



11/11/92
15/11/92

Health Sector Financing Project
Ministry of Health
Republic of Indonesia

**THE FINAL REPORT OF THE QUANTITATIVE
STUDY OF THE KNOWLEDGE, ATTITUDE, AND
PRACTICE OF PRESCRIBERS, PATIENTS, AND
MANAGERS IN DRUG USE AND MANAGEMENT**

Report No. 46

June 1992



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



PN-ABN-988

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Prepared by:
Anhari Achadi
Endang L. Achadi
Christine Costello
Alex Papilaya
Sudarti
Purwastyastuti Ascobat
Udin Samsuddin
Lusia Gani
Nasrin Kodim
Agoes Setyadi

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TABLE OF CONTENTS

LIST OF TABLES	vii
ACKNOWLEDGEMENTS	xii
SUMMARY OF FINDINGS AND RECOMMENDATIONS	xiii
CHAPTER I: INTRODUCTION	1-1
A. BACKGROUND	1-1
B. QUESTIONS ADDRESSED IN THIS STUDY	1-1
C. BIBLIOGRAPHIC REVIEW	1-2
1. The Procurement, Management, and Distribution of Drugs	1-2
2. The Use of Antibiotics	1-3
3. The Use of Injections	1-4
4. The Role of the Paramedic	1-4
5. The Patients, the Diseases They Suffer From, and the Drugs They Receive	1-4
6. Ways to Minimize the Polypharmacy Trend	1-5
7. Drug Costs	1-5
8. The Role of the Mother	1-5
D. THE CONCEPTUAL FRAMEWORK	1-5
E. DESCRIPTIVE STATEMENT OF THE HYPOTHESES	1-6
1. Hypotheses on the Knowledge, Attitude, and Practice of the Prescriber ..	1-6
2. Hypotheses Concerning Matters Related to the Availability of Drugs at the Puskesmas and the Subsidiary Puskesmas	1-6
3. Hypotheses Concerning the Knowledge, Attitude, and Practices of the Patient	1-6
CHAPTER II: METHODOLOGY	2-1
A. THE APPROACH	2-1
B. LOCATION OF THE STUDY	2-2
1. Selection of the Provinces	2-2
2. Selection of the Regencies (Kabupaten)	2-2
C. DEVELOPMENT OF THE INSTRUMENTS	2-2
D. OBSERVATION, INTERVIEW OF PATIENTS, AND IN-DEPTH INTERVIEW OF PRESCRIBERS	2-3
1. Data Collection Methods	2-3
a. Interviews with the Patients	2-3

b.	Observation of the Prescriber-Patient Interaction	2-4
c.	In-Depth Interviews with the Prescribers	2-4
2.	Data Collection Instruments	2-4
a.	Form A Entry Interview	2-4
b.	Form B Checklist	2-4
c.	Form C Exit Interview	2-4
d.	Form D In-Depth Interview	2-4
e.	Form F Puskesmas Information	2-5
3.	Selection and Training of Interviewers and Observers	2-5
4.	Selection of Health Center Sites	2-5
E. THE BROADER SURVEY OF THE PRESCRIBERS		2-7
1.	Data Collection Methods	2-7
2.	Data Collection Instrument: Form E	2-7
F. FOCUS GROUP DISCUSSION OF THE PRESCRIBERS		2-7
1.	Data Collection Methods	2-7
2.	Data Collection Instrument: Form H	2-7
G. IN-DEPTH INTERVIEW OF THE MANAGERS		2-8
1.	Data Collection Methods	2-8
2.	Data Collection Form: Form G	2-8
3.	Issues Regarding Data Collection Methods	2-9
 CHAPTER III: DESCRIPTION OF THE SAMPLES AND THE PUSKESMAS WHERE THE STUDY WAS CONDUCTED		
		3-1
A. THE CHARACTERISTICS OF THE SAMPLES		3-1
1.	Managers	3-1
2.	Prescribers Surveyed Using the Structured Questionnaire	3-1
3.	The Patients	3-5
B. THE PUSKESMAS AND SUBSIDIARY PUSKESMAS SERVING AS THE SITES OF THE STUDY		3-7
 CHAPTER IV: THE KNOWLEDGE, ATTITUDE, AND PRACTICES OF PRESCRIBERS IN MANAGING CASES OF DIARRHEA AND ACUTE INFECTION OF THE RESPIRATORY TRACT (ARI)		
		4-1
A. MANAGEMENT OF CASES OF DIARRHEA		4-1
1.	Manual on the Management of Diarrheal Disease Cases	4-1
2.	Knowledge of the Classification of Diarrhea	4-2
3.	Measures Taken by the Prescribers in Diagnosing Diarrhea	4-3

4.	Dispensing of Oralit to Patients with Diarrhea	4-5
5.	Prescribing Antibiotics for Diarrhea	4-9
6.	Conclusions on the Knowledge, Attitude and Practices of Prescribers in the Management of Diarrhea	4-11
B. THE MANAGEMENT OF ACUTE RESPIRATORY TRACT INFECTION (ARI)		4-12
1.	The Standard on the Treatment of ARI	4-12
2.	The Classification of ARI	4-12
3.	Measures Taken by the Prescribers in Diagnosing ARI	4-14
4.	Prescribing Antibiotics for ARI	4-16
5.	Conclusions on the KAPs of the Prescribers in the Handling of ARI	4-18
 CHAPTER V: THE KNOWLEDGE, ATTITUDE, AND PRACTICE OF THE PRESCRIBER REGARDING THE PRESCRIBING OF DRUGS AND INJECTIONS		
A. CONCERNING POLYPHARMACY		5-1
1.	The Average Number of Types of Drugs Given to Patients	5-1
2.	Reasons for Giving Several Types of Drugs to the Patients	5-6
B. THE PRESCRIPTION OF ANTIBIOTICS		5-7
1.	Indications for an Antibiotics Prescription	5-7
2.	The Span of Time of Antibiotics Prescribing	5-7
3.	The Understanding of the Prescribers of Resistance to Antibiotics	5-11
C. THE PRESCRIPTION OF INJECTIONS		5-12
1.	Prescribers' Reported Practices on Prescribing Injections	5-12
2.	Reasons Forwarded by Prescribers for Frequently Prescribing Injections	5-14
3.	Types of Injections Given to Adult Patients	5-15
4.	Type of Injections Frequently Given to Children	5-19
5.	Efforts to Discourage Injection Use By Prescribers	5-22
D. CONCLUSIONS		5-24
 CHAPTER VI: THE PATIENT - PRESCRIBER INTERACTION		
A. GENERAL QUESTIONS ASKED BY THE PRESCRIBER		6-1
B. THE PRESCRIBER - DIARRHEA PATIENT INTERACTION		6-3
1.	Questions Asked by the Prescriber to Patients with Diarrhea Complaints	6-3
2.	The Physical Examination of Diarrhea Patients by the Prescribers	6-4
C. THE PRESCRIBER - ARI PATIENT INTERACTION		6-6
1.	Questions Asked by the Prescriber to Patients with ARI Complaints	6-6
2.	The Physical Examination of ARI Patients by the Prescribers	6-7

D. PATIENT REQUESTS FOR DRUGS AND INJECTIONS	6-8
E. PRESCRIBER EDUCATION OF THE PATIENT	6-10
F. SUMMARY AND CONCLUSIONS	6-12
CHAPTER VII: PATIENT EXPECTATIONS AND SATISFACTION WITH HEALTH CARE SERVICES	7-1
A. PATIENT EXPECTATIONS OF THE HEALTH CARE SERVICES ON ARRIVAL AT THE PUSKESMAS OR SUBSIDIARY PUSKESMAS	7-1
1. Patients' Expectations Concerning Goods and Services to be Received During Puskesmas Visit	7-1
2. Patients' Expectations Concerning Injections	7-1
3. Patients' Expectations Concerning Drugs	7-3
4. Patients' Expectations Concerning the Medical Officer Handling the Examination	7-6
B. THE KNOWLEDGE AND UNDERSTANDING OF THE PATIENTS AND THEIR SATISFACTION WITH THE DRUGS THEY RECEIVE AT THE PUSKESMAS/SUBSIDIARY PUSKESMAS	7-7
1. The Patient's Knowledge of Drugs	7-7
2. Satisfaction with Drugs Received at the Puskesmas/Subsidiary Puskesmas	7-10
C. COMPARISON BETWEEN WHAT IS EXPECTED AND WHAT IS RECEIVED AS CONCERNS THE HEALTH CARE/DRUGS OF THE PUSKESMAS ...	7-11
1. Health Care and Therapy	7-11
2. The Examiner	7-12
D. CONCLUSION	7-13
CHAPTER VIII: EDUCATION AND TRAINING IN THE MANAGEMENT OF CASES OF DIARRHEA AND ARI, AND SOURCES OF INFORMATION ON DRUGS FOR THE PRESCRIBERS	8-1
A. LESSONS ON DIARRHEA AND ARI DURING EDUCATION	8-1
B. THE NEED TO PROMOTE THE CAPABILITY OF THE PRESCRIBERS ON PERFORMING DIAGNOSES AND THERAPY OF ARI AND DIARRHEA ...	8-2
C. APPROACHES TO BUILD UP CAPABILITY	8-4
D. SOURCES OF INFORMATION ON DRUGS	8-6
E. CONCLUSIONS	8-8

CHAPTER IX: QUALITATIVE STUDY OF MANAGERS REGARDING DRUG MANAGEMENT AT THE KABUPATEN LEVEL	9-1
A. THE PATTERN OF DRUG DISTRIBUTION	9-1
B. THE USE AND BENEFITS OF INFORMATION/DATA IN DRUG PLANNING ..	9-2
C. THE PERCEPTION OF THE HEADS OF THE HEALTH RECOVERY SECTIONS (KASI MULKES) OF THEIR INVOLVEMENT IN DRUG PLANNING AT THE REGENCIAL LEVEL	9-3
D. CAUSES OF THE DIFFERENCE BETWEEN NEEDS AND SUPPLY	9-3
1. Kabupaten Level	9-3
2. Puskesmas Level	9-3
E. THE KNOWLEDGE AND PRACTICE OF DRUG PLANNING AT PUSKESMAS	9-4
F. ATTITUDE TOWARDS DRUG PLANNING AT THE PUSKESMAS	9-4
G. HOW PUSKESMAS DOCTORS OVERCOME THE LIMITED DRUG	9-5
H. THE MONITORING OF SUPPLY AND SUPERVISION OF DRUG USE	9-5
1. The monitoring of drug supply at the Puskesmas and sub-Puskesmas ..	9-5
2. Drug Use Supervision from the RPW to the Puskesmas	9-6
3. Supervision from the Puskesmas to the Sub-Puskesmas	9-6
I. VIEWS CONCERNING THE IDEA OF TRANSFERRING AUTHORITY AND RESPONSIBILITY FOR DRUG PLANNING AND MANAGEMENT AT THE KABUPATEN LEVEL TO THE RPW	9-6
J. VIEWS ON THE IDEA OF INTEGRATING THE VARIOUS SOURCES IN DRUG PLANNING AND PROCUREMENT	9-7
K. OPINIONS CONCERNING WHO SHOULD DECIDE THE AMOUNT OF THE DRUG BUDGET TO BE ALLOCATED TO PUSKESMAS	9-7
L. CONSTRAINTS RELATED TO THE SUPPLY OF ESSENTIAL DRUGS IN THE RPW AND THE PUSKESMAS	9-8
M. THE VIEWS OF THE HEAD OF THE PUSKESMAS ON DRUG COSTS	9-8
N. THE VIEWS OF THE HEADS OF THE RPW'S AND THE KASIMULKES ON DRUG COSTS	9-8
O. CONCLUSIONS	9-8

CHAPTER X: DRUG SUPPLY AND PERCEPTION OF GENERIC DRUGS AT THE PUSKESMAS AND SUBSIDIARY PUSKESMAS	10-1
A. DISTRIBUTION OF DRUGS	10-1
B. THE DRUG SUPPLY OF PUSKESMAS/SUBSIDIARY PUSKESMAS	10-1
C. TYPES OF DRUGS OFTEN OVERSTOCKED AND UNDERSTOCKED	10-1
D. GENERIC DRUGS	10-2
1. The Respondents' Understanding of Generic Drugs	10-2
2. The Respondents' Perceptions of Generic Drugs	10-2
3. Recommendations of the Respondents on Generic Drugs	10-3
E. RECOMMENDATIONS FROM THE FGD FOR THE IMPROVEMENT OF DRUG SUPPLY IN THE PUSKESMAS	10-6
F. CONCLUSIONS	10-7

BIBLIOGRAPHY

APPENDIX: DATA COLLECTION INSTRUMENTS	A-1
FORM A: ENTRY INTERVIEW	A-1
FORM B: INSTRUMENT FOR PRESCRIBER-PATIENT INTERACTION	B-1
FORM C: EXIT INTERVIEW	C-1
FORM D: IN-DEPTH INTERVIEW	D-1
FORM E: PRESCRIBER'S QUESTIONNAIRE	E-1
FORM F: DATA OF PUSKESMAS	F-1
FORM G1: IN-DEPTH INTERVIEW/ HEAD OF DINAS KESEHATAN	G-1
FORM G2: IN-DEPTH INTERVIEW/HEAD OF THE REGENCIAL PHARMACEUTICAL WAREHOUSE	G-2
FORM G3: IN-DEPTH INTERVIEW/THE HEAD OF THE HEALTH RECOVERY SECTION	G-3
FORM G4: IN-DEPTH INTERVIEW/THE HEAD OF THE PUSKESMAS	G-4
FORM H: INSTRUMENT OF THE FOCUSED GROUP DISCUSSION OF DOCTOR PRESCRIBERS	H-1

LIST OF TABLES

TABLES IN CHAPTER 2:

Table 2.1. Sources of Information and Method of Data Collection	2-1
Table 2.2. Sample Puskesmas and Subsidiary Puskesmas Where Patient Interviews, Observations and In-Depth Interviews of Prescribers Were Held	2-6
Table 2.3. Distribution of In-Depth Interview Respondents Based on Manpower Category and Province	2-6
Table 2.4. Data Collection Activities Carried Out by Province — Number of Sites and Respondents	2-8

TABLES IN CHAPTER 3:

Table 3.1. Number of Years Treating Patients, by Facility	3-2
Table 3.2. Number of Years Treating Patients, by Prescriber Type	3-2
Table 3.3. Number of Years Treating Patients, by Province	3-2
Table 3.4. Highest Formal Education of Prescriber, by Facility	3-2
Table 3.5. Highest Formal Education of Prescriber, by Province	3-3
Table 3.6. Frequency of Exposure to Training-Courses within the Last Three Years, by Prescriber Facility	3-3
Table 3.7. Frequency of Exposures to Training-Course within the Last Three Years, by Prescriber Type	3-4
Table 3.8. Frequency of Exposure to Training within the Last Three Years, by Province	3-4
Table 3.9. Characteristics of the Respondents, by Province	3-6
Table 3.10. Distribution of Respondents by Purpose of Visit to Puskesmas and by Province	3-6
Table 3.11. Distribution of Ill Patients, by Age and Sex	3-7
Table 3.12. Ill Patients' Complaints, by Province	3-7
Table 3.13. Reference Materials for Case Management: Number of Observed Puskesmas and Sub-Puskesmas Where Materials Were Available	3-8
Table 3.14. Reference Materials for Case Management: Number of Facilities Where Material Were Available, by Province	3-8

TABLES IN CHAPTER 4:

Table 4.1. Proportion of Prescribers Using Certain Classifications of Diarrhea By Province	4-2
Table 4.2. Proportion of Prescribers Using Certain Classifications of Diarrhea by Prescriber Type	4-3
Table 4.3. Proportion of Prescribers Reporting Specific Measures Taken in Diagnosing Diarrhea, by Province	4-4
Table 4.4. Proportion of Prescribers Reporting Specific Measures Taken in Diagnosing Diarrhea, by Manpower Status	4-4
Table 4.5. Proportion of Prescribers Taking All Appropriate Measures in Diagnosing Diarrhea, by Province	4-4
Table 4.6. Proportion of Prescribers Taking All Appropriate Measures in Diagnosing Diarrhea, by Manpower Status	4-5
Table 4.7. Proportion of Prescribers Usually Prescribing Oralit for Particular Types of Diarrhea, by Province	4-6

Table 4.8. Proportion of Prescribers Usually Prescribing Oralit for Particular Types of Diarrhea, by Manpower Status	4-6
Table 4.9. Proportion of Prescribers Identifying a Particular Purpose of Oralit, by Province	4-7
Table 4.10. Proportion of Prescribers Identifying a Particular Purpose of Oralit, by Manpower Status	4-7
Table 4.11. Proportion of Prescribers Usually Giving a Particular Message on Use of Oralit to Patients, by Province	4-8
Table 4.12. Proportion of Prescribers Usually Giving a Particular Instruction on Use of Oralit to Patients, by Manpower Status	4-8
Table 4.13. Number of Correct Messages on Use of Oralit Usually Given to Patients, by Province	4-9
Table 4.14. Number of Correct Messages on Use of Oralit Usually Given to Patients, by Manpower Status	4-9
Table 4.15. Proportion of Prescribers Who Report Prescribing Antibiotics for Particular Types of Diarrhea, by Province	4-10
Table 4.16. Proportion of Prescribers Who Report Prescribing Antibiotics for Particular Types of Diarrhea, by Manpower Status	4-11
Table 4.17. Distribution of Prescribers as Related to the Way They Classify ARI, by Province	4-13
Table 4.18. Distribution of Prescribers as Related to the Way They Classify ARI, by Their Manpower Status	4-14
Table 4.19. Proportion of Prescribers Reporting Taking Specific Measures in Diagnosing ARI, by Province	4-15
Table 4.20. Proportion of Prescribers Reporting Taking Specific Measures in Diagnosing ARI, by Manpower Status	4-15
Table 4.21. Proportion of Prescribers Reporting Combinations of Measures They Take in Diagnosing ARI, by Province	4-15
Table 4.22. Proportion of Prescribers Reporting Combinations of Measures They Take in Diagnosing ARI, by Manpower Status	4-16
Table 4.23. Proportion of Prescribers Reporting Practice of Prescribing Antibiotics for Types of ARI by Province	4-17
Table 4.24. Proportion of Prescribers Reporting Practice of Prescribing Antibiotics for Types of ARI by Manpower Status	4-18

TABLES IN CHAPTER 5:

Table 5.1. Distribution of Prescribers by the Number of Types of Drugs They Would Prescribe for Mild Diarrhea Without Dehydration, by Province	5-1
Table 5.2. Distribution of Prescribers by the Number of Types of Drugs Prescribed for Mild Diarrhea Without Dehydration, by Manpower Status	5-2
Table 5.3. Proportion of Prescribers Reporting Prescribing Particular Types of Drugs for Mild Diarrhea Without Dehydration, by Province	5-2
Table 5.4. Proportion of Prescribers Reporting Prescribing Particular Types of Drugs for Mild Diarrhea Without Dehydration, by Manpower Status	5-3
Table 5.5. Distribution of Prescribers by the Number of Types of Drugs Prescribed for Mild ARI, by Province	5-4
Table 5.6. Distribution of Prescribers by the Number of Types of Drugs They Would Prescribe for Mild ARI, by Manpower Status	5-5

Table 5.7. The Practice of Prescribing Drugs for Hypothetical Case of Child's Mild ARI, by Province	5-5
Table 5.8. The Practice of Prescribing Drugs for Hypothetical Case of Child's Mild ARI, by Manpower Status	5-6
Table 5.9. Proportion of Prescribers Who Would Prescribe Antibiotics for Specified Case Profiles, by Province	5-7
Table 5.10. Proportion of Prescribers Who Would Prescribe Antibiotics for Specified Case Profiles and Standard on Prescription of Antibiotics, by Manpower Status	5-8
Table 5.11. Span of Time of an Antibiotic Prescriptions, by Type of Puskesmas	5-9
Table 5.12. Span of Time of Antibiotic Prescriptions, by Province	5-10
Table 5.13. Span of Time of Antibiotic Prescriptions, by Manpower Status	5-10
Table 5.14. Basis of Consideration for Span of Time of Antibiotics Prescription (Proportion of Prescribers), by Type of Puskesmas	5-10
Table 5.15. Basis of Consideration for Span of Time of Antibiotics Prescription (Proportion of Prescribers), by Province	5-11
Table 5.16. Basis of Consideration for Span of Time of Antibiotics Prescription (Proportion of Prescribers), by Manpower Status	5-11
Table 5.17. Frequency of Injections Given, by Prescribers	5-13
Table 5.18. Frequency of Injections Given by Prescribers to Adult Patients, by Province	5-13
Table 5.19. Frequency of Injections Given by Prescribers to Adult Patients, by Manpower Status	5-13
Table 5.20. Frequency of Injections Given by Prescribers to Child Patients, by Province	5-14
Table 5.21. Frequency of Injections Given by Prescribers to Child Patients, by Manpower Status	5-14
Table 5.22. Injections Frequently Given to Adult Patients, Based on Prescribers at Puskesmas and Subsidiary Puskesmas	5-17
Table 5.23. Injections Frequently Given to Adult Patients, by Province	5-18
Table 5.24. Type of Injection Frequently Given to Adult Patients, by Manpower Status	5-19
Table 5.25. Injections Frequently Given to Children By Prescribers at Puskesmas and Subsidiary Puskesmas	5-20
Table 5.26. Types of Injections Given to Children, By Province	5-21
Table 5.27. Types of Injections Given to Children, by Prescriber Type	5-22

TABLES IN CHAPTER 6:

Table 6.1. The Proportion of Prescriber-Patient Interactions in Which Specific Questions Were Asked by Prescriber to All Patients and Patients Approximately Under Five Years of Age	6-2
Table 6.2. The Proportion of Prescriber Interactions Where Prescriber Immediately Recorded Patient Illness Characteristics on Medical Card	6-3
Table 6.3. Proportion of Prescriber-Patient Interactions in Which Specific Questions Were Asked by Prescriber to Patients Complaining of Diarrhea Symptoms	6-5
Table 6.4. Proportion of Prescriber-Patient Interactions in Which Specific Steps of Physical Examination Were Taken With Patients Complaining of Diarrhea Symptoms	6-6
Table 6.5. Proportion of Prescriber-Patient Interactions in Which Specific Questions Were Asked by Prescriber to Patients Complaining of ARI Symptoms	6-7
Table 6.6. Proportion of Prescriber-Patient Interactions in Which Specific Steps of Physical Examination Were Taken With Patients Complaining of ARI Symptoms	6-8

Table 6.7. Proportion of Prescriber-Patient Interactions Where Patient Express a Request to Prescriber	6-9
Table 6.8. Distribution of Prescriber-Patient Interactions by Reaction of Prescriber to Patient's Request	6-10
Table 6.9. Proportion of Prescriber-Patient Interactions in Which Prescribers Gave Instruction to Patient About Illness or Treatment	6-11
Table 6.10 Duration of Prescriber-Patient Interactions, by Hour that Interaction Began	6-11

TABLE IN CHAPTER 7:

Table 7.1. Proportion of Arriving Patients Expecting Specific Health Care Goods and Services, by Province	7-2
Table 7.2. Reason for Desire for Injections Among Those Wanting Injections, by Province	7-2
Table 7.3. Patient's Responses Concerning Drugs They Expect or Want to Be Given, by Province	7-2
Table 7.4. Distribution of Drugs (Name or Description) Expected by Patients as Identified by Patients at Arrival, by Province and Facility	7-4
Table 7.5. Distribution of Patients' Perception of Use of Drug Expected, by Province	7-5
Table 7.6. Prescriber Expected to Conduct Examination of Patient Arrivals, by Province	7-5
Table 7.7. Reason for Preferring a Certain Prescriber to Others, by Province	7-6
Table 7.8. Distribution of Drugs (Name of Description) Received by Patients as Identified by Patient and Observer, by Province and Facility	7-8
Table 7.9. Distribution of the Benefits of Drugs As Stated by the Respondents, by Province and Facility	7-9
Table 7.10. Distribution of the Way the Drugs Are Used As Said by the Respondents, by Province and Facility	7-9
Table 7.11. Distribution of Health Officers Giving Explanation of the Ways of Using Drugs to Respondents, by Province and Facility	7-10
Table 7.12. Distribution of the Opinions of Respondents of the Efficacy, by Province and Facility	7-11
Table 7.13. Distribution of the Sources of Information on Efficacy of the Drugs, by Province and Facility	7-11
Table 7.14. Drugs Prescribed Relative to the Expectation of the Respondents, by Province and Facility	7-11
Table 7.15. Proportion of Patients Receiving and Expecting Health Care Services and Drugs at Puskesmas and Sub-Puskesmas	7-12
Table 7.16. What the Patients Receive and What They Expect Concerning their Examiners at the Puskesmas/Subsidiary Puskesmas	7-12

TABLES IN CHAPTER 8:

Table 8.1. Proportion of Prescribers With Any Education or Training on the Diagnoses and Therapy of Diarrhea and ARI, by Province	8-1
Table 8.2. Proportion of Prescribers With Any Education or Training on the Diagnoses and Therapy of Diarrhea and ARI, by Prescriber Type	8-2
Table 8.3. Opinion of Prescribers Concerning the Necessity to Build Up Capability in Diagnosing ARI, as stated by Prescribers of the Puskesmas and Subsidiary Puskesmas	8-3

Table 8.4. Opinion of Prescribers Concerning the Necessity to Build Up Capability in Diagnosing ARI, by Prescriber Type	8-3
Table 8.5. Opinion of Prescribers Concerning the Necessity to Build Up Capability in Diagnosing Diarrhea, as stated by Prescribers of the Puskesmas and Subsidiary Puskesmas	8-3
Table 8.6. Opinion of Prescribers Concerning the Necessity to Build Up Capability in Diagnosing Diarrhea, by Prescriber Type	8-4
Table 8.7. Opinion of Prescribers of Puskesmas and Subsidiary Puskesmas On Best Approach to Build Up Capability in Diagnosing ARI	8-4
Table 8.8. Opinion of Prescribers on Best Approach to Build Up Capability in Diagnosing ARI, by Prescriber Type	8-5
Table 8.9. Opinion of Prescribers On Best Approach to Build Up Capability in Diagnosing Diarrhea	8-5
Table 8.10. Opinion of Prescribers On Best Approach to Build Up Capability in Diagnosing Diarrhea, by Prescriber Type	8-5
Table 8.11. Proportion of Prescribers of Puskesmas and Subsidiary Puskesmas Receiving Information on Drugs, by Source	8-6
Table 8.12. Proportion of Prescribers Receiving Information on Drugs, by Source and Prescriber Type	8-6
Table 8.13. Opinion of Prescribers of Puskesmas and Sub-Puskesmas Concerning the Best Source of Information on Drugs	8-7
Table 8.14. Opinions of Prescribers of Puskesmas and Sub-Puskesmas Concerning the Best Source of Information on Drugs	8-7

TABLES IN CHAPTER 10:

Table 10.1. What Generic Drugs are Understood to Be, by Prescribers Workplace	10-4
Table 10.2. What Generic Drugs Are Understood To Be, by Prescriber Type	10-4
Table 10.3. Opinions of Prescribers on the Efficacy of Generic Drugs Compared to Patent Drugs	10-5
Table 10.4. Opinions of Prescribers on the Efficacy of Generic Drugs Compared to Patent Drugs	10-5
Table 10.5. Prescriber Recommendations on Generic Drug Availability at the Puskesmas, by Workplace	10-5
Table 10.6. Prescriber Recommendations on Generic Drug Availability at the Puskesmas, by Prescriber Type	10-6

ACKNOWLEDGEMENTS

The Center of Child Survival of the University of Indonesia and the researchers would like to acknowledge here that this study would not have been accomplished had it not been for the assistance of various parties. We, therefore, would like to pass our thanks to all those who have offered us their help in the implementation of this study, especially:

1. Our colleagues at the Ministry of Health, particularly those from the Directorate General of Food and Drug Control.
2. Our colleagues from the Health Sector Financing Project, both from the Project Management Unit and the Project Implementation Office-Pharmaceuticals.
3. Our colleagues from the Kantor Wilayah and the Dinas Kesehatan Propinsi of West Sumatera and East Java.
4. Our colleagues from the Kantor Departemen and the Dinas Kesehatan Kabupaten Solok, Pasaman, Gresik, Pasuruan, and Madiun.
5. Our colleagues from the University of Andalas of West Sumatera, and the University of Brawijaya of Malang.
6. Our colleagues from those Puskesmas and Subsidiary Puskesmas that were selected to participate in this study.
7. The data entry and administrative staff of PUSKA - UI (Center for Child Survival of the University of Indonesia).

SUMMARY OF FINDINGS AND RECOMMENDATIONS

CHAPTER 1: INTRODUCTION

The Ministry of Health, through the Health Sector Financing Project/Pharmaceutical Component (HSFP/PIO-P), has conducted various studies in the areas of drug management and personnel, drug planning, product selection, purchase, storage, and distribution, as well as a study of drug use analyzing the prescribing pattern of the Hospital and the Puskesmas.

These earlier studies are now complemented with a study, described in this report, of the knowledge, attitude, and practice (KAP) of managers, providers of health care and drug prescribers, and patients. The study aims to provide further information about and understanding of factors that contribute to inappropriate supply, management and use of pharmaceuticals.

The Summary of Findings presented below summarizes the major features and substantive conclusions reached in the study, organized according to the chapter outline used in the study.

CHAPTER 2: METHODOLOGY

This study is a combination of qualitative and quantitative approaches used in complementary fashion to measure levels of knowledge and practices, and to explore reasons for such practices. In the qualitative approach, information was gathered through focus group discussion and in-depth interviews. In the quantitative approach, information was gathered through observation and through administration of a structured questionnaires. Respondents included prescribers (physicians and paramedics), drug managers, and patients at community health centers.

Several data collection activities were carried out in the field, including:

- 1) observations of the interaction between patients and prescribers carried out at 14 community health centers (Puskesmas) and at 14 subsidiary community health centers (subsidiary Puskesmas) in two provinces;
- 2) interviews with the prescribers who had been observed at the community health centers to explore underlying knowledge and attitudes that form the basis of prescriber practices;
- 3) interviews with patients at the health centers to explore expectations of the patient regarding health care services and drug treatment, and patient understanding and opinion of drugs received;
- 4) a larger survey of prescribers (doctors and paramedics) using a structured questionnaire to provide baseline estimates of prescriber knowledge and reported practices related to diagnosis and management of ARI and diarrhea patients, prescription of antibiotics and injections, and generic drugs;
- 5) Focus Group Discussions with prescribers to explore reasons underlying the management of ARI and diarrhea and the use of antibiotics and injections to augment results from the in-depth interviews of prescribers; and

- 6) in-depth Interviews with drug managers to collect information on various managerial problems concerning drugs at the regency level.

CHAPTER 3: DESCRIPTION OF THE SAMPLES AND THE PUSKESMAS WHERE THE STUDY WAS CONDUCTED

MANAGERS

Heads of the Kantor Departemen/Dinas Kesehatan Daerah Tkt.II generally were senior officials who had held their present offices for at least two years. Heads of the Health Recovery Section interviewed were primarily doctors. Heads of the Regencial Pharmaceutical Warehouse were pharmacists. Some had been holding the position for only one year. Heads of the Puskesmas who were interviewed in their capacity as managers were doctors who had acted for more than two years as heads of the Puskesmas.

PRESCRIBERS

Prescribers surveyed using the structured questionnaire were fairly experienced: 60 percent of 205 respondents had 5 or more years of experience in the treatment of patients, and only 18 percent had less than 3 years. More than half the respondents were nurses (61%), followed by doctors (23%) and then midwives (16%). The distribution of respondents by type was the same in each province. Although experience in treating patients was lengthy among the respondents, little training in treatment of ARI or diarrhea had been received by the majority of prescribers. In the three years preceding the sample, over 80 percent of prescribers reported they had not attended any training courses on ARI or diarrhea. However, over 80 percent reported being exposed to material on ARI or diarrhea during their formal education.

PATIENTS

There were 789 patients or caretakers of patients enumerated at 27 Puskesmas or subsidiary Puskesmas during the study. Nearly three quarters of patient/caretakers were female. Over 30 percent of patient/caretakers had completed elementary education and another 30 percent had at least some junior high school. Over three quarters of the arrivals at the Puskesmas came for treatment because of illness (n=589). Among the ill patients, 15.5 percent were under the age of five years.

Symptoms most commonly expressed by all arriving patients included fever (32%), cough (35%) and influenza (21%). Among children under five, fever was a complaint for nearly 65 percent of arriving children; 60 percent complained of cough, and 52 percent complained of runny nose or influenza.

PHYSICIAN FOCUS GROUP DISCUSSION PARTICIPANTS

A total of 24 participants attended four focus group discussions (FGD), 6 at each discussion, held in the regencies of Solok and Pasaman, West Sumatera and in Madiun and Pasuruan, East Java. The majority (87%) of participants in both provinces were doctors in charge of the sub-district Puskesmas. Physicians from West Java held positions as doctors of the Puskesmas for an average of four years compared to nine years of experience of physicians from East Java. The majority (70.8%) of the participants of the discussions had never taken part in training courses on the diagnosis and treatment diarrhea and ARI. In Pasuruan regency, none of the participants had ever taken part in training courses.

PARAMEDIC FOCUS GROUP DISCUSSION PARTICIPANTS

The number of the FGD participants was six persons in Solok, seven in Pasaman, and seven persons each in the regencies of Madiun and Pasuruan. The FGD participants of West Sumatera were mostly women, while those of East Java were mostly men. In terms of experience at the Puskesmas or subsidiary Puskesmas, the participants of West Sumatera had on the average 11 years of experience, compared to those of East Java who had an average of less than 8 years.

In general the participants of both provinces got their education at either the SPR (Sekolah Pengatur Rawat = High School of Nursing Administrators) or the SPK (Sekolah Perawat Kesehatan = High School of Health Nurses); one participant from Solok was educated as a midwife. Only two participants, one from Solok and the other from Pasaman, had attended a training course on diarrhea. None of the participants of East Java had ever attended a training course on either ARI or diarrhea.

REFERENCE MATERIALS AVAILABLE AT HEALTH CENTERS

Reference materials on ARI and diarrhea were not widely available at the study Puskesmas on the day of observation. Half of the Puskesmas, and only a small portion of the subsidiary Puskesmas, had the list of essential drugs, the manual on the therapy standard, and the IMS/ISO in their premises. Even where reference materials were available, they were often not kept in the examination room. The majority of the Puskesmas had posters, exhibits, or pamphlets on diarrhea and ARI on the premises, but not in the examination room. Only a small portion of the subsidiary Puskesmas had similar materials.

CHAPTER 4: THE KNOWLEDGE, ATTITUDE, AND PRACTICES OF PRESCRIBERS IN MANAGING CASES OF DIARRHEA AND ACUTE INFECTION OF THE RESPIRATORY TRACT (ARD)

FINDINGS ON THE HANDLING OF DIARRHEA CASES

1. Prescribers know of the MOH manual advising on management of diarrhea, but many do not use it. Reported reasons include fluctuating stock of drugs, a desire to treat the cause of diarrhea with antibiotics, the need to treat each case individually, and a desire to meet perceived patient expectations of treatment.
2. Over 40 percent of prescribers do not use the detailed classifications of diarrhea as recommended by the standard manual.
3. Prescribers nearly universally report taking appropriate steps in establishing the diagnosis of diarrhea, including examination of two indicators of dehydration.
4. Two thirds of prescribers report prescribing Oralit for all types of diarrhea; over three quarters prescribe Oralit for cases with mild to moderate dehydration. Still, 10 percent and 20 percent in West Sumatera and East Java respectively do not report prescribing Oralit for diarrhea with mild or moderate dehydration. In East Java, 30 percent do not report using Oralit for acute diarrhea with severe dehydration; presumably these prescribers use other means to treat the dehydration.
5. Fifteen percent of prescribers believe one purpose of Oralit is to stop diarrhea. Nearly all believe Oralit is used to replace lost liquid.

6. Between 40 and 50 percent of prescribers report giving antibiotics to diarrhea cases in the absence of indications for antibiotics.
7. Management of diarrhea cases based on reports forwarded of the prescribers indicates insufficient knowledge of recommended case management procedures.
8. Inappropriate management of cases of diarrhea is due also to perceived pressure by the patients. Even in cases of mild diarrhea, the prescription of Oralit is almost always accompanied by the prescription of other drugs. This shows that the prescribers have little confidence in Oralit alone in the handling of diarrhea. This is also one factor that has caused the MOH manual to be disregarded by prescribers in the handling of diarrhea cases.
9. Prescribers tend to link therapy with other non-medical considerations. Their reasoning is if patients do not believe in the therapy given by a prescriber (e.g., no injection or antibiotics are prescribed), they will think that the prescriber is not clever and consequently their belief in his ability will diminish. If such a case does occur, it will only cause a loss to the credibility of the prescriber, which in the long run may be influential upon the other health programs conducted by the Puskesmas.

FINDINGS ON THE HANDLING OF ARI CASES

1. The majority of the doctors and paramedics use the mild/ moderate/severe classification of ARI, and do not incorporate distinctions relating to pneumonia/non-pneumonia. Some confusion about classification exists, which can be attributed to the difference between the classification recommended by the ARI Sub-Directorate and the classification used in the LB₁ form. As a result, many cases of ARI are simply listed in the LB₁ form under the sub-heading "other diseases of the respiratory tract".
2. Some prescribers (12%) do not take sufficient measures during the diagnostic process to determine whether an ARI case should be prescribed antibiotics. Approximately half of prescribers report using all the measures of anamnesis, examination, frequency of respiration, and examination of traction of chest partition in patient examination.
3. There is a tendency to prescribe antibiotics for mild ARI, and to practice polypharmacy for ARI in general. Fever appears as a main indicator for the prescription of antibiotics. In cases where indications for antibiotics exist, only half of prescribers report they would prescribe them.
4. There are some indications that prescribers from West Sumatera and doctors from both areas use more current classifications of diarrhea, practice a more thorough examination, and practice more appropriate use of antibiotics.

CHAPTER 5: THE KNOWLEDGE, ATTITUDE, AND PRACTICE OF THE PRESCRIBER REGARDING THE PRESCRIBING OF DRUGS AND INJECTIONS

1. Polypharmacy is being practiced in the Puskesmas and the subsidiary Puskesmas. Prescribers report giving patients an average 3.6 types of drugs for a diarrhea case without dehydration but with fever, and an average 4.8 types of drugs for mild ARI.

2. For a diarrhea case without dehydration, the most common drugs reported used were temperature-lowering drugs, antibiotics and Oralit. Fever, even without indications of blood or mucus in the feces, seems an indicator for prescription of antibiotics.
3. For a simple ARI case, nearly all prescribers report using temperature-lowering drugs for the ARI case, followed by antibiotics, vitamins, antihistamine, and cough syrups. Injections were relatively infrequently mentioned.
4. Reasons put forward by prescribers for polypharmacy are:
 - a) the insistence (pressure) of the patients;
 - b) for most cases, drug therapy is given for each of the causal, symptomatic, and roboransia concepts;
 - c) the existing "regulations" of the Puskesmas; and
 - d) the habitual practice of their predecessors.
5. Indications of antibiotic prescribing are incorrect. Prescribers prescribe antibiotics more often than they should, primarily because:
 - a) if a patient has a temperature, it indicates there is an infection; and
 - b) to prevent secondary infection.

Prescribers also lack clear guidelines on when antibiotics should be prescribed. Up to 25 percent of prescribers do not report giving antibiotics to cases where antibiotics should be prescribed.

6. A span of three days for antibiotic prescribing is practiced by the large majority of prescribers. The reasons obtained:
 - a) insufficient supply of drugs; and
 - b) prescribers are under pressure to fulfil the "target" number of visits of patients to the Puskesmas, so they expect the patient to return after the three-day supply is finished.
7. Prescribers know only some of the factors that may cause resistance to antibiotics. Factors considered causes of resistance by the majority of the prescribers are:
 - a) taking the drugs irregularly, or failure to finish them;
 - b) taking too small a dosage;
 - c) taking antibiotics too often; and
 - d) taking antibiotics for a long time.

Few prescribers recognize the relationship between prescribing antibiotics for too short a span of time and resistance to antibiotics.

8. Most prescribers often give injections to adult patients, even where not indicated. For a diarrhea case with fever but no dehydration, 29 percent of the doctors and approximately 45 percent of the paramedics said that they would give an injection to the patient.

9. Reasons for frequent use of injections are:
- a) the insistence of the patients and the need to satisfy the patients; and
 - b) to keep the patient coming to the Puskesmas and not seek treatment elsewhere, which will maintain the number of visits to the Puskesmas.

The satisfaction of the patients is connected with the reputation of the health center as a "qualified clinic" and the success of the other health programs of the Puskesmas.

10. Children are less frequently given injections than adults, but many children still receive injections. Children receive fewer injections largely because the parents do not want or are afraid of injections for their children, and prescribers are reluctant to give them for fear of any consequences. In cases where children are given injections, it is largely to satisfy the parent's demand for them.
11. Several different types of injections are used without consistently reported reasons for use of one over another. Antihistamine, analgetic/antipyretic, and vitamin injections are given without clear medical indications. All three kinds of injections are meant to immediately get rid of symptoms. Among some prescribers, antihistamines and vitamins are meant as a "health injection". Antihistamine injections in particular are perceived as having minimal risk.
12. Antibiotic injections are frequently given because all symptoms of fever are thought to be caused by bacteria that can be treated with antibiotics.
13. Several approaches have been used by prescribers to discourage patients from wanting an injection, including describing dangers of injection use to patients, downgrading the effectiveness of injection, and by emphasizing benefits of other treatments.

CHAPTER 6: THE PATIENT - PRESCRIBER INTERACTION

1. All patients, as well as caretakers of patients under five, were asked general questions about their illness by prescribers in one half to two thirds of cases, as indicated by the frequency of questions on fever and duration of illness. However, health care seeking behavior of the adult and child prior to the observed visit was rarely addressed by prescribers.
2. Approximately one half of prescribers do not immediately record patient complaints, diagnosis, names of diseases, and disease codes while diagnosing their patients. Doctors are more likely to record patient information than paramedics.
3. The diagnostic process carried out by prescribers is not yet sufficiently thorough to establish a good diagnosis for diarrhea and ARI. In most observed cases, appropriate steps were carried out by fewer than half of prescribers. Appropriate steps were identified by physicians of the research team and analyzed based on individual patient complaints. Examples that indicate the need for more thorough examinations include:
 - a) In more than 80 percent of observations of diarrheal disease patients, prescribers asked or patients offered information about the frequency of diarrhea, but in less than 50 percent was information on the presence of blood or mucus (indications of bacillary

dysentery) in the feces elicited. Too few cases of diarrhea among children were observed to provide meaningful results.

- b) Prescriber questions and examination of diarrhea patients regarding possible dehydration were relatively infrequent. Examination for turgor occurred in 37 percent of all cases (and 57 percent of the 14 child cases).
 - c) For ARI patients, prescriber questions about fever were asked of 60 percent of adult and 74 percent of children. Questions about cough were observed in 42 and 25 percent of adult and child cases, respectively. Other indicators, such as pain in throat or short-windedness were less frequently addressed.
 - d) Physical examinations of ARI patients revealed that less than 10 percent of prescribers use frequency of respiration as a disease indicator, which would establish a need for antibiotics or not. However, auscultation is used by 40-60 percent, particularly among physicians. As indicated in qualitative data, knowledge or proper use of stethoscopes is lacking among paramedics, and many use them to impress the patient.
4. Patient demand for certain types of medication is not frequently verbalized in the prescriber-patient interaction. In only 3.5 percent of observed interactions were certain therapies requested by patients. In 15 percent of observations, injections were requested by a patient. There are several possible reasons, including the observation itself, why patient requests are less frequent than expected given prescriber descriptions of patient demand. However, even if patients do not verbalize demand for certain therapies, obstacles to appropriate prescribing behavior remain given prescriber perceptions of demand.
 5. Prescriber instructions to a patient occurred in approximately half of observations for both adults and children. Most common was general information about eating (given to 30 percent of adults and children), followed by information about medication (given to 18 percent of adults and 27 percent of children), and by information about the patient illness (given to 19 percent and 14 percent of adults and child caretakers, respectively).
 6. Patient arrivals peak at mid-morning hours. Prescriber-patient interactions last on average two to three minutes, with little variation by time of arrival.

CHAPTER 7: PATIENT EXPECTATIONS AND SATISFACTION WITH HEALTH CARE SERVICES

1. Approximately two thirds of sick patients arriving at the health center expect they will be given drugs and injections. Injections are desired because they are efficacious. Nearly half of arriving patients expect a physical examination. Few expect other types of services or a consultation.
2. Significant differences in patient expectations were found between West Sumatera and East Java. In West Sumatera the majority of patients come to the health facility to get drugs (92%) and have a physical examination (71%), while in East Java most expected an injection (74%) and drugs (60%).
3. While over 65 percent of patients expect to get drugs at the health center, most patients do not identify a particular drug. Nearly half of arriving patients suggested the prescription was up to

the prescriber. Only 5 percent of arriving patients in this study named a specific drug desired; 37 percent described a drug. No single drug was named by more than five respondents. Of those describing a drug, pills were mentioned much more frequently than capsules or syrup. However, qualitative information indicates prescribers report some patients bring a sample of a drug with them. These occurrences were not recorded in the survey.

4. The use or benefit of an expected drug is largely unknown. For the first drug name, 58 percent of respondents suggested they did not know the use or benefit.
5. Two thirds of arriving patients expressed a preference for one provider to see them over another, usually preferring a doctor. Often, names were not given. Reasons for a preference varied from familiarity with a prescriber, to effectiveness or better service.
6. The level of knowledge of the public about drugs and their benefits is still low. Nearly all patients received drugs at the observed visit, with more than half receiving three types of drugs, 45 percent of drugs received were described, and 55 percent were named. Those named were primarily CTM, paracetamol, antalgin, vitamin B complex, and vitamin B1. The benefit of over three quarters of drugs patients received were not clearly known by the respondents. Benefits that were identified were for drugs such as itch drug, cough drug, temperature-lowering drug.
7. Instructions for drug use are mostly given by the health center dispenser, and consist primarily of instructions to take the drug three times a day.
8. Respondents' previous experience with a drug plays a major role in determining whether patients believe drugs given to them are efficacious. Over half of the drugs received were perceived as efficacious by the respondents and for one quarter of the drugs, respondents either said that they could not tell whether the drugs they got were efficacious or not, or that they would like to try them first.
9. Coupled with little knowledge of drugs is fairly high satisfaction with drugs received. Three fourths of drugs received by patients conformed with their expectations of the drugs they would receive.

CHAPTER 8: EDUCATION AND TRAINING IN THE MANAGEMENT OF CASES OF DIARRHEA AND ARI, AND SOURCES OF INFORMATION ON DRUGS FOR THE PRESCRIBERS

1. About three quarters of prescribers (paramedics in particular) had received little or no additional training on the diagnosis and management of cases of ARI and diarrhea. However, 85 percent had been exposed to material on ARI or diarrhea when they were in school.
2. The majority of the prescribers feel that it is necessary to increase their knowledge and skills in performing the diagnoses and management of ARI and diarrhea.
3. Preferred ways to promote knowledge and skills are: provide prescribers with manuals; arrange for training-courses; and distribute periodicals to them. The preference for manuals is expressed by one third of prescribers, and contrasts with the high prevalence of infrequent use of existing manuals.

4. There are many reported current sources of information on drugs. According to the prescribers, the best sources of information on drugs for doctors are manuals; for paramedics, the best sources are manuals, consultation with doctors, and training courses.

CHAPTER 9: QUALITATIVE STUDY OF MANAGERS REGARDING DRUG MANAGEMENT AT THE KABUPATEN LEVEL

1. Drugs supplied to the Regencial Pharmaceutical Warehouse (RPW) through Major Pharmaceutical Wholesalers (Pedagang Besar Obat) usually come to the RPW on time and in large quantities. Drugs from the Tingkat I [Level I] Regional Government come more often, but in small quantities. Heads of RPWs preferred drugs from Tingkat I to come two or three times a year, and in fairly large quantities, to ease management problems with the drugs.
2. Different approaches are used to distribute drugs from the warehouse to the health centers.
3. The Kasi Mulkes do not seem integrated into the process of drug planning. Some feel satisfied with a limited role, others feel only minimally involved.
4. Differences between drugs planned and supplied to the Puskesmas result from:
 - a) limited funds of the Tkt.II which limits the extent to which requests of the Puskesmas can be filled;
 - b) the Inpres drugs dropped are always insufficient (particularly antibiotics);
 - c) the dropping of the drugs from the Central administration is often delayed;
 - d) at the Puskesmas, lack of supply is partially due to irrational prescribing; and
 - e) Puskesmas' requests for dropping of drugs to Tkt.II are inconsistent with anticipated drugs, and partially mis-estimated because of month to month shifts in morbidity cases.
5. Drug planning at the Puskesmas largely is based on the consumption method, based on the a 10 percent increase in types and quantities of drugs consumed during the previous year. The epidemiological method is less practical because:
 - a) in the LBI report many cases are categorized as "other" and are excluded from the calculation of drugs needed; and
 - b) the epidemiologic approach utilizes standard therapies and does not adjust for expectations of patients to receive three types of drugs per patient. The prescriber fears reduction in the drugs prescribed will cause the public to place less trust in the Puskesmas.
6. Drug planning at the Puskesmas level is not perceived as difficult, but is perceived as having little impact on actual supply. Some prescribers argue for planning at that level to reduce oversupply, but do not expect it to remedy the gap between quantity of drugs supplied and drugs perceived as needed.
7. Puskesmas doctors report addressing drug shortages through the following measures:
 - a) limiting prescribing by cost, by requiring physician approval of paramedic prescriptions, or by assigning priority to patients to receive drugs in short supply;
 - b) giving the patients prescriptions for outside dispensaries; and

- c) having drugs on "loan" from the Dinas Tkt.II.
8. Periodic monitoring by direct observation at the Puskesmas or sub-Puskesmas is most commonly practiced. Records, reports, storage, and use of drugs are usually monitored. However, where a Puskesmas is located far away, monitoring is difficult and more likely to rely on reports or record review.
 9. According to respondents, there is no adequate mechanism in place for monitoring of rational prescribing behavior. Theoretically, supervision can be done by comparing the number and types of cases treated by the Puskesmas with the quantities of drugs used, taking the therapy standard into consideration. However, in practice this is difficult to do, and supervision consists of review of reports on drugs used, and a check of drugs in stock.
 10. Supervision from the Puskesmas to sub-Puskesmas is influenced by distance, and hampered by the lack of uniformity of the format of the drug records and reports of the sub-Puskesmas.
 11. Managers felt authority and responsibility for drug planning should be based on competency, not necessarily position.
 12. Reactions of respondents to integrating the various sources in drug planning and procurement were mixed but more inclined towards favoring integration.
 13. The supply of essential drugs at the Puskesmas is affected by limited storage capacity at the Puskesmas, capability of the Puskesmas to safeguard the drugs, and adequacy of packaging of drugs for long term storage.
 14. Views regarding the need of Puskesmas officers to be aware of drug costs were mixed. Some were of the opinion that costs were already considered in the development of standard therapies, thus the manual for standard therapy was most important. Others thought the size of government expenditure on drugs, and possible participation in drug planning, required that health officers understand cost aspects of drugs.

CHAPTER 10: DRUG SUPPLY AND PERCEPTION OF GENERIC DRUGS AT THE PUSKESMAS AND SUBSIDIARY PUSKESMAS

1. Issues involving distribution of drugs to the Puskesmas concern occasional late delivery of drugs if done by the Regencial Pharmaceutical Warehouse staff, and limited funds of the warehouse which require Puskesmas staff at times to pick up the drugs from the warehouse.
2. Other issues identified by prescribers involving drug supply at the Puskesmas involve discrepancies between drugs requested and supplied, insufficient supply particularly of antibiotics, and lack of variety in packaging. Whether the insufficiency related to supply factors or prescribing behavior could not be determined.
3. Some drugs are stocked in excess, particularly specialty drugs.
4. Fairly wide recognition and understanding of generic drugs was observed among respondents, with generics identified primarily as drugs of fairly good quality, yet simple-looking and offered

at prices so cheap that they are within the reach of the public, or drugs of which the contents are so prepared that they correspond with their original names, or drugs that are not promoted.

5. Generic drugs are well regarded, with most prescribers believing generic drugs are as effective or more effective than patent drugs. Most prescribers thought either that a Puskesmas should have only generic drugs or a mixture of generic and non-generic drugs.
6. Recommended improvements in generic drugs concentrated on improving the attractiveness and variety of their packaging, and promoting them as high quality drugs to the public.
7. Suggestions on improving the drug planning process included a shift of planning to Level II, revisions to the LB₁ form, and alteration to the system such that drugs supplied were in accord with the needs of the Puskesmas.

RECOMMENDATIONS OF THE RESEARCH TEAM

1. The knowledge and capabilities of the prescribers needs to be built up, particularly for the paramedic prescribers. This can be done by developing the several training modules, including:
 - a) a module on Methods of Diagnosing and Managing Diarrheal Cases;
 - b) a module on Methods of Diagnosing and Managing AIRT Cases; and
 - c) a module on Indications, Prescribing Practices, and Resistance to Antibiotics, which will focus mainly on Diarrheal and AIRT Cases.
2. Further promote the knowledge and capability of prescribers by conducting training courses, and distributing leaflets and periodicals.
3. Develop a regulation from the Kanwil level concerning the following issues:
 - a) the prescribing of antibiotics, particularly as it concerns the indications and length of time for prescribing;
 - b) the prescribing of injections, particularly as it concerns the indications for use of injections; and
 - c) the polypharmacy practices, particularly to encourage drug therapy based only on cause and symptoms; only where necessary will it be based on roboransia.
4. Revise the system of drug supply, particularly by providing the Dinas, and also if possible the Puskesmas, with broader authority.
5. Revise the reporting system so it matches the program objectives, particularly regarding the classification of diarrhea and AIRT.
6. Prescribers need to be given training in the method of filling in the report form on diseases (codes), and educated in the benefits that are generated by recording disease codes correctly, as well as the cost of incorrect recording.
7. The general public, and patients in particular, needs to be better informed as to the harm that unwarranted injections can bring, the benefits from proper use of Oralit, the harm that inappropriate consumption of drugs may cause, and the dangers of taking drugs that are in fact

not needed. This education can take place in the form of extension of knowledge/information directly done by health officers to the health cadres of Posyandu, through FP field-workers, through members of the PKK (Women's Family Welfare Promotion Movement), and community elders, all of whom will be able to deliver messages to the people. To facilitate this process, it will be necessary to develop modules concerning the messages mentioned above. The extension of the message to patients can be done directly at the Puskesmas/subsidiary Puskesmas; it is also advisable that leaflets and posters be made available to support this effort.

CHAPTER 1 INTRODUCTION

A. BACKGROUND

The issues surrounding drug supply, management and use are very complex, involving managers, providers of health care, prescribers of drugs, and consumers. The Ministry of Health has sponsored a series of studies to promote the appropriate use of drugs. The studies address various problems: those which may be managerial in nature, those that concern the system, and those that concern behavior.

The Ministry of Health supported a study of "Child Survival Pharmaceuticals (CSP-I)" which addressed the problems in 1987. This study examined possible effects on child survival of providing needed drugs based on morbidity and using drugs appropriately. The findings show that the amount of drugs used for children under five has not been in proportion to the number of underfives. Underfives account for 17 percent of the nation's population, yet they contribute to 50 percent of the total mortality figure. Nonetheless, it is estimated that the use of drugs for underfives amounts to only 5 percent of their actual needs, based on the pattern of diseases they suffer from.

The Ministry of Health, through the Health Sector Financing Project/Pharmaceutical Component (HSFP/PIO-P) has conducted further studies, in the areas of drug management and personnel, drug planning, product selection, purchase, storage, and distribution. Also, a study of drug use has been conducted in order to analyze the prescribing pattern of the Hospital and the Puskesmas, and to compare this prescribing pattern with the standard therapy.

The above studies are now complemented with a study, described in this report, of the knowledge, attitude, and practice (KAP) of managers, providers of health care and drug prescribers, and patients. The study aims to provide further information about and understanding of factors that contribute to inappropriate supply, management and use of pharmaceuticals.

B. QUESTIONS ADDRESSED IN THIS STUDY

Earlier studies of drug use have revealed how drugs have been used. The findings include, among others:

- 1) excess use of drugs in the form of polypharmacy, on average dispensing 3.5 drugs per person;
- 2) excess use of antibiotics both among children under five and adults; and
- 3) excess use of injections.

The focus of this study is to determine what conditions contribute to the above problems from the perspectives of the managers, prescribers, and patients. More specifically, it focuses on diarrhea and acute respiratory infection (ARI), diseases which often affect children under five years old, and examines:

- 1) how the prescriber (the doctor and the paramedic) performs a diagnosis and handles patients with ARI and diarrhea;
- 2) why inappropriate drug prescribing occurs;
- 3) the knowledge and practice of the prescriber concerning ARI and diarrhea;
- 4) the reference materials used by the prescriber, and his understanding of technical problems of the diagnoses;

- 5) the expectations and opinions of the patients of the services of the Puskesmas/subsidiary Puskesmas; and
- 6) the perceptions of health manager at the kabupaten level concerning the planning and distribution of drugs, and the supervision of drug use at the Puskesmas.

This study seeks to answer questions concerning the knowledge, attitude, and practice of the manager, the prescriber, and the patient. The questions addressed include:

- 1) What is the knowledge, attitude, and practice (KAP) of the manager:
 - a) on planning of drugs at the kabupaten level and distribution to the Puskesmas?
 - b) on organization of Kantor Departemen or Dinas Kesehatan Tingkat II involved in the planning, supervision of drugs?
 - c) on factors of management influencing rational drug use at the Puskesmas and subsidiary Puskesmas?

- 2) What is the knowledge, attitude, and practice (KAP) of the prescriber:
 - a) in diagnosing and treating ARI and diarrheal diseases?
 - b) that contributes to irrational prescribing, particularly related to ARI and diarrheal diseases?
 - c) concerning the standard of therapy of ARI and diarrhea?
 - d) concerning patients' expectations of the prescribing practice of the provider, and its effect on the prescriber?
 - e) concerning generic drugs and injections?

- 3) What is the knowledge, attitude, and practice of the patient:
 - a) as concerns his recognition and the therapy of ARI and diarrheal diseases?
 - b) in his understanding about the causes of ARI?
 - c) in his understanding about the causes and ways to prevent diarrheal diseases?
 - d) in his knowledge about the use of drugs bearing a logo, and injections?
 - e) as reflected in the sources of health that the patient/public visit/use?
 - f) as revealed by how much a patient spends on each health care/therapy?

C. BIBLIOGRAPHIC REVIEW

A number of studies of the management and use of drugs have been made, and the following is a brief analysis of those issues:

1. THE PROCUREMENT, MANAGEMENT, AND DISTRIBUTION OF DRUGS

Existing regulations and policy and their execution are major factors affecting the procurement, management, and distribution of drugs at the Government Hospital and the Puskesmas. A number of studies show however that the execution of regulations and policy is often flawed, from the managerial level through delivery of drugs to the patient.

The sources of the supply of drugs are the Inpres, PHB, and the EPI, CDD, and Nutrition projects. Only 20 percent of patients are covered by the PHB(CSP-I, 1987). Suroso (1989) shows that the supply of

drugs at the Puskesmas, especially the one that represents the "dropping" from the Dinas Kesehatan Daerah Tkt.II, is depleted within a period ranging from three to nine months. The management of drugs is in need of improvement, in terms of both procedures and personnel.

2. THE USE OF ANTIBIOTICS

Antibiotics are not needed to cure some mild diseases that people normally suffer from, for example, mild ARI. According to the recommendation of WHO and the manual on treatment of ARI from the MOH, no antibiotics are needed for mild ARI. Budiono (1988), and other pharmacologists, have suggested that mild ARI does not need to be treated with antibiotics, and that symptomatic therapy suffices. However, previous studies have shown many problems in the use of drugs for three major diseases, ARI, diarrhea, and skin disease (DUS, 1990, CSP-I, 1987, CSP-II, 1988). Similarly, antibiotics are often used irrationally. This situation has strongly affected financing for therapy.

Antibiotics have evidently been used to excess in treatment of children under five. In studies of medications received by patients, 83 percent (DUS, 1990) and 88 percent (CSP-II, 1988) of children under five years old had been given at least one kind of antibiotic, while among those five years of age or older, 59 percent (DUS, 1990) and 65 percent (CSP-II, 1988) had been given at least one kind of antibiotic.

Loekita et al.(1990), studied antibiotic dispensing to underfives suffering from diarrhea in the sub-district of Penjaringan, Jakarta. Using clinic observation, the study showed that the use of antibiotics were most frequently used in the Puskesmas, where 98 percent of the patients were given antibiotics. This was followed by private practitioners (87%) and hospitals (83%). The percentages reported to receive antibiotics based on prescriber interviews are lower, which is perhaps an indication of discord between knowledge, opinions and practice. Other evidence of discrepancy between knowledge and practice is found in results showing that though in general doctors are of the opinion that diarrhea is caused by virus, for which no antibiotics are needed, in practice many prescribe antibiotics. The possibility exists that some doctors wish to fulfil what parents expect of them, i.e., to ensure that their children will not have to be treated in a hospital, or that they will recover quickly by giving them antibiotics.

The dispensing of antibiotics varies from one Puskesmas to another (DUS, 1990). Among study sites in the 1990 drug use study, in one Puskesmas all underfives got antibiotics, while in another, only 8 percent were given antibiotics.

In the 1990 DUS, 50 percent of the underfives got one kind of antibiotic and 31 percent got two kinds of antibiotics. Among patients five years of age and older, 36 percent got one kind of antibiotic, and 21 percent got two kinds of antibiotics. Paramedics had a slightly greater tendency to prescribe more than one kind of antibiotic compared with doctors.

Antibiotics quite frequently used are the 250 mg tetracycline HCL capsule, 500 mg ampicillin tablet, 250 mg chloramphenicol capsule, respectively 20.1 percent, 18.6 percent, 5.6 percent, and 5.6 percent. On average antibiotics are dispensed for only two to three days (CSP-II, 1988). Sufferers of diarrhea are given antibiotics twice as often as ORS; similarly, they are more often given vitamins than ORS. A similar picture is obtained in the therapy of ARI. Fifty percent of those suffering from diarrheal, skin, and eye diseases are treated with two or more kinds of antibiotics (CSP-II, 1988).

3. THE USE OF INJECTIONS

Injections are often given by the prescriber in the Puskesmas (DUS, 1990 and CSP), particularly for patients five years of age or older. 43 percent (DUS, 1990) and 50 percent (CSP-I, 1987) of the underfives, and 55 percent (DUS, 1990) and 75 percent (CSP-I, 1987) of the patients five years of age or older received injections. Injections are mainly used for skin diseases (CSP-I, 1987). The use of injections also varies, from 0 to 77 percent. Among those less than five years of age, 39 percent get one kind of injection, while 4 percent get two kinds. Among those patients who are five years of age and older, 45 percent get one kind of injection, and 10 percent get two kinds. That injections have been used is inseparable from the fact that it is the patients themselves who expect them. A study by SRI (1986) showed that 36 percent of the parents of the patients suffering from diarrhea expected that they would be injected.

Out of the four kinds of drugs usually dispensed, one is injection (CSP-I, 1987). The pattern of using injections differs somewhat between doctors and paramedics. Paramedics give injections more often than doctors (DUS, 1990, CSP-II, 1988), particularly to underfives. In another study it was found that paramedics use injections twice as often as doctors (DUS, 1990).

4. THE ROLE OF THE PARAMEDIC

The role of the paramedic is very important in the use of drugs. The treatment of ARI, diarrheal, and skin diseases is more often done by the paramedic than by the doctor (CSP-II, 1988). From the Drug Use Study (1990) it is evident that prescribers at the Puskesmas are most often paramedics, seeing 76 percent of patients, and the rest are seen by doctors (DUS, 1990).

5. THE PATIENTS, THE DISEASES THEY SUFFER FROM, AND THE DRUGS THEY RECEIVE

The patients who come to the Puskesmas are composed of 20 percent of underfives, 19 percent aged 5-14 years old, and the rest aged 15 years and older. The majority of patients (95%) diagnosed have one kind of disease, and the rest two kinds. From the distribution of the diseases, it can be seen that the disease most often diagnosed is ARI (DUS, 1990, CSP-I, 1987, CSP-II, 1988), followed by skin infection (DUS, 1990 and CSP-I, 1987), and diarrhea (CSP-II, 1988), respectively 41.8 percent, 17.7 percent, and 15.9 percent among underfives, and 24.0 percent, 15.0 percent, and 7.2 percent among those over fives. The order is the same as the amount of finances expended on the three diseases.

Diseases classified as diarrheal diseases in this study are loose bowels, bacillary dysentery, amoebiasis, and infection of other diseases in the intestines. Those classified as ARI are infection of the upper respiratory tract, influenza, and infection at the ears and mastoid. Classified as skin infection are diseases such as skin infection/subcutaneous infection, itch/allergy, skin disease/other subcutaneous infection, scabies, other fungal skin diseases, gonokok infection, and framboesia.

Although most patients diagnosed have only one disease, the amount of drugs dispensed indicates over-prescription. On the average, the number of kinds of drugs dispensed to a patient is 3.49 (ranging from 2.92 to 4.11 kinds). Fifty percent were given 4 kinds of drugs or more (DUS, 1990). From the CSP-I, 1987 and CSP-II, 1988 the figures are even higher, on the average four kinds, and almost 60 percent of patients were given four kinds of drugs or more.

6. WAYS TO MINIMIZE THE POLYPHARMACY TREND

Other studies conducted overseas show that there are a number of ways in which to minimize the polypharmacy trend. One way is by giving an incentive to the prescriber to dispense lower quantities of drugs (Soumerai, 1987). In one study this approach reduced dispensing of prescription by 30 percent. Other ways are through special programs for the doctor and his superior, encouraging the doctor to actively participate in "educational interaction", using "concise graphic educational material", and emphasizing and repeating essential materials (Soumerai, 1989).

In his review of 40 other studies Soumerai (1990) also showed that while some forms of additions to the educational material could be effective in changing the prescribing pattern, other forms could not. Effective forms are, among others, dialogue in visits made by a specialist who has a better understanding of the substance of the problem, such as by a clinic pharmacologist; and repeated feedbacks conveying specific recommendations to the doctor in his capacity as the prescriber.

7. DRUG COSTS

Costs for drugs per capita within the last five years have remained unchanged, but costs for vaccines have dropped. Expenses on anti-bacterial drugs are 41 percent (CSP-I, 1987) and 42.8 percent (DUS, 1990), and the use of tetracycline accounts for 7 percent of the costs. The treatment of diarrheal and ARI diseases will double, if these diseases are treated as diseases caused by bacteria, not by virus. From the costs for the treatment of diarrhea, 60 percent have been expended on anti-microbial drugs. For ARI diseases, 54 percent to 61 percent of the costs of therapy are for antibiotics. The collective expenditure on antibiotics for both these diseases totals 71 percent for underfives and 42 percent for patients aged five years old or more.

8. THE ROLE OF THE MOTHER

The mother plays a very important role as the decision-maker when her child is sick. Sarwono (1989) showed that approximately 75 percent of the decision-makers in overcoming diarrheal diseases were mothers. Thus, the mother's knowledge of a disease will play a very important role in family decisions on handling a disease. The knowledge of the mother of ARI is affected by the level of education of the mother and father themselves (T.P.Nadapdap, 1989). Knowledge could be improved by giving information on ARI, particularly through the radio and television and through health officers. Further, the mother's practices in the prevention and cure of ARI diseases is affected by her knowledge of ARI and attitude towards ARI control. However, although practices are affected by knowledge, good knowledge does not necessarily mean correct practice. This has been revealed in a number of studies of diarrhea (Prasetyo, 1990).

D. THE CONCEPTUAL FRAMEWORK

Theoretically, the health practices of a person correspond with or are preceded by knowledge. However, a number of empirical studies show that this is not always so. In one example, women have used a contraceptive device only because they are influenced by the village headman to do so; thus, not because they have knowledge of the device. In another example, most doctors know that most cases of acute diarrhea need not be treated with antibiotics, but they keep dispensing antibiotics to their patients. These examples only show that the knowledge, attitude, and practice of a person is also highly influenced by factors such as beliefs, socio-culture, and the systems in effect, besides of course the level of education and training.

This study is on the knowledge, attitudes and practices of drug managers, prescribers and patients related to ARI and diarrheal diseases, the use of antibiotics, generic drugs, and injections.

The health behavior of a person will be influenced by a number of factors which can be classified into "predisposing", "enabling", and "need" factors (Andersen, 1967), or "predisposing", "enabling", and "reinforcing" factors (Green, 1980). Based on these models, this study stresses factors that influence the relationship among the components involved in therapeutical service.

E. DESCRIPTIVE STATEMENT OF THE HYPOTHESES

1. HYPOTHESES ON THE KNOWLEDGE, ATTITUDE, AND PRACTICE OF THE PRESCRIBER

- a. The knowledge of most prescribers in diagnosing, classifying, and managing cases of diarrhea and ARI is still lacking.
- b. The practices of most prescribers in diagnosing, classifying, and managing diarrhea and ARI do not conform with recommended practices described in existing manuals.
- c. The practices of most prescribers in diagnosing, classifying, and managing diarrhea and ARI are affected by the stock of drugs, and the patients' insistence.
- d. The knowledge of most prescribers on the rational use of antibiotics is still lacking.
- e. The knowledge on which most prescribers base their prescription of antibiotics is incorrect.
- f. The practices of most prescribers in prescribing antibiotics are affected by the knowledge, stock of drugs, and patients' insistence.
- g. The knowledge of prescribers of injection is less correct.
- h. Most of the prescribers give injections to those who do not need them.
- i. Injections given by prescribers are affected by the knowledge and insistence of the patients.
- j. Polypharmacy is a common practice among prescribers.
- k. The polypharmacy practices of a prescriber are affected by the knowledge, stock of drugs, and the patients' insistence.

2. HYPOTHESES CONCERNING MATTERS RELATED TO THE AVAILABILITY OF DRUGS AT THE PUSKESMAS AND THE SUBSIDIARY PUSKESMAS

- a. Prescribers have the perception that the supply of drugs is insufficient.
- b. The knowledge of most prescribers of generic drugs is still lacking.
- c. The trust most prescribers have in the efficacy of generic drugs is still lacking.
- d. Sources of information and sources of references concerning drugs in the Puskesmas are still lacking.

3. HYPOTHESES CONCERNING THE KNOWLEDGE, ATTITUDE, AND PRACTICES OF THE PATIENT

- a. The knowledge of the patient of the drugs and injections given by the prescriber is very inadequate.
- b. Most patients consider injections as the most efficacious remedy.
- c. Most patients come to the Puskesmas for injections.
- d. Most patients judge the drugs given to them by their forms and packaging.

CHAPTER 2 METHODOLOGY

A. THE APPROACH

This study is a combination of qualitative and quantitative approaches used in complementary fashion to measure levels of knowledge and practices, and to explore reasons for such practices. In the qualitative approach, information was gathered through focus group discussion and in-depth interviews. In the quantitative approach, information was gathered through observation and through administration of a structured questionnaires. Respondents included prescribers (physicians and paramedics), drug managers, and patients at community health centers. Table 2.1 shows respondents and methods used with each type of respondent.

Table 2.1. Sources of Information and Method of Data Collection

Respondents of Study	Sources of Information	Collection Method*			
		FGD	II	Observ.	Survey
Drug Managers	Head of Dinas Tk.II			x	
	Head of RPW (GFK)			x	
	Supervisor of PKM			x	
	Head of the Puskesmas			x	
Prescribers	Doctors	x	x	x	x
	Nurses, Midwives	x	x	x	x
Patients	Patients or Caretakers of Patients			x	x

*Method: FGD=Focus Group Discussion, II=In-depth Interview, Observ.=Observation, Survey=Structured questionnaire

Several data collection activities were carried out in the field:

- 1) Observations of the interaction between patients and prescribers were carried out at 14 community health centers (Puskesmas) and at 14 subsidiary community health centers (subsidiary Puskesmas). This activity primarily addressed the practices of the prescriber in the diagnosis and management of cases of ARI and diarrhea, and prescriber practice and prescriber-patient interaction revolving around treatment.
- 2) Interviews were conducted with the prescribers who had been observed at the sites described in (1) to explore underlying knowledge and attitudes that form the basis of prescriber practices.
- 3) Interviews were conducted with patients at the sites described in (1) to explore expectations of the patient at the time of arrival at the health care facility, health care services received, and patient understanding and opinion of goods and services received.

- 4) A larger survey of prescribers (doctors and paramedics) using a structured questionnaire was carried out in a sample of Puskesmas and subsidiary Puskesmas within study regencies, excluding patient interview and observation sites. The survey provided baseline estimates of prescriber knowledge and reported practices related to diagnosis and management of ARI and diarrhea patients, prescription of antibiotics and injections, and generic drugs. The survey also addressed the opinion of the prescriber concerning the appropriate way to increase capability in diagnosing and treating cases of ARI and diarrhea.
- 5) Focus Group Discussions with prescribers were held to explore reasons underlying the management of ARI and diarrhea and the use of antibiotics and injections to augment results from the in-depth interviews of prescribers.
- 6) In-depth interviews with drug managers were held to collect information on various managerial problems concerning drugs at the regency level. Managers interviewed included the head of the Dinas Tkt.II, head of the regency pharmaceutical warehouse (RPW/GFK), head of the Health Recovery Section of the Dinas Tkt.II, and heads of the selected Puskesmas as managers of the health center. This activity addressed the knowledge managers have, and their practices concerning the management information system, planning, distribution, and use of drugs, and the regional system of supervision.

B. LOCATION OF THE STUDY

1. SELECTION OF THE PROVINCES

The study was conducted in two provinces, East Java and West Sumatera. These were selected out of the six provinces included in the 1990 drug use study to represent one area in Java and one area from the populous outer islands. Considerable background information had also been gathered from both these provinces. Two other provinces (East Kalimantan and West Nusa Tenggara) were not selected because they had been made the sites of the HP III project of the World Bank. North Sumatera was not chosen because of its distance and the difficulty of access to the area where the drug use study had been conducted.

2. SELECTION OF THE REGENCIES (KABUPATEN)

Regencies for the study were chosen from among the sites to be used for intervention trials later in the project. In East Java this study was conducted in Gresik, Pasuruan, and the Malang regency, chosen from the regencies of Surabaya, Gresik, Bojonegoro, Pasuruan, Kediri, and Malang. Gresik and Pasuruan regencies, and later Malang regency, were chosen because they were designated control areas in the intervention plan. In West Sumatera the selected regencies were Solok and Pasaman, out of the possible regencies of 50-Koto, Padang, Pariaman, Pasaman, Solok, and Bukittinggi.¹

¹ Sites based on the working paper of Drs. Yos E Hudyono, "Proposed Strategy and Manual on the Design of Intervention", presented in the Workshop for the Coordinators of the Activities of the PIO-Pharmaceuticals in Bogor, November 9-10, 1990.

C. DEVELOPMENT OF THE INSTRUMENTS

Eight forms were developed for data collection during this study, which are described below, and shown in the appendix.

Forms that were used during the prescriber observation, prescriber in-depth and structured questionnaires were developed with the assistance and review of many informed officers of the Ministry of Health and the university. In particular, MOH experts on the national programs for ARI, for diarrhea, and pharmaceuticals were consulted several times, and in addition attended an all-day seminar to review study questions and the instruments with the study staff.

Several of the prescriber instruments of the study were pretested to test their validity. Pre-testing was conducted at the Kantor Dinas Kesehatan Tk.II Bogor and at the Situ Udik Puskesmas, Cibung Bulang, a rural area in Bogor, West Java on January 11, 16 and 17, 1991. The pre-test focused on whether the questions were correctly understood, easily answered, and inoffensive. It was found that the time needed for the implementation of certain instruments was too long. All these instruments were later revised. However, a second pretest of the instruments could not be carried out due time pressure to complete field work before the start of the fasting month.

Due to other time and finance constraints, other pretests in the field could not be carried out, but mock pretests were carried out in the office setting.

D. OBSERVATION, INTERVIEW OF PATIENTS, AND IN-DEPTH INTERVIEW OF PRESCRIBERS

1. DATA COLLECTION METHODS

a. Interviews With the Patients

All patients arriving at the Puskesmas were interviewed. Basic characteristics (age, sex, education) and the purpose of coming to the health center were recorded. Among those patients who came because of illness, further questions were asked on expectations about treatment. The interview also screened patients to determine those suffering from ARI or diarrhea, because those patients were designated for observation during interaction with the prescribers. Patients who complained of any of the symptoms of vomiting, diarrhea, stomach ache, fever, cough, runny nose, or difficult breathing were those defined as suffering from ARI or diarrhea. Patients suffering from ARI or diarrhea at the entry interview were given a white card to carry into the observation room, and those with other illnesses were given a card colored with one of several pastel colors to carry into the observation room. In this way, the observer in the examining room could identify patients eligible for observation.

An attempt was made to interview all arrivals at the selected health centers on the designated day of observation for the entry interview, which resulted in a total of 789 entry interviews. Among those, 589 came because of illness. This group of ill patients were questioned about expectations of services to be received at the Puskesmas. All ill patients were again interviewed when leaving the Puskesmas or subsidiary Puskesmas ("Exit Interview"), regardless of which illness they were suffering from. Exit interviews were conducted with 580 patients.

b. Observation of the Prescriber-Patient Interaction

The observation of the prescriber-patient diagnosis and treatment process was made of those patients suspected of having ARI or diarrhea, based on the symptoms described in the "Entry Interview". Observations were made of 426 cases.

c. In-Depth Interviews with the Prescribers

In-depth interviews were held with all prescribers who had been observed at the concerned Puskesmas or subsidiary Puskesmas, for the purpose of understanding factors that the prescribers may take into consideration in the diagnoses and handling of the patients. In-depth interviews were held with 50 prescribers, three quarters were paramedics and one quarter doctors.

2. DATA COLLECTION INSTRUMENTS

a. Form A Entry Interview

This instrument was for interviewing patients at their arrival at the Puskesmas or subsidiary Puskesmas, and for screening patients for eligibility for observation. The form contained questions on the purpose of coming to the health center, expectations of the ill patients coming to the health center regarding services to be received, providers of the services, and drugs and injections.

b. Form B Checklist

A check-list for the observation of the patients and prescribers for recording the process and content of the prescriber-patient transaction, particularly on:

- physical complaints of the patient
- illness history questioning by the prescriber
- patient responses to prescriber questions
- the process of examination by the prescriber
- prescriber instructions and explanations to the patient
- requests of the patient to the prescriber
- any reactions of the prescriber to patient requests.

c. Form C Exit Interview

This instrument was used for interviewing the patients after receiving services at the Puskesmas/subsidiary Puskesmas. The form contained questions on services and goods the patients received (services, drugs, injections), the opinion of the patients of the services and goods they received, and the understanding of the patients related to the goods and services they received.

d. Form D In-depth Interview

This instrument guided the in-depth interview with prescribers who had been observed, to obtain information on the reasons that form the basis for the prescribers in diagnosing and providing therapy for patients with diarrhea and ARI, and prescribing antibiotics and injections.

e. **Form F Puskesmas Information**

This instrument was for recording information about the Puskesmas on the day of the study, such as the number and hour of patients arriving, the stock of drugs, the availability of educational resources such as posters, manuals etc.

3. SELECTION AND TRAINING OF INTERVIEWERS AND OBSERVERS

The patient entry and exit interviews and the observations were carried out by medical students in their last year of training, with supervision from the team from Jakarta. The medical students were recruited from local universities in the two provinces, Universities of Airlangga, Brawijaya and Hasanuddin. The students were given one day of training before going to the field. In the field, Center for Child Survival staff carried out supervision on the health center site, and met daily with the medical students. Editing of data collected was carried out nightly by the CCS staff and checked with the relevant interviewer the next day.

4. SELECTION OF HEALTH CENTER SITES

A list of study sites is given in Table 2.2. The selection of the Puskesmas and subsidiary Puskesmas sites for patient interviews, observations, and in-depth interviews of the prescribers was done in the following way. Out of a listing of all Puskesmas and subsidiary Puskesmas in a regency, an approximately proportionate number of Puskesmas and subsidiary Puskesmas were selected randomly from each kabupaten (regency). In East Java, where the majority of Puskesmas rank in strata I, all Puskesmas were chosen from strata I. In West Sumatera, Puskesmas are divided between strata I and strata II, so the number of Puskesmas picked from each strata was proportional to their representation in the regency. The strata were taken into account because stratum-I generally has better services and more or specialized personnel than stratum II. Normally a Puskesmas of stratum I has a greater number of patient visits.

Following the Puskesmas selection, the subsidiary Puskesmas were selected randomly from all subsidiary Puskesmas existing in the sub-districts selected as the locations of this study. The reasons that the subsidiary Puskesmas were selected from amongst those found in the same area as the selected Puskesmas were:

- a) to see how the subsidiary Puskesmas conducted their activities, since they were all under the supervision of the Puskesmas of the concerned sub-districts.
- b) in the plan, the training of the personnel of the subsidiary Puskesmas would be done by the concerned Puskesmas.

Based on the above-mentioned measures, 14 sub-district Puskesmas and 14 subsidiary Puskesmas were selected as the locations where the interview of the patients, the observation, and the in-depth interview of the prescribers would be held.

Observation was made generally of one or two prescribers who were seeing patients on the day of the study visit, with two study staff people designated for observation duties. If there were more than 2 prescribers practicing, the prescriber most likely to see children was chosen, and the more senior prescriber was chosen. The observer sat on the side of the examining room throughout the morning prescribing session with instructions to observe and not engage in the therapeutic process.

Table 2.2. Sample Puskesmas and Subsidiary Puskesmas Where Patient Interviews, Observations and In-Depth Interviews of Prescribers Were Held

Province / Kabupaten	Puskesmas	Sub-Puskesmas
<u>West Sumatera</u>		
Kabupaten Solok	1. Selayo 2. Alahan Panjang 3. Sungai Lasi	1.Koto Hilalang 2.Kayu Aro 3.Guguh Sari
Kabupaten Pasaman	1. Tapus 2. Bonjol	1.Rambahan 2.Kumpulan
<u>East Java</u>		
Kabupaten Madiun	1. Mejayan 2. Balerejo 3. Kebonsari	1.Wonorejo 2.Babadan Lor 3.Pucang Anom
Kabupaten Pasuruan	1. Purwosari 2. Prigen 3. Gondang Wetan	1.Tejawangi 2.Leduk 3.Bayeman
Kabupaten Gresik	1. Dukun 2. Sedayu 3. Duduk Sampeyan	1.Wonokerto 2.Lasem 3.Tambak Rejo
Total	14 Puskesmas	14 Sub-Puskesmas

Table 2.3. Distribution of In-Depth Interview Respondents Based on Manpower Category and Province

Province	<u>Manpower Category</u>		Total
	Doctor	Paramedic	
West Sumatera	3	13	16
East Java	10	24	34
Total	13	37	50

E. THE BROADER SURVEY OF THE PRESCRIBERS

As part of this study a broader survey of the KAP's of the prescribers was also made.

1. DATA COLLECTION METHODS

Data were collected using structured questionnaires for interviewing selected doctors or paramedics. The questionnaires were composed of close-ended questions, clearly written so that respondents could self-administer the instrument. Nonetheless, the majority of prescribers were interviewed by study staff since logistics in the field required an interviewer to visit each site one time.

Respondents of the survey were doctors and paramedics charged with examining the patients of the Puskesmas and subsidiary Puskesmas in the study regencies. Health care center sites of observation and patient interviews were drawn from the same list as that used in the structured survey. First the Puskesmas and subsidiary Puskesmas used for observation were selected. Then a random selection was made of approximately 50 percent of the remaining Puskesmas and subsidiary Puskesmas. All those doctors and paramedics (nurses, midwives) charged with examining the patients of the selected Puskesmas/subsidiary Puskesmas who were available at the time of the visit were interviewed.

Based on the steps described above, 205 prescribers were included in the survey. Prescribers from 12 Puskesmas and 15 subsidiary Puskesmas in West Sumatera were interviewed, and from 33 Puskesmas and 27 subsidiary Puskesmas in East Java were interviewed.

2. DATA COLLECTION INSTRUMENT: FORM E

The questionnaire was used to obtain information on the knowledge and reported practices of the prescribers in diagnosing and treating cases of ARI and diarrhea, and practices in prescribing antibiotics and injections, and the opinions of the prescribers on ways to build up their capability to diagnose and treat diarrhea and ARI. The form paralleled that used in the in-depth interview of prescribers but used closed questions as opposed to the open ended approach.

F. FOCUS GROUP DISCUSSION OF THE PRESCRIBERS

1. DATA COLLECTION METHODS

Eight focus group discussions were held during this study with doctors and paramedics of selected Puskesmas/subsidiary Puskesmas. In each province, two discussions were held with doctors and two paramedics. For each discussion six participants were selected who were relatively homogenous with respect to the duration of employment and experience, exposure or non-exposure to training on ARI and diarrhea. The selection of the participants was made by the concerned Dinas Kesehatan Daerah Tkt.II. The discussions took place in late July and early August 1991.

2. DATA COLLECTION INSTRUMENT: FORM H

This instrument contained guidelines for the topics in the focus group discussion with the prescribers of the Puskesmas. The list of topics included the use of antibiotics and injections, and matters concerning the diagnosis and handling of the cases of ARI and diarrhea, generic drugs, the planning, procurement and use of drugs.

G. IN-DEPTH INTERVIEW OF THE MANAGERS

1. DATA COLLECTION METHODS

Information was collected from managers by holding in-depth interviews with the Head of the Dinas Kesehatan Tk.II, the Head of the Regencial Pharmaceutical Warehouse, the Head of the Health Recovery Section(supervisor of the Puskesmas), and the Head of the Puskesmas. These interviews took place in late July and early August 1991.

All managers at the kabupaten level (three categories of officials as mentioned above) of the selected kabupaten were made the respondents. In addition, one head of the Puskesmas from the concerned kabupaten was also selected randomly as the respondent.

2. DATA COLLECTION FORM: FORM G

This instrument contained guidelines for obtaining information on the knowledge and practice of the managers on the management information system, planning, distribution, allocation of budget and stock of drugs, and other matters related the system of supervision.

Table 2.4. Data Collection Activities Carried Out by Province - Number of Sites and Respondents

Data Collection Activity	WEST SUMATERA						EAST JAVA					
	PKM	PP	Dr/M	Pm	Pt	Int	PKM	PP	Dr/M	Pm	Pt	Int
1. Interview of patients:												
"Entry"	5	5	-	-	174	-	9	9	-	-	615	-
"Exit"	5	5	-	-	131	-	9	9	-	-	449	-
2. Observation of Prescriber-Patient Interaction	5	5	-	-	-	85	9	9	-	-	-	341
3. In-depth Interview of Prescribers	5	5	3	13	-	-	9	9	10	24	-	-
4. Survey of Prescribers	14	16	15	48	-	-	39	31	33	109	-	-
5. FGD of Prescribers	12	-	12	11	-	-	12	-	12	14	-	-
6. In-depth Interview of Managers												
Doctors of Puskesmas as Managers			2						3			
Head of Dinas			2						3			
Head of GFK			2						3			
Section head of Mulkes			2						3			

Note:

PKM = Puskesmas, PP = Subsidiary Puskesmas, Dr/M = Doctor/Manager
Pm = Paramedics, Pt = Patients, Int = Prescriber-Patient Interaction
Dinas = Provincial level MOH Office, Mulkes = Health Recovery Section,
GFK = Regencial Pharmaceutical Warehouse

3. ISSUES REGARDING DATA COLLECTION METHODS

In this study, a number of compromises were made to accommodate the multiple needs for the study. In addition, other issues arose and decisions were taken that compromised to a certain extent the data collected. These issues are listed below:

- a) Puskesmas selection procedures differed slightly in East Java and West Sumatera based on strata of Puskesmas selected. In West Sumatera, both Puskesmas of strata I and II were selected and in East Java most Puskesmas were of strata I, therefore only strata I was included in the selection. Selection should have been the same in both areas. However, since little difference is seen in results between provinces and between practices in the Sub-puskesmas and Puskesmas, the difference in selection procedure is probably not seriously affecting results.
- b) Observers were instructed to record the process of diagnosis for patients with ARI and diarrhea, signified by their carrying a white card into the observation room. Observations were made of 426 cases. However only 392 were eligible for observation based on symptom data. Thus, for analysis where all observation cases are used, patients with illnesses other than ARI or diarrhea may be included. However, these analyses focus on general questions and procedures only, so little effect of this inclusion is expected in the results.
- c) Confusion over data entry procedures for the exit interview of patients resulted in a substantial proportion of data that could not be analyzed without repeat entry. Due to time limitations, repeat entry was not done and some analysis has been omitted.
- d) In the structured survey, constraints on the sampling were many, since this portion of the study was of lowest priority, and had to be completed by the same study personnel carrying out patient interviews and observations. The structured survey was carried out in the afternoons after observations were finished, thus sample selection was influenced by observation site selection. First, the unit for randomized selection in the sample was the health care site, while the survey itself is based on prescribers. Prescribers were not chosen for the sampling procedure because of the lack of the appropriate sampling frame. All prescribers available at a site were interviewed because of the desire to include both paramedics and physicians in the study. Sites that were most distant from observation sites were eliminated from the selection because of time constraints on the interviewers. Also, few return visits were allowed for in the schedule of observation.

CHAPTER 3
DESCRIPTION OF THE SAMPLES AND THE PUSKESMAS
WHERE THE STUDY WAS CONDUCTED

As described in Chapter 2, the respondents of this study include:

- 1) managers, including the Head of the Provincial Ministry of Health Office Level II (Kantor Departemen/Dinas Kesehatan Daerah Tkt.II), the Head of the Regencial Pharmaceutical Warehouse, the Head of the Health Recovery Section of the Dinkes Daerah Tkt.II, and the Head of the Puskesmas;
- 2) prescribers, including doctors, nurses, and midwives in charge of treating the patients of the Puskesmas and subsidiary Puskesmas; and
- 3) patients who came to the study Puskesmas and subsidiary Puskesmas on the day patient surveys and observations were being conducted.

Following is a description of the samples of respondents, and the health care centers where the surveys and observation were taken.

A. THE CHARACTERISTICS OF THE SAMPLES

1. MANAGERS

Managers interviewed, who were heads of the Kantor Departemen/Dinas Kesehatan Daerah Tkt.II, were in general senior officials who had held their present offices for at least two years. Some had further studies in public health and gained the M.P.H. degree.

The heads of the Health Recovery Section interviewed were primarily doctors; two however were senior paramedics.

All interviewed heads of the Regencial Pharmaceutical Warehouse were pharmacists. Some had been holding the position for only one year.

Heads of the Puskesmas who were interviewed in their capacity as managers were doctors who had acted for more than two years as heads of the Puskesmas.

2. PRESCRIBERS SURVEYED USING THE STRUCTURED QUESTIONNAIRE

Doctors and paramedics responding to the structured questionnaire were fairly experienced (Table 3.1). Out of 205 respondents, 60 percent had 5 or more years of experience in the treatment of patients, while only 18 percent had less than 3 years. The length of experience differed little between doctors and paramedics, heads of Puskesmas and Sub-puskesmas, or between Java and West Sumatera (Tables 3.2-3).

According to educational background, more than half the respondents were nurses (61%) followed by doctors (23%) and then midwives (16%). The distribution of respondent types was the same in each province. Doctors that staffed the health centers were more likely from the Puskesmas than sub-puskesmas; the 15 percent of doctors from the sub-puskesmas were located in Java (Tables 3.4-5).

Table 3.1. Number of Years Treating Patients, by Facility

Number of Years	Facility		Total n=205 (%)
	Puskesmas n=124 (%)	Sub- Puskesmas n=81 (%)	
Less than 3 years	14.5	23.5	18.0
3 to 5 years	19.4	24.7	21.5
More than 5 years	66.1	51.9	60.5

Table 3.2. Number of Years Treating Patients, by Prescriber Type

Number of Years	Prescriber		Total n=205 (%)
	Doctor n=48 (%)	Paramed. n=157 (%)	
Less than 3 years	25.0	15.9	18.0
3 to 5 years	25.0	20.4	21.5
More than 5 years	50.0	63.7	60.5

Table 3.3. Number of Years Treating Patients, by Province

Number of Years	Province		Total n=205 (%)
	W. Sumatera n=63 (%)	E. Java n=142 (%)	
Less than 3 years	23.8	15.5	18.0
3 to 5 years	25.4	19.7	21.5
More than 5 years	50.8	64.8	60.5

Table 3.4. Highest Formal Education of Prescriber, by Facility

Formal Education	Facility		Total n=205 (%)
	Puskesmas n=124 (%)	Sub-Puskesmas n=81 (%)	
Faculty of Medicine	29.0	14.8	23.4
High School of Nursing	55.7	67.9	60.5
High School of Midwifery	15.3	17.3	16.1

Table 3.5. Highest Formal Education of Prescriber, by Province

Formal Education	Province		Total n=205 (%)
	W.Sumatera n=63 (%)	E.Java n=124 (%)	
	Faculty of Medicine	23.8	
High School of Nursing	63.5	59.2	60.5
High School of Midwifery	12.7	17.6	16.1

Table 3.6. Frequency of Exposure to Training-Courses within the Last Three Years, by Prescriber Facility

Frequency of Training	Facility		Total n=205 (%)
	Puskesmas n=124 (%)	Sub- Puskesmas n=81 (%)	
	Training on ARI		
Never	82.3	83.9	82.9
Once	13.7	11.1	12.7
Twice or more	4.0	4.9	4.5
Training on Diarrhea			
Never	79.8	93.8	85.4
Once	14.5	2.5	9.8
Twice or more	5.6	3.7	4.9
Other Training-Courses			
Never	72.6	76.5	74.1
Once	15.3	14.8	15.1
Twice or more	12.0	8.6	10.8

Table 3.7. Frequency of Exposures to Training-Course within the Last Three Years, by Prescriber Type

Frequency of Training	Prescriber		Total n=205 (%)
	Doctor n=48 (%)	Paramed. n=157 (%)	
Training on ARI			
Never	62.5	89.2	82.9
Once	33.5	6.4	12.7
Twice or more	4.2	4.4	4.5
Training on Diarrhea			
Never	72.9	89.2	85.4
Once	20.8	6.4	9.8
Twice or more	7.3	4.5	4.9
Other Training-Courses			
Never	66.7	76.4	74.1
Once	18.8	14.0	15.1
Twice or more	14.7	9.6	12.8

Table 3.8. Frequency of Exposure to Training within the Last Three Years, by Province

Frequency of Training	Province		Total n=205 (%)
	W.Sumatera n=48 (%)	E.Java n=157 (%)	
Training on ARI			
Never	77.8	85.2	82.9
Once	15.9	11.3	12.7
Twice or more	6.4	3.5	4.4
Training on Diarrhea			
Never	93.7	81.6	85.4
Once	4.8	12.0	9.8
Twice or more	1.6	6.3	4.9
Other Training-Courses			
Never	68.3	76.8	74.1
Once	19.1	13.4	15.1
Twice or more	12.7	9.8	10.8

Although experience in treating patients was lengthy among the respondents, little training in treatment of ARI or diarrhea had been received by the majority of prescribers (Tables 3.6-8). In the three years preceding the sample, over 80 percent of prescribers reported they had not attended any training courses. Among the training that had occurred, doctors were somewhat more likely than paramedics to have attended additional training for ARI. In East Java, training in diarrhea had been more frequent than for ARI, while in W. Sumatera, training in ARI was slightly more common than training in diarrhea.

3. THE PATIENTS

There were 789 patients or caretakers of patients enumerated at 27 Puskesmas or subsidiary Puskesmas during the study. Each health care center was visited for one morning. Patients were interviewed, but in cases where the patient was a child, the caretaker was made the respondent. Most questions in the patient surveys refer to the caretakers expectations about the visit, but some questions refer to the patient condition.

Table 3.9 shows the demographic characteristics of the respondents, who were primarily adults distributed over all ages. Far more females came to the health centers than males; nearly 3/4 of respondents were female. The sample is fairly well educated in that over 30 percent had completed elementary education and another 30 percent who had had some junior high school or more.

Over three quarters of the arrivals at the Puskesmas came for treatment because of illness (Table 3.10). Another 13 percent arrived for prenatal care, more frequently in Java than in West Sumatera. Family planning services and immunization however drew relatively few attendants on the days of observation.

Among the ill patients, only 15.5 percent were enumerated under the age of five (Table 3.11). Young children both under and over age two were enumerated, but overall their representation in the patient sample is relatively small given underlying morbidity patterns.

Symptoms most commonly expressed by all arriving patients included fever (32%), cough (35%) and influenza (21%) (Table 3.12). This pattern is apparent because of the predominance of these symptoms among children under five. Among children, fever was a complaint for nearly 65 percent of arriving children; 60 percent complained of cough, and 52 percent complained of runny nose or influenza.

Table 3.9. Characteristics of the Respondents, by Province*

Characteristic of Respondents	Province		Total n=789 (%)
	W. Sumatera n=174 (%)	E. Java n=615 (%)	
Age:			
0-14 years	1.2	3.6	3.0
15-29 years	33.9	42.8	40.8
30-44 years	36.2	30.6	31.8
45+ years	28.2	22.4	23.7
Unknown	0.6	0.6	0.6
Sex :			
Male	34.2	25.9	28.1
Female	63.8	74.1	71.9
Level of Education:			
Never go to school	3.4	17.4	14.3
Do not complete Elementary School	13.8	21.0	19.4
Complete Elementary School	28.7	36.1	34.5
Junior High School and higher	54.0	25.5	31.8
Is the respondent also the patient?			
Yes	70.3	72.7	72.2
No	29.3	27.3	27.8

*Respondents include 570 patients, and 219 caretakers of patients.

Table 3.10. Distribution of Respondents, by Purpose of Visit to Puskesmas and by Province

Purpose of Visit	Province		Total n=789 (%)
	W. Sumatera n=174 (%)	E. Java n=615 (%)	
To get treatment, because patient is ill	79.3	73.3	74.7
Because of accident injury	7.5	2.4	3.5
Immunization	1.2	2.0	1.8
Prenatal Visit	6.9	15.0	13.2
Family Planning	4.0	2.0	2.4
Other	1.2	5.4	4.4

Table 3.11. Distribution of Ill Patients, by Age and Sex

Age Group	W. Sumatera			Java			Both Provinces		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
N	66	72	138	190	261	451	256	333	589
	%	%	%	%	%	%	%	%	%
0-4	21.2	15.3	18.1	16.3	13.4	14.6	17.6	13.8	15.5
<2	9.1	9.7	9.4	6.8	5.8	6.2	7.4	6.6	7.0
2-4	12.1	5.6	8.7	9.5	7.7	8.4	10.2	7.2	8.5
5-14	9.1	13.9	11.6	20.8	16.9	21.1	22.3	16.2	18.9
15+	69.7	70.8	70.3	56.8	69.7	64.4	60.2	70.0	65.8
Tot	100.0	100.0	100.0	100.0	100.0	100.1	100.0	100.0	100.2

Table 3.12 Ill Patients' Complaints, by Province

Complaint	All Ages			Patients Under Five		
	W.Sumatera n=138 (%)	E.Java n=451 (%)	Total n=789 (%)	W.Sumat.	E.Java	Total
Itch/Allergy	15.9	12.6	13.4	20.0	15.2	16.5
Scabies	2.2	1.3	1.5	0.0	3.0	2.2
Headache	21.0	18.8	19.4	8.0	4.6	5.5
Loss of vitality	5.1	4.2	4.4	0.0	7.6	5.5
Cold	0.7	1.1	1.0	0.0	0.0	0.0
Vomit	2.2	4.9	4.2	0.0	18.2	13.2
Diarrhea	5.1	6.6	6.3	16.0	18.2	17.6
Stomachache	13.8	9.1	10.2	16.0	10.6	12.1
Fever	29.0	33.3	32.2	60.0	66.7	64.8
Cough	41.3	35.3	35.0	64.0	59.1	60.4
Influenza	22.5	21.1	21.4	56.0	50.0	51.6
Short-windedness	8.7	10.9	10.4	0.0	7.6	5.5
Other symptoms	32.6	38.6	37.2	16.0	13.6	14.3

B. THE PUSKESMAS AND SUBSIDIARY PUSKESMAS SERVING AS THE SITES OF THE STUDY

Tables 3.13 and 3.14 relate information on reference materials on ARI and diarrhea available at the study Puskesmas on the day of observation. Half of the Puskesmas and only a small portion of the subsidiary Puskesmas had the list of essential drugs, the manual on the therapy standard, and the IMS/ISO in their premises. Even in cases where reference materials were available, they were often not kept in the examination room, which implies that prescribers could not easily refer to the materials if and when needed.

The majority of the Puskesmas had posters, exhibits, or pamphlets on diarrhea and ARI on the premises, but not in the examination room. Only a small portion of the subsidiary Puskesmas however had similar materials.

Table 3.13. Reference Materials for Case Management: Number of Observed Puskesmas and Sub-Puskesmas Where Materials Were Available

Type of Material	Facility	
	Puskesmas n=14	Sub-Puskesmas n=14
1. List of Essential Drugs		
-Available in the examination room	0	1
-Available in the building	7	2
2. Manual on Standard of Drugs		
-Available in the examination room	2	1
-Available in the building	7	4
3. IMS/ISP Drug Brochures		
-Available in the examination room	0	0
-Available in the building	3	0
4. Posters/Exhibits/Pamphlets on Oralit		
-Available in the examination room	3	0
-Available in the building	10	5
5. Posters/Exhibits/Pamphlets on ARI		
-Available in the examination room	2	1
-Available in the building	8	2

Table 3.14. Reference Materials for Case Management: Number of Facilities Where Materials Were Available, by Province

Type of Material	Province	
	W.Sumatera n=10	E.Java n=18
1. List of Essential Drugs		
-Available in the examination room	0	1
-Available in the building	2	7
2. Manual on Standard of Drugs		
-Available in the examination room	3	0
-Available in the building	5	6
3. IMS/ISP Drug Brochures		
-Available in the examination room	0	0
-Available in the building	2	1
4. Posters/Exhibits/Pamphlets on Oralit		
-Available in the examination room	0	3
-Available in the building	5	10
5. Posters/Exhibits/Pamphlets on ARI		
-Available in the examination room	1	2
-Available in the building	6	4

CHAPTER 4
THE KNOWLEDGE, ATTITUDE, AND PRACTICES OF PRESCRIBERS
IN MANAGING CASES OF DIARRHEA AND ACUTE INFECTION
OF THE RESPIRATORY TRACT (ARI)

A. MANAGEMENT OF CASES OF DIARRHEA

1. MANUAL ON THE MANAGEMENT OF DIARRHEAL DISEASE CASES

The Ministry of Health has issued a manual on the management of diarrhea as part of the manual on standard therapy at the Puskesmas, which is known as the "red book". In the focus group discussions and in-depth interviews, respondents were asked whether they know of the therapy manual, and if they apply the instructions in the manual when dealing with cases of diarrhea.

Most of the prescribers from West Sumatera, and nearly all from East Java, knew that there was a standard for treatment of patients with diarrhea which could be found in the manual published by the Ministry of Health. Only a small minority did not know of the manual or said there was no such manual. Although the majority knew of the manual, many prescribers said they did not use the standard, or used it only occasionally. Roughly one third of respondents said they never used the standard in the treatment of diarrhea. Another third used the standard book only occasionally, and the remaining third said they often use the standard.

Reasons put forward for failure to observe the therapy manual are as follows:

- a) Standard therapy cannot be observed because it depends on the fluctuating stock of drugs. If drugs are out of stock, prescribers are compelled to prescribe drugs that conflict with the standard. This situation was reported to occur frequently, and holds for both doctors and paramedics.
- b) According to prescribers, prescribing only Oralit to patients with acute diarrhea results in some risk of further illness to the patient. Some felt Oralit alone would not result in quick recovery, and that antibiotics were needed to treat the cause of diarrhea. Many prescribers thought that giving antibiotics with diarrhea would prevent secondary infection and lower the case fatality rate. Therefore, a patient with acute diarrhea should be given antibiotics, especially if accompanied by fever, because of a suspected bacterial infection. Such was the opinion of the majority of the doctors. Paramedics generally made no distinction between the different causes of infection; bacteria, virus, or whatever.
- c) Other prescribers felt treatment should depend on the individual case, and therapy should be prescribed in accordance with the characteristics of the case.
- d) The prescriber's desire is to satisfy the patients. Usually, patients with mild diarrhea are given vitamins or injections in addition to Oralit, because they will not feel satisfied with only Oralit. Injections are what they like very much. Some prescribers thought patients with diarrhea who come to the health center have usually already taken Oralit, which they get from the Posyandu cadres or elsewhere. Patients come to the Puskesmas with the expectation that they will be given other kinds of drugs. Consequently, prescribing only Oralit will not satisfy them.

2. KNOWLEDGE OF THE CLASSIFICATION OF DIARRHEA

At least since 1988, the Ministry of Health has classified diarrhea into categories where acute and chronic states and levels of dehydration are recognized. In the structured survey, prescribers were asked how they generally classify cases of diarrhea that they treat. Most prescribers do not observe the above distinctions in classifying a patient's diarrheal disease. Tables 4.1 and 4.2 below show that dehydration is not generally emphasized. Forty-two percent of the prescribers diagnose the disease as diarrhea only, without further detail. Only about one quarter classify the diarrhea into that with or without dehydration. Similarly, only one quarter diagnose in terms of acute or chronic diarrhea, and diarrhea with or without blood and mucus, all of which represent indications of whether antibiotics are needed or not.

Prescribers of West Sumatera have a significantly greater tendency to diagnose all types of diarrhea as only diarrhea than those of East Java. Those who classify diarrhea using acute-chronic, with-without blood and mucus, with-without dehydration distinctions, are proportionately greater in East Java than in West Sumatera.

Among prescribers, doctors are more likely to classify diarrhea by degrees of dehydration than paramedics. The proportion paramedics classifying diarrhea into "only diarrhea" is twice that of doctors; while the proportion of doctors classifying diarrhea "with-without dehydration" is twice that of paramedics.

Table 4.1. Proportion of Prescribers Using Certain Classifications of Diarrhea, by Province

Classification of Diarrhea by the Prescriber	Province		Total N=205
	W.Sumatera N=63	E. Java N= 142	
Only diarrhea	58.7	34.5	42.0
Acute-chronic diarrhea with blood and/or mucus	7.9	32.4	24.9
Diarrhea with or without dehydration	19.1	29.6	26.3
Others	14.3	3.5	6.8

25

Table 4.2. Proportion of Prescribers Using Certain Classifications of Diarrhea, by Prescriber Type

Classification of Diarrhea by Prescriber	Prescriber			Total N=205 (%)
	Doctor N=48 (%)	Nurse N=37 (%)	Midwife N=120 (%)	
Only diarrhea	22.9	47.5	48.7	42.0
Acute-Chronic Diarrhea/ with blood and/or mucus	25.0	25.0	24.3	24.9
Diarrhea with or without dehydration	39.6	23.3	18.9	26.3
Others	12.5	4.2	4.2	6.8
Total	100.0	100.0	100.0	100.0

3. MEASURES TAKEN BY THE PRESCRIBERS IN DIAGNOSING DIARRHEA

According to the WHO manual (1990), there are a number of important steps in diagnosing diarrhea, including anamnesis and a physical examination. Anamnesis should cover such questions as:

- a) the span of time the patient has been suffering from diarrhea; the consistency of the feces; the presence or absence of blood;
- b) presence of fever, convulsion, others (cough, measles);
- c) food eaten before the patient started suffering from diarrhea, types and amount of liquid; and
- d) food eaten during the time the patient is suffering from illness, the drugs he takes, etc.

An examination should cover:

- a) the general condition (nervousness, consciousness, dehydration);
- b) eyes hollow, crying without tears;
- c) tongue and mouth;
- d) thirsty or not, still able to drink or not; and
- e) turgor, palpation of the pulse, temperature.

In the structured survey, respondents were asked what steps they take in performing a diagnosis. The results, given in Tables 4.3 and 4.4, show the vast majority of prescribers report taking appropriate steps in diagnosing diarrhea. In general, more than 90 percent of prescribers said they practice anamnesis, physical examination, and look at the general condition of patients. Almost 100 percent of the prescribers report that they conduct an examination of two important indicators of dehydration, the presence of turgor and hollowness of the eyes.

Table 4.3. Proportion of Prescribers Reporting Specific Measures Taken in Diagnosing Diarrhea, by Province

Measures Taken by Prescriber in Diagnosing Diarrhea	Province		Total N= 205 (%)
	W.Sumatera N = 63 (%)	E. Java N = 142 (%)	
* Anamnesis	100	99	99
* Physical Examination	98	96	97
* Examine Turgor	100	98	99
* Examine whether eyes are hollow or not	98	97	98
* Look at the general condition	97	92	93

Table 4.4. Proportion of Prescribers Reporting Specific Measures Taken in Diagnosing Diarrhea, by Manpower Status

Measures Taken by Prescriber in Diagnosing Diarrhea	Prescriber			Total N=205 (%)
	Doctor N=48 (%)	Nurse N=120 (%)	Midwife N=37 (%)	
* Anamnesis	100	97	99	99
* Physical Examination	96	100	96	97
* Examine Turgor	100	100	98	99
* Examine whether eyes are hollow or not	98	97	98	98
* Look at the general condition	92	97	93	93

Table 4.5. Proportion of Prescribers Taking All Appropriate Measures in Diagnosing Diarrhea, by Province

Measures Taken By Prescriber in Diagnosing Diarrhea	Province		Total N=205 (%)
	W.Sumatera N = 63 (%)	E.Java N=142 (%)	
* All measures	95.2	87.3	89.8
* Not all measures	4.8	12.7	10.2
Total	100.0	100.0	100.0

Table 4.6. Proportion of Prescribers Taking All Appropriate Measures in Diagnosing Diarrhea, by Manpower Status

Measures Taken By Prescriber in Diagnosing Diarrhea	Prescriber			Total
	Doctors N=48 (%)	Nurses N=120 (%)	Midwives N=37 (%)	N=205 (%)
* All measures	87.5	89.2	94.6	89.8
* Not all measures	12.5	10.8	5.4	10.2
Total	100.0	100.0	100.0	100.0

4. DISPENSING OF ORALIT TO PATIENTS WITH DIARRHEA

In the standard therapy manual issued by the Ministry of Health, oral rehydration solution Oralit is indicated for all types of diarrhea. When prescribers were asked whether they usually prescribe Oralit for certain types of diarrhea (Table 4.7 and 4.8), only 68 percent of the prescribers report giving Oralit to all patients with diarrhea, and 83 percent report giving it to cases with mild or moderate dehydration. Small differences occur between proportions prescribing Oralit for diarrhea with dehydration and proportions prescribing it for other conditions, showing that mild and moderate dehydration is one indicator, but not the only indicator, for prescribing Oralit.

According to the MOH, acute diarrhea should be given priority over other types of diarrhea in receiving Oralit; next comes chronic diarrhea, and then diarrhea accompanied with blood¹. The results of the study show that both doctors and paramedics more frequently prescribe Oralit for high priority cases. A case of acute diarrhea is most likely to receive a prescription of Oralit, after which follows chronic diarrhea and diarrhea with blood.

In general proportions prescribing Oralit for the various conditions of diarrhea are higher in West Sumatera than in East Java. Doctors are less likely to prescribe Oralit than either nurses or midwives for all types of diarrhea, except in cases of mild or moderate dehydration each group of health personnel is equally likely to prescribe Oralit.

Prescribers were also asked whether stopping diarrhea and replacing lost fluids are objectives of prescribing Oralit. Tables 4.9 and 4.10 show that the main perceived purpose of prescribing Oralit is to replace lost liquid. Some prescribers however wrongly perceive the purpose of dispensing Oralit; 15 percent said that Oralit is given to stop diarrhea. Although this proportion is small, these prescribers may cause patients to have incorrect information about Oralit.

The in-depth interview confirmed that most respondents understand the reason for prescribing Oralit. It was also suggested that Oralit is prescribed rather than asking the patient to prepare glucose salt solution, which is more difficult for the patient. Also, Oralit is considered to be available in abundance.

¹ Based on personal communication with Dr. Sutoto, DSA.

28

Table 4.7. Proportion of Prescribers Usually Prescribing Oralit for Particular Types of Diarrhea, by Province

Type of Diarrhea for Which Oralit is Usually Prescribed	Province		Total N=205 (%)
	W.Sumatera N = 63 (%)	E.Java N=142 (%)	
	Acute diarrhea without fever	78	
Acute diarrhea with fever	87	78	81
Chronic diarrhea without fever	79	65	70
Chronic diarrhea with fever	84	70	75
Acute diarrhea without dehydration	78	62	67
Acute diarrhea with mild and moderate dehydration	89	80	83
Acute diarr. with severe dehydration	87	70	76
Diarrhea with blood and mucus	65	44	51
All kinds of diarrhea	79	63	68

Table 4.8. Proportion of Prescribers Usually Prescribing Oralit for Particular Types of Diarrhea, by Manpower Status

Type of Diarrhea for Which Oralit is Prescribed	Prescriber			Total N=205 (%)
	Doctor N=48 (%)	Nurse N=120 (%)	Midwife N=137 (%)	
	Acute Diarrhea without fever	65	82	
Acute Diarrhea with fever	69	86	81	81
Chronic Diarrhea without fever	52	76	73	70
Chronic Diarrhea with fever	58	80	76	75
Acute diarrhea without dehydr.	58	67	78	67
Acute diarrhea with mild and moderate dehydration	83	83	81	83
Acute diarr. with severe dehydr.	69	82	65	76
Diarrhea with blood and mucus	46	48	65	51
All types of diarrhea	54	73	70	68

Table 4.9. Proportion of Prescribers Identifying a Particular Purpose of Oralit, by Province

Purpose of Oralit	Province		Total N=205 (%)
	W.Sumatera N=63 (%)	E.Java N=142 (%)	
To stop diarrhea	13	16	15
To replace lost liquid	95	97	97
Others	3	8	7

Table 4.10. Proportion of Prescribers Identifying a Particular Purpose of Oralit, by Manpower Status

Purpose of Oralit	Prescriber			Total N=205 (%)
	Doctor N=48 (%)	Nurse N=120 (%)	Midwife N=37 (%)	
To stop diarrhea	13	15	16	15
To replace lost liquid	94	97	100	97
Others	10	4	8	7

Among the quarter of respondents in the in-depth interview who do not prescribe Oralit for all patients, the common reason was that Oralit was not needed. Only patients with severe and moderate dehydration need to be given Oralit, and patients with mild diarrhea do not lose so much liquid that they need Oralit.

As well as dispensing Oralit, certain information should be given to patients concerning the proper use of Oralit, such as the following:²

- a) one glass each time the patient has diarrhea;
- b) children under age five: three glasses in the first three hours, followed by one glass each time the child has diarrhea; and
- c) at least three glasses a day.

In the structured survey, prescribers were asked whether each of these three messages, or any others, were usually used to educate patients about the use of Oralit. Tables 4.11 and 4.12 show prescribers most frequently use the first message compared to the second or third message. Perhaps the reason for this is that the first message is easier to remember.

By province, the prescribers of West Sumatera knew and delivered the first message for all sufferers more frequently, while the prescribers of East Java use the second message for children under five more frequently.

² See Sutoto and Indriono, Ditjen P2PMPLP Depkes RI. "The Policy on the Eradication of Diarrhoeal Diseases in the Fifth Five-Year Development", The Indonesian Medical Magazine, volume 41, No.5, May 1991, pp. 284-292.

270

Tables 4.13 and 4.14 show the proportions of prescribers who usually use all three messages, use two messages, one message, or different (incorrect) messages. About 38 percent of prescribers usually deliver two or three correct messages, and half usually deliver one correct message. Only 12 percent of prescribers do not report delivering any of the three correct messages.

Midwives are most likely to deliver two to three correct messages, followed by paramedics. Doctors are most likely to deliver one message, or none. Possibly the reason could be that the recommendations of the manual have a greater influence on paramedics. Doctors, on the other hand, may have a tendency to take only the one message which they consider most accurate.

Table 4.11. Proportion of Prescribers Usually Giving a Particular Message on Use of Oralit to Patients, by Province

Instructions on the Dispensing of Oralit	Province		Total N=205 (%)
	W.Sumatera N=63 (%)	E.Java N=142 (%)	
Every time patient has diarrhea give him a glass	73	57	62
First 3 hours, 1 glass, later 1 glass every time patient has diarrhea	35	60	52
At least 3 glasses a day	25	30	28
Others	22	22	23

Table 4.12. Proportion of Prescribers Usually Giving a Particular Instruction on Use of Oralit to Patients, by Manpower Status

Instructions on the Dispensing of Oralit	Prescriber			Total N=205 (%)
	Doctor N=48 (%)	Nurse N=120 (%)	Mid-W N=37 (%)	
Every time patient has diarrhea give him a glass	50	81	61	62
First 3 hours, 1 glass, later 1 glass every time patient has diarrhea	44	57	54	52
At least 3 glasses a day	13	30	34	28
Others	17	19	25	23

291

Table 4.13. Number of Correct Messages on Use of Oralit Usually Given to Patients, by Province

Number of Correct Messages Known by Prescribers	Province		Total N=205 (%)
	W. Sumatera N = 63 (%)	E. Java N=142 (%)	
3 messages	17.5	15.5	16.1
2 messages	11.1	27.5	22.4
1 message	58.7	45.1	49.3
0 message	12.7	12.0	12.2

Table 4.14. Number of Correct Messages on Use of Oralit Usually Given to Patients, by Manpower Status

Number of Correct Messages Used by Prescriber	Prescriber			Total N=205 (%)
	Doctor N=48 (%)	Nurse N=120 (%)	Midwife N=37 (%)	
3 Messages	4.2	18.3	24.3	16.1
2 Messages	15.0	24.8	23.4	22.4
1 Message	64.4	44.2	45.9	49.3
0 Message	16.7	12.5	5.4	12.2

5. PRESCRIBING ANTIBIOTICS FOR DIARRHEA

Only particular types of diarrhea need antibiotics, which are generally the types caused by bacteria, including:

- a) typhus abdominalis, one symptom of which is high fever;
- b) shigellosis, where feces is accompanied by blood and/or mucus; and
- c) cholera, with symptoms of acuteness, and increased stool output that speeds up dehydration.

When prescribers were asked whether they usually prescribe antibiotics for certain types of diarrhea (Tables 4.15 and 4.16), two points emerge. First, between 40 and 50 percent of prescribers report giving antibiotics even when there is no indication for them. Forty percent of prescribers report giving antibiotics for all cases of diarrhea, 46 percent report giving antibiotics for acute diarrhea without fever, and 46 percent give them for acute diarrhea without dehydration. Second, there are three symptoms which are perceived as indicators for the prescription of antibiotics by the prescribers. Fever, blood/mucus in feces, and dehydration all are associated with increased frequency of antibiotics prescription. Where the patient has fever, the proportion reporting giving antibiotics increases to over 75 percent, whether diarrhea is acute or chronic. Diarrhea cases with blood and mucus are associated with more than 80 percent prescribing antibiotics. Mild and moderate dehydration increases the proportion prescribing antibiotics to 60 percent. For most of these cases, antibiotics are indicated.

32

The tendency to use antibiotics indiscriminately is more pronounced among paramedics than doctors. Approximately 17 percent of the doctors, compared to 45 percent of nurses and midwives prescribed antibiotics for diarrhea of all conditions. Correct antibiotic use for diarrhea with blood and mucus is equally frequent among paramedics and doctors.

The in-depth interview and FGD further clarified the above-mentioned findings. Most of the prescribers said that besides cases of dysentery, of which the symptoms are clear (such as the presence of blood in the feces), diarrhea with fever and continuous diarrhea are also indications that antibiotics need to be given. The majority of the prescribers even said that they were inclined to give antibiotics to all patients with diarrhea who came to the Puskesmas or subsidiary Puskesmas, if the stock of drugs was sufficient.

The reason for prescribing antibiotics for diarrhea accompanied with fever is to kill germs. As for the prescription of antibiotics for continuous diarrhea, they said that the reason is to "prevent further dehydration so that the disease would not become worse". This is important to make sure no patient would die due to diarrhea. As one of the doctors from East Java said: "To prevent the fatality rate from going up is important as this is one of the many things they judge in the stratification of a Puskesmas."

Table 4.15. Proportion of Prescribers Who Report Prescribing Antibiotics for Particular Types of Diarrhea, by Province

Type of Diarrhea for Which Antibiotic is Usually Prescribed	Province		Total N=205 (%)
	W. Sumatera N = 63 (%)	E. Java N = 142 (%)	
Acute diarrhea without fever	37	51	46
Acute diarrhea with fever	73	80	78
Chronic diarrhea without fever	54	52	53
Chronic diarrhea with fever	81	77	78
Acute diarrhea without dehydration	43	47	46
Acute diarrhea with mild and moderate dehydration	63	58	60
Acute diarrhea/severe dehydration	86	62	70
Diarrhea with blood & mucus	89	85	86
All types of diarrhea	37	42	40

23

Table 4.16. Proportion of Prescribers Who Report Prescribing Antibiotics for Particular Types of Diarrhea, by Manpower Status

Type of Diarrhea for Which Antibiotic is Usually Prescribed	Recom- mended Practice*	Prescriber			Total N=205 (%)
		Doctor N=48 (%)	Nurse N=120 (%)	Midwife N=37 (%)	
Acute diarrhea without fever	-	23	56	46	46
Acute diarrhea with fever	+/-	63	83	84	78
Chronic diarrhea without fever	+	35	57	62	53
Chronic diarrhea with fever	+	79	76	84	78
Acute diarrhea without dehydration	-	27	51	54	46
Acute diarrhea with mild and moderate dehydration	+/-	46	64	62	60
Acute diarrhea with severe dehydration	+	60	70	78	70
Diarrhea with blood and mucus	+	88	87	82	86
All types of diarrhea	+/-	17	47	49	40

*Notes: - no antibiotics need to be prescribed (the proportion should be 0.0 percent)
 +/- probably antibiotics need to be prescribed; other information or examination is still needed (the proportion should be 0.0 percent - 100.0 percent).
 + antibiotics needed (the proportion should be 100.0 percent)

6. CONCLUSIONS ON THE KNOWLEDGE, ATTITUDE AND PRACTICES OF PRESCRIBERS IN THE MANAGEMENT OF DIARRHEA

From the results discussed above, the following conclusions have been drawn:

- a) Not all of the prescribers use the detailed classifications of diarrhea as recommended by the standard manual.
- b) Prescribers nearly universally report taking appropriate steps in establishing the diagnosis of diarrhea, including examination of two indicators of dehydration.
- c) Two thirds of prescribers report prescribing Oralit for all types of diarrhea; over three quarters prescribe Oralit for cases with mild to moderate dehydration. Still, 10 percent and 20 percent in West Sumatera and East Java respectively do not report prescribing Oralit for diarrhea with mild or moderate dehydration. In East Java, 30 percent do not use Oralit for acute diarrhea with severe dehydration; presumably these prescribers use other means to treat the dehydration.
- d) Fifteen percent of prescribers still believe the purpose of Oralit is to stop diarrhea.

34

- e) Between 40 to 50 percent of prescribers report giving antibiotics to diarrhea cases in the absence of indications for antibiotics.
- f) The practice of the management of the cases of diarrhea based on the reasons forwarded by the prescribers, which in this case mainly concerns the use of Oralit and antibiotics, has not been quite appropriate yet.
- g) According to prescribers, patients have influence on the management of the cases of diarrhea.

Inappropriate management of cases of diarrhea is due not only to the lack of knowledge of the prescribers of the treatment, but also to pressure by the patients. The practice of giving Oralit to the patients conflicts with the knowledge of the prescribers about Oralit. The majority of prescribers know that Oralit is used to substitute for liquids lost, yet in practice, it is evident that even in cases of mild diarrhea the prescription of Oralit is almost always accompanied by the prescription of other drugs. This shows that the prescribers have little confidence in Oralit alone in the handling of diarrhea. This is also one factor that has caused the MOH manual to be disregarded by prescribers in the handling of diarrhea cases.

The prescribers tend to link therapy with other non-medical considerations. Their reasoning is that if patients do not believe in the therapy given by a prescriber (e.g., no injection or antibiotics are prescribed), they will think that the prescriber is not clever and consequently their belief in his ability will diminish. If such a case does occur, it will only cause a loss to the credibility of the prescriber, which in the long run may be influential upon the other health programs conducted by the Puskesmas.

B. THE MANAGEMENT OF ACUTE RESPIRATORY TRACT INFECTION (ARI)

1. THE STANDARD ON THE TREATMENT OF ARI

The Ministry of Health has issued a 1988 manual on therapy for respiratory tract infection, which provides directives for a number of diseases including influenza, pneumonia, and acute bronchitis. In 1990, a special manual was issued concerning implementation of the program on the eradication of acute respiratory tract infections, where an attempt was also made to define cases of ARI and ways of treating it. As of 1991, a new manual containing definitions of the ARI diseases and the ways of treating them has been developed. This last manual however has not been widely distributed to health personnel. In this study, prescribers were asked whether the "1990 Manual" was used in the day-to-day handling of ARI cases.

Most of the prescribers said that they had the book on the standard of therapy of ARI at their Puskesmas. But from the answers of the respondents it could be seen that most did not understand the definitions of the cases of ARI in the 1990 Manual, which classifies ARI cases as mild ARI/non-pneumonia, moderate ARI/pneumonia, and severe ARI/pneumonia.

2. THE CLASSIFICATION OF ARI

The manual prepared by the Ministry of Health in 1988 classified ARI on the basis of the anatomic location, cause, and degree of severity of the disease grouped into mild, moderate, and severe ARI. In 1990 a new classification was developed by the MOH and the WHO. ARI is now classified into "non-pneumonia", "pneumonia" (moderate or not severe), and "severe pneumonia". Severe pneumonia represents cases where the symptom of traction at the lower part of the chest during inspiration is present.

Pneumonia includes cases where the frequency of inspiration is 60 times or more per minute for a child aged less than 2 months, 50 times or more for a child aged 2 months to 1 year, and 40 times or more for a child aged 1 to 4 years. A child without any such symptoms is classified as non-pneumonia.

The survey of the 205 respondents revealed that prescribers classify ARI in accordance with the 1988 classification, into mild, moderate, and severe ARI. The majority of the doctors and paramedics (72 and 83 percent respectively) use the 1988 classification. Nevertheless, there are some who know the new classification: 7 percent of the doctors, and 12 percent of paramedics. Those who know the new classification are mostly from West Sumatera, possibly due to a course on ARI conducted in this area by the Sub-Directorate for ARI of the MOH.³

From the FGD with prescribers it was also revealed that prescribers are confused about the issue of classification. The confusion can be attributed to the difference between the classification recommended by the ARI Sub-Directorate and the classification used in the LB₁ form. Most prescribers also feel that it is difficult for them to fill in the LB₁ form. As a result, in filling in the form, many cases of ARI are simply listed under the sub-heading "other diseases of the respiratory tract".

Table 4.17. Distribution of Prescribers as Related to the Way They Classify ARI, by Province

Classification	Province		Total N=205 (%)
	W. Sumatera N=63 (%)	E. Java N= 142 (%)	
Non-Pneumonia, Pneumonia, and Severe Pneumonia	19.1	7.8	11.2
Mild ARI, Moderate ARI, and Severe ARI	69.8	83.1	79.0
Others	11.1	9.2	9.8
Total	100.0	100.0	100.0

³ Based on personal communication with Dr. Cholid Rasidi, DSA, 1991.

2/6

Table 4.18. Distribution of Prescribers as Related to the Way They Classify ARI, by Their Manpower Status

Classification	Prescriber			Total N=205 (%)
	Doctor N=48 (%)	Nurse N=120 (%)	Mid-w N=37 (%)	
Non-Pneumonia, Pneumonia, and Severe Pneumonia	14.6	10.0	10.8	11.2
Mild ARI, Moderate ARI, and Severe ARI	72.9	82.5	75.7	79.0
Others	12.5	7.5	13.5	9.8
Total	100.0	100.0	100.0	100.0

3. MEASURES TAKEN BY THE PRESCRIBERS IN DIAGNOSING ARI

During the diagnostic process for ARI, the first measure to be taken is anamnesis, asking questions such as how old the child is, and whether s/he has a cough or not. The next measure is counting the frequency of respirations per minute, and conducting an examination to determine whether there is a traction or not at the partition of the lower part of the chest during inspiration. Both of these are indicators of whether or not the patient is short-winded, and of the presence of pneumonia. The prescriber will also listen for stridor or wheezing. Only after all these measures have been completed is the prescriber able to determine the class of ARI suffered by the patient.

The results in Tables 4.19 and 4.20 show that all the prescribers report that they conduct anamnesis, and that more than 90 percent report that they perform the physical examination. A smaller proportion report counting respiration and examining traction of the partition of the lower chest, 65 percent and 75 percent respectively. The total measures taken, given in Tables 4.21 and 4.22, shows that approximately half of the prescribers report carrying out all four measures in performing their diagnoses > One third report conducting anamnesis and physical examination and one of the two other examinations (counting respiration and examining traction) The remainder, 12 percent, report only conducting anamnesis and physical examination which is insufficient to determine the class of ARI.

Proportionally, doctors are slightly more likely to count frequency of respiration and examine the partition of the lower chest than paramedics. Prescribers of West Sumatera report more frequently conducting both examinations than prescribers from East Java, which may be related to a course on ARI in W. Sumatera resulting in greater agreement between reported practice and measures recommended in the new manual.

Table 4.19. Proportion of Prescribers Reporting Taking Specific Measures in Diagnosing ARI, by Province

Measures Taken in Diagnosing	Province		Total N=205 (%)
	W. Sumatera N=63 (%)	E. Java N=142 (%)	
	Anamnesis	100.0	
Physical Examination	90.5	96.5	94.6
Counting the frequency of respiration	66.7	64.1	64.9
Watching the chest during inspiration	82.5	71.1	74.6
Others	3.2	16.9	12.7

Table 4.20. Proportion of Prescribers Reporting Taking Specific Measures in Diagnosing ARI, by Manpower Status

Measures Taken in Diagnosing	Prescriber			Total N=205 (%)
	Doctor N=48 (%)	Nurse N=120 (%)	Midwife N=37 (%)	
	Anamnesis	100.0	100.0	
Physical Examination	93.8	95.0	94.6	94.6
Counting the Frequency of respiration	68.8	63.3	64.9	64.9
Watching Chest during inspiration	81.3	72.5	73.0	74.6
Others	12.5	13.3	10.8	12.7

Table 4.21. Proportion of Prescribers Reporting Combinations of Measures They Take in Diagnosing ARI, by Province

Measures Taken	Province		Total N=205 (%)
	W. Sumatera N=63 (%)	E. Java N=142 (%)	
	All measures: Anamnesis, Physical exam, frequency of respir. and traction of chest partition	61.9	
Only anamnesis & physical examination	7.9	14.1	12.2
Combination of other measures	30.2	35.9	34.1
Total	100.0	100.0	100.0

15

Table 4.22. Proportion of Prescribers Reporting Combinations of Measures They Take in Diagnosing ARI, by Manpower Status

Measures Taken	Prescriber			Total N=205 (%)
	Doctor N=48 (%)	Nurse N=120 (%)	Midwife N=37 (%)	
All measures: Anamnesis, phys.exam, freq. of respiration, traction of chest partition	64.6	50.0	51.4	53.7
Only anamnesis & physical examination	8.3	13.3	13.5	12.2
Combination of other measures	27.1	36.7	35.1	34.1
Total	100.0	100.0	100.0	100.0

4. PRESCRIBING ANTIBIOTICS FOR ARI

In this study, a distinction is drawn between types of ARI based on whether antibiotics should be prescribed or not. ARI diseases that need antibiotics are those classified as pneumonia or severe pneumonia. Prescribers were asked in the structured survey whether they would prescribe antibiotics or not for the following cases of diarrhea:

- a) all cases of ARI with a temperature;
- b) all cases of ARI with or without a temperature;
- c) ARI with a frequency of respiration of ≥ 40 times a minute in children, 1 - 4 years of age;
- d) ARI with a frequency of respiration of ≥ 50 times a minute in children, 2 months - 1 year of age;
- e) ARI with a frequency of respiration of ≥ 60 times a minute in children < 2 months; and
- f) ARI with a traction of the lower chest partition during respiration.

Prescription of antibiotics is rational for cases c through f. The listed frequencies of respiration per minute and traction of the lower chest partition are symptoms of pneumonia, indicating the need to prescribe antibiotics.

Results to the above questioning are shown in Tables 4.23 and 4.24. Fever appears as the main indicator for the prescription of antibiotics for the majority of prescribers, in that over three quarters of prescribers would give antibiotics for (a) all cases with a temperature. In cases where antibiotics should be prescribed (c-f), only half of prescribers report they would use them.

There was a substantial difference in prescribing practices between West Sumatera and East Java. Prescribers of East Java used fever as a major indicator, while those of West Sumatera used frequency of respiration and especially traction of the lower chest partition to be the main indicators for the prescription of antibiotics. Again, the ARI course attended by the prescribers of West Sumatera is perhaps the explanation for this difference. In addition, the FGD revealed that in West Sumatera the Kanwil had instructed prescribers not to give antibiotics for mild ARI.

The tables also show that doctors generally considered fever, frequency of respiration, and traction of the lower chest partition to be indications of the need to prescribe antibiotics, while paramedics considered only fever as an indicator.

From the results of the in-depth interview and the FGD, more than half of the prescribers said that moderate ARI (pneumonia) and severe ARI (severe pneumonia) would need antibiotics, yet some admitted they also prescribe antibiotics for non-pneumonia ARI. Some felt that all conditions of ARI need antibiotics, on the grounds that the drugs would prevent secondary infection. A number of the other respondents said that patients with pharyngitis and cough accompanied with fever, productive cough, and cough continuing for more than a week would need antibiotics.

Table 4.23. Proportion of Prescribers Reporting Practice of Prescribing Antibiotics for Types of ARI, by Province

Type of ARI for which Antibiotics are Prescribed	Province		Total N=205 (%)
	W.Sumatera N=63 (%)	E.Java N=142 (%)	
All ARI with temperature	50.8	88.0	76.6
All ARI with or without temperature	20.6	43.0	36.1
ARI with respiration \geq 40/minute in child age 1 - 4 years	65.1	41.5	48.8
ARI with respiration \geq 50/minute in child age 2 months - 1 year	66.7	45.1	51.7
ARI with respiration \geq 60/minute in child age <2 months	57.1	41.5	46.3
ARI with traction of lower chest partition during inspiration	81.0	42.3	54.1
Other	6.3	9.9	8.8

43

Table 4.24. Proportion of Prescribers Reporting Practice of Prescribing Antibiotics for Types of ARI, by Manpower Status

Type of ARI for which Antibiotics are Prescribed	Recommended Practice*	Prescriber			Total N=205 (%)
		Doctor N = 48 (%)	Nurse N =120 (%)	Mid-w. N=37 (%)	
All ARI with temperature	+/-	70.8	75.8	86.5	76.6
All ARI with/without temp.	-	22.9	36.7	51.4	36.1
ARI with respir. \geq 40/min. in children age 1-4 yrs	+	62.5	42.5	51.4	48.8
ARI with respir. \geq 50/min. children age 2 mon-1 year	+	75.0	41.7	54.1	51.7
ARI with respir. \geq 60/min. in children age <2 months	+	68.8	37.5	45.9	46.3
ARI with traction of lower chest partition during inspiration	+	70.8	48.3	51.4	54.1
Other	-	8.3	10.0	10.8	9.8

***Notes:**

- no antibiotics need to be prescribed (the proportion should be 0.0 percent)
- +/- probably antibiotics need to be prescribed; other information or examination is still needed (the proportion should be 0.0 percent - 100.0 percent).
- + antibiotics needed (the proportion should be 100.0 percent)

5. CONCLUSIONS ON THE KAPs OF THE PRESCRIBERS IN THE HANDLING OF ARI

A number of conclusions can be drawn from the results on ARI knowledge and reported practice:

- a) The majority of the doctors and paramedics use the 1988 classification of ARI, and do not incorporate distinctions relating to pneumonia/non-pneumonia. Some confusion about classification exists, which can be attributed to the difference between the classification recommended by the ARI Sub-Directorate and the classification used in the LB₁ form. As a result, many cases of ARI are simply listed in the LB₁ form under the sub-heading "other diseases of the respiratory tract".
- b) Some prescribers (12%) do not take sufficient measures during the diagnostic process to determine whether an ARI case should be prescribed antibiotics. Approximately half of prescribers report using the measures anamnesis, examination, frequency of respiration, and examination of traction of chest partition.
- c) There is a tendency to prescribe antibiotics for mild ARI, and to practice polypharmacy for ARI in general. Fever appears as a main indicator for the prescription of antibiotics. In cases where antibiotics should be prescribed, only half of prescribers report they would prescribe them.

41

- d) There is a difference in knowledge and practices between the prescribers of West Sumatera and those of East Java; and between the doctors and the paramedics. There are some indications that prescribers from West Sumatera and doctors use more current classifications of diarrhea, practice a more thorough examination, and practice more appropriate use of antibiotics.

It can be further concluded that in ARI the knowledge of a certain of the prescribers is insufficient and the practice of prescribing drugs has been irrational. In addition to this there is an indication that training courses can improve the practices of a prescriber.

CHAPTER 5
THE KNOWLEDGE, ATTITUDE, AND PRACTICE OF THE PRESCRIBER
REGARDING THE PRESCRIBING OF DRUGS AND INJECTIONS

The following is the report of the knowledge, attitude, and practice of prescribers concerning their prescription of drugs and injections.

A. CONCERNING POLYPHARMACY

1. THE AVERAGE NUMBER OF TYPES OF DRUGS GIVEN TO PATIENTS

The Drug Use Study conducted in 1990 shows that on average 3.5 different drugs are prescribed to patients visiting the health centers. This finding is confirmed in the present study using several different approaches. Prescriber in-depth interviews and focus group discussions indicated the majority of prescribers prescribe three or more types of drugs. Only a small proportion of the discussants give one or two types of drugs to patients, and then only to patients who come to the Puskesmas for the treatment of minor diseases, for immunization, or for "adding more blood" (anemia).

The structured survey addressed the question of polypharmacy by introducing two hypothetical cases describing a diarrhea patient and an ARI patient. The prescribers were questioned about a list of drugs and were asked which he or she would probably prescribe. The diarrheal disease case described in the survey was the following: "If you have a patient with diarrhea that has continued for one day, accompanied by a temperature of 39 degrees Centigrade, and the patient has no dehydration, what drugs would you prescribe for this case?" Based on the symptoms, it was expected that a prescriber would recommend only Oralit and temperature-lowering drugs if they observe the therapy manual correctly. The number of drugs suggested is given in Tables 5.1 and 5.2. The proportion of prescribers suggesting each specific type of drug is given in Tables 5.3 and 5.4.

Table 5.1. Distribution of Prescribers by the Number of Types of Drugs They Would Prescribe for Mild Diarrhea Without Dehydration, by Province

Number of Types of Drugs	Province		Total n=205 (%)
	W.Sumatera n=63 (%)	E.Java n=142 (%)	
5	30.2	26.1	27.3
4	30.2	29.6	29.8
3	19.0	32.4	28.3
2	15.9	7.0	9.8
1	3.2	4.9	4.4
0	1.6	0.0	0.5
Total	100.0	100.0	100.0
Average	3.6	3.6	3.6

43

Table 5.2. Distribution of Prescribers by the Number of Types of Drugs Prescribed for Mild Diarrhea Without Dehydration, by Manpower Status

Number of Types of Drug	Prescriber			Total n=205 (%)
	Doctor n=48 (%)	Nurse n=120 (%)	Midwife n=37 (%)	
5	20.8	27.5	35.1	27.3
4	25.0	29.2	37.8	29.8
3	33.3	30.0	16.2	28.3
2	18.8	7.5	5.4	9.8
1	2.1	5.8	2.7	4.4
0	0.0	0.0	2.7	0.5
Total	100.0	100.0	100.0	100.0
Average	3.4	3.65	3.9	3.6

Table 5.3. Proportion of Prescribers Reporting Prescribing Particular Types of Drugs for Mild Diarrhea Without Dehydration, by Province

Drugs Given by Prescriber	Province		Total N= 205 (%)
	W. Sumatera N=63 (%)	E. Java N= 142 (%)	
Temperature-lowering drugs	95	92	93
Antibiotics	70	88	83
Vitamins	73	43	52
Anti-diarrheal drugs	48	70	63
Spasmolytic drugs	60	35	42
Oralit	89	80	83
Home-administered liquid	89	47	60
Injection	25	48	41

44

Table 5.4. Proportion of Prescribers Reporting Prescribing Particular Types of Drugs for Mild Diarrhea Without Dehydration, by Manpower Status

Drugs Given by Prescriber	Prescriber			Total N=205 (%)
	Doctor N= 48 (%)	Nurse N =120 (%)	Midwife N= 37 (%)	
Temperature-lowering drugs	90	92	100	93
Antibiotics	69	88	84	83
Vitamins	44	54	57	52
Anti-diarrheal drugs	50	69	62	63
Spasmolytic drugs	33	45	46	42
Oralit	71	85	92	83
Home-administered liquid	48	64	60	60
Injection	29	43	49	41

On the average, prescribers recommended 3.6 types of drugs for the diarrheal case. The tendency to suggest four or five drugs was stronger among paramedics than among doctors, particularly among midwives.

As to the specific type of drug suggested, most commonly suggested were temperature-lowering drugs, antibiotics and Oralit. Over 90 percent responded with temperature-lowering drugs, and 83 percent of prescribers responded they would prescribe antibiotics for the hypothetical case. Anti-diarrheal drugs, including vioform, would be used by 63 percent of prescribers. Similarly, spasmolytic drugs and injections, which are not recommended for diarrhea, would each be prescribed by 40 percent.

Fever, even without indications of blood or mucus in the feces, seems an indicator for prescription of antibiotics. From a previous table, the proportion who would give antibiotics for all types of diarrhea was approximately 40 percent. Here an additional 43 percent would prescribe antibiotics for the hypothetical case. The symptom in the case that elicits the prescription of antibiotics is probably the presence of fever.

One consistent finding on polypharmacy in the diarrhea case is the higher likelihood of paramedics prescribing a particular drug relative to doctors, which indicates that doctors manage diarrhea more in accordance with standards than paramedics do.

From the results of the discussions with the prescribers, it was revealed that most of the prescribers were not quite sure that Oralit alone would suffice to cure mild diarrhea. Perhaps it is the patient's insistence that influences the prescriber to prescribe drugs other than Oralit. Seventy-six percent of the prescribers say that their patients would not be satisfied with only Oralit. The main reason is that the patients do not think that Oralit is a kind of drug. One of the prescribers said, "If it is only for the sake of getting Oralit, the patient can simply go to the Posyandu. By coming to the Puskesmas, he is expecting that he may be prescribed other drugs, besides Oralit." Another reason is that "Oralit cannot stop diarrhea, thus anti-diarrheal drugs will be needed."

Polypharmacy on ARI was addressed by asking prescribers about treatment for the following hypothetical ARI patient: "If, in your practice at the Puskesmas/sub-Puskesmas, you come across a child seven months

45

of age suffering from ARI with a temperature of 39 degrees centigrade that has continued for one day, and a frequency of aspiration of 30 times per minute, what types of drugs do you usually prescribe?" Based on criteria set by WHO, the case is mild ARI or a non-pneumonia case, and therapy should be symptomatic. Two or three drugs should be prescribed: temperature-lowering drugs, cough drugs and/or antihistamines.

Responses for the ARI case are given in Tables 5.5. and 5.6. The average number of types of drugs they would prescribe were 4.8 types. More than half the prescribers suggested five or more types of drugs. Polypharmacy was more apparent in responses from West Sumatera (5.2 types) compared to East Java (4.5 types).

Nearly all prescribers suggested temperature-lowering drugs for the ARI case, after which followed antibiotics, vitamins, antihistamine, and cough syrups (See Table 5.7 and 5.8). Over half prescribed each of these types. Only injections were relatively infrequently mentioned, by only 16 percent which is related to the tendency to not prescribe injections to a child, as discussed in the next section.

Generally speaking, the doctors and the paramedics showed little difference in the way they prescribed therapy. However, midwives tend to prescribe more drugs than doctors and other paramedics, for ARI as well as diarrhea.

Table 5.5. Distribution of Prescribers by the Number of Types of Drugs Prescribed for Mild ARI, by Province

Number of Type of Drug	Province		Total n=205 (%)
	W. Sumatera n=63 (%)	E. Java n=142 (%)	
7	17.5	5.6	9.3
6	33.3	17.6	22.4
5	23.8	26.1	25.4
4	12.7	30.3	24.9
3	7.9	16.9	14.1
2	3.2	3.5	3.4
1	1.6	0.0	0.5
Total	100.0	100.0	100.0
Average	5.2	4.5	4.8

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Table 5.6. Distribution of Prescribers by the Number of Types of Drugs They Would Prescribe for Mild ARI, by Manpower Status

The Number of Type of Drug	Prescriber			Total n=205 (%)
	Doctor n=48 (%)	Nurse n=120 (%)	Midwife n=37 (%)	
7	4.2	11.7	8.1	9.3
6	10.4	26.7	24.3	22.4
5	20.8	22.5	40.5	25.4
4	27.1	26.7	16.2	24.9
3	27.1	10.8	8.1	14.1
2	8.3	1.7	2.7	3.4
1	2.1	0.0	0.0	0.5
Total	100.0	100.0	100.0	100.0
Average	4.0	5.0	5.0	4.8

The proportion of the prescribers of East Java giving antibiotics was larger than that of the prescribers of West Sumatera doing the same. The contrary occurred in the prescription of symptomatic drugs, i.e., antihistamine, cough drugs, and vitamins. This perhaps is explained by the ARI course attended by the prescribers of West Sumatera.

Table 5.7. The Practice of Prescribing Drugs for Hypothetical Case of Child's Mild ARI, by Province

Type of Drug Prescribed	Province		Total N=205
	W.Sumatera N=63	E. Java N=142	
Temperature-lowering drug	98.4	98.6	98.5
Antibiotics	47.6	82.4	71.7
Cough drugs	68.3	55.6	59.5
Vitamins	82.5	63.4	69.3
Antihistamine	66.7	64.8	65.4
Injections	9.5	19.0	16.1

47

Table 5.8. The Practice of Prescribing Drugs for Hypothetical Case of Child's Mild ARI, by Manpower Status

Type of Drug Prescribed	Prescriber			Total N=205 (%)
	Doctor N=48 (%)	Nurse N=120 (%)	Midwife N=37 (%)	
Temperature-lowering drugs	100.0	99.2	94.6	98.5
Antibiotics	72.9	69.2	78.4	71.7
Cough drugs	54.2	58.3	70.3	59.5
Vitamins	52.1	75.8	70.3	69.3
Antihistamine	64.6	62.5	75.7	65.4
Injections	12.5	15.8	21.6	16.1

2. REASONS FOR GIVING SEVERAL TYPES OF DRUGS TO THE PATIENTS

There were a number of reasons given by respondents for prescribing multiple drugs to their patients.

- a) The main reason put forward by the majority of the respondents was to fulfill the patient's request or to satisfy him. The prescribers thought that the more the types of drugs the patient received, the happier the patient would be.
- b) Another common reason was that "drugs should be prescribed on the basis of the patient's complaints". Most prescribers said their prescription was based on the causal, symptomatic, and roboransial concepts of curing disease. Patients need to be given drugs that would get rid of the causes ("causal"), drugs that would stop their complaints ("symptomatic"), and drugs that would increase their endurance or increase their appetites for food ("roboransia"). Based on these concepts, the types of drugs they commonly prescribed included antibiotics, which was the causal therapy; analgesics or antipyretics or antihistamines, which was symptomatic; and vitamins, which was the roboransia therapy.
- c) Few respondents said their prescriptions were based on instructions of the Puskesmas, or because it had become a habit to them. A number of the Puskesmas have a regulation stating that prescribers were allowed to prescribe only three types of drugs at the most. In practice, this has been interpreted as a "normal" practice, or that "it would be better" to give the patients three types of drugs. This opinion primarily came from the paramedics, who perceived the regulations as directives from the doctors of the Puskesmas, and believed that there had not been any written regulations yet on this matter.

Some respondents said regulations of the Puskesmas do not exist, and that they need directives on the amount and the number of types of drugs they should give patients. This was stated by a number of the respondents, both doctors and paramedics, of the two provinces.

B. THE PRESCRIPTION OF ANTIBIOTICS

1. INDICATIONS FOR AN ANTIBIOTICS PRESCRIPTION

Based on previous drug studies, a large part of polypharmacy is the prescription of antibiotics. In many cases, antibiotics are prescribed when not needed, and in other cases, patients who should receive antibiotics are not given them. The prescription of antibiotics was investigated in the structured survey by presenting characteristics of patients to prescribers and asking whether the prescriber would prescribe antibiotics for that type patient.

A fairly large proportion of prescribers report that they give antibiotics to patients who do not have any indications that would lead to that prescription. As shown in Tables 5.9. and 5.10., 35 percent of prescribers give antibiotics to patients with influenza cough, and 50 to 60 percent give antibiotics to all patients with fever and to patients with diarrhea showing no signs of dehydration. None of these symptoms alone are indications for the prescription of antibiotics.

Some 10 to 25 percent of prescribers do not give antibiotics to patients when needed. Where antibiotics are clearly indicated, 10 to 20 percent do not give antibiotics to patients with pneumonia and patients with diarrhea accompanied by blood and mucus. About 25 percent of prescribers do not give antibiotics to patients with diarrhea accompanied by severe dehydration and patients with chronic diarrhea, both of which should also receive antibiotics.

Doctors act more in accordance with standards than paramedics in their determination of the indications of antibiotics prescription. Fewer doctors than paramedics prescribe antibiotics for cases that do not need antibiotics, and more doctors prescribe antibiotics for cases that need antibiotics.

Table 5.9. Proportion of Prescribers Who Would Prescribe Antibiotics for Specified Case Profiles, by Province

Case for Which Antibiotic is Prescribed	Province		Total n=205 (%)
	W. Sumatera n=63 (%)	E. Java n=142 (%)	
All patients with fever	41.3	66.9	59.0
All patients with cough/flu	33.3	38.0	36.6
All patients with pneumonia	98.4	81.7	86.8
Patients with acute diarrhea, without dehydration	44.4	60.6	55.6
Patients with acute diar., with mild or moderate dehydration	58.7	65.5	63.4
Patients with acute diarrhea, with severe dehydration	88.9	64.8	72.2
Patients with chronic diarrhea	77.8	69.7	72.2
Patients with diarrhea, with blood and mucus	95.2	84.5	87.8
All patients with diarrhea	28.6	38.0	35.1

Table 5.10. Proportion of Prescribers Who Would Prescribe Antibiotics for Specified Case Profiles and Standard on Prescription of Antibiotics, by Manpower Status

Case for Which Antibiotic is Prescribed	Standard on Antibiotic Prescription	Prescribers			Total	
		Doctor N=48 (%)	Nurse N=120 (%)	Mid-wife N=37 (%)	N=205 (%)	
All patients with fever	+/-		62.5	55.8	64.9	59.0
All patients with cough/flu	-		25.0	40.8	37.8	36.6
All patients with pneumonia	+		100.0	83.3	81.1	86.8
Patients with acute diarrhea, without dehydration	-		37.5	59.2	67.6	55.6
Patients with acute diarrhea, with mild/moderate dehydration	+/-		56.3	64.2	70.3	63.4
Patients with acute diarrhea, with severe dehydration	+		72.9	69.2	81.1	72.2
Patients with chronic diarrhea,	+		60.4	72.5	86.5	72.2
Patients with diarrhea, with blood and mucus	+		91.7	85.8	99.2	87.8
All patients with diarrhea	+/-		16.7	40.0	43.2	32.1

* Notes : - = no antibiotics needed (proportion should be 0.0)
 +/- = probably antibiotics are needed; other information or examination needed (proportion can range from 0.0 percent - 100.0 percent)
 + = antibiotics needed (proportion should be 100.0 percent)

2. THE SPAN OF TIME OF ANTIBIOTICS PRESCRIBING

The practice of prescribing antibiotics seems to correspond with the practice of prescribing other drugs. If a patient is given other drugs for a span of three days, then the antibiotic prescribed is also for three days. This has been the practice of the Puskesmas, most of which have been applying the "three-day rule", which is if a patient is given antibiotics, the prescription is given for a three day supply. Some have even been applying a "two-day rule". Nothing is mentioned about the time span for antibiotics prescriptions in the MOH therapy manual, but in other countries it is recommended that the drugs be given at least for one week or 10 days, or 3 fever-free days.

In response to questions on the span of time antibiotics are normally prescribed for, the majority (89%) of respondents report that they prescribe antibiotics for three days or less (Tables 5.11 - 5.13). Less than 10 percent of the paramedics and 20 percent of the doctors prescribe the drugs for four or more days.

Generally speaking, doctors tend to prescribe antibiotics for longer than paramedics. Similarly, the prescribers of West Sumatera tend to prescribe antibiotics for slightly longer than their colleagues of East Java. There is no difference in antibiotics prescription times between prescribers working at the Puskesmas and those working at the subsidiary Puskesmas.

Factors reported by prescribers in the structured survey influencing the duration of time to prescribe antibiotics were mainly the regulations of the Puskesmas (40%) and the prescriber's desire to make sure that the "patients would come again" to the Puskesmas or subsidiary Puskesmas (> 33%) (Tables 5.14

- 5.16). The prices of drugs appeared relatively unimportant, in that only one-fourth of prescribers said that prices of drugs help determine the span of time for prescribing antibiotics.

Reasons for this three-day practice are somewhat different between doctors and the paramedics. Twenty-three percent of doctors suggested regulations of the Puskesmas as their main reason for the three-day prescription, compared to almost half of the paramedics. Little difference in reasons is seen between the prescribers at the Puskesmas and at the subsidiary Puskesmas.

The in-depth interview and the FGD suggested that improper prescribing of antibiotics, in terms of both the dosage and the span of time of use, is a result of two related non-medical considerations:

- a) Due to the inadequate supply of drugs, all of the prescribers explicitly said that the "supply of drugs is insufficient" to give prescriptions for more than three days. However, possibly it is the incorrect practice of prescribing antibiotics, and not that the supply of drugs is insufficient, that causes the drugs to be out of stock much sooner than planned. An additional reason to avoid finishing the stock of drugs quickly is because no patients would be willing to come to a Puskesmas that could not offer them antibiotics.
- b) Due to the pressure prescribers are put under to increase revenues or "to achieve the target", the prescribers' rationale was that by giving a patient drugs for two or three days they could expect the patient to come again when their drugs were finished. Then, the number of visits to the Puskesmas would increase, which in turn would increase the revenues of the Puskesmas. Thus it could be expected that the target set by the regional government would be achieved. However, most respondents said that few patients come back again after the second or third day.
- c) Some said that they considered that by prescribing for a three-day period they were trying to prevent the drugs from getting damaged.

Table 5.11. Span of Time of an Antibiotic Prescriptions, by Type of Puskesmas

Span of Time of Prescribing	Province		Total n=205 (%)
	Puskesmas n=124 (%)	Sub-Puskesmas n=81 (%)	
1 day	4.0	6.2	4.9
2 days	23.4	12.3	19.0
3 days	61.3	71.6	65.4
4 days	7.3	6.2	6.8
5 days	4.0	3.7	3.9
Total	100.0	100.0	100.0

51

Table 5.12. Span of Time of Antibiotic Prescriptions, by Province

Span of Time of Prescribing	Province		Total N=205 (%)
	W.Sumatera N=63 (%)	E. Java N=142 (%)	
1 day	4.8	4.9	4.9
2 days	11.1	22.5	19.0
3 days	69.8	63.4	65.4
4 days	11.1	4.9	6.8
5 days	3.2	4.2	3.9
Total	100.0	100.0	100.0

Table 5.13. Span of Time of Antibiotic Prescriptions, by Manpower Status

Span of Time of Prescribing	Prescriber			Total N=205 (%)
	Doctor N=48 (%)	Nurse N=120 (%)	Midwife N=37 (%)	
1 day	4.2	4.2	8.1	4.9
2 days	22.9	18.3	16.2	19.0
3 days	52.1	69.2	70.3	65.4
4 days	14.6	5.8	0.0	6.8
5 days	6.3	2.5	5.4	3.9
	100.0	100.0	100.0	100.0

Table 5.14. Basis of Consideration for Span of Time of Antibiotics Prescription (Proportion of Prescribers), by Type of Puskesmas

Basis of Consideration	Prescriber		Total n=205 (%)
	Puskesmas n=114 (%)	Sub-Puskesmas n=81 (%)	
Puskesmas regulations	37.9	43.2	40.0
Costs borne by Puskesmas/ subsidiary Puskesmas	25.0	22.2	23.9
So that patient will return	37.1	37.0	37.1
Other	50.0	42.0	46.8

58

Table 5.15. Basis of Consideration for Span of Time of Antibiotics Prescription (Proportion of Prescribers), by Province

Basis of Consideration	Province		Total n=205 (%)
	W. Sumatera n=63 (%)	E. Java n=142 (%)	
Puskesmas regulations	41.3	39.4	40.0
Costs borne by Puskesmas/ subsidiary Puskesmas	15.9	27.5	23.9
So that patient will return	34.9	38.0	37.1
Other	39.7	50.0	46.8

Table 5.16. Basis of Consideration for Span of Time of Antibiotics Prescription (Proportion of Prescribers), by Manpower Status

Basis of Consideration	Prescriber			Total n=205 (%)
	Doctor n=48 (%)	Nurse n=120 (%)	Midwife n=37 (%)	
Puskesmas regulations	22.9	44.2	48.7	40.0
Costs borne by Puskesmas/ subsidiary Puskesmas	20.8	23.3	29.7	23.9
So that patient will return	33.3	39.2	35.1	37.1
Others	62.5	40.8	46.0	46.8

3. THE UNDERSTANDING OF THE PRESCRIBERS OF RESISTANCE TO ANTIBIOTICS

Resistance to antibiotics could be caused by a number of factors which include the irregular manner in which a patient takes it, a dosage which is too small, an incorrect choice of the type of antibiotic, or prescribing an antibiotic for too short a span of time. In-depth interview results indicate that most prescribers recognize the first two factors causing resistance, but not the last two. Factors considered causes of resistance by the majority of the prescribers are:

- a) taking the drugs irregularly, or failure to finish it;
- b) too small a dosage;
- c) taking antibiotics too often; and
- d) taking antibiotics for a long time.

Few prescribers recognize the relationship between prescribing antibiotics for three days and antibiotic resistance. Only two prescribers suggested that prescribing antibiotics for too short a span of time would lead to resistance. A number of respondents had misconceptions on the amount of antibiotics they should prescribe and the span of time for which the drugs should be prescribed. A number of the paramedics said that antibiotics were to be prescribed for only three days, or even less to avoid resistance.

C. THE PRESCRIPTION OF INJECTIONS

1. PRESCRIBERS' REPORTED PRACTICES ON PRESCRIBING INJECTIONS

The 1990 Drug Use Study revealed a tendency among prescribers to frequently administer injections to their patients. The reasons for such a practice and the types of injections most often prescribed are addressed in the present study.

The Frequency of Giving Injections to Adult Patients. Based on the results of the survey, it is evident that prescribing injections to adult patients is common practice. Three-fourths of the prescribers said that they give injections to at least half of the visiting adult patients. For the hypothetical diarrhea case described in the survey¹, injections should not be given. However, 29 percent of the doctors and approximately 45 percent of the paramedics said that they would give an injection to the patient.

The Frequency of Giving Injections to Children. The practice of giving injections is less frequent for children than for adult patients. From the survey, 29 percent of the prescribers report they gave injections to at least half of their visiting patients who are children. Similar findings arose with the hypothetical ARI case used for children². Approximately 12 percent of the doctors and around 18 percent of paramedics said they would give an injection to the child.

The practice of giving injections to children is more frequent in East Java than in West Sumatera. The proportion reporting giving injections to more than half of children was nearly four times larger in East Java than in West Sumatera. For adults however, the difference was much smaller. Some differences in the practice are seen by type of prescriber, but differences in general are not significant.

From the in-depth interviews, little difference was seen in the practice of prescribing injections based on the place where the health care was given. There are a number of reasons why practices in the Puskesmas should be very similar to practices in the subsidiary Puskesmas:

- a) Personnel serving a subsidiary Puskesmas are normally either from the local Puskesmas, or have worked in the Puskesmas. Consequently, practices of the Puskesmas are repeated in the practices of the subsidiary Puskesmas.
- b) Usually a subsidiary Puskesmas is located in an area where the conditions of the community are the same as the community served by the Puskesmas. Since the attitude of a prescriber can be affected by the condition of his patient, the practices of a prescriber in a Puskesmas or subsidiary Puskesmas are similar because of similar conditions and demands in the community.
- c) The patterns of the drug supply of both the Puskesmas and the subsidiary Puskesmas are similar, and the practices of a prescriber can be affected by the types and quantities of

¹ Hypothetical case: A patient suffering from diarrhoea, with a temperature of 39°C for one day, without dehydration.

² Hypothetical case: A child, 7 months of age, suffering from ARI accompanied with a temperature of 39°C for one day, and has a frequency of inspiration of 30 times per minute.

drugs at his disposal. The patterns of drug supply can account for the similarity in the practices of prescribing injections at the Puskesmas and the subsidiary Puskesmas.

Table 5.17. Frequency of Injections Given by Prescribers (n = 205)

Proportion of Patients Reported Injected	Adult %	Child %
Almost all of the patients	43.4	5.9
> 50%	28.3	23.4
25 - 50%	16.6	29.8
< 25%	11.7	40.5
Total	100.0	100.0

Table 5.18. Frequency of Injections Given by Prescribers to Adult Patients, by Province

Proportion of Patients Reported Injected	Province		Total
	W. Sumatera n=63 (%)	E. Java n=142 (%)	
Almost all of the patients	28.6	50.0	43.4
> 50%	33.3	26.0	28.3
25 - 50%	27.0	12.0	16.6
< 25%	11.1	12.0	11.7
Total	100.0	100.0	100.0

Table 5.19. Frequency of Injections Given by Prescribers to Adult Patients, by Manpower Status

Proportion of Patients Injected	Prescribers			Total
	Doctor n=48 (%)	Nurse n=120 (%)	Midwife n=37 (%)	
Almost all of the Patients	35.4	45.0	48.7	43.4
> 50%	27.1	32.5	16.2	28.3
25 - 50%	22.9	13.3	18.9	16.6
< 25%	14.6	9.2	16.2	11.7
Total	100.0	100.0	100.0	100.0

Table 5.20. Frequency of Injections Given by Prescribers to Child Patients, by Province

Proportion of Patients Injected	Province		Total
	W.Sumatera n=63 (%)	E.Java n=142 (%)	
Almost all of the patients	1.6	7.8	5.9
> 50%	7.9	31.4	23.9
25 - 50%	25.4	31.7	29.8
< 25%	65.1	29.1	40.6
Total	100.0	100.0	100.0

Table 5.21. Frequency of Injections Given by Prescribers to Child Patients, by Manpower Status

Proportion of Patients Injected	Prescriber			Total
	Doctor n=48 (%)	Nurse n=120 (%)	Midwife n=37 (%)	
Almost all of the patient	2.1	8.3	2.7	5.9
> 50%	27.1	23.3	21.6	23.9
25 - 50%	25.0	28.3	40.5	29.8
< 25%	45.8	40.0	35.1	40.5
Total	100.0	100.0	100.0	100.0

2. REASONS FORWARDED BY PRESCRIBERS FOR FREQUENTLY PRESCRIBING INJECTIONS

Several interrelated reasons for frequent injection use surfaced in the focus group discussions and in-depth interviews. Primarily, injections are used by providers to satisfy the patient, or because the patient asks for them, which in turn is fueled by the prescriber's need to maintain or increase the standing of the health facility.

The perception of prescribers is that their patients request or insist that they be given injections. The majority of the prescribers said that they could sense the insistence of their patients, even if the patients did not explicitly make a statement about getting injected.

Patients largely believe that "therapy is injection" and that injections are effective and will lead to rapid recovery. Prescribers also said some patients feel they have not been treated if they do not receive an injection, which could affect the prescribers reputation. On the patient side, a few prescribers were of the opinion that without their getting any injections the patients would feel that they would not be cured from their diseases without an injection.

56

Some patients ask for not only one, but several injections. In Solok, West Sumatera in particular there were indications that patients would ask for four "holes" or injections, and that patients were willing to pay for this many.

Prescriber needs to satisfy the patient come partially from the desire to maintain the standing or reputation of the Puskesmas in the eyes of the patients. Prescribers expressed concern that dissatisfied patients would seek care elsewhere, thereby influencing the number of visits made by the patients to the health care unit, which subsequently affects the amount of revenues received by the Puskesmas or subsidiary Puskesmas.

The threat of a patient seeking care elsewhere is reinforced by the widespread availability of unauthorized injectors for the patients. In the focus group discussions, many complained about unauthorized injectors. According to one paramedic, "It's just the old custom: many of them have been dealing with unauthorized injectors; these injectors will give them as many injections as possible, because they are paid by the number of injections."

Injection prescribing is also thought to be related to the success of the other health programs. Participants of the FGD thought that by patients being injected they would feel that they would recover quickly. Because of this, the patients would consider the prescribers to be "clever", which in the long run would cause them to have a high degree of trust in the doctors. The high degree of trust in the doctors would affect their trust in the other health programs. As a result the other health programs would also be successful.

Current injection use also reflects that which has been done in the past. Some paramedics suggested that they adopted the injection practices of the senior paramedics, particularly those working in the same health center. Others said patients request injections because that is the usual therapy and that is what they expect.

Some medical considerations for giving injections were also expressed by prescribers, such as the patient found it difficult to swallow medicines, or because there were indications that the patient would need special injections.

In the case of children, prescribers were less likely to give injections for fear of consequences the injections might bring about (e.g., "paralysis", "swells/abscess"). Many also said that injections were not given to children because their parents did not want them to be injected or because they were afraid of injections for children. Among those who frequently gave injections to children, the reason was that parents of the patients were not satisfied if their children were not given injections.

3. TYPES OF INJECTIONS GIVEN TO ADULT PATIENTS

Prescribers reported that several different types of injections are given to patients coming to the health centers. However, reasons for giving each different type are unclear.

Responses on reported behavior in the structured survey revealed the types of injections usually given to adult patients are, in order of frequency, vitamins, antihistamines, analgetics /antipyretics, and antibiotics. (See Tables 5.22 - 5.24.) Fewer prescribe spasmolytic injections. The injection reportedly prescribed most often was vitamins for both West Sumatera and East Java.

In the in-depth interview, the majority of the respondents, particularly the paramedics, did not give clear reasons why they had chosen a certain kind of injection for their patients. For example, prescribers failed to give clear reasons why they had injected antihistamine into their patients. Only a small portion said that they gave antihistamine to patients with allergic disturbances. Some said that when a patient asked for a "health injection", they gave him antihistamine injection, because the risk to be involved in the injection of antihistamine was the smallest, compared with other types of injections. Such a perception is, of course, incorrect, because with any injection one risks an allergy/anaphylactic reaction. For a number of the respondents, the sufficient supply of the drugs was a reason for prescribing injections. Because of all those reasons mentioned above, they would, therefore, prescribe an antihistamine injection for ARI disease, skin disease, and even influenza cough.

Concerning the use of vitamin injections, some of the respondents also failed to present clear reasons. Some said vitamin injections were meant simply to satisfy the patients. Other reasons were that these injections would serve as a roboransia, to promote the patient's appetite, or act as "health drugs".

Some of those prescribers who gave analgetic or antipyretic injections also failed to give clear reasons for these practices of theirs. Among those who gave their reasons, there were some who said the drugs were meant to get rid of such symptoms as fever, stiff muscles and joints, rheumatic pains, and headache. Another reason, said some of the respondents, was the "safety" factor to be found in the drug. There were also some whose reason was that they had no other choice. An analgetic/antipyretic injection is, in fact, usually given when a patient has an ARI disease, or when it is meant to serve as roboransia.

The reason for prescribing antibiotic injections, said the prescribers, was to get rid of the cause of disease, i.e., infection. To get rid of symptoms that patients complained about was not a reason for prescribing antibiotic injection. Nevertheless, in practice the majority of prescribers gave an antibiotic injection to every patient with symptoms of fever, or "assumed" to have an infection, which is why they gave antibiotics to all patients suffering from ARI, diarrheal, and skin diseases.

Table 5.22. Injections Frequently Given to Adult Patients, Based on Prescribers at Puskesmas and Subsidiary Puskesmas

Injection	Prescriber		Total (%)
	Puskesmas n=124 (%)	Sub-Puskesmas n=81 (%)	
Vitamin			
Never	5.7	0.0	3.4
Rarely	16.9	9.9	14.1
Often	77.4	90.1	82.4
Pain-killer			
Never	8.1	3.7	6.3
Rarely	25.0	28.4	26.3
Often	66.9	65.4	66.3
Anti-allergy/antihistamine			
Never	8.1	0.0	4.9
Rarely	30.6	23.5	27.8
Often	61.3	76.5	67.3
Antibiotic			
Never	6.4	1.2	4.4
Rarely	48.4	46.9	47.8
Often	45.2	51.9	47.8
Spasmolytic			
Never	28.2	8.6	20.5
Rarely	59.7	82.8	62.8
Often	12.1	8.6	10.7
Others			
Never	69.4	51.9	62.4
Rarely	24.2	39.5	30.2
Often	6.4	8.6	7.3

54

Table 5.23. Injections Frequently Given to Adult Patients, by Province

Type of Injection/ Frequency	Province		Total n=205 (%)
	W. Sumatera n=63 (%)	E. Java n=142 (%)	
Vitamin			
Never	0.0	4.9	6.3
Rarely	14.3	14.1	14.1
Often	85.7	81.0	82.4
Pain-killer			
Never	4.8	7.0	6.3
Rarely	36.5	23.2	27.3
Often	58.7	69.7	66.3
Anti-allergy/-histamine			
Never	0.0	7.0	4.9
Rarely	25.4	28.9	27.8
Often	74.6	64.1	67.3
Antibiotic			
Never	3.2	4.9	4.4
Rarely	57.1	43.7	47.8
Often	39.7	51.4	47.8
Spasmolytic			
Never	7.9	26.1	20.5
Rarely	81.0	63.4	68.8
Often	11.1	10.6	10.7
Others			
Never	46.1	69.7	62.4
Rarely	42.9	24.7	30.2
Often	11.1	5.6	7.3

Table 5.24. Type of Injection Frequently Given to Adult Patients, by Manpower Status

Type of Injection/ Frequency	Prescriber			Total n=205 (%)
	Doctor n=48 (%)	Nurse n=120 (%)	Midwife n=37 (%)	
Vitamin				
Never	4.2	1.7	8.1	3.4
Rarely	20.8	13.3	8.1	14.1
Often	75.0	85.0	83.8	82.4
Pain-killer				
Never	2.1	6.7	10.8	6.3
Rarely	27.1	29.2	21.6	27.3
Often	70.8	64.2	67.6	66.3
Anti-allergy/-histamine				
Never	6.3	3.3	8.1	4.9
Rarely	25.0	27.5	32.4	27.8
Often	68.8	69.2	59.5	67.3
Antibiotic				
Never	6.3	3.3	5.4	4.4
Rarely	60.4	44.2	43.2	47.8
Often	33.3	52.5	51.4	47.8
Spasmolytic				
Never	20.8	20.8	18.9	20.5
Rarely	77.1	65.0	70.3	68.8
Often	2.1	14.2	10.8	10.7
Others				
Never	56.3	65.0	62.2	62.4
Rarely	41.7	25.0	32.4	30.2
Often	2.1	10.0	5.4	7.3

4. TYPE OF INJECTIONS FREQUENTLY GIVEN TO CHILDREN

For children, the pattern of injection prescribing was different from that for adult patients. An injection mainly used for children was antibiotic, after which followed antihistamines/analgesics and vitamins.

The pattern of injection prescribing for children in the province of East Java was also different from that in the province of West Sumatera. In West Sumatera children were more rarely injected; and in cases where a child needed to be injected, the child was usually given antibiotic. In East Java, children were also given vitamin, antihistamine, and analgetic injections, besides antibiotics. There was no difference between the types of injections prescribed by the doctors and those prescribed by the paramedics.

The majority of the respondents did not give any reasons, or did not give any clear reasons, why they gave antibiotic injections to children. Among those who gave their reasons, the majority said that an antibiotic injection was safer for children. Another reason they gave was that there was some medical indication ("because the child was suffering from either skin infection or ARI"). A number of the respondents answered that it was because there was sufficient supply of the drugs.

As to why prescribers had been giving antihistamine injection, the majority of the respondents simply failed to give a clear reason. Among those who had reasons, there were those who said the injections

601

were meant to get rid of the symptoms of skin diseases, and to please the parents of the children. There were also others who said that they simply did not have any other choice--they were referring to those patients, who despite the fact that they had no clear indications of injection had insisted on their getting the injections.

As for prescribing vitamin injections, prescribers said the reason was either to increase the appetite of their patients (since this was a patient complaint) or to "revitalize" them.

Table 5.25. Injections Frequently Given to Children, by Prescribers at Puskesmas and Subsidiary Puskesmas

Injection	Facility		Total n=205 (%)
	Puskesmas n=124 (%)	Sub-Puskesmas n=81 (%)	
Vitamin			
Never	33.06	22.22	28.8
Rarely	38.71	56.79	45.9
Often	28.23	20.99	25.4
Pain-killer			
Never	17.74	18.52	18.0
Rarely	42.74	59.26	49.3
Often	28.23	22.22	25.9
Anti-allergy/-histamine			
Never	20.16	14.81	18.0
Rarely	51.61	64.20	56.6
Often	28.23	20.99	25.4
Antibiotic			
Never	17.74	3.70	12.2
Rarely	41.13	54.32	46.3
Often	41.13	41.98	41.5
Spasmolytic			
Never	69.35	46.91	60.5
Rarely	29.03	46.91	36.1
Often	1.61	6.17	3.4
Others			
Never	71.77	67.90	70.2
Rarely	26.61	32.10	28.8
Often	1.61	0.00	1.0

Table 5.26. Types of Injections Given to Children, by Province

Type of Injection/ Frequency	Province		Total n=205 (%)
	W.Sumatera n=63 (%)	E.Java n=142 (%)	
Vitamin			
Never	27.0	29.6	28.8
Rarely	60.3	39.4	45.9
Often	12.7	31.0	25.4
Pain-killer			
Never	22.2	16.2	18.0
Rarely	69.8	40.1	49.3
Often	7.9	43.7	32.7
Anti-allergy/-histamine			
Never	14.3	19.7	18.0
Rarely	73.0	49.3	56.6
Often	12.7	31.0	25.4
Antibiotic			
Never	7.9	14.1	12.2
Rarely	55.6	42.3	46.3
Often	36.5	43.7	41.5
Spasmolytic			
Never	33.3	72.5	60.5
Rarely	60.3	25.4	36.1
Often	6.4	2.1	3.4
Others			
Never	55.6	76.8	70.2
Rarely	44.4	21.8	28.8
Often	0.0	1.4	1.0

63

Table 5.27. Types of Injections Given to Children, by Prescriber Type

Type of Injection/ Frequency	Prescriber			Total n=205 (%)
	Doctor n=48 (%)	Nurse n=120 (%)	Midwife n=37 (%)	
Vitamin				
Never	37.5	23.3	35.1	28.8
Rarely	47.9	45.8	43.2	45.9
Often	14.6	30.8	21.6	25.5
Pain-killer				
Never	16.7	17.5	21.6	18.0
Rarely	43.8	50.0	54.1	49.3
Often	39.6	32.5	24.3	32.7
Anti-allergy/-histamine				
Never	10.4	16.7	32.4	18.0
Rarely	66.7	57.5	40.5	56.6
Often	22.9	25.8	27.0	25.4
Antibiotic				
Never	18.8	9.2	13.5	12.2
Rarely	45.8	44.2	54.1	46.3
Often	35.4	46.7	32.4	41.5
Spasmolytic				
Never	62.5	58.3	64.9	60.5
Rarely	37.5	35.8	35.1	3.6
Often	0.0	5.8	0.0	0.3
Others				
Never	56.3	75.0	73.0	70.2
Rarely	43.8	23.3	27.3	28.8
Often	0.0	1.7	0.0	1.0

5. EFFORTS TO DISCOURAGE INJECTION USE BY PRESCRIBERS

Efforts to discourage injection use have been widespread throughout the prescriber community. From the in-depth interview, 3 of 50 paramedics, all from West Sumatera, said they did not often give injections. Their reason was that injections were not necessary, and that often informed patients that injections were not what the patient needed. Other prescribers also suggested approaches used to discourage patient injection. By giving the patient such explanations, the number of patients asking for injections dropped by 10 to 25 percent in the sub-district of Bonjol, Pasaman. However, prescribers suggested certain explanations only worked in certain situations. Factors such as education and place of origin were highly influential. For example, civil servants, who were better educated than the other members of the community, in general would accept the advice of the health officers. The participants from Pasaman said that the advice was better followed by the Javanese compared to the Batak people. In addition, participants felt it was difficult to explain in scientific terms to patients, so they use other explanations comprehensible to the patient.

Examples of explanations used are:

- a) "Injections may cause paralysis. The more often you get yourself injected the greater will you be running the risk of getting yourself paralyzed. With four injections the risk

64

of your getting paralyzed is four; with two the risk is two. Make your choice!" So, the patients would choose two injections. It is only on very rare occasions that they would choose no injection at all, or only one injection.

- b) "You'll need to take the medicines three times a day; so, if you want an injection, you'll have to take it three times a day too." At first the patient insists on coming three times a day. But after some time he chooses to take the medicines, because he can no longer afford to bear the pain caused by the injections. Besides, all that going back and forth is only an extra trouble to him.
- c) "In previous times, injection was the only therapy you could get. But now you are living in an era of progress in which people are capable of producing small drugs that you need to take only once a day. So, it is not necessary for you to insist on being injected anymore. Oral drugs are more modern and efficacious." Some of the patients had begun to follow this advice.
- d) "I gave my patient a sample of a small drug for his heart disease that he needed to take only once a day. I told him that it was a new discovery, and that he didn't need to be injected anymore."

The list below summarizes the explanations suggested throughout the study used to decrease demand for injections:

- a) Explain dangers of injection to patient (dangers of death, trauma, shock, polio, breaking of networks, side-effects, wrong injections, disease spreads through injection, can be seized by cramp, paralyzed, swells /abscess.)
- b) Downgrade the effectiveness of an injection. Injections are not effective, last only a few hours, have the same effectiveness as medicine, still need medicine even if had an injection.
- c) Compare injections with regular medicine (with regular medicine get more medicines, get higher dosage, get three days instead of one shot, medicines are newer, more advanced).
- d) Explain that patients don't always need an injection, or don't need an injection for particular illness.
- e) Tell patients injections are only for older people.
- f) Explain that the patient shouldn't always get an injection, because it is not good for patient to continually get them.
- g) Advise the patient to take medicines first, and to get an injection only after the medicines fail to cure the disease.
- h) Take advantage of the people's opinion that injection is harmful on an empty stomach.
- i) Tell patients new information about the effectiveness of other medicine compared to injections is being distributed through media, MOH, etc.

- j) Inject the patient with aquades or vitamins.
- k) Provide medicine to children in form child can take combined with refusal of injection.

D. CONCLUSIONS

1. Polypharmacy is being practiced in the Puskesmas and the subsidiary Puskesmas. On average, prescribers report giving their patients a greater variety of drugs than they should, averaging 3.6 types of drugs for a diarrhea case without dehydration but with fever, and 4.8 types for mild ARI.
2. For a diarrhea case without dehydration, the most common drugs reported used were temperature-lowering drugs, antibiotics and Oralit. Fever, even without indications of blood or mucus in the faeces, seems an indicator for prescription of antibiotics.
3. For a simple ARI case, nearly all prescribers report using temperature-lowering drugs for the ARI case, followed by antibiotics, vitamins, antihistamine, and cough syrups. Injections were relatively infrequently mentioned.
4. Reasons put forward by prescribers for this practice of polypharmacy are:
 - a) the insistence (pressure) of the patients;
 - b) for most cases, drug therapy is given for each of the causal, symptomatic, and roboransia concepts; and
 - c) the existing "regulations or instructions" of the Puskesmas, and d) the habitual practice of the predecessors.
5. Indications of antibiotic prescribing are incorrect. Prescribers prescribe antibiotics more often than they should, primarily because:
 - a) if a patient has a temperature, it indicates there is an infection; and
 - b) to prevent secondary infection. Prescribers also lack clear guidelines on when antibiotics should be prescribed. Up to 25 percent of prescribers do not report giving antibiotics to cases where antibiotics should be prescribed.
6. A span of three days for antibiotic prescribing is practiced by the large majority of prescribers. The reasons obtained:
 - a) insufficient supply of drugs; and
 - b) they are under the pressure to fulfil the "target" number of visits of patients to the Puskesmas, so they expect the patient to return after the three-day supply is finished.
7. Prescribers know only some of the factors that may cause resistance to antibiotics. Factors considered causes of resistance by the majority of the prescribers are:
 - a) taking the drugs irregularly, or failure to finish them;
 - b) too small a dosage;

- c) taking antibiotics too often; and
- d) taking antibiotics for a long time.

Few prescribers recognize the relationship between prescribing antibiotics for too short a span of time and resistance to antibiotics.

8. Most prescribers often give injections to adult patients, even where not indicated. For a diarrhea case with fever but no dehydration, 29 percent of the doctors and approximately 45 percent of the paramedics said that they would give an injection to the patient.
9. Reasons for frequent use of injections are:
 - a) the insistence of the patients and the need to satisfy the patients; and
 - b) to keep the patient coming to the Puskesmas and not seek treatment elsewhere, which will maintain the number of visits to the Puskesmas. The satisfaction of the patients is connected with the reputation of the health center as a "qualified clinic" and the success of the other health programs of the Puskesmas.
10. Children are less frequently given injections than adults, but still many children receive injections. Children receive fewer injections largely because the parents do not want or are afraid of injections for their children, and prescribers are reluctant to give them for fear of any consequences. In cases where children are given injections, it is largely to satisfy the parent's demand for them.
11. Several different types of injections are used without consistently reported reasons for use of one over another. Antihistamine, analgetic/antipyretic, and vitamin injections are given without clear medical indications. All three kinds of injections are meant to immediately get rid of symptoms. Among some, antihistamines and vitamins are meant as a "health injection". Antihistamine injection is perceived as having minimal risk.
12. Antibiotic injections are frequently given because all symptoms of fever are thought to be caused by bacteria that can be killed with antibiotics.
13. Several approaches have been used by prescribers to discourage patients from wanting an injection, including describing dangers of injection use to patients, downgrading the effectiveness of injection, and by emphasizing benefits of other treatments.

CHAPTER 6

THE PATIENT - PRESCRIBER INTERACTION

An important step in a process of treatment is examination of the patient by the prescriber, consisting of taking a history and physical examination. While taking a history, the prescriber asks the patient about the disease he is suffering from and about related matters. The prescriber also conducts a physical examination to find out if the patient has other problems. Diagnosis is then based on the history and physical examination, and a decision on appropriate therapy is made.

In this study, observations were made of the interaction between patient and prescriber during the history-taking and examination for patients complaining of symptoms related to ARI or to diarrhea on arrival at the Puskesmas. The objective was to provide information on the extent to which different steps of the diagnostic process are carried out, and the extent of patient demand or requests for specific treatment manifested in the interaction between prescriber and patient.

During the interaction, observers recorded on a checklist complaints of the patient, prescriber questions to patients, steps of the physical exam, advice or instructions of the prescriber, and requests of the patient. Observers also checked whether the patient appeared to be a child under age five years of age or not. Analysis of steps of the diagnostic process that should be carried out for all patients is relatively straightforward. However, for analysis of steps relevant either to ARI or diarrhea diagnosis practices, algorithms linking specific patient complaints with appropriate follow-up questions were developed by the research team to analyze the data.

A. GENERAL QUESTIONS ASKED BY THE PRESCRIBER

Observers recorded whether or not prescribers questioned patients about general aspects of the patients condition, such as the duration of illness or the presence of fever. Such questions provide important information for establishing a diagnosis, and also indicate severity of illness. For all patients, Table 6.1 shows that in approximately 65 percent of interactions, prescribers asked their patients about the duration of illness. Almost 50 percent of the time, prescribers asked their patients about the presence of fever. For children, duration of illness was again asked in about two thirds of cases, but a question about fever was a little more likely to be addressed to children than adults.

Prescribers should also ask questions about previous treatment for a current episode of illness medications taken to help decide the next step of treatment. However, in only 10 percent of observations did prescribers question about medications taken, and in less than 5 percent did sources of previous treatment get discussed, regardless of whether the patient was an adult or child.

Recording of information on a patient record was also noted during observation. Recording complaints is helpful for monitoring the continuity of therapy, particularly in cases of repeated patient visits. Table 6.2 shows that in 40 percent of interactions, complaints of patients were written in their medical record. Some notes on the diagnosis, whether disease name or code, were more frequently recorded than patient complaints. Some indication of diagnosis was written immediately at the patient visit in 75 percent of interactions, although in all cases this should have been done.

Availability and accuracy of patient information on the medical card makes it possible to obtain an accurate picture of the morbidity rate in the reports of the Puskesmas. The information could also form the basis on which to plan drugs based on the morbidity rate, and be used for the evaluation of drugs used

in relation to diagnoses ("drug-auditing"). Delayed recording of the diagnoses, or handing over the task of recording to someone else, may only lead to misinformation. Recording the diseases and diagnosis in the form of codes without disease names may similarly result in misinformation.

Table 6.1. The Proportion of Prescriber-Patient Interactions in Which Specific Questions Were Asked by Prescribers to All Patients and Patients Approximately Under Five Years of Age

Type of Question asked by Prescriber	Interaction		Total
	Doctor - Patient	Paramedic- Patient	
<u>All Patients</u>			
<u>Number of cases observed</u>	93	333	426
<u>Symptoms of Disease</u>			
Length of time patient ill	59.1	66.7	65.0
Presence of Fever	45.2	46.3	46.0
<u>History of Treatment</u>			
Previous place of treatment	5.4	2.7	3.3
Drugs taken previously	4.3	12.0	10.3
<u>Patients Under Age 5</u>			
<u>Number of cases observed</u>	20	81	101
<u>Symptoms of Disease</u>			
Length of time patient ill	75.0	67.9	69.3
Presence of Fever	55.0	61.7	60.4
<u>History of Treatment</u>			
Previous place of treatment	0.0	0.0	0.0
Drugs taken previously	10.0	7.4	7.9

Table 6.2. The Proportion of Prescriber Interactions Where Prescribers Immediately Recorded Patient Illness Characteristics on Medical Card

Type of Recording by Prescriber	Interaction		Total
	Doctor - Patient	Paramedic- Patient	
<u>All Patients</u>			
<u>Number of cases observed</u>	93	333	426
<u>Documentation on Medical Record</u>			
Recording patient's complaint on a medical card	67.7	41.1	47.0
Recording diagnosis	67.7	63.1	64.1
Recording disease name	67.7	45.3	50.2
Recording disease code	45.2	27.0	31.0
Recording diagnosis or disease name or code on medical card	75.3	75.7	75.6
<u>Patients Under Age 5</u>			
<u>Number of cases observed</u>	20	81	101
<u>Documentation on Medical Record</u>			
Recording patient's complaint on a medical card	85.0	44.4	52.5
Recording diagnosis	65.0	67.9	67.3
Recording disease name	80.0	50.6	56.4
Recording disease code	45.0	25.9	29.7
Recording diagnosis or disease name or code on medical card	80.0	76.5	77.2

B. THE PRESCRIBER - DIARRHEA PATIENT INTERACTION

1. QUESTIONS ASKED BY THE PRESCRIBER TO PATIENTS WITH DIARRHEA COMPLAINTS

Table 6.3 shows the proportion of interactions where prescribers asked specific questions following up any patient complaints of diarrhea. In the table one can see that more than 80 percent of prescribers asked the frequency of diarrhea, indicating a seeking of information on the severity of the diarrhea. However, less than 50 percent tried to elicit information on whether the patients were suffering from bacillary dysentery or not, by asking if there was blood or mucus in the faeces. Children were slightly more likely to be asked about blood or mucus in feces, but still the question was asked in less than half the observations.

The proportion of interactions where prescribers asked questions on possible dehydration was also very small; in less than 10 percent of the observations did prescribers ask their patients about thirst. It is possible that most prescribers felt that it wasn't necessary to ask such questions since they were examining the patients, and could, therefore, draw their own conclusions as to whether there was dehydration or not.

The proportion of interactions where prescribers asked whether the concerned patients had taken oralit or not was also very small, approximately 15 percent for all patients, and 29 percent for children. Similarly, in few cases did doctors and paramedics question patients about stopping food intake, despite the fact that food intake is an important aspect of diarrhea management and is prescribed in the manuals of both the Ministry of Health and the WHO.

2. THE PHYSICAL EXAMINATION OF DIARRHEA PATIENTS BY THE PRESCRIBERS

Table 6.4 shows the proportion of interactions where prescribers conducted certain steps of physical examination of patients with complaints of diarrhea, as a means to determine whether they were suffering from dehydration or not. In less than 40 percent of all examinations did prescribers look for turgor; while examination of the tongue and mouth, and taking the pulse, were each done in less than 15 percent of interactions. For children, examination for turgor was somewhat more common than for adults. However, other important criteria of dehydration were not recorded, such as inspecting whether the eyes are hollow or not, and whether there are tears in the eyes or not. Therefore, some prescribers may have used these other measures to assess the presence of dehydration.



Table 6.3. Proportion of Prescriber-Patient Interactions in Which Specific Questions Were Asked by Prescribers to Patients Complaining of Diarrhea Symptoms

<u>Patient-Prescriber Interaction</u>		<u>Interaction</u>		<u>Total</u>
<u>Patient's Complaint</u>	<u>Prescriber's Question</u>	<u>Doctor-Patient</u>	<u>Paramed-Patient</u>	
<u>Adult Patients</u>				
<u>Number of cases observed</u>		8	19	27
Diarrhea-stricken	Freq. of diarrhea*	66.7	90.0	84.5
	Blood in feces	25.0	47.4	40.7
	Consistency of feces	62.5	42.1	48.2
	Mucus in feces	25.0	26.3	25.9
	Thirst	12.5	5.3	7.4
	Stopping food intake	12.5	0.0	3.7
	Oralit/ORS intake	12.5	15.8	14.8
	Give breastmilk	25.0	15.8	18.5
<u>Patients Under Age 5</u>				
<u>Number of cases observed</u>		5	9	14
Diarrhea-stricken	Freq. of diarrhea**	100.0	100.0	100.0
	Blood in feces	20.0	44.4	35.7
	Consistency of feces	80.0	55.6	64.3
	Mucus in feces	20.0	33.3	28.6
	Thirst	20.0	0.0	7.1
	Stopping food intake	20.0	0.0	7.1
	Oralit/ORS intake	20.0	33.3	28.6
	Give breastmilk	40.0	22.2	28.6

* Proportion pertains to 13 out of 27 patients who complained of diarrhea but did not mention frequency. All remaining portions in panel refer to 27 patients with any complaint of diarrhea.

** Proportion pertains to 6 patients who complained of diarrhea but did not mention frequency. All remaining portions in panel refer to 14 patients with any complaint of diarrhea.

12

Table 6.4. Proportion of Prescriber-Patient Interactions in Which Specific Steps of Physical Examination Were Taken With Patients Complaining of Diarrhea Symptoms

<u>Patient-Prescriber Interaction</u>		<u>Interaction</u>		<u>Total</u>
<u>Patient's Complaint</u>	<u>Prescriber's Examination</u>	<u>Doctor-Patient</u>	<u>Paramed-Patient</u>	
<u>Adult Patients</u>				
<u>Number of cases observed</u>		8	19	27
Diarrhea-stricken	Turgor	37.5	36.8	37.0
	Pulse	12.5	10.5	11.1
	Tongue/Mouth	25.0	10.5	14.8
<u>Patients Under Age 5</u>				
<u>Number of cases observed</u>		5	9	14
Diarrhea-stricken	Turgor	60.0	55.6	57.1
	Pulse	20.0	0.0	7.1
	Tongue/Mouth	20.0	22.2	21.4

C. THE PRESCRIBER - ARI PATIENT INTERACTION

1. QUESTIONS ASKED BY THE PRESCRIBER TO PATIENTS WITH ARI COMPLAINTS

Table 6.5 shows the interaction between prescribers and patients with complaints indicating acute respiratory infection. Out of the 187 interactions with complaints about dry cough, nearly half were followed up by further questions on the cough. However, only 8 percent were followed by prescriber questions on throat pain during swallowing, and 21 percent by questions about short-windedness. The most frequently asked question was on the presence of fever asked of 60 percent of all patients with ARI complaints. The same pattern prevailed among children, and again fever questions were predominant in prescriber concerns, asked of three quarters of cases of ARI complaints. Few patients complained of ear problems.

13

Table 6.5. Proportion of Prescriber-Patient Interactions in Which Specific Questions Were Asked by Prescribers to Patients Complaining of ARI Symptoms

<u>Patient-Prescriber Interaction</u>		<u>Interaction</u>				<u>Total</u>	
<u>Patient's Complaint</u>	<u>Prescriber's Question</u>	<u>Doctor-Patient</u>		<u>Paramed-Patient</u>		<u>N</u>	<u>(%)</u>
		<u>N</u>	<u>(%)</u>	<u>N</u>	<u>(%)</u>		
<u>Adult Patients</u>							
Dry cough	Pain in throat	41	14.6	146	6.2	187	8.0
	Short-windedness	41	19.5	146	21.9	187	21.4
	Dry Cough	41	39.0	146	42.5	187	41.7
Influenza/ Cough, sneeze, Hoarse Voice	Pain in throat	39	15.4	137	6.6	176	8.5
	Temperature/Fever	39	48.7	137	62.8	176	59.7
Ear problem/ Deafness	Period of Illness	1	0.0	3	66.7	4	50.0
	Fever	1	100.0	3	0.0	4	25.0
	Ears watery	1	0.0	3	0.0	4	0.0
<u>Patients Under Age 5</u>							
Dry cough	Pain in throat	10	0.0	46	2.0	56	1.8
	Short-windedness	10	10.0	46	17.4	56	16.1
	Dry Cough	10	30.0	46	23.9	56	25.0
Influenza/ Cough, sneeze, Hoarse Voice	Pain in throat	10	0.0	44	2.3	54	1.8
	Temperature/Fever	10	60.0	44	77.3	54	74.1

2. THE PHYSICAL EXAMINATION OF ARI PATIENTS BY THE PRESCRIBERS

Table 6.6 shows that in 10 to 15 percent of interactions with all ARI patients, prescribers conducted an examination of the tongue and mouth. In less than 10 percent did prescribers check the frequency of inspiration, despite the fact that this examination is important for determining whether a patient should be categorized as mild (non-pneumonia), moderate, or severe ARI, and also for providing indications for whether antibiotics are needed or not. Children were no more likely to have their respiration frequency checked than adults.

74

Table 6.6. Proportion of Prescriber-Patient Interactions in Which Specific Steps of Physical Examination Were Taken with Patients Complaining of ARI Symptoms

Patient's Complaint	Prescriber's Examination	Interaction				Total	
		Doctor-Patient N (%)	Paramed-Patient N (%)	N	(%)	N	(%)
<u>All Patients</u>							
Dry cough, influenza, cough, sneeze, hoarse voice	Tongue/mouth	41	7.3	148	17.6	189	15.3
	Freq. of Inspir.	41	12.2	148	8.1	189	9.0
	Auscultation	41	73.2	148	37.8	189	45.5
Pain/itch in throat	Tongue/Mouth	7	14.3	24	12.5	31	12.9
Short-winded	Tongue/mouth	6	0.0	20	15.0	26	11.5
	Freq. of Inspir.	6	16.7	20	5.0	26	7.7
	Auscultation	6	100.0	20	55.0	26	65.3
Ear problem/deafness	Ears	1	100.0	3	100.0	4	100.0
<u>Patients Under Age 5</u>							
Dry cough, influenza, cough, sneeze, hoarse voice	Tongue/mouth	10	0.0	47	29.8	57	24.6
	Freq. of Inspir.	10	30.0	47	6.7	57	10.5
	Auscultation	10	80.0	47	36.2	57	43.9

The proportion of doctors conducting auscultation was twice as large as that of paramedics. One explanation is that doctors were more likely to have access to a stethoscope. Another explanation is perhaps that doctors are familiar with examination of the bronchial tubes as a symptom of pneumonia and paramedics are not. In the FGD, paramedics said they lacked competence in conducting an auscultation, and that their main purpose of using the stethoscope was to please patients and secure their trust in the paramedic.

D. PATIENT REQUESTS FOR DRUGS AND INJECTIONS

As discussed in previous chapters, almost all of the prescribers perceived that patients had certain expectations about the care they would receive at the Puskesmas, particularly about medication. For example, prescribers repeatedly mentioned in the in-depth interview and the focus group discussions the desire of the patients to get an injection, to get syrup for their children, and capsules for adults, and the preference for capsules over other forms of drugs.

The results of the in-depth interview and the discussions with the prescribers also revealed that all prescribers had the perception that diarrhea patients would not be satisfied with only Oralit as a therapy. According to the prescribers, quite often the diarrhea patients would spell out that they had come to ask

15

for drugs. This happened in both West Sumatera and East Java. Drugs they often requested were anti-diarrheals ("enterovioform") and antibiotics ("tetra capsules"). Similarly, when a patient suffered ARI, even mild ARI, prescribers thought the patient would never be satisfied with only paracetamol or similar drugs.

In the observations of prescriber-patient interactions, patient requests for specific treatment were recorded on the checklist. In only 15 out of the 426 interactions (3.5%) did a patient request that he or she be given certain types of drugs. Out of these interactions 9 out of the 15 occurred in the patient-paramedic interactions, and 6 in the patient-doctor interactions. Out of this number of requests for certain types of drugs, 62 percent (5 out of 9) were approved by the prescriber, while out of the similar requests made to doctors, only approximately one-third were approved (Table 6.7).

Requests for injections occurred in 14 percent of the interactions. The requests took place more often in East Java than in West Sumatera. Out of such a number of requests for injections, approximately one-sixth were not approved by the prescribers.

The above finding appears in conflict with the widely held perception of prescribers that they must prescribe certain therapies to satisfy their patients. Several reasons may account for this discrepancy. In this study, patients may have been less likely to request therapies than they normally would, given the presence of an observer. Patients may also have numerous contacts with the provider and no longer express preferences, since they know they will receive what they expect. Alternatively, prescribers may have sufficient experience and have heard enough requests over time for certain therapies that the prescriber expects all patients to demand certain therapies and routinely prescribes them. Finally, prescribers may project onto patients their own dissatisfaction with standard therapy and their own perceptions of appropriate therapy for diarrhea and ARI, such that patients do not actually demand drugs, but prescribers perceive they do. Even if patients do not verbalize demand for certain therapies, obstacles to appropriate prescribing behavior remain with the current state of prescriber perceptions.

Table 6.7. Proportion of Prescriber-Patient Interactions Where Patient Express a Request to Prescriber

Type of Patient's Request	West Sumatera Interaction		East Java Interaction		Total
	Doctor-Patient N=11 (%)	Paramed-Patient N=74 (%)	Doctor-Patient N=82 (%)	Paramed-Patient N=259 (%)	
Certain Types of Drugs	0.0	0.0	7.3	2.3	3.5
Injections	0.0	10.8	14.6	15.1	14.0

16

Table 6.8. Distribution of Prescriber-Patient Interactions by Reaction of Prescriber to Patient's Request

Type of Patient's Request	West Sumatera		East Java		Total
	Doctor-Patient	Paramed-Patient	Doctor-Patient	Paramed-Patient	
Request for Drugs :	N=0	N=3	N=6	N=6	N=15
Approved	---	66.7	33.3	50.0	46.7
Disapproved	---	33.3	33.3	0.0	20.0
No reaction	---	0.0	16.7	15.4	33.3
Request for Injection:	N=0	N=8	N=12	N=39	N=59
Approved	---	62.5	75.0	82.0	78.0
Disapproved	---	0.0	16.7	15.4	13.5
No reaction	---	37.5	8.3	2.6	8.5

E. PRESCRIBER EDUCATION OF THE PATIENT

Besides observing the process of taking a history and physical examination, prescribers' explanations to patients about the illness or instructions about therapy were also noted. In approximately half of the 426 interactions, some educational information was passed from prescriber to patient, as shown in Table 6.9. For any single instruction, at most one quarter of prescribers would give advice. Primarily the information consisted of advising the patient of when to return, instructions on taking medicine, or advice on eating. There were few differences between the pattern for all patients and for patients under the age of five. Only in the case of instructions on medication were respondents with children more likely to be given instructions than adults.

Analysis of the pattern of instructions given by prescribers revealed that most prescribers give advice to a few of their patients (data not shown). Few prescribers were noted to never give instruction of any kind.

Prescribers tendency to disregard health education when meeting with patients is often reputed to be due to a lack of time with each patient. In this study, the duration of each interaction was noted on the observer checklist, and a record of the number of patients coming into the Puskesmas by hour of arrival was recorded on a data sheet kept for each observation site. The patient flow for most health care facilities was noted to peak in mid-morning, with many fewer patients seen at the beginning and end of each session (data not shown). Durations of each interaction are shown in Table 6.10. By far, the majority of interactions lasted approximately two to three minutes. The duration of interaction however is not strongly associated with the hour of the patient visit, even if considering each hour separately. Thus, if lack of time is the reason many prescribers do not talk with their patients, that time pressure is felt throughout the period of patient visits, not just during the peak visiting hours.

Table 6.9. Proportion of Prescriber-Patient Interactions in Which Prescribers Gave Instruction to Patient About Illness or Treatment

Type of Instruction	<u>Interactions in Which Instruction Occurred</u>			
	Adults		Children <5	
	N	%	N	%
Total interactions	426	-	101	-
<u>Patients given any information by prescriber</u>	204	47.9	55	54.5
<u>Patients given information about disease</u>	79	18.5	14	13.9
Cause of illness	17	4.0	3	3.0
Course of illness	21	4.9	2	2.0
Danger signs associated with illness	4	0.9	2	2.0
Instruction about danger signs	2	0.5	0	0.0
Prevention of disease	9	2.1	4	4.0
Time to return for examination	51	12.0	10	9.9
<u>Patients given information about drugs</u>	75	17.6	27	26.7
Guidelines for use of drug	21	4.9	7	6.9
Clarify how to take drug	53	12.4	23	22.8
Times to take in 1 day	31	7.3	16	15.8
When to take drug	13	3.1	8	7.9
<u>General information about eating etc.</u>	132	31.0	32	31.7
Advice about eating	112	26.3	25	24.8
Advice about drinking	60	14.1	13	12.9
Advice about breastfeeding	6	1.4	5	5.0

Table 6.10. Duration of Prescriber-Patient Interactions, by Hour that Interaction Began

Duration of Interaction in minutes	<u>Time Interaction Started</u>			Total n=419
	Before 9:00 n=153	9:00-10:00 n=180	After 10:00 n=86	
1	3.9	7.8	10.5	6.9
2	37.9	33.3	38.4	36.0
3	28.1	26.7	24.4	26.7
4	9.8	8.3	9.3	9.1
5	16.3	13.3	7.0	13.1
6+	3.9	10.6	10.5	8.1

13

F. SUMMARY AND CONCLUSIONS

1. Patients were asked general questions about their illness by prescribers in one half to two thirds of cases, as indicated by the frequency of questions on fever and duration of illness. However, health care seeking behavior of the patient prior to the observed visit was rarely addressed by prescribers.
2. One quarter of prescribers have not yet made it a practice to immediately write down the names of diseases and disease codes while diagnosing their patients. Similarly not all record their patients' complaints and the symptoms of their diseases. Some recording of diagnosis during the patient visit is done in three quarters of cases.
3. The diagnostic process carried out by prescribers is not yet sufficiently thorough to establish a good diagnosis for diarrhea and ARI. Actually, 100 percent of prescribers should carry out many of the diagnostic steps observed in the study, since the correctness of the therapy depends on the correctness of the diagnosis, but in most cases important steps were carried out by fewer than half of prescribers. Examples that indicate the need for more thorough examinations include:
 - a) In more than 80 percent of observations of diarrheal disease patients, prescribers asked or patients offered information about the frequency of diarrhea, but in less than 50 percent was information on the presence of blood or mucus (indications of bacillary dysentery) in the feces elicited.
 - b) Prescriber questions and examination of diarrhea patients regarding possible dehydration were relatively infrequent. Examination for turgor occurred in 37 percent of all cases and 57 percent of child cases.
 - c) For ARI patients, prescriber questions about fever were most frequent, followed by questions about cough. Other indicators, such as pain in throat or short-windedness were rarely addressed.
 - d) Physical examinations of ARI patients revealed that few prescribers use frequency of respiration as a disease indicator, which would establish a need for antibiotics or not. However, auscultation is frequently used, particularly among physicians.
4. Patient demand for certain types of medication is not frequently verbalized in the prescriber-patient interaction. In only 3.5 percent of observed interactions were certain therapies requested by patients. In 15 percent of observations, injections were requested by a patient. There are several possible reasons why patient requests are less frequent than expected given on prescriber descriptions of patient demand. However, even if patients do not verbalize demand for certain therapies, obstacles to appropriate prescribing behavior remain given the current state of prescriber perceptions.
5. Prescriber instructions to a patient occurred in approximately half of observations for both adults and children. General information about eating was most commonly given, followed by information about medication, and last by information about the patient illness.
6. Prescriber-patient interactions last an average of two to three minutes, with little variation.

CHAPTER 7
PATIENT EXPECTATIONS AND SATISFACTION WITH
HEALTH CARE SERVICES

A. PATIENT EXPECTATIONS OF THE HEALTH CARE SERVICES ON ARRIVAL AT THE PUSKESMAS OR SUBSIDIARY PUSKESMAS

As shown in earlier chapters, health care offered by prescribers in the Puskesmas and subsidiary Puskesmas is affected by the prescribers' perception that patients have certain desires regarding treatment of their illness. Pressure by the patients to obtain certain treatment might be expressed explicitly, or it might be something commonly understood by the doctors, paramedics and patients. The following section explores patient expectations about health care services upon arrival at the health center to determine whether patients have specific ideas about services that they expect or want to receive, in particular expectations about drugs that they will receive.

1. PATIENTS' EXPECTATIONS CONCERNING GOODS AND SERVICES TO BE RECEIVED DURING PUSKESMAS VISIT

In the Puskesmas-based component of this study, interviews were held with patients or caretakers of patients arriving at the health care facility. Respondents were questioned about what they expected to get from the visit. Questions were phrased to minimize any influence the interviewers might have on the expectations voiced by respondents concerning a particular kind of service.

From the answers of the respondents on services expected, given in Table 7.1, the majority of patients particularly expected that they would be given drugs and injections, rather than other kinds of therapy. Nearly half wanted a physical examination. Very few said that they expected other kinds of services, such as a consultation, or a prescription with which they could obtain drugs at dispensaries outside the Puskesmas.

A comparison of West Sumatera with East Java reveal large differences between provinces. In West Sumatera the majority of patients had come to the health facility to get drugs and have a physical examination, while in East Java most wanted drugs and injections.

Few patients expected that they be given prescriptions with which they could buy drugs at any outside dispensaries. Explanations from a number of prescribers, however, revealed some patients routinely come to get such prescriptions, because the drugs prescribed for them are unavailable at the Puskesmas.

2. PATIENTS' EXPECTATIONS CONCERNING INJECTIONS

In Table 7.1. in West Sumatera, 33 percent of those visiting wanted to have an injection, while in East Java, 75 percent wanted to have an injection. Injections are clearly highly desired in East Java. One tentative explanation could be that in certain ethnic groups, such as the Javanese and the Madurese, there prevails the belief that the more it hurts, the more efficacious will the therapy be.

Patients in West Sumatera were also found to have a desire for getting themselves injected, though to a lesser degree. From the FGD and the in-depth interview prescribers suggested there are patients in both provinces who want to get more than one injection.

Table 7.1. Proportion of Arriving Patients Expecting Specific Health Care Goods and Services, by Province

Expected Goods and Services	Province		Total n=589 (%)
	West Sumatera n=138 (%)	East Java n=451 (%)	
Physical examination	71.1	37.9	45.7
Injection	32.6	74.1	64.3
Drugs	92.0	60.5	67.9
Prescription for use at outside dispensary	7.3	0.7	2.2
Seek advice	13.8	2.1	4.7
Seek information	2.2	0.9	1.2
Other	1.5	4.0	3.4

Table 7.2. Reason for Desire for Injections Among Those Wanting Injections, by Province

Reason	Province		Total n=379 (%)
	West Sumatera n=45 (%)	East Java n=334 (%)	
More efficacious	73.3	69.5	69.9
Accustomed to injections	15.6	9.3	10.0
In order to be healthy	2.2	9.0	8.2
Other reasons	0.0	4.7	4.2
Don't know reason	8.9	7.5	7.7
Total	100.00	100.00	100.0

Table 7.3. Patients' Responses Concerning Drugs They Expect or Want to Be Given, by Province

Patient Response to Drug Expected	Province		Total n=589 (%)
	W. Sumatera n=138 (%)	East Java n=451 (%)	
Say name of specific drug	5.1	5.1	5.1
Give description of drug	23.2	41.9	37.5
Any drug will do	55.1	43.2	46.0
Don't want any drugs	0.0	1.8	1.4
No drug name or description given, no answer	16.7	8.0	10.0
Total	100.0	100.0	100.0

A number of reasons were put forward by the patients for their desire to get injections, shown in Table 7.2. The primary reasons is that injections are thought to be more efficacious, or that they can cure diseases more quickly. Patients also wanted injections because they were already accustomed to getting injections (10%). Less than 1 percent said they wanted injections, because they could not afford to take oral drugs.

3. PATIENTS' EXPECTATIONS CONCERNING DRUGS

Questions were also asked to the patients concerning the drugs they wanted. Open-ended questions obtained information on either brand names of the drugs the patients wanted, or a description of drugs wanted, allowing for the possibility that patients might not have any desire for certain drugs. Over half of the arriving patients had no expectation that they would prescribed a specific drug. Out of all the respondents, only 5 percent specifically mentioned the name of a drug they wanted. Another 37 percent described the type of drug they wanted. For nearly half, the choice of drug was simply up to the health officers (See Table 7.3). Nearly 12 percent of arriving patients described a second drug that they also wanted.

When questioned specifically about names or descriptions of drugs the patients might want, about 40 percent gave a name or description, while 60 percent had few preconceived ideas about drugs desired. Names and descriptions offered by patients as desired are shown in Table 7.4. Among the few who named specific drugs, the drugs mentioned more than once or twice were antalgin, paracetamol, salycil powder, and cough medicine. Among those who gave the descriptions of the drugs they wanted, few were very specific. Primarily patients or respondents wanted pills (about 45%), especially white or yellow pills. Others wanted powders or syrups, and some wanted capsules. Descriptions were rarely detailed beyond the color and form of drug.

Table 7.4. Distribution of Drugs (Name or Description) Expected by Patients as Identified by Patients at Arrival, by Province and Facility

Name/Characteristic	Province				Facility				Total	
	W. Sumatera		E. Java		Puskesmas		Sub-Puskes.		n	%
	n	%	n	%	n	%	n	%	n	%
Name										
Paracetamol	1	2.6	2	0.8	3	1.3	0	0.0	3	1.0
Aminophillin	1	2.6	0	0.0	1	0.4	0	0.0	1	0.3
Salicyl Powder	1	2.6	2	0.8	3	1.3	0	0.0	3	1.0
Ampicillin	1	2.6	0	0.0	1	0.4	0	0.0	1	0.3
Antalgin	1	2.6	4	1.5	5	2.1	0	0.0	5	1.7
Cough medicine	0	0.0	4	1.5	4	1.7	0	0.0	4	1.3
Vit. B Complex	0	0.0	1	0.4	0	0.0	1	1.6	1	0.3
Vitamin C	0	0.0	1	0.4	1	0.4	0	0.0	1	0.3
Other Vitamins	0	0.0	1	0.4	1	0.4	0	0.0	1	0.3
Ephedrine	0	0.0	1	0.4	1	0.4	0	0.0	1	0.3
Promag	0	0.0	1	0.4	1	0.4	0	0.0	1	0.3
Penicillin	0	0.0	2	0.8	1	0.4	1	1.6	2	0.7
Aminophillin	1	2.6	1	0.4	2	0.8	0	0.0	2	0.7
Prednisone	0	0.0	1	0.4	1	0.4	0	0.0	1	0.3
CTM	0	0.0	2	0.8	2	0.8	0	0.0	2	0.7
Appetite stimulant	0	0.0	1	0.4	1	0.4	0	0.0	1	0.3
Antibiotic	1	2.6	0	0.0	1	0.4	0	0.0	1	0.3
Oralit	0	0.0	1	0.4	0	0.0	1	1.6	1	0.3
Eye medicine	0	0.0	2	0.8	2	0.8	0	0.0	2	0.7
Fever medicine	0	0.0	2	0.8	2	0.8	0	0.0	2	0.7
Tooth medicine	0	0.0	1	0.4	0	0.0	1	1.6	1	0.3
Characteristic										
White pills	0	0.0	21	8.1	17	7.2	4	6.5	21	7.0
White pills (Detailed)	1	2.6	15	5.8	11	4.6	5	8.1	16	5.4
Yellow pills	1	2.6	14	5.4	12	5.1	3	4.8	15	5.0
Yellow pills (Detailed)	1	2.6	11	4.2	7	3.0	5	8.1	12	4.0
Other pills	14	35.9	56	21.5	55	23.2	15	24.2	70	23.4
Powder or syrup	8	20.5	57	21.9	50	21.1	15	24.2	65	21.7
Capsules	2	5.1	34	13.1	32	13.5	4	6.5	36	12.0
Other characteristics	5	12.8	22	8.5	20	8.4	7	11.3	27	9.0
Total	39	100.0	260	100.0	237	100.0	62	100.0	299	100.0

83

Table 7.5. Distribution of Patients' Perception of Use of Drug Expected, by Province*

Use of Drug	Province		Total n=221 (%)
	W.Sumatera n=32 (%)	E.Java n=189 (%)	
Don't know	50.00	58.73	57.5
Itches	3.13	3.70	3.6
Cough	3.13	9.52	8.6
Short-windedness	0.00	1.59	1.5
Loose bowel	6.25	0.53	1.4
Stomachache	6.25	5.82	5.9
Heaving stomach	0.00	0.53	0.5
Lungs	3.13	0.00	0.5
Temp.-lowering	0.00	4.76	4.1
Fever	9.38	0.53	1.8
Flu	0.00	3.17	2.7
Pain-killing	6.25	3.70	4.1
Eye	0.00	0.00	0.5
Tooth	3.13	0.00	0.9
"Sariawan"(mouth)	3.13	0.00	0.5
Allergy	0.00	1.06	0.9
Bloodlessness/Anemia	0.00	0.53	0.5
Lowering Blood Press.	3.13	0.00	0.5
Stiffness/shooting pains	3.13	2.12	2.3
"Boyok"	0.00	1.06	0.9
Urinary pains	0.00	0.53	0.5
Others	0.00	1.06	0.9
Total	100.00	100.00	100.0

*Note: Table includes first drug named by patient only.

Table 7.6. Prescriber Expected to Conduct Examination of Patient Arrivals, by Province

Prescriber	Province		Total n=587 (%)
	W.Sumatera n=138 (%)	E. Java n=449 (%)	
Doctor	49.28	40.31	42.4
Nurse	15.94	19.15	18.4
Midwife	5.80	6.01	6.0
Anybody will do	28.99	34.08	32.9
No answer	0.00	0.45	0.3
Total	100.00	100.00	100.0

Table 7.7. Reason for Preferring a Certain Prescriber to Others, by Province

Reason	Province		Total n=393 (%)
	W. Sumatera n=98 (%)	E. Java n=295 (%)	
Familiarity	22.45	36.61	33.1
Quick Recovery	13.27	21.02	19.1
Better Service	30.61	11.86	16.5
Others	31.63	26.44	27.7
No answer	2.04	4.07	3.6
Total	100.00	100.00	100.0

4. PATIENTS' EXPECTATIONS CONCERNING THE MEDICAL OFFICER HANDLING THE EXAMINATION

Respondents were also asked which prescriber they would like to see during the visit, shown in Table 7.6. Response could be either the name of the prescriber or the status (doctor, nurse, or midwife). One third of patients did not give any one prescriber preference. Whoever examined these patients was acceptable. The majority, 42 percent, expected they would be examined a doctor; 18 percent by a nurse; and only 6 percent by a midwife. Twenty percent of respondents mentioned the names of the preferred examiner. From the two-thirds stating a preference (Table 7.7), the most common reasons for the preference were that they were accustomed to a certain prescriber (24%); or because with that prescriber recovery was quick (16%); or because of better service (13%).

B. THE KNOWLEDGE AND UNDERSTANDING OF THE PATIENTS AND THEIR SATISFACTION WITH THE DRUGS THEY RECEIVED AT THE PUSKESMAS/SUBSIDIARY PUSKESMAS

1. THE PATIENTS' KNOWLEDGE OF DRUGS

Once patients had visited the prescriber and the dispensary, they were re-interviewed. Approximately 98 percent of the 580 patients interviewed had received drugs during their visit at the health center. More than half (53%) had received three types of drugs. Approximately 8 percent received one type, 21 percent had received two types, 17 percent four types, and 1 percent had received five types.

Patients were asked questions about each drug they had received, the name or description, the purpose of the drug or benefit the drug had to offer, the number of times the patient had to take the drug each day, who gave them the instructions about the drug, whether the drug was efficacious or not, how the patient knew whether or not the drug was efficacious, and whether the drug was expected.

The recording of the names or characteristics of the drugs by interviewers was meant to provide a complete picture of the drugs patients usually receive from the patient point of view, where frequently names are unknown. The results show that 45 percent of the drugs were described, and 55 percent named. Many of the drugs did not have distinctive characteristics, nor was there great variety in the characteristics of the drugs. Table 7.8. shows the names or descriptions (where names were not given) of the drugs received by the respondents at the health center visit.

Of the drugs received, patients seemed to have a fair knowledge of, among others, CTM, paracetamol, antalgin, vitamin B complex, and vitamin B1. These are drugs that the respondents probably had frequently received, because they are the kinds of drugs that would get rid of the major symptoms of the 10 top diseases of the Puskesmas/ subsidiary Puskesmas, such as infectious diseases, particularly the infection of the respiratory tract. The results of the study also showed that very few of the respondents knew the names of the antibiotics.

In terms of what drugs prescribers are using, by observation and identification of the observers (all of which were doctors), it is believed that some of the drugs given out could possibly be described in terms of the following characteristics:

- a) Antibiotics : capsule, white tablet/pill (trisulpha), syrup, powder
- b) Vitamin B-Complex : small tablet/pill
- c) CTM : yellow tablet/pill
- d) Analgetic/Antipyretic : white tablet/pill

Table 7.8. Distribution of Drugs (Name of Description) Received by Patients as Identified by Patient and Observer, by Province and Facility

Name/ Characteristic	Province				Facility				TOTAL	
	W. SUMATERA		E. JAVA		PUSKESMAS		SUB-PUSKES.		n	%
	n	%	n	%	n	%	n	%	n	%
<u>Name</u>										
Paracetamol	29	7.7	152	12.4	130	10.6	51	13.5	181	11.3
Aminophillin	1	0.3	13	1.1	10	0.8	4	1.1	14	0.9
Salicyl Powder	1	0.3	9	0.7	8	0.7	2	0.5	10	0.6
Ampicillin	0	0.0	22	1.8	21	1.7	1	0.3	22	1.4
B1	13	3.4	49	4.0	50	4.1	12	3.2	62	3.9
B6	7	1.9	19	1.6	17	1.4	9	2.4	26	1.6
Antalgin	17	4.5	107	8.7	95	7.8	29	7.7	124	7.7
Black Cough Syrup	1	0.3	23	1.9	11	0.9	13	3.4	24	1.5
Cough Drug	3	0.8	0	0.0	3	0.2	0	0.0	3	0.2
Oralit	3	0.8	9	0.7	10	0.8	2	0.5	12	0.7
Vit B Complex	4	1.1	81	6.6	57	4.7	28	7.4	85	5.3
Vitamin C	12	3.2	20	1.6	19	1.6	13	3.4	32	2.0
Vitamin	2	0.5	0	0.0	2	0.2	0	0.0	2	0.1
Ephedrine	0	0.0	4	0.3	4	0.3	0	0.0	4	0.2
Promag	2	0.5	25	2.0	16	1.3	11	2.9	27	1.7
Penicillin	0	0.0	2	0.2	2	0.2	0	0.0	2	0.1
Prednisone	1	0.3	25	2.0	23	1.9	3	0.8	26	1.6
CTM	26	6.9	195	15.9	158	12.9	63	16.6	221	13.8
<u>Characteristic</u>										
Antibiotics	2	0.5	71	5.8	51	5.0	12	3.2	73	4.6
White pill	93	24.7	45	3.7	118	9.7	20	5.3	138	8.6
Sml white pill	3	0.8	19	1.6	18	1.5	4	1.1	22	1.4
Yellow pill	41	10.9	16	1.3	52	4.3	5	1.3	57	3.6
Sml yellow pill	4	1.1	11	0.9	12	1.0	3	0.8	15	0.9
Other Pill	35	9.3	54	4.4	62	5.1	27	7.1	89	5.6
Powder or syrup	29	7.7	68	5.6	83	6.8	14	3.7	97	6.1
Red capsule	7	1.9	14	1.1	15	1.2	6	1.6	21	1.3
Other capsule	0	0.0	21	1.7	18	1.5	3	0.8	21	1.3
White tablet	9	2.4	39	3.2	27	2.2	21	5.5	48	3.0
Yellow tablet	4	1.1	14	1.1	13	1.1	5	1.3	18	1.1
Other tablet	22	5.8	53	4.3	64	5.2	11	2.9	75	4.7
Other characteristic	6	1.6	43	3.5	42	3.4	7	1.9	49	3.1
Total	377	100.0	1223	100.0	1221	100.0	379	100.0	1600	100.0

The drugs frequently prescribed, based on their characteristics, were analgetics/antipyretics, antibiotics, vitamin B complex, and CTM. The results here correspond with those of the survey and the in-depth interview, which also show that those were the types of the drugs most often prescribed by the prescribers.

Table 7.9 shows the knowledge that the respondents had of the benefits they could get from the drugs given to them. Benefits of over three quarters of drugs patients received were not clearly known by the respondents. Benefits that were identified were for drugs such as itch drug, cough drug, temperature-lowering drug, flu drug, pain-killing drug, short-windedness drug, and stomachache drug. There was little difference in knowledge of benefits between provinces and between health care facilities.

Nearly all patients were able to explain how drugs were to be taken (Table 7.10). Most of the drugs given were to be taken three times a day. Respondents were also questioned about who explained the use of the drugs to them (Table 7.11). The explanation for use of the drug was mostly given by the dispenser. Only a small percentage said that they got the instruction from the prescribers.

Table 7.9. Distribution of the Benefits of Drugs As Stated by the Respondents, by Province and Facility

Benefit of Drug	Province				Facility				TOTAL	
	W.SUMATERA		E. JAVA		PUSKESMAS		SUB-PUSKESMAS		n	%
	n	%	n	%	n	%	n	%		
Don't know	276	73.2	971	79.4	963	78.9	284	74.9	1247	77.94
Itches	11	2.9	29	2.4	33	2.7	7	1.8	40	2.50
Cough	9	2.4	37	3.0	36	2.9	10	2.6	46	2.87
Short-windedness	3	0.8	13	1.1	11	0.9	5	1.3	16	1.00
Loose bowels	2	0.5	11	0.9	11	0.9	2	0.5	13	0.81
Stomachache	8	2.1	10	0.8	12	1.0	6	1.6	10	1.12
Heaving stomach	1	0.3	0	0.0	1	0.1	0	0.0	1	0.06
Lungs	7	1.9	1	0.1	8	0.7	0	0.0	8	0.50
Lowering temperat.	9	2.1	38	3.1	29	2.4	17	4.5	46	2.87
Fever	5	1.3	6	0.5	6	0.5	5	1.3	11	0.69
Flu	12	3.2	22	1.8	26	2.1	8	2.1	34	2.12
Killing pains	5	1.3	16	1.3	16	1.3	5	1.3	21	1.31
Short-windedness	2	0.5	6	0.5	7	0.6	1	0.3	8	0.50
Eye	2	0.5	3	0.2	4	0.3	1	0.3	5	0.31
Tooth	5	1.3	6	0.5	11	0.9	0	0.0	11	0.69
Bloodlessness(Anemia)	2	0.5	0	0.0	1	0.1	1	0.3	2	0.13
Lowering blood press.	2	0.5	0	0.0	2	0.2	0	0.0	2	0.13
Appetite	1	0.3	4	0.3	3	0.2	2	0.5	5	0.31
Stiffness/shooting pains	1	0.3	8	0.7	6	0.5	3	0.8	9	0.56
Urinary pains	0	0.0	1	0.1	1	0.1	0	0.0	1	0.06
Health	3	0.8	15	1.2	8	0.7	10	2.6	18	1.12
Others	12	3.2	25	2.0	25	2.0	12	3.2	37	2.31
No explanation	0	0.0	1	0.1	1	0.1	0	0.0	1	0.06
Total	377	100.0	1223	100.0	1221	100.0	379	100.0	1600	100.00

Table 7.10. Distribution of the Way the Drugs Are Used As Said by the Respondents, by Province and Facility

Number of Times A DAY	Province				Facility				TOTAL	
	W.SUMATERA		E. JAVA		PUSKESMAS		SUB-PUSKESMAS		n	%
	n	%	n	%	n	%	n	%		
1 x 1	11	2.9	22	1.8	26	2.1	7	1.8	33	2.06
2 x 1	27	7.2	64	5.2	71	5.8	20	5.3	91	5.69
3 x 1	313	83.0	1053	86.1	1033	84.6	333	87.9	1366	85.37
Others	24	6.4	46	3.8	53	4.3	17	4.5	70	4.37
No explanation	2	0.5	38	3.1	38	3.1	2	0.5	40	2.50
Total	377	100.0	1223	100.0	1221	100.0	379	100.0	1600	100.00

Table 7.11. Distribution of Health Officers Giving Explanation of the Ways of Using Drugs to Respondents, by Province and Facility

Who Gives the Ex- planation	Province				Facility				TOTAL	
	W. SUMATERA		E. JAVA		PUSKESMAS		SUB-PUSKESMAS		n	%
	n	%	n	%	n	%	n	%		
Dispenser	146	38.7	1061	86.8	1004	82.2	203	53.6	1207	75.44
Doctor	13	3.4	24	2.0	31	2.5	6	1.6	37	2.31
Nurse	94	24.9	113	9.2	62	5.1	145	38.3	207	12.94
Others	26	6.9	10	0.8	14	1.1	22	5.8	36	2.25
No explanation	98	26.0	15	1.2	110	9.0	3	0.8	113	7.1
Total	377	100.0	1223	100.0	1221	100.0	379	100.0	1600	100.0

Province and facility differences emerged in the giving of explanations about drugs. In West Sumatera explanations were usually given by dispensers or prescribers, while in East Java explanations were mostly given by the dispensers. Doctors rarely gave instructions on the use of the drugs compared with nurses. At the Puskesmas instructions were largely given by dispensers; while at the subsidiary Puskesmas, the nurse would usually act as both prescriber and the dispenser. For 7 percent of the drugs, patients said that they were not given any instructions on how to take the drugs; these statements mainly came from respondents of West Sumatera. The reason for no explanation could be that the instructions were already written on the packet, and that the dispenser thought it not necessary to give an explanation. From observation of the researchers, almost all drug packets contained instructions on use of the drug.

Asked if the drugs prescribed for their disease were efficacious or not, more than half of the respondents (58%) said that the drug was efficacious (Table 7.12). More of those claiming the drugs to be efficacious were from East Java and seen at the subsidiary Puskesmas. For 28 percent of the drugs, respondents either said that they couldn't tell whether the drugs they got were efficacious or not, or that they would like to try them first; for 12 percent of drugs, the respondents said they were not efficacious.

Respondents' experiences play a major role in determining whether patients believe that the drugs given to them would be efficacious. Table 7.13 depicts the sources of information concerning whether the drugs were efficacious or not. For more than half the drugs, respondents said that it was their past experiences with the drugs that made them believe the drug was efficacious. There was little difference in the results between the two provinces and facilities. Respondents may tend to develop their own opinion of efficacious drugs, despite not having detailed knowledge of their disease. Such a tendency could encourage the respondents to attempt to have the prescriber prescribe drugs which, according to experience had been very efficacious, even though they might be suffering a different kind of disease.

2. SATISFACTION WITH DRUGS RECEIVED AT THE PUSKESMAS/SUBSIDIARY PUSKESMAS

As concerns the satisfaction of the patients with the treatment provided by the Puskesmas/subsidiary Puskesmas, three-fourths of drugs received conformed with the expectations of the respondents. There was hardly any difference between the two provinces and between the Puskesmas and subsidiary Puskesmas. (See Table 7.14.)

51

Table 7.12. Distribution of the Opinions of Respondents of the Efficacy By Province and Facility

Opinions Concerning the Efficacy of Drugs	Province				Facility				TOTAL	
	W.SUMATERA		E. JAVA		PUSKESMAS		SUB-PUSKESMAS		n	%
	n	%	n	%	n	%	n	%		
Efficacious	191	50.5	735	60.1	680	55.7	246	64.9	926	57.88
Not Efficacious	36	9.5	157	12.8	150	12.3	43	11.3	193	12.06
Don't know	73	19.4	264	21.6	276	22.6	61	16.1	337	21.06
Have to try first	71	18.8	35	2.9	77	6.3	29	7.7	106	6.62
From experience	3	0.8	13	1.1	16	1.3	0	0.0	16	1.00
No explanation	3	0.8	19	1.6	22	1.8	0	0.0	22	1.37
Total	377	100.0	1223	100.0	1221	100.0	379	100.0	1600	100.00

Table 7.13. Distribution of the Sources of Information on Efficacy of the Drugs, by Province and Facility

Where Knowledge of Efficacy of Drug is Obtained From	Province				Facility				TOTAL	
	W.SUMATERA		E. JAVA		PUSKESMAS		SUB-PUSKESMAS		n	%
	n	%	n	%	n	%	n	%		
Dispenser	3	0.8	24	2.0	27	2.2	0	0.0	27	1.69
Doctor	1	0.3	14	1.1	14	1.1	1	0.3	15	0.94
Nurse	0	0.0	6	0.5	3	0.2	3	0.8	6	0.38
Friend	9	2.4	20	1.6	20	1.6	9	2.4	29	1.81
Experience	181	48.0	683	55.8	631	61.5	233	61.5	864	54.00
No explanation	183	48.5	476	38.9	526	43.1	133	35.1	659	41.19
Total	377	100.0	1223	100.0	1221	100.0	379	100.0	1600	100.00

Table 7.14. Drugs Prescribed Relative to the Expectation of the Respondents, by Province and Facility

Does Drug Conform With Expectation?	Province				Facility				TOTAL	
	W.SUMATERA		E. JAVA		PUSKESMAS		SUB-PUSKESMAS		n	%
	n	%	n	%	n	%	n	%		
Yes	298	79.0	889	72.7	899	73.6	288	76.0	1187	74.19
No	68	18.0	306	25.0	289	23.7	85	22.4	374	23.37
No explanation	11	2.9	28	2.3	33	2.7	6	1.6	39	2.44
Total	377	100.0	1223	100.0	1221	100.0	379	100.0	1600	100.00

C. COMPARISON BETWEEN WHAT IS EXPECTED AND WHAT IS RECEIVED AS CONCERNS THE HEALTH CARE/DRUGS OF THE PUSKESMAS

1. HEALTH CARE AND THERAPY

The extent to which patients received health services from the Puskesmas was greater than the percentage expecting services or drugs. Prescriptions for outside the Puskesmas were, however, an exception. Patients receiving prescriptions for use outside the Puskesmas was fewer (2.2%) than that expecting them (6.1%). A comparison between proportions of patients expecting and receiving services of the health facilities is shown in Table 7.15 below.

90

In the table it can be seen that injections were given by the prescribers slightly more often than was expected by the patients. Thus, prescribers are meeting the "demands" of the patients. On the other hand, about 18 percent of patients felt disappointed because they did not get an injections. Out of those getting injections, only 20 percent knew what they were for, and only 5.4 percent knew the names of the injections (Table 7.16).

Few patients came to the health center to consult with a health provider, yet over one third said they had received advice. The more tangible benefit, such as drugs or injections, is more likely to be named by the respondent than is the counsel received.

Table 7.15. Proportion of Patients Receiving and Expecting Health Care Services and Drugs at Puskesmas and Sub-Puskesmas

Health Care Service	Received	(Expected)
Physical examination	79.9%	(45.7%)
Injection	70.3%	(64.3%)
Outside prescriptions	1.9%	(2.2%)
Advice/Counsel	37.7%	(6.3%)
Information	23.6%	(1.2%)
Others	2.4%	(3.4%)

Table 7.16. What the Patients Receive and What They Expect Concerning their Examiners at the Puskesmas/Subsidiary Puskesmas

Health Care	Received : Expected
Doctor	(30.3% : 42.4%)
Nurse	(54.6% : 18.4%)
Midwife	(8.4% : 6.0%)
Whoever	(6.7% : 32.9%)
No answer	(- : 0.3%)

2. THE EXAMINER

Though almost half (45%) of the patients expected the doctor to examine them, only 30 percent had their expectation fulfilled. Conversely, those examined by a nurse (55%) was higher than that expecting a nurse (18%). Among patients examined by a particular health worker, approximately one-third (29%) said they had not expected to be examined by that worker.

D. CONCLUSION

1. Approximately two thirds of sick patients arriving at the health center expect they will be given drugs and injections. Injections are desired because they are efficacious. Nearly half of the arriving patients expect a physical examination. Few expect other types of services or a consultation.
2. Significant differences in patient expectations were found between West Sumatera and East Java. In West Sumatera the majority of patients come to the health facility to get drugs (92%) and have a physical examination (71%), while in East Java most expected an injection (74%) and drugs (60%).
3. While over 65 percent of patients expect to get drugs at the health center, most patients do not identify a particular drug. Nearly half of the arriving patients suggested the prescription was up to the prescriber. Only 5 percent of arriving patients in this study named a specific drug desired; 37 percent described a drug. No single drug was named by more than five respondents. Of those describing a drug, pills were mentioned much more frequently than capsules or syrup. However, qualitative information indicates prescribers report some patients bring a sample of a drug with them. These occurrences were not recorded in the survey.
4. The use or benefit of an expected drug is largely unknown. For the first drug name, 58 percent of respondents suggested they did not know the use or benefit.
5. Two thirds of arriving patients expressed a preference for one provider to see them over another, usually preferring a doctor. Often, names were not given. Reasons for a preference varied from familiarity with a prescriber, to effectiveness or better service.
6. The level of knowledge of the public about drugs and their benefits is still low. Nearly all patients received drugs at the observed visit, with more than half receiving three types of drugs, 45 percent of drugs received were described, and 55 percent were named. Those named were primarily CTM, paracetamol, antalgin, vitamin B complex, and vitamin B1. The benefit of over three quarters of drugs patients received were not clearly known by the respondents. Benefits that were identified were for drugs such as itch drug, cough drug, temperature-lowering drug.
7. Instructions for drug use are mostly given by the health center dispenser, and consist primarily of instructions to take the drug three times a day.
8. Respondents' previous experience with a drug plays a major role in determining whether patients believe drugs given to them are efficacious. Over half of the drugs received were perceived as efficacious by the respondents and for one quarter of the drugs, respondents either said that they couldn't tell whether the drugs they got were efficacious or not, or that they would like to try them first.
9. Coupled with little knowledge of drugs is fairly high satisfaction with drugs received. Three fourths of drugs received by patients conformed with their expectations of the drugs they would receive.

CHAPTER 8
EDUCATION AND TRAINING IN THE MANAGEMENT OF CASES
OF DIARRHEA AND ARI, AND SOURCES OF INFORMATION ON DRUGS
FOR THE PRESCRIBERS

A. LESSONS ON DIARRHEA AND ARI DURING EDUCATION

Within the last five years the Consortium of Health Science, in cooperation with the Ministry of Health, has developed specific educational materials on diarrhea for students of medicine. For nurses, high schools of nursing stopped teaching diagnosis and therapy to their students in the 1980s. This lack of formal educational background was evident in the results of this study. In the in-depth interview, many prescribers suggested they did not have courses or lessons on the diagnoses and therapy of ARI and diarrhea when they were in school. Paramedics were less likely to have been trained in this area. Almost 100 percent in West Sumatera and one-third in East Java said that they had received little or no training on diarrhea or ARI at school. This is understandable, because of the lack of these subjects in the curriculum as stated above.

Based on the respondents of the structured questionnaire, reporting on educational background is much more favorable. Tables 8.1 and 8.2 show that over three quarters of prescribers had some material on ARI and diarrhea during formal education and approximately one-fourth of prescribers had material on these topics in training courses. Higher proportions had been exposed to such material in training-courses in East Java than in West Sumatera. For ARI, training participants were more likely doctors than paramedics.

Table 8.1. Proportion of Prescribers With Any Education or Training on the Diagnoses and Therapy of Diarrhea and ARI, by Province

Education and Training	Province		Total
	W.Sumatera n = 63 %	E.Java n = 142 %	
Diarrhea			
Education on Diarrhea			
Diagnosis	85.7	88.0	87.3
Therapy	82.5	88.7	86.8
Training in Diarrhea			
Diagnosis	12.7	30.3	24.9
Therapy	9.5	32.4	25.4
ARI			
Education on ARI			
Diagnosis	87.3	81.7	83.4
Therapy	85.7	82.4	83.4
Training in ARI			
Diagnosis	19.1	26.8	24.4
Therapy	14.3	28.9	24.4

17

Table 8.2. Proportion of Prescribers With Any Education or Training on the Diagnoses and Therapy of Diarrhea and ARI, by Prescriber Type

Education and Training	Prescriber		Total n = 205 %
	Doctor n = 48 %	Paramedic n = 157 %	
<u>Diarrhea</u>			
Education on Diarrhea			
Diagnosis	87.5	87.3	87.3
Therapy	85.5	87.3	86.8
Training in Diarrhea			
Diagnosis	31.3	22.9	24.9
Therapy	25.0	25.5	25.4
<u>ARI</u>			
Education on ARI			
Diagnosis	83.3	83.4	83.4
Therapy	81.3	84.1	83.4
Training in ARI			
Diagnosis	37.5	20.4	24.4
Therapy	33.3	21.7	24.4

B. THE NEED TO PROMOTE THE CAPABILITY OF THE PRESCRIBERS ON PERFORMING DIAGNOSES AND THERAPY OF ARI AND DIARRHEA

Among prescribers there was an awareness that educational materials and courses on the diagnoses and therapy of ARI and diarrheal diseases needed to be added to the school curriculum. This need was expressed by both paramedics and physicians, especially for ARI (Tables 8.3 - 8.6). The majority of the respondents (80%-85%) considered it necessary to include additional materials in the curricula of schools (faculty of medicine, high school of nursing, high school of midwifery), and to conduct training-courses on the diagnoses and therapy of ARI for those doctors and paramedics already employed. The need for building up capability was particularly felt by paramedics, whether working in the Puskesmas or in the subsidiary Puskesmas.

Reasons for additional education and training are to serve as refresher courses and to keep knowledge current with developments in diagnosis and therapy. This is certainly relevant, especially considering recent developments taking place in the classification of ARI introduced by the WHO. Nevertheless, in implementation, any training effort must be well-designed so that the materials will not bore the participants. As some said, "we are tired of all those refresher-courses."

94

Table 8.3. Opinion of Prescribers Concerning the Necessity to Build Up Capability in Diagnosing ARI, as stated by Prescribers of the Puskesmas and Subsidiary Puskesmas

Prescriber Opinion	Work Place of Prescriber		Total (n=205) %
	Puskesmas (n=124) %	Sub-Puskesmas (n=81) %	
Necessary	86.3	84.0	85.4
Not necessary	13.7	16.0	14.6

Table 8.4. Opinion of Prescribers Concerning the Necessity to Build Up Capability in Diagnosing ARI, by Prescriber Type

Prescriber Opinion	Prescriber		Total (n=205) %
	Doctor (n=48) %	Paramedic (n=157) %	
Necessary	66.7	91.1	85.4
Not necessary	33.3	8.9	14.6

Table 8.5. Opinion of Prescribers Concerning the Necessity to Build Up Capability in Diagnosing Diarrhea, as stated by Prescribers of the Puskesmas and Subsidiary Puskesmas

Prescriber Opinion	Work Place of Prescriber		Total (n=205) %
	Puskesmas (n=124) %	Sub-Puskesmas (n=81) %	
Necessary	79.0	81.5	80.0
Not necessary	21.0	18.5	20.0

95

Table 8.6. Opinion of Prescribers Concerning the Necessity to Build Up Capability in Diagnosing Diarrhea, by Prescriber Type

Prescriber Opinion	Prescriber		Total (n=205) %
	Doctor (n=48) %	Paramedic (n=157) %	
Necessary	62.5	85.4	80.0
Not necessary	37.5	11.2	20.0

C. APPROACHES TO BUILD UP CAPABILITY

The majority of prescribers said the best ways to build up capability, preferred by doctors and paramedics were:

- a) to arrange refresher and training courses, and
- b) to provide them with manuals. Doctors were more likely to prefer periodicals and less likely to prefer training compared to paramedics. In the in-depth interview and the FGD, posters and cassettes were also mentioned by some as good training media.

Table 8.7. Opinion of Prescribers of Puskesmas and Subsidiary Puskesmas On Best Approach to Build Up Capability in Diagnosing ARI

Way to Build Up Capability	Work Place of Prescriber		Total (n=205) %
	Puskesmas (n=124) %	Sub-Puskesmas (n=81) %	
1. Posters	4.8	1.2	3.4
2. Manuals	41.9	34.6	39.0
3. Periodicals	7.3	4.9	6.4
4. Leaflet	0.8	1.2	1.0
5. Training	29.8	42.0	34.6
6. Others	1.6	0.0	1.0
7. Don't know	13.7	16.0	14.6

Table 8.8. Opinion of Prescribers on Best Approach to Build Up Capability in Diagnosing ARI, by Prescriber Type

Way to Build Up Capability	Prescriber		Total (n=205) %
	Doctor (n=48) %	Paramedic (n=157) %	
1.Posters	0.0	4.5	3.4
2.Manuals	25.0	43.3	39.0
3.Periodicals	16.7	3.2	6.4
4.Leaflet	2.1	0.6	1.0
5.Training	18.8	39.5	34.6
6.Others	4.2	0.0	1.0
7.Don't know	33.3	8.9	14.6

Table 8.9. Opinion of Prescribers On Best Approach to Build Up Capability in Diagnosing Diarrhea

Way to Build Up Capability	Work Place of Prescriber		Total (n=205) %
	Puskesmas (n=124) %	Sub-Puskesmas (n=81) %	
1.Posters	4.8	3.7	4.4
2.Manuals	37.1	24.7	32.2
3.Periodicals	6.5	4.9	5.9
4.Leaflet	0.8	1.2	1.0
5.Training	27.4	44.4	34.1
6.Others	2.4	0.0	1.5
7.Don't know	21.0	18.5	20.0

Table 8.10. Opinion of Prescribers On Best Approach to Build Up Capability in Diagnosing Diarrhea, by Prescriber Type

Way to Build Up Capability	Prescriber		Total (n=205) %
	Doctor (n=48) %	Paramedic (n=157) %	
1.Posters	4.2	4.5	4.4
2.Manuals	16.7	36.9	32.2
3.Periodicals	14.6	3.2	5.9
4.Leaflet	4.2	1.3	2.0
5.Training	18.8	38.9	34.1
6.Others	4.2	0.6	1.5
7.Don't know	37.5	14.6	20.0

97

D. SOURCES OF INFORMATION ON DRUGS

Sources of information on drugs most often used by doctors are books and leaflets. Leaflets issued by pharmacies have wide exposure among doctors, in that 85 percent have used them. Even if information on the drugs conveyed in the leaflets is incorrect and not objective, the leaflets would still influence the doctors given their prevalence, perhaps enough to encourage irrational therapy. For three quarters of paramedics, doctors and other paramedics are considered the best source of information on drugs. Therefore, in planning efforts to disseminate information on drugs in the future, promotion through doctors or the more senior paramedics is an effective measure. Mass media has been a source of information for half of the paramedics (49%); but for the doctors, the role of the mass media was smaller (39%).

The best sources of information on drugs according to doctors are manuals and periodicals. This result could mean doctors do not have enough exposure to manuals or periodicals, relying on leaflets as their source of information. In the FGD, respondents, particularly from isolated areas, wanted periodicals to be sent to them. Paramedics still identified doctors as one of their best sources of information, in addition to manuals and courses.

Table 8.11. Proportion of Prescribers of Puskesmas and Subsidiary Puskesmas Receiving Information on Drugs, by Source

Source of Information	Work Place of Prescriber		Total (n=205) %
	Puskesmas (n=124) %	Sub-Puskesmas (n=81) %	
Books	91.13	80.25	86.8
Leaflets	71.77	54.32	64.9
Consultation with Doctor	82.26	82.72	82.4
Consultation with Paramedic	54.03	69.14	60.0
Mass media	46.77	46.91	46.8
Others	24.19	9.88	18.5

Table 8.12. Proportion of Prescribers Receiving Information on Drugs, by Source and Prescriber Type

Source of Information	Prescriber		Total (n=205) %
	Doctor (n=48) %	Paramedics (n=157) %	
Books	95.83	84.08	86.8
Leaflets	87.50	57.96	64.9
Consultation with Doctor	50.00	92.36	82.4
Consultation with Paramedic	8.33	75.80	60.0
Mass media	39.58	49.04	46.8
Others	25.00	15.29	18.5

11

Table 8.13. Opinion of Prescribers of Puskesmas and Sub-Puskesmas Concerning the Best Source of Information on Drugs

Source of Information	Work Place of Prescriber		Total (n=205) %
	Puskesmas (n=124) %	Sub-Puskesmas (n=81) %	
Doctor	18.55	24.69	21.0
Druggist/Dispenser	7.26	4.94	6.3
Posters	0.00	0.00	0.0
Manuals	57.26	46.91	53.2
Periodicals	5.65	7.41	6.3
Leaflets	1.61	2.47	2.0
Refresher-/Training-course	8.87	2.47	10.7
Other ways	0.81	0.00	0.5

Table 8.14. Opinions of Prescribers of Puskesmas and Sub-Puskesmas Concerning the Best Source of Information on Drugs

Source of Information	Prescriber		Total (n=205) %
	Doctor (n=48) %	Paramedics (n=157) %	
Doctor	8.33	24.84	21.0
Druggist/Dispenser	8.33	5.73	6.3
Posters	0.00	0.00	0.0
Manuals	54.17	52.87	53.2
Periodicals	16.67	3.18	6.3
Leaflets	4.17	1.27	2.0
Refresher-/Training-course	6.25	12.10	10.7
Other ways	2.08	0.00	0.5

99

E. CONCLUSIONS

1. About three quarters of prescribers (paramedics in particular) had received little or no additional training on the diagnosis and management of cases of ARI and diarrhea. However, 85 percent had been exposed to material on ARI or diarrhea when they were in school.
2. The majority of the prescribers feel that it is necessary to increase their knowledge and skills in performing the diagnoses and management of ARI and diarrhea.
3. Preferred ways to promote knowledge and skills are: provide prescribers with manuals; arrange for training-courses; and distribute periodicals to them. The preference for manuals is expressed by one third of prescribers, and contrasts with the high prevalence of infrequent use of existing manuals.
4. There are many reported current sources of information on drugs. According to the prescribers, the best sources of information on drugs for doctors are manuals; for paramedics, the best sources are manuals, consultation with doctors, and training courses.

CHAPTER 9

QUALITATIVE STUDY OF MANAGERS REGARDING DRUG MANAGEMENT AT THE KABUPATEN LEVEL

The practices of a provider of health care are affected by availability of drugs in the health center. In both the Puskesmas and sub-Puskesmas, drugs are distributed from the Regencial Pharmaceutical Warehouse, which in turn receive drugs from large pharmaceutical wholesalers. Thus, practice on the local level is affected by procedures at the regencial level. It is in this connection that this qualitative study of the management of drugs at the regencial level was made. This chapter is based on information obtained through in-depth interviews conducted with managers of the drug supply for the Puskesmas. Objectives of the interviews were:

- 1) To acquire a knowledge of the practice of drug management at the regencial level, particularly as concerns the issues of planning, procurement, distribution, monitoring of supply, and supervision of drug use at both the regencial and the Puskesmas levels.
- 2) To acquire a knowledge of the use of information in the planning of drugs at the regencial and the Puskesmas levels.
- 3) To acquire a knowledge of the opinions of the managers at the regencial level of a number of concepts concerning their responsibilities for drug planning and management and the integration of a number of sources in the planning and procurement of drugs.

A. THE PATTERN OF DRUG DISTRIBUTION

Normally the supply of drugs of the Regencial Pharmaceutical Warehouse (RPW) are the products of the Kimia Farma and the Indofarma which the warehouse receives directly from Major Pharmaceutical Wholesalers (Pedagang Besar Obat). These drugs usually come to the RPW on time and in large quantities. In addition, other drugs come from the Tingkat I [Level I] Regional Government. These drugs come more often, but in small quantities. Heads of RPW's however thought it would be easier if drugs from the Tingkat I Regional Government would come two or three times a year, and in fairly large quantities, thus making it easier for them to manage their warehouses.

In West Sumatera, drug distribution from the RPW to the Puskesmas is normally done periodically, once in three months for those Puskesmas located far from the kabupaten capital, or monthly for those located near to the kabupaten capital. Drug distribution is similar in East Java. Drugs are distributed either once in three months, or once a month. In cases of extraordinary incidents (labelled KLB), an extra supply of drugs will be distributed to the affected places. There are also RPW's that will fulfill special requests for other reasons.

The practice of periodically distributing drugs to the Puskesmas, said some heads of Dinkes Tkt.II, will minimize possible extravagance in the use of drugs at the Puskesmas level, as it will enable the head of the Puskesmas to monitor and evaluate the use of drugs more frequently.

With Solok an exception, distribution of drugs from the RPW to the Puskesmas is usually done in the following way. Based on a 1-year drug plan it has prepared, each Puskesmas will submit a request for drugs to the Dinkes Kabupaten, in quantities that represent one-fourth of the quantity stated in the 1-year plan. The request is delivered to the Kandepkes Kabupaten, with a carbon copy sent to the concerned Puskesmas. The Kandep issues a warrant for the release of the goods sent to the RPW. Based on this

warrant, a drugs-voucher is then prepared, and signed by the heads of the RPW, the Kandep, and the Puskesmas.

In Solok, however, the Puskesmas does not need to make a request for drugs. Rather, the RPW already has the schedule for the delivery of drugs to Puskesmas and a record of the quantities of the drugs each Puskesmas needs. The RPW will come to each Puskesmas according to the schedule. At that time, the RPW will take back drugs remaining from the previous delivery, and will later distribute these drugs to other Puskesmas in need of them.

Thus, there are a number of ways currently used by the RPW to distribute drugs:

- 1) The officer of the RPW comes to each and every Puskesmas to deliver the drugs himself. This method is used by most RPW's. In Solok, besides delivering drugs, the RPW will also take back whatever is unused by the Puskesmas.
- 2) The Puskesmas officer comes to the RPW to take the drugs allotted to his Puskesmas for a certain period, as occurs for example in Gresik.

In terms of the cost of distribution, it seems that the former method is more efficient, especially because things are done by the warehouse officer, which means the officer keeps travelling from one Puskesmas to the other. The distribution cost is taken from the "handling cost", the amount of which (less than Rp. 2.00 million) is felt by most heads of RPW's to be insufficient. The latter method, however, means the Puskesmas shares the expense of distribution.

B. THE USE AND BENEFITS OF INFORMATION/DATA IN DRUG PLANNING

Information on the use of drugs can be obtained from the LB4 reports. These reports provide information on the drugs used within a year, and the types and quantities of drugs left that year. The LB1 report can be used to form an estimate of the drugs needed in a year, based on the number of cases treated by the Puskesmas, the morbidity pattern, and the therapy standard for each case. At the regencial (kabupaten) level, the recapitulation of the LB1 and LB4 forms can be used for the preparation of a one-year drug plan for the kabupaten. This method has been used for two years in the Solok regency, and is felt to be good enough for this purpose. According to the heads of the Dinkes and the RPW, the present method has advantages over the past method in the following ways :

- 1) It is no longer necessary for the Puskesmas to submit a request for drugs every month. A monthly request, which has to be based on the plan made at the Puskesmas sub-district level, is often burdensome for the Puskesmas.
- 2) The LB1 form can provide a picture that is more representative of actual needs, regardless of the fact that the report itself may contain some elements of untruth.
- 3) Administratively, this method is more practical, because the planning of drug needs for all Puskesmas is done simultaneously at the provincial level.

C. THE PERCEPTION OF THE HEADS OF THE HEALTH RECOVERY SECTIONS (KASI MULKES) OF THEIR INVOLVEMENT IN DRUG PLANNING AT THE REGENCIAL LEVEL

Concerning the planning of drugs, a number of Kasi Mulkes felt that they had been involved only to lesser degree in actual planning. They have all been included as team members, but have had very little to do with the planning. As team members, their only task was to check the proposals of the Puskesmas and then pass them on to the pharmaceutical unit. Another complaint of these Kasi Mulkes was that the drug plans of Puskesmas, as they had frequently discovered, had been sent to the RFW without their receiving any carbon copies of them. Their involvement, they said, had in most instances been confined to the provision of epidemiological information. As concerns their roles in drug planning, it was evident that there were differences in the opinions of the Kasi Mulkes themselves. Some said that the fact that they had been indirectly involved (serving only as a "support") was good enough for them, while others said that they had been expecting that they would be given a greater role.

D. CAUSES OF THE DIFFERENCE BETWEEN NEEDS AND SUPPLY

1. KABUPATEN LEVEL

At the Kabupaten Level, differences between what is planned and what is supplied, in terms of both the types and quantities of the drugs, results from a number of factors such as:

- a) Limited funds (from the various sources) that the Tkt.II can allocate, which makes it impossible for the Tkt. II to completely fulfill the request of every Puskesmas.
- b) The Inpres drugs dropped are always insufficient (particularly antibiotics).
- c) The dropping of the drugs from the Central administration is often delayed.

2. PUSKESMAS LEVEL

At the Puskesmas level, shortage of supply occurs due to:

- a) Drugs for patients are, more often than not, irrationally prescribed by the paramedics in particular, and
- b) Puskesmas' requests for dropping of drugs to Tkt.II are not what they have anticipated, e.g., based on the records of the previous months the cases treated had been predominantly ARI, but as it turned out the cases that most often occurred in the following months were different ones.

In addition, the fact that a distinction has been made as to the use between the Inpres drugs and the PHB drugs has made matters more complex. The regulation currently in effect is that while no PHB drugs may be prescribed for general patients, PHB patients may use both Inpres and other drugs.

E. THE KNOWLEDGE AND PRACTICE OF DRUG PLANNING AT PUSKESMAS

The majority of doctors in charge of Puskesmas in West Sumatera and East Java know that in the planning of drug supply they may use either of the following two methods:

- 1) The epidemiologic method, i.e., by taking into consideration the average numbers of cases treated by the Puskesmas or sub-Puskesmas, the morbidity pattern of the concerned area, and the therapy standard for each disease.
- 2) The consumption method, i.e., based on the types and quantities of drugs consumed during the previous year.

In reality, most Puskesmas have been using the consumption method. Estimates of the types and quantities of drugs needed in the forthcoming year are obtained by increasing the figures of the quantities of the drugs consumed during the previous year by 10 percent.

Two reasons forwarded by the respondents why the epidemiological method was less practical for application are :

- 1) In the LBI report there are a number of cases that have to be categorized as "others", and as thus they cannot be used as the basis for the calculation of drugs needed.
- 2) If planning is based merely on the epidemiologic pattern, it is likely that the prescriber will find himself in a difficult position, because the "demand" of the public is in discord with the principles of rational therapy, e.g., most patients will react negatively if they are given less than three types of drugs. This will further cause the public to place less trust in the Puskesmas.

F. ATTITUDE TOWARDS DRUG PLANNING AT THE PUSKESMAS

The majority of the respondents did not regard drug planning as a difficult task. Nevertheless, all respondents complained about discrepancies between the types and quantities of drugs they had asked and planned for and the drugs they received. Basically two types of attitudes towards drug planning are held by doctors in charge of Puskesmas:

- 1) That drug planning at the Puskesmas level is of no use, because the drug "dropping" is not always been in accord with the request. It would, therefore, be better if drug planning was done at the Daerah Tkt.II level.
- 2) That drug planning at the Puskesmas level is still necessary. Puskesmas doctors with this attitude argued that with the Puskesmas carrying out drug planning, it will be possible to avoid over-supply of drugs. A doctor from East Java estimated that in terms of the types and quantities of drugs, approximately 70 percent of the requests are fulfilled.

G. HOW PUSKESMAS DOCTORS OVERCOME THE LIMITED DRUG SUPPLY

Ways in which the Puskesmas doctors try to overcome problems related to discrepancies that have occurred between the drug planning and the actual supply (the issue of drug shortages in Puskesmas) are as follows:

- 1) prescribing only what they can afford;
- 2) giving the patients prescriptions with which they can buy the drugs at an outside dispensary;
- 3) having drugs on "loan" from the Dinas Tkt.II;
- 4) making it a rule that nurses consult with the doctor first, if they intend to prescribe antibiotics;, or
- 5) giving priority in receiving antibiotics to those patients who have failed to recover even after a long period of treatment.

H. THE MONITORING OF SUPPLY AND SUPERVISION OF DRUG USE

1. THE MONITORING OF DRUG SUPPLY AT THE PUSKESMAS AND SUB-PUSKESMAS

Drug monitoring is now developing in the field through direct observation, monitoring based on reports, and inspection without prior notification. The monitoring at the Puskesmas or the sub-Puskesmas may be done either by the RPW or the Head of the Puskesmas himself.

Periodic monitoring of drugs by direct observation at the Puskesmas or sub-Puskesmas is the method most commonly practiced in both West Sumatera and East Java. In Solok, monitoring of drugs is conducted by an officer of the Dinas, once every two to three months, during which time they also "drop" drugs. Records, reports, storage, and use of drugs are monitored. During the monitoring the officers also take back all obsolete drugs.

Drug monitoring at the Puskesmas is also done by the head of the Puskesmas by reviewing all records. During the monitoring, the head will also explore reasons for a certain drug being out of stock. If it turns out that this has been a result of improper prescription (prescribing more drugs than what is needed) the concerned paramedic will get a warning and be given some advice.

In Solok, the head of the Puskesmas also monitors the supply of drugs at the sub-Puskesmas by visiting the sub-Puskesmas once a month. However in Pasaman, because the sub-Puskesmas is far from the Puskesmas, the doctor monitors the supply of drugs by reviewing the reports he receives from an officer of the sub-Puskesmas assigned to take drugs at the Puskesmas once a month. Monitoring is a strongly felt problem in Pasaman, because the sub-Puskesmas is far from the Puskesmas in an area with difficult terrain.

The system of monitoring drugs in East Java is similar to the system used in West Sumatera, i.e., going over the stock-cards, their use, and their balance from day to day. Reports of these are submitted by the drug officer to the Head of the Puskesmas monthly, or whenever he sees that a certain type of drug is out of stock. A head of a Puskesmas in the Gresik regency said that, besides going over the daily records on the stock, use, and balance of the drugs, he would also frequently check the stock of drugs by checking quantities of drugs that had been used by analyzing out-going prescriptions and comparing the results with the quantities of the drugs in stock.

A number of respondents also said that the head of the Puskesmas would also make a "surprise" inspection to monitor the availability of drugs.

2. DRUG USE SUPERVISION FROM THE RPW TO THE PUSKESMAS

The majority of the respondents thought that an adequate method and instrument for supervision of drug use is not yet available. There are still no indicators of whether drugs have been rationally used in the Puskesmas. Theoretically, supervision can be done by comparing the number and types of cases treated by the Puskesmas with the quantities of drugs used, taking the therapy standard into consideration. However, in practice this is fairly difficult to do. In practice all they do to supervise drug use is go over the reports on the drugs used, and then check on the drugs left in stock. Usually, supervision of drug use is done simultaneously with the supervision of other programs of the Puskesmas. As to when the supervision is to be conducted depends on the distance of the Puskesmas; usually either once a month or once every three months.

3. SUPERVISION FROM THE PUSKESMAS TO THE SUB-PUSKESMAS

As is the case with the supervision from the Pemda Tkt. II to the Puskesmas, supervision from the Puskesmas to the sub-Puskesmas is highly influenced by the distance to the sub-Puskesmas and the condition of the surrounding area. Similarly, the supervision of drug use is done simultaneously with the supervision of other programs of the Puskesmas. The supervision is done by going over all records on the use of drugs and checking on the quantities of the drugs left in stock.

A constraint encountered in supervision is the lack of uniformity of the format of the drug records and reports of the sub-Puskesmas; drug report forms now used for recording are not yet standardized. Simple and standardized formats for recording are, therefore, an urgent need.

1. VIEWS CONCERNING THE IDEA OF TRANSFERRING AUTHORITY AND RESPONSIBILITY FOR DRUG PLANNING AND MANAGEMENT AT THE KABUPATEN LEVEL TO THE RPW

Concerning authority for drug planning, all respondents seemed to have no objection as to who should be authorized and held responsible for drug planning at the Kabupaten Level. What they questioned was the competence of the concerned unit. A number of Puskesmas heads in West Sumatera questioned the competence of the (present) RPW in determining the drug needs of the whole Kabupaten. In this connection they thought that Puskesmas should continue to submit to be used by the RPW to prepare a plan for all the Puskesmas of the Kabupaten [regency].

A similar view was forwarded by a head of a Puskesmas of the Pasuruan regency. All long as the plans are made by Puskesmas, and as long as things are done in accordance with the plan, whoever does the planning for the whole regency would be acceptable. In the planning, he added, it would still be necessary to coordinate with relevant agencies (coordination at the Tkt.II is necessary).

Recommendations forwarded by the respondents concerning the transfer of authority and responsibility for drug planning to the RPW are as follows :

- 1) The staff of the RPW need to be given additional training for the purpose of preparing feedback, reports, and surprise inspections.

- 2) Additional personnel will be needed, e.g., for the processing of the data.
- 3) Efforts must be made to set up a clear mechanism to enable timely collection and maximal use of all the information needed for the drug planning.

J. VIEWS ON THE IDEA OF INTEGRATING THE VARIOUS SOURCES IN DRUG PLANNING AND PROCUREMENT

Respondents either agreed or disagreed with the idea of integrating the various sources in drug planning and procurement. In general, most heads of Puskesmas did not question this idea, because, as they see it, the matter has no direct relation to the issue of the drug procurement of the Puskesmas. Some supported the idea of integration for a number of reasons:

- 1) The fact that there a number of PHB drugs, which while they are rarely used, keep coming to the Puskesmas.
- 2) There are a number of drugs that have for a long time come from more than one source.
- 3) Integration will make administration easier.

There were also respondents who objected to integration on the following grounds:

- 1) Such integration will only give rise to problems, because it will be impossible to know from which source each type of drug has come, which in turn will make it impossible for them to keep things under control. (This is particularly true, if in the integration no attempt is made to label the drugs with the source).
- 2) The possibility that integration will only create more leaks (or intensify devious actions).

The head of the RPW of the Gresik regency said that Gresik had already realized the integration of drugs from the Inpres, PHB, APBD I, and APBD II.

It can be concluded that the idea of integrating the various sources in drug planning and procurement was greeted with approval by the majority of the respondents, and that realization of the integration must be followed by the development and execution of more effective control.

K. OPINIONS CONCERNING WHO SHOULD DECIDE THE AMOUNT OF THE DRUG BUDGET TO BE ALLOCATED TO PUSKESMAS

Allocation of the drug budget is determined by the Dinas Kesehatan Tingkat II. In practice, this can be done by a committee consisting of the head of the Dinkes, the Kasimulkes, the head of the Puskesmas, and the head of the RPW. This opinion is based on the fact that the drug budget allocation for the Puskesmas is closely related to the revenue to be handed over by the Puskesmas to the Pemda Tkt.II. There has to be a balance between the quantities of drugs received by the Puskesmas and the amount of revenue it has to deposit to the Pemda Tkt.II. The head of the Puskesmas must be involved, since the committee must take into consideration the various conditions prevailing in the field in making its decisions.

L. CONSTRAINTS RELATED TO THE SUPPLY OF ESSENTIAL DRUGS IN THE RPW AND THE PUSKESMAS

Concerning the supply of essential drugs at the Puskesmas, the respondents identified the following constraints:

- 1) The storage capacity of the Puskesmas is such that it limits the quantities of drugs that can be stored.
- 2) The capability of the Puskesmas to safeguard the drugs.
- 3) The packaging of the drugs affects storage (e.g., aquadest kept in plastic is easily contaminated, and it is impossible to have it in stock in as large a quantity as possible, unlike the one kept in vials).

M. THE VIEWS OF THE HEAD OF THE PUSKESMAS ON DRUG COSTS

All the heads of the Puskesmas serving as the respondents said that the government expenditure on drugs had been extremely large, and that health officers need to understand cost aspects of drugs. In addition, if the head of the Puskesmas is to be involved in drug planning, the head must then have knowledge of the financial aspects.

Nevertheless, there were also those who thought that health officers would not necessarily have to have knowledge of the costs of drugs, because even with this knowledge, nothing will change concerning therapeutical behavior. What is most important is to emphasize the need to use the therapy manual, because the manual itself already reflects cost considerations.

N. THE VIEWS OF THE HEADS OF THE RPWs AND THE KASIMULKES ON DRUG COSTS

The majority of the heads of Dinkes, RPWs, and Kasimulkes, both in East Java and in West Sumatera, agreed that health officers need to know the cost of drugs, because the expenditure of the government on drugs is extremely large. By having a knowledge of costs, it is expected that health officers will be more careful in the storage and use of drugs. In addition to this, such knowledge is important in the calculation of quantities of drugs, particularly when they have to be adjusted to the prices of the drugs. Similarly, a number of Kasimulkes thought that health officers would need knowledge of the costs of drugs, even if they had already shown concern about the cost of drugs. It is emphasis on the use of the therapy manual that is of major importance to promote efficiency and effectiveness in the use of drugs.

O. CONCLUSIONS

1. Drugs supplied to the Regencial Pharmaceutical Warehouse [RPW] through Major Pharmaceutical Wholesalers (Pedagang Besar Obat) usually come to the RPW on time and in large quantities. Drugs from the Tingkat I [Level I] Regional Government come more often, but in small quantities. Heads of RPWs preferred drugs from Tingkat I to come two or three times a year, and in fairly large quantities, to ease management of the drugs.

2. Different approaches are used to distribute drugs from the warehouse to the health centers.
3. The Kasi Mulkes do not seem integrated into the process of drug planning. Some feel satisfied with a limited role, others feel only minimally involved.
4. Differences between drugs planned and supplied to the Puskesmas result from:
 - a) Limited funds of the Tkt.II which limits the extent to which requests of the Puskesmas can be filled.
 - b) The Inpres drugs dropped are always insufficient (particularly antibiotics).
 - c) The dropping of the drugs from the Central administration is often delayed.
 - d) At the Puskesmas, lack of supply is partially due to irrational prescribing.
 - e) Puskesmas' requests for dropping of drugs to Tkt.II are inconsistent with anticipated drugs, and partially mis-estimated because of month to month shifts in morbidity cases.
5. Drug planning at the Puskesmas largely is based on the consumption method, based on a 10 percent increase in types and quantities of drugs consumed during the previous year. The epidemiological method is less practical because:
 - a) In the LBI report many cases are categorized as "other" and are excluded from the calculation of drugs needed.
 - b) The epidemiologic approach utilizes standard therapies and does not adjust for expectations of patients to receive three types of drugs per patient. The prescriber fears reduction in the drugs prescribed will cause the public to place less trust in the Puskesmas.
6. Drug planning at the Puskesmas level is not perceived as difficult, but is perceived as having little impact on actual supply. Some prescribers argue for planning at that level to reduce oversupply, but do not expect it to remedy the gap between quantity of drugs supplied and drugs perceived as needed.
7. Puskesmas doctors report addressing drug shortages through the following measures:
 - a) Limiting prescribing by cost, by requiring physician approval of paramedic prescriptions, or by assigning priority to patients to receive drugs in short supply.
 - b) Giving the patients prescriptions for outside dispensaries.
 - c) Having drugs on "loan" from the Dinas Tkt.II.
8. Periodic monitoring by direct observation at the Puskesmas or sub-Puskesmas is most commonly practiced. Records, reports, storage, and use of drugs are usually monitored. However, when a Puskesmas is located far away, monitoring is difficult and more likely to rely on reports or record review.

9. According to respondents, there is no adequate mechanism in place for monitoring of rational prescribing behavior. Theoretically, supervision can be done by comparing the number and types of cases treated by the Puskesmas with the quantities of drugs used, taking the therapy standard into consideration. However, in practice this is fairly difficult to do. In practice supervision consists of review of reports on drugs used, and a check of drugs left in stock.
10. Supervision from the Puskesmas to sub-Puskesmas is influenced by distance, and hampered by the lack of uniformity of the format of the drug records and reports of the sub-Puskesmas.
11. Managers felt authority and responsibility for drug planning should be based on competency, not necessarily position.
12. Reactions of respondents to integrating the various sources in drug planning and procurement were mixed but more inclined towards favoring integration.
13. The supply of essential drugs at the Puskesmas is affected by limited storage capacity at the Puskesmas, capability of the Puskesmas to safeguard the drugs, and adequacy of packaging of drugs for long term storage.
14. Views regarding the need of Puskesmas officers to be aware of drug costs were mixed. Some were of the opinion that costs were already considered in the development of standard therapies, thus the manual for standard therapy was most important. Others thought the size of government expenditure on drugs, and possible participation in drug planning, required that health officers understand cost aspects of drugs.

CHAPTER 10
DRUG SUPPLY AND PERCEPTION OF GENERIC DRUGS
AT THE PUSKESMAS AND SUBSIDIARY PUSKESMAS

A. DISTRIBUTION OF DRUGS

As described in an earlier chapter, a Puskesmas usually receives drugs from the Regencial Pharmaceutical Warehouse (RPW), once every three months or once every month, depending on distance. The distribution of drugs is usually done either by the officer of the pharmaceutical warehouse, or the officer of the Puskesmas will come to the warehouse to get the drugs. A complaint lodged by some Puskesmas officers was in the first case, the delivery of drugs was often not made at the proper time. As a result there were times when some types of drugs were not available at the Puskesmas. All the heads of the Regencial Warehouse interviewed said that the "handling cost" budget (including the cost for the distribution of the drugs) they had was very limited. That was one reason why the Puskesmas had to bear part of the cost of the delivery of the drugs in some regencies.

B. THE DRUG SUPPLY OF PUSKESMAS/SUBSIDIARY PUSKESMAS

Through in-depth interviews with prescribers, perceived problems were identified that relate to drugs in stock at the Puskesmas or subsidiary Puskesmas:

- 1) Some of the types of the drugs "dropped" did not correspond with the request for drugs, which means that the supply did not conform with the needs of the local people.
- 2) There was a lack of variety among the drugs in supply, in terms of form and packaging, not active agents, that patients began to develop the opinion that they had been receiving "the same thing time and again" from the Puskesmas.
- 3) The quantities of the drugs "dropped" to the Puskesmas, especially antibiotics, were not sufficient to meet the needs of the people.
- 4) Syrups for children were always less than what were needed.

The complaints of the prescribers about the quantities of drugs, and of antibiotics in particular, seemed to be largely based on their needs, which in turn was based on the demand of the patients, and not on rational therapy based on the established standard. This implies that prescribers are requesting an increase in the supply of those drugs with a high demand. Increasing the supply of these drugs may only facilitate the practice of using drugs irrationally.

C. TYPES OF DRUGS OFTEN OVERSTOCKED AND UNDERSTOCKED

Prescribers were asked which types of drugs were usually out of stock and which were normally stocked in excess. Among the drugs reported to be often insufficient were antibiotics, which was commonly agreed in both provinces, by both doctors and paramedics. Reasons for this insufficiency were either that the "dropping" did not accord with the needs, or that the number of patients had been increasing, for example in places where additional subsidiary Puskesmas were set up.

Only a small proportion of the respondents mentioned other types of drugs being stocked to excess; these were particularly specialty drugs such as drugs for heart diseases and drugs for diabetes. The reason for overstock was that prescribers very rarely come across patients with such diseases at the Puskesmas. A number of respondents also suggested drugs for worms were often overstocked.

D. GENERIC DRUGS

In this study, the respondents were asked a number of questions concerning generic drugs to find out whether the prescribers had the correct knowledge and perception of generic drugs.

1. THE RESPONDENTS' UNDERSTANDING OF GENERIC DRUGS

Based on the survey and in-depth interviews, the majority of prescribers have some understanding of what generic drugs are. Responses to open-ended questions about the meaning of generic drugs were categorized and are given in Table 10.1 and 10.2. Common responses were that generic drugs are:

- a) drugs of fairly good quality, yet simple-looking and offered at prices so cheap that they are within the reach of the public (38%);
- b) drugs of which the contents are so prepared that they correspond with their original names (20%); and
- c) drugs that are not to be promoted (18%).

The results of the survey indicated little difference in degree of understanding of generic drugs between the doctors and the paramedics, but a difference was more apparent in the in-depth interviews.

2. THE RESPONDENTS' PERCEPTIONS OF GENERIC DRUGS

Comparing the efficacy of generic with non-generic drugs, generic drugs are generally well regarded. The results of the survey (Tables 10.3 - 10.5) show that over 70 percent of the respondents considered generic drugs as effective as patent drugs, and an additional 15 percent thought they were more effective. The qualitative data collection indicated the same result, but some prescribers identified that wrapping of generic drugs was cheaper and simpler quality than patent drugs.

In the focus group discussion, all participants were convinced of the efficacy of generic drugs and thought the drugs were of good quality. But some doctors from Madiun thought that though no research had yet been done, their observations showed the quality of the generic drugs needed to be further promoted to make them more efficacious and cheaper. Some of the doctors felt that scientific information on the generic drugs was still needed. Respondents from West Sumatera felt that information should be addressed to the public regarding the quality of generic drugs. Participants from East Java, however, recommended that the number of types of generic drugs be increased.

The FGD paramedic participants said that it was good for generic drugs to have a logo, because the contents were just the same as patent drugs. Unfortunately, still a considerable amount of the public considered generic drugs to be cheap drugs, thus ineffective drugs.

Questions were also asked to the prescribers concerning whether it would be advisable that the Puskesmas be supplied with only generic drugs, or with only non-generic drugs, or whether it would be better for

the Puskesmas to have both types of drugs at the same time. Nearly equal proportions of prescribers said that it would be better for the Puskesmas to have only generic drugs (42%) or a mixture of generic and non-generic drugs (38%) would be preferable. Only 7 percent said that only non-generic drugs would be better. The results of the in-depth interview also showed that some prescribers thought it necessary to make available non-generic drugs in the Puskesmas, either as the major supply, or as the ones to be combined with generic drugs.

A number of reasons were put forward by the prescribers on why it would be necessary to have non-generic drugs in stock in the Puskesmas:

- a) By combining generic drugs with non-generic drugs the Puskesmas will have a greater variety of drugs in stock such that the wishes of the majority of the people can be fulfilled.
- b) Generic drugs alone will not be able to completely fulfil the people's needs for drugs.
- c) There is still a considerable proportion of the public that prefers non-generic drugs, because of their packages.

Some of the prescribers said that generic drugs alone would suffice for the Puskesmas drug supply. For these prescribers the reason is that the drugs are within easy reach of the public because they are cheap. Some other respondents said, "Because, it has already become a kind of instruction from the top."

3. RECOMMENDATIONS OF THE RESPONDENTS ON GENERIC DRUGS

The recommendations the prescribers put forward on the generic drugs program can also be an indication of the problems they are having with generic drugs today. In their recommendations they emphasized the need:

- a) to conduct a promotion or extend information to the public about generic drugs;
- b) to maintain or improve the quality;
- c) to improve the packets/wrappings;
- d) to increase their variety; and
- e) to have different colors/forms.

Table 10.1. What Generic Drugs are Understood to Be, by Prescribers Workplace

Prescriber's Understanding of Generic Drugs	Work Place		Total (n=205) %
	PUSKESMAS (n =124) %	SUB-PUSKESMAS (n=81) %	
Don't know	5.6	7.4	6.3
Simple/cheap drugs of fairly good quality	42.7	32.1	38.5
Drugs of which the contents match with their names	21.0	19.8	20.5
Drugs not subject to promotion	16.1	21.0	18.0
Essential drugs of which the names appear in the Pharmacopoeial Law	6.5	3.7	5.4
Others (drugs that are quite efficacious, but not coated with sugar; INPRES drugs; Drugs always prescribed by Puskesmas; Drugs that follow certain standards)	7.1	16.0	11.2

Table 10.2. What Generic Drugs Are Understood To Be, by Prescriber Type

Prescriber's Understanding of Generic Drugs	Prescriber		Total (n=205) %
	DOCTOR (n=48) %	PARAMEDICS (n=157) %	
Don't know	6.3	6.4	6.3
Simple/cheap drugs of fairly good quality	39.5	38.2	38.5
Drugs of which the contents match with their names	22.9	19.7	20.5
Drugs not subject to promotion	16.7	18.5	18.0
Essential drugs of which the names appear in the Pharmacopoeial Law	0.0	7.0	5.4
Others (drugs that are quite efficacious, but not coated with sugar; INPRES drugs; Drugs always prescribed by Puskesmas; Drugs that follow certain standards)	14.6	10.2	11.2

114

Table 10.3. Opinions of Prescribers on the Efficacy of Generic Drugs Compared to Patent Drugs

Opinion	Work Place of Prescriber		Total (n=205) %
	PUSKESMAS	SUB-PUSKESMAS	
	(n= 124) %	(n=81) %	
They are just the same	77.1	70.1	71.7
Generic drugs not quite as good	4.0	14.8	8.3
Generic drugs are better	9.7	22.2	14.6
Don't have any opinion	7.3	2.5	5.4

Table 10.4. Opinions of Prescribers on the Efficacy of Generic Drugs Compared to Patent Drugs

Opinion	Prescriber		Total (n=205) %
	DOCTOR	PARAMEDIC	
	(N=48) %	(N= 157) %	
They are just the same	77.1	70.1	71.7
Generic drugs not quite as good	8.3	8.3	8.3
Generic drugs are better	2.1	18.5	14.6
* Don't have any opinion	12.5	3.2	5.4

Table 10.5. Prescriber Recommendations on Generic Drug Availability at the Puskesmas, by Workplace

Opinion	Work Place of Prescriber		Total (n=205) %
	PUSKESMAS	SUB-PUSKESMAS	
	(n=124) %	(n=81) %	
Patent drugs would be better	4.0	4.9	4.4
Generic drugs would be better	45.2	44.4	44.9
Combination of both	50.8	50.6	50.7

115

Table 10.6. Prescriber Recommendations on Generic Drug Availability at the Puskesmas, by Prescriber Type

Opinion	Prescriber		Total (n=205) %
	DOCTOR (n=48) %	PARAMEDIC (n=157) %	
Patent drugs would be better	0.0	5.7	4.4
Generic drugs would be better	47.9	43.9	44.9
Combination of both	52.1	50.3	50.7

E. RECOMMENDATIONS FROM THE FGD FOR THE IMPROVEMENT OF DRUG SUPPLY IN THE PUSKESMAS

Based on the results of the focus group discussion, the physician participants from Pasaman in particular affirmed that it would be better for drug planning to occur at Tingkat II (second level), because those at the second level of administration have a better knowledge of the local situation. The Tingkat II should have the funds to purchase the drugs in such a way that the supply of the drugs would correspond with the needs of each of the Puskesmas of the region. In addition to this, for any extra activity (e.g., the subsidiary Puskesmas, village midwives), an additional supply of drugs would be necessary so that the supply of drugs already allotted to the Puskesmas would not have to be reduced.

Regarding forms used in planning, a number of the doctors of Solok were quite aware of the weaknesses of the LB₁. According to them, the data on which the planning would be based should have been subjected to prior revision, e.g., the LB₁. Similarly, the doctors of Madiun suggested that a revision of the DOEN (National List of Essential Drugs) would be necessary, particularly for the more modest Puskesmas.

As for the appearances of the drugs, all the participants of the FGD were of the opinion that it would be necessary to make changes. Drugs look the same from time to time so that the patients had already committed each and every one of them to memory and had begun to underestimate them. Changing the wrappings with blisters, for instance, was their recommendation, because they thought by doing so the patients would regain their confidence in the efficacy of the drugs.

The FGD paramedic participants of West Sumatera recommended that:

- 1) the dropping of drugs conforms with their request to avoid shortages of supply;
- 2) the LB₁ forms be revised to improve planning;
- 3) improvements be made in the packaging, color, form, and taste -- improvements in the taste are particularly necessary for drugs meant for children;
- 4) the FGD participants of Pasuruan regency also suggested it was necessary to improve the planning of drugs such that the drugs dispensed would conform with needs. This means that the introduction of a therapy manual should also accompany the supply of drugs in accordance with the plan/request.

114

F. CONCLUSIONS

1. Issues involving distribution of drugs to the Puskesmas concern occasional late delivery of drugs if done by the Regencial Pharmaceutical Warehouse staff, and limited funds of the warehouse which require Puskesmas staff at times to pick up the drugs from the warehouse.
2. Other issues identified by prescribers involving drug supply at the Puskesmas involve discrepancies between drugs requested and supplied, insufficient supply particularly of antibiotics, and lack of variety in packaging. Whether the insufficiency related to supply factors or prescribing behavior could not be determined.
3. Some drugs are stocked in excess, particularly specialty drugs.
4. Fairly wide recognition and understanding of generic drugs was observed among respondents, identified primarily as drugs of fairly good quality, yet simple-looking and offered at prices so cheap that they are within the reach of the public, or drugs of which the contents are so prepared that they correspond with their original names, or drugs that are not promoted.
5. Generic drugs are well regarded, with most prescribers believing generic drugs are as effective or more effective than patent drugs. Most prescribers thought either that a Puskesmas should have only generic drugs or a mixture of generic and non-generic drugs.
6. Recommended improvements in generic drugs concentrated on improving the attractiveness and variety of their packaging, and promoting them as high quality drugs to the public
7. Suggestions on improving the drug planning process included a shift of planning to Level II, revisions to the LB₁ form, and alteration to the system such that drugs supplied were in accord with the needs of the Puskesmas.

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**APPENDIX
DATA COLLECTION INSTRUMENTS**

FORM A: ENTRY INTERVIEW HSFP-PIO/P

Puskesmas Code	:		1-4
1. Age of Respondent	:		5-6
2. Sex of Respondent	:	Male1	7
3. Education of Respondent	:	Never went to school . .1.	8
		Completed Elementary School3.	
		Female2	
		Did not complete Elementary School.... 2	
		Junior High School and Higher.4	
4. Is the respondent also a patient?			
	Yes	1	9
	No	2	
5a. Age of Patient:	Year:	Month:	10- 13
5b. Sex of Patient:	Male -----1	Female -----2	14
6. What's your <u>main purpose</u> of coming to this Puskesmas/Sub-Puskesmas?			
	To seek therapy, because I'm (or my child) is sick -----1		15
	To seek treatment, because I got an accident-----2		
	To get an immunization -----3		
	To get pregnancy examination-----4	(If the answer is any one from 2 to 7, then the interview is over. The respondent will not be given any card)	
	To get Family Planning service-----5		
	To obtain a health certificate-----6		
	For other purposes-----7		
7. What disease are you suffering from? (the respondent may give more than one answer)			
		Yes No	
a. Itch -----1		2	16
b. Scabies -----1		2	17
c. Headache-----1		2	18
d. Feeling weak/lack of vigor-----1		2	19
e. Cold-----1		2	20
f. Vomit-----1		2	21
g. Diarrhea-----1		2	22
h. Stomachache-----1		2	23
i. Fever-----1		2	24
j. Cough-----1		2	25
k. Influenza-----1		2	26
l. Difficulty in Breathing/short-windedness-----1		2	27
m. Others(name it)-----1		2	28
8. If there's one "Yes" answer, or more, to questions 7f through to 7l, the respondent is given a white card; for the others, a colorless card. (from the card, write-----> Patient Code)			
		1	29
9. What kind of health care/therapy do you expect to get from this Puskesmas/sub-Puskesmas? (Probe with "what else?", but mention not any one of them)			
		Yes No	30-31
a. Physical examination-----1		2	32
b. Injection-----1		2	33
c. Drugs-----1		2	34
d. To obtain extra-Puskesmas/sub-Puskesmas prescription-----1		2	35
e. To seek counsel-----1		2	36
f. To seek information-----1		2	37
g. Others (please explain)-----1		2	38

119

10. What kinds of drugs do you expect to get from this Puskesmas/subsidiary Puskesmas?

Mentions/uses specific names of drugs-----	1	(go to No.11)	39
Describes the drugs-----	2	(go to No.12)	
Any kinds of drugs will do-----	3	(go to No.13)	
Doesn't want any drugs-----	4	(go to No.13)	
Doesn't say anything-----	5	(go to No.13)	

11. Specific names of drugs(write down the names exactly as said by the respondent)

a.....		40-41
b.....		42-43
c.....	(go directly to No.13)	44-45
d.....		46-47
e.....		48-49

12. Types of drugs mentioned:
(pill, capsule, syrup, liquid,
injection, powder, etc)

Characteristics of Drugs
(color, taste, what for, etc)

a.....	!	!	50-55
b.....	!	!	56-61
c.....	!	!	62-67
d.....	!	!	68-73

13. If the respondents expects an injection (answer to no. 9b is "Yes")
What are your reasons for expecting an injection?

a. Injection is more efficacious/can cure disease more quickly		
b.	A1	74-75
c.		
d.	A2	76-77
e.		

14. Who would you like to be the one to examine you here?

Yes No

The doctor	(any specific name?	1	2)	78-79
The nurse	(any specific name?	1	2)	
The midwife.....	(any specific name?	1	2)	
Anybody will do.....	(go directly to No.16)			

15. What is your main reason for choosing that person?

Familiarity	1	80
Recovery is quick.....	2	
Better service(friendly, careful etc).....	3	
He prescribes lot of drugs.....	4	
Others(please describe)	5	

16. If you expect extra-Puskesmas prescription (the answer to question 9 d. is "Yes")
What are your reasons for expecting a prescription with which to buy drugs at
an outside dispensary?

.....	A1	81-82
.....		
.....	A2	83-84

Until then, good-bye for now. We'll be interviewing you again, before you leave.
THANK YOU

FORM B: INSTRUMENT FOR PRESCRIBER-PATIENT INTERACTION*

GENERAL INFORMATION

Code Puskesmas
Code Prescriber
Code Patient
Age Patient (if stated)
Child under age 5?
Time interaction begins
Time interaction ends

COMPLAINTS OF PATIENT EXPRESSED TO PRESCRIBER

(Open ended question later coded to cross tabulate with prescriber question)

PRESCRIBER HISTORY TAKING

Does the prescriber ask about (and patient answer):

How long patient sick (days)
Fever
Frequency of diarrhea (times per day)
Consistency of diarrhea (soft, liquid, usual)
Blood in feces
Mucus in feces
Vomiting
Thirsty
Urine output (less, same, different color)
Cough with phlegm
Dry cough
Runny nose
Sore, swollen throat
Difficult breathing
Wheezing
Otitis media
Where did patient go before coming to Puskesmas
What treatment was patient given before coming to Puskesmas
Cessation of feeding
Giving of Oralit
Current breastfeeding

EXAMINATION OF PATIENT

Does the prescriber assess:

Temperature (palpation/thermometer)
Skin turgor
Pulse
Sunken fontanel
Examination of tongue

Frequency of breathing

Pharynx

Palpate thorax

Percuss thorax

Use of stethoscope

Recording (symptoms/history) of patient in medical chart after history is taken:

- symptoms
- name of illness
- code of illness
- records, but content not seen

EXPLANATION/ADVICE OF PRESCRIBER

Cause of illness

Course of illness

Danger signs for illness

Instructions if danger signs seen

When to return for examination

Instructions on use of medicine

Clarification on taking of medicine

Number of times to take medicine

When to take medicine

About Oralit:

- Mixing of Oralit
- Dosage
- Instructions on drinking Oralit

Advice on eating

Advice on drinking

Advice on breastfeeding

Prevention of illness

Referral of patient

REQUESTS OF PATIENT (IF ANY) AND PRESCRIBER RESPONSE

Does the patient ask for:

- A certain color of drug (Agree/Disagree, clarification given)
 - A certain type of drug (Agree/Disagree, clarification given)
 - A certain brand of drug (Agree/Disagree, clarification given)
 - A drug with a logo (Agree/Disagree, clarification given)
 - Injection (Agree/Disagree, clarification given)
 - Vitamin (Agree/Disagree, clarification given)
 - Drug from elsewhere (Agree/Disagree, clarification given)
 - Other (Agree/Disagree, clarification given)
-

*Actual form used in study was formatted as a checklist. This form is in text format for translation.

FORM C: EXIT INTERVIEW HSFP-PIO/P

Puskesmas Code : | 1 - 4
 Patient's Code : | 5 - 6

1. What kind of health care/therapy did you get from this Puskesmas/sub-Puskesmas today?

(more than one answer acceptable, name it/them) =probe

	Spontaneous		Probe		
	Yes	No	Yes	No	
a. Physical examination-----	1	2	1	2	7 - 8
b. Injection-----	1	2	1	2	9 -10
c. Drug-----	1	2	1	2	11-12
d. Extra-Puskesmas/sub-Puskesmas prescription-----	1	2	1	2	13-14
e. Counsel-----	1	2	1	2	15-16
f. Doctor's explanation-----	1	2	1	2	17-18
g. Others, i.e.-----	1	2	1	2	19-20

2. If respondent received an injection(answer of 1b is "Yes")
 Do you know the benefits of the injection you got?

Yes -----1
 No -----2 | 21

3. (If 1b is Yes)
 Can you say the name of the injection?

Can -----1
 i.e.-----
 Cannot-----2 | 22

4. If the respondent was examined (answer of 1a is Yes)
 By whom were you examined?

Doctor-----1
 Nurse-----2 | 23
 Midwife-----3
 Others-----4

5. If examined (answer to 1a is Yes)
 Was he the one by whom you expect to get yourself examined?

Yes -----1
 No -----2 | 24

6. If the respondent did not get any injection (answer of 1b is No)
 Are you disappointed, because you didn't get an injection?

Yes -----1
 No -----2 | 25

7. If what the respondent got was drugs (answer of 1c is Yes)
 Are you satisfied with the drugs they gave you?

Yes ----- 1 | 26
 No ----- 2

8. What do you think of the drugs you got from this Puskesmas?

Good -----1 | 27
 Fair ----- 2
 Poor -----3

9. What can you say about the drugs you got from this Puskesmas, compared with the ones they sell at the drugstores?	
The Puskesmas' drugs are better-----1	
The Drugstores' drugs are better-----2	
Never been to a dispensary-----3	28
They are the same-----4	
Don't know-----9	
10. What can you say about the drugs you got from this Puskesmas, compared with the one they sell at the pharmacies?	
The Puskesmas' are better-----1	
The Pharmacies' are better-----2	
Never been to a pharmacy-----3	29
They are the same-----4	
Don't know-----9	
11. What do you think of the drugs you got from this Puskesmas, when compared with the ones you can get from a doctor or paramedic/nurse practicing privately?	
The Puskesmas' are better-----1	
The private practitioners' are better-----2	
Never been to a private practitioner-----3	30
They are the same-----4	
Don't know-----6	
12. Will you still be going elsewhere, looking for other therapy for this disease?	
Yes-----1	
No----- 2	31

TYPES OF DRUGS RECEIVED

DRUGS	1	2	3	4	5
13! Name(what's its name) ! ! TT(don't know)					
14! Type(pill,capsule,powder ! !syrup, ointment, etc.)					
15! Characteristic(color, ! ! !taste, what for etc)					
16! What are the benefits ! ! (name them/don't know)					
17! How many times a day? ! ! (explain/don't know)					
18! (If oralit is prescribed) ! ! How do you prepare the ! ! solution ! ! (Describe it/don't know)					
19! Who gives explanation? ! ! (dispenser, doctor, ! ! nurse) ! ! (name it/don't know)					
20! Do you think the drug ! ! is efficacious? ! ! (yes/no)					
21! How do you know that ! ! it's efficacious? ! ! (explain)					
22! Is the drug the one you ! ! expect? ! ! (yes/no)					

125

FORM D: IN-DEPTH INTERVIEW HSFP-PIO/P

Puskesmas Code :

Prescriber's Code : 1. Doctor
2. Nurse
3. Midwife

QUESTIONS FOR THE PRESCRIBER

A. HANDLING DIARRHEA

1. What is the (MOH) therapy standard for a patient with diarrhea?
2. What kind of diarrhea do you think will need antibiotics? Why?
3. Do you give oralit to all your diarrhea patients? Why?
4. Will a patient of diarrhea be satisfied, if you give him only oralit? Why?
5. In your opinion, what is purpose of giving oralit?
6. Are there any among your diarrhea patients who want you to give them certain types of drugs? If yes, what types of drugs? (certain brands, names, amounts, etc.)

B. HANDLING ARI

For the interviewer : The following are questions on the ARI diseases. Explain to the respondents that what we mean by ISPA(ARI) is NOT Infeksi Saluran Pernafasan ATAS, but Infeksi Saluran Pernafasan AKUT.

7. What do you think is the therapy standard (of the MOH) for a patient with Pneumonia? For cough-cold (influenza cough)?
8. What according to you is the kind of ARI that will need antibiotics?
9. Are there any among your AIRT patients who wanted you to give them certain kinds of drugs? If yes, what kinds of drugs? (the brands, names, amounts, etc.)
10. Will a patient with a case of cough-cold (influenza cough) feel satisfied, if you prescribe only either paracetamol or other analgetics/anti-pyretics for his disease? If Yes, say why? If No, say why?

C. INJECTIONS

11. Do you often give injections to you adult patients? Why?
To children? Why?

12. What kind of injections do you use a lot for adult patients? Why? For children? Why?
13. Do the patients themselves ask you to give them the injections? Why? What do you think is the best way to convince patients that they don't need an injection?

D. ANTIBIOTICS

14. In your opinion, what is the advisable span of time for a patient to be given antibiotics? Why?
15. What do you think are the things that will make a patient resistant to antibiotics?

E. POLYPHARMACY

16. On the average, how many types of drugs does a patient get nowadays? What is the basis on which to determine the number of types of drugs to be prescribed for a patient?
17. When do you prescribe only one or two types of drugs for a patient?
18. How is the supply of drugs/injection drugs of this Puskesmas/ sub-Puskesmas? (insufficient, excessive) Why?

What types of drugs are insufficient? Why?

What types of drugs are supplied to excess? Why?

19. Do you think that for certain drugs it is necessary to have a manual concerning the amounts to be given to a patient?(e.g., antibiotics for a certain number of days, paracetamol for so and so many days, etc.).
20. What do you recommend should be done to improve the drug supply of the Puskesmas/sub-Puskesmas?

F. GENERIC DRUGS

21. As far as you are concerned, what actually are GENERIC drugs?
22. What is your perception/view of generic drugs bearing a logo?
23. What is your judgement of generic drugs, if you compare them with the non-generic ones(the ones using brand names)? (the efficacy, packaging, reputation of the pharmacy, etc.)

If the answer for No.23 is that generic drugs are good, ask : What kinds of information does a prescriber need to convince others that generic drugs are drugs of good quality?

24. What do you think is recommendable for the generic drugs program?

25. If funds for the Puskesmas are sufficient, what do you think would it be advisable for the Puskesmas to have as its supply?
1. Non-generic drugs would be better. Why ?
 2. Generic drugs would be better. Why ?
 3. A combination of both would be better. Why?

G. EDUCATIONAL BACKGROUND & EXPERIENCE

26. Did you get any lessons on the diagnosis and therapy of AIRT diseases, when you were in school, or at the faculty, before?
- Diarrhea?
27. Do you think it is necessary to include the subject on the diagnosis and therapy of ARI as an addition to the present school curriculum?
28. Do you think it is necessary to include to include the subject on the diagnosis and therapy of diarrhea as an addition to the present school curriculum?
29. According to you, is additional training in the diagnosis and therapy of ARI needed? Why?
30. According to you, is additional training in the diagnosis and therapy of diarrhea needed? Why?
31. What do you recommend should be done to promote the capability of the doctors/paramedics of performing a diagnosis and therapy of ARI? Why?
32. What do you recommend should be done to promote the capability of the doctors/paramedics of performing a diagnosis and therapy of Diarrhea? Why?

Following are some questions on ISPA(ARI). What we mean by ISPA here is Acute Infection of the Respiratory Tract, not Infection of the Upper Respiratory Tract.

To answer the question, put a circle around the figure representing your answer.

1. How do you classify ARI?
(Choose one of the following)

non-Pneumonia, Pneumonia, and severe Pneumonia----- 1
 mild ARI, moderate ARI, and severe ARI----- 2
 Others, please explain-----3

2. What steps have you been doing in diagnosing ARI patients at the Puskesmas/sub-Puskesmas?
(If the answer is "Yes", put a circle around 1; if "No", put a circle around 2)

	Yes	No
a. Anamnesis-----	1	2
b. Physical Examination-----	1	2
c. Counting the frequency of respiration-----	1	2
d. Watching whether there is a traction or not at the lower chest partition during respiration-----	1	2
e. Others, please describe it-----	1	2

.....

3. Do you think it is still necessary for you to build up your capability of diagnosing ARI (only for ARI)?

Yes-----1
 No(directly go to No.5)-----2

4. In your opinion, what is the best way (method) in which to promote your capability of diagnosing ARI at the Puskesmas/sub-Puskesmas? (choose either one)

Posters-----1
 Manuals-----2
 Periodicals-----3
 Leaflets-----4
 Refresher/Training-courses-----5
 Others, please describe-----6

.....

130

5. From what you have been practicing, for what cases of ARI have you been prescribing antibiotics? (put a circle around 1, if yes; around 2, if no)

	Yes	No
a. All cases of AIRT with a temperature-----	1	2
b. All cases of ARI with or without a temperature-----	1	2
c. ARI with a frequency of respiration of 40 times a minute or more in a child aged 1 - 4 years old-----	1	2
d. ARI with a frequency of respiration of 50 times a minute or more in a child aged 2 months - 1 year-----	1	2
e. ARI with a frequency of respiration of 60 times a minute or more in a baby aged less than 2 months-----	1	2
f. ARI with a traction at the lower chest partition during respiration-----	1	2
g. Others, please describe-----	1	2

.....

6. In your practice at the Puskesmas/sub-Puskesmas, what would you usually prescribe, if you come across a child of 7 months suffering from ARI with a fever that has been going on for a day, a frequency of respiration of 30 times a minute, and a body temperature of 39°C?

	Yes	No
a. Temperature-lowering drugs-----	1	2
b. Antibiotics-----	1	2
c. Cough drugs-----	1	2
d. Vitamin-----	1	2
e. Anti-histamine-----	1	2
f. Injection-----	1	2

Now, we are going to ask you a number of questions about **Diarrhea**.

7. In the handling of diarrhea patients at the Puskesmas/sub-Puskesmas, what kind of diagnosis would you usually prepare for a patient?
(more than one answer is acceptable)

Only diarrhea, without further details-----	1
Acute diarrhea, chronic diarrhea, and diarrhea with blood/mucus-----	2
Diarrhea with dehydration or diarrhea without dehydration-----	3
Neither one of the above-mentioned, but (please describe)-----	4

8. From what you have been practicing, what measures do you usually take to diagnose a diarrhea patient?

	Yes	No
a. Anamnesis-----	1	2
b. Physical Examination-----	1	2
c. Checking the turgor-----	1	2
d. Checking whether the eyes are hollow or not-----	1	2
e. Checking whether the general condition in good or not-----	1	2
f. Others, please describe: -----	1	2

.....

9. Do you think is it still necessary for you to build up your capability of diagnosing diarrhea (only for diarrhea)?

Yes-----	1
No-----	2

10. If you feel you still need to improve your capability of diagnosing diarrhea, what do you think is the best way in which this is to be done?
(Choose either one)

Posters-----	1
Manuals-----	2
Periodicals-----	3
Leaflets-----	4
Refresher-/Training-courses-----	5
Neither one of the above-mentioned, but in other ways (please explain)-----	6

11. From what you have been experiencing/practicing all this time, for what kinds of diarrhea would you prescribe antibiotics?

	Yes	No
a. Acute diarrhea without fever-----	1	2
b. Acute diarrhea with fever-----	1	2
c. Chronic diarrhea without fever-----	1	2
d. Chronic diarrhea with fever-----	1	2
e. Acute diarrhea without dehydration-----	1	2
f. Acute diarrhea with mild and moderate dehydration-----	1	2
g. Acute diarrhea with severe dehydration-----	1	2
h. Diarrhea with blood and/mucus-----	1	2
i. For all cases of diarrhea antibiotics are prescribed-----	1	2

134

12. Do you, or do you not, normally give Oralit to the following diarrhea patients? (Put a circle around 1, if you do; around 2, if you don't)

	Do	Don't
a. Acute diarrhea without fever-----	1	2
b. Acute diarrhea with fever-----	1	2
c. Chronic diarrhea without fever-----	1	2
d. Chronic diarrhea with fever-----	1	2
e. Acute diarrhea without dehydration-----	1	2
f. Acute diarrhea with mild and moderate dehydration-----	1	2
g. Acute diarrhea with severe dehydration-----	1	2
h. Diarrhea with blood and/mucus-----	1	2
i. All diarrhea patients given oralit-----	1	2

13. What is the purpose of your giving Oralit to diarrhea patients at Puskesmas/sub-Puskesmas? (put a circle around 1, if yes; around 2, if no)

	Yes	No
a. To stop diarrhea-----	1	2
b. To compensate for the loss of liquid---	1	2
c. Neither one of the above-mentioned, but for other purposes, i.e. (please explain):-----	1	2
.....		

14. How do you give instructions to a patient/his family on the use of Oralit? (Put a circle around 1, if yes; around 2, if no)

	Yes	No
a. One glass every time the patient has diarrhea-----	1	2
b. In underfives, 3 glasses in the first 3 hours, and later 1 glass every time it has a diarrhea-----	1	2
c. At least three 3 glasses a day-----	1	2
d. Others, please explain-----	1	2
.....		

15. In treating a patient who has been suffering from diarrhea for one day, has a temperature of 39°C, without dehydration, what do you normally prescribe? (put a circle around 1, if yes; around 2, if no)

	Yes	No
a. Temperature-lowering drugs-----	1	2
b. Antibiotics-----	1	2
c. Vitamins-----	1	2
d. Anti-diarrhea (e.g., vioform)-----	1	2
e. Spasmolytic (e.g., loperamide, papaverin)---	1	2
f. Oralit-----	1	2
g. Home-administered solution-----	1	2
h. Injection-----	1	2

123

Further, we are going to ask some questions on the use of antibiotics, injections, and generic drugs.

16. In your day-to-day task of curing patients at the Puskesmas/sub-Puskesmas, for what kind of conditions or symptoms do you prescribe antibiotics? (more than one answer is acceptable)

	Yes	No
a. A patient with fever-----	1	2
b. All patients with cold-cough(influenza cough)--	1	2
c. A patient with pneumonia-----	1	2
d. A patient with acute diarrhea, without dehydration-----	1	2
e. A patient with acute diarrhea, with mild or moderate dehydration-----	1	2
f. A patient with acute diarrhea, with severe dehydration-----	1	2
g. A patient with chronic diarrhea-----	1	2
h. A patient with diarrhea accompanied with blood and/mucus-----	1	2

17. For how long do you usually prescribe antibiotics for the patients of the Puskesmas?

-----days.

18. In matters concerning the span of time for antibiotics prescribing, what are the things you first take into consideration?

	Yes	No
a. The regulations of the Puskesmas-----	1	2
b. The costs of drugs to be covered by the Puskesmas/sub-Puskesmas-----	1	2
c. So that the patient will come back again to the Puskesmas/sub-Puskesmas-----	1	2
d. Based on other considerations, i.e.(please explain)-----	1	2

.....

19. How often do you give injections to adult/children coming to your Puskesmas/sub-Puskesmas?

Injections given to	: Adult Patients
Almost all patients	-----1
More than 50% of the patients	-----2
25% - 50% of the patients	-----3
Less than 25% of the patients	-----4
None at all	-----5
 Injections given to	 : Children
Almost all patients	-----1
More than 50% of patients	-----2
25% - 50% of the patients	-----3

134

Less than 25% of the patients-----4
 None at all -----5

20. If you have to give an injection, what kind of injection do you usually prescribe?

Injections given to adult patients:		Never	Rarely	Often
a.	Vitamins-----1		2	3
b.	Pain-killer/temperature-lowering-----1		2	3
c.	Anti-allergy/histamine(e.g., delladryl)--1 3		2	
d.	Antibiotics-----1		2	3
e.	Spasmolytic/anti-diarrhea(e.g., papa- verin)-----1		2	3
f.	Others(please describe)-----1		2	3
.....				

Injections given to children:		Never	Rarely	Often
a.	Vitamins-----1		2	3
b.	Pain-killer/temperature-lowering-----1		2	3
c.	Anti-allergy/histamine(e.g., delladryl)-1		2	3
d.	Antibiotics-----1		2	3
e.	Spasmolytic/anti-diarrhea(e.g., papa- verin)-----1		2	3
f.	Others(please describe)-----1		2	3

21. As you understand it, what is a generic drug?

22. What do you think of generic drugs, in terms of their efficacy, when compared with patent drugs?

- a. Equally efficacious-----1
- b. Generic drugs are less efficacious-----2
- c. Generic drugs are more efficacious-----3
- d. Others(please explain) -----4

23. If there are sufficient funds for the Puskesmas/sub-Puskesmas, would it be better to supply the Puskesmas/sub-Puskesmas with generic drugs, or patent drugs?

- It would be better for the Puskesmas/sub-Puskesmas to be supplied with patent drugs, not generic drugs-----1
- Generic drugs would be better-----2
- A combination of both preferred-----3

Next we would like to ask you some questions on: **The Education, Training, and Information on Drugs.**

122

What we mean by education is the formal education for a profession (Faculty of medicine, nursing academy, high school of nursing, high school of midwifery); while training is an activity for the promotion of knowledge or skills (e.g., a refresher course) attended after getting a job.

24. For how long have you been assigned to examine/treat patients?
 _____ Years _____ months

25. What is the highest formal education that you have completed?
 Faculty of Medicine ----- 1
 Academy of Nursing ----- 2
 High School of Nursing ----- 3
 High School of Midwifery ----- 4

26. What year did you graduate?.....

27. Where did you get your education?
 Faculty of Medicine at the University of.....in.....
 Academy of Nursing.....in.....
 High School of Nursing.....in.....
 High School of Midwifery..... in.....

28. How many times have you taken a training-course in the last three years?

Training in ARI.....times-----1
 Training in Diarrhea.....times-----2
 Others(please describe).....times-----3

29. Did you get such materials as mentioned below in the education and training-course you attended?

		Education		Training	
		Yes	No	Yes	No
a.	Diagnosis of ARI-----	1	2	1	2
b.	Diagnosis of Diarrhea-----	1	2	1	2
c.	Therapy of ARI-----	1	2	1	2
d.	Therapy of Diarrhea-----	1	2	1	2

30. How do you obtain information on drugs?

		Yes	No
a.	From books -----	1	2
b.	From leaflets given by pharmacies-----	1	2
c.	Consultation with doctors/colleagues----	1	2
d.	Consultation with fellow-paramedics-----	1	2
e.	From the mass media(newspapers, maga- zines, TV, radio)-----	1	2
f.	Others(please describe)-----	1	2

31. In your opinion, what is the BEST source from which to obtain information on drugs?

Doctors-----1
 Pharmacists-----2

136

Posters-----3
Manuals-----4
Periodicals-----5
Leaflets-----6
Refresher/Training-course-----7
Others, i.e.(please describe)-----8

THANKS FOR YOUR ASSISTANCE, COLLEAGUES!

FORM F: DATA OF PUSKESMAS HSFP-PIO/P

1. Status of Puskesmas: Puskesmas/Subsidiary Puskesmas
2. Location : Kecamatan.....
3. Puskesmas Code :
4. Date of Observation:
5. List of Essential Drugs Available/not available in the examination room
Available/not available in the building
6. Manual on Therapy Standard Available/not available in the examination room
Available/not available in the building
7. IMS/ISO/Drug Brochure Available/not available in the examination room
Available/not available in the building
8. Posters/Exhibits/Pamphlets on Oralit Available/not available in the examination room
Available/not available in the building
9. Posters/Exhibits/Pamphlets on AIRT Available/not available in the examination room
Available/not available in the building
10. Other materials on diarrhea available in this facility:
11. Other materials on AIRT available in this facility :
12. Number of personnel here altogether :persons

13

13. Data on personnel who usually conduct examination of patients /prescribe drugs here

No. (*)	Educational Institution	Year of Graduation	Place of Education	Number of Years in Employment here	Observed/Unobserved

Note:

- (*) Write prescriber's code
- 1. Doctor
 - 2. Nurse
 - 3. Midwife

14. Number of patients coming to the registration counter before 7.00 a.m. through 1.00 p.m (cumulative total)

Time of Coming	Number of Patients
until 7.00 a.m.!	
until 8.00 a.m.!	
until 9.00 a.m.!	
until 10.00 a.m.!	
until 12.00 noon!	
until 1.00 p.m.!	

12/11

FORM G1: IN-DEPTH INTERVIEW/HEAD OF DINAS KESEHATAN

A. QUESTIONS ASKED TO THE HEAD OF THE DINAS CONCERNING THE MANAGEMENT INFORMATION SYSTEM

1. What kinds of data or information do you think you'll need to have for the planning of drug supply, the monitoring of the distribution, and for the use?
2. What kind of refresher-course do you think is needed in order to obtain such information?

B. QUESTIONS RELATED WITH EFFECTIVE MANAGEMENT

3. What do you think, if the task of drug planning is handed over to the Dinas? Will this necessitate a change in your team of staff?
4. In your opinion, what will the constraints be, if drug planning and drug management are integrated?
5. In your opinion, what will the major constraints be, if the distribution of drugs is efficiently managed?
6. Who do you think should be the one to determine the budget to be allocated for drugs to the GFK and the Puskesmas? What are your reasons?
7. What will your major constraints be, if you are to make sure that the essential drugs will remain in stock all the time in the GFK and the Puskesmas?

C. QUESTIONS RELATED WITH THE REGIONAL SYSTEM OF SUPERVISION

1. What system have you been using in the supervision of the GFK and the Puskesmas all this time? (frequency of supervisory visits, responsibility of staff, form and channel of information, etc.)
2. What technique of supervision, do you think, is best for the GFK and the Puskesmas? Give your reasons? What are the criteria for such technique of supervision?
3. What do you think will be the constraints of such technique of supervision?

FORM G2: IN-DEPTH INTERVIEW/HEAD OF THE REGENCIAL PHARMACEUTICAL WAREHOUSE

A. QUESTIONS RELATED WITH THE MANAGEMENT INFORMATION SYSTEM

1. What is your opinion of the types of information that you have been receiving all this time in relation with the drug supply, distribution, and use plans?
2. What kinds of data/information do you think will be useful for the supply, distribution, and use of drugs?
3. Do you think the members of your staff need to given a refresher-course on how the data are to be used in such a way that they will be useful for the planning of drugs?

B. QUESTIONS RELATED WITH EFFECTIVE MANAGEMENT

1. What do you think of your present staff? Do you think it will be necessary to make some changes in the staff, if the responsibility for the planning and management of drug supply in the kabupaten is held by the GFK? What are your reasons?
2. What, in your opinion, will be the constraints, if the planning and the management of drugs are integrated?
3. In your opinion, what will the major constraints be, if the distribution of drugs is efficiently managed?
4. Who do you think should be the one to determine the budget to be allocated for drugs to the Puskesmas? What are your reasons?
5. What will your major constraints be, if you are to make sure that the essential drugs will remain in stock all the time in the GFK and the Puskesmas?

C. QUESTIONS RELATED WITH THE REGIONAL SYSTEM OF SUPERVISION

1. What system have you been using in the supervision of the Puskesmas? (frequency of supervisory visits, responsibility of staff, form and channel of information, etc.)
2. What technique of supervision, do you think, is best for the GFK and the Puskesmas? Give your reasons. What are the criteria for such technique of supervision?
3. What do you think will be the constraints of such technique of supervision?

FORM G3: IN-DEPTH INTERVIEW/THE HEAD OF THE HEALTH RECOVERY SECTION

A. QUESTIONS RELATED WITH THE MANAGEMENT INFORMATION SYSTEM

1. What do you think of the role you have been taking all this time in the process of drug planning? Do you have any problem with that role of yours? (e.g., not involved in the planning, role not clear, etc.)
2. Does the head of the Puskesmas regular monitor the use of drugs? Does certain Puskesmas have a tendency to use only certain types of drugs?
3. In your opinion, what kinds of data/information from the Puskesmas do you need in order to be able to plan drugs well? that you can use as a monitoring tool? Will it be necessary to conduct a refresher-course on the use of such data/information?

B. QUESTIONS RELATED WITH EFFECTIVE MANAGEMENT

1. In your opinion, would it be better if the responsibility for planning and managing the supply of drugs at the kabupaten level is handed over to the head of the GFK? Give us your reasons?
2. What will the constraints be, if the planning of drugs and the management of drugs are integrated? What are your reasons?
3. What do you think of your role in the distribution of drugs? State your reasons.
4. What will your major constraints be, if you are to make sure that the essential drugs will remain in stock all the time in the GFK and the Puskesmas?

C. QUESTIONS RELATED WITH THE REGIONAL SYSTEM OF SUPERVISION

1. What system have you been using in the supervision of the Puskesmas? (frequency of supervisory visits, responsibility of staff, form and channel of information, etc.)
2. What technique of supervision, do you think, is best for the Puskesmas? Give your reasons. What are the criteria for such technique of supervision?
3. What do you think will be the constraints of such technique of supervision?

FORM G4: THE IN-DEPTH INTERVIEW/THE HEAD OF THE PUSKESMAS

A. QUESTIONS RELATED WITH THE MANAGEMENT INFORMATION SYSTEM

1. How have drugs been planned all this time? What are the constraints?
2. What can you say about your the requests for drugs you have been submitting compared with the ones you have been receiving all this time? What do you recommend for this? What are your reasons?
3. Have you been regularly monitoring the use of drugs all this time?
4. What kinds of drugs do you usually find have been untimely running out of stock (lead the respondents towards the issue of antibiotics)? What, according to you, has to be done to overcome this problem? What are your reasons?

B. QUESTIONS RELATED WITH EFFECTIVE MANAGEMENT

1. In your opinion, would it be better to hand over the responsibility of planning and managing drug supply at the kabupetan level to the GFK? What are your reasons?
2. What will the constraints be, if the planning of drugs and the management of drugs are integrated? What are your reasons?
3. What do you think of your role in the distribution of drugs? State your reasons.
4. What will your major constraints be, if you are to make sure that the essential drugs will remain in stock all the time in the GFK and the Puskesmas?
5. How are drugs allocated to the sub-Puskesmas? (based on number of patients, pattern of diseases, etc.)

C. QUESTIONS RELATED WITH THE REGIONAL SYSTEM OF SUPERVISION

1. What system have you been using in the supervision of the Puskesmas? (frequency of supervisory visits, responsibility of staff, form and channel of information, etc.)
2. What technique of supervision, do you think, is best for the Puskesmas? Give your reasons? What are the criteria for such technique of supervision?
3. What do you think will be the constraints of such technique of supervision?

**FORM H: INSTRUMENT OF THE FOCUSED GROUP DISCUSSION OF DOCTOR
PRESCRIBERS**

A. THE MANAGEMENT OF DIARRHEA

1. Do you know that there is a standard or manual from the MOH for the therapy of diarrhea patients? In reality, do you use this standard? Why?
2. In your practice in the Puskesmas, for what type of diarrhea do you prescribe antibiotics? Why?
3. Do you give oralit to all patients with diarrhea? Why?
4. Will diarrhea patients be satisfied, if all you give them is oralit? Why? What attitude will you take, if a patient of yours ask for some other kinds of drugs?

B. THE MANAGEMENT OF AIRT

For the interviewer: the following are questions concerning AIRT. Explain to the respondents that what you mean by AIRT (ISPA) is NOT Infection of the Upper Respiratory Tract, but ACUTE Infection of the Respiratory Tract.

5. Do you know the therapy standard(MOH manual) for patients with Pneumonia? For cough-cold (influenza cough)?
6. In your practice, for what type of AIRT do you prescribe antibiotics? Why?
7. Will patients with cough-cold (influenza cough = batuk pilek) feel satisfied, if you prescribe only paracetamol or other analgetics /anti-pyretics? If yes, Why? If no, Why?

C. INJECTIONS

8. Do your patients ask you to inject them? Why? In your opinion, what is the best way to convince the patients that they do not need an injection?

D. ANTIBIOTICS

9. What do you think of antibiotics prescribing? Is it necessary to differentiate the span of time of antibiotics prescribing from that of the prescribing of other drugs? Is this possible?

E. POLYPHARMACY

10. Do you think it is necessary to have a manual on the amounts recommended for certain types of drugs to be given to the patients? (e.g., antibiotics for so many days, paracetamol for so many days, etc.).
11. What do you recommend for the improvement of the drug supply of the Puskesmas/subsidiary Puskesmas?

F. GENERIC DRUGS

12. What is your perception/views of generic drugs bearing a logo?
13. What have you to recommend for the generic drugs program?

G. OTHERS

14. Does the supply of drugs you have in the Puskesmas/sub- Puskesmas have any effect on the types of drugs you give to the patients? In cases where there is a shortage of certain types of drugs, how do you overcome the issue, when these drugs are really needed? Why?
15. Does a patient usually come back again to you, if he has finished his drugs and yet fails to recover? Why?

INSTRUMENT OF THE FOCUSED GROUP DISCUSSION OF PARAMEDIC PRESCRIBERS

A. THE MANAGEMENT OF DIARRHEA

1. Do you know that there is a standard or manual from the MOH for the therapy of diarrhea patients? In reality, do you use this standard? Why?
2. In your practice in the Puskesmas, for what type of diarrhea do you prescribe antibiotics? Why?
3. Do you give oralit to all patients with diarrhea? Why?
4. Will diarrhea patients be satisfied, if all you give them is oralit? Why? What attitude will you take, if a patient of yours ask for some other kinds of drugs?

B. THE MANAGEMENT OF AIRT

For the interviewer: the following are questions concerning AIRT. Explain to the respondents that what you mean by AIRT(ISPA) is **NOT** Infection of the Upper Respiratory Tract, but **ACUTE** Infection of the Respiratory Tract.

5. Do you know the therapy standard (MOH manual) for patients with Pneumonia? For cough-cold (influenza cough)?
6. In your practice, for what type of AIRT do you prescribe antibiotics? Why?
7. Will patients with cough-cold(influenza cough=batuk pilek) feel satisfied, if you prescribe only paracetamol or other analgetics /anti-pyretics? If yes, Why? If no, Why?

C. INJECTIONS

8. Do your patients ask you to inject them? Why? In your opinion, what is the best way to convince the patients that they do not need an injection?

D. ANTIBIOTICS

9. What do you think of antibiotics prescribing? Is it necessary to differentiate the span of time of antibiotics prescribing from that of the prescribing of other drugs? Is this possible?

E. POLYPHARMACY

10. Do you think it is necessary to have a manual on the amounts recommended for certain types of drugs to be given to the patients? (e.g., antibiotics for so many days, paracetamol for so many days, etc.).
11. What do you recommend for the improvement of the drug supply of the Puskesmas/subsidiary Puskesmas?

F. GENERIC DRUGS

12. What is your perception/views of generic drugs bearing a logo?

13. What have you to recommend for the generic drugs program?

G. OTHERS

14. Does the supply of drugs you have in the Puskesmas/sub- Puskesmas have any effect on the types of drugs you give to the patients? In cases where there is a shortage of certain types of drugs, how do you overcome the issue, when these drugs are really needed? Why?

15. Does a patient usually come back again to you, if he has finished his drugs and yet fails to recover? Why?