

# **Rural Drug Vendors in Eritrea:**

## **A Study of Practices and Training Needs**

John Murray

Asgedom Mosazghi

Bernado Kifleyesus

Nosa Orobaton



## **BASICS**

BASICS is a global child survival support project funded by the Office of Health and Nutrition of the Bureau for Global Programs, Field Support, and Research of the U.S. Agency for International Development (USAID). The agency's Child Survival Division provides technical guidance and assists in strategy development and program implementation in child survival, including interventions aimed at child morbidity and infant and child nutrition.

BASICS is conducted by the Partnership for Child Health Care, Inc. (contract no. HRN-C-00-93-00031-00, formerly HRN-6006-C-00-3031-00). Partners are the Academy for Educational Development, John Snow, Inc., and Management Sciences for Health. Subcontractors are the Office of International Programs of Clark Atlanta University, Emory University, The Johns Hopkins University's School of Hygiene and Public Health, Porter/Novelli, and Program for Appropriate Technology in Health.

This document does not necessarily represent the views or opinions of USAID. It may be reproduced if credit is given to BASICS.

### **Recommended Citation**

Murray, John, Asgedom Mosazghi, Bernado Kifleyesus, and Nosa Orobato. 1998. *Rural Drug Vendors in Eritrea: A Study of Practices and Training Needs*. Published for USAID by the Basic Support for Institutionalizing Child Survival (BASICS) Project. Arlington, Va.

### **Abstract**

Rural drug vendors (RDV) in developing countries, particularly in rural areas, have an important and ever-increasing role as providers of medications and medical services. This is particularly true in Eritrea, a small country in East Africa, where only an estimated 50 percent of the population has access to primary health care services.

From January 21–26, 1998, researchers in Eritrea used the *simulated client method* to study the knowledge and practices of RDVs in Eritrea: how they dispense drugs and how they manage simple childhood illnesses. Using standard instruments, volunteers (simulated clients) posed as real clients and presented a standard clinical case to an RDV. After the visit, a survey team debriefed the volunteer. The team then interviewed the same RDV and asked standard questions about their knowledge and training needs.

The researchers analyzed, organized, and interpreted the information from the interviews, combined the data, and reached the following conclusions about the RDVs in Eritrea: they frequently misuse antibiotics; they know treatment options but do not practice their knowledge (knowledge–practice gap); they give inadequate dosing and labeling instructions; and they provide insufficient health education. Using the collected information, researchers made practical recommendations for improving the practices of RDVs, including simple methods and tools (including field-tested questionnaires) to aid and support the RDVs and other primary health programs. The data will also be used to develop additional strategies.

Cover photo—credit?



Basic Support for Institutionalizing Child Survival  
1600 Wilson Blvd., Suite 300  
Arlington, VA 22209 USA  
Phone: 703-312-6800  
Fax: 703-312-6900  
E-mail: [infoctr@basics.org](mailto:infoctr@basics.org)  
Internet: [www.basics.org](http://www.basics.org)

# Contents

Acknowledgments .....	v
Acronyms .....	vii
Executive Summary .....	ix
Background .....	1
RDVs in Eritrea .....	1
Rationale for a Study of the Practices of RDVs .....	3
Objectives .....	3
Methodology .....	5
Sampling .....	5
Instrument Design .....	6
Conduct of the Survey—Field Work .....	7
Data Analysis .....	8
Results .....	9
Descriptive Information .....	9
Treatment Practices .....	9
History Questions Asked .....	15
Health Communication .....	15
Dispensing .....	16
Drug Availability .....	17
Attitudes of RDVs .....	18
Training .....	19
Discussion and Conclusions .....	21
Treatment Practices .....	21
Health Communication by RDVs .....	22
Training Needs of RDVs .....	23
Developing Program Interventions .....	24
Evaluating Interventions with RDVs .....	25
References .....	27
Appendices: Survey Instruments .....	29
Appendix A. Eritrea Ministry of Health: Simulated Client Reporting Form .....	31
Appendix B. Eritrea Ministry of Health: Interview with Rural Drug Vendor .....	33



## Tables

Table 1.	Total Number of Rural Drug Vendors by Zone	2
Table 2.	Final Sample of Rural Drug Vendors by Area	9
Table 3.	Treatments Given for Simple Diarrhea by Rural Drug Vendors (RDV)	10
Table 4.	Treatments Given for URTI by Rural Drug Vendors (RDV)	12
Table 5.	History Questions Asked Clients by Rural Drug Vendors	15
Table 6.	Messages Given to Clients by Rural Drug Vendors	16
Table 7.	Dispensing Practices of Rural Drug Vendors (RDV)	16
Table 8.	Drug Sale Prices and Expected Pharmacor Prices	17
Table 9.	Perceived Barriers to Giving More Information to Caretakers	19

## Figures

Figure 1.	Map of Eritrea	5
Figure 2.	Treatment of Simple Diarrhea	10
Figure 3.	Drugs Given for Simple Diarrhea	11
Figure 4.	Treatment of Simple URTI	12
Figure 5.	Drugs Given for URTI	13
Figure 6a.	Treatment of Simple Diarrhea: Knowledge and Practice of RDVs	14
Figure 6b.	Treatment of URTI: Knowledge and Practices of RDVs	14
Figure 7.	Drugs Not Available Past 12 Months	17
Figure 8.	Medications Requested by RDVs	18
Figure 9.	Training Requested by RDVs	19

# Acknowledgments

The authors would like to thank the Pharmacy Division of the Ministry of Health in Eritrea for valuable input and support. Thanks are extended to Embaye Andom, Ismael Mohamed Feki, Mehari Feshatjam, and Gorgio Solomon, who were involved in the planning and conduct of the survey. The participation of all simulated client volunteers is acknowledged with thanks.



# Acronyms

ARTI	acute lower respiratory tract infection
BASICS	Basic Support for Institutionalizing Child Survival
DHS	Demographic and Health Survey
MOH	Ministry of Health
Ncf	unit of currency in Eritrea
ORS	oral rehydration solution
RDV	rural drug vendor
USAID	U.S. Agency for International Development
URTI	upper respiratory tract infection





# Executive Summary

The role of rural drug vendors (RDV) in Eritrea as providers of drugs and primary health care services, is becoming more important especially in areas with limited access to formal health facilities. This technical report, based on an investigative study, describes the practices of RDVs in Eritrea: how they dispense drugs and how they manage simple childhood illnesses. Results from the study were used to develop strategies for improving the RDVs' practices.

Three survey teams, trained in Asmara (the capital of Eritrea), used the *simulated client method* to investigate the practices. Volunteers (simulated clients) were trained to present a standardized, fictional clinical history to RDVs at their shops, as if the simulated clients were actual clients. The simulated clients visited the RDV, immediately reported to the survey team, and the survey team asked them standard questions about the visit. Soon after each client's visit, the survey team interviewed the same drug vendor and solicited information about his knowledge and training needs.

Simulated clients presented two cases to each RDV: the first case was a child with simple watery diarrhea and the second case a child with a simple upper respiratory tract infection. To ensure that consistent records were kept, a simulated client checklist and RDV interview questionnaire were developed, translated into Tigrinya (the official language of Eritrea), and pre-tested in the field. Fifty-nine RDVs were randomly selected from RDV licensing records. Between January 21–26, 1998, three survey teams, composed of Ministry of Health (MOH) Pharmacy Department staff and simulated clients, conducted the field work.

The major conclusions of the study were—

- Antibiotics are misused for the treatment of simple diarrhea and simple upper respiratory tract infections.
- A gap exists between the knowledge and practices of RDVs for the management of simple diarrhea and simple upper respiratory tract infections. RDVs do not always prescribe the correct treatment for their clients even if they know the correct treatment.
- Frequently, RDVs do not give clear instructions on the dosing of antibiotics. They do not routinely label drugs with the dose or ensure that clients know how to give the medications at home.
- RDVs do not routinely give health education messages to their clients. They cite the lack of time and language barriers. These factors should be taken into consideration when practices are designed to improve health communication skills.
- Most RDVs want more training to help them in their daily practice. Training activities must include simple methods for improving the quality of practice, and the activities need to be accompanied by other strategies that consider the barriers to adopting improved practices.

Data collected during this study were used to develop strategies to improve the practices of RDVs in Eritrea. Additional methods can be developed by using locally available resources: conducting formative research to identify barriers to improved practice, developing a revised training program for RDVs, improving the quality of supervision of RDVs, and developing simple educational materials that RDVs can use in their practice.

# Background

Only 50 percent of the population in the East African country of Eritrea has access to primary health care services. Demographic and Health Survey (DHS) data in 1995 estimated that 41 percent of children 12–23 months of age were fully vaccinated but 38 percent had not been vaccinated for any diseases. In the three years prior to the DHS survey, 34 percent of pregnant women had received a tetanus toxoid vaccination during pregnancy, 21 percent were assisted at delivery by trained medical personnel (doctor, nurse, or midwife), and 49 percent had received some antenatal care from a trained health worker. Rural populations in Eritrea had lower service coverage than urban populations (Eritrea National Statistics Office 1997). Acute lower respiratory tract infections (ARI), diarrhea, fever (malaria), and malnutrition are prevalent in all parts of Eritrea. Together, pneumonia, diarrhea, and malaria account for more than 50 percent of all visits by young children to outpatient facilities (MOH routine surveillance data, Health Profile of Eritrea, 1996).

In 1995, DHS found that in a group of children less than 3 years of age, in the two weeks preceding the survey, approximately 25 percent had symptoms of a respiratory illness, 24 percent had diarrhea, and 42 percent had a fever. Close to 15 percent of children under age 3 were wasted and 3 percent were severely wasted (Eritrea National Statistics Office 1997). With the high prevalence of infectious diseases, coupled with the limited availability of formal health services, individuals in Eritrea may be more likely to seek care from alternative sources, such as rural drug vendors (RDV).

The private sector is already an important provider of health services and medicine in Eritrea. Household survey data from Debub and Gash-Barka zones indicate that 15 percent of the residents who were ill in the previous month (men, women, and children) went to a private for-profit provider for care (Eritrea MOH/World Bank 1997). Drug purchasing data from Pharmacor (the central drug procurement and distribution facility) and the Ministry of Health (MOH) estimate that, in 1996, there were approximately 2.2 million contacts with private providers, including private for-profit, RDVs, and industry or nongovernmental organizations, compared with 1.84 million contacts with public facilities (Orobato/Eritrea MOH 1997). Private providers are important providers of drugs, and in many areas, they may be important providers of primary health care.

## RDVs in Eritrea

### Policies and Guidelines

The government of Eritrea has established clear policies and guidelines for RDVs (Gazette of Eritrean Laws, Proclamation No. 36/1993: A Proclamation to Control Drugs, Medical Supplies, Cosmetics and Sanitary Items, Vol. 3, No. 5 1993). The policies and guidelines include specific information: an essential drug list for RDVs, a list of where drugs can be purchased, licensing regulations and criteria, the role and power of inspectors of RDVs, the compounding of drugs, building standards, and hours of operation for drugshops. A standard drug list was adopted and circulated to all RDVs (Standard Drug List, Pharmacy Department, MOH 12 June 1996). RDVs are not allowed to assess, diagnose, or manage medical problems. Two inspectors from the MOH Pharmacy Department conduct periodic, random inspections of RDVs. Inspectors, however, do not routinely observe their practices. In addition, the chief pharmacist in each zone conducts periodic inspection visits, and may, during the same visit, conduct simple training. He

## Rural Drug Vendors in Eritrea

may observe the RDV's practice and, using a standard checklist, record the availability of essential drugs, presence of illegal drugs, conditions of drug storage, and availability of the RDV license. The Department of Pharmaceutical Services (also known as the Pharmacy Department) can impose a fine or revoke the license of any RDV who does not meet MOH standards.

### Description and Organization of RDVs

In Eritrea, 223 private drug sellers distribute drugs and provide primary health care; 20 (9 percent) are pharmacies, 24 (11 percent) are drug shops, and 179 (81 percent) are RDVs. The distribution of RDVs by qualification and zone is summarized in table 1. Of all RDVs, 97 (54 percent) are barefoot doctors, 74 (41 percent) are health assistants, and 8 (4 percent) are nurses. In general, nurses have completed the 12th grade in school plus three years of formal training; health assistants have completed at least the 10th grade plus one year of formal training; and barefoot doctors have completed a first-aid course and training in basic primary health care.

**Table 1. Total Number of Rural Drug Vendors by Zone**

Zone	Number of Rural Drug Vendors			Total
	Barefoot Doctors	Health Assistants	Nurses	
Maekel	—	7	1	8
South	31	29	3	63
Anseba	9	16	1	26
Gash-Barka	44	14	1	59
North Red Sea	13	6	2	21
South Red Sea	—	2	—	2
<b>Total</b>	<b>97</b>	<b>74</b>	<b>8</b>	<b>179</b>

Dash (—) indicates data were not available.

Source: Ministry of Health Pharmacy Department, January 1998.

To practice, all RDVs must be licensed with the MOH, which allows them to purchase drugs from Pharmacor in Asmara. RDVs must buy drugs from Pharmacor; they cannot obtain drugs from any other source. Licenses for RDVs, first issued in 1995, are renewed annually by the Pharmacy Department of the MOH. To obtain the license, candidates had to submit evidence of their qualifications and experience. If they had not completed the 9th grade of school, they were given a simple exam that reviewed their English language skills and the basic principles of primary health care.

In 1997, RDVs received a two-day training class that included information about the inspection of drugs, drug management, rational drug use, and dispensing. There have been no other training activities. The drug prescription practices of RDVs have never been assessed. In 1996, RDVs accounted for 40 percent of all drug purchases made by private for-profit providers from Pharmacor. Purchases by RDVs of many categories of essential drugs increased between 1993 and 1996; it is estimated that RDVs had 500,000

treatment contacts in 1996. These data suggest that RDVs provide an important source of treatment care in Eritrea. Between 1993 and 1996, the number of antibiotics purchased by RDVs increased faster than that of any other drug category. Although there may be valid reasons for the increasing use of antibiotics (increased demand, improved availability of antibiotics), this trend may reflect inappropriate use of antimicrobial agents (Orobaton/Eritrea MOH 1997).

## **Rationale for a Study of the Practices of RDVs**

Evidence exists that, in some areas, RDVs in Eritrea are the primary health providers and their role may be increasing. Therefore, it is important to determine if the treatment practices of RDVs are based on technical standards and if RDVs are providing any other health information to clients that may contribute to health outcomes.

Data from other African countries with large rural populations and limited access to health facilities suggest that private drug providers are often consulted for primary health care. Studies have been conducted in several countries to investigate the quality of services provided by RDVs (Madden et al. 1997). Studies from Nigeria (Igun 1994), Kenya (Goel et al. 1996), and Bangladesh, Sri Lanka, and Yemen (Tomson and Sterky 1986) determined that the treatment practices of RDVs are often inappropriate. Several studies have documented a difference or “gap” between reported knowledge and actual practice. The *simulated client method*, which uses trained community observers (volunteers and others) is the most valid and reliable method for collecting information on the practices of RDVs. Researchers, through reports from the volunteers, can determine how RDVs practice in a real-life setting.

## **Objectives**

The objectives of the rural drug vendor study were—

1. To determine the knowledge and practices of RDVs in prescribing drugs and managing young children and their mothers.
2. To determine if the knowledge and practices of RDVs differ by geographic area or background training.
3. To identify possible barriers to improving the practices of RDVs.
4. To use information gathered from objectives 1, 2, and 3 to design strategies for improving the practices of RDVs.



# Methodology

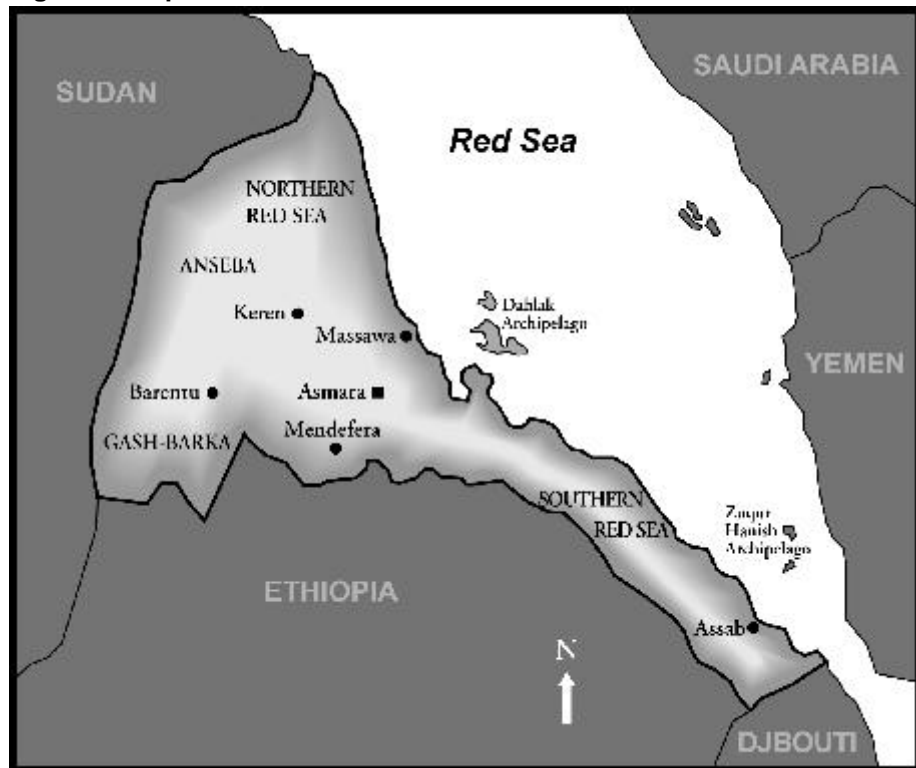
Researchers conducting the RDV study used the simulated client method to determine, by direct observation, the practices of RDVs. They conducted interviews with RDVs to identify possible barriers to improving these practices.

## Sampling

For sampling purposes, the country was divided into three areas, described in the following table. The areas can be located on the map (see figure 1).

Area No.	Name of Area	Description
1	Gash-Barka	<ul style="list-style-type: none"> <li>• Desert lowlands area</li> <li>• Predominantly rural population, including returned refugees</li> </ul>
2	North Red Sea/Anseba	<ul style="list-style-type: none"> <li>• Desert lowlands area</li> <li>• Nomadic and coastal population</li> </ul>
3	Maekel/Debub	<ul style="list-style-type: none"> <li>• Central highlands area</li> <li>• Urban population</li> </ul>

Figure 1. Map of Eritrea





## Rural Drug Vendors in Eritrea

---

Within geographic areas, RDVs are distributed according to population size. Larger towns and villages have more RDVs and smaller towns and villages have fewer RDVs; therefore, the number of RDVs is self-weighted by population size. Line listings of all RDVs in each of the zones are available from the MOH Pharmacy Department's licensing records. RDVs from very small villages were excluded from the sampling frame either because they were logistically difficult to reach or because direct observations of practice by simulated clients were impossible. Researchers assumed that the exclusions would not affect the overall findings.

The line listings from each area were then stratified into two categories based on professional groupings of RDVs: health assistants/nurses and barefoot doctors. This allowed separate estimates to be calculated for the two categories. For each area, 10 health assistants/nurses and 10 barefoot doctors were selected by simple random sampling, except in area 2 (North Red Sea/Anseba), where only 8 health assistants/nurses were available. A total of 20 RDVs were selected in area 1, 18 RDVs in area 2, and 20 RDVs in area 3, giving a total sample size of 58.

## Instrument Design

Standard instruments were designed to collect information on each of three key components of the study: simulated patient case histories, data from simulated patient visits, and interviews with RDVs. To ensure the validity and reliability of the components, the instruments were simple and unambiguous. They were field tested by the local staff to verify their appropriateness, and if necessary, the instruments were administered in the local language. Most important, the local staff was trained to understand and use the instruments in the same way.

### Simulated Client Case Histories

Two standard case histories were developed: one for an 11-month-old with simple watery diarrhea and one for a 3-year-old with a simple upper respiratory tract infection (URTI). The two conditions were selected because (1) they are very common presentations to RDVs and important causes of morbidity and mortality in the country; (2) they can be presented clearly and unambiguously to RDVs by simulated clients, and (3) they can be presented by mothers directly to RDVs without the child being present. The two case histories, presented in the sidebar, were reviewed by survey team members, translated into Tegrinya, and field tested by simulated clients.

### Simulated Client Recording Form

The survey team developed a checklist to record the findings of the simulated client interaction, including—

- the attitude of the RDV toward the client
- history questions the RDV asked the client
- treatment given to the simulated client based on the standard history, type of drug, dose, and price of the drug
- dispensing practices (labeling, packaging, and dosing)
- treatment instructions

- health information given to the client about home management (fluids, food, recognition of worsening illness, where to go if the child gets sicker, and hygiene/sanitation)

### Simulated Patient Case Histories

#### Patient 1—

*Description:* Child of 11 months.

*Symptoms:* Watery diarrhea for 2 days.

*General health:* Normally eats 3–4 solid meals a day. Since illness, eating less than normal.

*Current health:*

- No vomiting.
- Drinking fluids and can breastfeed.
- No blood in the stool.
- No gas.
- No pain in the abdomen.
- No other symptoms.

#### Patient 2—

*Description:* Child of 3 years.

*Symptoms:* Clear runny nose for 3 days; dry cough for 1 day.

Eating and drinking normally.

*Current health:*

- No fever.

The instrument was reviewed by survey team members, translated into Tegrinya, and field tested with simulated clients. Appendix A is a copy of the Simulated Client Recording Form.

### RDV Questionnaire

A questionnaire, developed for direct interviews with RDVs, included—

- the perceived training needs of RDVs
- methods for conducting training
- availability of essential drugs from Pharmacor
- drugs that RDVs would like added to the list
- perceived barriers in communicating with mothers,
- knowledge of how to treat diarrhea and URTIs

The questionnaire was reviewed by survey team members, translated into Tegrinya, and field tested with RDVs. Appendix B is a copy of the Interview with Rural Drug Vendor questionnaire.

## Conduct of the Survey—Field Work

Three survey teams visited each of the three primary sampling areas. Each team included one surveyor from the MOH pharmacy staff and two simulated clients. The three surveyors were trained in Asmara using role plays and field practice. They practiced how to train and deploy simulated clients, complete the simulated client recording form, and conduct interviews with RDVs.

In Asmara, each survey team recruited and trained two simulated clients: women with some education who could convincingly act the part of a mother with a sick child and who were culturally similar to mothers in the area they would visit. The surveyors trained the simulated clients to ensure that they were able to present accurate and convincing case histories. Each client presented a different case history (either simple diarrhea or URTI).

## Rural Drug Vendors in Eritrea

---

Field work was conducted between January 21–26, 1998. To ensure that the RDVs did not see the simulated clients before or after the visits, the survey teams instructed the simulated clients to walk to the RDV's shop, present the standard case history, and respond to any questions the RDV asked, based on the standard history. When the visit was over, the simulated client purchased any drugs given by the RDV. Immediately after the meeting with the RDV, the surveyors interviewed the simulated clients using the Simulated Client Recording Form (Appendix A). Two observations were conducted (simple diarrhea and URTI) for each RDV. When the observations were complete, the surveyor visited the RDV and conducted an interview with the RDV using the Interview with Rural Drug Vendor (Appendix B). After the two simulated observations and RDV interviews were completed, the team moved on to the next RDV.

## Data Analysis

Questionnaires were returned to Asmara and coded by MOH staff. The results revealed the following:

- Treatment for diarrhea was considered to be correct if oral rehydration solution (ORS) was given. Antibiotics, antispasmodics, or antimotility agents were not considered correct.
- Treatment for URTI was considered to be correct if antipyretics, antitussives, decongestants, or nothing was given. Giving antibiotics was not considered correct.

The dose of the drug given by the RDV was compared with national treatment guidelines by child's age. Data from both survey instruments (Appendices A and B) were entered into Epi Info version 6.02 software (produced by the Centers for Disease Control and Prevention, Atlanta, Ga., 1994) by MOH Pharmacy Department staff. They conducted the analysis in collaboration with a consultant epidemiologist. Data were summarized as simple tables and graphs and discussed with the pharmacy department staff. The survey team developed strategies for improving the practices of RDV based on the discussions. Preliminary findings were presented to MOH staff and other partners on January 28, 1998.

# Results

Results from the study were presented in several categories: general descriptive information; clinical practice, including treatment practices, history questions asked, health communication, and dispensing; drug availability; attitude of RDV; and training needs.

## Descriptive Information

Fifty-nine RDVs were observed by simulated clients and 57 RDVs were interviewed. Fifty-nine cases each of simple diarrhea and URTI were presented to RDVs, for a total of 118 case observations. The breakdown by type of RDV and geographic area is presented in table 2. Fifty-six percent of all RDVs sampled were barefoot doctors, 37 percent were health assistants, and 7 percent were nurses.

Forty-three percent of the barefoot doctors had 6 to 8 years of education and 57 percent had 9 to 12 years of education.

**Table 2. Final Sample of Rural Drug Vendors by Area**

Sample Area	Number of Rural Drug Vendors			Total
	Barefoot Doctors	Health Assistants	Nurses	
Dehub	9	9	3	21
Gash-Barka	13	6	0	19
Anseba/North Red Sea	11	7	1	19
<b>Total</b>	<b>33</b>	<b>22</b>	<b>4</b>	<b>59</b>

Source: Eritrea Drug Vendor Survey, January 1998.

## Treatment Practices

Of the 118 cases presented to RDVs, 111 (94 percent) were given treatment. Thirty of 118 (25 percent) of all cases were treated correctly.

### Treatment for Simple Diarrhea

Of the cases of diarrhea, 52 of 59 (88 percent) were given antibiotics and 13 of 59 (22 percent) were given both ORS and drugs. Treatment for diarrhea is summarized in table 3 and in figure 2. While the proportion of cases of simple diarrhea treated correctly was 10 percent (6 of 59), 5 of 34 (15 percent) of the barefoot doctors treated diarrhea correctly; 1 of 25 (4 percent) of health assistants or nurses treated diarrhea correctly.

Figure 2. Treatment of Simple Diarrhea

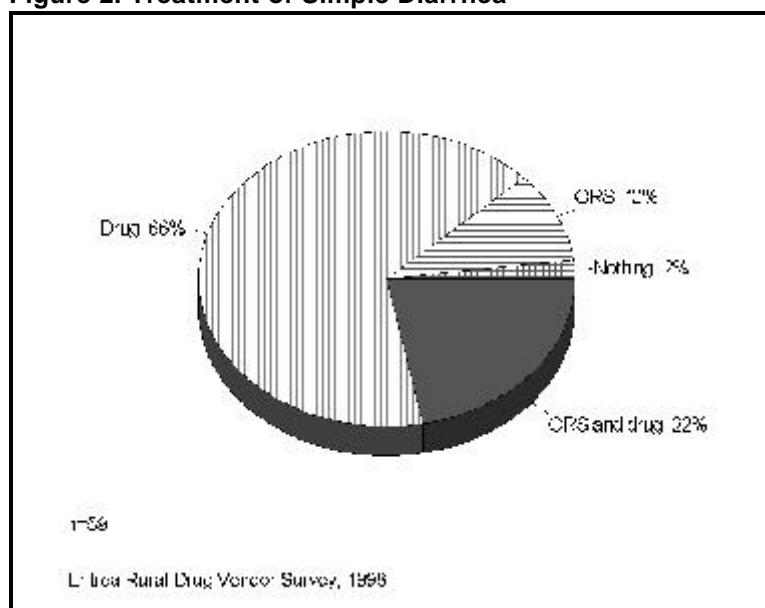


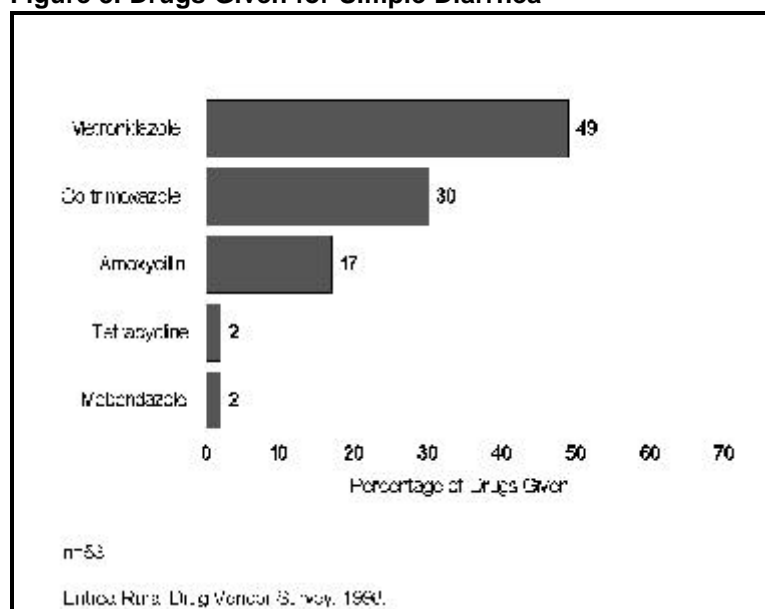
Table 3. Treatments Given for Simple Diarrhea by Rural Drug Vendors (RDV)

Treatments Given	Number of Cases Treated by RDVs		Total
	Health Assistants/ Nurses	Barefoot Doctors	
ORS only	1	5	6
Drug	18	21	39
ORS and drug	6	7	13
Nothing	1	0	1
<b>Total</b>	<b>26</b>	<b>33</b>	<b>59</b>

Source: Eritrea Drug Vendor Survey, January 1998.

The types of drugs given for simple diarrhea are summarized in figure 3. The most commonly given medication was metronidazole syrup, given by 26 of 52 (49 percent) [50% meant?], followed by co-

**Figure 3. Drugs Given for Simple Diarrhea**



trimoxazole syrup given by 16 of 52 (30 percent).

### Treatment for URTI

Twenty-four of 59 cases of URTI (41 percent) were treated correctly. A higher percentage of nurses and health assistants (46 percent) than barefoot doctors (36 percent) treated URTI appropriately.

Thirty-five cases (59 percent) were given antibiotics, 8 (14 percent) aspirin or paracetamol, and 8 (14 percent) cough syrups, decongestants, and inhalation. Treatment for URTI is summarized in table 4 and in figure 4.

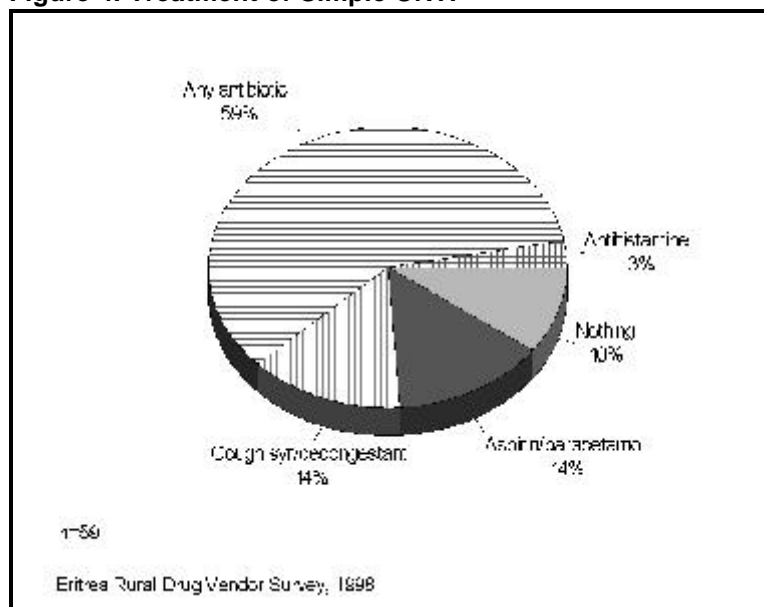
**Table 4. Treatments Given for URTI by Rural Drug Vendors (RDV)**

Treatments Given for URTI	Number of Cases Treated by RDVs		Total
	Health Assistants/ Nurses	Barefoot Doctors	
Any antibiotic	14	21	35
Aspirin/paracetamol	7	1	8
Cough syrup/decongestant/ inhalation	4	4	8
Antihistamine	0	2	2
Nothing	1	5	6
<b>Total</b>	<b>26</b>	<b>33</b>	<b>59</b>

URTI = upper respiratory tract infection

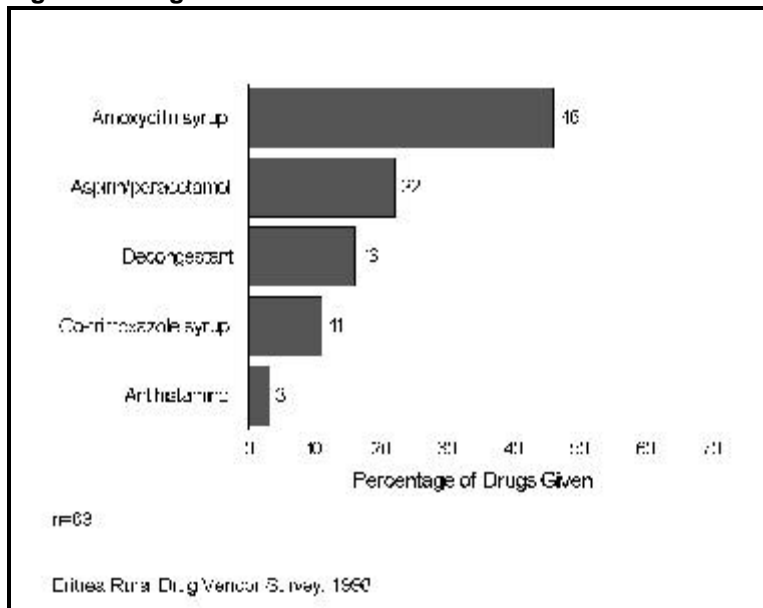
Source: Eritrea Drug Vendor Survey, January 1998.

**Figure 4. Treatment of Simple URTI**



The types of drugs given for URTI are summarized in figure 5. The most commonly given medication, amoxicillin syrup, was given by 29 of 54 (54 percent); 8 of 54 (15 percent) gave aspirin or paracetamol, 8 of 54 (15 percent) gave cough syrup or decongestant, and 7 of 54 (13 percent) gave co-trimoxazole syrup.

**Figure 5. Drugs Given for URTI**



### Prescribing Practices

When ORS was given, the dose was correct in 15 of 19 cases (80 percent). The most frequent prescribing error was that instructions were not given on the number of days to continue the treatment.

Antibiotics were given correctly in 34 of 89 cases (38 percent). The most frequent prescribing error was that clients were not told how many days to take the medication.

### Knowledge and Practice

Of all RDVs, 36 of 57 (63 percent) knew how to treat simple diarrhea but only 10 percent were observed to treat simple diarrhea correctly. Thirty-seven of 57 RDVs (65 percent) knew how to treat URTI but only 41 percent were observed treating URTI correctly. RDV knowledge and practice are summarized in 6a and 6b.



Figure 6a. Treatment of Simple Diarrhea: Knowledge and Practice of RDVs

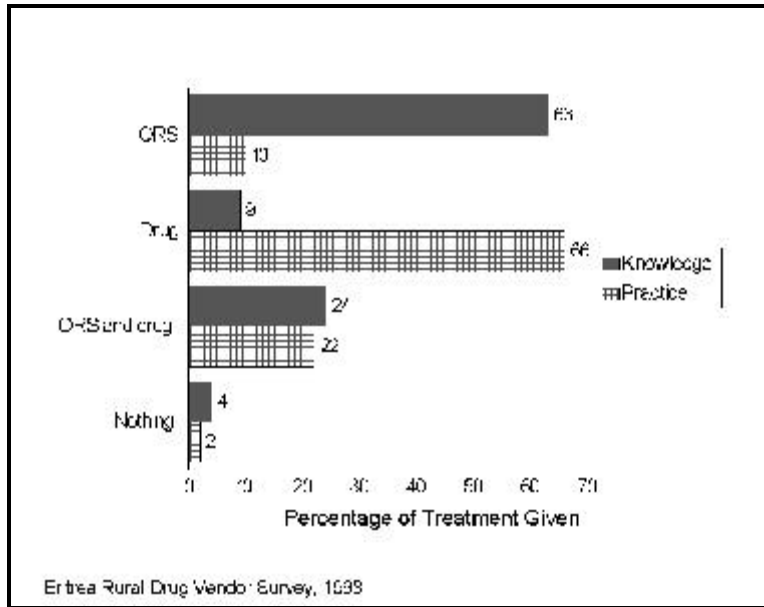
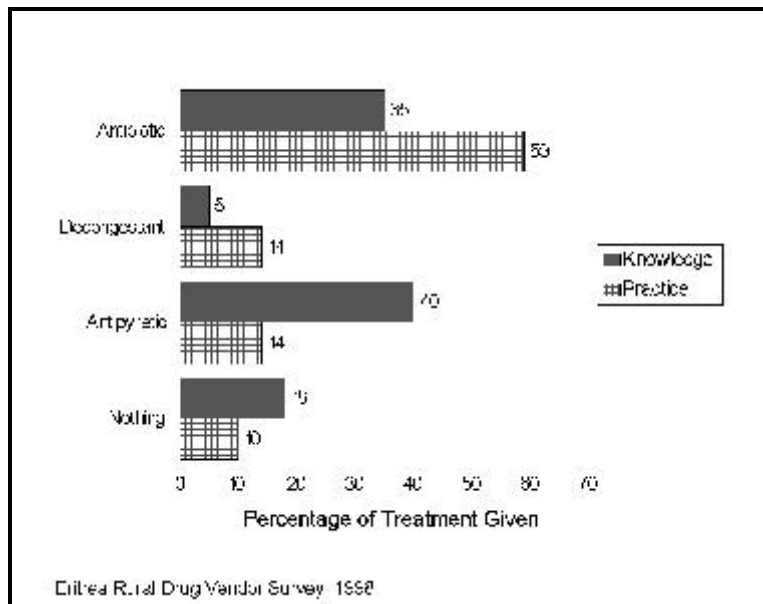


Figure 6b. Treatment of URTI: Knowledge and Practice of RDVs



## History Questions Asked

The RDVs asked 116 of 118 clients (98 percent) questions about their health history. The distribution of questions by case is presented in table 5. The most frequently asked question was the client's age; RDVs asked 110 of 116 clients (95 percent). The questions asked less frequently were the sick child's ability to drink fluids and eat, and if the child was experiencing fast or difficult breathing. Women who presented simulated cases of diarrhea were asked questions about the child—the ability to drink or eat and if there was blood in the stool—more frequently than were women presenting cases of URTI. Both sets of clients were infrequently asked questions about fast or difficult breathing.

**Table 5. History Questions Asked Clients by Rural Drug Vendors**

History Questions	Percentage of Clients Asked		
	Simple Diarrhea n = 58	URTI n = 58	Total (%) n = 116
Age	93	97	95
General condition	29	28	28
Able to drink and/or breastfeed	12	0	6
Able to eat	9	0	4
Duration of illness	50	50	50
Blood in the stool	31	0	16
Fast or difficult breathing	3	3	3
Fever	35	37	46

URTI = upper respiratory tract infection

Source: Eritrea Drug Vendor Survey, January 1998.

## Health Communication

Messages given to clients are summarized in table 6. Three of 118 clients (3 percent) were told to continue fluids at home and no clients were given messages about continued feeding. None of the RDVs told the client how to recognize if the child was getting worse at home. Nine of 118 (8 percent) were told to return to the RDV if the child got worse. No hygiene or sanitation messages were given. None of the observed RDVs confirmed that the mothers understood how to give oral medications. This is an important component of treatment counseling practice, believed to be necessary to improve compliance with medications at home.

**Table 6. Messages Given to Clients by Rural Drug Vendors**

Message Given	Percentage of Cases		Total Messages (%) n = 118
	Simple Diarrhea n = 59	URTI n = 59	
Continue fluids/breastfeed at home	2	3	3
Continue or increase food	0	0	0
How to recognize worsening illness	0	0	0
What to do if illness gets worse	5	10	8
Sanitation and hygiene	0	0	0
Ask if caretaker understands how to take medications	0	0	0

Source: Eritrea Drug Vendor Survey, January 1998.

## Dispensing

Dispensing practices are summarized in table 7. Of all the drugs given, 110 of 111 (99 percent) had the drug labeled correctly and all the drugs were in the appropriate packaging. The drug dose was labeled on 13 of 111 (12 percent) of the drugs given.

**Table 7. Dispensing Practices of Rural Drug Vendors (RDV)**

Dispensing Practice	Percentage of RDVs		Total (%) n = 111
	Health Assistants/ Nurses n = 49	Barefoot Doctors n = 62	
Drug name labeled	100	98	99
Drug dose labeled	8	15	12
Drug packaging appropriate	100	100	100

Source: Eritrea Drug Vendor Survey, January 1998.

The range of drug prices and mean prices for amoxicillin, co-trimoxazole, metronidazole, ORS, and paracetamol are summarized in table 8. The expected sales prices, assuming a 25 percent mark-up, are listed in the final column. Based on the mark-up, all drugs in the study were sold at a price higher than the estimated Pharmacor price.

**Table 8. Drug Sale Prices and Expected Pharmacor Prices**

Medication	Price Range (Ncf)	Mean Price (Ncf)	Expected Pharmacor Sale Price (Ncf)
Amoxicillin syrup (100 ml)	9.0–15.0	10.00	7.97
Co-trimoxazole syrup (100 ml)	6.5–12.0	9.00	6.15
Metronidazole syrup (100 ml)	6.0–13.0	9.00	5.15
ORS packet	1.0–03.0	1.60	1.02
Paracetamol syrup (100 ml)	6.0–10.0	8.20	4.90

Ncf = unit of currency in Eritrea.

Source: Eritrea Drug Vendor Survey, January 1998.

## Drug Availability

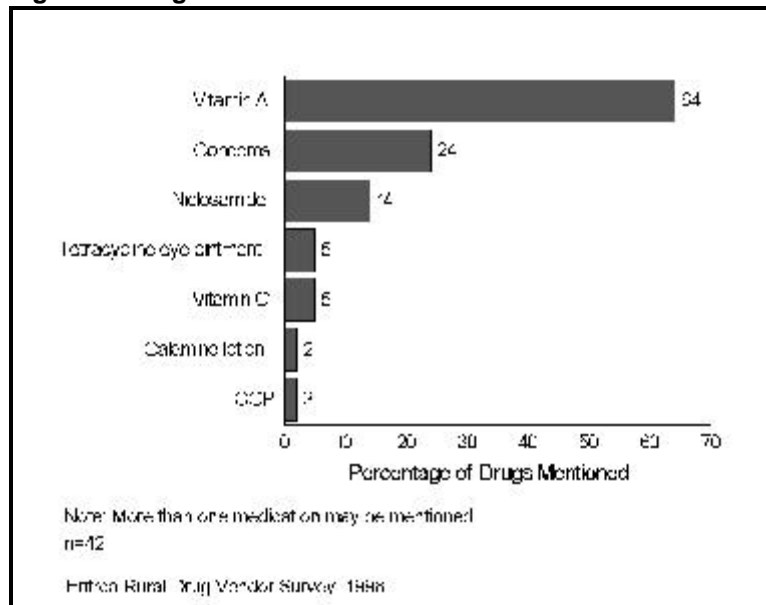
A total of 42 of 57 RDVs (74 percent) reported difficulty getting at least one essential drug in the previous 12 months. Vitamin A (named by 27 RDVs), condoms (named by 10 RDVs), and niclosamide (named by 6 RDVs) were reported most frequently as being unavailable. Co-trimoxazole, tetracycline eye ointment, and vitamin C tablets were each mentioned by two RDVs. Drugs reported to be unavailable in the previous 12 months are summarized in figure 7.

## Rural Drug Vendors in Eritrea

---

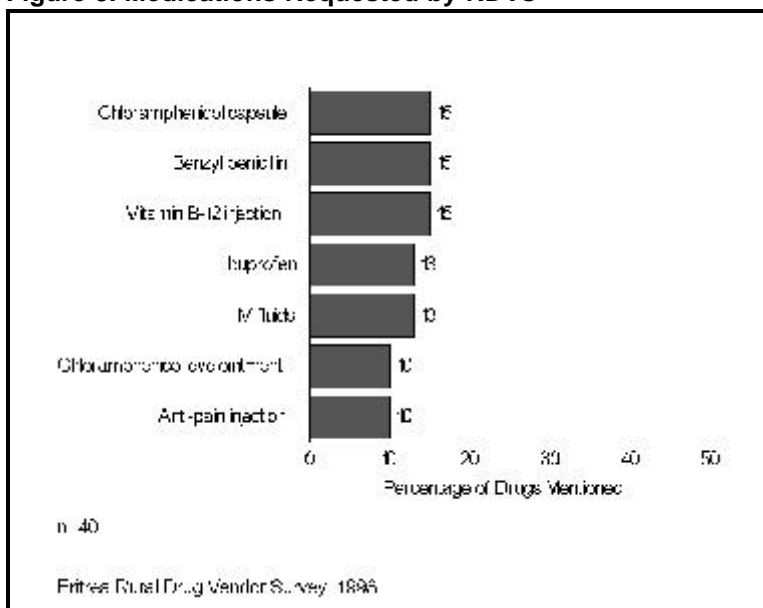
Forty of 57 RDVs (70 percent) wanted additional drugs for routine use that were not included on the standard drug list. Drugs named most frequently were chloramphenicol capsules, benzyl penicillin, and vitamin B12 injection (named by six RDVs each), and ibuprofen (named by five). Drugs requested by RDVs are summarized in figure 8.

**Figure 7. Drugs Not Available Past 12 Months**



## Attitude of RDVs

Figure 8. Medications Requested by RDVs



A total of 52 of 57 RDVs (91 percent) said that they could give more information to the caretakers of young children. The perceived barriers to giving more information are summarized in table 9.

**Table 9. Perceived Barriers to Giving More Information to Caretakers**

Barrier	Percentage of Rural Drug Vendors		Total (%) n = 57
	Health Assistants/ Nurses n = 29	Barefoot Doctors n = 28	
No barriers present	45	39	42
Mothers don't understand	24	14	19
No time	14	7	11
I don't have knowledge	3	11	7
No materials	0	11	5
Language barriers	14	21	18

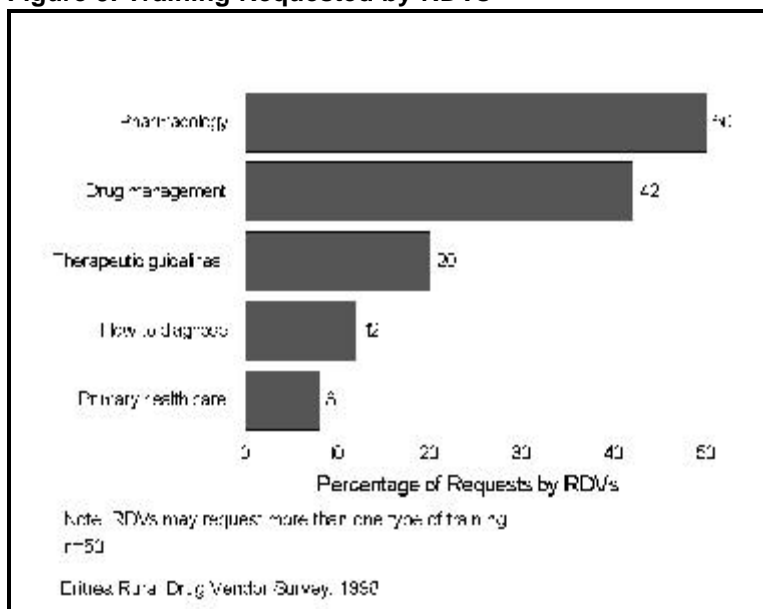
Source: Eritrea Drug Vendor Survey, January 1998

## Training

A total of 50 of 57 RDVs (88 percent) requested further training. The types of training preferred are summarized in figure 9. The training most frequently requested were pharmacology (named by 25 RDVs), drug management (named by 21 RDVs), and therapeutic guidelines (named by 10 RDVs).

When asked about the training method, 36 RDVs (72 percent) said they preferred small group and local training and 14 RDVs (28 percent) preferred larger workshops. The majority of RDVs (64 percent) preferred training, lasting at least one month, during the first quarter of the year.

**Figure 9. Training Requested by RDVs**





# Discussion and Conclusions

## Treatment Practices

The rural drug vendor study demonstrated that the treatment practices of RDVs for simple watery diarrhea and simple URTIs, in the majority of cases, are not consistent with national guidelines. Simple diarrhea is most frequently managed with antibiotics alone. ORS is underused. URTIs are also most frequently managed with antibiotics. A marked difference exists between the knowledge of RDVs about how to manage simple diarrhea and URTIs and their actual practice (knowledge–practice gap). These data suggest that many RDVs understand the correct practice but they do not use their knowledge when they treat patients. As noted from Pharmacor records, the increased use of antibiotics by RDVs during the past three years, throughout the country, may be attributable to inappropriate overuse of antibiotics.

The gap between the RDVs' knowledge and practice may be explained by financial incentives to prescribe more expensive drugs, such as antibiotics; client demands or expectations; and concerns that the diagnosis may actually be more severe than that indicated by the caretaker. Drug availability did not contribute to the misuse of antibiotics. Data from RDVs on the availability of essential drugs indicate that they did not have shortages of ORS, aspirin/paracetamol, or other simple drugs that could be appropriately used to treat diarrhea and URTI. Many RDVs reported that some essential drugs were not available during the previous 12 months, although most of these drugs were not essential for managing the most common medical problems. Similarly, many RDVs wanted drugs added to the existing essential drug list. It is not clear, however, whether the majority of drugs requested would allow RDVs to treat common problems more effectively. Some of the requested drugs are potentially dangerous.

Data on RDVs prescribing practices indicate that when antibiotics are given, only 38 percent of their clients were able to describe the correct dose. Based on information from the study, dosing instructions were not given systematically. In most cases the dose of the medication was not labeled on the package. Clients were not asked to repeat dosing instructions to ensure that they understood the correct dose. RDVs are not following practices that ensure the drugs they give will be taken correctly. Prescribing practices for ORS were better; 80 percent of clients were able to describe the correct way to give ORS.

The widespread overuse of antibiotics in sub-therapeutic doses may have three important potential consequences: (1) increased possibility of antimicrobial resistance developing throughout the country, and, in the long term, limited therapeutic options for other infectious diseases; (2) negative health outcomes; and (3) the financial burden for families whose children could be treated with less expensive forms of therapy. Cost savings would be substantial if antibiotics were used appropriately.

## Conclusions

Treatment practices of RDVs can be summarized as follows:

- Antibiotics are misused for the treatment of simple diarrhea and URTIs.

- A gap exists between the knowledge and practices of RDVs for the management of simple diarrhea and URTIs. RDVs do not always prescribe the correct drug even if they have the correct knowledge.
- RDVs often do not give clear instructions on the dosing of antibiotics. RDVs do not routinely label drugs with the correct dose, and they do not routinely ensure that clients understand how to give the medication at home.
- RDVs reported some drug supply problems in the previous 12 months, and they have requested that additional drugs be added to their essential drug list. Drug supply and availability should be reviewed.

### Health Communication by RDVs

Although most RDVs ask clients some simple history questions (usually age and a description of the condition), very few RDVs ask key history questions. The questions and their answers are important if the RDVs are to understand the client's underlying medical problem. Few clients presenting simulated cases of simple diarrhea were asked about a history of bloody diarrhea (suggestive of an underlying bacterial or amebic cause for which an antibiotic is indicated) or about the ability of the child to drink fluids (important for determining if the child can tolerate oral fluids). Few cases presenting simulated cases of URTI were asked about a history of fast or difficult breathing (suggestive of pneumonia, for which an antibiotic is indicated). By asking focused history questions, RDVs can make informed decisions about whether or not to give an antibiotic. Training and supervision activities could emphasize the importance of asking a few key history questions.

Health information messages were not given routinely. Very few RDVs gave any messages on the importance of continuing feeding or breastfeeding a sick child, the need to continue fluids, or how to recognize if the child is getting sicker at home. Continued feeding and fluids are important for any sick child, and they can reduce the likelihood of dehydration and secondary malnutrition. Similarly, the caretakers of young children should be able to recognize when their child is getting sicker so they can seek appropriate care early. Delayed care seeking increases the likelihood that the child will become severely ill or die.

RDVs could routinely give simple messages about feeding, fluids, and warning signs of worsening illness. The most frequently cited barriers to giving more information to clients were that women did not understand education messages, that RDVs did not have enough time for health education, and that there were language barriers between RDVs and their clients. These factors should be considered when strategies are developed for improving health communication between RDVs and their clients.

### Conclusions

Health communication by RDVs can be summarized as follows:

- RDVs do not routinely give health education messages to their clients.

- RDVs do not routinely ask simple history questions to determine if an antibiotic is indicated.
- RDVs perceive several barriers to giving health information to their clients, including a lack of time and language barriers. These factors should be taken into consideration when strategies are designed to improve health communication skills.

### Training Needs of RDVs

Most RDVs requested additional training, primarily in pharmacology, drug management, and therapeutic guidelines. Several RDVs mentioned that they wanted to improve their skills in diagnosis and management. Most preferred small group training in the first quarter of the calendar year. The majority of RDVs prefer training that lasts one month or longer. Small group training has been shown to be effective for RDVs in other settings, for example in Kenya. A small group allows open exchange between trainers and RDVs (World Health Organization 1994) and both groups can discuss and resolve concerns about suggested new practices. RDVs are the only source of primary health care in more remote areas; it is critical that RDVs improve the quality of the care they provide for simple and common medical conditions. In addition, it is critical that they know how to provide simple health education messages to their clients.

It is also important to tailor revised training programs to the needs of RDVs. Training should not be too technical or detailed, although it must provide enough information to improve the quality of their performance. An additional challenge is how to change the practices of RDVs when their skills and knowledge improve. As mentioned before, RDVs already have a substantial knowledge–practice gap. It is unlikely that training alone will improve their practices. Strategies to improve their performance must take into account the barriers that prevent changes, such as financial motives for selling drugs and demands from clients.

### Conclusions

Training needs of RDVs can be summarized as follows:

- Most RDVs want more training to help them in their daily practice.
- Training activities must include simple ways to improve the quality of practice, including health education.
- Training should include other strategies that consider the barriers to adopting improved practices.

## Developing Program Interventions

The data collected by the rural drug vendor study can be used to develop strategies for improving the practices of RDVs in Eritrea. Using locally available resources, many approaches are possible. The following options are being considered by the Ministry of Health:

*Conduct formative research to identify barriers to improved practice.*

The study identified a number of gaps in the treatment and health communication practices of RDVs. To develop strategies for improving these practices, it is important to understand why RDVs practice the way they do and why they may be unable to improve their practice. Focus groups for RDVs, in several locations, would provide useful qualitative data to help researchers understand the behavior of RDVs. Groups could be conducted quickly with relatively few resources.

*Develop a revised training program.*

RDVs need a revised program that includes training on how to improve treatment practices and how to practice rational drug use. Training materials should emphasize the importance of giving essential health messages. Data from the RDV survey could guide the content of the new materials. Training should take into account the barriers to improved practice and attempt to address them. A revised training program could be linked with an accreditation system for RDVs. To continue to practice, they could be required to satisfactorily complete the training program.

*Improve the quality of supervision of RDVs.*

Zonal teams already conduct routine supervision of RDVs. This supervision does not, however, routinely include observation of RDVs' practice. Using the simulated client method, a revised supervisory tool could be developed to collect information on treatment practices and health communication. A brief standard checklist is already in use but it could be revised to include practice observations. Regular supervision with an observation tool could improve RDVs' practices.

*Develop simple educational materials.*

One-page information sheets on common health problems, translated into the local language, have been used in other countries to update RDVs on how to manage simple and common health problems. RDVs can pin these sheets to their wall and use them as a reference. In addition, printed materials could be used to assist with counseling, for example, counseling cards that use pictures to convey key messages. During training, RDVs could be given cards and taught how to use them. Having materials available may encourage RDVs to practice health education more regularly.

*Use opportunities provided by visits to Pharmacor for annual licensing.*

All RDVs go to Pharmacor a few times a year and they must collect a new license every year. These visits provide opportunities for contacting RDVs. At each visit, for example, they could be given a simple one-page information sheet on different topics. Each visit would reinforce a different practice message.



## Evaluating Interventions with RDVs

The baseline data collected in the RDV study was used to develop interventions to improve the practices of RDVs. After the program is implemented, the practices of RDVs should be evaluated to determine if program interventions had an impact on their practice. The Pharmacy Department may also want to set targets for selected key RDV practice measures and establish a time frame for the follow-up evaluation. The re-evaluation will compare actual practice on the key measures against the targets. This type of periodic evaluation can determine if program strategies are working, and the information they provide can be used to modify existing strategies that are not working.



## References

- Eritrea Ministry of Health and the World Bank. 1997. *Eritrea Household Health Status Utilization and Expenditure Survey*. Asmara: Eritrean Ministry of Health.
- Eritrea National Statistics Office, Department of Macro Policy and International Economic Cooperation, Office of the President; and Macro International, Inc. March 1997. *Eritrea Demographic and Health Survey (DHS) 1995*. Calverton, Md.: Macro International, Inc.
- Goel, P. K., D. Ross-Degnan, T. J. McLaughlin, and S. B. Soumerai. 1996. Influence of location and staff knowledge on quality of retail pharmacy prescribing for childhood diarrhoea in Kenya. *Int. J. Qual. Health Care* 8(6):519–26.
- Igun, U. A. 1994. The knowledge-practice gap: An empirical example from prescription for diarrhoea in Nigeria. *J. Diarrhoeal Dis. Res.* 12(1):65–69.
- Madden, J. M., J. D. Quick, D. Ross-Degnan, and K. K. Kafle. 1997. Undercover careseekers: Simulated clients in the study of health provider behavior in developing countries. *Soc. Sci. Med.* 45(10):1465–82.
- Orobaton, N., and Eritrea Ministry of Health/Pharmacy. October 23, 1997. The role of rural drug vendors in health services in Eritrea. Discussion paper. BASICS/MOH Eritrea.
- Tomson, G., and G. Sterky. 1986. Self-prescribing by way of pharmacies in three Asian developing countries. *Lancet* 2(8507):620–22.
- WHO/CHD. 1994. Improving the practices of pharmacists and licensed drug sellers. *WHO Update* 18:1–4.





# Appendices: Survey Instruments

Appendix A. Eritrea Ministry of Health: Simulated Client Reporting Form

Appendix B. Eritrea Ministry of Health: Interview with Rural Drug Vendor



**Appendix A**  
**Eritrea Ministry of Health: Simulated Client Recording Form**

Date: (mm/dd/yyyy) \_\_\_\_\_ Team number: \_\_\_\_\_  
 Name of RDV: \_\_\_\_\_ Name of \_\_\_\_\_  
 Type of RDV (check one): Barefoot Doctor \_\_\_\_\_ Health Assistant \_\_\_\_\_ Nurse \_\_\_\_\_

A. Ask the simulated clients the following questions after their the visit to the rural drug vendor (RDV):

1. What was the case presented to the RDV? Check one.  
 Simple Diarrhea \_\_\_\_\_ URTI \_\_\_\_\_
2. How were you approached by the RDV? **Check only one.**  
 Polite/respectful \_\_\_\_\_ Indifferent/not interested \_\_\_\_\_ Abusive \_\_\_\_\_
3. Did the RDV ask you any questions about the child's illness? Circle **Y** for **Yes**. Circle **N** for **No**. Y N
4. If you circled **Y** for **yes**, what questions did the RDV ask? Circle all that apply.
 

Age of the child?	Y	N
Child's general condition?	Y	N
Whether the child is able to drink fluids/breastfeed?	Y	N
Whether the child is able to eat food?	Y	N
Duration of child's illness?	Y	N
Whether child has blood in the stool?	Y	N
Whether the child had fever?	Y	N
Other ? (specify) _____	Y	N
5. Did the RDV give you anything to treat the child? Y N  
 If **Yes**, what drug or treatment were you given? \_\_\_\_\_  
**Diarrhea** (Check only one.)  
 ORS \_\_\_\_\_ Drug \_\_\_\_\_ ORS and Drug \_\_\_\_\_ Nothing \_\_\_\_\_  
 Other (specify) \_\_\_\_\_  
**Respiratory tract infection** (Check only one.)  
 Antibiotic \_\_\_\_\_ Aspirin/paracetamol \_\_\_\_\_ Antibiotic **and** cough syrup/ decongestant/ inhalation \_\_\_\_\_  
 Cough syrup/ decongestant/ inhalation \_\_\_\_\_ Nothing \_\_\_\_\_ Other (specify) \_\_\_\_\_
6. Were all drugs labeled with the name of the medication? Y N
7. Were all drugs given in appropriate packaging? Y N

8. Were all drugs labeled with the dosage instructions? Y    N

---

**Appendix A (continued)**

9. Did the RDV ask you to repeat the instructions about how to give the medication? Y    N

B. For each drug given, complete the table below:

As required = <b>AR</b> Until completed = <b>UC</b> Don't know = <b>DK</b>				
Drug name and type: (tablet, syrup, injection, other)	Dose		Total quantity given	Total price
	Amount each time			
	Times per day			
	Number of days			
<b>Supervisor coding box</b>				

1. Was the antibiotic dose correct? Y    N

2. Was the ORS dose correct? Y    N

C. Did the RDV explain the following:

1. The need to continue *fluids or breastfeeding* for the child at home? Y    N

2. The need to continue or increase *feeding* of the child at home? Y    N

3. How to recognize if the child is getting worse at home? Y    N

If **Yes**, what did the RDV say? (Check all that apply.)

Child gets sicker.  Child not eating.

Child not drinking or breastfeeding.  Child has convulsions.

Child develops blood in the stool.  Child develops fast/difficult breathing.

Other: (specify)

4. What to do if the child is getting worse at home? Y    N

If **Yes**, what did the RDV say? (Check all that apply.)

Return to the RDV.  Go to the health station/health center/hospital.

Go to a traditional healer.  Go to a private doctor.

Other: (specify)

5. Did the RDV give you any information on safe drinking water or how to prepare and store food safely? Y    N

**Appendix B**

**Eritrea Ministry of Health: Interview with Rural Drug Vendor**

**End of the Simulated Client Recording Form**

---

Date: (mm/dd/yyyy) \_\_\_\_\_ Team number: \_\_\_\_\_

Name of RDV: \_\_\_\_\_ Name of town/village: \_\_\_\_\_

Qualification of RDV: ~~Barefoot Doctor~~ Health Assistant ~~Nurse~~ \_\_\_\_\_

Educational Background: 1–5 yrs. 6–8 yrs. 9–12 yrs. Training college University

---

A. Introduce yourself to the RDV. You can use the following words as a guide:  
The Ministry of Health is conducting a survey to identify ways to improve the training and support for rural drug vendors. I would like to ask you a few questions about your training and drug supply. Your answers will be confidential.

B. Ask the RDV the following questions after the clients complete their visit.

6. Do you need and/or want additional training? Y N

If the answer is No, go to question 2

- a. What type of training do you need? (Write the topics) \_\_\_\_\_
- (a) \_\_\_\_\_ (b) \_\_\_\_\_ (c) \_\_\_\_\_
- b. What type of training method would you prefer? (Check only one)
- Small group training in the local area \_\_\_\_\_ Large group training in a city \_\_\_\_\_
- c. What length of training would you prefer? (Check only one)
- 1–2 days \_\_\_\_\_ 2–4 weeks \_\_\_\_\_ 1 month or more \_\_\_\_\_
- d. What period of the year is the best for you to receive training? (Check only one)
- Jan–April \_\_\_\_\_ May–Aug \_\_\_\_\_ Sept–Dec \_\_\_\_\_

7. Is the current drug list for RDVs enough for the regular management of common drug requests? Y N

If the answer is No, what three (3) drugs would you include? Write the names of the next line.

- (a) \_\_\_\_\_ (b) \_\_\_\_\_ (c) \_\_\_\_\_

8. In the past 12 months, have any drugs not been able to get regularly from Pharmacor? Y N

If the answer is Yes, which drugs have you not been able to get most often in the last 12 months? (Check all drugs in the list below that apply.) \_\_\_\_\_

- Condoms \_\_\_\_\_ Vitamin A \_\_\_\_\_ Oral contraceptives \_\_\_\_\_
- Antimalarials (specify) \_\_\_\_\_ Aspirin/paracetamol \_\_\_\_\_ Other: (specify) \_\_\_\_\_

**Appendix B**

**Eritrea Ministry of Health: Interview with Rural Drug Vendor**

Antibiotics (specify)

ORS

—

—

**Appendix B (continued)**

---

*If the answer is No, what three (3) drugs would you include? Write the names of the next line.*

(a) \_\_\_\_\_ (b) \_\_\_\_\_ (c) \_\_\_\_\_

4. Are you able to give more information to mothers on how to look after their children at home? Y N

5. What do you think are the *barriers* to giving more information to mothers on how to look after their children at home? Check all that apply.

No barriers \_\_\_\_\_ Mothers don't understand \_\_\_\_\_ No time \_\_\_\_\_ I don't have enough knowledge \_\_\_\_\_

No materials \_\_\_\_\_ Language barriers \_\_\_\_\_ Other (specify): \_\_\_\_\_

6. What would you give to a child with watery diarrhea?

ORS \_\_\_\_\_ Drug \_\_\_\_\_ ORS and Drug \_\_\_\_\_ Nothing \_\_\_\_\_

Other: (specify) \_\_\_\_\_

7. What would you give to a child with a runny nose/cold?

Antibiotic \_\_\_\_\_ Cough syrup/decongestant/inhalation \_\_\_\_\_ Aspirin/paracetamol \_\_\_\_\_

Antibiotic **and** cough syrup/decongestant/inhalation \_\_\_\_\_ Nothing \_\_\_\_\_

Other: (specify) \_\_\_\_\_

C. *End the interview. You can use the following words as a guide:*

Thank you for participating in this survey. Do you have any questions? Do you have any suggestions or comments about how the MOH could help you in your work?

Comment: \_\_\_\_\_

**End of Interview with Rural Drug Vendor**