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Health Sector Financing Project
Ministry of Health
Republic of Indonesia

**DESIGN OF INTERVENTIONS AND
EVALUATION STRATEGY FOR THE HEALTH
SECTOR FINANCING PROJECT
PHARMACEUTICAL COMPONENT**

Report No. 50

December 1991



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EXECUTIVE SUMMARY

CONCEPTUAL BACKGROUND: RECOMMENDATIONS FROM THE INTEGRATED ANALYSIS OF FOCUSED ASSESSMENTS

The Pharmaceutical Component of the Health Sector Finance Project (HSFP/P) is designed to support an allocative shift in funding to child survival programs by encouraging changes in policies and procedures governing pharmaceutical procurement, distribution, and use that improve the therapeutic impact of Government of Indonesia (GOI) drug expenditures. To this end, the HSFP/P has undertaken a logical sequence of activities designed to:

- Identify the factors underlying problems in procurement, distribution, and use of drugs.
- Define and test a range of targeted interventions to correct these problems.
- Organize interventions into packages that will be demonstrated and evaluated in a sample of provinces.

The results of a series of focused assessments of the public pharmaceutical sector have been combined in a process of Integrated Analysis aimed at identifying the priority structural and behavioral factors contributing to clinically ineffective or economically inefficient use of drugs.

Based on the Integrated Analysis, recommendations have been developed that call for structural and policy-level adjustments to encourage more efficient and effective use of pharmaceutical products. These strategic recommendations cover a broad array of topics, including the structure and operations of systems for budgeting, drug supply planning, administration, distribution and control, as well as modifications in the qualifications and functions of personnel involved in the prescribed and dispensing of drugs.

Parallel to these strategic changes, a series of operational recommendations call for changes in the structure or functions of operating units and personnel, or revision of operational procedures, in order to encourage greater efficiency or more effective service delivery.

In line with these recommendations, the HSFP/P is currently in the process of formulating in more detail managerial, training, and communications interventions that might lead to more rational use of drugs.

DESIGN OF INTERVENTIONS AND EVALUATION FOR HSFP/P COMPONENT

Structural Modification and Piloting Intervention Models

The strategic and operational recommendations imply a broad range of structural modifications to the current system. It would be unwise to implement these recommendations on a widespread basis without first developing methods, materials, organizational models, and implementation strategies, and without carefully determining the resources required to undertake and maintain these changes. In order to provide input into the design of effective strategies for achieving the recommended modifications, the HSFP/P component will seek to test many of the principles underlying them by mounting coordinated behavioral interventions in pilot areas.

The set of recommendations made by the central and regional working groups form the foundation for defining appropriate pilot interventions. Pilot interventions will also be selected in relation to their likelihood of achieving measurable outcomes in the time available to the project, so that their effectiveness can be evaluated. Successful results within pilot areas will provide the justification and support needed to elaborate broader-based interventions to achieve structural change.

Experiences from the pilot interventions will be channeled to decision makers to refine the overall strategies proposed and to provide a basis for selecting between alternative intervention models. Each proposed pilot intervention and its relation to the overall process of structural change is described briefly below.

1. Innovative training programs in drug planning, distribution, and control will be designed to help drug system managers interpret and use information about drug consumption and morbidity to estimate drug needs, to distribute drugs more efficiently, and to manage their work more cost-effectively.
2. Developing and implementing an integrated MIS responds to the need for improved information for managers to plan, monitor, and control the drug system. The reorganized GFK — a central component of the implementation of the MIS — will assume the responsibility for active management of drug procurement and distribution in the Kabupaten.
3. Training in health economics and budget planning for planners at Dinkes TK. II will provide training and information for the Kepala Dinas about the health needs of the population, and a framework and tools for effectively lobbying for necessary funds.
4. Training for providers in diagnosis and prescribing for acute respiratory infection (ARI) and diarrhea, and in government drug programs will start to introduce standards of treatment and quality of care. This training will cover a wide variety of educational activities aimed at improving knowledge and changing diagnosing and prescribing behavior, with a focus on diarrhea and ARI.
5. Providing unbiased drug information to managers, providers and the community complements training to improve the rational use of drugs by providing channels for objective information about pharmaceuticals.
6. Developing a system of symptom-based treatment and standardized supply at Puskesmas Pembantu is a method for introducing standards of service by training paramedics in clear guidelines for diagnosis of the principal health problems treated in the Puskesmas Pembantu, and by providing a standardized supply of drugs for these key problems.
7. Developing regional supervisory systems for drug management and drug use provides structural support for interventions by developing criteria and a flow of information for measuring and monitoring the quality of medical and pharmaceutical services.
8. Promoting improved community management of ARI and diarrhea, and awareness of Ministry of Health (MOH) drug programs supports all activities to improve prescribing practices by educating the public about rational drug use, especially in priority areas in the training for prescribers.

Designing and Testing Intervention Models

Achieving maximum improvement in drug use requires coordinated change between interventions that target prescribing and those that target management. Prescribers and users of drugs, as well as managers and planners, need to understand the necessity and goals for change. For this reason, comprehensive intervention packages, with activities targeting different interacting groups, will be implemented in two provinces.

This project seeks primarily to test potential for change. It is recommended that the comprehensive intervention provinces be those with sufficient budgetary resources to implement proposed changes, and with some history of pharmaceutical innovation.

The design and implementation of interventions will proceed in two phases. During Phase I, from the present to March 1992, intervention methodologies and supportive materials will be developed and tested within a limited number of Kabupaten in the comprehensive intervention provinces. Since these interventions will be implemented only in some Kabupaten, the remaining areas can be used as comparison sites for measuring impact.

In the Phase II period, which ends at the end of the drug planning cycle in March 1993, intervention activities will be expanded to the Phase I comparison areas after they have been reviewed and, if needed, modified based on evaluation results. Other interventions that were designed during Phase I could be introduced into the intervention kabupaten. At the end of Phase II, the overall impact of the project will be evaluated.

For the initial stage of interventions, six intervention and six comparison Kabupaten will be chosen in each of the two comprehensive intervention provinces. Interventions to improve drug supply management, training in diagnosis and treatment of ARI and diarrhea, and the implementation of an integrated MIS will form the core intervention package. Of the eight proposed interventions, these three can be designed without further assessment studies once the Knowledge, Attitude, and Practice (KAP) is completed. Different combinations of these three primary interventions will be implemented in the Phase I intervention Kabupaten.

The remaining five interventions will require assessment studies for the development of methodologies and materials. If time and resources are available to develop some of them for this first stage of testing, they can easily be integrated. For example, training of Kapala Dinas in health economics could be integrated into the management training; symptom-based treatment and standardized supply could be a model training program; and the regional supervision program could supplement drug use training.

GUIDELINES FOR EVALUATION OF THE PHARMACEUTICAL COMPONENT

Guiding Principles in the Evaluation of HSFP/P Interventions

The primary goal of the HSFP/P component is to demonstrate that a coordinated package of interventions in drug management and use can achieve improvements in key aspects of the health system related to child survival problems. The project paper sets the following standards by which the success of the HSFP/P is to be measured at project completion:

- Pharmaceuticals are more rationally prescribed.

- Expenditures among and within different therapeutic categories of drugs are changed to reflect more cost-effective allocation of the drug budget.
- Larger expenditures are made on pharmaceuticals that directly support child survival programs.

The evaluation of the HSFP/P project should hinge on measuring the achievement of these global objectives. The project is now in a position to develop a clear set of guiding principles upon which to develop interventions and to design their subsequent evaluation. These principles include:

- Focus first on intervention to improve managerial performance, information systems, and prescribing practice at the Puskesmas since these form the core of the behavioral system that determines the supply and use of drugs.
- Focus on ARI and diarrhea, which account for over 58 percent of visits to Puskesmas by children under five, and 61 percent of their total drug costs, and on inappropriate use of injections in the treatment of these and other conditions.
- Measure changes in planning and expenditure within key therapeutic classes, specifically oral/injectable antibiotics, oral rehydration salts (ORS), antidiarrheals, analgesics, and antitussives (about 90 percent of expenditures on diarrhea and mild ARI in Puskesmas).
- Collect data on particular pharmaceuticals related to child survival problems, such as vaccines, ORS, maternal supplements, cough syrups, and antibiotic syrups included in the standard treatments for ARI or diarrhea in children, as well as discouraged products like chloramphenicol suspension, enterovioform tablets, or antidiarrheal syrups.
- There is a need to collect morbidity data since shifts in the rate of ARI or diarrhea treatment at Puskesmas can confound the analysis of changes in key indicators. Differences in the way that ARI and diarrhea are reported need to be identified early in the intervention process.
- Collect case-specific prescribing data for ARI and diarrhea to evaluate changes in prescriber behavior. Ideally, a mechanism for collecting the data could be integrated into pilot MIS or supervisory systems; in areas where this is not done, the data will need to be collected by retrospective prescribing surveys such as those used in the Drug Use Study (DUS).
- Collect information on regional budget for drugs, including data on total allocations for drugs, the amount of budget realized, and the relative contribution of the Inpres, PHB/Askes, and APBD budgets.

To the extent possible, the evaluation of the HSFP/P interventions should rely on retrospective data to measure outcomes. Examples of such data would be information on diagnosis and prescribing from patient registers at Puskesmas, or information from Kabupaten Pharmacy Warehouse (GFK) records on drug order quantities, delivery dates, and stock levels. The advantages of using retrospective data are that outcome measures are produced routinely by the system so they are not as costly to collect, and data can often be organized into time series for analysis.

Useful Comparisons to Evaluate Intervention Effects

There will be a number of different intervention activities occurring simultaneously in the comprehensive intervention provinces, and even Kabupaten not selected as comprehensive intervention sites will be

exposed to some activities. For this reason, the overall effect of the comprehensive interventions should be measured as much as possible on the province level, by comparing changes in key global outcome indicators between the two comprehensive intervention provinces and the remaining four study provinces. Although some kabupaten in these provinces are to receive intervention activities, their scope and overall impact will be limited, especially at the provincial level.

Differences related to types, mix, or timing of interventions will be more feasibly evaluated by comparing Kabupaten within the comprehensive intervention provinces rather than comparing provinces. In addition, because of the difficulty and expense of collecting data on prescribing practices in non-intervention sites, changes in prescribing behavior should also be evaluated by comparing samples of encounters in the intervention and comparison Kabupaten within the comprehensive intervention provinces.

Constraints imposed by the timing of the drug planning, procurement and distribution cycle will influence the implementation and evaluation of individual interventions, especially those aimed at improving management and logistics. Planning for an upcoming year begins in November, and orders are submitted by the Kabupaten in March. Ordered drugs are not available for use in Puskesmas until September, and they are used until the following September.

If, as currently planned, managers begin to be trained by November 1991, changes in supply levels and stockouts cannot begin to be measured until September 1992. For most of Phase I and Phase II, the drugs available in the GFK will have been ordered before the interventions began. For these reasons, the impact of the improved MIS and management training on actual supply will not be possible until the end of Phase II. Even this evaluation will not cover a full year of data, since the evaluation will occur only six months after drugs have arrived.

Also because of this time lag, interventions to improve the use of drugs in the treatment of diarrheal disease and ARI cannot immediately rely on improved supply resulting from management interventions. In order to ensure the success of these interventions, the supply of drugs used in standard treatment protocols for these two health problems will have to be ensured.

Global Evaluation Indicators and Potential Sources of Data

There are two types of data required to understand and evaluate the implementation of interventions. First, it will be useful to collect information on process measures, which examine factors like the frequency, timing, intensity, and efficiency of program activities. Analysis of these factors can suggest ways to improve them when the intervention is carried out in the future. The teams undertaking any of the proposed interventions should routinely collect process data, including:

- Lists, descriptions, and schedules of activities.
- Description of the inputs to each activity, including personnel and staff resources, materials used, etc.
- Counts of outputs such as workshops conducted, numbers and types of personnel trained, etc.
- Costs of individual activities.
- Routine evaluations of training by participants, measures of their satisfaction, and suggestions for improvement.

Analysis of this process-oriented information will allow HSFP/P staff and MOH decision makers to judge whether the interventions were able to take place according to plan, and will permit analysis of the logistic complexity and efficiency of activities.

Evaluating outcomes is often a difficult and complex process. It is necessary to specify carefully the types of outcome intended, and to develop valid measurable indicators of these outcomes. Examples of such outcome indicators are:

- Percentage of children under five presenting at a Puskesmas with diarrhea who receive a prescription for ORS, as an indicator of adherence to standard treatment.
- Cost in rupiah per defined daily dose (DDD) of antibiotics ordered in the annual Kabupaten drug order, as an indicator of economic efficiency in drug planning.

Most importantly, the particular indicator to be used to assess outcomes, and reliable and affordable ways to collect data to measure indicators, must be specified and developed in advance.

Although the results of a program are most often evaluated in quantitative manner, there might be opportunities to use qualitative techniques to examine whether certain aspects of motivation and satisfaction have changed after the interventions have occurred, as a follow-up to the KAP studies to be conducted prior to designing interventions. Specifically, the following qualitative studies are recommended in the comprehensive intervention provinces before and after interventions:

- Focus groups of managers (heads of the Dinas, GFK, and Puskesmas supervision).
- Focus groups of Puskesmas physicians, paramedics, and dispensers.
- Observation studies of care for ARI and diarrhea in Puskesmas, containing both anthropological/sociological observations and coded clinical observations.

The qualitative data collected after the interventions would be analyzed in relation to similar data collected during the KAP studies. The goal of the analysis would be to identify broad changes in attitudes, reported constraints to behavior, or satisfaction among managers, providers, or patients, or in the overall quality of patient care, in the intervention areas.

Quantitative evaluation should rely on six sources of data:

- Information on annual Kabupaten budgets for drugs and subsequent realized expenditures, integrating information from at least Inpres, Askes, and the APBD budgets.
- Annual Kabupaten drug orders, which contain data on the number of units ordered and expenditures on individual A and B list drugs (including also C list drug orders, if available).
- Data from the MOH reporting and recording system on number of cases of all types of ARI and diarrhea, and utilization of drugs commonly used in the treatment of these problems, if these data sources can be validated.
- Questionnaires to physicians, paramedics, and managers, administered before and after all training sessions, aimed at measuring changes in level of knowledge about the most important factual elements communicated in training.

- Interviews with patients receiving care for ARI and diarrhea at Puskesmas to gather information on patient perceptions and satisfaction.
- Retrospective prescribing data for ARI and diarrhea from Puskesmas logs or registers, logistically the most complex quantitative evaluation data to collect and analyze.

In order to keep the evaluation process manageable, and in light of the limited technical resources available to the project, the quantitative data collected should focus primarily on a small number of key evaluation indicators. Recommendations are presented for these indicators, the outcome parameters they seek to measure, and methods that can be used to collect them.

There are a number of possible mechanisms for collecting the data necessary to evaluate changes in prescribing for ARI and diarrhea following the interventions, all of which have different associated costs and complexity. Some offer the potential for institutionalizing the analysis of such data as a regular function of the supervisory system. The project must decide which one — or more than one — of these mechanisms is to be implemented.

Certain data should be required to be collected by all teams. In addition to data to measure key global indicators, these should include reasonable process measures to describe how each intervention was implemented, and at what cost. To the extent that a training intervention is aimed at changing knowledge, pretest questionnaires should be administered to participants. Finally, for drug use training interventions, contractors could be required to collect and analyze prescribing data in a standard format in order to reduce the cost of this task for the project.

THE ROLE OF THE KAP STUDY IN PREPARING FOR INTERVENTIONS

Potential Contributions of the KAP Studies

Although the key problems have been reasonably well identified, some of the factors that underlie these problems, and some of the barriers to the anticipated structural and behavioral changes, are less clear. As the operational interventions move from the stage of theory to design, there will be uncertainties about which elements to emphasize, and how new behavioral messages will need to be packaged to have the most impact. It is for these reasons that two KAP studies will now be mounted.

These studies will help to clarify some of the motivations and incentives that have contributed to the development of key behavioral problems, and seek to identify specific constraints to change in behavior. The KAP studies will also provide information to determine the strategies each intervention will employ, and they can contribute to the development of the messages and themes that will be used during the interventions.

Finally, the KAP studies provide an opportunity to gather information on the status of certain qualitative characteristics of target groups prior to any interventions that might undergo substantial and observable change during the course of the interventions, particularly among Kabupaten-level managers and decision makers.

In order to achieve the maximum coverage of opinions and issues with the lowest expenditure of resources and the fewest logistic complications, it is proposed that the focus group be one of the two cornerstones of the Center for Child Survival (CCS) KAP studies: eight focus groups dealing primarily

with managerial issues; six groups with different levels of prescribers; and six groups with the various categories of patients and community members.

The second major technique proposed for the CCS studies is that of structured observation of the process of care for a sample of patients coming to the Puskesmas or Puskesmas Pembantu for the treatment of ARI or diarrhea. These observations will include both interviews with patients entering and exiting the facilities, and observation by clinical and anthropological methods of the process of care.

CHAPTER 1
**CONCEPTUAL BACKGROUND: RECOMMENDATIONS FROM THE INTEGRATED
ANALYSIS OF FOCUSED ASSESSMENTS**

A. OBJECTIVES OF THE HSFP AND THE PHARMACEUTICAL COMPONENT

The Project Paper specifies that the purpose of the HSFP is to achieve a 35 percent increase in total government spending on child survival programs in real terms compared to government spending in 1987. The Pharmaceutical Component is designed to support this allocative shift by encouraging changes in policies and procedures governing pharmaceutical procurement distribution, and uses that improve the therapeutic impact of GOI drug expenditures. In addition, it will support the objectives of the other components of the HSFP by contributing to the implementation of a data base and analytic capacity needed by policy makers to make rational allocative decisions.

The HSFP/P has moved toward the accomplishment of its overall purposes by undertaking a logical sequence of activities designed to:

- Identify the factors underlying problems in procurement, distribution, and use of drugs.
- Define and test a range of targeted interventions to correct these problems.
- Organize interventions into packages that will be demonstrated and evaluated in a sample of provinces.

Current status of pharmaceutical management and use was initially explored in a series of focused assessments of the public pharmaceutical sector designed to identify structural and behavioral problems that impede efficient utilization of the pharmaceutical budget. These assessments included:

- Drug Management Study (DMS): an analysis of retrospective data on drug budgeting, selection, procurement, and distribution in six provinces, and interviews with administrators and managers at the central, provincial, Kabupaten, and Puskesmas levels.
- Manpower Study (MPS): a review of job descriptions, staffing, and procedures in six provinces for personnel involved with drug supply and use, and interviews with personnel at the central, provincial, Kabupaten, and Puskesmas levels.
- Drug Use Study (DUS): a retrospective audit of prescribing in Puskesmas, hospital outpatient, and hospital in-patient departments in nine Kabupaten, and focus groups with physicians and with paramedics in three Kabupaten.
- Review of Secondary Data and Literature (RSDL): collection and synthesis of previously published documents and reports related to management and use of pharmaceuticals, to support the findings of the other focused assessments.

These focused assessments were analyzed individually,¹ and the findings reviewed by a Consensus Group. After these separate reviews, the results from all studies were combined in a process of Integrated Analysis aimed at identifying the priority structural and behavioral factors contributing to clinically ineffective or economically inefficient use of drugs.

Taking into account the factors thus identified, the HSFP/P is currently in the process of formulating in more detail managerial, training, and communications interventions that might lead to more rational use of drugs.

B. OVERVIEW OF THE PROCESS OF INTEGRATED ANALYSIS OF FOCUSED ASSESSMENTS LEADING TO RECOMMENDATIONS

The integrated analysis of the findings of focused assessments has involved staff of the Project Implementation Office, Activity Coordinators representing various working units of the MOH and their counterparts from the six study provinces, and structural representatives from the central and provincial levels of the MOH. The process that has been used to carry forward this integrated analysis includes:

1. Analysis of the interrelationships among the findings of the DMS, MPS, DUS, and RSDL, and classification of observed problems into structural, technical and behavioral categories.
2. Discussions of the preliminary findings with Activity Coordinators at each relevant working unit of the MOH to gather input into the formulation of an intervention strategy.
3. Presentation of study results, discussion, and formulation of draft recommendations for integrated interventions at a series of workshops with all Activity Coordinators at the Pusat level and with their counterparts in the study provinces.
4. Convening of two Integrated Working Groups — Pharmaceutical Services and Medical Services — to review draft recommendations and develop a plan of action for implementation, with technical assistance provided by the Project Implementation Office/Pharmaceutical (PIO/P).
5. Draft recommendation and plan of action for integrated interventions to be put forward by the Integrated Working Groups to the members of the Steering Committee and other structural representatives of the MOH.

There are two general categories of recommendation that have emerged based on the findings from the Integrated Analysis. Certain recommendations call for structural and policy-level adjustments to encourage more efficient and effective use of pharmaceutical products. These strategic recommendations cover a broad array of topics, including the structure and operations of systems for budgeting, drug

¹ (DES) PT. Manggala Jiwa Mukti. Laporan Studi Pengelolaan Obat, Buku 1-2. 1989.
(MPS) Price Waterhouse Siddik Konsultan PT. Report of Manpower Study, HSFP/P, Ministry of Health, Republic of Indonesia. 1989.
(DUS) Yayasan Indonesia Sejahtera. (a) Laporan Akhir Rawat Jalan di Puskesmas dan Rumah Sakit. (b) Laporan Akhir di Rawat Inap Rumah Sakit Tipe D, C, dan B. (c) Laporan Akhir Diskusi Kelompok Terarah. 1990.
(RSDL) Yayasan Indonesia Sejahtera. (a) Laporan Akhir Telaah Data Sekunder dan Pustaka Pendukung Studi. (b) Kumpulan Abstraksi Dokumen/Pustaka Pendukung Studi. 1990.

supply planning, administration, distribution, and control, as well as modifications in the qualifications and functions of personnel involved in the prescribing and dispensing of drugs.

Parallel to these strategic changes, a series of operational recommendations call for changes in the structure or functions of operating units and personnel, or revision of operational procedures, in order to encourage greater efficiency or more effective service delivery.

The strategic and operational recommendations can be classified in four major areas: planning, standards, information systems, and budgets. A brief synopsis of some of the key points in each of these four areas follows.

C. STRATEGIC RECOMMENDATIONS

1. NATIONAL STRATEGIC PLANNING FOR DRUG SUPPLY

- National drug supply needs to be planned with a horizon of at least three to five years, to allow necessary time for importation of raw materials, planning and development of production facilities, etc.
- Since the same production facilities produce drugs for both the public and private sectors, the supply needs of both sectors need to be integrated into a single plan.
- In line with government directives regarding the use of generic drugs in all sectors, procurement and distribution of generic drugs in the public sector needs to be integrated into a national system for generic drugs.

2. STANDARDS FOR MEDICAL AND PHARMACEUTICAL SERVICES

- Procedures for developing, implementing, monitoring, and revising professional standards and standards of service need to be established.
- Professional and performance standards need to be articulated for both medical and pharmaceutical personnel, along with criteria for evaluating quality of services.
- To monitor and encourage adherence to these standards, a structure for supervision of medical and pharmaceutical services in line with the criteria specified needs to be developed.
- In addition to standards for personnel and supervision, standards for infrastructure to support their activities need to be established, for example, required numbers and types of facilities and equipment.

3. INFORMATION SYSTEMS TO SUPPORT DRUG SUPPLY AND USE

- To ensure correct use of drugs, there is a need for correct, unbiased information on drugs at all levels down to the Puskesmas, especially on essential drugs and generics.

- In addition to information on drugs, there is a need for information on drug use in both the public and private sector, in order to allow effective planning and monitoring quality of care.
- Historical and current information on use should be available to both managers and service providers at the provincial, Kabupaten, and Puskesmas levels.

4. RATIONALIZATION OF PHARMACEUTICAL BUDGETS TO MEET COMMUNITY NEEDS

- Methods need to be developed that allow for an objective assessment of drug needs, and the budgetary outlays to support these needs, for the community as a whole.
- The role and function of the regional budgets (APBD-1, APBD-2, APBN) in meeting community drug needs should be redefined, and the relationship of these budgets to the Inpres budget clarified in the minds of regional health planners.
- Assessment of community drug needs requires a system of reliable information on community morbidity, including information on services delivered in the private sector.

D. OPERATIONAL RECOMMENDATIONS

1. FUNCTIONAL PLANNING FOR ADEQUATE SUPPLY OF DRUGS

- The Dinas Kesehatan Tingkat II should become the implementing unit for drug planning, distribution, and use at the Kabupaten level, and functions requiring competence in drug management should be centralized there.
- Community drug needs should be able to be determined at the Kabupaten level, and systems necessary to support this task should be established at the Dinkes TK. II.
- Drug needs at the Kabupaten level should be determined based on at least three years of historical data on drug consumption and morbidity, and should be projected at least two years into the future.
- The GFK should become the functional planning and coordinating unit for managing drug supply and use, and it should be moved administratively from the Kandep to the Dinkes which has the responsibility of supervising the Puskesmas.
- Planning of procurement should take account of lead time for the delivery of drugs, and anticipated stock levels at the point of delivery rather than at the point of planning.
- Procurement should as far as possible be organized more than once a year in the Kabupaten.
- Distribution of drugs to operating units should be a function that takes place at the Kabupaten level.

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2. ENHANCEMENT AND SUPERVISION OF SERVICE QUALITY

- Standards of therapy should be formulated, and adherence to standards monitored as a function of the Dinkes TK. II.
- Regional supervision of operating units needs to be restructured, and clear delineation of responsibilities at the provincial and Kabupaten levels established.
- Linkages should be built between the Dinkes TK. II and the Pharmacy and Therapeutics Committees of the rumah sakit at the Kabupaten level, leading to implementation of a supervisory system for medical services.
- The office of the Dinas Pemulihan should be given responsibility to collect appropriate information on quality of services in addition to coverage.
- The administrative burden of the doctor at the Puskesmas should be simplified by centralizing some drug management functions currently handled at that level.
- Assistant pharmacists with special training in administrative pharmacy need to be installed at all Puskesmas in order to handle necessary technical tasks in the area of drug management.

3. MONITORING OF DRUG UTILIZATION

- A capacity for monitoring of drug use must be developed in parallel with changes in drug supply in order to prevent these two systems from becoming incompatible.
- There needs to be a revision of the forms for classification of diseases (LB1) and drug consumption (LB4), as well as development of a new system for monitoring drug use.
- The support of a computer is necessary at the Dinkes TK. II for the purpose of monitoring stock levels and drug management information, as well as for management reporting.

4. INTEGRATED BUDGETING AND FLEXIBILITY OF BUDGET REALIZATION

- There needs to be integration of the various budgets for drugs — including Inpres, APBN, and the special program budgets — and the budget should be planned as a whole at the Kabupaten level.
- Budget realization should incorporate flexibility for adjustment within a one-year framework for at least the APBD-2 and PHB budgets to allow for necessary changes due to unanticipated circumstances.
- The budget allocation for distribution of drugs needs to account for differences in geography and transportation costs in various regions.

CHAPTER 2

PLAN FOR IMPLEMENTATION OF RECOMMENDATIONS

A. PROCESS OF STRUCTURAL MODIFICATION

The strategic and operational recommendations imply a broad range of structural modifications to the current system. It would be unwise to implement these recommendations on a widespread basis without first developing methods, materials, organizational models, and implementation strategies, and without carefully determining the resources required to undertake and maintain these changes. In order to provide input into the design of effective strategies for achieving the recommended modifications, the HSFP/P component will seek to test many of the principles underlying them by mounting coordinated behavioral interventions in pilot areas.

The set of recommendations made by the central and regional working groups form the foundation for defining appropriate pilot interventions. Pilot interventions will also be selected in relation to their likelihood of achieving measurable outcomes in the time available to the project, so that their effectiveness can be evaluated. Successful result within pilot areas will provide the justification and support needed to elaborate broader-based interventions to achieve structural change. This feedback function is the fundamental rationale for pilot testing.

B. PILOTING INTERVENTION MODELS

Table 1 presents an overview of the recommended structural modifications to the drug system and corresponding pilot interventions. Each intervention will help to test one or two changes to improve the overall system. Experiences from the pilot interventions will be channeled to decision makers to refine overall strategies and to provide indicators for selecting between alternative intervention models. Each pilot intervention and its relation to the process of structural change is described briefly below. A more detailed explanation of each intervention is presented in Chapter 4.

1. Innovative training programs in drug planning, distribution, and control will be designed to help drug system managers interpret and use information about drug consumption morbidity to estimate drug needs, to distribute drugs more efficiently, and to manage their work more cost-effectively. The recommendations resulting from the integrated analysis envision a fundamental reorganization of the functions of the GFK in planning and distributing drugs, and the incorporation of an integrated MIS. The success of these new structures when they are implemented will depend in part on the ability of innovative training programs to increase comprehension and regular use of key principles of organization, drug planning, logistics, and use of information.
2. Developing and implementing an integrated MIS responds to the need for improved information for managers to plan, monitor, and control the drug system. The reorganized GFK — a central component of the implementation of the MIS — will assume the responsibility for active management of drug procurement and distribution in the Kabupaten. Installing an information system sensitive to changes in drug consumption is also necessary if interventions in drug use are to achieve an impact on drugs ordered distributed in the Kabupaten.
3. Training in health economics and budget planning for planners at Dinkes TK.II addresses current problems in the way that the budget is allocated for drugs by providing training and information

for the Kapala Dinas about the health needs of the population, and a framework and tools for effectively lobbying for necessary funds during the elaboration of the budget.

Table 1. Process of Structural Modifications

	Budget	Planning, Distribution and Control	Treatment, Dispensing and Use
Strategic: (Structural and Policy Level Adjustment)	<ul style="list-style-type: none"> ▪ Integration and coordination of budgets Impres, APBD I & II, PHB ▪ Increased participation of regions ▪ Methods for objective assessment of drug needs for allocation decisions 	<ul style="list-style-type: none"> ▪ Strategic three to five-year plan at central level ▪ Planning linked to generic drug program ▪ Assessment of needs for public and private sectors ▪ Provision of information on drug use for planners ▪ Elaboration of guidelines for estimation of drug needs ▪ Increased flexibility in procurement ▪ Provision of all documents related to planning (ABC, DOEN and price list) ▪ Assessing and improving manpower needs 	<ul style="list-style-type: none"> ▪ Development of Standards: <ul style="list-style-type: none"> - professional standards - standards of service ▪ Development of supervision structure for medical and pharmaceutical services ▪ Development of standards for support numbers and types of facilities and equipment ▪ Provision of unbiased drug information ▪ Improved information about drug use ▪ Assessment of drug use in community
Operational: (Structural and Functional Changes to Operating Units and Personnel)	<ul style="list-style-type: none"> ▪ Integrated budgets for drugs ▪ Flexibility incorporated into budgeting ▪ Improved allocation of budget for distribution of drugs 	<ul style="list-style-type: none"> ▪ Centralization of drug management functions at Kabupaten level ▪ Drug needs based on at least three years of data ▪ Procurement organized more than once a year ▪ Lead time for delivery and stock levels incorporated into procurement ▪ Computer support at Dinkes II to monitor stock levels and other information ▪ Revision of LB1 and LB4 data reporting forms ▪ GFK placed under Dinkes and restructured ▪ GFK role in management reinforced; Puskesmas role in drug planning reduced ▪ Information system to improve distribution to Puskesmas from the GFK 	<ul style="list-style-type: none"> ▪ Adherence to standards monitored at Dinkes TK. II ▪ Regional supervision restructured ▪ Linkage with P&T committees at R.S. ▪ Reduction of Puskesmas doctors' administrative burden ▪ Available unbiased drug information ▪ Revision of LB1 and LB4 data reporting forms ▪ Placement of assistant pharmacists at all Puskesmas

Training of Managers in Tools for Effective Drug Management	Developing and Implementing Management Information System for Planning and Use of Drugs	Training in Health Economics and Budget Planning at Dinkes TK II	Training of Providers in Diagnosis and Prescribing for ARI and Diarrhea	Providing Unbiased Drug Information for Managers, Prescribers and Users	Developing Symptom-based Treatment and Standardized Supply at Puskesmas Pembantu	Developing Regional Supervisory System for Drug Management and Use	Promoting Community Awareness of ARI and Diarrhea, and MOH Drug Programs
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4. **Training for providers in diagnosis and prescribing for ARI and diarrhea and in government drug programs will start to introduce standards of treatment and quality of care. Rather than being seen as an uni-dimensional process, training covers a wide variety of educational activities aimed at improving knowledge and changing diagnosing and prescribing behavior. This process also involves training providers how to effectively convey messages about rational prescribing to patients and the community.**

For the pilot interventions, training in diagnosing and prescribing will focus on diarrhea and ARI, since these two health problems account for a large proportion of visits to the Puskesmas and clearly defined standard treatment guidelines already exist. Some of these training interventions will also cover the basic principles of the MOH drug programs (see next chapter for a discussion of the scope of training programs).

5. **Providing unbiased drug information to managers, providers and the community complements training to improve the rational use of drugs by providing channels for objective information about pharmaceuticals. Currently, the most regular source of information to providers and consumers comes from pharmaceutical company detailers and advertising. The rational use of drugs in the medical system depends in part on the availability of objective information.**
6. **Developing a system of symptom-based treatment and standardized supply at Puskesmas Pembantu is another method for introducing standards of service into the health care system. By training paramedics in clear guidelines for diagnosis of the principal health problems treated in the Puskesmas Pembantu, and by providing a standardized supply of drugs for these key problems, this intervention addresses two key needs. First, it promotes effective care and supply for problems that can be treated by staff assigned to Puskesmas Pembantu. Second, it defines a "built in" referral system that proceeds from these auxiliary units to the main Puskesmas.**
7. **Developing of regional supervisory system for drug management and drug use provides structural support for interventions to improve the quality of drug management and use. This process also involves developing criteria and a flow of information for measuring and monitoring the quality of medical and pharmaceutical services.**
8. **Promoting improved community management of ARI and diarrhea, and awareness of MOH drug programs supports all activities to improve prescribing practices by educating the public about rational drug use, especially in priority areas in the training for prescribers. Pilot interventions could use mass media communications or campaigns mounted through community organizations to deliver these supportive messages.**

Designing and implementing an intervention involves creating a methodology, as well as supportive materials. These two components become the basis for sustaining and expanding the pilot interventions. Table 2 presents a summary of the supportive materials required to mount each intervention.

Table 2. Supportive Materials for Interventions

INTERVENTION	SUPPORTIVE MATERIALS AND METHODOLOGIES
Management training in drug planning, distribution, and control	<ul style="list-style-type: none"> ▪ manual for integrated drug planning ▪ appropriate unbiased drug information for managers ▪ training materials for group courses and intensive in-service education
Development and implementation of integrated MIS for drug management and drug use	<ul style="list-style-type: none"> ▪ system specifications, data forms, reports for integrated MIS ▪ manual of operating procedures for manual and computerized systems ▪ training materials for group courses and intensive in-service education
Training in health economics and budget planning for planners at Dinkes TK. II	<ul style="list-style-type: none"> ▪ curriculum on principles of health economics and budget rationalization ▪ training materials for group courses
Training in diagnosis and prescribing for ARI and diarrhea, and in government drug programs	<ul style="list-style-type: none"> ▪ standards for diagnosis and treatment of ARI and diarrhea ▪ appropriate behavioral messages related to standard diagnosis and treatment of ARI and diarrhea, use of injections, and generic drugs ▪ appropriate unbiased drug information for prescribers ▪ printed materials for patients to support the recommended changes in behavior ▪ training materials for group courses and/or intensive in-service education
Development of a system of symptom-based treatment and standardized supply at Puskesmas Pembantu	<ul style="list-style-type: none"> ▪ protocols for symptom-based diagnosis and treatment of limited number of key diseases ▪ procedures and information system for supplying standard quantities of drugs according to morbidity profile and caseload ▪ training materials for group courses
Providing unbiased drug information in accessible form to prescribers, managers and patients	<ul style="list-style-type: none"> ▪ source of objective information about drugs ▪ knowledge of most effective communication channels and formats for reaching target audiences ▪ messages about particular drugs and therapies to be communicated ▪ printed materials to support information program
Development of regional supervisory systems for drug management and drug use	<ul style="list-style-type: none"> ▪ standards for supervision of staff at Puskesmas and Puskesmas Pembantu ▪ procedures and information system for auditing performance in relation to standards ▪ training materials for group courses
Promotion of improved community management of ARI and diarrhea, and awareness of MOH drug programs	<ul style="list-style-type: none"> ▪ appropriate messages related to ARI, diarrhea, injections, generic drugs ▪ supportive printed materials for health centers ▪ scripts and media spots

C. DESIGNING AND TESTING INTERVENTION MODELS

Each pilot intervention is defined individually, although they are all complementary, aiming to improve components of an integrated system. It is important that these interventions be separable, however, because (1) they are directed toward different target audiences and (2) they concern different issues.

These differences will determine the methods for developing each intervention. Since the design of the pilots will require a variety of skills, it makes most sense to contract with individual organizations to develop and test each intervention. By doing this, it will also be possible to design and test a larger number of the interventions simultaneously.

Operationally as well, these activities are more feasible if they can be defined and implemented individually. Requisite resources may not be available in all regions at the same time. Testing pilot

interventions in all six provinces simultaneously is not possible nor desirable. Single or coordinated interventions can be designed and implemented in a staged process over the six study provinces.

Achieving maximum improvement in drug use requires coordinated change between interventions that target prescribing and those that target management. Prescribers and users of drugs, as well as managers and planners, need to understand the necessity and goals for change. For this reason, comprehensive intervention packages, with activities targeting different interacting groups, will be implemented in certain provinces.

Decisions concerning the number of interventions to be included in the comprehensive provinces, the number of provinces chosen, as well as the time frame for implementation, will be determined by the availability of resources for undertaking these activities.

D. COMPREHENSIVE INTERVENTION PROVINCES

The pilot phase of this project seeks primarily to test potential for change. It is recommended that the comprehensive intervention provinces be those that have sufficient budgetary resources to implement proposed changes, so that this will not be a major constraint, and those provinces with some history of activity in pharmaceutical innovation.

Two provinces are proposed as comprehensive intervention locations:

1. WEST SUMATERA

West Sumatera has a history of activity in drug management dating to 1985 when the CHIPPS project began in this province. The CHIPPS project trained all heads of Kabupaten and the GFK to estimate drug needs using the morbidity and consumption methods. As part of this process, physicians within the province developed local treatment standards for management and use of drugs. Computers have also been installed in every Kabupaten to process drug information and managers have been trained in the use of the MDS program for managing drug inventory at the Kabupaten and monitoring drug shipment to Puskesmas.

The previous activity in drug management makes West Sumatera an ideal place to install a computerized MIS for drug management and use, since the equipment is available and personnel have already been trained in basic drug management principles. These same reasons also make West Sumatera a good location for interventions in drug use. Since the infrastructure for implementing management interventions is already in place, these interventions could move at a faster pace, thereby ensuring supply sensitivity to changes in prescribing practices and better support for activities to promote more rational use of drugs. Moreover, West Sumatera has a relatively large provincial budget.

2. EAST JAVA

East Java is another province with the financial resources to support interventions in drug management and use, since it has a relatively large provincial budget. In addition, Soetomo Hospital in Surabaya has a history of activity in promoting rational drug use through the development of standards of services and pharmaceutical care, and through programs to reduce inappropriate antibiotic prescribing. This resource could be tapped for designing and mounting non-hospital based interventions, for example, to model and test a supervision system and appropriate standards for evaluating the quality of prescribing in the Puskesmas.

3. OTHER STUDY PROVINCES

Individual interventions can be implemented in the other four study provinces after methods and materials are developed following a staged process. After review of the needs of each province and other activities currently being implemented, the following individual interventions seem to be beneficial starting points:

North Sumatera: Since drug management training activities are already planned by POM in North Sumatera, the management training programs and materials developed under this project could be implemented. In addition, the KAP quantitative study of community perceptions and knowledge will be done in Medan, which makes this area a useful testing location for mass media communications strategies to improve community awareness of ARI, injections and generic drugs.

East Kalimantan: East Kalimantan is one of the intervention provinces of the World Bank HP3 project. Since this project provides additional funds for the drug budget, this province would be a good location for implementing the symptom-based diagnosis and standardized supply system in the Puskesmas Pembantu. A sufficient supply of drugs on which such a system would depend could be ensured. East Kalimantan has also already developed standard treatment protocols for paramedics that could be used as the basis for the symptom-based protocols.

South Sulawesi: Planning and selecting drugs within the confines of a limited drug budget is a pressing problem faced in South Sulawesi, since the regional budget in that region is low. This training should be a priority intervention in this province.

West Nusa Tenggara: This province is also part of the World Bank HP3 project. Since the HP3 project provides additional funds for drugs, it will be possible to explore the impact of additional resources on the use and management of pharmaceuticals in an area where the management of the drug system has been constrained by a relatively small regional budget. This assessment will provide information about which interventions are most necessary given other concurrent activities in the region.

E. TIMELINE FOR THE DESIGN, IMPLEMENTATION AND EVALUATION OF INTERVENTIONS

The design and implementation of interventions will proceed in two phases of activity for the purpose of evaluation. Phase I covers the period from the present to March 1991, the end of the first drug planning cycle following the pilot management training programs. Phase II will cover the drug planning cycle ending in 1993. The final project evaluation will occur at the end of Phase II, while a review of the first phase will occur in March 1992, after design and testing of the initial pilot interventions. The timeline in Figure 1 presents a draft time frame for implementing and evaluating each of the proposed intervention packages during the course of these two phases.

During Phase I, intervention methodologies and supportive materials will be developed and tested within a limited number of Kabupaten in the comprehensive intervention provinces. At the end of Phase I, the impacts of this first series of interventions can be evaluated. Since these interventions will have been implemented in only some Kabupaten, the remaining areas can be used as comparison sites for measuring impact related to project activities. Not all interventions will be tested in the first phase, however, since some require a longer design stage. For example, the model for the symptom-based treatment and standardized supply will take all of Phase I to develop and design.

In Phase II, intervention activities will be expanded to the Phase I comparison areas after they have been reviewed and, if needed, modified based on evaluation results. Once the interventions have been tested and evaluated, they can be more easily implemented in other study provinces, since supportive material and intervention methods will be available. Other interventions designed during Phase I could be introduced into the intervention Kabupaten. At the end of Phase II, the overall impact of the project will be evaluated in accordance with the criteria elaborated in the project paper (see next chapter).

Figure 2 presents a proposed design for implementation of pilots during Phase I. For the development and initial stage of the interventions, six interventions and six control Kabupaten would be chosen from each of the two comprehensive intervention provinces.

Figure 1. Proposed Timeline for Implementation of Interventions

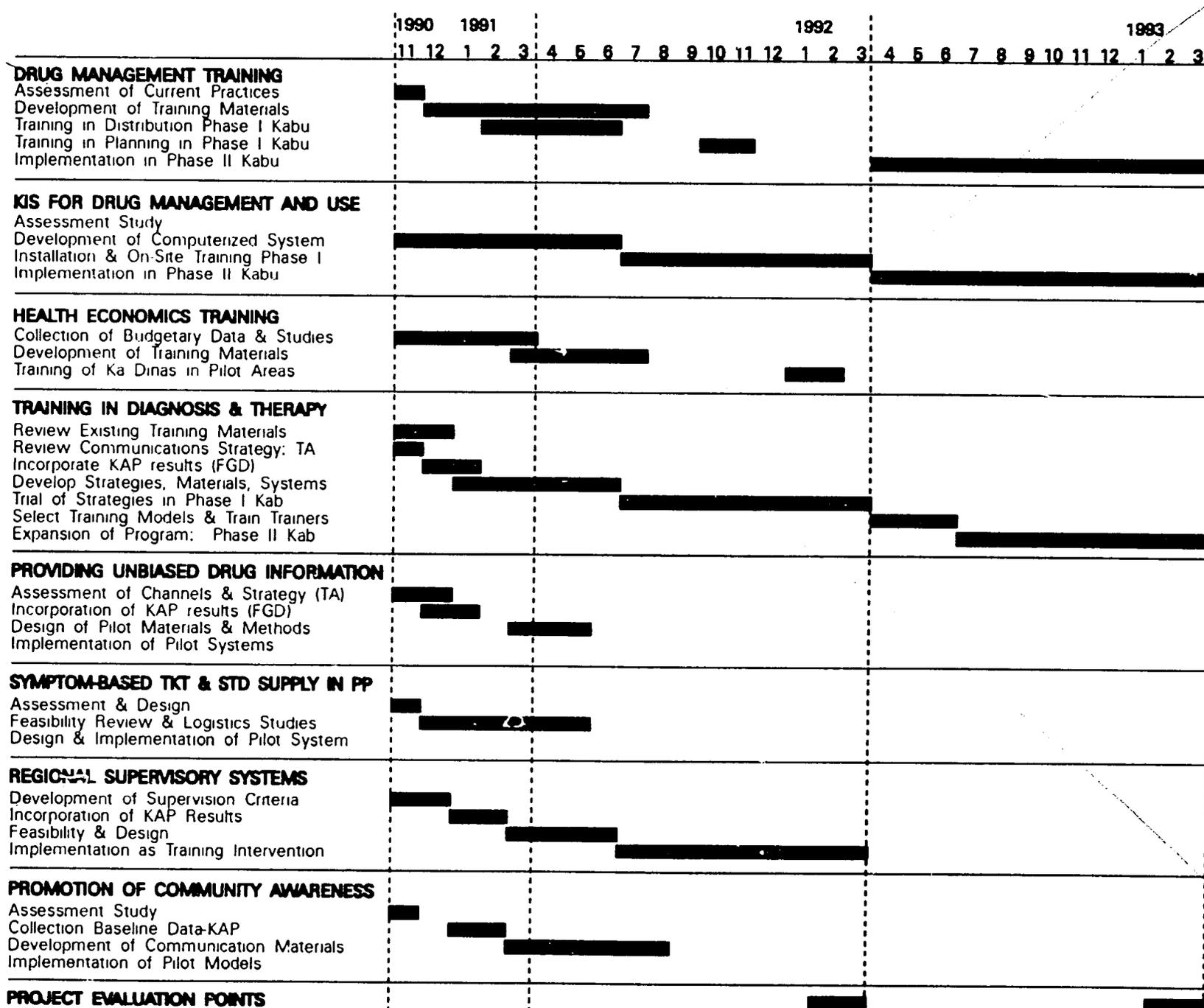


Figure 2. Proposed Design of Comprehensive Pilot Interventions

	PROVINCE 1						PROVINCE 2					
COMPARISON KABUPATEN	①	②	③	④	⑤	⑥	①	②	③	④	⑤	⑥
INTERVENTION KABUPATEN	①	②	③	④	⑤	⑥	①	②	③	④	⑤	⑥
	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
Computerized MIS	*	*	*									
Management Training 1				*	*	*	*	*	*			
Management Training 2									*	*	*	
Drug Use Training 1	*			*			*		*			
Drug Use Training 2		*			*			*		*		
Drug Use Training 3			*			*			*			*
Health Economics Training. Drug Intervention Program. Symptom-based Treatment. Regional Supervision Program. Community Education.	(Integrated into Phase I Interventions or Implemented during Phase II)						(Integrated into Phase I Interventions or Implemented during Phase II)					

Interventions to improve drug supply management, training in diagnosis and treatment of ARI and diarrhea, and the implementation of an integrated MIS will form the core intervention package. These are given priority because improved supply and use of drugs depends intrinsically on the availability of information, and the training of key actors in correct standards for management and use. Of the eight proposed interventions, these three can be designed without further assessment studies once the KAP is completed. Different combinations of these three primary interventions will be implemented in the Phase I intervention Kabupaten.

The computerized integrated MIS systems will be developed in three of these Kabupaten in accordance with the current terms of the contract for developing this system. The implementation of this system includes training for managers in drug planning and distribution. In the other intervention Kabupaten, managers will be trained in drug management, either in planning, distribution or both. Finally, training programs for providers in diagnosis and treatment of ARI and diarrhea would take place in all six intervention Kabupaten. In order to test a broader range of training models, this design proposes that three separate contractors undertake training program in two Kabupaten in each province, for a total of four Kabupaten each. Each contractor would be asked to develop an innovative program to achieve the objectives set by the project (see segment on training programs for providers in Chapter 4).

The remaining five interventions will take longer to design because they require assessment studies for the development of methodologies and materials (see Chapter 4 for a detailed discussion of each intervention). However, if time and resources are available to develop some of them during Phase I, they can easily be integrated. For example, training of Kapala Dinas in health economics could be integrated into the management training; symptom-based treatment and standardized supply could be a model for one of the training programs; and the regional supervision program could supplement or replace a drug use training program.

CHAPTER 3

GUIDELINES FOR EVALUATION OF THE PHARMACEUTICAL COMPONENT

A. GUIDING PRINCIPLES IN THE EVALUATION OF HSFP/P INTERVENTIONS

The primary goal of the HSFP/P component is to demonstrate that a coordinated package of interventions in drug management and use can achieve improvements in key aspects of the health system related to child survival problems. The project paper sets the following standards by which the success of the HSFP/P is to be measured at project completion:

- Pharmaceuticals are more rationally prescribed.
- Expenditures among and within different therapeutic categories of drugs are changed to reflect more cost-effective allocation of the drug budget.
- Larger expenditures are made on pharmaceuticals that directly support child survival programs.

The evaluation of the HSFP/P project should hinge on measuring the achievement of these global objectives. However, these objectives are very generally stated, and the project will have finite resources both to undertake interventions and to measure their outcomes. Based on the results of the focus groups and the Integrated Analysis, the project is now in a position to develop a clear set of guiding principles upon which to develop interventions and to design their subsequent evaluation. These principles include:

- Focus first on interventions to improve managerial performance, information systems, and prescribing practice at the Puskesmas, since these form the core of the behavioral system that determines the supply and use of drugs. As understanding increases during these interventions of the broader environment in which these behaviors take place, and as additional targeted studies are conducted (see Chapter 6), other types of intervention can be integrated directed at improved budget development, supervisory systems, drug information, community awareness, and the role of the Puskesmas Pembantu.
- Focus on ARI, diarrhea, and injections: ARI and diarrhea are leading causes of illness among children under five, and account for over 58 percent of their visits to Puskesmas and 61 percent of their total costs of drug treatment. Inappropriate use of injections in the treatment of these and other conditions is a practice that both wastes scarce resources and carries substantial clinical danger. The treatment protocols for ARI and diarrhea, the required training messages, and useful indicators to measure adherence to these protocols are relatively specific and well-defined. For these reason, a concentration in intervention and evaluation on quality of treatment and drugs used for these conditions is appropriate. If the methods used to improve behavior in relation to these problems are successful, they should be applicable in the future to other health problems as well.
- Measure changes in planning and expenditures within key therapeutic classes: Oral/injectable antibiotics, ORS, and antidiarrheals account for 85 percent of the costs of treating diarrhea in Puskesmas, while antibiotics, analgesics, and antitussive account for 91 percent of expenditures on mild ARI. Changes in relative levels of expenditure for these five therapeutic classes — and in expenditures for more vs. less cost-effective

products within them — provide useful indicators of project success. Restricting active monitoring to these classes would greatly simplify data processing for evaluation.

- Collect data on particular pharmaceuticals related to child survival problems: Certain drugs primarily used for child survival problems should be monitored separately. These would include vaccines, ORS, maternal supplements, ampicillin syrup, tetracycline syrup, cough syrup, and other products identified in the standard treatments for ARI or diarrhea in children. There are other identifiable products that should not be used so widely, including chloramphenicol suspension, enterovioform tablets, and antidiarrheal syrups. Tracking certain supply-system parameters for these products can be a useful evaluation tool; for example, the number of DDDs and expenditures on these drugs per treatment visit to health facilities, and the incidence of stockouts for them at the GFK and Puskesmas.
- Need to collect morbidity data: Shifts in the rate of ARI or diarrhea treatment at Puskesmas, or in the overall rate of illness visits, can confound the analysis of changes in key indicators. In addition, some of the project interventions might stimulate an increase or decrease in ARI or diarrhea cases presenting at the Puskesmas. Data on numbers of cases of diarrhea and ARI seen at health facilities in the study areas, by age group and by severity/etiology, need to be collected and integrated into the analysis. Differences in the way the reporting and recording systems for health problems are used in different areas, especially for diarrhea and ARI, need to be identified early in the intervention implementation process.
- Collect prescribing data for ARI and diarrhea: In order to evaluate changes in prescriber behavior, it will be necessary to collect case-specific data on prescribing for ARI and diarrhea. Ideally, a mechanism for collecting the data could be integrated into pilot MIS or supervisory systems (see below). If such routine data cannot be collected within the MIS, and in areas where the MIS is not implemented, the data will need to be collected by retrospective prescribing surveys such as used in the DUS.
- Collect information on regional budget for drugs: A number of the recommendations arising from the focused assessments concern the need to better utilize budgetary resources, and better match the size of the total budget for drugs to more objective measures of need. Awareness of the importance of drugs and principles of drug budgeting are expected to increase as a result of the project. To track shifts in budget, data on total allocations for drugs, the amount of budget realized, and the relative contribution of the Inpres, Askes, and APBD budgets should be gathered each year in the study areas.

B. USEFUL COMPARISONS TO EVALUATE INTERVENTION EFFECTS

1. MEASURING CHANGE OVER TIME AND BETWEEN GROUPS

To evaluate the magnitude of changes due to the activities of the HSFP/P component, carefully defined measures of specific system characteristics must be recorded before interventions begin (baseline) and after the interventions have been conducted (follow-up). For certain outcomes, it will be possible to obtain such measurements only once at baseline, and once again after the intervention, a pre-post design. For other outcomes — for example, the incidence of stockouts in key drugs at Puskesmas, or changes

in prescribing of injections for ARI — it might be possible to obtain measurements at monthly or quarterly intervals prior to and following an intervention, a time series design. Time series designs are preferred when possible, because preexisting trends can be seen and controlled for, and changes due to the program easier are to identify.

Even though indicators are to be compared over time, it may not be necessary to collect them frequently. To the extent possible, the evaluation of the HSFP/P interventions should rely on retrospective data to measure outcomes. Examples of such data would be information on diagnosis and prescribing from patient registers at Puskesmas, or information from GFK records on drug order quantities, delivery dates, and stock levels. The advantages of using retrospective data are that outcome measures are produced routinely by the system so they are not as costly to collect, and data can often be organized into time series for analysis.

The most important feature that sets valid evaluation studies apart is the use of an appropriate comparison group. Without such a group, it is never possible to determine whether observed changes were due to the impact of interventions, or were simply a reflection of other features of the external environment that were changing at the same time. To make contrasts between groups more meaningful, the comparison group should be as similar as possible to the group receiving an intervention, and the outcomes in both groups should be measured in the same way.

2. PROVINCE VS. KABUPATEN AS UNIT OF EVALUATION

There are two levels at which changes due to the proposed interventions might be evaluated — the province level and the Kabupaten level. To adequately and fairly assess the impact of these interventions, both levels of comparison are needed.

To test coordinated packages of interventions, it is recommended that West Sumatera and East Java become the two comprehensive intervention provinces. There will be a number of different intervention activities occurring simultaneously in these provinces, and even Kabupaten not selected as comprehensive intervention sites will be exposed to some activities, either directly or through interaction with Kabupaten that are comprehensive sites. For this reason, the overall effect of the comprehensive interventions should be measured as much as possible on the province level, by comparing changes in key global outcome indicators (see below) between the comprehensive intervention and other provinces.

The remaining four study provinces — North Sumatera, East Kalimantan, South Sulawesi, and West Nusa Tenggara — could serve the purpose of such "comparison" provinces, especially during the Phase I testing of pilot intervention models. Although some Kabupaten in these provinces are to receive intervention activities, the scope of these activities will be limited and their expected overall impact much less, especially at the provincial level.

In order to carry out provincial-level comparisons, the project must collect similar data in both the comprehensive intervention and the comparison provinces. To minimize financial and administrative cost, it is best to rely for these comparisons on data available at the provincial level. These data sources should include annual drug budgets, drug order quantities, and data from the regular morbidity and drug utilization reporting system for all Kabupaten in these provinces (see below). During the development of information systems for evaluation, these data should be checked for reliability and completeness. If the quality of data is found to differ markedly between areas, or if there are no existing systems for collecting this information at the province level, special systems will need to be organized to overcome these limitations.

Within the comprehensive intervention provinces, certain Kabupaten will be selected to receive intensive interventions during Phase I of implementation, while others will be selected for a comparison group. As stated above, it is important for evaluation purposes that some aspects of this assignment be carried out randomly, to avoid potential biases. Methods for the selection of Kabupaten for inclusion in this phase are set forth in Annex A. The combinations of pilot interventions tried, and details of their design, will vary among Kabupaten in the Phase I intervention group. During Phase II, to determine whether successful intervention models can be generalized, and to address issues of equity within the comprehensive provinces, the comparison Kabupaten will also receive a set of more intensive interventions.

For these reasons, differences related to types, mix, or timing of interventions will be more feasibly evaluated by comparing Kabupaten within the comprehensive intervention provinces rather than comparing provinces. In addition, because of the difficulty and expense of collecting data on prescribing practices in non-intervention sites, changes in prescribing behavior should also be evaluated by comparing samples of encounters in the intervention and comparison Kabupaten within the comprehensive intervention provinces. During Phase II, by comparing these same groups of Kabupaten, it will be possible to measure the impact of interventions when they occur at a different time, and also to assess whether effects reduce over time in Kabupaten where the interventions were completed earlier.

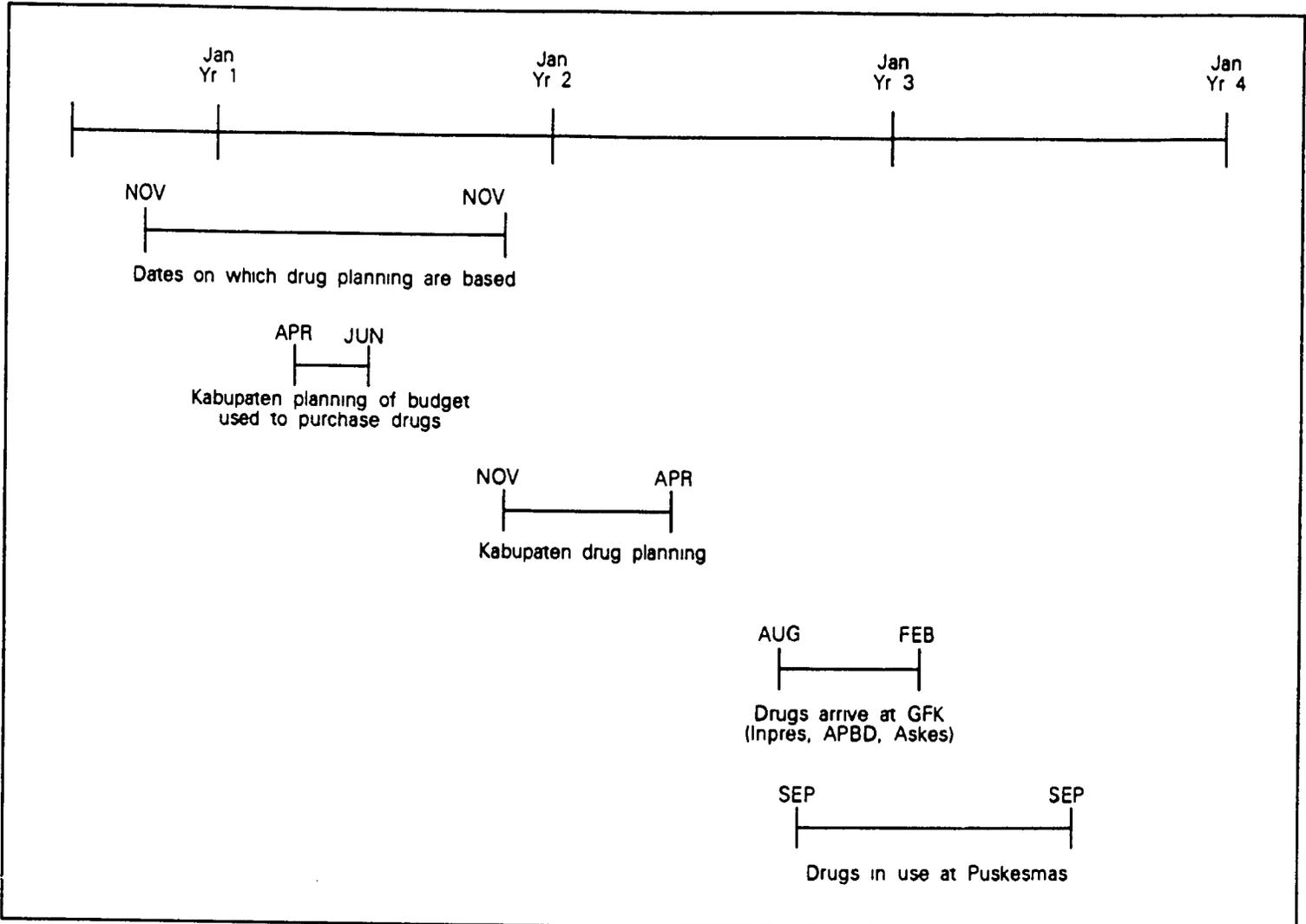
3. CONSTRAINTS IMPOSED ON EVALUATION BY THE PLANNING CYCLE

These two phases provide a broad time frame for developing and testing interventions. However, constraints imposed by the timing of the drug planning, procurement and distribution cycle will influence the implementation and evaluation of individual interventions, especially those aimed at improving management and logistics. Figure 3 displays the timeline for planning, ordering and receiving drugs within a Kabupaten.

Planning for the upcoming year begins in November, so all data to be used for estimating drug needs has already been assembled. In April, the order is submitted to the provincial level. April is the beginning of the budget year, so by April when they submit their budgets, the managers have access to information about the total amount of money they will have to purchase drugs. About four months elapse before the ordered drugs arrive at the Kabupaten, and these are used at Puskesmas beginning in September. The yearly cycle for using these drugs covers the period from September to September.

The full impact of interventions in planning and distribution will not be measurable until drugs arrive in Kabupaten. If, as planned in the current schedule, managers are trained in November 1991, the impact of interventions on actual supply levels and stockouts cannot begin to be measured until September 1992. For most of Phase I and Phase II, the drugs available in the GFK will have been ordered before the interventions began.

Figure 3. Kabupaten Planning and Drug Use Cycle



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For these reasons, the impact of the Phase I installation of an improved MIS and management training on actual supply will not be possible until the end of Phase II. Even this evaluation will not cover a full year of data since the final project evaluation will occur only six months after drugs have arrived in the Kabupaten.

It will still be possible to evaluate changes in the composition of drug orders as well as certain aspects of the distribution system independent of supply, such as improvements in the distribution to the Puskesmas of drugs that are in stock at the GFK.

Because of this time lag, interventions to improve the use of drugs in the treatment of diarrheal disease and ARI cannot immediately rely on improved supply resulting from management interventions. In order to ensure the success of these interventions, the supply of drugs used in standard treatment protocols for these two health problems will have to be ensured. If supply for necessary drugs is sufficient, changes in systems can be evaluated at the end of Phase I since previous studies have found that the impact of training can be measured almost immediately if the training messages are appropriate and well understood.

C. GLOBAL EVALUATION INDICATORS AND POTENTIAL SOURCES OF DATA

1. PROCESS AND OUTCOME MEASURES

There are two types of data required to understand and evaluate the implementation of interventions. First, it will be useful to collect information on how separate activities that constitute each intervention proceed, in order to understand the processes involved and the details of carrying them out. In addition, it will be necessary to gather data indicating whether each intervention has achieved its intended outcomes.

Process measures examine factors like the frequency, timing, intensity, and efficiency of program activities, and analysis of these factors can suggest ways to improve them when the intervention is carried out in the future. The teams undertaking any of the proposed interventions should routinely collect data that will allow description and evaluation of important intervention processes. Required data should include:

- Lists, descriptions, and schedules of activities.
- Description of the inputs to each activity, including personnel and staff resources, materials used and how they were developed, site and facility preparation, etc.
- Counts of outputs such as workshops conducted, numbers and types of personnel trained, etc.
- Routine evaluations of training activities by participants, measures of their satisfaction, and suggestions for improvement.

Analysis of this process-oriented information will allow HSFP/P staff and MOH decision makers to judge whether the interventions were able to take place according to plan, and will permit analysis of the logistic complexity and efficiency of individual activities.

Outcome measures will be used to summarize the success or failure of individual interventions, or of the comprehensive set of interventions, in achieving specific measurable objectives. The data will help to guide decisions about how to change particular activities to achieve more impact, or whether to expand or copy them elsewhere.

Evaluating outcomes is often a difficult and complex process. It is necessary to specify carefully the types of outcome intended, and to develop valid measurable indicators of these outcomes. Examples of such outcome indicators are:

- Percentage of children under five presenting at a Puskesmas with diarrhea who receive a prescription for ORS, as an indicator of adherence to standard treatment norms.
- Cost in rupiah per DDD of antibiotics ordered in the annual Kabupaten drug order, as an indicator of economic efficiency in drug planning.

Most importantly, the particular indicators to be used to assess changes in outcome, and reliable and affordable ways to collect data to measure indicators, must be specified and developed in advance.

2. SOURCES OF DATA AND KEY GLOBAL EVALUATION INDICATORS

There are a variety of methods that might be used to collect data for evaluating different aspects of the interventions. The decision about which method will be most appropriate in a particular situation must be based on:

- The availability of resources, technical expertise, and data systems necessary to collect, process, and analyze the data.
- The amount of time available to complete the process.
- The capacity to collect data reliably through the regular reporting system or the new integrated MIS.

In the HSFP/P intervention phase, time and technical expertise for elaborate evaluation studies will be relatively scarce. Emphasis should be placed on using regularly reported sources of data where possible and — where they have been sufficiently validated — supplemented by small, targeted studies to collect specific retrospective or prospective data.

Both qualitative and quantitative data can be useful in evaluating project impact. Each provides a different type of information about the nature and magnitude of change. Although the results of a program are most often evaluated in a quantitative manner, there might be opportunities to use qualitative techniques to examine whether certain aspects of motivation and satisfaction have changed after the interventions have occurred. These qualitative methods will provide a follow-up to some of the baseline findings of the KAP studies to be conducted prior to designing interventions (see Chapter 5). Specifically, the following qualitative studies are recommended in the comprehensive intervention provinces before and after interventions:

- Focus groups or managers (heads of the Dinas, GFK, and Puskesmas supervision) from a general sample of Kabupaten before the intervention, and from separate samples of managers from comprehensive intervention sites and comparison sites after the interventions.

- Focus groups of Puskesmas physicians, paramedics, and dispensers from a general sample of Puskesmas pre-intervention, and from separate samples post-intervention of those who have undergone management training, who have undergone training in rational treatment for ARI and diarrhea, and who have had no training.
- Observations studies of care for ARI and diarrhea in Puskesmas, containing both anthropological/sociological observations and coded clinical observations, again in a general sample of Puskesmas before, and in Puskesmas with and without drug use training after, the interventions.

The qualitative data collected after the interventions would be analyzed in relation to similar data collected during the KAP studies. The goal of the analysis would be to identify whether there were any broad changes in attitudes, reported constraints to behavior, or satisfaction among managers, providers, or patients, or in the overall quality of patient care, in the intervention areas.

Quantitative evaluation analyses should rely on six sources of data:

- Information on annual Kabupaten budgets for drugs and subsequent realized expenditures, integrating information from at least Inpres, Askes, and the APBD budgets.
- Annual Kabupaten drug orders, which contain data on the number of units ordered and expenditures on individual A and B list drugs (including also C list drug orders, if available).
- Data from the MOH reporting and recording system on number of cases of all types of ARI and diarrhea, and utilization of drugs commonly used in the treatment of these problems, if the data sources can be validated.
- Questionnaires to physicians, paramedics, and managers administered before and after all training sessions — and again, if possible, a number of months subsequent to training — that would be aimed at measuring changes in level of knowledge about the most important factual elements communicated in training.
- Interviews with patients receiving care for ARI and diarrhea at Puskesmas to gather information on patient perceptions and satisfaction, which would parallel those to be conducted during the KAP study.
- Retrospective prescribing data for ARI and diarrhea from Puskesmas logs or registers, logistically the most complex quantitative evaluation data to collect and analyze, which will need to be specially collected by one of the methods described below.

Each source of quantitative information is capable of providing a wealth and variety of data that might be used to measure different dimensions of the impact of interventions in changing drug management or drug use behavior. However, in order to keep the evaluation process manageable, and in light of the limited technical resources available to the project, the quantitative data collected should focus primarily on a small number of key evaluation indicators. Recommendations for these indicators, the outcome parameters they seek to measure, and methods that can be used to collect them are presented in Table 3.

Table 3. Evaluation Methods and Quantitative Indicators

STUDY METHOD	PARAMETER MEASURED	GLOBAL INDICATORS
KNOWLEDGE AND ATTITUDES		
Interviews with prescribers before and after training	Prescriber knowledge about diagnosis and therapy	<ul style="list-style-type: none"> ▪ % knowing standard drug therapy for ARI, diarrhea ▪ % knowing diagnostic protocol for identifying of ARI or diarrhea needing antibiotics
Interviews with GFK managers before and after training	Supply manager knowledge about planning techniques	<ul style="list-style-type: none"> ▪ % able to explain morbidity-based drug needs estimation ▪ % able to describe ABC analysis and VEN system ▪ % knowing top three therapeutic classes and top five drugs in expenditures in Kabupaten for previous year
Interviews with patients exiting from Puskesmas	Knowledge about drugs	<ul style="list-style-type: none"> ▪ % diarrhea cases knowing about fluid loss, need for ORS
	Communication	<ul style="list-style-type: none"> ▪ % who can repeat proper regimen for drugs they received
DRUG USE BEHAVIOR		
Retrospective survey of patient registers examining cases with single diagnosis of ARI or diarrhea	Use of appropriate drug therapy	<ul style="list-style-type: none"> ▪ % of cases of diarrhea treated with ORS, antidiarrheals, antibiotics, vitamins, injections ▪ % of cases of ARI treated with antibiotics, injections, vitamins ▪ % of cases receiving four or more drugs
Analysis of regularly reported MOH data on morbidity and drug use	Patterns of drug use and habits of diagnostic classification	<ul style="list-style-type: none"> ▪ Use of ORS, antidiarrheals per case of diarrhea reported ▪ % of ARI cases diagnosed as mild vs. moderate-severe ▪ % of simple diarrhea cases vs. cause-specific diagnoses
Observe diarrhea, ARI cases at Puskesmas	Treatment practices	<ul style="list-style-type: none"> ▪ % of patients receiving correct diagnostic protocol ▪ % of patients who have drugs explained to them
DRUG MANAGEMENT BEHAVIOR		
Review of Kabupaten budget for drugs	Adequacy of drug supply	<ul style="list-style-type: none"> ▪ Total level of expenditures on drugs per capita ▪ Proportion of health budget spent on drugs ▪ Realized budget vs. estimated budgetary need for drugs
Review of Kabupaten drug orders	Economic efficiency	<ul style="list-style-type: none"> ▪ Cost per DDD ordered of antibiotics, analgesics ▪ DDDs and expenditures on injectable vs. oral antibiotics ▪ % of expenditures on monitored therapeutic classes: antibiotics, antidiarrheals, ORS, analgesics, antitussives ▪ % of expenditures on type V or E drugs
	Commitment to child survival	<ul style="list-style-type: none"> ▪ % of expenditures on important child survival drugs ▪ Ratio of expenditures on child survival drugs to less desired drugs commonly used to treat children
Record of stock at GFK and Puskesmas	Distributional efficiency	<ul style="list-style-type: none"> ▪ % of drugs in standard treatments for ARI, diarrhea out of stock per month

D. ANALYSIS OF DRUG ORDERS AND PRESCRIBING RECORDS

Conducting analysis of data on drug ordering and on prescribing is the most essential component in determining the rationality and quality of drug use. The HSFP/P component must identify the simplest methodology to institutionalize these functional capabilities in the drug management system.

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1. ANALYSIS OF DRUG ORDERS

The capability of analyzing the cost-effectiveness of drug orders within therapeutic categories, and of generating quantitative estimates of drug needs based on morbidity and consumption, will be components built into the proposed integrated MIS. However, the widespread implementation of the computerized MIS is likely to take an extended period of time, and the infrastructure and training needs for carrying out this task will be formidable. Until the time when such implementation can be accomplished, there will remain a need for a relatively simple computerized tool to evaluate drug orders, perhaps to be installed at the province level.

There has been previous experience in the CHIPPS project and in the CSP1 study with the Drug Estimation Model (DEM), a dBASE-compatible system for analyzing drug order quantities. Some of the staff POM and at the PIO/P office have received training in how to use this program. In addition to the DEM, Lotus-style spreadsheet applications with these functions have been developed at the WHO Essential Drugs Program, at the University of Amsterdam, and at Management Sciences for Health, among others. The feasibility of using any of these programs for the analysis of drug order data during the evaluation of interventions, or developing a similar one for this purpose, should be examined. In addition, training of province staff in the use of one of these programs could constitute one type of managerial intervention.

2. STRATEGIES FOR COLLECTING AND ANALYZING PRESCRIBING DATA

The concept of analyzing prescribing data, as was done in the DUS and CSP2 studies, is relatively simple. Samples of prescribing episodes are selected from Puskesmas registers or patient records according to a defined sampling plan. Using a coded list of health problems and drugs, information is recorded on: location of care, date of care, patient age, sex, type of provider, one or more diagnoses, and information on all drugs prescribed (specific product and units prescribed). The profile of care for these cases can then be used to characterize the appropriateness of prescribing patterns.

However, despite being simple in concept, prescribing data are logistically complex to collect because of variability in the way prescribing records are maintained, and the need to draw a reasonable sample of cases from a sizeable number of facilities to draw useful conclusions. In addition, prescribing records are tedious to process because of the need to code and enter on computer a large number of items of information.

There are a number of possible mechanisms for collecting the data necessary to evaluate changes in prescribing for ARI and diarrhea following the interventions, all of which have different associated costs and complexity. Some offer the potential for institutionalizing the analysis of such data as a regular function of the supervisory system. The project must decide which one — or more than one — of these mechanisms is to be implemented. In brief, the possibilities are:

- Commission another study like the DUS to collect data from intervention and comparison areas, but with a sampling plan as described below.
- Arrange for each team or contractor performing prescriber training to collect the data in a standard format, perhaps from both the intervention area itself and a comparison area, for use in evaluation.
- Develop and test a mechanism for a periodic sample of prescribing for ARI and diarrhea to be reported up through the system for use in supervising quality of care, either by

having someone on the staff at the Puskesmas collect the data from prescription logs, or by training someone from the Dinkes TK. II or GFK to visit a sample of Puskesmas and do so.

- Involve Puskesmas physicians in an innovative, non-punitive quality assurance program in which they would periodically collect data from records at Puskesmas and Puskesmas Pembantu, conduct simple analyses, and use the results to supervise the prescribing of paramedics under their supervision, after which the data would be collected by the project for evaluation.

3. SAMPLING REQUIREMENTS FOR EVALUATING CHANGES IN PRESCRIBING

For the purposes of evaluation, the basic sampling requirements would remain essentially the same regardless of how the data were collected. Because of the need to profile the practice of a reasonable number of prescribers in both intervention and non-intervention environments, Puskesmas from at least six comprehensive intervention Kabupaten and three comparison Kabupaten should be sampled in each province. Within each Kabupaten, at least 8 Puskesmas should be included, yielding a total of 36 Puskesmas in the intervention areas and 18 in comparison areas.

Data should be collected only for cases with a single diagnosis of ARI or diarrhea, including all levels of severity of ARI, and both non-specific and organism-specific diarrheas. The data should span a period of at least six months prior to any drug use training in a Kabupaten, and a similar period following training. Since there was no training period in the comparison areas, each comparison Kabupaten should be matched with one intervention Kabupaten, and data should be collected for the same calendar period in both to control for seasonal variations. For each month sampled, at least five cases of ARI and five of diarrhea should be included. This would yield a sample of at least 30 cases of each diagnosis in each Puskesmas both before and after the intervention, or a total of about 6,480 cases in all.

Although many different analyses of the data are possible, the key indicators to analyze appropriateness of prescribing for both diagnoses are shown in Table 3. Using a pre-post design, the percentage for each indicator before the training can be compared with the percentage on that indicator after training, again defining before and after in each comparison Kabupaten to match its intervention group counterpart. The change in percentage for these indicators should be significantly greater (or less for an undesirable outcome) in the intervention groups vs. the comparison groups.

Another type of analysis would be to organize the data into a time series by month, where the value of each month is the percentage for the appropriate indicator. The time series for the intervention Kabupaten could be contrasted with the comparison Kabupaten. The advantage of this analysis is that if the effects of training take a while to become apparent in behavior, this will be visible in changes in trend in the series.

E. DETAILED EVALUATION OF INDIVIDUAL INTERVENTIONS

Each individual intervention implemented has the potential for improving management and use of pharmaceuticals in different ways. In addition to the key global evaluation indicators described in Table 3, each MOH team or contractor undertaking an intervention should be encouraged, where feasible, to develop specific evaluation measures for that intervention, in order to be better able to judge its impacts. These evaluation measures would be submitted to the PIO/P as part of the design, protocol, and instruments (DPI) for the intervention. Some suggested examples for such measures are presented during

the detailed discussion of the individual evaluations in the next chapter. As each intervention is being designed, the contractor should arrange to collect data to measure these outcomes before and after implementation.

Certain data should be required to be collected by all teams. As described above, these should include reasonable process measures to describe how each intervention was implemented, and at what cost. To the extent that a training intervention is aimed at changing knowledge, pre-post questionnaires should be administered to participants. Finally, for drug use training interventions, the contractors could be required to collect and analyze prescribing data in a standard format in order to reduce the cost of this task for the project.

CHAPTER 4
GUIDELINES FOR THE DESIGN AND EVALUATION
OF INDIVIDUAL INTERVENTION
MODELS

A. TRAINING OF PHARMACEUTICAL MANAGERS IN EFFECTIVE DRUG PLANNING, DISTRIBUTION, AND CONTROL

1. OBJECTIVES

- Organize and improve the quality of available information on morbidity and consumption of drugs
- Using the improved information, train drug supply system managers in the following planning tools:
 - ABC analysis
 - VEN classification
 - Cost-effective selection within therapeutic class
 - Estimation of drug needs based on previous consumption trends and morbidity patterns
- Train in principles of cost-effective use of budget
- Train in principles of distribution planning and cost-effective distribution
- Communicate the concept of planning and supply according to the most common health problems and standard treatments
- Improve communication between GFK and Dinas about drug supply and service utilization
- Train staff in GFK and Dinas in coordination of management of the pharmaceutical and medical services at the Puskesmas
- Train Puskesmas and GFK staff in improved stock management and logistics

2. PREREQUISITES

- Authorization to streamline and modify forms used in the recording and reporting system
- Software for training in ABC analysis and estimation of drugs needs
- Standard treatment protocols for most common health problems
- Three years of data on previous consumption and morbidity in Kabupaten

3. TARGET AUDIENCES

- Kapala GFK and staff
- Kapala Puskesmas
- Kapala Pemulihan Puskesmas
- dispensers/stock managers at Puskesmas

4. MATERIALS

- Materials for training in techniques of cost-effective drug planning and effective distribution
- Reorganized forms for reporting data on morbidity and consumption from Puskesmas to Dinas
- Appropriate unbiased drug information for drug managers
- Curriculum for participatory group courses and in-service education

5. ILLUSTRATIVE METHODS

- Innovative training programs combining workshops using participatory learning models with more individualized, problem-oriented training on-site in the Kabupaten
- Series of one to two-week modularized workshops involving participants five or six Kabupaten
- Learning methods could include case studies, problem solving using data sets from the participants' own Kabupaten, field visits, small group projects, as well as more traditional didactic sessions
- Individual workshops might focus on:
 - Tools for cost-effective drug planning
 - Principles of effective stock control and distribution
 - Collecting and using information on morbidity and drug utilization
- Follow-up feedback to Kabupaten could include recommendations about strategies to improve the cost-effectiveness of their drug orders, as evaluated by computerized methods

6. OUTPUTS

- Workshops for group training
- In-service training

- Improved forms for recording and reporting system

7. DATA SYSTEMS

- Database of all drug orders and morbidity reports, including three previous years of data
- Data on stock outs from Puskesmas
- Test results from training session

8. INDICATORS FOR MONITORING AND EVALUATION

- % able to explain principles of morbidity-based assessment of drug needs
- % able to describe ABC analysis and VEN system
- % knowing top three therapeutic classes and top five drugs in expenditures in their area for previous year
- Cost per DDD of antibiotics and analgesics ordered
- Ratio of DDDs of injectable to oral antibiotics
- % of expenditures on type V or type E
- % of expenditures on important child survival drugs
- Ratio of expenditures on child survival drugs to less desired drugs commonly used to treat children
- % of reports received on time at GFK from Puskesmas
- % of reports correctly filled in by Puskesmas
- Number of drugs in standard treatments for ARI or diarrhea out of stock per month

9. TIME FRAME FOR DEVELOPING AND IMPLEMENTING INTERVENTIONS

Phase I

- Design the new forms for the recording and reporting system
- Develop all training materials and methods
- Pilot test in 12 Kabupaten

Phase II

- Implement computerized MIS in pilot Kabupaten

- Expand to comparison Kabupaten and other study areas

B. DEVELOPMENT AND IMPLEMENTATION OF INTEGRATED MIS FOR DRUG MANAGEMENT AND DRUG USE

1. OBJECTIVES

- Provide a regular source of data on drug consumption for planning purposes
- Implement a computer-based algorithm for estimating needs for the entire spectrum of drugs by both consumption-based and morbidity-based methods
- Provide managers with computerized tools for more cost-effective procurement, such as a mechanism for classifying drugs by the ABC and VEN systems, and for making cost-effectiveness comparisons within therapeutic classes
- Provide a mechanism for monitoring stock levels at the GFK and Puskesmas
- Implement algorithms for automatic procurement of drugs by GFK and shipment to Puskesmas
- Generate periodic standardized reports for managers to monitor and supervise quality of drug supply services

2. PREREQUISITES

- Computer and training in basic computer skills in GFK
- Permission to place the GFK under the administrative authority of the Dinkes TK. II
- Authority to reorganize the structure of the GFK to serve as the functional office for planning and managing drug supply, including transfer of authority for selection of drugs from Puskesmas
- Permission to change the drug delivery frequency, if required in certain areas for efficiency
- Budgetary allocations to the GFK for transporting drugs to the Puskesmas
- Assistant pharmacist posted to the Puskesmas or training of dispenser in functions required to implement the system

3. TARGET AUDIENCES

- Kapala GFK and staff
- Kapala Puskesmas
- Assistant pharmacist or adequately trained dispenser/stock manager at Puskesmas

4. MATERIALS

- System specifications, data forms, report for integrated MIS
- Manual of operating procedures for computerized systems
- Training materials for group courses and intensive in-service education

5. ILLUSTRATIVE METHODS

- Develop a computerized information system to support new management functions and capacity at the GFK and Puskesmas
- Train the drug managers in use of system in-group sessions to introduce new organizational concepts
- Install computerized system at the GFK and conduct intensive on-site training

6. OUTPUTS

- Forms for recording data required in system and procedures for transferring them between levels in the system
- Standardized reports to planners and managers of the GFK and Kapala Dinas
- Computer software and manuals
- Training manuals
- Installation of hardware and software and training sessions in the use of the computerized system for at least three Kabupaten

7. DATA SYSTEMS

- Data on procurement, consumption and drug shipments are entered directly into system
- Data for evaluation of performance can be generated from the data already in the system
- Test results from training sessions

8. INDICATORS FOR MONITORING AND EVALUATION

- % of reports received on time at GFK from Puskesmas
- % of reports correctly filled in by Puskesmas
- % of Puskesmas whose actual inventory corresponds with inventory levels indicated in the system

- Number of drugs in standard treatments for ARI and diarrhea out of stock per month when drugs available in GFK

9. TIME FRAME FOR DEVELOPING AND IMPLEMENTING INTERVENTIONS

Phase I

- Design and develop computerized MIS system
- Reorganize structures in three Kabupaten; train personnel in new work roles and responsibilities
- Install, field test, and refine computer system
- Evaluate the impact of the reorganized management structures and functions, and of the computerized MIS, in improving distribution of drugs to Puskesmas

Phase II

- Reorganize structures and install computerized MIS in additional Kabupaten that have received intensive management training in Phase I
- Develop a plan for installing new structures and MIS system on a widespread basis

C. TRAINING IN HEALTH ECONOMICS AND BUDGET PLANNING FOR PLANNERS AT DINAS KESEHATAN TINGKAT II

1. OBJECTIVES

- Familiarize policy-level decision makers with the health needs of the population in their Kabupaten
- Develop a useful algorithm that policy makers can use to determine the need for budgetary resources for drugs to address these health problems
- Provide policy-level decision makers with a framework for effectively lobbying for increased expenditures on drugs with Bapeda TK. II
- Introduce to policy makers the concepts of morbidity-based planning of drug supply and with principles of effective drug distribution, in line with the organizational principles to be implemented in the MIS

2. PREREQUISITES

- Study on current levels of budget allocation for health and for drugs, and on the process of decision making in determining budget amounts in a sample of Kabupaten
- Adequate data on budgetary resources for drugs in the particular Kabupaten of the Kepala Dinas who are to be trained

- Study to determine a useful mechanism for computing community-based budgetary needs
- Study of current mechanisms and source of funds for transporting drugs from the GFK to Puskesmas, and development of a useful algorithm for estimating transportation costs

3. TARGET AUDIENCES

- Kapala Dinas and other policy-level decision makers in the Dinas TK. II

4. MATERIALS

- Curriculum on principles of health economics and budget rationalization
- Methodology for estimating budgetary needs for procuring and transporting drugs
- Training materials for group courses

5. ILLUSTRATIVE METHODS

- Workshops for Kapala Dinas and selected members of their staffs

6. OUTPUTS

- Methodology and algorithms for estimating budgetary needs for drugs and transportation of drugs in a variety of circumstances
- At least one training workshop

7. DATA SYSTEMS

- System of tracking budgetary allocation and realized expenditures in health and for drugs, and also for drug transportation, if possible
- Test results from training sessions

8. INDICATORS FOR MONITORING AND EVALUATION

- Total level of expenditures on drugs per capita
- Proportion of health budget spent on drugs
- Ratio of realized budget for drugs to estimated budgetary need for drugs based on morbidity
- % able to explain principles of morbidity-based assessment of drug needs
- % knowing top three therapeutic classes and top five drugs in expenditures in their area for previous year

9. TIME FRAME FOR DEVELOPING AND IMPLEMENTING INTERVENTIONS

Phase I

- Carry out the required economic studies necessary to understand current budget levels, and the decision-making in determining drug budgets
- Develop simplified methodologies for estimating total community need for drugs, and for calculating transportation costs in a variety of settings
- Design and develop training materials

Phase II

- Undertake training for Kapala Dinas and staff in at least the two comprehensive intervention provinces

D. TRAINING IN DIAGNOSIS AND PRESCRIBING FOR ARI AND DIARRHEA, AND IN UNDERSTANDING MOH DRUG PROGRAMS

1. OBJECTIVES

- Improve the ability of prescribers at Puskesmas to diagnose ARI and diarrhea effectively, and to determine which cases need antibiotic treatment
- Encourage prescribers to treat ARI and diarrhea according to standard treatment protocols that are designed to be clinically effective and cost-efficient
- Improve communication among prescribers, dispensers, and patients, so that patients become more aware of the causes and nature of ARI and diarrhea, understand more about the drugs they are given for these conditions, and know how to use them effectively
- Encourage better patient awareness of the efficacy and use of injections, and of their potential dangers
- Increase public awareness and confidence in generic drugs

2. PREREQUISITES

- Practical standards of diagnosis and treatment of diarrhea and ARI
- Appropriate behavioral message for both prescribers and patients related to standard diagnosis and treatment of ARI and diarrhea, use of injections, and generic drugs
- Assured supply of drugs included in the standard treatments for ARI and diarrhea, so that prescribers will be encouraged to practice them consistently

3. TARGET AUDIENCES

- Physicians and paramedics prescribing at Puskesmas
- Dispensers at Puskesmas
- Patients coming to Puskesmas for treatment of ARI or diarrhea

4. MATERIALS

- Printed reference material describing the standards for diagnosis and treatment of ARI and diarrhea, and other relevant information about the drugs used in standard treatment protocols
- Printed materials for patients to support the recommended changes in behavior
- Training materials for group courses and/or intensive in-service education

5. ILLUSTRATIVE METHODS

- Educational outreach by specially trained physicians or pharmacists who conduct small group training sessions on diagnosis and treatment at Puskesmas, using appealing visual materials and examples of prescribing from the prescription logs of the Puskesmas
- Kabupaten-level workshops, involving both physicians and paramedics, where standards of care for ARI and diarrhea are developed and agreed upon by participants after interactive educational sessions on principles of diagnosis and treatment for these conditions, and review of a sample of cases selected from Puskesmas in their Kabupaten
- Auditing and feedback system for prescribing for ARI and diarrhea, where a sample of cases is sent every quarter by the Puskesmas staff to the Kabupaten (periodically validated for accuracy), entered into the computer, and analyzed in relation to the treatment patterns of other Puskesmas in the Kabupaten and in relation to agreed-upon standards of care, and the results fed back to the Puskesmas by a medical consultant who is responsible for training and supervision
- Involvement of the Puskesmas physician as supervisor of paramedics, where physicians are trained in simple methods for reviewing small samples of cases, evaluating cost and quality of care, and educating staff in an ongoing manner to improve their adherence to standards

6. OUTPUTS

- Key behavioral messages for diagnosing and treating ARI and diarrhea for both prescribers and patients that are to become the common base for all training programs
- At least three models of an innovative training program for prescribers should be tested in at least four Kabupaten each

7. DATA SYSTEMS

- Database of prescribing episodes for ARI and diarrhea taken from prescription logs needs to be developed, either as part of the training intervention itself or as a separate exercise like the DUS (see Chapter 3)
- Knowledge scores of participants about diagnosing and treating ARI and diarrhea before and after training
- Results from an observational study of diagnosis and treatment at the Puskesmas, and interviews with patients before and after treatment, to parallel the ones to be completed during the KAP study

8. INDICATORS FOR MONITORING AND EVALUATION

- % of prescribers knowing diagnostic protocol for identifying cases of ARI or diarrhea needing antibiotics
- % of prescribers knowing standard drug therapy for ARI, diarrhea
- % of cases of diarrhea treated with ORS, antidiarrheals, antibiotics, vitamins, injections
- % of cases of ARI treated with antibiotics, injections, vitamins
- % of cases of ARI or diarrhea receiving four or more drugs
- % of patients with ARI or diarrhea receiving correct diagnostic protocol
- % of patients with ARI or diarrhea receiving an inappropriate drug for which they ask
- % of patients with ARI or diarrhea who have drugs explained to them
- % of patients treated for diarrhea mentioning fluid loss as problem, or ORS as good treatment
- % of patients who can correctly repeat their proper drug regimen for the drugs they received

9. TIME FRAME FOR DEVELOPING AND IMPLEMENTING INTERVENTIONS

Phase I

- Develop the key messages for diagnosis and treatment that are to be the core of all educational interventions
- Design and implement at least three innovative models for training prescribers in diagnosis and treatment of ARI and diarrhea
- Evaluate the impact of each of the training models, and especially its relationship to supply of drugs

Phase II

- Determine which models of training are most effective, refine their methodologies and materials, and implement them in the Kabupaten in the intervention provinces

E. IMPLEMENTING SYMPTOM-BASED DIAGNOSIS AND STANDARDIZED SUPPLY OF ESSENTIAL DRUGS FOR PARAMEDICS AT PUSKESMAS PEMBANTU

1. OBJECTIVES

- Conceptualize and design a system incorporating structured symptom-based treatment for a limited number of important health problems, linked to a standardized system of drug supply for those treatments, that can be implemented at the Puskesmas Pembantu
- Train paramedics at the Puskesmas Pembantu in symptom-based treatment for a limited number of key health problems
- Implement the logistics systems necessary to supply drugs for these treatment to the Puskesmas Pembantu in standard quantities, based on volume of service for the health problems covered, desired stock levels at the Puskesmas Pembantu, and seasonal patterns in disease incidence

2. PREREQUISITES

- Regulatory changes that would allow the training of paramedics at the Puskesmas Pembantu in principles of diagnosis and treatment
- Identification of a limited number of key diseases in Puskesmas Pembantu
- Development of standardized symptom-based protocols for diagnosing and treating these key diseases
- Procedures and information system for supplying standard quantities of drugs according to morbidity profile and caseload
- Assured supply of drugs included in standard treatments

3. TARGET AUDIENCES

- Paramedics delivering medical services at the Puskesmas Pembantu
- Supply managers at the GFK
- Puskesmas physicians responsible for supervising paramedics
- Assistant pharmacists or dispensers/stock managers at the Puskesmas, if the supply of drugs for the Puskesmas Pembantu flows through their facilities

4. MATERIALS

- Printed protocols for symptom-based diagnosis and treatment of a limited number of key diseases
- Algorithms for computing the quantities of drugs to supply based on expected incidence of diseases treated and stock levels
- Training materials for group courses

5. ILLUSTRATIVE METHODS

- One-week seminar with Puskesmas physicians to explain the new system, to define their responsibilities within it, and to inform them of the symptom-based protocols that will be taught to the paramedics
- Intensive one or two-month training program (at one time, or in multiple short segments) for paramedics in symptom-based treatment for a limited number of symptoms, including both didactic and practical sessions
- One or two-week training program for supply managers (and assistant pharmacists or stock managers from Puskesmas, if supply is to be provided from that level) in the algorithms for calculating required amounts of drugs to deliver, and the logistics of delivery
- Regular series of supervisory visits by Puskesmas physicians to Puskesmas Pembantu to monitor the quality of care, and to deal with problems that have arisen in treatment or supply of drugs

6. OUTPUTS

- Design for a system of supplying drugs according to volume of service for a limited number of health problems treated according to standards
- Training of paramedics from the Puskesmas Pembantu in one or more pilot Kabupaten in symptom-based treatment
- Training of supply managers in one or more pilot Kabupaten in system of standardized supply
- Implementation of the system in one or more pilot Kabupaten

7. DATA SYSTEMS

- Database of prescribing episodes for the health problems included in the standard protocols taken from prescription logs needs to be developed, either as part of the training intervention itself or as a separate exercise like the DUS (see Chapter 3)
- Knowledge scores of participants about diagnosis of health problems and treatment before and after training

- Results from an observational study of diagnosis and treatment at the Puskesmas, and interviews with patients before and after treatment, to parallel the ones to be completed during the KAP study

8. INDICATORS FOR MONITORING AND EVALUATION

- % of prescribers knowing correct protocol for treating cases who present with symptoms indicating diarrheal disease or ARI
- % of prescribers knowing standard drug therapy for the symptom sets indicating ARI or diarrhea
- % of cases of diarrhea treated with ORS, antibiotics, vitamins, injections
- % of cases of ARI treated with antibiotics, injections, vitamins
- Number of drugs given per case
- % of patients with symptoms indicating ARI or diarrhea receiving correct diagnostic protocol
- % of patients with symptoms indicating ARI or diarrhea receiving an inappropriate drug
- % of patients treated for diarrheal symptoms mentioning fluid loss as problem, or ORS as good treatment
- % of patients who can correctly repeat the proper drug regimen for the drugs they received

9. TIME FRAME FOR DEVELOPING AND IMPLEMENTING INTERVENTIONS

Phase I

- Feasibility study to determine the range of political, logistic, and practical constraints to such a system
- Determination of an algorithm for determining standardized supply quantities, and description of the logistical aspects of the system
- Development of information systems to support the system
- Development and testing of training materials

Phase II

- Training and implementation of the system in one or more pilot Kabupaten

F. PROVIDING UNBIASED DRUG INFORMATION IN ACCESSIBLE FORMS TO PRESCRIBERS, MANAGERS, AND PATIENTS

1. OBJECTIVES

- Identify the most effective channels and format (e.g., printed guide, drug bulletin, seminars, videotapes, media presentations) for communicating information on drugs and MOH drug policies to health care providers, managers, and the public
- Deliver effective information on drugs and therapeutics — especially concerning treatment of ARI, diarrhea, injections, and generic drugs — to health care providers, managers, and the public in a format that is most accessible and useful to them

2. PREREQUISITES

- Source of objective and unbiased drug information
- Decision by structural level of MOH concerning what types and volume of information are appropriate for different target audiences

3. TARGET AUDIENCES

- Managers
- Prescribers and dispensers
- Patients and community

4. MATERIALS

- Printed materials containing relevant drug information
- Other media presentations, if appropriate

5. ILLUSTRATIVE METHODS

- Focus group discussion and/or surveys to determine current sources of information for each of the target audiences, and the most effective and respected channels for communicating information about drugs to them
- Production of regular publications for prescribers and supply managers
- Seminars on particular drugs, therapeutic issues, or MOH drug policies
- development of printed materials to support communications strategies

6. OUTPUTS

- Printed materials on drugs and therapeutic issues

- Other outputs, depending on the results of the assessment of effective communication channels and formats

7. DATA SYSTEMS

- System for tracking dissemination of information
- Test results from surveys of recall and comprehension of information

8. INDICATORS FOR MONITORING AND EVALUATION

- Number of materials prepared on different drugs and therapeutic issues
- Number of members of the target audience who received the materials
- % of the target audience who can repeat key messages about particular drugs or therapeutic issues that were emphasized in the information program

9. TIME FRAME FOR DEVELOPING AND IMPLEMENTING INTERVENTIONS

Phase I

- Identify best format for providing drug information to managers, prescribers and consumers
- Develop key drug information messages related to treatment of diarrheal disease, ARI, injections and generic drugs
- Test strategies for delivering drug information in a few pilot settings

Phase II

- Implement drug information programs in intervention provinces and Kabupaten

G. DEVELOPMENT OF EFFECTIVE REGIONAL SUPERVISORY SYSTEMS FOR DRUG MANAGEMENT AND DRUG USE

1. OBJECTIVES

- Design and implement a Kabupaten-level strategy for monitoring quality of pharmaceutical and medical services according to well-defined standards, beginning with the quality of pharmaceutical and medical services for diarrhea and ARI
- Develop supervisory structures that allow quality of service to be improved by increasing adherence to standards

2. PREREQUISITES

- Well-defined standards for quality of service, at a minimum pertaining to diagnosis, treatment and supply of drugs for ARI and diarrhea
- Procedures for supervision of staff at Puskesmas and Puskesmas Pembantu
- Information system and procedures for auditing performance in relation to standards

3. TARGET AUDIENCES

- Kapala Dinas and staff
- Kapala GFK and staff responsible for supervision of pharmaceutical services
- Medical consultants from the Pharmacy and Therapeutics Committee at Rumah Sakit in the Kabupaten
- Kapala Pumulihan Puskesmas and other staff at Dinas responsible for supervision of Puskesmas
- Physician at Puskesmas, both as prescriber and as person responsible for supervision of paramedics
- paramedics at Puskesmas and Puskesmas Pembantu
- Assistant pharmacists and dispensers/stock managers at Puskesmas

4. MATERIALS

- Manuals describing standards of service for pharmaceutical and medical services for ARI and diarrhea
- Training materials for group courses on improving supervisory systems

5. ILLUSTRATIVE METHODS

- Produce written standards of service for ARI and diarrhea
- Design model concepts for effective information and supervisory systems to monitor adherence to these standards
- Implement whatever linkages between the Rumah Sakit and Dinkes TK. II would be necessary to have adequate support for medical supervision of Puskesmas
- Train staff in group workshops in the standards of care, and in the new concepts of supervision of quality of service
- Implement a monitoring system to track adherence to standards, and begin a regular schedule of supervisory visits

6. OUTPUTS

- Model information system and indicators for monitoring quality of pharmaceutical and medical services for ARI and diarrhea
- Training workshops to communicate the supervisory concepts to staff at all levels
- Supervisory visits by responsible personnel, both regular and problem-solving, to health facilities

7. DATA SYSTEMS

- Data for monitoring adherence to standards, and hence for evaluating the intervention, would be collected by the supervisory information system
- A data system would need to be maintained describing the number of visits by supervisory personnel to facilities at any level and the issues addressed in these visits

8. INDICATORS FOR MONITORING AND EVALUATION

- Number of visits by supervisory personnel to health facilities per period
- Particular indicators chosen as monitoring standards would become the indicators for the evaluation of the impact of the supervisory concept
- For medical services, examples of indicators of quality that might be monitored include:
 - % of cases of diarrhea not treated with ORS
 - % of cases of diarrhea receiving antidiarrheal drugs
 - % of cases of ARI treated with multiple antibiotics
 - % of cases of ARI or diarrhea receiving four or more drugs
- For pharmaceutical services, one indicator might be:
 - Number of days a drug in the standard treatment for ARI or diarrhea is out of stock at a Puskesmas

9. TIME FRAME FOR DEVELOPING AND IMPLEMENTING INTERVENTIONS

Phase I

- Carry out feasibility studies to identify the best structures for performing out supervision at different levels of facility
- Design and develop the information systems required to monitor adherence to standards
- Develop written materials describing the standards of service for ARI and diarrhea, and also describing the proposed supervisory structures and system

- Develop training materials for communicating the concept and operations of the supervisory system to health system personnel

Phase II

- Pilot test the system in one or more Kabupaten

H. PROMOTION OF IMPROVED COMMUNITY MANAGEMENT OF ARI AND DIARRHEA, AND UNDERSTANDING OF MOH DRUG PROGRAMS

1. OBJECTIVES

- Educate community members about appropriate recognition and understanding of symptoms and severity of acute diarrhea and mild ARI
- Encourage appropriate use of Puskesmas and Puskesmas Pembantu for the treatment of ARI and diarrhea
- Improve understanding of the purpose of injections and their danger in treating ARI and diarrhea
- Inform community members about important MOH drug initiatives, such as the generic drugs program

2. PREREQUISITES

- Understanding of community attitudes and perceptions about ARI, diarrhea, injections, and generic drugs
- Development of appropriate messages for community education related to ARI, injections, and generic drugs

3. TARGET AUDIENCES

- Community members, both users and non-users of MOH services

4. MATERIALS

- Printed materials for health centers to support the main messages of the communications campaigns
- Prepared educational presentations, scripts, media spots, etc.

5. ILLUSTRATIVE METHODS

- Media campaigns, using TV or radio, targeting particular communities (for example, Surabaya or Medan, where such programs are most easily evaluated because these communities are part of the SRI Omnibus Survey)

- Community outreach programs through existing community organizations, such as consumer organizations, women's groups, or pos yandu
- Educational programs through schools, which use messages to children to reach their parents

6. OUTPUTS

- Identification of key educational messages and communications channels
- Printed materials, scripts, media spots, as appropriate
- Other outputs, depending on the results of the assessment of effective communication channels and formats

7. DATA SYSTEMS

- Tracking system to identify frequency of exposure to communications messages
- Quantitative surveys to measure community awareness about particular issues related to the target problems at baseline (KAP) and after any educational campaign

8. INDICATORS FOR MONITORING AND EVALUATION

- Number of educational materials, scripts prepared
- Number of members of target audiences who were exposed to the materials
- Recognition and understanding among members of the target audiences of key messages in the educational campaigns

9. TIME FRAME FOR DEVELOPING AND IMPLEMENTING INTERVENTIONS

Phase I

- Collection and analysis of data on community attitudes and perceptions during the KAP studies
- Feasibility study and identification of target audiences and primary communication channels
- Testing of messages for communications campaigns using focus groups

Phase II

- Implementation and testing of communications campaigns in pilot areas

CHAPTER 5

THE ROLE OF THE KAP STUDY IN PREPARING FOR INTERVENTIONS

A. POTENTIAL CONTRIBUTIONS OF THE KAP STUDIES

The focused assessments brought to light a wide array of apparent inefficiencies and constraints to effective drug management and use. During the process of Integrated Analysis of these assessments, a number of key structural and operational problems that contribute to the current situation have been identified. In order to address these problems, a draft set of recommendations has been developed that calls for:

- Strategic changes in regulations, and in the procedures and systems used for budgeting, planning, distributing, and controlling pharmaceuticals in the public sector.
- Reorganization in the responsibilities and functions of key units involved in drug supply at the Kabupaten level.
- Development and implementation of standards for quality in pharmaceutical services and medical care.
- Clarification and implementation of supervisory systems adequate to ensure adherence to these quality standards.
- Development of systems to provide appropriate unbiased information on drugs and drug use to health system personnel and to the community.
- Provision of community education to support changes in management and use, aimed at increasing understanding of key health problems, and of the role of pharmaceuticals in treating them.

The Integrated Working Groups in Pharmaceuticals and Medical Services will meet both separately and together to develop a final set of detailed recommendations to be forwarded to government decision makers. Since the key problems identified have both structural and behavioral components, these recommendations will necessarily involve two separate levels of activity if they are to be successfully implemented. On the one hand, certain strategic policies, regulations, structures, and systems currently in place in the areas of drug supply administration and medical service delivery will need to be altered to accommodate necessary changes in behavior. On the other hand, operational interventions will need to be put in place to train administrative and medical personnel in new forms of behavior, and to provide them support and supervision to maintain these new behaviors over time.

Although the key problems that the Integrated Working Group will address have been reasonably well identified, some of the factors that underlie these problems, and some of the barriers to the anticipated structural and behavioral changes, are less clear. In addition, as the operational interventions move from the stage of theory to design, there will be uncertainties about which elements to emphasize, and how new behavioral messages will need to be packaged to have the most impact. For these reasons, two KAP studies will now be mounted.

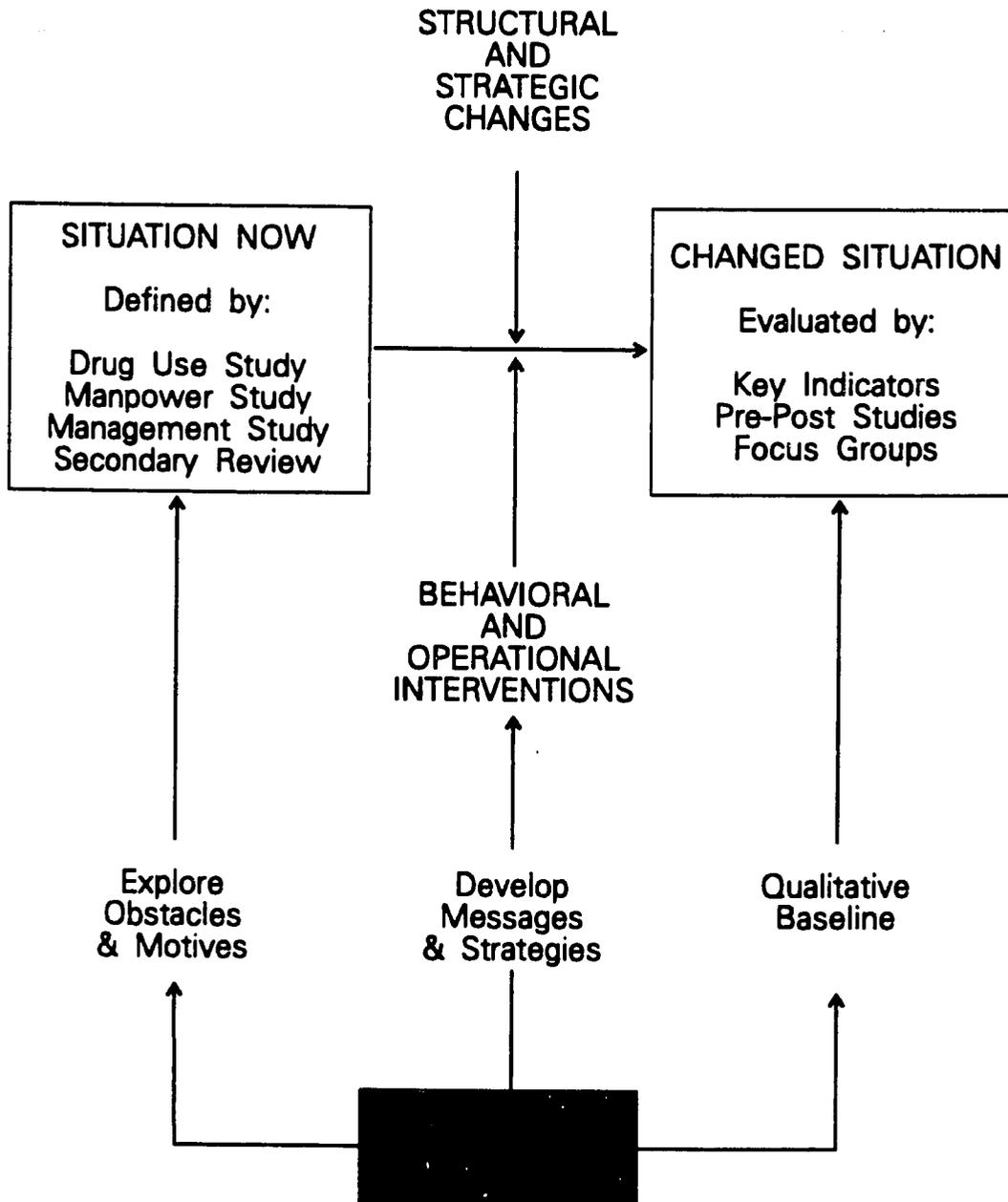
The potential contributions of the KAP studies to the change process is presented in a schematic way in Figure 4. First, these studies will help to clarify some of the motivations and incentives that have

contributed to the development of key behavioral problems. They will also seek to identify specific constraints to change in behavior. If these constraints are structural, the KAP studies will highlight certain policies or procedures that might need changing for specific interventions to succeed.

In addition to promoting better understanding of the reasons for key problems observed in the focused assessments, the KAP studies will also contribute directly to the design of operational interventions. Many choices need to be made regarding the strategies each intervention will employ: particular target groups; the methods by which these groups will be reached; the staff who will carry out the intervention; the duration and intensity of activities; and so forth. The KAP studies can be used to clarify some of these issues. Since most efforts to change behavior require developing an effective means of communicating with the target groups in terms they can understand, the KAP studies can also contribute to the development of the messages and themes that will be used during the interventions. The language that is used by the various target groups to describe particular problems, and the concepts and images they have in mind, can be explored in depth in order to develop more focused and persuasive training messages and materials.

Finally, the KAP studies provide an opportunity to gather information on the status of certain characteristics of target groups prior to any interventions. Because the specifics of intervention design are still to be determined, the opportunity to use the KAP studies in this way as baseline assessments is actually quite limited. However, some qualitative characteristics to be explored in the KAP studies might undergo substantial and observable change during the course of the interventions, particularly among Kabupaten-level managers and decision makers in the intervention areas who comprise a relatively small and circumscribed group.

Figure 4. Contribution of KAP Studies to Intervention Development



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B. METHODOLOGY FOR COLLECTING KAP DATA

There are a variety of methods that might be used to gather different components of the information described. These methods range from the more heavily quantitative, such as closed-ended questionnaire surveys, to the more heavily qualitative, such as in-depth interviews. In general, given that quantitative methods are usually used to provide statistically meaningful estimates, they require much larger samples and often take much longer to complete.

As a result of the focused assessments, many of the quantitative parameters related to the problems in drug management and drug use are already known to a certain extent. What is most lacking is a glimpse into some of the reason why these problems are occurring — the factors related to the expectations and motivations of health system personnel and patients, and to the interactions between them during the process of care. For this reason, it makes sense for the KAP studies to use methodologies that focus on these areas.

In addition, one of the major issues not addressed by the focused assessments is that of community attitudes and understanding about drugs. Since community receptivity to many of the changes proposed will be one of the key factors determining their success, some larger exploration of community sentiments outside the boundaries of the health system is indicated.

In order to provide some unified focus to both of these investigations and to the subsequent interventions, it is advisable to focus on the major issues identified by the focused assessments. These issues are: the recognition, diagnosis, and treatment of ARI and diarrhea, including the use of ORS, antibiotics, antidiarrheals, and vitamins for these conditions; the apparent overuse of injections to treat these and other conditions; and attitudes toward and use of generic drugs.

In line with these needs, two contractors have been engaged to carry out separate KAP studies:

- CCS will carry out a study of the attitudes and motivations of health managers, prescribers, and patients, including examining their interactions during patient visits to Puskesmas and Puskesmas Pembantu.
- Survey Research Indonesia (SRI) will append a one-time module of 11 questions related to drug knowledge and drug use to a regular household survey that it conducts in major urban areas of Indonesia.

The study groups that are to be targeted in these two studies, and an overview of the methods and samples that are proposed to be included, are summarized in Table 4.

1. CCS KAP STUDY IN KABUPATEN AND PUSKESMAS

In order to get the maximum coverage of opinions and issues with the lowest expenditure of resources and the fewest logistic complications, it is proposed that the focus group be one of the two cornerstones of the CCS studies. This technique was used with great benefit in the DUS, revealing many concerns of physicians and paramedics, and constraints to their behavior, that would not have been apparent from the quantitative prescribing study alone, and which in fact began to explain many of the patterns of drug use observed.

Table 4. Methods and Target Audiences for the KAP Studies

TARGET POPULATION	STUDY METHOD		
	Focus Groups*	Structured Observations	Quantitative Interviews
Head of Dinas	2		
Head of GFK	2		
Head of Puskesmas supervision at Dinas	2		
Physicians as managers of Puskesmas	2		
Physicians practicing at Puskesmas	2	30+	
Paramedics at Puskesmas/Puskesmas Pembantu	2/2	40-80+	
Dispensers at Puskesmas	2	40-60+	
Parents of children currently ill with ARI or diarrhea	2		
Community members who are parents of young children	2		
Adults recently ill with ARI or diarrhea	2		2,000#
Patients attending Puskesmas for ARI or diarrhea		400-500+	400-500+

One focus group with each target group in each of two provinces

Data gathered during observation of episodes of care at 15 Puskesmas and 5 Puskesmas Pembantu in each of 2 provinces

Data collected during a community household survey in two major urban areas, where respondents are screened to be parents of children under five, or recently ill and having sought care, not necessarily restricted to ARI or diarrhea

The use of the focus group in this study is in preference to either more heavily quantitative surveys of knowledge and attitudes among physicians and paramedics, or in-depth interviews of prescribers and managers. Quantitative surveys would need to be more exploratory in nature, since the important questions about many of the key issues have not been adequately defined at this point; they would also be prohibitive because of sample size, and their structured nature would not allow adequate probing of important issues as they arise.

In-depth interviews of managers were used during the MPS and DMS to explore many problem areas; they have not been used thus far with medical service staff. However, the technique is quite time-consuming, and although depth interviews allow sophisticated exploration of issues in their complexity, they also demand large numbers of interviews and a high level of analytic capacity to obtain the breadth of coverage of issues possible in focus groups. Given the large number of target groups for the KAP study and the resource constraints of this project, focus groups are the most promising technique.

There is a feeling that cultural or professional norms might discourage certain focus group participants from speaking freely. Because of this, the CCS team proposes to combine the groups with a semi-quantitative attitude scaling technique (Delbecq Method) to provide a chance for equal participation of all members on at least some key issues. The results of these scaling exercises will also form a useful baseline to be compared with repeat measures after the interventions. However, given the uncertainty of changes in the composition of participants and the relatively low test-retest reliability generally

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observed with such attitude scales, these pre-post attitude comparisons should not be seen as a primary means of evaluating the impact of interventions.

For prescribers, the CCS focus groups will be able to explore in more depth and detail some of the issues that were raised in the DUS focus groups. For the other target groups — managers, dispensers, patients, and community members — the focus groups can be used to explore complementary issues. As mentioned above, it is more likely in the case of Kabupaten-level managers that the focus group results, both qualitative and semi-quantitative, might serve as useful baseline measures of attitudes.

For each of the target categories listed in Table 4, it is proposed that one focus group be conducted in each of the two comprehensive intervention provinces — West Sumatera and East Java. This will yield a total of eight focus groups dealing primarily with managerial issues; six groups with different levels of prescribers; and six groups with the various categories of patients and community members. These groups are proposed to be held within the next three months. The results will be available to feed into the development and refinement of instruments for the second phase of the CCS study, which will take place following the focus group phase.

The second major technique proposed for the CCS studies is that of structured observation of the process of care for a sample of patients coming to the Puskesmas or Puskesmas Pembantu for the treatment of ARI or diarrhea. These observations will include:

- Interviews with patients as they enter facilities regarding their reasons for coming, and expectations about the care they will receive.
- Coded observations of the process of care both during the diagnostic process and while drugs are being dispensed.
- Interviews with the same patients as they leave facilities to see if they understand their health problem and the drugs they received, and to assess their satisfaction with the process of care and with their drugs.

Once again, it is proposed that the study be carried out in West Sumatera and East Java. Prescribers tend to exhibit similar practices from patient to patient, and prescribers who practice together in the same facility often will practice in a similar way over time, both because of shared habits and also because they face the same supply situation. However, the environment for prescribing, and consequently drug use practices, can be expected to vary from Puskesmas to Puskesmas, and among Kabupaten. For these reasons, it is most informative to obtain an idea of practices at as many Puskesmas as resources allow, and in a number of Kabupaten.

Given the resources of the study, it is recommended that the sample be drawn from at least 20 facilities in each province, ideally distributed as 3 or 4 Puskesmas and 1 or 2 Puskesmas Pembantu in each of 4 Kabupaten. Overall, practices will ideally be observed in a total of 25 to 390 Puskesmas, and 10 to 15 Puskesmas Pembantu.

In each facility, 10 or more individuals with ARI or diarrhea should be interviewed and observed as they progress through the system. These diagnoses constitute about 40 percent of cases. For the other patients, only the brief screening interview would be conducted, providing information on demographics, symptoms, and perhaps reason for coming to the Puskesmas instead of another provider. Limiting patients to those with ARI or diarrhea, and requiring at least 10 patients per facility, would mean that the sample could be collected in one day for a facility with as low as 25 cases per day. For facilities with

higher patient volumes, it would make sense to collect data on as many individuals with the target diagnoses as logistically possible during a day at the facility. With a minimum of 10 cases per facility, at least 400 individuals with ARI and diarrhea will be interviewed and observed in all.

2. SRI HOUSEHOLD INTERVIEW IN URBAN AREAS

The purpose of the SRI interview study is to gather information from a sizable sample of urban respondents to complement information being gathered at the Puskesmas during the CCS studies. The survey will concentrate on a sample of respondents that includes mothers of children under five and community members who have recently sought care for a health problem. The sampling frame of the SRI Omnibus Survey, to which this module of questions is being attached, includes segments in Jakarta, Surabaya, Medan, and Bandung. It makes sense for the KAP study to limit the sampling areas to Surabaya and Medan, as allowed, since these urban areas lie within East Java and North Sumatra respectively, two of the six HSFP/P provinces.

With only 11 questions available, the objectives of the SRI survey need to be both clearly defined and quite limited. There is very little possibility to explore any issues in depth with this constraint. In addition, with this few questions, it is very important to validate all questions before including them in the survey. For this reason, it may make sense to delay the SRI survey until after the CCS patient and community focus groups have been completed. During these focus groups, draft questions submitted by SRI can be validated as to comprehension and wording. This sequence also opens up the possibility of comparing the results from the focus groups, the subsequent patient interviews, and the interview study.

One of the initial stages of the SRI study is to complete a review of other community surveys that have looked at key areas related to the target conditions and drug use. Diarrheal disease has certainly been the subject of numerous surveys, and perhaps ARI as well. It is less likely that injections, attitudes about Puskesmas drugs, and generic drugs have been similarly explored. For this reason, it may make sense to limit the scope of the study to these issues.

Since one of the principal interventions that need guidance from the SRI study is improving community awareness about drugs, the goal of the study might be usefully reinterpreted as gathering information to define marketable images and concepts related to the listed topics. If the study questions are carefully enough crafted, and if the target areas for the social marketing intervention include the two urban areas studies, the results of the study might serve as a baseline for measurement of change about these issues.

C. TOPICS POTENTIALLY ADDRESSED BY KAP STUDIES

The design, protocols, and instruments for the KAP studies are currently in the early stages of development. Each type of focus group, the observations at health centers, and the interview studies will all seek to answer a different set of questions about motivations and constraints, and to uncover promising messages and strategies for achieving the objectives of the separate interventions.

An overview of the general topics of inquiry to be covered by each methodology is presented in Table 5. Examples of particular questions to address these topics, and the interventions for which the answers to these questions are most relevant, are presented in Annex D.

Table 5. Overview of Topics Addressed by the KAP Studies

TOPICS TO BE ADDRESSED	FOCUS GROUPS WITH VARIOUS TARGET AUDIENCES							AT PUSKESMAS	
	Head, Provincial Office	Head, Warehouse	Head, Health Office	Physician	Paramedic	Dispenser	Community	Observations	Interviews
Role in planning budget and awareness of need for drugs	■								
Current MIS practices and information needs	■	■	■	■					
Need for and barriers to Kabupaten-level drug planning	■	■	■	■					
Need for and barriers to efficient drug distribution	■	■	■	■					
Drug management and stockouts at Puskesmas and Puskesmas Pembantu				■	■		■		
Supervisory practice now and potential for regional system	■	■	■	■					
Feelings about medical supervision and evaluation				■	■				
Relationship of prescribing practice and drug shortages			■	■	■	■			
Diagnosis and treatment practice for ARI and diarrhea				■	■	■		■	
Polypharmacy, use of injections, antibiotics				■	■	■	■	■	

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Table 5. Overview of Topics Addressed by the KAP Studies (Cont'd)

TOPICS TO BE ADDRESSED	FOCUS GROUPS WITH VARIOUS TARGET AUDIENCES							AT PUSKESMAS	
	Head, Provincial Office	Head, Warehouse	Head, Health Office	Physician	Para-medical	Dispenser	Community	Observations	Interviews
Patient expectations about and demand for drugs, and compliance				▪	▪		▪	▪	▪
Sources of drug information and knowledge about generics				▪	▪	▪	▪		
Images about drugs, drug therapy, and generics				▪	▪	▪	▪		▪
Sources of information about diagnosis and treatment				▪	▪				
Reasons for and location of patient referrals				▪	▪				
Reasons and locations for seeking care for ARI and diarrhea							▪		▪
Patient understanding about ARI and diarrhea and drugs							▪		▪
Prescriber-patient patterns of communication								▪	
Adequacy of drug dispensing and injection process								▪	
Patient understanding of drugs prescribed and dispensed									▪
Satisfaction with service at Puskesmas and Puskesmas Pembantu									▪

CHAPTER 6
FURTHER STUDIES AND TECHNICAL ASSISTANCE NEEDS

A. FURTHER STUDIES INDICATED AS A RESULT OF INTEGRATED ANALYSIS

In addition to feasibility studies done as part of planning for individual Phase II interventions — for example, an assessment of possible resources and models for regional medical supervisory programs — there are a number of other issues raised by the focused assessments that require additional investigation. Examples of key issues are:

1. Workload at the Puskesmas and the GFK: Both the DMS and MPS indicated that the head of Puskesmas, who shoulders heavy responsibilities in both the administrative and clinical areas, often faces extreme demands on allocation of time. Furthermore, the current standards by which Puskesmas are evaluated place great emphasis on volume of both medical and community services, and rather less emphasis on the quality of these services. Finally, both the director and other personnel at the Puskesmas are often unprepared by their training for the work roles they must assume.

A similar situation is faced by the director and staff of the GFK. Since one of the central recommendations following from the review of focused assessment calls for substantial reorganization of the GFK, and for additional responsibility in this unit for planning, distribution, and control of drugs in the Kabupaten, the administrative and operational burdens of staff will only increase.

In light of these findings, a more in-depth study of the workload and staffing pattern of Puskesmas and GFK units is indicated. If the burden of work is too high in these facilities, it jeopardizes their ability to adequately administer the system of drug supply and drug use, and also necessarily compromises the quality of pharmaceutical and medical services.

2. Current supply of drugs to the Puskesmas Pembantu and referral of patients from these to other facilities: The DUS found that nearly all of the prescribing at Puskesmas Pembantu was done by paramedics, and that the range of conditions reported and drugs used was essentially the same as at the Puskesmas. There is no information on how consistently, or by what means, drugs are distributed to the Puskesmas Pembantu. In addition, nothing is known about the propensity of paramedics practicing in these settings to refer patients with problems they do not feel competent to treat to higher levels of the system.

As the role of the Puskesmas Pembantu is being reconsidered, and the potential for a system of symptom-based treatments and standardized drug supply for a limited number of problems is being explored, it would be useful to have more information on current drug supply and referral patterns at these facilities.

3. Budgetary resources for pharmaceuticals: Because of the multiplicity of budgets used to fund drug purchases, it is difficult to obtain accurate information on expenditures for pharmaceuticals, either nationally or on a regional basis. The Inpres budget, originally a supporting source of funds, has become the main source of budgetary outlay for drugs at the Kabupaten. The Inpres budget is not determined in relation to an evaluation of actual drug needs of the regional or district population, but rather is allocated nationally on a per capita basis. The regional contribution to the total drug budget differs from area to area and does not allow clearly specified criteria.

It would be useful to assemble available information about the total amount spent on pharmaceuticals currently and historically; to determine what shares of the total budget and of the health budget are devoted to pharmaceuticals; and to describe how such expenditures vary among provinces and Kabupaten.

4. Regional budgetary decision-making and integration of budget for drugs: Planning for the use of funds from various budget sources is not integrated at the province or Kabupaten level, since each source is overseen by a separate committee (Inpres, Askes, APBD I & II). This lack of integration makes planning difficult and reduces flexibility within the system. Information about the budget and its realization on the local level is difficult to obtain as monitoring of budgets for drugs appears to be limited and unsystematic.

A study of budgetary issues is indicated, focusing on obstacles to integrating drug budgets, as well as on ways that expenditures and use from the various sources are monitored. This research should examine budgetary processes, how budget decisions related to drugs are made, and the role of regional contribution to drug expenditures in a sample of study provinces and Kabupaten.

5. Calculating total community need for drugs: The HSFP/P is intended to focus activities on improving drug supply and use in the public sector. However, since public services constitute only a part of the total health care system, these activities are best understood in the context of total community drug use. The need for this system-wide perspective is especially pressing in light of the Generic Drug Program, by which generic drugs are to become the mainstay of supply to both the public and private sectors. Reasonably accurate estimation of community morbidity and need for drugs is essential first for planning budgetary allocations for drugs, and for planning the logistics of manufacturing and distributing generic products.

The proportion of all illness episodes seen in MOH facilities — and thus reported in the MOH reporting system — varies widely from region to region, and can be expected to change over time. Better estimates of community drug needs will require incorporating other sources of data; for example, information from private sector health services or pharmaceutical companies. The identification of these sources of data, an assessment of their reliability, and the development of a structure for combining them to estimate total community drug needs in a sample of HSFP/P study areas are all activities calling for further study.

6. Planning and expenditures for transportation of drugs from GFK to Puskesmas: Very little is known about the variety of logistical or financial arrangements currently in place for distributing drugs from the GFK to the Puskesmas. There is an impression that distribution tends to be a haphazard process, often depending on Puskesmas staff in the Kabupaten for other reasons to pick up drugs and take them to their facilities. No clearly identifiable budget exists for transporting drugs at either the GFK or Puskesmas level.

In the reorganized system, the GFK — as the functional drug management unit for the Kabupaten — would assume the responsibility and the costs for distributing drugs to Puskesmas. This will require drug planners and GFK staff to be able to estimate these costs in advance and plan adequate budgetary resources to meet them. A study to collect information on current drug distribution practices and their costs, and to develop simple algorithms for estimating transport costs in a variety of settings, would be helpful in planning these aspects of the reorganized system.

7. Differences among Kabupaten in the validity and reliability of regular reporting systems for health problems and drugs: Various aspects of the evaluation of the HSFP/P depend on data from the MOH reporting and recording system. Components of the system that might be used for evaluation include LB1, the monthly report on health problems treated by age, and LB4, the monthly report on drug utilization by type.

Before planning an evaluation strategy that depends too heavily on these regular sources of data, it will be necessary to conduct a study of their availability at the province or Kabupaten level; of differences in the way forms and their categorization schema are used; of which parameters are reported reliably enough to be used to track evaluation indicators; and of how forms could be redesigned to serve as more effective sources of information.

8. The use of drugs in preventive health services: It was indicated in CSP1 that these visits account for about half of visits to Puskesmas, and an unknown percentage of visits to Puskesmas Pembantu, yet there is little data on how drugs are used during these visits for preventive care. Since immunizations and nutrition supplements are important child survival technologies, a study of the content of these visits and of opportunities for more effective pharmaceutical use is a high priority.

Similarly, the immunizable diseases are major sources of morbidity and mortality among children under five. The Expanded Program on Immunization (EPI) is the principal public sector source of the vaccines to prevent them. A special study of the organization and functioning of this supply channel, and its relationship to other sources of drugs, would be an important complement to the analysis of well-child and maternal care in Puskesmas.

9. Feasibility of reorienting the curricula of medical schools and other health training institutions: The results of the focused assessments point to substantial deficits in clinical practice for both physicians and paramedics in all settings. Physicians are often trained in environments far removed from the reality of care in the Puskesmas or a district hospital. Their situations after training are often characterized by intensive demands on time; sizable administrative and supervisory burdens; and a scarcity of information, diagnostic equipment, or drugs. The extent to which reorienting training to emphasize structured diagnosis and therapy, and skills of community health administration, might help to improve subsequent practice is unknown.

Paramedics are not trained directly in diagnosis and therapy. Currently, they are legally constrained to play a supportive role in the practice of medicine by physicians, although in practical fact they often find themselves the only ones available to deliver medical care in Puskesmas Pembantu, or even in Puskesmas, where they treat 70 percent of patients. It is unknown what components of training of paramedics might be strengthened within the current legal framework to improve their performance. In the longer term, it is uncertain what their ideal role within the health system might be, and how their training should be structured to address this role.

A study is needed to examine curricula from a sample of medical training institutions in light of the findings of the focused assessments, and to make recommendations for interventions to test the impact of innovative training curricula on rational therapeutics.

B. OTHER UPCOMING TECHNICAL ASSISTANCE NEEDS

1. **Synthesis of data from the KAP qualitative phase and development of intervention messages and strategies:** Following the completion of field work from the KAP studies, there will be a need for someone familiar with the analysis of qualitative data and development of communication messages in health to integrate the findings of the KAP into the planning and methodologies of the Phase I interventions.
2. **Compilation and synthesis of existing training materials for drug management training:** In order to develop the most effective materials and methodologies for training managers in better techniques of planning and drug distribution, it would be helpful to borrow from the experience of other projects and groups that have tackled these issues effectively. An individual familiar with the range of training strategies that have been developed in these areas could help to collect materials, adapt them to local issues, develop cases based on real data from the intervention areas, and design training programs.
3. **Design of innovative drug use interventions:** There are many models that have been tried in other countries to change prescribing behavior, and there is beginning to be a body of knowledge about which ones might be effective in different environments. At the point that the project begins to do more detailed planning for drug use interventions, it would be beneficial to enlist the help of someone with experience in this area who could help to design a request for proposals and review submissions.
4. **System design and database development strategy of the integrated MIS:** Early in the design of the MIS, the experience of a systems analyst/programmer with experience in the development of software for drug inventory and logistics management would be useful.
5. **Feasibility of developing an information system for prescribing data at the Kabupaten level:** In order to be able to evaluate changes in prescribing patterns, there is a pressing need to find the most efficient way to collect and analyze prescribing data. Several options for accomplishing this have been described in Chapter 3. This person would assess which options were most feasible, evaluate the technical requirements of these options, and make recommendations for hardware and software systems, if required.

ANNEX A: METHODS FOR SELECTION OF STUDY KABUPATEN

1. INTRODUCTION

In order to evaluate interventions in the comprehensive intervention provinces, it is recommended that six intervention and six comparison Kabupaten be selected from each province, for a total of 12 Kabupaten per province.

This selection process should be based on a random selection or assignment of the 12 Kabupaten to be included from each province, as well as random assignment of Kabupaten to intervention and comparison groups.

2. SELECTING KABUPATEN FROM THE PROVINCE

All Kabupaten in the province should be classified into two groups by whether they are predominantly urban (kotamadya) or rural (kabupaten).

If there are other characteristics that differentiate some Kabupaten from others in the province, other stratifications could be made to reflect these differences. For example, if certain Kabupaten are characterized by the presence of one ethnic group, it would be desirable to further divide the rural and urban groups by ethnic group. (For example, one possible stratification would be between madura and javanese in east java, if some Kabupaten are predominantly madura. In this case, the Kabupaten could be divided into four groups: urban Javanese, urban Madura, rural Javanese and rural Madura. Most likely, however, ethnic groups within a Kabupaten will be mixed.)

3. MATCHED PAIRS OF KABUPATEN

Each intervention area should be "matched" to a comparison area. To select a matched pair, select two Kabupaten randomly from all the Kabupaten in one group (either urban or rural). Pairs should be selected until all 12 Kabupaten have been picked from the province.

4. ASSIGNING KABUPATEN TO COMPARISON AND INTERVENTION GROUPS

after the pair has been randomly selected, it must be randomly assigned to be a comparison or intervention province.

ANNEX B: QUESTIONS POTENTIALLY ADDRESSED BY KAP STUDIES

FOCUS GROUPS — HEADS OF DINAS

Intervention: Training in Health Economics

ROLE

- What is the role of the head of Dinas in planning the regional budget allocation?
- What other members of the Dinas staff are involved in the budgeting process, and what is their contribution?

AWARENESS

- What is the current level of awareness of the heads of Dinas about the budgetary process?
- Do they have a sense of principles of cost and cost accounting?
- Can the heads of Dinas identify any economic benefits of pharmaceutical services?

CONSTRAINTS

- What are the factors that prevent the heads of Dinas from being able to command a more significant portion of the regional budget?

Intervention: Installation of Integrated MIS

PRACTICE NOW

- What are the types of data that heads of Dinas currently receive regarding planning of drug supply? Distribution? Use?

NEEDS

- What would be the most useful types of data for effective planning of drug supply? For monitoring distribution? Use?
- What training would members of the Dinas staff need to process and utilize such information?

Intervention: Training in Effective Management

PLANNING

- What staffing changes would be needed if drug planning is centralized at the Dinas?
- What would be the barriers to integrated planning of drug supply?

DISTRIBUTION

- What do the heads of Dinas perceive to be the primary constraints to efficient distribution?
- How do they decide how much of the budget to allocate for distribution to the GFK and to the Puskesmas?
- What would be the barriers to keeping essential drugs in stock at the GFK and Puskesmas?

Intervention: Development of Regional Supervisory Systems

PRACTICE NOW

- What are the current practices for the Dinas in supervising the GFK and Puskesmas: frequency of visits, staff responsible, forms, flow of information?
- Are there standards of performance that apply for the functions of these facilities?
- What are the criteria by which the staff of the GFK and Puskesmas are evaluated?
- What happens if there are performance problems: frequency of occurrence, procedures?

POTENTIAL

- What are the barriers to development of performance standards and regular monitoring and supervision?
- How would staff feel if such a system were implemented?
- What role, if any, have staff from the Rumah Sakit played in medical services at the Puskesmas?
- Would a cooperative relationship that uses staff from the Rumah Sakit P&T Committee to supervise medical services at Puskesmas be possible?

FOCUS GROUPS — HEADS OF GFK

Intervention: Installation of Integrated MIS

PRACTICE NOW

- What are the types of data that heads of GFK currently receive regarding planning of drug supply? Distribution? Use?

NEEDS

- What would be the most useful types of data for effective planning of drug supply? For monitoring distribution? Use?
- What training would members of the GFK staff need to process and utilize such information?

Intervention: Training in Effective Management

PLANNING

- What staffing changes would be needed if the GFK were made responsible for planning and managing drug supply in the Kabupaten?
- What would be the barriers to integrated planning and management of drug supply?

DISTRIBUTION

- What do the heads of GFK perceive to be the primary constraints to efficient distribution?
- How do they decide how much of their budget to allocate for distribution to Puskesmas?
- What would be the barriers to keeping essential drugs in stock at the GFK and Puskesmas?

Intervention: Development of Regional Supervisory Systems

PRACTICE NOW

- What are the current practices of the GFK in supervising Puskesmas: frequency of visits, staff responsible, forms, flow of information?
- Are there standards of performance which apply for the functions of Puskesmas?
- What are the criteria by which the staff of the Puskesmas are evaluated?
- What happens if there are performance problems: frequency of occurrence, procedures?

POTENTIAL

- What are the barriers to development of performance standards and regular monitoring and supervision?
- How would staff feel if such a system were implemented?

FOCUS GROUPS — HEADS OF PUSKESMAS SUPERVISION AT DINAS

Intervention: Installation of Integrated MIS

PRACTICE NOW

- What role do heads of Puskesmas supervision currently play in the drug planning process?
- Do they see any problems with their current role?
- Do the heads of Puskesmas monitor drug use on an ongoing basis? Prescribing of certain drugs?

NEEDS

- What would be the most useful types of data for effective planning of drug supply? For monitoring use?
- What training would they need to process and utilize such information?

Intervention: Training in Effective Management

PLANNING

- How would the head of Puskesmas supervision feel if the GFK were made responsible for planning and managing drug supply in the Kabupaten?
- What would be the barriers to integrated planning and management of drug supply?

DISTRIBUTION

- Are the heads of Puskesmas supervision involved in drug distribution? How?
- What would be the barriers to keeping essential drugs in stock at the Puskesmas and Puskesmas Pembantu?

PRESCRIBING

- Are there any problems in prescribing that contribute to shortages in drugs?
- What training would the head of the Puskesmas supervision need to monitor these problems in prescribing?

Intervention: Development of Regional Supervisory Systems

PRACTICE NOW

- What are the current practices of the Dinas in supervising the Puskesmas: frequency of visits, staff responsible, forms, flow of information?

- Are there standards of performance that apply for the functions of Puskesmas?
- What are the criteria by which the staff of the Puskesmas are evaluated?
- What happens if there are performance problems: frequency of occurrence, procedures?

POTENTIAL

- What are the barriers to development of performance standards and regular monitoring and supervision?
- How would staff feel if such a system were implemented?
- What role, if any, have staff from the Rumah Sakit played in medical services at the Puskesmas?
- Would a cooperative relationship that uses staff from the Rumah Sakit P&T Committee to supervise medical services at Puskesmas be possible?

FOCUS GROUPS — PHYSICIANS AS MANAGERS OF PUSKESMAS

Intervention: Installation of Integrated MIS

PRACTICE NOW

- How do heads of Puskesmas currently plan the drug order for the upcoming year?
- Do they see any problems with the methods they are currently using?
- Do the heads of Puskesmas monitor drug use on an ongoing basis? Prescribing of certain drugs?
- What would be the most useful types of data for effective planning of drug supply? For monitoring use?
- What training would they and members of the Puskesmas staff need to process and utilize such information?

Intervention: Training in Effective Management

PLANNING

- How would the head of Puskesmas feel if the GFK were made responsible for planning and managing drug supply in the Kabupaten?
- What would be the barriers to integrated planning and management of drug supply?

DISTRIBUTION

- **What do the heads of Puskesmas perceive to be the primary constraints to efficient distribution?**
- **How does the Puskesmas get drugs from the GFK?**
- **How does the Puskesmas send drugs to the Puskesmas Pembantu?**
- **What would be the barriers to keeping essential drugs in stock at the Puskesmas and Puskesmas Pembantu?**

PRESCRIBING

- **Are there any problems in prescribing that contribute to shortages in drugs?**
- **What training would the head of the Puskesmas need to monitor these problems in prescribing?**

Intervention: Development of Regional Supervisory Systems

PRACTICE NOW

- **What are the current practices of the head of Puskesmas in supervising the Puskesmas Pembantu: frequency of visits, involvement of other Puskesmas staff, forms, flow of information?**
- **Are there standards of performance that apply for the functions of Puskesmas Pembantu?**
- **What are the criteria by which the staff of the Puskesmas Pembantu are evaluated?**
- **What happens if there are performance problems: frequency of occurrence, procedures?**

POTENTIAL

- **What are the barriers to development of performance standards and regular monitoring and supervision?**
- **How would staff feel if such a system were implemented?**
- **What role, if any, have staff from the Rumah Sakit played in medical services at the Puskesmas?**
- **How would the head of Puskesmas feel about a relationship that uses staff from the Rumah Sakit to supervise medical services at Puskesmas?**

FOCUS GROUPS — PHYSICIANS, PARAMEDICS AT BOTH LEVELS

Intervention: Training Providers in Rational Treatment

DIAGNOSIS

- How do prescribers distinguish mild from moderate or severe ARI: questions, physical examinations?
- How do prescribers identify acute diarrhea: questions, physical examinations?

TREATMENT

- Do prescribers know the standard treatment for ARI (mild, moderate, severe) and diarrhea (simple, by bacterial cause)?
- Do prescribers feel that standard treatments are adequate?
 - a. Use of antibiotics
 - b. Use of injections
 - c. Role of analgesics, cough syrups, vitamins
 - d. Understanding/use of ORS
 - e. Understanding/use of antidiarrheals
 - f. Advice given to patients

POLYPHARMACY

- How do prescribers decide how many drugs to give?
- Is there a "good" number of drugs? ("cukup banyak")
- When are only one or two drugs given to a patient?
- When, if ever, are no drugs given to a patient?
- Do patients feel that more drugs indicate better therapy?
- Are patients ever confused about how to take multiple drugs when they receive them?

INJECTIONS

- Are injections better than oral drugs? Why?
- When are vitamin injections indicated?
- Do patients feel that injections are better than other types of drugs?
- When do patients ask for injections (health problems, self vs. children, etc.)?
- Who requests injections (characteristics of patients)?

- Do patients request specific types of injections (vitamin injections, PP injections, etc.)?
- What is the best way to convince patients they do not need injections?

ANTIBIOTICS

- Do prescribers understand the concept of antibiotic resistance?
- How are specific antibiotics chosen for ARI and diarrhea?
- Do patients know what an antibiotic is?

DRUG SUPPLY

- Is ORS ever out of stock at the Puskesmas? If yes, how often?
- How about other specific drugs used in standard treatments?
- Does amount of stock influence the decision to give an injection? When? For which drugs?

PATIENTS

- What do patients expect to receive when they go to Puskesmas for ARI, diarrhea (adults, children)?
- Would a patient be satisfied with paracetamol for mild ARI (adults, children)?
- Would a patient be satisfied with ORS for acute diarrhea (adults, children)?
- Do patients request specific brand name drugs for ARI, diarrhea? If yes, which drugs?

COMPLIANCE

- If patients are confused about how to take a drug, what do they do?
- How do patients decide when to stop taking drugs?
- If patients have finished their drugs and the illness has not gone away, do they return to the Puskesmas or seek another provider?

Intervention: Provision of Unbiased Sources of Drug Information

INFORMATION SOURCES

- How do prescribers currently receive information about drugs: books, drug company literature, doctors, paramedics, other dispensers, media?
- Would they prefer hearing about drugs from a doctor or pharmacist, or reading about them?

- What would be seen as the most credible source of drug information: POM, Binkesmas, universities?

GENERICIS

- What are perceptions of berlogo drugs?
- How do prescribers evaluate the quality of a drug, especially a brand name versus a generic drug: source of information, manufacturer's reputation, packaging, clinical experience?
- What information do prescribers need to convince them that generic/Inpres drugs are good quality?

Intervention: Establish Regional Supervision and Referral System

(Each focus group should add written questions to determine who are community opinion leaders and decision makers among physicians and paramedics.)

1. For Doctors Only

MEDICAL INFORMATION

- What are most frequently used sources of advice/information about medical questions?
- What is contact with other doctors in Kabupaten (from other Puskesmas, from hospitals, other)?

REFERRAL

- Where are patients referred?
- When are patients referred (for what health problems, how often)?
- Does the doctor ever receive information back about referrals? If yes, how?

SUPERVISION

- How are Puskesmas evaluated?
- Who supervises the Puskesmas and how often does the Puskesmas doctor have contact with the supervisor?

2. For Paramedics at Puskesmas

MEDICAL INFORMATION

- What are most frequently used sources of advice/information about medical questions?

- How often does the paramedic consult the Puskesmas doctor about questions and/or problems?
- What is contact with doctors or other health workers in Kabupaten (from other Puskesmas, from hospitals, other)?

REFERRAL

- When are patients referred to the Puskesmas doctor (for what health problems, how often)?
- When are patients referred directly to hospital (for what health problems, how often)?
- Does the paramedic ever receive information about referrals from the doctor? How often?

SUPERVISION

- Does the Puskesmas doctor evaluate/monitor the paramedic's work at the Puskesmas? If yes, how?
- How are the Puskesmas evaluated?
- Who supervises the Puskesmas? How often does the paramedic come into contact with the supervisor?

3. For Paramedics at Puskesmas Pembantu

MEDICAL INFORMATION

- What are most frequently used sources of advice/information about medical questions?
- How often does the doctor visit the Puskesmas Pembantu?
- How often do other Puskesmas staff visit the Puskesmas Pembantu?
- What is the purpose of these visits?
- How often does the paramedic consult the Puskesmas doctor about questions and/or problems?
- What is contact with doctors or other health workers in Kabupaten (from other Puskesmas, from hospitals, other)?

REFERRAL

- When are patients referred to the Puskesmas (for what health problems and how often)?
- When are patients referred directly to the hospital (for what health problems, how often)?
- Does the paramedic ever receive information about referrals? How often?

SUPERVISION

- Does the Puskesmas doctor evaluate/monitor the paramedic's work at the Puskesmas Pembantu? If yes, how?
- How are the Puskesmas Pembantu evaluated?
- Who supervises the Puskesmas? How often does the paramedic come into contact with the supervisor?

FOCUS GROUPS — DISPENSERS

Intervention: Training Providers in Rational Treatment

THEIR ROLE

- What do dispensers feel their role is in the treatment process?
- Has their training adequately prepared them for their role?
- Do they feel they have the time to educate patients about drugs?

THERAPEUTICS

- Do dispensers have necessary knowledge to explain drugs used to treat ARI and diarrhea?
 - a. Concept of ORS as fluid replacement
 - b. The fact that ORS does not stop diarrhea
 - c. Action and dangers of antidiarrheals
 - d. Need to take full course of antibiotics
 - e. Concept of antibiotic resistance
 - f. Role of analgesics, cough syrups, vitamins
 - g. Methods to prevent diarrhea
 - h. Importance of continued breast-feeding
- Is it common practice for prescribers to indicate which drugs a patient will receive, and dispensers to determine quantities and/or dose?

GENERIC

- Do dispensers feel that the drugs available in Puskesmas are inferior to those in the apotik?
- Do dispensers understand the concept of generic drugs, and especially berlogo generics?

POLYPHARMACY

- Do dispensers feel that patients getting more drugs are receiving better therapy?

- Do dispensers feel able to explain how to take multiple drugs to patients?

INJECTIONS

- What is the role of dispensers in giving injections?
- Are they adequately trained in sterile technique?
- Do they feel that injections are better therapy?

KNOWLEDGE

- What is the training level of dispensers?
- Would dispensers have the time or interest to read information about drugs?

Intervention: Provision of Unbiased Sources of Drug Information

INFORMATION SOURCES

- How do dispensers currently receive information about drugs: books, drug company literature, doctors, paramedics, other dispensers, media?
- Would they prefer hearing about drugs from a doctor or pharmacist, or reading about them?
- What would be seen as the most credible source of drug information: POM, Binkesmas, universities?

Intervention: MIS/Training Managers in Effective Drug Management

MANAGEMENT

- What role do dispensers play in the drug selection and drug ordering process?
- What type of records on stock management do dispensers keep at the Puskesmas?
- What training would be needed to help dispensers play a more effective role in ordering?

STOCKOUTS

- How do dispensers ration drugs to prevent them running out of stock?
- Do dispensers or prescribers substitute other products when a drug is out of stock?

PKM PEMBANTU

- Who makes decisions about how the Puskesmas Pembantu are stocked?
- What types of information on utilization are kept by the Puskesmas Pembantu?

- Would dispensers be able to implement a concept of standardized supply per 1,000 cases?

FOCUS GROUPS — PATIENTS

Intervention: Improved Community Health Problem Awareness and Care-Seeking

(If the focus group is for current patients or parents of current patients, key on the current episode of illness when possible.)

CARE-SEEKING

- Do diarrhea or ARI ever go away by themselves without taking any drugs?
- How do patients decide whether ARI or diarrhea will go away by itself?
- How do they know when it is necessary to seek drug therapy for ARI and diarrhea?
- How do they decide to go to a Puskesmas instead of another provider?
- What do they expect at the Puskesmas: type of provider, number of drugs, types of drugs, "inside" versus "outside" prescription?
- Are determinants of care-seeking and expectations different for themselves and their children?

THERAPEUTICS

- Do patients understand drugs used to treat ARI and diarrhea?
 - a. Concept of ORS as fluid replacement
 - b. The fact that ORS does not stop diarrhea
 - c. Action and dangers of antidiarrheals
 - d. Need to take full course of antibiotics
 - e. Concept of antibiotic resistance
 - f. Role of analgesics, cough syrups, vitamins
 - g. Methods to prevent diarrhea
 - h. Importance of continued breast-feeding

GENERICIS

- Do patients feel that the drugs available in Puskesmas are inferior to those in the apotik?
- Do people understand the concept of generic drugs?
- How do people feel about berlogo drugs?

INJECTIONS

- Do patients feel that injections are better therapy?

- Are injections equally good for adults and children?
- Are there any dangers to injections?

DRUG IMAGES

- What characteristic of an oral drug indicates its potency: color, physical appearance, packaging, imprint?
- Can an oral drug and an injection be equally effective in treating ARI and diarrhea?
- Which is more modern: oral drugs or injections?

POLYPHARMACY

- Do patients feel that more drugs indicates better therapy?
- Are patients ever confused about how to take multiple drugs when they receive them at the Puskesmas?

COMPLIANCE

- If patients are confused about how to take a drug, what do they do?
- How do patients decide when to stop taking drugs?
- If patients have finished their drugs and the illness has not gone away, do they return to the Puskesmas or seek another provider?

Intervention: Provision of Unbiased Sources of Drug Information

INFORMATION SOURCES

- How do patients feel they learn about drugs: Puskesmas, private doctors, apotik, relatives and friends, newspapers, radio, TV?
- Which would be seen as the most credible source of drug information: Puskesmas doctors, Puskesmas dispensers, apotik, newspapers, radio, TV?

INTERVIEWS WITH COMMUNITY MEMBERS

Intervention: Improved Community Health Problem Awareness and Care-Seeking

ARI/DIARRHEA

- (There should have been a number of community surveys about awareness and understanding of these conditions. Wait for the CCS literature review to address these issues, and if some of questions seem particularly relevant, they could be repeated in the

SRI survey. In general, with only 11 questions, this does not seem an efficient area for questioning.)

INJECTIONS

- Do people feel that injections are better therapy?
- Are injections equally good for adults and children?
- Are there any dangers to injections?

DRUG IMAGES

- What characteristic of an oral drug indicates its potency: color, physical appearance, packaging, imprint?
- Can an oral drug and an injection be equally effective in treating ARI and diarrhea?
- Which is more modern: oral drugs or injections?

Intervention: Provision of Unbiased Sources of Drug Information

GENERIC

- Do people feel that drugs available in Puskesmas are inferior to those in the apotik?
- Do people understand the concept of generic drugs?
- How do people feel about berlogo drugs?

INFORMATION SOURCES

- How do people feel they learn about drugs: Puskesmas, private doctors, apotik, relatives and friends, newspapers, radio, TV?
- Which would be seen as the most credible source of drug information: Puskesmas doctors, Puskesmas dispensers, apotik, newspapers, radio, TV?

OBSERVATIONS OF PRESCRIBER-PATIENT INTERACTIONS AT PUSKESMAS

Intervention: Training Providers in Rational Treatment

DIAGNOSIS

- Do providers take an adequate patient history?
- Do they ask about previous attempts by patients to treat this condition?
- Is there a thermometer available?

- Do they take the patient's temperature?
- What is the total amount of time that a provider spends with the patient?
- Do providers write all diagnoses about which they speak on the patient card, or only the first?

ARI

- Do providers measure respiratory rate?
- Is there a stethoscope available?
- Do they listen to the patient's breathing with the stethoscope?
- Do they palpate the chest for fluid?

DIARRHEA

- Do providers ask about blood or mucous in the stool?
- Do providers ask about the frequency of stools or duration of the symptoms?
- Do providers ask about continuation of feeding, liquids, or breast-feeding?
- Do providers give patients any form of advice about prevention of diarrhea?

DRUG INFORMATION

- Do providers explain anything about drugs?
 - a. For what each drug is
 - b. How it is to be taken
 - c. Any information about side effects
- Do providers ever indicate to patients that particular drugs are "powerful" or "good"?
- Do providers prescribe drugs that must be purchased "outside" the Puskesmas?
- How do providers explain "outside" drugs to patients?

COMMUNICATION

- Do prescribers and patients speak the same language comfortably?
- Do prescribers explain to patients about their illness, its causes, and its prognosis?
- Do patients initiate a request for an injection or particular medications during the encounter?

PARAMEDICS

- Do diagnosis and treatment techniques differ between doctors and paramedics?
- Do language skills vary between doctors and paramedics?

Intervention: Provision of Unbiased Sources of Drug Information

INFORMATION SOURCES

- What sources of written drug information are physically present in the Puskesmas: Essential Drug List, book of standard treatments, MIMS, drug company publications, etc.?
- Is there any indication that these sources are ever used by providers?
- Do doctors ever consult written sources of information, or talk with a paramedic about the diagnosis or drugs?
- Do paramedics ever seek advice from the doctor, another paramedic, or a written source?

OBSERVATIONS OF DISPENSER-PATIENT INTERACTIONS AT PUSKESMAS

Intervention: Training Providers in Rational Treatment

DISPENSING

- Are drugs adequately packaged for the patient?
- Is there any indication on the package how drugs are to be taken?
- Do prescribers indicate which drugs a patient will receive, and dispensers determine quantities and/or dose?
- Are drugs that are prescribed ever out of stock?
- What does the dispenser do if a drug is out of stock?

DRUG INFORMATION

- What is the total amount of time that a dispenser spends with the patient?
- Do dispensers explain anything about drugs?
 - a. What each drug is for
 - b. How it is to be taken
 - c. Any information about side effects
- Do dispensers ever indicate to patients that particular drugs are "powerful" or "good"?

- How do dispensers explain "outside" drugs to patients?

INJECTIONS

- Do dispensers give injections?
- Do they observe sterile techniques?
- Do dispensers indicate to patients that injections are "powerful" or "good"?

Intervention: Provision of Unbiased Sources of Drug Information

INFORMATION SOURCES

- What sources of written drug information are physically present in the Puskesmas: Essential Drug List, book of standard treatments, MIMS, drug company publications, etc.?
- Is there any indication that these sources are ever used by dispensers?
- Do dispensers ever seek advice from the doctor, a paramedic, or a written source about drugs?

INTERVIEWS WITH PATIENTS AT PUSKESMAS

Intervention: Training Providers in Rational Treatment

EXPECTATIONS

- What do patients expect in regard to examination and treatment when they arrive at the Puskesmas?
 - a. Seeing a certain provider, or type of provider
 - b. Receiving a certain number of drugs
 - c. Specific types of drug: antibiotics, cough syrup, ORS, analgesic
 - d. An injection
 - e. A prescription for "outside" drugs
- Are their expectations met during the visit?

INFORMATION

- Do patients understand what the drugs they received are for?
- Do they know the correct way to take them?
- Who, if anyone, explained their drugs to them?
- If patients are currently confused about taking their drugs, what do they plan to do?

- Is there any form of information about ARI, diarrhea, or drugs available to patients at the Puskesmas: posters, pamphlets, lectures?

DRUG IMAGES

- Do patients feel they received "powerful" or "good" drugs during the visit? Which ones? Why?
- Do people feel that drugs available in the Puskesmas are inferior to those in the apotik?
- Which is the most important drug they received? Why?
- If they received an injection, do they see any dangers to this?

SATISFACTION

- Are patients satisfied with the care and the drugs that they received during the visit?
- What would have made them more satisfied with the visit?
- Are they going to seek care anywhere else for this condition?

Intervention: Improved Community Health Problem Awareness and Care-Seeking

CARE-SEEKING

- Why did the patient decide it was necessary to seek care for this case of ARI or diarrhea?
- Why did they decide to go to a Puskesmas instead of another provider?

THERAPEUTICS

- Do patients understand drugs used to treat ARI and diarrhea?
 - a. Concept of ORS as fluid replacement
 - b. The fact that ORS does not stop diarrhea
 - c. Action and dangers of antidiarrheals
 - d. Need to take full course of antibiotics
 - e. Concept of antibiotic resistance
 - f. Role of analgesics, cough syrups, vitamins
 - g. Methods to prevent diarrhea
 - h. Importance of continued breast-feeding