is the authority notified to issue the letter of recommendation to establish drug industry in Nepal The letter is issued in Schedule 2 after the company is registered This letter of recommendation is valid for two years from the date of issue, and the progress of setting up the unit has to be reported to DDA every six months This letter is not renewable Within two years the drug unit is also required to be registered in the department of industry

After the factory is set up and before issuing license to manufacture products, the premises are examined by a team of Inspectors The inspectors ascertain that the factory is equipped with the adequate machinery and has the qualified manpower If the conditions are found satisfactory, the manufacturer is asked to apply in Schedule 3 for the manufacturing license of the products he plans to manufacture

The details of composition, strength, package size, indications, etc , furnished by the company are examined by the technical committee of DDA and a note with observation is sent to the licensing authority (the chief of DDA) After his approval, the products are registered in Schedule 4 and the manufacturing license is issued with Schedule 5 on payment of a fee of NR 100 per product The initial license is valid for two years and thereafter it is renewable every year

2 MARKETING APPROVAL

After the license to manufacture products is issued, the manufacturer has to again apply for marketing approval and furnish the following items

- Sample of the product
- Analysis report from a recognized laboratory
- Product specifications
- Method of analysis
- Label
- Literature
- Price list

If everything is found satisfactory and in accordance with regulations, the product is permitted to be marketed

Application for the import of raw material required for the manufacture of formulations by local manufacturers is made in Schedule 6, giving particulars of the quantity required, past consumption, if any, country of origin, name of the supplier, date of manufacture, date of expiry, etc The letter of recommendation is issued in Schedule 7

3 PROCEDURE FOR REGISTRATION AND ISSUE OF THE LETTER OF RECOMMENDATION TO IMPORT DRUGS

An application is submitted in Schedule 6, along with a certificate of sale by wholesale issued by DDA and other documents as prescribed The case is examined by the technical committee and a note of observations submitted to the licensing authority After his approval, the product to be imported is registered in Schedule 4 and a letter of recommendation is issued in Schedule 7 on payment of NR 200 per product The initial permission is valid for two years and thereafter renewable every year on payment of NR 100

If the product to be imported is a new drug, the application has to be first approved by the Drug Technical Subcommittee of the Drug Advisory Committee and then the above procedure is followed

4 PROCEDURE FOR ISSUING CERTIFICATE FOR SALE AND DISTRIBUTION

Application for certification to sell drugs is submitted to DDA in Schedule 8, giving the particulars of the responsible pharmacist or professionalists, and the categories of drugs to be sold and distributed After scrutiny, the certificate is issued in Schedule 9

The total number of products currently registered by DDA may be summarized as follows

• Modern Drugs	10,059
• Homeopathic	431
• *Ayurvedic*	1,545
• *Unani*	57
• Number of Importers Registered	956
• Number of Foreign Registered	600
• Number of Drug Retailers and Wholesalers Registered	8000

5 INSPECTIONS

The numbers of inspections carried out by Drug Inspectors during the period ending in July 1993 were

• Manufacturers	26
• Trade	1011 (Retail 711, Wholesale 300)

B Product Quality Assurance

Section six of the Drug Act of 1978, states that the Royal Drug Research Laboratory (RDRL) shall be the principal organ for the scientific research, testing and analysis of drugs This laboratory was established in 1960 and has been functioning as a quality control laboratory for DDA under the Ministry of Forestry

RDRL functions as a research center for plant medicines and other forest products, besides carrying out the analysis of drug samples received from DDA and from private manufacturers and corporations

From May 1993, HMG has decided that the activities of RDRL with respect to research, development and analysis of modern drugs will be transferred to the MoH, along with 25 pharmacists and chemists presently engaged in such activities The building, equipment and other laboratory facilities will remain with Ministry of Forestry and the laboratory will continue research and development on medicinal and aromatic plants and other natural forest products

DDA will now have to set up its own quality control laboratory It is understood that a proposal to construct a new building for the laboratory has been submitted by DDA to the Ministry of Health for approval of HMG An area of four acres of land is already available, and the total cost of project including building and equipment, is estimated to be about NR 4 5 crores Until the laboratory is made functional, the staff of 29 chemists and pharmacists will continue to function at the existing facilities at RDRL for at least another few years

The existing testing capacity of RDRL is stated to be about 1500-1600 samples per year According to RDRL, in 1992-1993, 960 samples were tested, out of which only 16 came from DDA The balance of 945 samples were received from local manufacturers, importers and customs Pharmaceutical products imported from India are not required to undergo quality control checks, but products from other countries are About 250 such samples were received from customs

The information given by DDA reveals that during 1992-1993, 17 samples were sent to RDRL and 80 samples were sent to other laboratories in India for test and analysis The reports were received for seven samples from RDRL and for 69 samples from other laboratories

C Discussion and Recommendations Concerning Regulatory Control and Quality Assurance

1 A major problem for DDA is management of the drug registration data base In section VI D , the recommendation has already been made that DDA be provided with assistance in computerizing the drug registration process Details concerning problems and recommendations are found on pages 16 and 17

2 The WHO team observed that neither the former staffing levels nor those proposed under the MoH reorganization are sufficient for carrying out all mandated regulatory functions This is an example of a certain incongruence between HMG's stated aims and actual practice For example, the draft National Drug Policy speaks of encouraging local production of essential drugs, but DDA does not have inspectors with appropriate training in inspection of manufacturing premisses

The WHO team observes that DDA has submitted to MoH their own proposal for expansion and reorganization of the department The team recommends that MoH consider the proposal favorably

3 The WHO team observed that Nepal imports about 80% of its drugs from India, and that currently little is being done to check the quality of imported products According to informants, pharmaceutical products entering the country are not submitted for quality control checks, and GMP certificates are not required The team recommended at that, at the very least, the WHO Certification Scheme, which requires batch certification, should be implemented as soon as possible

4 Concerning quality control testing facilities, the WHO team notes the confusion occasioned by the transfer of RDRL staff, but not equipment or plant, from the Ministry of Forestry to the Ministry of Health In the present situation, MoH is effectively has no capacity for quality control laboratory analysis

The team noted that it is of utmost importance that a new quality control laboratory capable of testing about 4,000 samples per year be set up by MoH for supporting the quality monitoring functions of DDA Besides the samples received from drug inspectors, the laboratory could assist customs, importers and local manufacturers for testing their products The WHO team notes that DDA has submitted a proposal for a new building and equipment to the government, and they feel that HMG should treat the request as a priority item, it is unclear whether funds will be available

XII Drug Information and Drug Utilization

A Rational Use of Drugs

1 PRODUCT SELECTION AND STANDARD TREATMENT GUIDELINES

Nepal has made significant progress in promoting the rational use of drugs within the country by instituting a *National List of Essential Drugs* (1986) and by publishing in 1988 a *Standard Drug Treatment Schedule for Health Posts* The essential drugs list was revised and republished in 1992 and the SDTS is in the process of revision The MoH and DDA are to be commended for these publications and for updating them

A study done in 1991 surveying five districts revealed that 54 49% of district health staff surveyed were not aware of the EDL The same study showed that 87 5% of 72 staff were not aware of the SDTS Unless clear mechanisms are developed for the effective distribution and promotion of the use of these books both in training institutions and at the point of use, the full value of the effort in good selection and compilation of SDTS will not be realized

The Mission was made aware of a book entitled *Medical Treatment* recently published and specifically aimed at primary health care workers, which gives questionable information and advice about the treatment of common diseases and is totally unrelated to the EDL and the concept of essential drugs in Primary Health Care Discussion with the Director of Health Learning Materials (the publishers) revealed that the text is unlikely to be republished Some in-house drug lists and standard treatment guidelines have been prepared and are used by NGOs such as the Save the Children Fund, and the United Mission to Nepal

2 SUPPLY AND PRESCRIBING

Good prescribing habits and rational drug use are based on

- The consistent availability of appropriate and good quality drugs
- Training and information in drug care and use accompanied by effective support and supervision
- Appropriate storage and good dispensing practices

Drugs are supplied to District Hospitals and Health Posts, according to the level of use specified in the Essential Drugs List Examples of recent supplies made to a District Hospital and to a Health Post were examined and analyzed In each case there were seven drug items supplied (out of 67 to the hospital and 50 to the HP) which were not on the appropriate EDL

The policy limiting supplies to the EDL predisposes towards a level of rational drug use by virtue of restricted availability A spot check of prescriptions written in the District Hospital Clinic for nine patients revealed that 14 items were prescribed, of which two were "non-stock" items in that they were soluble forms of aspirin prescribed at the patient's request However, insufficient quantities of supplies was reported to lead to "rationing" practices at the point of issue, resulting in incomplete courses of vital drugs, and therefore irrational and potentially dangerous dispensing This observation was made by several parties during discussions on the effect of inadequate supply levels This observation verifies the information printed in the UNICEF sponsored Knowledge, Attitudes and Practices (KAP) Study, where it was reported that between 25% and 75% of the required drugs are provided to patients

Prescribing practices at regional and central level institutions make use of the excessive range of drugs available in the commercial sector (over 11,000 registered items) outside MoH institutions Prescribing at this level is not limited to the government supply, and it was explained that at the Bir Hospital, all outpatient medicines and virtually all inpatient medicines have to be purchased from the retail shops A check with the nearest retail outlet confirmed that prescribing is done by brand name The Tribhuvan University Teaching Hospital is outside the MoH supply system with no apparent control on prescribing practices Patients pay for all medicines, therefore the only control factor is the patient's ability to pay The Teaching Hospital makes the majority of required medicines available through the hospital pharmacy supply, whereas at the Bir Hospital supplies must be purchased outside the hospital

In order to promote rational prescribing throughout the country, it is vital that the principles are both taught and practiced at central and teaching institutions by the senior members of the medical profession

Attention must be given to these aspects in order to maximize the use of the considerable resources used for the drug supply

3 DISPENSING AND PATIENT COMPLIANCE

Dispensing and patient compliance are important aspects of rational use At the peripheral level it was observed that dispensing facilities are inadequate Drugs were being handed to patients in paper packets, and therefore vulnerable to atmospheric damage Whilst recognizing the difficulties under which staff must function, the teaching and application of some basic practices in the care and handling of drugs could improve the situation As noted above, limited supplies were reported to result in the partial supply of prescribed items, leading to the possibility of inadequate treatment and resistant strains of certain organisms

Little is known about patient compliance at this stage and the further application of operational research techniques would provide useful information

4 SELF-MEDICATION AND RETAIL SUPPLY

The situation in Nepal with regard to open purchase and self-medication is not satisfactorily controlled Senior officials acknowledge that medicines are sold from unlicensed premises and also, the legally restricted items are supplied without prescription Even when drugs are legally prescribed, supply quantity can be according to the patient's ability to pay, which has serious implications One doctor cited a recent example of the partial supply of ciprofloxacin Two qualified persons working in the retail sector agreed that despite their advice, patients often insist on purchasing partial supplies

The Nepal Chemist and Druggist Association has 2200 members who seek to promote standards of ethics in service, price and quality The Association operates through local committees They themselves expressed concern about the quality of service and advice provided in some shops

The DDA is not able to fully implement the current legislation, due to limitations of manpower and facilities The current encouragement of free market practices is not appropriate for pharmaceuticals, where control on the range and number of available medicines is advisable for the protection and safety of the general public

It is a sobering observation that 10 3% of the total value of retail sales of medicines (including both prescribed and over-the-counter sales) in 1991/92 were for liquid vitamin preparations at a cost to patients (and therefore the nation) of NR 159,125,000

Action needs to be taken with regard to public education in the area of rational drug use, and systems developed to ensure that the public gets value for its money and appropriate advice in over-the-counter purchases The government is seeking to encourage this through an orientation course for retailers and wholesalers, run by DDA with the assistance of UNICEF

B Pharmaceutical Manpower and Rational Drug Use

The present known levels of pharmaceutical manpower are given in figure 13

Pharmaceutical personnel working within the government sector are mostly involved in either drug production at Royal Drugs, Limited or within DDA in the control of the production, import, quality control, sales and handling of drugs in the private sector A few are involved in teaching under the TU Institute of Medicine A negligible number are involved in the handling and use of medicines in the public health care services sector, and where they are involved, it is more in terms of supply management within an institution, rather than involvement at the point of prescribing and use

Whether medicines are supplied without charge, or at the expense of the patient, it is important that the available resources are efficiently utilized and that value for money is provided The present MoH structure does not appear to assign this responsibility to any department, division or section It is recommended that within the MoH, a division for pharmaceutical services be created to function at the regional level and within central hospitals, with the specific task of ensuring and supervising the correct storage, supply and use of medicines It is also recommended that the level of seniority given to the pharmaceutical staff be appropriate to the job responsibilities

FIGURE 13

PHARMACEUTICAL PERSONNEL

LOCATION	QUALIFICATION				
	PhD	M PHARM	B. PHARM	CERTIF.	TOTAL
DDA	1	6	3	3	13
RDL	2	4	5	1	12
RDRL	1	7	3	1	12
TU (LECT)	0	0	4	6	10
TU (HOSP)	0	1	0	9	10
MOH/HOSP	0	1	1	14	16
MOH/LMD	0	0	1	0	1
MOH/HERB	0	0	2	0	2
POL/RNA	0	0	1	2	3
NGO	0	0	0	7	7
PRIVATE SECTOR	2	4	23	38	67
TOTAL	6	23	43	81	153

C Discussion and Recommendations Concerning Rational Use of Drugs

1 Most observations and recommendations concerning rational use of drugs have already been made in section VI E, on pages 18-21

2 One topic not covered by those recommendations is "pharmaceutical manpower" Concerning this, the WHO team observed that the potential contribution of pharmaceutically trained personnel within the MoH system is constrained by several factors Among them are

- Limited personnel qualified to advise on the clinical use of drugs
- Concentration of the relatively few qualified persons in areas related to drug production, laboratory testing, and more recently, in regulatory control
- The misconception that pharmacists are drug storekeepers, and that their main roles should be in handling stock or dispensing drugs

As a result of these and other factors, there are few posts for pharmacists within the MoH system, and even fewer trained personnel willing to accept them The allocation of human resources in the MoH reorganization document is disappointing with regards to supervision, monitoring and control of drug use

Because the expenditures for drugs are a significant portion of total MoH funds, and because drugs are an integral part of health care, it is worth the investment to provide qualified technical staff to take responsibility for availability, quality and rational use of drugs supplied through MoH services

The WHO team recommends that the Ministry of Health appoint qualified pharmaceutical staff, each responsible to the Regional Health Director, with a mandate to function in the area of drug supply management and rational drug use throughout the region

XIII Private Sector Pharmaceutical System

A Overview

In 1992, the country consumed drugs worth NR 1532 million The locally produced drugs constitute about 16-17% and the balance are imported (80% from India and 3-4% from other countries) Registration of drugs was started by DDA in 1983 after Drug Registration Regulation 2038 (1981) was put forth by the government Prior to 1983, the drug market was freely open to Indian products Regulation of imports between Nepal and India is difficult because of a long, natural border of about 1000 kilometers So far more than 11,000 drugs of all types provided by more than 600 foreign companies have been registered by DDA There are 26 domestic companies licensed to manufacture, but only 17 are currently functioning 772 drugs from domestic industry are registered

Ayurvedic drugs worth about NR 100 million are estimated to be used in the country 25 *Ayurvedic* manufacturers are licensed by DDA and 281 drugs have been registered The process of registration is still continuing Only registered drugs are permitted to be imported or manufactured in the country

B Discussion and Recommendations Concerning the Private Pharmaceutical Sector

1 Focusing on production, the WHO team observed that only 16 to 17% of the drugs sold in the retail market are manufactured in Nepal Out of this at least 40% are produced at RDL and the balance is produced by 17 other drug manufacturers The draft National Drug Policy calls for 80% of essential drug requirements to be produced in country This would require a many fold increase in the volume of drugs manufactured domestically The main constraint to achieving this objective is competition from foreign companies, particularly Indian companies This is especially so because the domestic manufacturers have to import virtually everything required for the manufacturing process, including prime materials, exipients, machinery, containers and packaging material, most of which also comes from India

As a first step in supporting the domestic production of essential drugs, it is recommended that MoH identify a group of essential drugs for which projected consumption is high, and encourage local manufacturers to produce them The possibility of producing such items as paracetamol, metronidazole and mebendazole in joint ventures with foreign companies should be explored Of course, the appropriate range of marketing and feasibility studies would need to be undertaken

Another possibility for local production is IV fluids Local production is not meeting demand The feasibility of expanding production IV production at RDL, as well as upgrading the process to GMP standards, should be explored Specifically, the economic feasibility of setting up a "form fill and seal" plant for IV fluids at RDL should be explored

2 Concerning retail distribution, the WHO team observed that there are two associated sets of behavioral problems One stems from the behavior of parties involved in selling drugs, and the other stems from the behavior of the general public with regard to self-medication using drugs available in the retail sector

The supervision of wholesalers and retailers in terms of quality of service and quality of products sold is in the hands of the DDA The context in which the DDA attempts to fulfill this responsibility is the body of drug legislation and regulatory provisions As noted above, the DDA already works with the Chemist and Druggist Association in providing training to retailers

The set of behavioral problems stemming from public knowledge and attitudes about drugs, is not at the present time receiving much attention Public behavior toward drugs and self-medication in Nepal is similar to that encountered in many countries In Nepal, however, it is mainly a problem in cities and larger towns, affecting perhaps 10% of the population One way to address this problem is to use mass media to promote the correct use of drugs As a general recommendation, communications interventions aimed at influencing the public to use drugs rationally should be included in MoH's health education portfolio

ANNEXES

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Annex I List of Acronyms

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List of Acronyms

ARI	Acute Respiration Infection
BNMT	Britain Nepal Medical Trust
CDD	Control of Diarrhoea Disease
DAP	Drug Action Program
DDA	Department of Drug Administration
DRR	Drug Registration Regulation 1981
EDL	Essential Drugs List
EDP	Essential Drug Program
FOB	Free on Board
FPCSS	Family Planning and Child Survival Services Project
FPLM	Family Planning Logistics Management Project
HDS	Hill Drug Scheme
HMG	His Majesty's Government
IEC	Information, Education and Communications
INRUD	International Network for Rational Use of Drugs
ISCS	Indent and Supply Coordination Subsections
JSI	John Snow, Incorporated
KAP	Knowledge, Attitudes and Practices
KFW	Kreditanstalt für Wiederausbau
LMD	Logistics Management Division
MSH	Management Sciences for Health
MCH	Maternal and Child Health
MoH	Ministry of Health
NGO	Non-government Organization
ORS	Oral Rehydration Salts
PMDS	Planning, Monitoring and Data Section
PHC	Primary Health Care
RPM	Rational Pharmaceutical Management Project
RMS	Regional Medical Stores
RDRL	Royal Drug Research Laboratory
RDL	Royal Drugs, Limited
SDTS	Standard Drug Treatment Schedule for Health Posts
TA	Technical assistance
TU	Tribhuvan University
UNICEF	United Nations Children Fund
UNFPA	United Nations Family Planning Agency
UNIPAC	United Nations International Procurement Agency
USAID	United States Agency for International Development's
WHO	World Health Organization

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Annex II Notes and Sources

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NOTES AND SOURCES FOR SUPPLY AND LOGISTICS SECTION

PUBLIC SECTOR DRUG SUPPLY SYSTEM, BY JAMES BATES

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ALL OTHER SECTIONS, BY DR PREM GUPTA AND DR PAUL SPIVEY

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Annex III Persons Met

Persons Met

Nepal Ministry of Health

Ministry

Minister of State for Health	Dr Ram Baran Yadhav
Secretary, Ministry of Health	Mr Jagdishwar Upadhaya
Director, Planning & Monitoring	Dr Kokila Baidya

Department of Health Services

Director General	Dr R N Sinha
Director, Planning & Foreign Aid Division	Dr B D Chataut
Director, Logistics Management Division	Dr K B Singh Karki

Department of Drug Administration

Director	Dr Asfaq Sheak
Under Secretary	Mr D D Bhattarai
Assistant Secretary	Mr Shiba B Karki
Assistant Registrar	Mr Bimal M Shrestha

Central Region

Central Region Health Director	Dr Tirtha Rana
Sr AHW, District Hospital, Chautara	Mr Laxman Dhongol
A/Distr Health Officer, Chautara	Mr Pravit Khadga
Health Assistant,Panchkhal H/Post	Mr Shrestha

Local Pharmaceutical Industry

General Manager, Royal Drugs, Limited	Dr Shanta R Joshi
Director, Hoechst Nepal, Limited	Mr Shrikant Kulkani
Managing Director, Vijayadeep Pharmaceuticals, Limited	Mr Pradeep M Vaidya
Managing Director, Simca Labs, Limited	Mr Giridhar L Manandhar
Marketing Manager, Nepal Pharmaceutical Labs	Mr Mahesh Gorkhali
Managing Director, Deurali Janta Pharmaceuticals, Limited	Mr Nabin K Subedi
Director, Deurali Janta Pharmaceuticals, Limited	Mr Hari Bhakta Sharma
Managing Director, Pharmaco Industries, Limited	Mr S K Shrestha
General Manager, CTL Pharmaceuticals, Limited	Mr Rabi K Shrestha

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Non-government Organizations

United Mission to Nepal

A/Health Services Secretary	Dr Mona Bomgaars
Medical Supply Department	Mr Jaap Zijp
Director Community Development Health Project	Dr Richard Harding
Community Medical Officer, CDHP, Lalitpur	Dr Graham Toohill
Health Programme Manager, CDHP	Mrs Meena Sharma
Executive Officer, Patan Hospital	Mr Bir B Khawas

Britain Nepal Medical Trust

Coordinator, Drugs Programme	Dr Kathy Holloway
A/Programme Officer	Mr Bharat Raj Gautam

Save the Children Fund (UK)

A/In-charge Chautara Training Centre	Mr Upreti

Nepal Chemist and Druggist Association

Former President	Mr Pushpa Lal Rajbhandari
Secretary	Mr Suresh Pradhan
Former Vice President	Mr P Shrestha
Past President	Mr B Rajbhandari

UN Organizations

World Health Organization

WR Nepal	Dr O T Christensen
Public Health Administrator	Dr M D S Islam

UNICEF

Sr Programme/Planning Officer	Mr Lars G Wadstein
Essential Drugs Officer	Mr P Bangdel

Sajha Swasthya Sewa

General Manager	Mr Narendra Kumar Thapa
Sales Officer	Mr R Rajbhandari

Tribhuvan University Institute of Medicine

Department of Clinical Pharmacology	Professor K K Kafle
Director, Learning Materials Centre	Professor Hemang Dixit
Lecturer, Pharmacy Department	Mr Dharma Khanal
Head, Teaching Hospital Pharmacy	Mr Pan Bahadur Chettri
Assistant Dean	Assistant Professor S B Rizyal
Director, Teaching Hospital	Dr Gupta

Annex IV Essential Drug List

NATIONAL LIST OF ESSENTIAL DRUGS NEPAL

(First Revision)

1992

HIS MAJESTY'S GOVERNMENT
MINISTRY OF HEALTH
DEPARTMENT OF DRUG ADMINISTRATION
NEPAL

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His Majesty's Government

MINISTRY OF HEALTH

Ram Shah Path Kathmandu
Nepal

Ref

Date [illegible] Nov 1992

Sub — [illegible]

It is my great pleasure to know that the Department of Drug Administration bringing out the NATIONAL LIST OF ESSENTIAL DRUGS 1986 first revised booklet which includes separate list of Essential Drugs for different levels of Health care units such as District Health Post, Sub Health Post and Primary Health care level.

I am confident that such list will help in the promotion of rational use, simplify the procurement, distribution and import of drugs. I congratulate the technical experts and the staffs involved in the preparation of this list. I further expect the Department will receive necessary cooperation from all the concerned parties in the utilization of this document for rationalized distribution of drugs at Health care level.

[illegible]

Dr. Ram Baran Yadav
Minister of Health

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NATIONAL LIST OF ESSENTIAL DRUGS

Main list	Complementary List	Dosage form
1	Anaesthetics	
1 1	Inhalation anaesthetics	
	Ether	Inhalation
	Halothane	Inhalation 1-2%
	Oxygen	Inhalation (medicinal gas)
	Nitrous oxide	Inhalation
	Intravenous anaesthetics	
	Thiopental	Powder for Inj 0 5g, 1 0g (sodium salt) in ampoule
	Diazepam	Injection, 5mg/ml in 2-ml ampoule
	Ketamine	Injection 50mg (as hydrochloride)/ ml in 10ml vial
1 2	Local anaesthetics	
	Bupivacaine	Injection 0 25%, 0 5% (hydrochloride) in vial
	Lignocaine	1% & 2%
2	Analgesics, Antipyretics, Non-Steroidal Anti-inflammatory Drugs and Drugs used to treat gout	
2 1	Non-opioids	
	Acetylsalicylic acid	tablet, 100, 300mg
	Allopurinol	tablet, 100mg
	Colchicine	tablet, 500mcg
	Ibuprofen	tablet, 200mg
	Piroxicam	capsule 10mg, 20mg

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His Majesty's Government
MINISTRY OF HEALTH

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2 11076

Ram Shah Path Kathmandu
Nepal

Ref

Date 1st Nov 1992

Sub — M E S S A G E

It is my great pleasure to announce that HMG Ministry of Health has approved the NATIONAL LIST OF ESSENTIAL DRUGS 1986 (First revision) proposed by the Department of Drug Administration The main objective of updating such national list is to select the drugs which are essential to treat most of the prevailing diseases in the country on the basis of cost / benefit and benefit / risk ratio Further I highly appreciate Dept of Drug Administration for bringing out a various lists of Essential Drugs suitable for District Health Post Sub Health Post and Primary Health care levels

I am hopeful this list will enable Ministry of Health to utilise the drugs budget properely for the supply of these priority drugs These lists will be helpful in the local production of Essential Drugs in sufficient quantity I congratulat all experts who have devoted time to revise such National List of Essential Drugs and International Agencies those who have assisted technically and financially for the production revision and publication of this issue

Thank You

Bhekhundra S Thapa
Secretary
Ministry of Health

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Phone No 2 - 72277
Gram AUSHADHI

HIS MAJESTY'S GOVERNMENT OF NEPAL
MINISTRY OF HEALTH

DEPARTMENT OF DRUG ADMINISTRATION

(SECTION)

Ref No

Tulo Hoor,
Kathmandu Nepal
Date 19th Nov,1992

F O R E W O R D

In the world there are innumerable therapeutic agents available for the treatment of the ill and yet another more than thousand new agents annually access to the field of medicines

Thus it becomes imperative to choose carefully a few suitable drugs which are effective humane and affordable for the treatment of the commonest disease prevailing in the particular country

This revised list (1992) has based the selection on consumption and supply survey There were fourteen experts sub committee who had discussed and arrived on conclusion for the final recommendation of various lists suitable for National District Health Post Sub - Health Post and Primary treatment levels It has been decided under new drug policy to revise this list in every two years

My best attempt will be to implement the essential list at the most practical modality The assistance provided by the people involved directly or indirectly in this work are highly appreciated

Asif Shaikh

Dr A Faqir Shaik
Chief Drug Administration and
Head of Department

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Main list	Complimentary List	Dosage form
	Paracetamol	tablet, 500mg syrup, 125mg/5ml
	Indomethacin	capsule or tablet 25mg
2 2	Opioid analgesics	
	Morphine	injection, 10mg (sulphate or hydrochloride) in 1-ml ampoule
	Pentazocine	tablet 25mg, injection, 30mg/ml
	Pethidine	injection, 50mg (hydrochloride) in 1-ml ampoule 50mg(hydro-chloride)
3 1	Antiallergics	
	Chlorpheniramine	tablet, 4mg
	Epinephrine	Injection, 1mg (as hydrochloride) in 1- ml ampoule
	Hydrocortisone	powder for injection 100mg (as sodium succinate) in vial
	Pheniramine Maleate	Injection 22 75mg/ml
	Prednisolone	tablet, 5mg
3 2	Drugs used in cardiovascular Shock	
	Dopamine	Injection 40mg/ml

Main list	Complimentary List	Dosage form
4	Antidotes	
4 1	General	
	Charcoal, activated	powder
4 2	Specific	
	Atropine	Injection, 1 mg (sulphate) or 0 65mg in 1-ml ampoule
	Penicillamine	capsule or tablet, 250mg
	Naloxone	Inj, 400mcg (hydro-chloride) in 1-ml ampoule
	Pralidoxime	Inj 1g powder or 500mg (mesilate) vial
5	Antiepileptics	
	Diazepam	Inj, 5mg/ml in 2-ml ampoule (intravenous)
	Paraldehyde	Inj, IV, IM 5ml amp
	Phenobarbital	tablet 15mg & 30mg
	Phenytoin	capsule or tablet 100mg (sodium salt) Inj, 50mg/ml in 5-ml vial 25mg/ml suspension

Avoid discoloured product & contact with rubber or plastic

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Main list	Complimentary List	Dosage form
	Carbamazepine	scored tablet, 100mg, 200mg
	Valproic Acid	enteric coated tablet, 200mg, (sodium salt)
	Ethosuximide	Syrup 250mg/ml, tablet, 200mg & 400mg
6	Antiinfective Drugs	
6 1	Anthelmintic drugs	
	Mebendazole	tablet and chewable tablet, 100mg
	Niclosamide	chewable tablet, 500mg
	Piperazine	tablet, 300mg(adipate) elixer or syrup (as citrate) equivalent 750mg hydrate/5ml
	Praziquantel	tablet, 500mg
6 2	Antiamoebic drugs	
	Diloxanide	tablet, 500mg (furoate)
	Metronidazole	tablet 200, 400mg inj,500mg in 100ml vial oral suspension, 100mg/5ml or 200mg/5ml

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Main list	Complimentary List	Dosage form
6 3	Antibacterial drugs	
6 3 1	Penicillins	
	Amoxycillin	capsule or tablet, 250mg, 500mg (anhydrous) powder for oral suspension, 125mg (anhydrous)/5ml powder for Inj, 500mg (as sodium salt) in vial
	Benzathine Benzylpenicillin	600,000 Unit, 1200,000 Unit, 2400,000 Unit
	Benzylpenicillin	0 5 million Unit
	Cloxacillin	capsule, 250mg,500mg (as sodium salt) powder for oral solution, 125mg(as sodium salt)/5ml powder for injection 250mg, 500mg (as sodium salt) in vial
	Phenoxymethylpenicillin	tablet, 125mg, 250mg(as potassium salt) powder for oral solution, 125mg (as potassium salt)/5ml
	Procaine benzylpenicillin	powder for injection, 300,000 Unit

Main list	Complimentary List	Dosage form
6 3 2 Other antibacterial drugs		
	Chloramphenicol	capsule, 250mg, 500mg oral suspension, 125mg (as palmitate salt)/5ml powder for inj, 1g (as sodium succinate) in vial
	Erythromycin	tablet 250mg (as stearate or estolate) powder for oral suspension, 125mg (as stearate or estolate)
	Gentamicin	injection, 10mg, 40mg (as sulphate)/ml in 2-ml vial
	Metronidazole	tablet, 200mg, 400mg injection, 500mg in 100-ml vial oral suspension, 100mg 200mg(as benzoate)/5ml
	Nitrofurantoin	tablet, 100mg
	Nalidixic acid	tablet, 500mg
	Neomycin	tablet, 500mg Elixer 100mg/5ml (as sulphate)

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Main list	Complimentary List	Dosage form
	Sulfamethoxazole + Trimethoprim	tablet,100mg +20mg 400mg + 80mg oral suspension, 200mg + 40mg/5ml
	Tetracycline	capsule, 250mg, 500mg (hydrochloride)
	Trimethoprim	tablet 100mg, 200mg
6 3 3 Antileprosy drugs		
	Clofazimine	capsule, 50mg, 100mg
	Dapsone	tablet, 50mg, 100mg
	Rifampicin	capsule or tablet 150mg, 300mg, 450mg
6 3 4 Antitubercular drugs		
	Ethambutol	tablet 200, 400mg, 800mg (hydrochloride)
	Isoniazid	tablet, 100mg, 300mg
	Pyrazinamide	tablet, 500mg, 750mg
	Rifampicin	capsule or tablet, 150mg, 300mg, 450mg
	Streptomycin	powder for injection 0 75g, 1g (as sulphate)in vial

Main list	Complimentary List	Dosage form
	Thiacetazone + Isoniazid	tablet 150mg + 300mg
6 4	Antifilarial drugs	
	Diethylcarbamazine	tablet 100mg
6 5	Antifungal drugs	
	Amphotericin	powder for injection 50mg in vial
	Griseofulvin	capsule or tablet, 125mg, 250mg
	Nystatin	tablet, 500,000 IU pessary, 100,000 IU
	Ketoconazole	tablet, 200mg
6 6	Antileishmaniasis drugs	
	Sodium stibogluconate	100mg/ml,
	Pentamidine	powder for injection 200mg (as isetionate) in vial
6 7	Antimalarial drugs	
	Chloroquine	tablet, 150mg base (as phosphate or sulfate base)/5ml
	Primaquine	tablet, 7 5mg, 15mg (as diphosphate base)

Main list	Complimentary List	Dosage form
	Sulfadoxine + Pyrimethamine	tablet, 500mg + 25mg
	Quinine	tablet, 300mg (as bisulfate or sulphate) injection, 300mg (as dihydrochloride) /ml in 2-ml ampoule
7.	Antimigraine Drugs	
	Ergotamine	tablet, 2mg
8	Antineoplastic & Immunosuppressive Drugs	
8 1	Immunosuppressive drugs	
	Azathioprine	tablet, 50mg
8 2	Cytotoxic drugs	
	Cyclophosphamide	tablet, 50mg powder for injection, 100mg, 200mg, 500mg in vial
	Doxorubicin	powder for injection 10mg in vial
	Fluorouracil	injection 50mg/ml in 5-ml ampoule
	Methotrexate	tablet, 2 5mg (as sodium salt) powder for injection 5mg (as sodium salt) in vial

Main list	Complimentary List	Dosage form
	Vincristine	powder for injection 1mg(sulfate) in vial
	Busulphan	tablet, 0 5mg
	Chlorambucil	tablet, 2mg, & 5mg
	Cisplatin	powder for injection, 10mg in vial
	Cytarabine	powder for injection, 100mg, 500mg, in vial
	Mercaptopurine	tablet, 50mg
	Actinomycin	500mcg in vial
	Bleomycin	powder for injection, 15mg (as sulfate) in vial
8 3	Hormones & antihormones	
	Tamoxifen	tablet, 10mg (as citrate)
	Prednisolone	tablet, 5mg
9	Antiparkisonism Drugs	
	Levodopa + Carbidopa	tablet, 100mg + 10mg 250mg + 25mg
	Trihexyphenidyl	tablet, 2mg

Main list	Complimentary List	Dosage form
10	Blood, Drugs affecting the	
10 1	Antianaemia drugs	
	Ferrous salt	tablet equivalent to 60mg Iron oral solution equivalent to 25mg iron (as sulfate)/ml
	Ferrous Salt + Folic acid	tablet, 60mg + 250mcg
	Folic acid	tablet, 1mg
	Hydroxycobalamin	injection, 1mg in 1-ml ampoule
	Iron dextran	injection, equivalent to 50mg iron/ml 2-ml ampoule
10 2	Anticoagulants & antagonists	
	Heparin	injection, 1000IU/ml 5000IU/ml, 20000IU/ml in 1-ml ampoule
	Phytomenadione	injection, 10mg/ml in 5ml ampoule
	Protamine sulphate	injection, 2mg/ml
	Warfarin	tablet, 5mg (sodium salt)
11	Blood Products & Blood Substitutes	
11 1	Plasma substitute	
	Polygeline	injectable solution, 3 5%
	Dextran 70	injectable solution, 6%

Main list	Complimentary List	Dosage form
	Dextran 40	injectable solution, 10%
	Albumin, human	injectable solution, 25%
12	Cardiovascular Drugs	
12 1	Antianginal drugs	
	Glyceryl trinitrate	tablet (sublingual), 500mcg
	Isosorbide dinitrate	tablet (sublingual), 5mg, 10mg
	Propranolol	tablet 10mg, 40mg (hydrochloride) injection, 1mg (hydrochloride) in 1-ml ampoule
	Nifedipine	capsule or tablet 5mg, 10mg
12 2	Antiarrhythmic drugs	
	Isoprenaline	2mg/ml ampoule
	Lignocaine	injection, 20mg (hydrochloride)/ml in 5-ml ampoule
	Propranolol	tablet, 10mg, 40mg (hydrochloride) injection, 1mg (hydrochloride) in 1-ml ampoule
	Quinidine	tablet 100mg (sulfate)

Main list	Complimentary List	Dosage form
	Verapamil	tablet, 40mg, 80mg (hydrochloride) injection, 2 5mg (hydrochloride)/ml
	Disopyramide	capsule 100mg & 150mg
	Procainamide	tablet 250mg (hydrochloride) injection, 100mg (hydrochloride)/ml in 10ml ampoule
12 3	Antihypertensive drugs	
	Hydralazine	tablet, 25mg (hydrochloride)
	Hydrochlorothiazide	tablet, 25mg, 50mg
	Propranolol	tablet, 10mg, 40mg
	Methyldopa	tablet, 250mg
	Enalapril	tablet, 5mg & 10mg
	Sodium Nitro-prusside	powder for infusion 50mg in ampoule
12 4	Cardiac glycosides	
	Digoxin	tablet, 250mcg oral solution, 50mcg/ml injection, 250mcg/ml in 2-ml ampoule

Main list	Complimentary List	Dosage form
13	Dermatological Drugs	
13 1	Antifungal drugs	
	Benzoic acid + Salicylic acid	ointment or cream, 6% + 3%
	Miconazole	ointment or cream, 2% (nitrate)
	Nystatin	ointment or cream, 100 000 IU/g
13 2	Anti-infective drugs	
	Gentian violet	aqueous solution, 1%, tincture, 1%
	Acriflavine	powder
	Mercurochrome	powder
	Nitrofurazone	0 2% powder or cream
	Silver sulfa-diazine	cream 1%
13 3	Anti-inflammatory & antipruritic drugs	
	Betamethasone	ointment or cream, 0 1% (as valerate)
	Calamine lotion	lotion
	Hydrocortisone	ointment or cream, 1% (acetate)
	Methyl salicylate	
	Selenium	2 5%
13 4	Astringent drugs	
	Aluminium acetate	solution, 13%, for dilution

Main list	Complimentary List	Dosage form
13 5	Keratoplastic & Keratolytic agents	
	Coal tar	solution, tropical 5%
	Salicylic acid	solution, tropical 5%
13 6	Scabicides & Pediculicides	
	Benzyl benzoate	lotion, 25%
	Lindane (Gamma benzene hexachloride)	cream, lotion or powder 1%
	Sulphur	ointment 10%
14	Diagnostic Agents	
14 1	Opthalmic drugs	
	Fluorescein	Eye drops, 1% (sodium salt)
14 2	Radioconstrast media	
	Meglumine amidotrizoate	
	Sodium amidotrizoate	
	Barium sulfate	powder suspended in water
	Iopanoic acid	tablet, 500mg
	Metrizamide	
	Sodium iodide	
15	Disinfectants	
	Lysol	

Main list	Complimentary List	Dosage form
Chlorhexidine		solution, 5% (diglu-conate) for dilution
Iodine		solution 2 5%
Povidone iodine		5%
Cetrimide		20%
Methylated spirit		
Gentian violet		1%
Formaldehyde		solution, 3%
	Phenol	
16 Diuretics		
Frusemide		tablet 40mg injection 10mg/ml in 2-ml ampoule
Hydrochlorothiazide		tablet 25mg, 50mg
Mannitol		injectable solution, 10%, 20%
Spironolactone		tablet, 25mg 100mg
Triamterene		tablet, 50mg
17 Gastrointestinal Drugs		
17 1 Antacids & other anti-ulcer drugs		
Aluminium hydroxide		tablet 250mg oral suspension 300mg/5ml
Ranitidine		tablet 150mg

Main list	Complimentary List	Dosage form
Magnesium hydroxide		oral suspension, equivalent to 100mg magnesium oxide/5ml
Magnesium trisilicate		tablet, 500mg
17 2 Antiemetic drugs		
Promethazine		tablet 10mg, 25mg (hydrochloride) elixer or syrup, 5mg (hydrochloride)/ 5ml injection, 25mg (hydrochloride)/ml in 2-ml ampoule
Metoclopramide		tablet, 10mg (as hydrochloride) injection, 5mg/ml in 2-ml ampoule
17 3 Antihaemorrhoidal drugs		
Local anaesthetics, anti-infammatory and astringent drugs		
17 4 Antispasmodic drugs		
Atropine		tablet, 1mg(sulfate) injection, 1mg (sulfate) in 1-ml ampoule
	Belladonna dry extract	
17 5 Cathartic drugs		
Senna		tablet, 7 5mg (sennocides) or traditional dosage forms)

Main list	Complimentary List	Dosage form
	Magnesium sulfate	
	Liquid Paraffin	
17 6	Diarrhoea, drugs used in	
17 6 1	Replacement solution	
	Oral Rehydration Salts (for glucose-salt solution)g/litre	powder 27 5g/l
	Sodium chloride 3 5	
	Tri sodium citrate 2 9	
	(or sodium bicarbonate- dihydrate - 2 5)	
	Potasium chloride 1 5	
	Glucose 20 0	
17 6 2	Anti-inflammatory drugs	
	Sulphasalazine	tablet, 500mg
17 6 3	Others	
	Lactulose	3 35gm/5ml
18	Hormones	
18 1	Adrenal hormones & synthetic substitute	
	Dexamethasone	tablet 500mcg, 4mg injection, 4mg (as sodium phosphate) in 1-ml ampoule
	Hydrocortisone	powder for injection, 100mg (as sodium succinate) in vial
	Prednisolone	tablet, 5mg

Main list	Complimentary List	Dosage form
	Cortisone	tablet, 25mg
	Fludro-cortisone	tablet, 100mcg
18 2	Androgens	
	Testosterone	injection, 200mg (ernantate) in 1-ml ampoule
18 3	Contraceptives	
	Ethinylestradiol + Norethisterone	tablet, 35mcg or 50mcg + 1 0mg
	Depot medroxy-progesterone	injection, 150mg/ml in 1-ml and 3-ml vial
18 4	Estrogens	
	Ethinylestradiol	tablet, 50mcg
18 5	Insulins & antidiabetic drugs	
	Insulin injection (soluble)	injection, 40IU/ml in 10-ml vial,80IU/ml in 10-ml vial, 100IU/ml in 10-ml vial
	Intermediate acting insulin	injection, 40IU/ml in 10-ml vial, 80IU/ml in 110-ml vial, 100IU/ml in 10-ml vial (as compound insulin zinc suspension or isophane insulin)
	Metformin	tablet, 500mg
	Glibenclamide	
	Protamine Zinc Insulin (long acting)	injection

Main list	Complimentary List	Dosage form
18 6	Ovulation inducers	
	- Clomifene	tablet, 50mg(citrate)
18 7	Progestogens	
	Norethisterone	tablet, 5mg
18 8	Thyroid hormones & antithyroid drugs	
	Levothyroxine	tablet, 50mcg, 100mcg (sodium salt)
	Lugol's iodine	
	Iodine injection	
	Carbimazole	tablet, 5mg
18 9	Posterior pituitary hormone	
	Vasopressin Injection	20units/ml
19	Immunologicals	
19 1	Diagnostic agents	
	Tuberculin, Purified Protein Derivative (PPD)	injection
19 2	Sera & immunoglobulins	
	Anti-D immunoglobulin (human)	injection, 250mcg in single dose vial
	Antirabies hyperimmune serum	injection 1000 IU in 5-ml ampoule
	Polyvenum antisnake serum	
	Diphtheria-antitoxin	injection 10 000 IU 20 000 IU in vial

Main list	Complimentary List	Dosage form
	Immunoglobulin,human normal	injection
	Hepatitis B immunoglobulins	
	Tetanus antitoxin	injection 50000 IU in vial
	Tetanus human immunoglobulin	
19 3	Vaccines	
19 3 1	For universal immunization	
	BCG vaccine (dried)	injection
	Diphtheria - pertussis-tetanus vaccine	injection
	Diphtheria-tetanus vaccine	injection
	Measles vaccine	injection
	Poliomyelitis vaccine (Live atenuated)	oral solution
	Tetanus toxoid	injection
19 3 2	For specific groups of individuals	
	Meningococcal vaccine	injection
	Rabies vaccine	injection
	Yellow fever vaccine	injection
	Hepatitis B vaccine	injection
20	Muscle Relaxant (Peripherally Acting) and cholinestterase Inhibitors	
20 1	Depolorising Suxamethonium Chloride	injection, 50mg (chloride)/ml in 2-ml ampoule

Main list	Complimentary List	Dosage form
20 1 1	Non depolorising	
	Gallamine	injection, 40mg (trichloride)/ml in 2-ml ampoule
	D- tubocurarine	Injection 10mg/ml
	Pancuronium bromide	Injection 2mg/ml
20 2	Cholinesterase inhibitor	
	Neostigmine	tablet, 15mg(bromide) injection, 500mcg, 2 5mg (metilsulfate) in 1-ml ampoule
21	Ophthalmological Preparations	
21 1	Antiinfective agent	
	Sulfacetamide	10%, 20%
	Chloramphenicol	0 5%
	Tetracycline	eye ointment, 1% (hydrochloride)
21 2	Anti-inflammatory agents	
	Betamethasone	
21 3	Local anaesthetics	
	Lignocaine	
21 4	Miotics and antiglaucoma drugs	
	Acetazolamide	tablet 250mg
	Pilocarpine	solution (eye drops), 0 5% & 1% (hydro -chloride)

Main list	Complimentary List	Dosage form
	Timolol	solution (eye drops), 0 25%, 0 5% (maleate)
21 5	Mydriatics	
	Homatropine	1 and 2%
	Atropine	solution (eye drops), 1%, 2% (hydrochloride or nitrate)
22	Ear, Nose,Throat and Dental Preparations	
	Lignocaine 2%, 4%	
	Ichthammol (10%) + Glycerine	
	Sodium Bicarbonate (1%) + Glycerine 5%	
	Oxymetazoline	
	Silver nitrate (10%, 20%)	
	Chromic acid 50%, 70%	
	25% dextrose + Glycerine	
	Bismuth Iodoform Paraffin 1% Ephedrine Sodium Chromo-glycate	spray, 2%
22 1	Dental	
	Prilocain	Sol 3%
	Clove oil	

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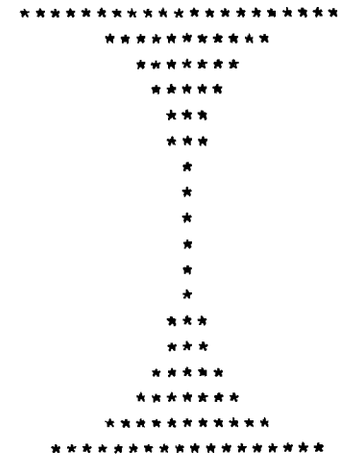
Main list	Complimentary List	Dosage form
23 Oxytocins		
Ergometrine		Tablet, 200mcg (hydrogen maleate) injection, 200mcg (hydrogen maleate) in 1-ml ampoule
Oxytocin		injection 10 IU in 1-ml ampoule
24 Peritoneal Dialysis Solution		
Intraperitoneal dialysis solution (of appropriate composition)		parenteral solution
25 Psychotherapeutic Drugs		
Amitriptyline		tablet 10, 25, 75mg
Chlorpromazine		tablet 50,100mg syrup, 25mg (hydrochloride)/ 5ml injection 25mg (hydrochloride)/ml in 2-ml ampoule
Diazepam		scored tablet 2mg, 5mg
Fluphenazine		injection 25mg (decanoate or enantate) in 2-ml
Imipramine		tablet 25,75 mg
	Mianserin	10mg
	Lithium - carbonate	capsule or tablet, 300mg

Main list	Complimentary List	Dosage form
26 Respiratory Tract, Drug Acting on the		
26 1 Antiasthmatic drugs		
Aminophylline		tablet 100mg, 200mg
Epinephrine		injection 1mg (as hydrochloride) in 1-ml ampoule
Salbutamol		tablet 2mg, 4mg (as sulfate) inhalation (aerosol) 100mcg (sulfate) per dose syrup, 2mg (as sulfate)/5ml injection, 50mcg (as sulfate)/ml in 5-ml ampoule
	Ephedrine	tablet, 30mg
	Beclomethasone	inhalation (aerosol) 50mcg (diproprionate) per dose
	Cromoglicic acid	
27 Solution correcting Water, Electrolyte, and Acid Base Disturbances		
27 1 Oral		
Oral rehydration Salt (for glucose-salt solution)		powder, 27 5g/l
Potassium chloride		oral solution

Main list	Complimentary List	Dosage form
27 2 Parenteral		
Compound solution of sodium lactate		injectable solution
Glucose		injectable solution 5% isotonic, 50% hypertonic
Glucose with sodium chloride		injectable solution 4% glucose, 0 18% sodium chloride (30 mmol/1 sodium chloride)
Potassium chloride		injectable solution 1 5% mmol/ml in 20-ml ampoule
Sodium bicarbonate		injectable solution 1 4% isotonic (167 mmol/1 solution) 8 4% solution in 10-ml ampoule (1mol/1 solution)
Calcium chloride Sodium chloride		injectable solution 0 9% isotonic (154 mmol/1 solution)
	Magnesium sulfate	
27 3 Miscellaneous		
Water for Injection		2-ml, 5-ml, 10-ml ampoule
Ethyl alcohol		

Main list	Complimentary List	Dosage form
28 Vitamins & Minerals		
Ascorbic acid		tablet, 50mg
Ergocalciferol		capsule or tablet, 1 25mg (50 000IU) oral solution 250mcg/ml (10000IU/ml)
Nicotinamide		tablet, 50mg
Pyridoxine		tablet, 25mg (hydrochloride)
Retinol		sugar coated tablet 10 000 IU (as palmitate) (5 5mg) capsule 20 000 IU (as palmitate) (11 0mg) oral oily solution 100 000 IU/ml in multidose dispenser (as palmitate) water miscible injection 100 000IU (as palmitate) (55mg) in 2-ml ampoule
Riboflavin		tablet 5mg
Thiamine		tablet 50mg (hydrochloride)
	Calcium gluconate	injection 100mg/ml in 10-ml ampoule

LIST OF ESSENTIAL DRUGS FOR DISTRICT LEVEL 1992



HIS MAJESTY'S GOVERNMENT OF NEPAL
MINISTRY OF HEALTH
DEPARTMENT OF DRUG ADMINISTRATION

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Main list	Complimentary List	Dosage form
3 1	Antiallergics	
	Chlorpheniramine	tablet, 4mg
	Epinephrine	Inj, 1mg (as hydrochloride) in 1- ml ampoul
	Hydrocortisone	powder for inj 100mg (as sodium succinate) in vial
	Pheniramine Maleate Inj	Inj 22 75mg/ml
	Prednisolone	tablet, 5mg
3 2	Drugs used in cardiovascular	
	Dopamine	Inj, 40mg/ml
4	Antidotes	
4 1	General	
	Charcoal, activated	powder
4 2	Specific	
	Atropine	Inj, 1 mg (sulphate) or 0 65mg in 1-ml ampoul tablet 0 5mg
	Naloxone	Inj, 400mcg (hydro-chloride) in 1-ml ampoul
	Pralidoxime	Inj 1g powder or 500mg (mesilate) vial
5	Antiepileptics	
	Diazepam	Inj, 5mg/ml in 2 -ml ampoule (intravenous)

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Main list	Complimentary List	Dosage form
	Paraldehyde	Inj, IV, IM 5ml ampoule
	Phenobarbital	tablet 15mg & 30mg
	Phenytoin	capsule or tablet 100mg (sodium salt) in 5-ml vial 25mg/ml suspension
6	Anitiinfective Drugs	
6 1	Anthelmintic drugs	
	Mebendazole	tablet and chewable tablet, 100mg
	Niclosamide	chewable tablet 500mg
	Piperazine	tablet, 300mg(adipate) (as citrate) equivalent 750mg hydrate/5ml
6 2	Antiamoebic drugs	
	Diloxanide	tablet, 500mg (furoate)
	Metionidazole	tablet 200, 400mg oral suspension, 100mg/5ml or 200mg/5ml
6 3	Antibacterial drugs	
6 3 1	Penicillins	
	Amoxycillin	capsule or tablet 250mg, 500mg

Avoid discoloured product & contact with rubber or plastic

LIST OF ESSENTIAL DRUGS FOR DISTRICT LEVEL

Main list	Complementary List	Dosage form
1	Anaesthetics	
1.1	Inhalation anaesthetics	
	Ether	Inhalation 1-2%
	Oxygen	Inhalation (medicinal gas)
	Intravenous anaesthetics	
	Thiopental	Powder for Inj 0 5g,1.0g (sodium salt) in ampoul
	Diazepam	Injection, 5mg/ml in 2-ml ampoul
	Ketamine	Inj 50mg (as hydrochloride)/ml in 10ml vial
1 2	Local anaesthetics	
	Lignocaine	1% & 2%
2	Analgesics, Antipyretics, Non-Steroidal Anti-inflammatory Drugs and Drugs used to treat artheritis	
2 1	Non-opioids	
	Acetylsalicylic acid	tablet, 100-300mg
	Ibuprofen	tablet, 200mg
	Paracetamol	tablet, 500mg syrup, 125mg/ml
	Indomethacin	capsule or tablet 25mg
2.2	Opioid analgesics	
	Morphine	injection, 10mg (sulphate or hydrochloride) in 1-ml ampoul
	Pentazocine	tablet 25mg, injection, 30mg/ml

Main list	Complimentary list	Dosage form
	Rifampicin	capsule or tablet 150mg, 300mg, 450mg
6 3 4	Antitubercular drugs	
	Ethambutol	tablet 200, 400mg 800mg (hydrochloride)
	Isoniazid	tablet, 100 -300mg
	Pyrazinamide	tablet, 500mg, 750mg
	Rifampicin	capsule or tablet, 150mg, 300mg, 450mg
	Streptomycin	powder for injection 0 75g, 1g(as sulphate) in vial
	Thiacetazone + Isoniazid	tablet 150mg + 300mg
6 4	Antifilarial drugs	
	Diethylcarbamazine	tablet 100mg
6 5	Antifungal drugs	
	Griseofulvin	capsule or tablet, 125mg, 250mg
	Nystatin	tablet, 500,000 IU pessary, 100,000 IU
6 6	Antileishmaniasis drugs	
	Sodium stibogluconate	100mg/ml
6 7	Antimalarial drugs	
	Chloroquine	tablet, 150mg base (as phosphate or sulfate) base)/5ml
	Primaquine	tablet, 7 5mg, 15mg (as diphosphate base)

Main list	Complimentary List	Dosage form
	Sulfadoxine + Pyrimethamine	tablet, 500mg + 25mg
	Quinine	tablet, 300mg (as bisulfate or sulphate) injection, 300mg (as dihydrochloride)/ ml in 2-ml ampoule
7	Blood, Drugs affecting the	
7 1	Antianaemia drugs	
	Ferrous salt	tablet equivalent to 60mg Iron oral solution equivalent to 25mg iron (as sulfate)/ml
	Ferrous Salt + Folic acid	tablet, 60mg + 250mcg
	Folic acid	tablet, 1mg
	Hydroxycobalamin	injection, 1mg in 1-ml ampoule
	Iron dextran	injection, equivalent to 50mg iron/ml 2-ml ampoule
7 2	Anticoagulants & antagonists	
	Phytomenadione	injection, 10mg/ml in 5ml ampoule
8.	Blood Products & Blood Substitutes	
8.1	Plasma substitute	
	Polygeline	injectable solution, 3 5%

Main list	Complimentary List	Dosage form
		(anhydrous) powder for oral suspension, 125mg (anhydrous)/5ml powder for Inj, 500mg(as sodium salt) in vial
	Benzathine Benzylpenicillin	600,000 Unit, 1200,000 Unit, 2400,000 Unit
	Benzylpenicillin	0 5 million Unit
	Cloxacillin	capsule, 250mg,500mg (as sodium salt) powder for oral solution, 125mg(as sodium salt)/5ml powder for injection 250mg, 500mg (as sodium salt) in vial
	Phenoxymethylpenicillin	tablet, 125mg, 250mg (as potassium salt) powder for oral solution, 125mg (as potassium salt)/5ml
	Procaine benzylpenicillin	powder for injection, 300,000 Unit
6 3 2 Other antibacterial drugs	Chloramphenicol	capsule, 250mg, 500mg oral suspension, 125mg (as palmitate

Main list	Complimentary List	Dosage form
		salt)/5ml powder for inj, 1g (as sodium succinate) in vial
	Erythromycin	tablet 250mg (as stearate or estolate) powder for oral suspension, 125mg (as stearate or estolate)
	Gentamycin	injection, 10mg, 40mg (as sulphate)/ml in 2-ml vial
	Metronidazole	tablet, 200mg, 400mg injection, 500mg in 100-ml vial oral suspension, 100mg, 200mg(as benzoate)/5ml
	Nitrofurantoin	tablet, 100mg
	Nalidixic acid	tablet, 500mg
	Sulfamethoxazole + Trimethoprim	tablet, 100mg +20mg 400mg + 80mg oral suspension, 200mg + 40mg/5ml
	Tetracycline	capsule, 250mg, 500mg (hydrochloride)
6 3 3 Antileprosy drugs		
	Clofazimine	capsule, 50mg, 100mg
	Dapsone	tablet, 50mg, 100mg

Main list	Complimentary List	Dosage form
11	Disinfectants	
	Lysol	
	Chlorhexidine	solution, 5% (digluconate) for dilution
	Iodine	solution 2 5%
	Povidone iodine	5%
	Cetrimide	20%
	Methylated spirit	
	Gentian violet	1%
	Formaldehyde	solution, 3%
	Phenol	
12	Diuretics	
	Frusemide	tablet 40mg injection 10mg/ml in 2-ml ampoule
	Hydrochlorothiazide	tablet 25mg, 50mg
	Mannitol	injectable solution, 10%, 20%
	Spironolactone	tablet, 25mg,100mg
	Triamterene	tablet, 50mg
13	Gastrointestinal Drugs	
13 1	Antacids & other anti-ulcer drugs	
	Aluminium hydroxide	tablet 250mg oral suspension 300mg/5ml
	Ranitidine	tablet 150mg
	Magnesium hydroxide	oral suspension, equivalent to 100mg

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Main list	Complimentary List	Dosage form
		magnesium oxide/5ml
	Magnesium trisilicate	tablet, 500mg
13 2	Antiemetic drugs	
	Promethazine	tablet 10mg, 25mg (hydrochloride) elixer or syrup,5mg (hydrochloride)/5 ml injection, 25mg (hydrochloride)/ml in 2-ml ampoule
	Metoclopramide	tablet, 10mg (as hydrochloride) injection, 5mg/ml in 2-ml ampoule
13 3	Antihaemorrhoidal drugs	
	Local anaesthetics, anti-infammatory and astringent drugs	
13 4	Antispasmodic drugs	
	Atropine	tablet, 1mg(sulfate) injection, 1mg (sulfate) in 1-ml ampoule
	Belladonna dry extract	
13 5	Cathartic drugs	
	Senna	tablet, 7 5mg (sennocides) or traditional dosage forms)
	Magnesium sulfate	
	Liquid Paraffin	

Main list	Complimentary List	Dosage form
9	Cardiovascular Drugs	
9 1	Antianginal drugs	
	Glyceryl trinitrate	tablet (sublingual), 500mcg
	Isosorbide dinitrate	tablet (sublingual), 5mg, 10mg
	Propranolol	tablet 10mg, 40mg (hydrochloride) injection, 1mg (hydrochloride) in 1-ml ampoule
9 2	Antiarrhythmic drugs	
	Isoprenaline	2mg/ml ampoule
	Lignocaine	injection, 20mg (hydrochloride)/ml in 5-ml ampoule
	Propranolol	tablet, 10mg, 40mg (hydrochloride) injection, 1mg (hydrochloride) in 1-ml ampoule
9 3	Antihypertensive drugs	
	Hydralazine	tablet, 25mg (hydrochloride)
	Hydrochlorothiazide	tablet, 25mg, 50mg
	Propranolol	tablet, 10mg, 40mg
	Methyldopa	tablet, 250mg
	Nifedipine	
9 4	Cardiac glycosides	
	Digoxin	tablet, 250mcg oral solution, 50mcg/ml injection, 250mcg/ml in 2-ml ampoule

Main list	Complimentary List	Dosage form
10	Dermatological Drugs	
10 1	Antifungal drugs	
	Benzoic acid + Salicylic acid	ointment or cream 6% + 3%
	Miconazole	ointment or cream 2% (nitrate)
	Nystatin	ointment or cream 100 000 IU/g
10 2	Anti-infective drugs	
	Gentian violet	aqueous solution 1%
		tincture, 1%
	Acriflavine	powder
	Mercurochrome	powder
	Nitrofurazone	0 2% powder or cream
	Silver sulfa-diazine	cream 1%
10 3	Anti-inflammatory & antipruritic drugs	
	Betamethasone	ointment or cream 0 1% (as valerate
	Calamine lotion	lotion
	Hydrocortisone	ointment or cream, 1% (acetate)
	Methyl salicylate	
	Selenium	2 5%
10 4	Astringent drugs	
	Aluminium diacetate	solution, 13%, fo dilution
10 5	Keratoplastic & Keratolytic agents	
	Salicylic acid	solution, tropica 5%
10 6	Scabicides & Pediculicides	
	Benzyl benzoate	lotion, 25%
	Lindane (Gamma benzene hexachloride)	cream, lotion or powder 1%
	Sulphur	ointment 10%

Main list	Complimentary List	Dosage form
16	Muscle Relaxant (Peripherally Acting) and cholinestterase Inhibitors	
	Neostigmine	tablet 15mg (bromide) injection 500mcg, 2 5mg (metilsulfate) in 1-ml ampoule
17	Ophthalmological Preparations	
17 1	Antiinfective agent	
	Sulfacetamide Chloramphenicol Tetracycline	10%, 20% 0 5% eye ointment, 1% (hydrochloride)
17 2	Anti-inflammatory agents	
	Betamethasone	
17 3	Local anaesthetics	
	Lignocaine	
17 4	Miotics and antiglaucoma drugs	
	Pilocarpine	solution (eye drops), 0 5% (hydrochloride)
17 5	Mydriatics	
	Homatropine	
18	Ear, Nose,Throaat and Dental Preparations	
	Sodium Bicarbonate (1%) + Glycerine 5% Oxymetazoline Silver nitrate (10%, 20%) Ephedrine Nasal Drops	

Main list	Complimentary List	Dosage form
	Chloramphenicol Ear drops Bismuth Iodoform Paraffin Ichthammol Clove oil	
19	Oxytocics	
	Ergometrine	Tablet, 200mcg (hydrogen maleate) injection, 200mcg (hydrogen maleate) in 1-ml ampoule
	Oxytocin	injection 10 IU in 1-ml ampoule
20	Psychotherapeutic Drugs	
	Chlorpromazine	tablet syrup, 25mg (hydrochloride)/5 ml injection 25mg (hydrochloride)/ml in 2-ml ampoule
	Diazepam	scored tablet 2mg, 5mg
	Fluphenazine	injection 25mg (decanoate or enantate) in 2-ml
21	Respiratory Tract,Drug Acting on the	
21 1	Antiasthmatic drugs	
	Aminophylline	tablet 100mg, 200mg

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Main list	Complimentary List	Dosage form
13 6	Diarrhoea, drugs used in	
13 6 1	Replacement solution	
	Oral Rehydration Salts (for glucose-salt solution)	powder 27 5g/l
		g/litre
	Sodium chloride	3 5
	Tri sodium citrate	2 9 (or sodium bicarbonate-dihydrate - 2 5)
	Potasium chloride	1 5
	Glucose	20 0
14	Hormones	
14 1	Adrenal hormones & synthetic substitute	
	Dexamethasone	tablet 500mcg, 4mg injection, 4mg (as sodium phosphate) in 1-ml ampoule
	Hydrocortisone	powder for injection, 100mg (as sodium succinate) in vial
	Prednisolone	tablet, 5mg
14 2	Contraceptives	
	Ethinylestradiol + Norethisterone	tablet, 35mcg or 50mcg + 1 0mg
	Depot medroxy-progesterone	injection, 150mg/ml in 1-ml and 3-ml vial
14 3	Insulins & antidiabetic drugs	
	Insulin injection (soluble)	injection, 40IU/ml in 10-ml vial, 80IU/ml in 10-ml vial, 100IU/ml in 10-ml vial

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Main list	Complimentary List	Dosage form
	Intermediate acting insulin	injection, 40IU in 10-ml vi 80IU/ml in 110-ml vial, 100IU/ml in 10-ml vial (as compou insulin zi suspension or isophane insuli
	Metformin	tablet, 500mg
	Glibenclamide	tablet, 5mg
15	Immunologicals	
15 1	Diagnostic agents	
	Tuberculin, Purified Protein Derivative (PPD)	injection
15 2	Sera & immunoglobulins	
	Antirabies hyperimmune serum	injection 1000 I in 5-ml ampoule
	Polyvenum antisnake serum	
	Diphtheria-antitoxin	injection 10 000 IU 20 000 IU in via
	Tetanus antitoxin	injection 50000 in vial
15 3	Vaccines	
15 3 1	For universal immunization	
	BCG vaccine (dried)	injection
	Diphtheria - pertussis-tetanus vaccine	injection
	Diphtheria-tetanus vaccine	injection
	Measles vaccine	injection
	Poliomyelitis vaccine (Live attenuated)	oral solution
	Tetanus toxoid	injection
	Rabies vaccine	injection

Main list	Complimentary List	Dosage form
		100 000IU (as palmitate) (55mg) in 2-ml ampoule
Riboflavin		tablet 5mg
Thiamine		tablet 50mg (hydrochloride)
	Calcium gluconate	injection 100mg/ml in 10-ml ampoule

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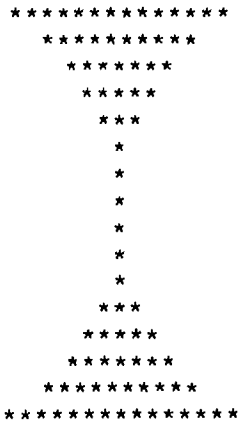
LIST OF ESSENTIAL DRUGS FOR HEALTH POST LEVEL (FIRST REVISION) 1992



HIS MAJESTY'S GOVERNMENT OF NEPAL
MINISTRY OF HEALTH
DEPARTMENT OF DRUG ADMINISTRATION

Main list	Complimentary List	Dosage form
	Epinephrine	injection 1mg(as hydrochloride) in 1-ml ampoule
	Salbutamol	tablet 2mg, 4mg (as sulfate) inhalation (aerosol) 100mcg (sulfate) per dose syrup 2mg (as sulfate)/5ml injection 50mcg (as sulfate)/ml in 5-ml ampoule
	Ephedrine	tablet, 30mg
22	Solution correcting Water,Electrolyte,and Acid Base Disturbances	
22 1	Oral	
	Oral rehydration Salt (for glucose-salt solution)	powder, 27 5g/l
	Potassium chloride	oral solution
22 2	Parenteral	
	Compound solution of sodium lactate	injectable solution
	Glucose	injectable solution 5% isotonic, 50% hypertonic
	Glucose with sodium chloride	injectable solution 4% glucose, 0 18% sodium chloride (30 mmol/l sodium chloride)

Main list	Complimentary List	Dosage form
	Calcium chloride	
	Sodium chloride	injectable solution 0 9% isotonic (154 mmol/l solution)
	Sodium bicarbonate	7 5%
22.3	Miscellaneous	
	Water for Injection	2-ml, 5-ml, 10-ml ampoule
	Ethyl alcohol	
23	Vitamins & Minerals	
	Ascorbic acid	tablet, 50mg
	Ergocalciferol	capsule or tablet, 1 25mg (50 000IU) oral solution 250mcg/ml (10000IU/ml)
	Nicotinamide	tablet, 50mg
	Pyridoxine	tablet, 25mg (hydrochloride)
	Retinol	sugar coated tablet 10 000 IU (as palmitate) (5 5mg) capsule 20 000 IU (as palmitate) (11 0mg) oral oily solution 100 000 IU/ml in multidose dispenser (as palmitate) water miscible injection

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Main list	Complimentary List	Dosage form
	Procaine benzylpenicillin	
	Chloramphenicol	
	Trimethoprim + Sulphamethoxazole	
	Tetracycline	
	Amoxycillin	
10	Antifilarial Drugs	
	Diethylcarbamazine	
11	Antianaemia Drugs	
	Ferrous salt	
12	Antihypertensive	
	Hydrochlorothiazide	
	Propranolol	
13	Anti-infective Drugs (Dermatological)	
	Gentian Violet	
	Acriflavine	
	Mercurochrome	
	Benzoic acid + Salicylic acid	
13 1	Anti-inflammatory & antipruritic Drugs (Dermatological)	
	Calamine Powder	
13 2	Miscellaneous (Dermatological)	
	Vaseline Yellow	
13 3	Scabicides & pediculicides	
	Benzyl benzoate	
	Sulphur	
14	Disinfectants	
	Iodine	
	Methylated spirit	

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Main list	Complimentary List	Dosage form
	Gentian violet	
	Chlorhexidine + Cetrimide (Savlon)	
	Potassium Permanganate	
15	Diuretics	
	Frusemide	
	Hydrochlorothiazide	
16	Antacid	
	Aluminium hydroxide	
	Magnesium trisilicate	
17	Antiemetic Drugs	
	Promethazine hydrochloride Inj, tablet	
17 1	Antispasmodic Drugs	
	Atropine Injection	
	Belladonna dry extract	
17 2	Cathartic Drugs	
	Magnesium sulfate	
	Liquid paraffin	
18	Adrenal hormones & synthetic substitute	
	Dexamethasone	
19	Antiinfective agent (Opthalmological)	
	Sulfacetamide	
	Tetracycline	
20	ENT preparations	
	Ephedrine nasal drop	
	Chloramphenicol ear drops	
	Glycerin + Sodium bicarbonate Solution (drops)	

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LIST OF ESSENTIAL DRUUG FOR HEALTH POST LEVEL

A Regular Supply

1 General anaesthetics

Diazepam Injection

2 Local anaesthetics

Lignocaine

3 Analgesics, Antipyretics, Non-Steroidal Anti inflammatory Drugs and Drugs used to treat gout

Acetylsalicylic acid
Ibuprofen
Paracetamol

4 Antiallergics

Chlorpheniramine
Epinephrine Injection
Pheniramine maleate injection

5 Antidotes

Atropine

6 Antiepileptics

Diazepam
Paraldehyde

7 Anthelmintic

Mebendazole
Piperazine

8 Antiamoebic Drugs

Metronidazole

9 Antibacterial Drugs

Benzyl penicillin

LIST OF ESSENTIAL DRUGS

FOR

SUB-HEALTH POST LEVEL

1992

HIS MAJESTY'S GOVERNMENT OF NEPAL
MINISTRY OF HEALTH
DEPARTMENT OF DRUG ADMINISTRATION

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Main list	Complimentary List	Dosage form
21	Oxytocics	
	Ergometrine Injection, Tablet	
22	Antiasthmatic	
	Aminophylline	
	Epinephrine	
	Salbutamol	
	Ephedrine	
23	Solution correcting Water, Electrolyte and Acid Base Disturbances	
23 1	Oral	
	Oral Rehydration Salt	
23 2	Parenteral	
	Glucose 5%	
	Glucose with sodium chloride	
	Sodium chloride	
	Ringer lactate	
23 3	Miscellaneous	
	Water for Injection	
24	Vitamins and Minerals	
	Ergocalciferol	
	Thiamine	
	Riboflavin	
	Retinol	
	Nicotinamide	
	Pyridoxine	
B	Divisions Supply (MOH/HMG/NEPAL)	
25	Antileprosy Drugs	
	Dapsone	
	Rifampicin	

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Main list	Complimentary List	Dosage form
26	Antitubercular Drugs	
	Isoniazid	
	Streptomycin	
	Thiacetazone + Isoniazid	
27	Antimalarial Drugs	
	Chloroquine	
	Primaquine	
28	Antianaemia Drugs	
	Ferrous salt + Folic acid	
29	Contraceptives	
	Ethinylestradiol + Norethisterone	
30	Thyroid hormones and antithyroid Drugs	
	Iodine injection	
31	Vaccines	
	BCG vaccine (dried)	
	Diphtheria-pertussis-tetanus vaccine	
	Diphtheria-tetanus vaccine	
	Poliomyelitis vaccine (live attenuated)	
	Tetanus toxoid	
	Measles vaccine	

Main list	Complimentary List	Dosage form
4 3	Antibacterial drugs	
4 3 1	Penicillins	
	Amoxycillin	capsule or tablet, 250mg, 500mg (anhydrous) powder for oral suspension, 125mg (anhydrous)/5ml
4 3 2	Other antibacterial drugs	
	Sulfamethoxazole + Trimethoprim	tablet 400mg + 80mg oral suspension, 200mg + 40mg/5ml
	Tetracycline	capsule, 250mg, 500mg
5	Blood, Drugs affecting the	
5 1	Antianaemia drugs	
	Ferrous salt	tablet equivalent to 60mg Iron
	Ferrous Salt + Folic acid	tablet, 60mg + 250mcg
6	Dermatological Drugs	
6 1	Anti-infective drugs	
	Gentian violet	aqueous solution, 1% tincture, 1%
	Acriflavine	powder
	Mercurochrome	powder
6 2	Anti-inflammatory & antipruritic drugs	
	Calamine lotion	lotion
	Sulphur	ointment 10%

Main list	Complimentary List	Dosage form
7	Disinfectants	
	Iodine	solution 2 5%
	Methylated spirit	
	Gentian violet	1%
	Tincture Benzoin	
	Chlorhexidine + Cetrimide (Savlon)	
	Potassium Permangnate	
8	Gastrointestinal Drugs	
8 1	Antacids & other anti-ulcer drugs	
	Aluminium hydroxide	tablet 250mg
	Magnesium trisilicate	tablet, 500mg
8 2	Antiemetic drugs	
	Promethazine	tablet 10mg, 25 (hydrochloride) elixer or syrup, 5mg (hydrochloride ml injection, 25mg (hydrochloride) in 2-ml ampoule
8 4	Antispasmodic drugs	
	Belladonna dry extract	
8 5	Cathartic drugs	
	Magnesium sulfate	
8 6	Diarrhoea, drugs used in	

LIST OF ESSENTIAL DRUGS FOR SUB-HEALTH POST LEVEL

Main list	Complimentary List	Dosage form
1.	**Anaesthetics**	
1.1	**Local anaesthetics**	
	Lignocaine	1% & 2%
2.	**Analgesics, Antipyretics, Non-Steroidal Anti-inflammatory Drugs and Drugs used to treat gout**	
2.1	**Non-opioids**	
	Acetylsalicylic acid	tablet, 100-300mg
	Paracetamol	tablet, 500mg syrup, 125mg/ml
3	**Antiallergics**	
	Chlorpheniramine	tablet, 4mg
	Pheniramine Maleate Inj	Inj 22 75mg/ml
4	**Anitiinfective Drugs**	
4 1	**Anthelmintic drugs**	
	Mebendazole	tablet and chewable tablet, 100mg
	Piperazine	tablet, 300mg(adipate) elixer or syrup (as citrate) equivalent 750mg hydrate/5ml
4 2	**Antiamoebic drugs**	
	Metronidazole	tablet 200, 400mg oral suspension, 100mg/5ml or 200mg/5ml

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LIST OF ESSENTIAL DRUGS

FOR

PRIMARY TREATMENT LEVEL

(FIRST REVISION)

1992

HIS MAJESTY'S GOVERNMENT OF NEPAL
MINISTRY OF HEALTH
DEPARTMENT OF DRUG ADMINISTRATION

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Main list	Complimentary List	Dosage form
8 6 1 Replacement solution		
Oral Rehydration Salts (for glucose-salt solution)g/litre		powder 27 5g/l
Sodium chloride	3 5	
Tri sodium citrate (or sodium bicarbonate-dihydrate - 2 5)	2 9	
Potasium chloride	1 5	
Glucose	20 0	
9 Contraceptives		
Ethinylestradiol + Norethisterone		tablet, 35mcg or 50mcg + 1 0mg
10 Ophthalmological Preparations		
10 1 Antiinfective agent		
Sulfacetamide		10%, 20%
Tetracycline		eye ointment, 1% (hydrochloride)
11 Ear, Nose,Throat and Dental Preparations		
Chloramphenicol Ear Drops		
Sodium Bicarbonate (1%) + Glycerine 5%		
Ephedrine Nasal Drops		
12 Respiratory Tract,Drug Acting on the		
12 1 Antiasthmatic drugs		
Aminophylline		tablet 100mg, 200mg
Ephedrine		tablet, 30mg
13 Solution correcting Water,Electrolyte,and Acid Base Disturbances		
13 1 Oral		
Oral rehydration Salt (for glucose-salt solution)		powder, 27,5g/l

Main list	Complimentary List	Dosage form
13 2 Miscellaneous		
Water for Injection		2-ml, 5-ml, 10-ampoule
14 Vitamins & Minerals		
Riboflavin		tablet 5mg
Thiamine		tablet 50mg (hydrochloride)
Nicotinamide		tablet, 50mg
Pyridoxine		tablet, 25mg (hydrochloride)
Retinol		sugar coat tablet 10 000IU palmitate) (5 5r capsule 20 000 (as palmitat (11 0mg) oral oily solut 100 000 IU/ml i multidose dispenser (as palmitate) water miscible injection 100 000IU (as palmitat (55mg) in 2-ml ampoule

APPENDIX I

ALPHABETICAL LIST OF ESSENTIAL DRUGS

Drug	Page
(A)	
Acetazolamide	22
Acetylsalicylic acid	1
Acriflavine	14
Actinomycin	10
Albumin human	12
Allopurinol	1
Aluminium hydroxide	16
Aluminium acetate	14
Aminophylline	25
Amitriptyline	24
Amoxycillin	5
Amphotericin	8
Anti D immunoglobulin (human)	20
Antirabies hyperimmune serum	20
Ascorbic acid	27
Atropine	3,17,23
Azathioprine	9
(B)	
Barium sulfate	15
BCG vaccine (dried)	21
Beclomethasone	25
Belladonna dry extract	17
Benzathine Benzylpenicillin	5
Benzoic acid + Salicylic acid	14
Benzyl benzoate	15
Benzylpenicillin	5
Betamethasone	14,22
Bismuth Iodoform Paraffin	23
Bleomycin	10
Bupivacaine	1
Busulphan	10
(C)	
Calamine lotion	14
Calcium chloride	26
Calcium gluconate	27
Carbamazepine	4
Carbimazole	20
Cetrimide	14
Charcoal, activated	3
Chlorambucil	10
Chloramphenicol	6,22
Chlorhexidine	16
Chloroquine	8
Chlorpheniramine	2
Chlorpromazine	24
Chromic acid 50%, 70%	23
Cisplatin	8
Clofazimine	7
Clomifene	20
Clove oil	22
Cloxacillin	5
Coal tar	13
Colchicine	1
Compound solution of sodium lactate	26
Cortisone	17
Cromoglicic acid	25

Drug	Page
Cyclophosphamide	9
Cytarabine	10
(D)	
D- tubocurarine	22
Dapsone	7
Depot medroxy-progesterone	19
Dexamethasone	18
Dextran 40	12
Dextran 70	11
Dextrose 25% + Glycerine	23
Diazepam	1,3,24
Diethylcarbamazine	8
Digoxin	13
Diloxanide	4
Diphtheria - pertussis - tetanus vaccine	21
Diphtheria antitoxin	20
Diphtheria tetanus vaccine	21
Disopyramide	13
Dopamine	2
Doxorubicin	9
(E)	
Enalapril	13
Ephedrine	25
Ephedrine 1%	23
Epinephrine	2 25
Ergocalciferol	27
Ergometrine	24
Ergotamine	9
Erythromycin	6
Ethambutol	7
Ether	1
Ethinylestradiol + Norethisterone	19
Ethosuximide	4
Ethyl alcohol	26
(F)	
Ferrous Salt + Folic acid	11
Ferrous salt	11
Fludrocortisone	19
Fluorescein	15
Fluorouracil	9
Fluphenazine	24
Folic acid	11
Formaldehyde	16
Frusemide	16
(G)	
Gallamine	22
Gentamicin	6
Gentian violet	14,16
Glibenclamide	19
Glucose	26
Glucose with sodium chloride	26
Glyceryl trinitrate	12
Griseofulvin	8
(H)	
Halothane	1
Heparin	11
Hepatitis B immunoglobulins	21
Hepatitis B vaccine	21
Homatropine	23
Hydralazine	13
Hydrochlorothiazide	13,16

LIST OF ESSENTIAL DRUGS FOR PRIMARY TREATMENT LEVEL

1 Paracetamol
2 Chlorpheniramine
3 Piperazine
4 Belladonna dry extract
5 Ferrous salt + Folic acid
6 Vitamin A + Vitamin D (Ergocalciferol + Retinol)
7 Sulphacetamide eye drops
8 Gentian violet
9 Oral Rehydration powder
10 Mercurochrome
11 Tincture Benzoin
12 Aluminium hydroxide + Magnesium trisilicate
13 Cotrimoxazole
14 Amoxycillin
15 Chloroquine

Drug	Page
Hydrocortisone	2 14 18
Hydroxocobalamin	11
(I)	
Ibuprofen	1
Ichthammol (10%) + Glycerine	23
Imipramine	24
Immunoglobulin, human normal	21
Indomethacin	2
Insulin injection(soluble)	19
Intermediate acting insulin	19
Intraperitoneal dialysis solution	24
Iodine	16
Iodine injection	20
Iopanoic acid	15
Iron dextran	11
Isoniazid	7
Isoprenaline	12
Isosorbide dinitrate	12
(K)	
Ketamine	1
Ketoconazole	8
(L)	
Lactulose	18
Levodopa + Carbidopa	10
Levothyroxine	20
Lignocaine	12,22
Lindane	15
Liquid Paraffin	18
Lithiumcarbonate	24

Drug	Page
Lugol's iodine	20
Lysol	15
(M)	
Magnesium sulfate	18
Magnesium trisilicate	17
Magnesium hydroxide	17
Mannitol	16
Measles vaccine	21
Mebendazole	4
Meglumine amidotrizoate	15
Meningococcal vaccine	21
Mercaptopurine	10
Mercurochrome	14
Metformin	19
Methotrexate	9
Methyl salicylate	14
Methylated spirit	16
Methyldopa	13
Metoclopramide	17
Metrizamide	15
Metronidazole	4,6
Mianserin	24
Miconazole	14
Morphine	2
(N)	
Nalidixic acid	6
Naloxone	3
Neomycin	6
Neostigmine	22
Niclosamide	4
Nicotinamide	27
Nifedipine	12
Nitrofurantoin	6
Nitrofurazone	14
Nitrous oxide	1
Norethisterone	20

Drug	Page
Nystatin	8 14
(O)	
Oral Rehydration Salts	18 25
Oxygen	1
Oxymetazoline	23
Oxytocin	24
(P)	
Pancuronium bromide	22
Paracetamol	2
Paraldehyde	3
Penicillamine	3
Pentamidine	8
Pentazocine	2
Pethidine	2
Pheniramine Maleate	2
Phenobarbital	3
Phenol	16
Phenoxymethylpenicillin	5
Phenytoin	3
Phytomenadione	11
Pilocarpine	22
Piperazine	4
Piroxicam	1
Poliomyelitis vaccine (Live attenuated)	21
Polygeline	11
Polyvenum antisnake serum	20
Potassium chloride	18 25 26
Povidone iodine	16
Pralidoxime	3
Praziquantel	4
Prednisolone	2,10,18
Prilocain	23
Primaquine	8

Drug	Page
Procainamide	13
Procaine benzylpenicillin	5
Promethazine	17
Propranolol	12,13
Protamine sulphate	11
Protamine Zinc Insulin(long acting)	19
Pyrazinamide	7
Pyridoxine	27
(Q)	
Quinidine	12
Quinine	9
(R)	
Rabies vaccine	21
Ranitidine	16
Retinol	27
Riboflavin	27
Rifampicin	7
(S)	
Salbutamol	25
Salicylic acid	15
Selenium	14
Senna	17
Silver sulfadiazine	14
Silver nitrate (10%, 20%)	23
Sodium iodide	15
Sodium chloride	18,26
Sodium amidotrizoate	15
Sodium bicarbonate	18,26
Sodium bicarbonate (1%) + Glycerine	23
Sodium Nitroprusside	13
Sodium Cromoglycate	23

Drug	Page
Sodium stibogluconate	8
Spironolactone	16
Streptomycin	7
Sulfacetamide	22
Sulfadoxine + Pyrimethamine	9
Sulfamethoxazole + Trimethoprim	7
Sulphasalazine	18
Sulphur	15
Suxamethonium Chloride	21
(T)	
Tamoxifen	10
Testosterone	19
Tetanus toxoid	21
Tetanus antitoxin	21
Tetanus human immunoglobulin	21
Tetracycline	7 22
Thiacetazone + Isoniazid	8
Thiamine	27
Thiopental	1
Timolol	23
Triamterene	16
Tri sodium citrate	18
Trihexyphenidyl	10
Trimethoprim	7
Tuberculin Purified Protein Derivative (PPD)	20
(V)	
Valproic Acid	4
Vasopressin Injection	20
Verapamil	13
Vincristine	10
(W)	
Warfarin	11
Water for Injection	26
(Y)	
Yellow fever vaccine	21

APPENDIX II

ALPHABETICAL LIST OF DRUGS FOR DISTRICT LEVEL

Drug	Page
(A)	
Acetylsalicylic acid	29
Acriflavine	37
Aluminium hydroxide	38
Aminophylline	43
Amoxycillin	31
Antirabies hyperimmune serum	41
Ascorbic acid	45
Atropine	30 39
(B)	
Belladonna dry extract	39
Benzathine Benzylpenicillin	32
Benzoic acid + Salicylic acid	37
Benzyl benzoate	37
Benzylpenicillin	32
Betamethasone	37 42
Bismuth Iodoform Paraffin	43
(C)	
Calamine lotion	37
Calcium chloride	45
Cetrimide	38
Charcoal, activated	30
Chloramphenicol	32 42
Chloramphenicol Ear drops	43
Chlorhexidine	38
Chloroquine	34
Chlorpheniramine	30
Chlorpromazine	43
Clofazimine	33
Clove oil	43
Cloxacillin	32
Compound solution of sodium lactate	44
(D)	
Dapsone	33
Dexamethasone	40
Diazepam	29,30,43
Diethylcarbamazine	34
Digoxin	36
Diloxanide	31
Diphtheria - pertussis - tetanus vaccine	41
Diphtheria-antitoxin	41
Diphtheria-tetanus vaccine	41
Dopamine	30
(E)	
Ephedrine	
Epinephrine	30,44
Ergocalciferol	45

Drug	Page
Ergometrine	43
Erythromycin	33
Ethambutol	34
Ether	29
Ethinylestradiol + Norethisterone	
Ethyl alcohol	45
(F)	
Ferrous Salt + Folic acid	35
Ferrous salt	35
Fluphenazine	43
Folic acid	35
Formaldehyde	38
Frusemide	38
(G)	
Gentamicin	33
Gentian violet	37,38
Glibenclamide	41
Glucose	40,44
Glucose with sodium chloride	44
Glyceryl trinitrate	36
Griseofulvin	34
(H)	
Homatropine	42
Hydralazine	36
Hydrochlorothiazide	36,38
Hydrocortisone	30,40
Hydroxocobalamin	35
(I)	
Ibuprofen	29
Insulin injection(soluble)	40

Drug	Page
Intermediate acting insulin	41
Iodine	38
Isoniazid	34
Isoprenaline	36
Isosorbide dinitrate	36
(K)	
Ketamine	29
(L)	
Lignocaine	29,42
Lindane	37
Liquid Paraffin	39
Lysol	38
(M)	
Magnesium sulfate	39
Magnesium trisilicate	39
Magnesium hydroxide	38
Mannitol	38
Measles vaccine	41
Mebendazole	31
Mercurochrome	37
Metformin	41
Methyl salicylate	37
Methylated spirit	38
Methyldopa	36
Metoclopramide	39
Metronidazole	31,33
Miconazole	37
Morphine	29

Drug	Page
(N)	
Nalidixic acid	33
Naloxone	30
Neostigmine	42
Niclosamide	31
Nicotinamide	45
Nifedipine	36
Nitrofurantoin	33
Nitrofurazone	37
Nystatin	34 37
(O)	
Oral Rehydration Salts	40
Oxygen	29
Oxymetazoline	42
(P)	
Paracetamol	29
Paraldehyde	31
Pentazocine	29
PhenIramine Maleate	30
Phenobarbital	31
Phenoxymethylpenicillin	32
Phenytoin	31
Phytomenadione	35
Pilocarpine	42
Piperazine	31
Poliomyelitis vaccine (Live attenuated)	41
Polygeline	35
Polyvenum antisnake serum	41
Potassium chloride	44
Povidone iodine	38
Pralidoxime	30
Prednisolone	30 40
Primaquine	34
Procaine benzylpenicillin	32
Promethazine	39

Drug	Page
Propranolol	36
Pyrazinamide	34
Pyridoxine	45
(R)	
Rabies vaccine	41
Ranitidine	38
Retinol	45
Riboflavin	46
Rifampicin	34
(S)	
Salbutamol	44
Salicylic acid	37
Selenium	37
Senna	39
Silver nitrate (10%, 20%)	42
Silver sulfadiazine	37
Sodium chloride	45
Sodium bicarbonate	40
Sodium stibogluconate	34
Sodium bicarbonate (1%) + Glycerine (5%)	42
Spironolactone	38
Streptomycin	34
Sulfacetamide	42
Sulfadoxine + Pyrimethamine	35
Sulfamethoxazole + Trimethoprim	33
Sulphur	37
Silver sulfadiazine	37
(T)	
Tetanus toxoid	41
Tetracycline	33,42

Drug	Page	Drug	Page
Thiacetazone + Isoniazid	34		
Thiamine	46		
Thiopentil	29		
Triamterene	38		
Tri Sodium citrate	40		
Tuberculin Purified Protein Derivative (PPD)	41		
(W)			
Water for Injection	45		

APPENDIX III

ALPHABETICAL LIST OF DRUGS FOR HEALTH POST LEVEL

Drug	Page	Drug	Page
(A)			
Acetylsalicylic acid	48	Diphtheria-pertussis -tetanus vaccine	52
Acriflavine	49	Diphtheria-tetanus vaccine	52
Aluminium hydroxide	50		
Aminophylline	51	(E)	
Amoxycillin	55		
Atropine	48,50	Ephedrine	50
		Epinephrine	48,51
(B)		Ergocalciferol	51
		Ergometrine	51
BCG vaccine (dried)	52	Ethinylestradiol + Norethisterone	52
Belladonna dry extract	50		
Benzoic acid	49	(F)	
+ Salicylic acid	49		
Benzyl penicillin	48	Ferrous salt	49
Benzyl benzoate	49	Ferrous salt + Folic acid	52
		Frusemide	50
(C)			
		(G)	
Calamine Powder	49		
Chloramphenicol	49 50	Gentian Violet	49,50
Chloroquine	52	Glucose with sodium chloride	51
Chlorphenramine	48	Glucose 5%	51
		Glycerin + Sodium bicarbonate	50
(D)		Hydrochlorothiazide	44,45
Dapsone	51		
Dexamethasone	50		
Diazepam	48,48		
Diethylcarbamazine	49		

Drug	Page
(I)	
Ibuprofen	48
Iodine	49 52
Isoniazid	52
(L)	
Lignocaine	48
Liquid paraffin	50
(M)	
Magnesium sulfate	50
Magnesium trisilicate	50
Measles vaccine	52
Mebendazole	48
Mercurochrome	49
Methylated spirit	49
Metronidazole	48
(N)	
Nicotinamide	51
(O)	
Oral Rehydration Salt	51
(P)	
Paracetamol	48
Paraldehyde	48
Phenirramine maleate	48
Piperazine	48
Poliomyelitis vaccine (live attenuated)	52
Potassium Permanganate	50
Primaquine	52
Procaine benzylpenicillin	49
Promethazine	50
Propranolol	49
Pyridoxine	51
(R)	
Retinol	51
Riboflavin	51
Rifampicin	51
Ringer lactate	51
(S)	
Salbutamol	51
Savlon	50
Sodium chloride	51
Streptomycin	52
Sulfacetamide	50
Sulphur	49
(T)	
Tetanus toxoid	52
Tetracycline	49
Thiacetazone + Isoniazid	52
Thiamine	51
Trimethoprim + Sulphamethoxazole	49
(V)	
Vaseline Yellow	49
(W)	
Water for Injection	51

APPENDIX IV

ALPHABETICAL LIST OF DRUGS FOR SUB-HEALTH POST LEVEL

Drug	Page
(A)	
Acetylsalicylic acid	54
Acriflavine	55
Aluminium hydroxide	56
Aminophylline	57
Amoxycillin	55
(B)	
Belladonna dry extract	56
(C)	
Calamine lotion	55
Chloramphenicol	57
Chlorphenramine	54
(E)	
Ephedrine	57
Ethinylestradiol + Norethisterone	57
(F)	
Ferrous Salt + Folic acid	55
Ferrous salt	55
(G)	
Gentian violet	56
(I)	
Iodine	56
(L)	
Lignocaine	54
(M)	
Magnesium sulfate	56
Magnesium trisilicate	50
Mebendazole	54
Mercurochrome	55
Methylated spirit	56
Metronidazole	54
(N)	
Nicotinamide	58
(O)	
Oral Rehydration Salts	57
(P)	
Paracetamol	54
Phenirramine Maleate	54
Piperazine	54
Potassium Permagnate	56
Procaine Penicillin	49
Promethazine	56
Pyridoxine	58

Drug	Page	Drug	Page
(R)			
Retinol	58		
Riboflavin	58		
(S)			
Savlon	56		
Sodium Bicarbonate (1%) + Glycerine 5%	51		
Sulfacetamide	57		
Sulfamethoxazole + Trimethoprim	55		
Sulphur	55		
(T)			
Tetracycline	55 57		
Thiamine	58		
Tincture Benzoin	56		
(W)			
Water for Injection	58		

APPENDIX V

Experts Involved in the Selection of National List of Essential Drugs (first revision) in Different Therapeutic Groups

1 General Medicine

Dr Sachche Kumar Pahadi
Dr Santosh Man Shrestha
Dr Kumud Kumar Kafle
Dr Khagendra Bdr Shrestha
Dr Madhu Ghimire
Dr Mrigendra Pd Shrestha

2 Surgery

Dr Bisharad Man Shrestha
Dr Bishwa Raj Dali
Dr Dinesh Nath Gangol
Dr Tara Bdr Khatri
Dr Netra Bdr Amatya
Dr Triratna Man Tuladhar

3 E N T

Dr Ram Chhayan Man Amatya
Dr Madhav Prasad Dahal
Dr Jishnu Prasad Rijal

4 Paediatrics

Dr Manindra Ranjan Baral
Dr Hemang Dixit
Dr Ranendra P B Shrestha
Dr Achyut Mani Acharya
Dr Ananta Datta Shrestha
Dr K D Khand

5 Psychiatrist

Dr Mahendra Nepal
Dr Nirakar Man Shrestha

6 Dermatology

Dr Ram Kumar Shrestha

7 Immunology and Vaccine

Dr Suniti Acharya
Mr Amir Man Shrestha

8 Ophthalmology

Dr Keshav Raj Bhattarai
Dr Ram Prasad Pokharel
Dr D B Karkee
Dr Om Krishna Malla
Dr Mohan P Joshi

9 Tuberculosis

Dr Narayan Govinda Amatya
Dr Thir Man Shakya
Dr Dirgha Singh Bam

10 Dental

Dr Kishor Pradhan
Dr Bina Kansakar

11 Orthopaedic

Dr Ashok Banskota

12 Gynaecology and Family Planning

Dr Laxmi Nani Shrestha
Dr Sanu Maiya Dali
Dr Dibyeswari Malla
Dr Heera Shrestha
Dr Jeevan Bhattarai

APPENDIX VI

Drug Advisory Committee 11th Meeting

Mr Mukunda Samsher Thapa Secretary Ministry of Health	-	Chairman
Dr Asfaq Sheak Chief Drug Administrator & Head Dept of Drug Administration	-	Vice-Chairman
Mr Jit Bahadur Karkee Joint Secretary Ministry of Law, Justice and Parliament	-	Member
Dr Pradeep Mohan Adhikari Chief Royal Drugs Research Laboratory	-	Member
Dr Satendra Kumar Gupta Representative Tribhuvan University, IOM	-	Member
Dr Bhoj Raj Joshi Representative Nepal Medical Association	-	Member
Mr Srikrishna Govinda Joshi Representative Nepal Pharmaceutical Association	-	Member
Mr Om Lal Shrestha Representative Nepal Chemist & Druggist Association	-	Member
Mr Sudip Kumar Bhattacharya Chairman Nepal Medical Council	-	Member
Prof Kumud Kumar Kafle T U Teaching Hospital	-	Member
Mr Narendra Kumar Thapa General Manager Sajha Swastha Sewa	-	Member
Dr Hari Nath Acharya Chief, Curative Division, MOH	-	Member
Dr Din Dayal Bhattarai Method Development Officer, DDA	-	Member Secretary

APPENDIX VII

DRUG CONSULTATIVE COUNCIL 9TH MEETING

1	Hon Dr Ram Baran Yadav Minister of State for Health	-	Chairman
2	Hon Mr Bal Gopal Vaidya National Planning Commission	-	Member (Absent)
3	Mr Mukunda Samsher Thapa Secretary Ministry of Health	-	Member
4	Secretary Ministry of Finance	-	Member (Absent)
5	Secretary Ministry of Industry	-	Member (Absent)
6	Mr Bidur K.C Joint Secretary Ministry of Commerce	-	Member
7	Mr Jit Bahadur Karkee Joint Secretary Ministry of Law, Justice and Parliament	-	Member
8	Dr R P Mishra Chief, Dept of Ayurved	-	Member
9	Dr H N Acharya Chief, Curative Div , MOH	-	Member
10	Mr N K Thapa General Manager Sajha Swastha Sewa	-	Member
11	Dr Vijay Lal Gurubacharya	-	Member (Absent)
12	Dr Dibyasri Malla	-	Member
13	Dr Hemang Dixit	-	Member (Absent)
14	Dr Suniti Acharya	-	Observer
15	Prof Kumud Kumar Kafle	-	Observer
16	Chairman Nepal Medical Council	-	Member (Absent)
17	Dr Asfaq Sheak Chief Drug Administrator & Head Dept of Drug Administration	-	Member Secretary

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APPENDIX VIIA

A

Pharmacists involved in the selection of National List of Essential Drugs

1 Dr Asfaq Sheak
2 Mr Din Dayal Bhattarai
3 Mr. Shiba Bahadur Karkee
4 Mr Gajendra Bahadur Bhuju
5 Mr. Bimal Man Shrestha
6. Mrs Bijaya Laxmi Shrestha
7. Mr. Bal Krishna Khakurel

B

Members involved in the categorisation of Drugs for Different Health Care Level

1 Dr Asfaq Sheak - Chief, Drug Administrator, DDA
2 Dr Hari Nath Acharya - Chief, Curative Div , MOH
3 Dr Sabitri Pahari - Chief, Public Health Div , MOH
4 Dr Suniti Acharya - Chief, Planning Div , MOH
5 Dr Dhurba Lal Singh - Physician, Bir Hospital
6 Dr Kumud Kumar Kafle - Clinical Pharmacologist, TUTH
7 Dr Ram Chhayan Man Amatya - E N T , TUTH
8 Dr Upendra Devkota - Neurologist, Bir Hospital
9 Mr Din Dayal Bhattarai - Pharmacist, DDA
10 Mr Shiva Bahadur Karkee - Pharmacist, DDA
11 Mr Gajendra Bahadur Bhuju - Pharmacist, DDA
12 Mr Bimal Man Shrestha - Pharmacist, DDA
13 Mr Bal Krishna Khakurel - Pharmacist, DDA

Computer Type Set

Mr Mani Raj Shrestha
Asst Inspector, DDA

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