PROPOSAL FOR A PILOT PROJECT TO STRENGTHEN THE MANAGEMENT OF DRUG SUPPLIES TO RURAL HEALTH FACILITIES IN INDONESIA

Contract No. ANE-0354-C-00-8030-00

November 1989

Report No. 40

PREPARED BY: JAMES MANENO

International Science and Technology Institute, Inc.
1129 Twentieth Street, NW ▪ Suite 800 ▪ Washington, DC 20036
Telephone: 202-785-0831 ▪ Fax: 202-223-3865 ▪ Telex: 272785 ISTI UR

PROPOSAL FOR A PILOT PROJECT TO STRENGTHEN THE MANAGEMENT OF DRUG SUPPLIES TO RURAL HEALTH FACILITIES IN INDONESIA

Report No. 40

PREPARED BY: JAMES MANENO

International Science and Technology Institute, Inc.
1129 Twentieth Street, NW ▪ Suite 800 ▪ Washington, DC 20036
Telephone: 202-785-0831 ▪ Fax: 202-223-3865 ▪ Telex: 272785 ISTI UR

TABLE OF CONTENTS

LIST OF ACRONYMS/FOREIGN WORDS

Dinas Kabupaten	Provincial Office
GFK	Government Health Warehouse
HSFP	Health Sector Financing Project
MIS	Management Information Systems
MOH	Ministry of Health
NEDL	National Essential Drug List
NGO	Non-Government Organizations
POM	Food and Drug Administration
Puskesmas	Health Centers
Puskesmas Pembantu	Health Subcenters
Transmigrasi	Transmigration Program
WHO	World Health Organization

BACKGROUND

Indonesia has a well developed rural health infrastructure with 5,639 health centers (Puskesmas), and 17,302 health subcenters (Puskesmas Pembantu). Despite this distribution of health facilities, coverage in some provinces remains inadequate. Government facilities are being utilized with increasing frequency, and demand exceeds supply. Nevertheless, many government health facilities suffer form occasionally inadequate drug supplies. Long distances and transportation problems further limit effective accessibility to health services. The situation is made worse during the rainy season when some areas are completely cut off and the incidence of diseases such as diarrhoea, malaria, and respiratory infections increases.

Geography

Indonesia is a large archipelago consisting of more than 13,500 islands spread over a distance of 5,110 kilometers. It has extreme contrasts in physical and climatic features. Transportation and communication systems remain underdeveloped in many parts of the country. The population was 175.5 million in 1988, with a density varying widely between 14,454 persons/sq.km. in Jakarta to four persons/sq.km. in Irian Jaya. About 74% of the population lives in rural areas.

Economic Situation

For more than a decade, Indonesia has maintained a rapid economic growth rate of 4% per year. With the global recession of the eighties and falling world oil prices, there has been a significant increase in external borrowing with a concomitant reduction in public sector expenditures. The Ministry of Health (MOH) budget has declined by 75% (in nominal terms) since 1985.

Demographic Status

Significant progress has been realized in the reduction of fertility and population growth of the country. The population growth rate dropped from 2.3% in 1971 to 2.1% in 1985, while the total fertility rate dropped from 5.6 in 1971 to 3.3 births per woman in 1978. The crude birth rate declined from 44.1/1000 in 1971 to 28.7/1000 in 1988.

The crude death rate averaged 13.2/1000 in 1971 and 7.9/1000 in 1980. Mortality among infants and children accounts for 44% of the total annual deaths. There has been marked decline in the infant mortality rate from 135/1000 in 1971 to 70/1000 in 1978. In 1987 it was estimated that 48% of married women used some form of contraceptive.

Health Status

About 45% of all morbidity occurs among the under five years age group which constitutes 13% of the total population. The major causes of morbidity include diarrhoea, acute respiratory infections and skin diseases.

HEALTH POLICY

The Indonesian Government has enforced the Alma-Ata Declaration of 1978 as a primary health care strategy and the achievement of the global objective of health-for-all by the year 2000.

The long-term plan for health development formulated in 1983 had the following major objectives:

1. To firmly establish and upgrade health efforts.

2. To develop the capabilities of health personnel.

3. To control, supply and supervise medicines, food and substances hazardous to health.

4. To improve nutrition and environmental health.

5. To improve the management of health programs.

Successive development plans have cited various priorities, such as:

1. Developing human resources and the physical infrastructure (Repelita II, 1969-79).

2. Improving health service coverage (Repelita III, 1979-84).

3. Integrating health and family planning services and development of a community based health care system (Repelita IV, 1984-89).

4. Improving the quality and efficiency of health services (Repelita V, 1989-94).

Financial Support for Health

Given the present government austerity measures, there is great pressure to reduce the level of public spending on health care. The government intends to curtail public spending on curative services and redirect support to preventive and promotional programs. Governmental budget allocations for health have declined since 1982. Expenditures on health as percentage of the GDP were 0.94% in 1982 and increased only to 0.95% in 1986. Total expenditures on health, as a proportion of all government expenditures, has decreased from 50% in 1982 to 36% in 1986. About 30% of the health budget is spent on pharmaceuticals.

Funding for the health sector derives from 10 major sources. The complexity of funding has a significant effect on the efficiency and effectiveness of the health care delivery system. Private sector revenues and expenditures on health represent a significant contribution to the delivery of health services. Out-of-pocket payments form 75% of private expenditure sources, private companies 19% and health insurance 6%. Forty-one percent of private health expenditures is on drugs.

The National Drug Policy

The National Drug Policy was initiated by a Ministerial Decree in 1983. Its main objectives were:

1. To ensure the availability of drugs which correspond to the actual needs of the population.

2. To improve the equitable distribution of needed drugs and make them accessible to the whole population.

3. To ensure the efficacy, safety, quality and validity of marketed drugs and to promote the rational use of drugs.

4. To protect the public from drug misuse and drug abuse.

5. To develop the nation's pharmaceutical potential towards self-reliance in drugs and to support national economic growth.

A National Essential Drug List (NEDL) was introduced by Ministerial Decree in 1980, which has since been revised in 1983 and 1987, with the assistance of WHO.

Developments to Date - Health Sector Financing Project

In response to constraints identified in the health sector, the Indonesian Government, in collaboration with the United States Government, established a seven-year Health Sector Financing Project (HSFP) from 1988 to 1995. The main goal of the project is to reduce fertility and infant and child mortality. The purpose of the HSFP is to develop the institutional and policy context needed to ensure the financial sustainability of child survival programs and identify ways to mobilize resources by:

1. Decreasing the need for public financing for hospitals and pharmaceuticals and reallocating those resources to preventive, promotive care.

2. Mobilizing resources from NGOs.

The project includes components devoted to health services management and development; health economics and policy analysis, and strengthening the pharmaceutical supply and management systems.

Pharmaceuticals

The project's pharmaceutical component has as its objective the allocation of priorities within the governmental pharmaceutical budget according to need, through programs which promote efficient management and more rational use of drugs. Under the project, a series of studies have been conducted covering the following areas related to pharmaceuticals:

1. Drug Use
2. Drug Management
3. Manpower
4. Secondary Data and Bibliographies.

A KAP study is being planned based on the findings of the studies cited above.

Problem Identification

The main problems identified by a focussed integrated analysis can be summarized as follows:

1. Insufficient coordination at the Kabupaten level and among health officers regarding budgetary information and allocations.

2. Inadequate technical ability to estimate drug requirements.

3. Procurement of drugs not related to stock/inventory levels at government health warehouses (GFK's).

4. Costs for distribution not based on geographical conditions.

5. Distribution of drugs not based on stock levels at the Puskesmas.

6. Shortage of managerial staff, i.e., pharmaceutical assistants, to ensure the logistics of supply, planning, dispensing, delivery and storage of drugs.

7. Shortage of GFK's.

8. Over prescribing of drugs which has resulted in elevated treatment costs.

9. Inadequate management information systems (MIS).

10. Limited quality control practices.

Assessment of Needs

1. Drugs issued previously may not have reflected the true demand. Health facilities tend to over-order in an effort to avoid potential shortages.

2. Drugs previously stocked may not always have reflected the actual morbidity trends or the most cost-effective treatment for disease conditions.

3. Previous issues to Puskesmas and Puskesmas Pembantu may have reflected the GFK's own fluctuations in stock levels and may not be an accurate representation of the true need.

Rational Use

A large part of the unnecessary expenditures on drugs is due to excessive or irrational use. Drugs are used irrationally for several reasons:

1. Patients pressure prescribers for drugs, particularly injections, when these may not be necessary.

2. Prescribers have developed habits of over prescribing or multiple prescribing.

3. Pressure from drug companies to use brand names.

4. Insufficient training of prescribers leading to insecurity and poly-pharmacy.

These findings were confirmed during observational field visits to Sukabumi.

Conclusions and Recommendations

Drugs are in excessive or short supply because of problems related to:

1. Selection of drugs and estimation of needs.

2. Procurement.

3. Distribution.

4. Funding levels and inefficient planning due to lack of coordination among budgetary sources.

5. Inappropriate use of drugs.

6. Administrative and management procedures.

In response to these identified problems, the following recommendations are proposed:

1. Streamline the procurement, distribution, storage and use of drugs to be delivered to the Puskesmas, Puskesmas Pembantu and the Transmigrasi.[1]

2. Revise the essential drugs list so that it more accurately reflects the need and the morbidity at different levels of care cited in (1) above.

---

[1] Transmigrasi refers to a transmigration program to redistribute population into rural areas.

3. Use the proposed list of essential drugs as a guide for drug selection for the seven major morbidity groupings and anticipated procurement needs.

4. Require Dinas Kabupaten to submit estimates of their drug needs for a one or two-year period well in advance of anticipated tenders.

5. Conduct an intensive retraining program for prescribers and dispensing personnel.

6. Strengthen management at the district level, and in particular, establish available supervisory and support systems for the Puskesmas, Puskesmas Pembantu and the Transmigrasi.

7. Strengthen the management information system to serve as the basis for planning, monitoring and evaluation.

8. Consider the possibility of conducting a pilot project in one or two areas to test the implications of the recommended actions.

9. Introduce the drug kit system as an option to respond to some or all of the problems identified.

A pilot project is proposed with various components that will form the basis for field testing.

OBJECTIVES

The overall objective is to ensure the continuous availability of essential drugs which are of good quality, at affordable costs, as well as appropriate use of these drugs. More specifically,

1. Emphasis will be given to appropriate management of common conditions such as acute respiratory infections, diarrhoea, skin diseases, worm infestations, malaria, etc.

2. The management capacity at the Kabupaten level will be strengthened with emphasis on planning, information management, monitoring, supply management and budgeting.

3. Further strengthening of the infrastructure at the Puskesmas and Puskesmas Pembantu will be undertaken in the form of training, provision of equipment and improving the referral system.

4. Activities will be carried out to improve supervision, training, continuing education and operational effectiveness of the health workers.

5. The project will promote the appropriate management and rational use of essential drugs and create awareness of the need for the rational use of drugs.

COMPONENTS

In order to provide sufficient contrast, it is proposed that the pilot project should cover one remote area of the transmigrasi and one nearby area that can be closely monitored. Two areas will be used as the controls.

Action will be undertaken on the following components:

- Selection of Drugs to Appear on Essential Drug List
  The latest Essential Drug List for Indonesia was compiled in 1987 and contains 121 drug items for the Puskesmas and 220 generic drugs. A committee has been established by the MOH to review the Essential Drug List, a process which is presently on-going. The selection of drugs included in the Essential Drugs List has been based on the WHO Group List of Essential Drugs produced in 1988 as well as results of the National Essential Drugs Consultative meeting in 1990. Inclusion in the list is based on WHO's selection criteria.

Drugs on the proposed list (Table 1) have been chosen based on information obtained on morbidity and standard treatments from monthly reports of selected Puskesmas. Estimated quantities of drugs are given in Section 5.

Some presentations and dosage forms in the proposed essential drug list have not been estimated, although these drugs are considered necessary for certain conditions, they are only required in limited quantities.

Particular reference has been made to Table 1 compiled by the Directorate General POM, especially as it relates to drug supplies for the transmigration areas. This table has been used as the core list of drugs for prescribers. Minor adjustments have been made to this list of drugs.

TABLE 1. PROPOSED LIST OF ESSENTIAL DRUGS

1. Local Anesthetics	
Lidocaine 2%	Inj. 50 ml and dental cartridges
2. Analgesics/Antipyretics	
2.1 Non-Opiods	
Acetyl Salicylic Acid	Tab. 300 mg
Paracetamol	Tab. 500 mg
3. Anti-Allergics	
Chlorpheniramine	Tab. 4 mg Inj. 10 mg/ml
Epinephrine	Inj. 1 mg/ml
4. Antidotes	
Atropine Inj.	1 mg/ml
5. Anti-Epileptics	
Diazepam	Inj. 10 mg/2 ml
Phenobarbitone	Tab. 50 mg Syrup 15 mg/5 ml
6. Anthelminthic Drugs	
Mebendazole	Tab. 100 mg
Niclosamide	Tab. 500 mg
Piperazine	Elixer 500 mg/5 ml
7. Anti-Amoebic Drugs	
Metronidazole	Tab. 200 mg
8. Anti-Bacterial Drugs	
Penicillin	
Ampicillin	Caps. 250 mg Syrup 125 mg/5ml
Benzyl Penicillin	Inj. 1 M unit
Benzathine Benzyl Penicillin	Inj. 2.4 unit
Procaine Penicillin (fortified)	Inj. 3 M unit
Phenoxymethyl Penicillin (Pen V)	Tab. 250 mg Syrup 125 mg/5ml
Amoxycillin	Caps. 250 mg Syrup 125 mg/5ml
Cotrimoxazole	Tab. 400 mg Syrup 200/40 per 5 ml
Tetracycline	Caps. 250 mg

9.	Anti-Fungal Drugs	
	Nystatin	Pessaries 100,000 IU
10.	Anti-Malarial Drugs	
	Chloroquine	Tab. 150 mg base Syrup 50 mg/5ml base
	Sulfadoxine & Pyrimethamine	Tab. 500/25 mg
11.	Anti-Schistosomal Drugs	
	Metrifonate	Tab. 100 mg
12.	Anti-Anaemia Drugs	
	Ferrous Sulphate	Tab 50 mg Syrup 60 mg/ml
	Folic Acid	Tab. 1 mg
	Ferrous Sulphate & Folic Acid	Tab. 50 mg + 0.2 mg
13.	Dermatological Drugs	
	Benzoic acid + Salicylic acid	Ointment 6%/3%
	Gentian violet	Sol. 1%
	Hydrocortisons	Ointment 1%
	Unguentum 2-4	Salicylic acid 2% + sulphur 4%
	Benzyl Benzoate	Conc. 25%
14.	Gastrointestinal Drugs	
	Magnesium Triscillicate	Tab. 500 mg
	Promethazine	Tab. 25 mg Syrup 5 mg/5 ml
	Atropine	Tab. 1 mg
	ORS	200 ml
15.	Ophthalmic Preparations	
	Oxytetracyclin	Eye Ointment 1%
16.	Oxytocics	
	Ergometrine	Inj. 0.2 mg/ml Tab. 0.2 mg
17.	Psychotherapeutic	
	Chlorpromazine	Tab. 25 mg Inj. 50 mg/2 ml
	Diazepam	Tab. 5 mg

18. Drugs to Treat Respiratory Infections

Anti-Asthmatic	
Aminophylline	Tab. 200 mg
	Inj. 250 mg/10 ml
Epinephrine	Inj. 1 mg/ml

19. Antitussives

Codein	Tab. 10 mg
Dextromethorphane	Tab. 15 mg

20. Electrolyte Disturbances

ORS	200 ml
Sodium Chloride	0.9% 500 ml
Glucose	5% isotonic 500 ml
Glucose + Sodium Chloride	4% / o.18% 500 ml
Water for Injection	Inj. 10 ml
Ringer Lactate	500 ml

21. Vitamins

Vitamin B Complex	Tab.
Vitamin A	Caps. 200,000 IU (60 mg)

22. Life Saving Drugs

Adrenalin 1%	Inj. amp. 1 ml
Dexamethasone 5 mg	Inj. amp. 1 ml

TABLE 2. DRY PACKAGES FOR TECHNICAL IMPLEMENTATION UNITS

No.	DRUG	PACKAGING	TOTAL PER PACKAGE	UNIT COST	TOTAL COST	I	II	III	IV	REMARKS
1.	Noramidophyrine Methanesulfonate (Antalgin, Metampyrone) Tablet 500 mg	Tin/Bottle 100 tablet	4			I	-	-	-	
2.	Paracetamol Tablet 500 mg	Tin/Bottle 1000 tablet	10			-	-	III	-	
3.	Phenylbutazon Sulfate Tablet 200 mg	Bottle/1000 tab	1			I	-	-	-	
4.	Lidocaine HCI Injection 1% - 2 ml	Box, 100 ampul	2			-	II	-	-	
5.	Diazepam Tablet 5 mg/ml - 2 ml	Box, 100 ampul	0,2			-	II	-	-	
6.	Diazepam Tablet 2 mg	Tin/Bottle 1000 tablet	0,5			I	-	-	-	
7.	Phenobarbital Tablet 30 mg	Tin/Bottle 1000 tab	0,5			I	-	-	-	
8.	Chlorpromazine HCI Coated Tablet 25 mg	Bottle/1000 tab	0,5			I	-	-	-	
9.	Reserpine Tablet 0,10 mg	Tin/Bottle 500 mg	0,5			I	-	-	-	
10.	Digoxin Tablet 0,25 mg	Bottle, 100 tablet	1			I	-	-	-	
11.	Epinephrine HCI/Bitartrate Injection 0,1% - 1 ml	Box, 100 ampul	0,2			-	II	-	-	
12.	Dextromethorphan HBr Coated Tablet 15 mg	Bottle 1000 tab	5			-	-	III	-	

TABLE 2. DRY PACKAGES FOR TECHNICAL IMPLEMENTATION UNITS

No.	DRUG	PACKAGING	TOTAL PER PACKAGE	UNIT COST	TOTAL COST	I	II	III	IV	REMARKS
13.	Glyceryl Guayocolum Tablet 100mg	Bottle 1000 tab	3			-	-	III	-	
14.	Potio Nigra Solution	Bottle, 200 ml	140			-	-	III	-	
15.	Potio Alba Solution	Bottle, 100 ml	120			-	-	III	-	
16.	Aminophylline Tablet 200 mg	Bottle 1000 tab	1			I	-	-	-	
17.	Efedrina Tablet 25 mg/ml - 2 ml	Tin/Bottle 1000 tab	1			I	-	-	-	
18.	Magnesium Hydroxide 200 mg+ Aluminum Hydroxide 200 mg Antasida Tablet	Tin 1000 tab	4			-	-	III	-	
19.	Oral Rehydration Salt	Box 25 bag	12			-	-	-	IV	
20.	Extract Belladore	Tin 1000 tab	0,5			I	-	-	-	
21.	Furosemide Tablet 40 mg	Bottle 250 tablet	0,5			I	-	-	-	
22.	Kotrimoxasol, Combination: Sufamethoxazole 400 mg + Trimethoprim 80 mg	Bottle 100 tablet	20			-	II	-	-	
23.	Chlorpheniramine Maleate (CTM) Tablet 4 mg	Klg/Btl 1000 tab	5			-	-	III	-	
24.	Glucose Solution Infus Sterile 0,9%	Btl/Plastik 500 ml	2			-	II	-	-	

TABLE 2. DRY PACKAGES FOR TECHNICAL IMPLEMENTATION UNITS

No.	DRUG	PACKAGING	TOTAL PER PACKAGE	UNIT COST	TOTAL COST	I	II	III	IV	REMARKS
25.	Na Cl Solution, Infus Sterile 0,9%	Btl/Plastik 500 ml	2			-	II	-	-	
26.	Ringer Lactate Solution Infus Sterile	Blt/Plastik 500 ml	2			-	II	-	-	
27.	Prednisone Tablet 5 mg	Tin/Btl 1000 tab	1			I	-	-	-	
28.	Ascorbic Acid Tablet 50 mg	Tin/100 tab	10			-	-	-	IV	
29.	Calcium Lactate (calc) 500 mg	Tin/1000 tab	5			-	-	-	IV	
30.	Pyridoxine HCI Tablet 10 mg	Tin/Bottle 1000 tab	5			-	-	III	-	
31.	Thiamine HCI/Mononitrate (Vit B1) Tablet 10 mg	Tin/Bottle 1000 tab	5			-	-	-	IV	
32.	Vitamin B Complex Tablet	Tin/100 tab	13			-	-	-	IV	
33.	Ampicillin Tablet 500 mg	Bottle/100 tab	20			-	II	-	-	
34.	Fenoksimetil Penicillin Tablet, 500 mg	Bottle/100 tab	1			I	-	-	-	
35.	Chloramphenicolum, Capful 250 mg	Tin/Bottle 1000 capsule	2			I	-	-	-	
36.	Procaine Penicillin Injection 3 million IU/vial	Box 1000 vial	0,5			I	-	-	-	

TABLE 2. DRY PACKAGES FOR TECHNICAL IMPLEMENTATION UNITS

No.	DRUG	PACKAGING	TOTAL PER PACKAGE	UNIT COST	TOTAL COST	I	II	III	IV	REMARKS
37.	Tetrasiklina HCl Capsule 250 mg	Bottle 1000 capsule	5			I	-	-	-	
38.	Nistaatina Vaginal Tablet 100.000 IU/g	Box 100 tablet	2			I	-	-	-	
39.	Etakridna Solution (Ravanol) 0,1%	Bottle 300 ml	18			-	-	-	IV	
40.	Ethanol 70%	Bottle 1000 ml	10			-	-	III	-	
41.	Dexamethasone Injection 5mg/ml - 1 ml	Bottle 60 ml	0,2			I	-	-	-	
42.	Sodium Povidone Solution 10%	Bottle 60 ml	20			-	-	-	IV	
43.	Priantel Pamoate Tablet 365 mg	Bottle 100 tab	10			-		III	-V	
44.	Metronidazol Tablet 250 mg	Bottle 100 tab	3			-	II	-	-	
45.	Klorokina Phosphate Tablet 250 mg	Tin/Bottle 1000 tab	4			-	-	-	IV	
46.	Combination Tablet: Piretamine 25 mg + Sulfadoxin 500 mg	Bottle 100 tab	1			I	-	-	-	
47.	Primakina Tablet 15 mg	Bottle 100 tab	10			I	-	-		
48.	Ferro Sulphate Coated Tablet	Bottle 1000 tab	5			-	-	-	IV	

TABLE 2. DRY PACKAGES FOR TECHNICAL IMPLEMENTATION UNITS

No.	DRUG	PACKAGING	TOTAL PER PACKAGE	UNIT COST	TOTAL COST	I	II	III	IV	REMARKS
49.	Anti-Snake Bite Serum 50 ml	Box 10 vial	0,2			I	-	-	-	
50.	Anti-Snake Bite Serum 50 ml	Box 1 vial	0,3			I	-	-	-	
51.	Anti-Tetanus 1500 IU	Box 100 ampul	0,2			I	-	-	-	
52.	Metil Ergometrin Maleat Injection 0,2 mg/ml	Box 100 ampul				-	II	-	-	
53.	Metil Erometrin Malet Coated Tablet 0,2 mg/ml	Bottle 100 tab	0,2			-	II	-	-	
54.	Oxitocina Injection 10 IU/ml-ml	Box 100 ampultablet	0,2			-	II	-	-	
55.	Papaverina HCL Injection 40 mg/ml-ml	Box 100 ampul	0,2			-	II	-	-	
56.	Papaverina HCL Tablet 40 mg	Tin/Bottle 1000 tablet	1			-	II	-	-	
57.	Hydrocortisone Cream 2,5%	Tube 5 gram	20			I	-	-	-	
58.	Salep (Okistetrasiklina)	Tube 5 gram	50			-	-	III	-	
59.	Salep Kombinasi: Asam Benzoat 6% + Asam Salisilat 3% (Whitefield salep)	Pot 30 gram	100			-	-	-	IV	
60.	Salisil Spiritus 10%	Bottle 15 ml	20			-	-	-	IV	

TABLE 2. DRY PACKAGES FOR TECHNICAL IMPLEMENTATION UNITS

No.	DRUG	PACKAGING	TOTAL PER PACKAGE	UNIT COST	TOTAL COST	I	II	III	IV	REMARKS
61.	Emulsi Gameksan 1%	Bottle 100 ml	16			I	-	-	-	
62.	Salep Kombinasi: Asam Salisitat 2% + Berang Endap 4% (2-4 salep)	Pot 30 gram	100			-	-	-	IV	
63.	Permanganat Kalium Powder 5 gram	Bottle 5 gram	10			-	-	III	-	
64.	Salicyl Powder 2%	Box 50 gram	50			-	-	-	IV	
65.	Retinol (Vitamin A) Soft Capsule 2000,000 IU	Bottle 1000 kap	1			-	II	-	-	
66.	Chloramphenicol Eye-Ointment 1%	Tube 5 gram	100			-	-	III	-	
67.	Chloramphenicol Ear-Drops 3%	Bottle 5 ml	50			-	-	III	-	
68.	Gentian Violet Solution 1%	Bottle 10 ml	100			-	-	-	IV	
69.	Sodium Bicarbonate Tablet 500 mg	Box 1000 tab	0,5			-	-	III	-	
70.	Sodium Tiosulphate Injection 25% - 10 ml	Box 10 amp	1			-	II	-	-	
71.	Aquadest Sterile	Bottle 500 ml	10			-	-	III	-	
72.	Aqua Pro-Injection Sterile Free from Pyrogens	Amp. 20 ml	50			-	-	III	-	

TABLE 2. DRY PACKAGES FOR TECHNICAL IMPLEMENTATION UNITS

No.	DRUG	PACKAGING	TOTAL PER PACKAGE	UNIT COST	TOTAL COST	I	II	III	IV	REMARKS
73.	Cat Gut (Benang Bedah) No. 2/0 - 3/0	Sachet 24 x 1.5M	1			-	II	-	-	
74.	Infusion Set	Ktg. set	4			-	II	-	-	
75.	Absorbent Cotton	Box 250 gram	7			-	-	-	IV	
76.	Gauze Sterile Compress	Box 40/40	100			-	-	-	IV	
77.	Gauze Pembalut Hidrofil 4Mx150M	Rol. 4Mx150M	20			-	-	-	IV	
78.	Plaster 5 yards x 2 inch	Roll	10			-	-	III	-	
79.	Salbutamol Tablet 2 mg	Box 100 tab	10			I	-	-	-	
80.	Diphenhydramine Injection	Box 100 amp	0.5			-	II	-	-	
81.	Silk 3/0	Dos 24x13x60 cm	1			I	-	-	-	
82.	Disposible Syringe		10			-	II	-	-	

ESTIMATING DRUG REQUIREMENTS

There are several possible approaches to estimating drug requirements. The most frequently used method is based upon past consumption patterns. However, where inadequacies in the supply and range of drugs available are known to exist, then estimations using past consumption of drugs would be inappropriate. In the absence of special efforts to adjust estimates based on past consumption allowing for inappropriate provision and use of drugs, this method would result in estimations that perpetuate these deficiencies.

Problems in over-supply of essential drugs are known to exist in many out-patient facilities, since it is acknowledged that estimates of future drug requirements based on past consumption would be unreliable. It was therefore decided that the morbidity method would be used initially to quantify the future requirements for drugs at government facilities. This method starts with a review of the morbidity of patients treated at the facilities and applies to its standard drug treatment regimens. This method provides an indication of the quantities of essential drugs needed to adequately manage the vast majority of illness episodes seen at the rural health facility over a set time period.

It is important to appreciate that the morbidity method of estimating drug requirements will only be effective in quantifying appropriate amounts of drugs, if efforts are made simultaneously to standardize diagnosis and treatment by health workers.

Information Used to Quantify Drug Requirements at Government Health Facilities

Information from several sources has been used to estimate the quantities of essential drugs needed on an annual basis.

1. The Essential Drug Lists
   The Essential Drug List prepared by the MOH has been reviewed to indicate the range of drugs required to adequately treat prevalent illness in the Puskesmas and Puskesmas Pembantu, and the Transmigrasi.

2. Selection of Sites and Data Collection
   Visits were made to a number of facilities in Sukabumi. The facilities were chosen to reflect the various levels of care and different epidemiological situations. The facilities visited during this mission were Puskesmas Nagrah, Puskesmas Parund Kunda and Puskesmas Pembantu Tangkil. During visits to these facilities, the monthly out-patient activity reports for 1989 and 1990 were reviewed. For a more detailed breakdown of the numbers and age of patients visiting the clinics, the registration record books in these facilities were examined. All facilities prepared monthly returns using the basic tabulation of the International Classification of Diseases. Similar information was obtained from the card disease record at the facility.

3. Service Utilization at Government Facilities
   Figures for out-patient visits during 1988 at one facility were provided by the facility.

4. Standard Treatment Regimens
   The standard treatment regimens used to identify the quantities of drugs to treat specific conditions were modified principally from those already being followed in the facilities visited. These were supplemented by draft treatment schedules developed by WHO's Action Program on Essential Drugs.

Application of the Morbidity Method to Estimate the Annual Quantities of Drugs Required for Government Health Facilities

The number of out-patients in 1988 by particular illness-condition per 1,000 treatment episodes was estimated from the proportions of total out-patients seen at Puskesmas Pembantu based on the monthly out-patient activity summary report. Using information gathered during visits to the field, these numbers were further divided into children under five years and adults (including over five years) by specific conditions. Where this was not possible, national figures were arbitrarily allocated to specific disease-conditions within the more general groupings. For each of these particular treatment episodes, the quantities of drugs per course (derived from the standard treatment schedules) were multiplied by the number of episodes to obtain the total estimated drug requirements per 1,000 out-patient contacts.

Limitations of Estimation Procedures

As should be clear from the description of the application of the morbidity methodology to estimate drug requirements for government facilities, the data base on which many of these estimates have been made is incomplete. Attempts have been made to supplement and improve the base information by reviewing particular morbidity data. This could be improved by prospectively collecting information on out-patients.

It is important to note that the methodology has assumed rational prescribing. The limited information available (to us) on drug use suggests that there is considerable variation in diagnostic performance and prescribing practices. At one health institution visited, we were provided with a copy of a paper (Table 3) which lists the usual treatment given to patients with diarrhoeal diseases, respiratory tract infections, worm infestations, skin diseases, etc. This clearly demonstrates the wide range of drug treatment used for these conditions. For upper respiratory tract infections, 11 different antibiotics are said to be frequently prescribed, in addition to several other drugs.

If these practices are widespread, then the provision of drugs based on rational diagnosis and prescribing cannot, by itself, improve the situation regarding drugs at these facilities. For an essential drug program to be successful, actions are required that go beyond the quantification of essential drug requirements to include information, contribute to effective education and support to improve diagnostic and treatment skills.

To further assist progress in implementing an essential drugs program, consideration should be given to the establishment and functioning of an essential drugs committee, strengthening of purchasing, store-keeping and distribution procedures at central and peripheral levels, and a quality assurance system. Drug review committees should be established and drug utilization studies undertaken for particular groups of drugs, such as antibiotics. In addition, mechanisms to monitor the adequacy of estimation procedures for quantifying the requirements of essential drugs should be established.

TABLE 3. HEALTH CENTER STANDARD TREATMENT MANUAL IN SUKABUMI DISTRICT [2]

Unit Number	Code Number	Indication/Disease	Drugs	Dosage in Adult	Dosage in Children	Remark
1	01.01	Cholera	Tetracycline Capsule Oral Rehydration Salt Ringer Lactate Infus Diaform Tablet	4x2 25 bag 6 3x1	50 mg/day 15 bag 64 -	
2	01.02	Diarrhoea	Tetracycline Capsule Oral Rehydration Salt	4x2 25 bks	50mg/day 15 bag	
3	01.03	Bacillary Dysentery (Sigelosis)	Trisulfa Tablet Ampicillin Tablet Tetracycline Capsule Oral Rehydration Salt Paracetamol/Antalgin Tablet	3x2 3x1 4x1 10 bag 3x1	3x 1/2 50 - 100 mgs - 5 bag 3 x ½	
4	01.03	Dysentery	Metronidazol Tablet Vit. B Complex Tablet Diaform Tablet Vit. K Tablet 10mg Vit. K Injection	3x1/6 day 3x1 3x1 3x1 a	3x1/6 day 3x ½ 3x½ 3x1	
5	01.04	Sigelosis	If necessary, Infus Streptomycin sulphate injection, Natrium tiosulphate Injection, Natrium Bicarbonate Paracetamo/Antalgin tablet	 1a 1a 3x1 3x1		
6	01.05	Typhoid	Chloramphenicol cap/ syrup Paracetamol/Antalgin tablet Vit. B Complex tablet	4x2 3x1 3x1	2 bottle 3x½ 3x½	
7	01.06	Paratyphoid	Chloramphenicol cap Paracet/Antalg. tab Vit.B.Kompl. tab Antaside tablet	4x2 3x1 3x1 3x1	2 botol 3x½ 3x½ 3x½	
8	02.01	Pulmonary Tuberculosis	Streptomycin/kanamycin Injection INH tablet 100 mg Ethambutol tab. 250 mg	1 gr/30 day 2x/3 week 1x4/3 day 1/72x per week 1x4/30 day	½ gr/3 day 1x23 day 1x2/30 day	

[2] The Guidelines for Basic Care Therapy submitted February 1, 1988, were compiled by a committee under the Kabupaten Health Services (Decree of the Head of Sukabumi Kabupaten Health Services No. 056-220/88 dated January 15, 1988, signed by Dr. Hetty Beryanti Cowan NIP 140052766). In compiling these Guidelines, the committee used the Morbidity Pattern and the Guidelines for Basic Cure Therapy at the Puskesmas issued by the MOH in 1986 as reference.

TABLE 3. HEALTH CENTER STANDARD TREATMENT MANUAL IN SUKABUMI DISTRICT

Unit Number	Code Number	Indication/Disease	Drugs	Dosage in Adult	Dosage in Children	Remark
9	03.06	Whooping Cough	Codeine tablet 10 mg CTK tablet Luminal tab 30 mg Ampicill/Chloramphenicol Vitamin B Complex Potio nigra/potio alba	3x1 3x1 3x1 3x1 3x1 1 btl	1 mg/year 3x½ 3x½ 1 bottle 3x½ 1 btl	
10	03.07	Tetanus	Refer to Hospital			
11	04.02	Chicken Pox	Salicyl talk / P.K Vit.B.Complex tablet Vit C tab / Paracetamol/ Antalgin tablet Tetracycline capful/ tetracycline tablet		1 bag/1 pot 3x1 3x1 3x1	
12	04.04	Hepatitis	Cortione tablet Vitamin B complex tablet Vitamin C tablet	3x1 3x1 3x1	3x½ 3x½	
13	04.05	Rabies	Refer to Hospital			
14	04.06	Trachoma	Oxytetracycline eye ointment/ solution Oxytetracycline ear-drops Tetracycline capful Trisulfa tablet	2 4x1/7 hr	2 3x1/7 hr	
15	04.07	Dengue	Paracetamol/Antalgin tablet CTM tablet Vit.C/Vit.B.Compl tab Oralit 200 cc	3x1 3x1 3x1 10 bks	3x½ 3x½ 3x½ 5 bks	
16	04.08	D.H.F.	Ringer Lactate infus (refer to hospital)			if necessary
17	05.01	Malaria Tropica	Chloroquine tablet Piritamina tablet	1x4/first day 1x4/second day 1x2/third day 2x1/3 days		
18	06.01	Syphilis	PPC Injection Tetracycline capful	2-4 x/1 week 2-4 x/15 day		
19	07.08	Ascariasis Other Filarial Infection Oxyuris	Pyrantel Pamoat tablet 125 mg Pyrantel Pamoat tablet 125 mg Pyrantel Pamoat tablet	4 tablet/1 day 4 tablet/1 day 4 tablet/3 days	2 tab/1 day 2 tab/1 day 2 tab/3 day	

Table 3. HEALTH CENTER STANDARD TREATMENT MANUAL IN SUKABUMI DISTRICT

Unit Number	Code Number	Indication/Disease	Drugs	Dosage In Adult	Dosage In Children	Remark
20	07.10	Scabies	2-4 Ointment CTM Tablet	1 pot 3x1	1 pot 3x½	
21	07.11	Skin Disease (Micosis infection)	Whitefield/Undeocyl ointment Griseofulvin/tablet	 1x4/30 days		
22	08.01	Endemic Goiter Goiter (deficiency odium)	Antalgin/paracetamol/ Asetocal tablet Vitamin C/Vitamin B Complex tablet Iodkalium tablet	3x1 3x1		
23	09.04	Vitamin A Deficiency	Vit A Injection 100,000 UI Vit A Injection 20000 UI Chloramphenicol eye-ointment	1 ampul 9 tablet 1 tube		
24	09.05	Other Vitamin Deficiency	Vit B1 injection 100 mg Vit B1 tablet 50 mg Vit B complex tablet	1 ampul 18 tablet 3x1		
25	11.01	Epilepsy	Luminal tablet or Difenhidantoine capful	3x1		
26	12.02	Cataract	Oxytetracyclin eye ointment Sulfate Atropine eye drops Tetracycline/Ampicillin/ Chloramphenicol capful/syrup Sulfacetamide eye drops	1 tube 1 btl 3x1 1 btl	1 tube	
27	12.04	Conjunctivitis	Chloramphenicol/Oxytetra- cycline eye-ointment Tetracycline capful Trisulfa tablet	1 tube 4x1	1 tube 3x1	
28	12.07	Other Disease	Pilocarpine nose drops Argenti Nitrate ear drops Cortisone/hydrocortisone eye ointment Sulfate Atropine eye drops tetracaine eye drops	3 drops 10 drops 10 drops 10 drops 10 drops		
29		Hypertension	H.C.T. tablet Serpasil tablet 0,25 mg Diazepam tablet 2 mg Antalgin/Paracetamol tablet	3x1 3x1 3x1 3x1		
30		Blood and Coronary Disorder	Furosemide tablet Digoxin tablet Sapar K	1x1		

Table 3. HEALTH CENTER STANDARD TREATMENT MANUAL IN SUKABUMI DISTRICT

UNIT NUMBER	CODE NUMBER	INDICATION/DISEASE	DRUGS	DOSAGE IN ADULT	DOSAGE IN CHILDREN	REMARK
31	1901	Pneumonia	Fenoksimetil Penicillin/ tetracycline/ampicillin capful Paracetamol/Antalgin Tab. Vitamin C/B complex PPC/Oxytetracyclin Inj. Potio nigra/Potio alba syr. Refer to hospital	4x1 3x1 3x1 4 cc 1 btl	4x½ 3x½ 3x½ 2 cc 1 btl	
32	1902	Bronchitis	Fenoksimetil Penicillin/ tetracycline/ampicillin capful Paracetamol/Antalgin Tab. Vitamin C/B complex PPC/Oxytetracyclin Inj. Potio nigra/Potio alba syr. OBA/OHP ayr	4x1 3x1 3x1 4 cc 1 btl	4x½ 3x½ 3x½ 2 cc 1 btl	
33	1903	Influenza	Paracetamol tablet/ antalgin tablet CTM tablet Vitamin C/B complex tablet Antalgin/Delladryl Injection	3x1 3x1 3x1 1 cc	3x½ 3x½ 3x½ 1 cc	
34	1904	Asthma	Asthma Tablet Ephedrine/Aminophylline tab. Potio nigra syrup OTN tablet Prednison tablet	3x1 1 btl 3x1 3x1	3x½ 1 btl 3x½ 3x½	
35	1905	Other Asthma	Aminophylline/Adrenalin Inj Glucose 5% Dexamethasone Inj. Infus	2 amp/day 2 kolf/4 days 4 amp/day 1 kolf/1 day		
36	2101	Gastritis	Antasida tab Extract Belladonna tablet vitamin B/Pupar Inj.	3x1 3x1 1 a		
37	25	Abortus	Oxcitosin Inj. or Ergometrine maleate Inj. Vit.B Complex tablet	1 a 1 a 3x1		
38	31	Injury	Na.Cl 0,9%-500 ml H202 35 % Detodine solution PPC Inj/Oxytetracycline Inj. ATS 1,500 UI Ampicillin/Tetracycline/ Trisulfa tablet Verban 4x15 rol Plaster-cotton Cat Gut 2 needle O/K-Kyde 3 Alcohol 70% Lidocaine 1%/2ml Kasa Steril 40x40 cm Gauze verban Antalgin/Paracetanol tab Vit.B Complex tablet Anti-Snake Bite Serum			

ILLUSTRATIVE STANDARD TREATMENT SCHEDULES FOR MIDDLE-LEVEL CARE

Table 4 gives an illustrative set of the standard drug treatment schedules for paramedical staff at the Puskesmas level, under complete or incomplete doctor's supervision, for the conditions and drugs selected. It is assumed that the health workers at this level have been trained in diagnostics and appropriate use of drugs included in the schedules. These schedules are illustrative and should not be interpreted as models. However, they have been developed after reviewing a large number of standard treatment manuals, and also take account of the views of clinicians and WHO specialists familiar with middle-level care in developing countries. They may therefore be useful as a starting point in working out standard treatment schedules for middle-level health care facilities in Indonesia. If we apply these illustrative schedules as a starting point for developing schedules, bear in mind that they have been based on the following assumptions:

1. For drugs where body weight is important in estimating dosage, a body weight of 60 kg has been used for adults, and 15 kg for children, unless otherwise stated. The actual dose for an individual patient will, in many cases, depend crucially upon body weight. This is particularly important for young children.

2. For urinary tract infections a five-day course of antibiotics has been used.

3. For acute respiratory and ear infections in children, a five-day antibiotic course has been used as recommended by the WHO Expert Committee on Acute Respiratory Infections.

4. For all other infective conditions (except venereal diseases) in which antibiotics are used, a six-day course has been used.

PREREQUISITES FOR VALID USE OF STANDARD TREATMENT SCHEDULES TO QUANTIFY DRUG REQUIREMENTS

There are three key prerequisites for the use of standard drug treatment regimes for quantification of drug requirement as follows:

General

1. Feasibility. The treatment schedules proposed must be feasible with political will and commitment, diagnostics and prescribing skills of the staff and the resources available at the type of facility for which they are proposed.

2. Communications and understanding. The treatment schedules proposed must be fully communicated to the staff who are expected to apply them and must be thoroughly understood by them. This implies a considerable training effort, and continuous monitoring and feedback on the use of the standard treatments, leading to further training and modifications on the basis of experience.

3. Acceptability. The treatment schedules proposed must be accepted by the staff who are expected to apply them, and the patients for whom they are prescribed. The technical communication concerning the regimes themselves must be accompanied by explanations and discussions of why they are preferred to other treatment options, and the regimes must take account of patients views and expectations. Without such acceptance, the drug quantities estimated to be necessary will be based on unrealistic assumptions, staff prescribing practices will differ from the standard schedules, and patients will be put off from seeking treatment or fail to comply with what is prescribed.

Specific

1. Sufficient and timely deliveries of kits to the health units.
2. Precise diagnostic capability, particularly for kits related diseases.

TABLE 4

STANDARD DRUG TREATMENT SCHEDULES USED IN QUANTIFYING DRUG REQUIREMENTS

INDICATION	DRUGS	DOSE	TIMES/ DAY	NO./ DAYS	AMT. PER COURSE OF TREATMENT
MALARIAL INFECTION					
Severity 1 Adults	Chloroquine 150 mg base tabs	non-immune 4 tabs followed by 2 tabs	start at 6 hrs x 2	x3	4 tabs 2 tabs 6 tabs
Severity 2 Children	Chloroquine 50 mg base per 5 ml syrup	followed by 1 tab 20m., followed by 10ml, followed by 10 ml	 start at 6 hrs x1	 x3	 20 ml 10 ml 30 ml
SCHISTOSOMIASIS					
Schistosomiasis	Metrifonate - 100 mg tabs	4 ½ tabs stat, repeat every 2 weeks x 3	-	-	13.5 tabs
Haematobiue Adults	Note: allowance must be made for atropine sulfate to treat severe side-effects.	1 ½ tab stat, repeat 2 weeks x3	-	-	$3^{3/4}$ tabs
Schistosomiasis Mansoni Adults	Praziquantel 600 mg tabs	4 tabs	stat	-	4 tabs
Children	As above	1 tab	stat		1 tab
Adults	Oxamniquine 250 mg caps	3 ½ caps	stat	-	3½ tabs
Children	As above Note: for axamniquaine-above is effective dose in Brazil and West Africa; in central and East Africa, effective dose ranges from 30-45 mg/kg; in Egypt up to 60 mg/kg given over 3 days.	1 cap	stat	-	1 cap
Schistosomiasis Japonicum Adults	Praziquantel 600 mg tabs	6 tabs	stat	-	6 tabs
Children	As above	1½ tabs	stat	-	1½ tabs
INFECTIOUS DISEASES COMMON IN CHILDREN					
Viral Diseases w/Exanther Chicken pox	i.) Chlorphenamine 4 mg tabs ii.) Calamine lotion	i.) ½ tab ii.) as required	x3 x3	x6 x6	9 tabs assume 50 ml

TABLE 4
STANDARD DRUG TREATMENT SCHEDULES USED IN QUANTIFYING DRUG REQUIREMENTS

INDICATION	DRUGS	DOSE	TIMES/ DAY	NO./ DAYS	AMT. PER COURSE OF TREATMENT
Measles					
Severity 1	Acetylsalicylic acid 300 mg tabs	½ tab	x4	x4	8 tabs
Severity 2	i.) Procaine benzyl pennicillin 3.0 mega IU vial	i.) 1/10 vial	x1	x6	3/5 vial
	ii.) As above	ii.) ½ tab	x4	x4	8 tabs
DIGESTIVE SYSTEM PROBLEMS					
Diarrhoeal Diseases Intestinal Infections A· ıte Diarrhoea, Gastroenteritis					
Severity 1					
Adults	Oral rehydration salts, sachets	as required			assume 4 sachets
Children	As above				assume 3 sachets
Severity 2					
Adults	Ringers 500ml packets for i.v. infusion	as required depends upon degree of dehydration			assume 1500 mls
Children	As above				assume 500 mls
Cholera					
Adults	i.) Tetracycline 250 mg caps.	i.) 2 caps	x4	x4	32 caps
	ii.) Oral rehydration salts, sachets	ii.) as required			assume 4 sachets
Children	i.) Sulfamethoxazoie 400 mg +80 mg trimethoprim tabs	i.) ¼ tab	x2	x4	2 tabs
	ii.) Oral rehydration salts, sachets	ii.) as required			assume 3 sachets
Typhoid Fever					
Adults	Chloramphenicol 250 mg/tabs	3 tabs followed by 2 tabs	x4 x4	x1 x14	12 tabs 112 tabs
Children	As above	3/4 tabs followed by ½ tab	x4 x4	x1 x14	3 tabs 28 tabs
Amoebi Dysentery					
Adults	Metronidazole 200 mg tabs	200 mg	x3		60 tabs
Children	As above				21 tabs
Chronic Diarrhoea, NEC					
Adults	Metronidazole 200 mg tabs	4 tabs	x3	x5	60 tabs
Children	As above	1 tab	x3	x7	21 tabs

TABLE 4
STANDARD DRUG TREATMENT SCHEDULES USED IN QUANTIFYING DRUG REQUIREMENTS

INDICATION	DRUGS	DOSE	TIMES/ DAY	NO./ DAYS	AMT. PER COURSE OF TREATMENT
Intestinal Parasitoses Ascariasis (roundworm)					
Adults	Piperazine 500 mg tabs	8 tabs	stat	-	8 tabs
Children	Piperazine syrup 500mg per 5ml	8 mls	stat	-	8 mls
Taeniasis (tapeworm)					
Adults	Nicosamide 500 mg tabs	4 tabs	stat	-	4 tabs
Children	As above	2 tabs	stat	-	2 tabs
Hookworm and Other Infections					
Adults	Mebendazole 100 mg tabs	1 tab	x2	x3	6 tabs
Children	As above	1 tab	x2	x3	6 tabs
Abdominal Problems, Nausea/Vomiting, W/O Diarrhoea					
Adults	Promethazine 25mg tabs	1 tab	x3	x2	6 tabs
Children	Promethazine syrup 5mg/5ml	4 mls	x3	x2	24 mls
Heartburn, Gastritis Indigestion					
Adults	Mug T. Hydroxide 500 mg tabs	2 tabs	x4	x3	24 tabs
Children	N/A				
Constipation					
Adults	Senna 7.5 mg tabs	2 tabs	stat	-	2 tabs
Children	As above	½ tab	stat	-	½ tab
Abdominal Pain					
Adults	Buscopan	2 tabs	x3	x2	12 tabs
Children	As above	½ tab	x3	x2	3 tabs
RESPIRATORY PROBLEMS					
Upper Respiratory Prob. Common Cold, Upper Respiratory Infections					
Adults	Acetylsalicylic acid 300 mg tabs	2 tabs	x4	x2	16 tabs
Children	As above	½ tab	x4	x2	4 tabs

TABLE 4
STANDARD DRUG TREATMENT SCHEDULES USED IN QUANTIFYING DRUG REQUIREMENTS

INDICATION	DRUGS	DOSE	TIMES/ DAY	NO./ DAYS	AMT. PER COURSE OF TREATMENT
Acute Tonsillitis					
Adults	Procaine benzyl penn. 30 mega IU vial	i.) 1/3 vial ii.) 2 tabs	x1 x4	x5 x2	1 2/3 vials 16 tabs
Children	Acetylsalicylic acid 300 mg tabs	i.) ¼ vial ii.) ½ tab	x1 x4	x5 x2	1¼ vial 4 tabs
Lower Respiratory Problems, Acute Bronchitis					
Adults	Acetylsalicylic acid 300 mg tabs	2 tabs	x4	x2	16 tabs
Children	i.) Sulfanethoxazole 100 mg and trienthoria 20 mg tab	i.) 2 tabs	x2	x5	20 tabs
	ii.) Acetylsalicylic acid 300 mg tabs	ii.) ½ tab	x4	x2	4 tabs
Pneumonia					
Severity 1					
Adults	i.) Procaine benzyl penn. 3.0 mega IU vials	i. 1/3 vial ii. 2 tabs	x1 x4	x5 x2	1 /3 vials 16 tabs
	ii.) Acetylsalicylic acid 300 mg tabs	i. ¼ vial	x1	x5	1¼ vials
Children	As above	ii. ½ tab	x4	x2	4 tabs
Severity 2					
Adults	i.) Ampicillin 250 mg caps	i. 2 caps	x4	x5	40 caps
	ii.) Acetylsalicylic acid 300 mg tabs	ii. 2 tabs	x4	x2	16 tabs
Children	i.) Ampicillin syrup 124mgs/5ml	i. 15 mls	x4	x5	300 mls
	ii.) Acetylsalicylic acid 300 mg tabs	ii. ½ tab	x4	x2	4 tabs
ASTHMA					
Severity 1					
Adults	Salbutamol 4 mg tabs	1 tab	x3	x4	12 tabs
Children	Salbutamol syrup 2 mg/5ml	5 ml	x3	x4	60 ml
Severity 2					
Adults	Epinephrine 1 mg/ml amp	give slowly .5 ml per min	stat	-	½ amp
Children	As above	.25 ml per min	stat	-	¼ amp
MENTAL DISORDERS					
Epilepsy (chronic) Grandmal or focal epilepsy					
Adults	Phenobarbital 50mg tabs	2 tabs	x3	x28	168 tabs
Children	Phenobarbital syr. 15mg/5ml	Std. dose 5-8 mp/kg/day			
Age:					840 mls
13 mo. - 11 years		10 ml	x3	x28	

TABLE 4
STANDARD DRUG TREATMENT SCHEDULES USED IN QUANTIFYING DRUG REQUIREMENTS

INDICATION	DRUGS	DOSE	TIMES/ DAY	NO./ DAYS	AMT. PER COURSE OF TREATMENT
Nervous System Signs & Symptoms; Headache					
Adults	Acetylsalicylic acid 300 mg tabs	2 tabs	x4	x2	16 tabs
Children	As above	½ tab	x4	x2	16 tabs
EYE PROBLEMS					
Eye Problems Infectious Eye Problems Conjunctivitis Adults and Children	Tetracycline eye ointment 5 g tube	Every 4 hours	x3	x7	1 tube
Ophthalmia Neonatorum Newborns Note: In areas with high prevalence of gonorrhoea provision of silver nitrate (1% eye drops) for prophylaxis should be considered.	i.) Tetracycline eye ointment 1% 5g tube	i.) apply topically	x24 followed by x8 followed by x4	x1 x1 x8	1 tube
	ii.) Procaine benzyl Penicillin 3.0 mega IU vial	ii.) 1/40 vial	x2	x3	3/20 vial
Nutritional & Degenerative Eye Problems Terophthalimia Adults and Children	Vitamin A 60 mg retinal tab (200,000 IU)	1 tab followed by 1 tab followed by 1 tab	i.) stat ii.) after 24 hrs. iii.) after 14 days	1 tab 1 tab 1 tab	

TABLE 4
STANDARD DRUG TREATMENT SCHEDULES USED IN QUANTIFYING DRUG REQUIREMENTS

INDICATION	DRUGS	DOSE	TIMES/ DAY	NO./ DAYS	AMT. PER COURSE OF TREATMENT
Xerophthalmia					
Adults	i.) Aluminium acetate ear drops 13% dilution	i.) 3-4 drops	x4	x5	10 ml
	ii.) Scetysalicylic acid 300 mg tabs	ii.) 2 tabs	x4	x2	16 tabs
Children	i.) As for adults				10 ml
	ii.) Acetylsalicylic acid 300 mg tabs	½ tab	x4	x2	4 tabs
EAR PROBLEMS					
Acute Otitis Media					
Severity 1					
Adults	i. Procaine benzyl penicillin 3.0 mega IU vial	1/3 vial	x1	x5	1 2/3 vials
	ii.) Acetylsalicylic acid 300 mg tabs	2 tabs	x4	x2	16 tabs
Children	i.) Procaine benzyl Penicillin 3.0 mega IU vial	¼ vial	x1	x5	1¼ vials
	ii.) Acetylsalicylic acid 300 mg tabs	½ tab	x4	x2	4 tabs
Severity 2					
Adults	i.) Ampicillin 250 mg caps	1 cap	x4	x5	20 caps
	ii.) As for severity 1				
Children	i.) Ampicillin syrup 125 mg per 5 ml	15 ml	x4	x5	300 ml
	ii.) As for severity 1				
MOUTH AND DENTAL PROBLEMS					
Toothache					
Adults	Acetylsalicylic acid 300mg tabs	2 tabs	x4	x2	16 tabs
Children	As above	½ tab	x4	x2	4 tabs
Dental Abscess					
Adult	i.) Phenoxymethyl-penicillin 250 mg tabs	1 tab	x4	x6	24 tabs
Children	ii.) As for 11.11 Phenoxymethyl-penicillin syrup 250 mg per 5 ml	2.5 mls	x4	x6	60 mls
Mouth Sores					
Adults	Acetylsalicylic acid 300 mg tabs	2 tabs	x4	x2	16 tabs
Children	As above		x4	x2	4 tabs

TABLE 4

STANDARD DRUG TREATMENT SCHEDULES USED IN QUANTIFYING DRUG REQUIREMENTS

INDICATION	DRUGS	DOSE	TIMES/ DAY	NO./ DAYS	AMT. PER COURSE OF TREATMENT
GENITO-URINARY SYSTEM PROBLEMS					
Venereal Diseases Gonorrhoea A Adults Children Note: Areas where gonococci have maintained chromosomal sensitivity to antimicrobials and in which betaactamase-producing gonococci comprise less than 1% of isolates.	i.) Procaine benzyl penicillin 3.0 mega IU vials ii.) Provenecid 50 mg tabs N/A	1½ vials 2 tabs	stat stat	- -	1½ vials 2 tabs
Gonorrhoea B Adults Children Note: Areas where chromosomal gonococcal resistance has reduced the efficacy of antimicrobial agents to cure rates below 95% and where betalactamase-producing gonococci are significantly prevalent.	i.) Spectinomycin 2 g vial ii.) As for A Above N/A	1 vial\2 tabs	stat stat	- -	1 vial 2 tabs
Other V.D. Adults Children	Tetracycline 250 mg tabs N/A	2 tabs	x4	x7	56 tabs
Urinary System Diseases	i.) Sulfamethoxazole 400 mg and trimethoprin 80 mg tabs ii.) Acetylsalicylic acid 300 mg	2 tabs 2 tabs	x2 x4	x10 x2	40 tabs 16 tabs
Female Genital Organ Problems Trichomonal Infection Adults Children	Metronidazole 200 mg tabs N/A	1 tab	x3	x7	21 tabs

TABLE 4
STANDARD DRUG TREATMENT SCHEDULES USED IN QUANTIFYING DRUG REQUIREMENTS

INDICATION	DRUGS	DOSE	TIMES/ DAY	NO./ DAYS	AMT. PER COURSE OF TREATMENT
Monilial Infection					
Adults	Nystatin pessaries 100,000 units	1 pess	x1	x14	14 pessaries
Children	N/A				
PELVIC INFLAMMATORY DISEASE					
Severity 1					
Adults	i.) Procaine benzyl pen e.o mega IU Vials	1/3 vial	x1	x6	2 vials
	ii.) Acetylsalicylic acid 300 mg tabs	2 tabs	x4	x2	16 tabs
Children	N/A				
	i.) Ampicillin 250 mg caps	1 cap	x4	x6	24 caps
	ii.) Acetylsalicylic acid 300 mg tabs	2 tabs	x4	x3	24 tabs
PREGNANCY, BIRTH PUERPERIUM					
Pregnancy Abortion	i.) Ergometrine 0.2 mg per ml 1 ml amps	i.) 1 ml	stat and repeat if needed followed by x3	-	assume 2 ml
	ii.) Ergometrine 0.2 mg tabs	ii.) 1 tab		x3	9 tabs
Post-partum infection	Ampicillin 25g caps	2 caps	x4	x6	48 caps
Breast Abscess	i.) Procaine benzyl penicillin 3.0 mega IU vials	1/3 vial	x1	x6	2 vials
	ii.) Acetylsalicylic acid 300 mg tabs	2 tabs	x4	x2	16 tabs
SKIN SUBCUTANEOUS TISSUE PROBLEMS					
Bacterial/Fungal Skin Infections, Boil Cellulitis, Abscess					
Adults	i.) Procaine benzyl penicillin 3.0 mega IU vials	i.) 1/3 ml vial	x1	x6	2 vials
		ii.) 2 tabs	x4	x2	16 tabs
	ii.) Acetylsalicylic acid 300 mg tabs	i.) 1/10 vial	x1	x6	3/5 vial
		ii.) 1/2 tab	x4	x2	4 tabs
Children	As above				

TABLE 4
STANDARD DRUG TREATMENT SCHEDULES USED IN QUANTIFYING DRUG REQUIREMENTS

INDICATION	DRUGS	DOSE	TIMES/ DAY	NO./ DAYS	AMT. PER COURSE OF TREATMENT
Fungal Skin Infections Adults Children	Benzoicacid ointment and Salicylic acid 25 g	Apply locally	x3	x10	25 g
Scabies Adult and Children	Benzylbenzoate 25% lotion	Apply locally	x3	-	100 mls
ALLERGIC NON-SPECIFIC SKIN PROBLEMS					
Eczema & Allergic Dermatitis Adult and Children	Hydrocortisone ointment 1% 15 g tube	Apply locally	x3	x7	(15g) 1 tube
Itching/Pruritus Adults Children	Chlorphenpramine 4mg tabs	1 tab ½ tab	x3 x3	x4 x4	12 tabs 6 tabs
MUSCULOSKELETAL & CONNECTIVE TISSUE PROBLEMS					
Acute Arthritis Adults and Children	Acetylsalicylic acid 300mg tabs	2 tabs ½ tab	x4 x4	x5 x5	40 tabs 10 tabs
Back Pain Adults Children	Paracetamol 500 mg tabs N/A	1 tab	x4	x5	20 tabs
Pyonyositis Adults Children	Chloramphenicol 1 g vial	1 vial ¼ vial	x4 x3	x7 x7	28 vials 5¼ vials
SIGNS/SYMPTOMS HEALTH PROBLEMS					
General systemic symptoms, fever Adults Children	Paracetamol 500 mg tabs	1 tab ½ tab	x4 x4	x2 x2	8 tabs 4 tabs
Pain Adults and Children	Paracetamol 500 mg tabs	1 tab ½ tab	x4 x4	x2 x2	8 tabs 4 tabs
Allergic Reactions Anaphylaxis Adults and Children	Adrenaline 1 mg per ml amp	Give slowly, see 5.24	stat repeat if needed	- -	Assume 1 amp assume ½ amp
INJURIES AND ADVERSE EFFECTS					
Trauma/Sprains and Strains Adults Children	Acetylsalicylic acid 300 mg tabs	2 tabs ½ tab	x4 x4	x3 x3	24 tabs 6 tabs

TABLE 4
STANDARD DRUG TREATMENT SCHEDULES USED IN QUANTIFYING DRUG REQUIREMENTS

INDICATION	DRUGS	DOSE	TIMES/ DAY	NO./ DAYS	AMT. PER COURSE OF TREATMENT
Lacerations, Open Wound					
Adults	i. Lidocaine 1% 50 ml vial	-	-	-	assume 5 ml
	ii. Acetylsalicylic acid 300 mg tabs	x4	x4	x2	16 tabs
	iii. Chlorhexidine sol. 5%	-	-	-	assume 10 ml
Children	i. & iii. as above				
	ii. Acetylsalicylic acid 300 mg tabs	x4	x4	x2	4 tabs
Minor Cuts, Abrasions, Bruises					
Adults	Chlorhexidine solution 5%	as required	-	-	assume 10 mls
Children	As above				
Bites, Insect and Stings					
Adults	i.) Chlorphenirmine 4 mg tabs	i.) 1 tab	x4	x2	8 tabs
	ii.) Chlorhexidine sol. 5%	ii.) as required	-	-	assume 10 mls
Children	As above	i.) ½ tab	x3	x2	3 tabs
		ii.) as required	-	-	assume 10 mls
18.22 Snake Bites					
Adults	Anti-venom sera	30 ml - 100 ml IV to be referred immediately			approx 100 ml
Children					
Bites (Animal, human, etc.)					
Adults	i. Procaine benzyl penicillin 3 mega IU vials	1/3 vial	x1	x6	2 vials
	ii. Chlorhexidine solution 5%	as required	-	-	assume 10mls
	iii. Acetylsalicylic acid 300 mg tabs	2 tabs	x4	x2	16 tabs
		i. 1/10 vial	x1	x6	3/5 vial
Children	As above	ii. as required	-	-	assume 10 mls
		iii. ½ tab	x4	x2	4 tabs

FIGURE 1

NATIONAL AVERAGE FOR PATIENTS ATTENDING OUT-PATIENT CLINICS AT GOVERNMENT FACILITIES BY MAJOR MORBIDITY GROUPINGS PER 10,000 VISITS

DISEASE GROUP	NUMBER (PER 10,000 VISITS)
Diarrhoea	667
Skin Disease	500
Gastritis	300
Chicken Pox	26
Measles	64
Gonorrhea	162
Urinary Tract Infections	70
Intestinal Worms	537
Eye Infections	305
Ear Infections	190
Diseases of the Respiratory System	2150
Fever	500
Pain	400

FIGURE 2

ESTIMATED NUMBER OF CASES AT PUSKESMAS /PUSKESMAS PEMBANTU BY MAJOR MORBIDITY GROUPINGS PER 1000 VISITS (ROUNDED)

MORBIDITY GROUPINGS	NO. VISITS (PER 1,000)
Acute Respiratory Infections	220
Diarrhoea	70
Skin Diseases	50
Gastritis	40
Conjunctivitis	30
Fever	50
Pains	40

TRAINING

Training will form one of the key strategies in strengthening the Drug Management Systems. This will take the form of structured and on-the-job training.

Structured Training

A two-week in-service course will be conducted for those in charge of Puskesmas Pembantu.

The content will include:

1. Clinical diagnosis and management based on standard treatment schedules and guidelines.
2. General management of a health facility.
3. Control of the kit system.
4. Simple stock control and record keeping.
5. Assessing drug requirements based on needs.
6. Health information systems.

On-the-Job Training

After the structured training, it will still be necessary to conduct on-the-job training. This will be done during the time drug kits are delivered to health facilities, i.e., monthly, quarterly, half-yearly. Training will be conducted by staff drawn from the Kabupaten and Puskesmas staff. It is proposed that such training be conducted at a venue closest to the trainees.

Training Materials

A wide range of training materials exist locally. In addition, some health learning materials exist in the WHO catalogue which could be adopted for local use. It is important that training materials reflect and are adopted to local needs and hence development of such materials should involve the provincial and district personnel.

An orientation for provincial and district staff will be conducted through workshops and seminars and will focus mainly on management and coordination of health services.

THE DISTRIBUTION SYSTEM

At present, distribution channels for drugs are as follows:

Factory/ Supplier → Kimia Farma → Provincial Indofarma → Regency → GFK Warehouse → Puskesmas → Puskesmas Pembantu

It is proposed that the existing distribution system be maintained. However, with regard to the future introduction of the drug kit, preliminary steps could be taken to pack at the Puskesmas for the Puskesmas Pembantu to verify the content and quantities of the average kit. Modifications will guide the final size of the kit.

THE DRUG KIT

An important element of the pilot project is the drug kit. The drug kit has been designed from the list of essential drugs for the Puskesmas Pembantu based on the major morbidity existing at these facilities and using the standard treatment schedules.

The following information should be taken into consideration:

- A drug kit is based on 1,000 visits per month.
- The average number of visits for major diseases is 500 per month.
- For an average facility, one kit would last two months.
- For a greater number of visits, one kit would last one month.
- For a fewer visits, one kit would last three months.

TABLE 5. ESTIMATED DRUG REQUIREMENTS FOR ONE KIT
(Based on 1000 patients)

Condition	Age Group	Drug	Unit	Drug Course Per Episode	# of TE	Quantity of Drug Required	Cost Unit	Cost TE	Total Cost
___Ta___	A	Cebendazole	tab 100 mg	6	97	582			
	A	Niclosacide	tab 500 mg	4	16	64			
17. Malnutrition	C	A decision is required in locally			54				
	A	appropriate therapy			3				
18. Anemia									
A. Iron Deficiency	C	Ferris sul. syrup	sl syrup	180	41	7380			
	A	Ferris & folic	tab	180	41	7380			
B. Sickle Cell Dis.	C	Folic acid	tab 1 mg	104	5	520			
	A	Folic acid	tab 1 mg	260	5	1300			
19. Eye Infections									
A. Conjunctivitis	C&A	Tetracycline eye ointment	tube	1	244	25			
B. Irachoca	C&A	Tetracycline eye ointment	tube	2	46	92			
C. Dcrephthalaia	C&A	Retinol	tab 60 mg	3	15	45			
D. Ophthalmia Necatoria	C	Silver nitrate-see table 2, inpatient Treatment schedule							
20. Cataract	A	No specific drug therapy indicated; part of cases treated as inpatients			11				
21. Ear Infections									
A. Otitis Externa	C	Paracetamol	tab 300 mg	4	17	68			
	A	Paracetamol	tab 300 mg	16	2	32			
B. Otitis Media:									
Severity 1	C	Procaine pen.	vial 3 MIU	1.25	86	107.5			
		Paracetamol	tab 300 mg	4	86	344			
	A	Procaine pen.	vial 3 MIU	1.67	10	16.7			
		paracetamol	tab 300 mg	16	10	160			
Severity 2	C	Ampicillin syrup	ml syrup	100	61	6100			
		acetylsal. acid	tab 300 mg	4	61	244			
	A	Ampicillin	tab 250 mg	20	15	300			
		acetylsal. acid	tab 300 mg	16	15	240			
22. Diseases of Circulatory System									
A. Rheumatic Fever and Heart Disease	C	Benzathine pen.	vial 2.4 MIU	6	3	18			
B. Congestive Cardiac Failure	A	See inpatient treatment schedules							
C. Hypertension	A	Hydrochlorothiazide	tab 50 mg	365	17	6205			
D. Ischac Heard Dis.	A	Glycerol trinitrat	tab 1 mg	4	1	4			

TABLE 5. ESTIMATED DRUG REQUIREMENTS FOR ONE KIT
(Based on 1000 patients)

Condition	Age Group	Drug	Unit	Drug Course Per Episode	# of TE	Quantity of Drug Required	Cost Unit	Cost TE	Total Cost
23. Diseases of Respiratory System									
A. _____	C	Acetaminophen	tab 300 mg	4	179	716	0.03	0.1	31
	A	Acetaminophen	tab 300 mg	16	418	6688	0.03	0.3	201
B. Acute Tonsillitis	C	Procaine Pen.	vial 3 MIU	1.25	180	225	8	10.0	1806
		acetaminophen	Tab 300 mg	4	180	720	0.3	0.1	32
	A	procaine pen.	vial 3 MIU	1.67	19	31.73	8	13.4	284
		acetaminophen	Tab 300 mg	16	19	304	0.3	0.05	2
C. Acute Bronchitis	C	cotrinoxazole syrup	ml syrup	50	60	3000	.085	413	265
		acetylsal acid	tab 300 mg	4	60	240	0.03	0.1	7
	A	acetylsal acid	tab 300 mg	16	140	2240	0.03	0.5	57
D. Asthma				61	216	12900	0.17	10.2	2883
Severity 1	C	Salbutanol syrup	ml syrup	12	193	2316	0.65	0.8	151
	A	Salbutanol	tab 4 mg	1	24	24	0.76	0.8	18
Severity 2	C	Epinerphrine	amp 1 ___	1	16	16	0.76	0.8	12
	A	Epinerphrine	amp 1 ___						
F. Acute Cough	C	Chlorphenamine	tab 4 mg	6	100	600	.025	0.2	15
	A	Chlorphenamine	tab 4 mg	12	100	1200	.025	0.3	30
24. Pneumonia									
Severity 1	C	procaine pen.	vial 3 MIU	1.25	68	85	8	10.0	650
		acetylsal. acid	tab 300 mg	4	68	272	0.03	0.1	8
	A	procaine pen.	vial 3 MIU	1.67	32	53.44	8	13.4	438
		acetylsal. acid	tab 300 mg	16	32	512	0.03	0.5	15
Severity 2	C	ampicillin syrup	ml syrup	200	27	5400	0.2	40.0	1080
		acetylsal. acid	tab 300 mg	4	27	108	0.03	0.1	3
	A	ampicillin	cap 250 mg	40	32	1280	0.36	14.4	461
		acetylsal. acid	tab 300 mg	16	32	512	0.03	0.5	15
31. Diseases of the Skin									
A. Boils/Cellulitis	C	procaine pen.	vial 3 MIU	.06	76	45.6			
		paracetamol	tab 500 mg	4	76	30			
	A	procaine pen	vial 3 MIU	2	51	102			
		paracetamol	tab 500 mg	16	51	80			
B. Superfic Bacteria Infector	C&A	neomycin + bacitracin ointment	tube 30 g	1	127	15			
C. Fungal Infection	C&A	whitfield ointment	tube 30 g	1	64	10			
D. Scabies	C&A	benzyl benzoate	ml	100	128	1500			

TABLE 5. ESTIMATED DRUG REQUIREMENTS FOR ONE KIT
(Based on 1000 patients)

Condition	Age Group	Drug	Unit	Drug Course Per Episode	# of TE	Quantity of Drug Required	Cost Unit	Cost TE	Total Cost
E. Eczema/Allergic Dermatitis	C&A	hydrocortisone ointment	tube 15 g	1	64	5			
F. Unspec. Itching	C&A	chlorphenamine	tab 4 mg	12	32	150			
32. Rheumatism, Joint pains, etc.									
A. Acute Arthritis	C	acetaminophen	tab 300 mg	10	12	120			
	A	Acetaminophen	tab 300 mg	40	29	1160			
B. Chronic Arthritis	A	Acetaminophen	tab 300 mg	40	62	2840			
C. Lumbosacral Pain	A	paracetamol	tab 500 mg	20	82	0			
33. Congenital Amomalics		no drug therapy indicated			12				
34. Fever of Unknown Origin									
A. Gastritis	C&A	antiacid	tab	24	282	600			
B. Headache	A	paracetamol	tab 500 mg	16	282	500			

ESTIMATED KIT REQUIREMENTS FOR PUSKESMAS AND PUSKESMAS PEMBANTU

A)	1 Puskesmas	1 kit / month
	2 Puskemas	2 kits / month
	24 kits / year	
	÷ Reserve Kits	24 kits / year
	Total	48 kits
	Sub total A	Rounded 50 kits / year
B)	1 Puskesmas Pembantu	1 kit / 2 months
	10 Puskesmas Pembant	10 kits / 2 months
	60 kits / year	
	÷ Reserve kits	60 kits
	Subtotal B	120 kits / year
	Total	150 kits / year

Public Information

An important component of the pilot project will be to provide basic information to the public on drug use and misuse, and ways of preventing the common diseases diagnosed at the health facilities. Such information will be disseminated through the mass media, posters, pamphlets and word-or-mouth communication.

It is proposed that some simple spot messages be designed and tested during the pilot project. This is, in effect, a long-term strategy aimed at changing consumer behavior pattern, thus reducing the amount of pressure exerted by patients on prescribers, and emphasizing the need for preventive measures against the diseases such as diarrhoea and skin diseases.

Monitoring and Supervision

Monitoring will be a crucial component of the project and will have as its base the Management Information System (MIS) currently being strengthened. Data on each patient, diagnosis and treatment will be kept and be submitted to the Kabupaten regularly for analysis. A record of out-patient attendances (new cases as well as re-attendances) will be maintained. A continuous appraisal of these records will be made in order to make modification where necessary. Overall monitoring will be done at the national level and will focus on the following aspects:

a. Availability and quality of drugs;
b. Utilization of services;
c. Quality of services;
d. Trends in disease incidence, service outputs and appropriateness of treatment or management;
e. Resource adequacy and availability, e.g., funding; and
f. Management support at Kabupaten and Puskesmas level.

Frequent supervision will be needed at the beginning of the pilot project.

CONCLUSION

This proposal for a pilot project is designed for rural health facilities. Certain assumptions have been made which require verification before going to wide scale implementation through a pilot project. Lessons learnt from the pilot project would then be used for wide application. It is envisaged that the short- and long-term applications of such a system could be determined within one year of operations.

SCOPE OF WORK

TERMS OF REFERENCE

The consultant will review the results of the Integrated Analysis, especially the priority problems which were identified and perform additional analysis if required; assess the interventions which are currently recommended; and make recommendations on the feasibility of using the Drug Kit System in selected areas and strategic sustainable interventions in relation to the National Essential Drug Program.

ACTIVITIES

In completing this task the consultant will undertake the following activities:

1. Review the results from the previous focussed assessment studies and the Integrated Analysis, especially in reference to the identification of priority problems and interventions.

2. Perform additional analysis of the findings from previous studies, if required, for the further identification or refinement of priority problems or interventions.

3. Based on the results of 1 and/or 2 recommend, in order of priority, sustainable, strategic interventions with estimates of the possible impact of each intervention.

4. Assess the feasibility of using the Drug Kit Supply System in selected areas in Puskesmas (Health Centers) and Puskesmas Pembantu (Health Sub-Centers). If the use of kits is feasible, make recommendations for the use of kits (should include the types of drugs, dosage, estimates of quantities and supply of kits and a plan for implementation of this intervention).

5. Make recommendations on ways to estimate the replicability and sustainability of interventions in relation to the National Essential Drug Program.