

MANAGEMENT OF ACUTE RESPIRATORY INFECTIONS AND DIARRHOEA DISEASES IN CHILDREN OF ALBANIA

(AN EVALUATION OF NATIONAL PROGRAMMES BASED ON HEALTH SERVICES)

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Management of acute respiratory infections and diarrhoea diseases in children of Albania

(An evaluation of national programs on ARI/CDD*, based on health services)

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* Note: Acronyms ARI and CDD stand respectively for "Acute Respiratory Infections" and "Control of Diarrhoea Diseases"

1. INTRODUCTION

1.1 Objectives of the survey

The overall objectives of the health facility survey are:

- To describe practices of health workers with regard to acute respiratory infections or diarrhoea case management at health centres and hospitals of Albania
- To detect and describe problems within the health facilities that may prevent good case management practices
- To assess progress towards programme targets, using programme indicators of ARI and CDD programmes.

The survey will provide information about:

- How health workers assess and classify infants and children with cough and difficult breathing or diarrhoea
- How health workers treat these infants and children, including the advice they give on home care practices and the use of antibiotics and other drugs
- What caretakers know about how to provide home care, ore give antibiotics and other drugs
- What health workers know about standard case management guidelines
- The adequacy of clinic supplies and facilities for the case management of acute respiratory infections and diarrhoea
- The level and timing of supervision

1.2 Main indicators

The indicators suggest or indicate the extent of programme acheivement or the level of some condition that may be affected by programme activities. Main indicators of the quality of case management and training coverage measured by survey are presented below:

CDD Programme

- Diarrhoea cases correctly assessed
- Diarrhoea cases correctly rehydrated
- Diarrhoea cases in which mothers were correctly advised on home case management
- Diarrhoea cases correctly managed at health facilities
- Health workers trained in diarrhoea case management
- Health workers supervised in their work
- Health facilities with staff trained in diarrhoea case management

ARI Programme

- Health facilities able to give standard ARI case management (that is, they have at least one trained staff member)
- Pneumonia cases at health facilities who receive standard case management
- Health facility staff trained in standard ARI case management
- Caretakers of ARI patients seen at health facilities, advised on home care
- ARI cases at health facilities whom antibiotics are given though they are subjects that should not receive them

1.3 List of sampled health centers

In the sample were included altogether 60 health facilities from 26 districts. Eleven other districts (Gramsh, Kolonja, Kurbini, Malsi e Madhe, Mallakastra, Peqini, Permet, Puka, Saranda, Skrapar, Tropoja) did not participate with health facilities in the sample due to their small health facility population catchment.

District Code	Health facility Name	District Code	Health facility Name
VL	ARMEN	KJ	LEKAJ
LE	BALLDREN	LE	LEZHE
EL	BELSH	LB	LIBRAZHD
BR	BERAT hospital	LU	LUSHNJE 2
PG	BUCIMAS	KU	MALZI
KO	BULGAREC QENDER	DI	MAQELLARE
SH	BUSHAT	TE	MEMALIAJ
FR	CAKRAN	DE	MIRAS
EL	CERRIK	KR	NIKEL
DV	DELVINE hospital	VL	ORIKUM
LU	DIVJAKE	TR	PASKUQAN
KO	DRENOVE	KV	PERONDI
DR	DURRES 1	KO	POJAN
EL	ELBASAN 1	DI	QENDER TOMIN
EL	ELBASAN 2	LB	QUKES
FR	FIER 2	DR	RASHBULL
FR	FIER hospital	MR	RRESHEN 1
FR	FRAKULL	KJ	RROGOZHINE
GJ	GJIROKASTER hospital	SH	SHKODER 2
HA	GOLAJ	SH	SHKODER 3
SH	GURI I ZI	DR	SUKTH
TR	KAMEZ	LU	TERBUF
DR	KATUND I RI	TR	TIRANA 1
KJ	KAVAJE 2	TR	TIRANA 7
MT	KLOS MAT	TR	TIRANA 8
KR	KODER-THUMANE	BR	URA VAJGUORE
MT	KOMSI	VL	VLLAHINE
LU	KRUTJE	VL	VLORE hospital
KU	KUKES hospital	KO	VRESHTAZ
BR	KUTALLI	BU	ZERQAN

2 METHODS

2.1 Sampling method

The sampling method is based on the method proposed by Health Facility Survey Manual. Some details and adjustments for Albanian situation are given below.

To have the appropriate sample of the health facilities we have used a special cluster sampling technique. A cluster consisted on all less than five years old children with any acute respiratory infection and/or diarrhoea diseases visiting a health facility.

In order to save time and other recourses, the small facilities that see on average fewer than two children with acute respiratory infection or diarrhoea diseases a day have been excluded from the sampling procedure. These small facilities have been detected through a preliminary analysis of Albanian weekly surveillance system (ALERT). The same surveillance system has been used to provide a list of health facilities to be included in the sampling frame.

In determining the number of health facilities to be included in the sample we have considered the logistic limitations and other limitations relating to the reliability or consistency among the surveyors.

The sample has been sized using the matrix of desired precision with the expected number of children per day. Health facilities selected in the sample have been randomly chosen from the list (sampling frame). Applying this method the sample size resulted 60 health facilities

To select the individual health facilities of the sample, the above mentioned sampling frame and random numbers were used.

2.2 Forms used in the survey

The information necessary to reach the above mentioned objectives is gathered through a block of standard forms, five for ARI and five for CDD evaluation. The forms were adjusted for Albanian ARI and CDD specific programmes and fully structured.

- Form 1 helps in observation of the case management by health workers.
- Form 2 structures the data from the independent case management by surveyor and the interview of caretaker.
- Form 3 includes a questionnaire for interview with health personnel.
- Form 4 includes a questionnaire relating to the resources of health facilities including human recourses and infrastructure or equipment as well.
- Form 5 gathers additional information on longer-term periods from the registry, with focus to drug prescriptions and diagnoses.

2.3 Surveyors and their qualifications

There was planned only one combined evaluation study of ARI and CDD. Data were gathered by six teams, each formed by two surveyors. One team could evaluate one health facility per day, so the whole fieldwork was carried out by six teams, visiting sixty health facilities of the sample in ten days. For objective reasons the second fieldwork phase of five days was carried out for the CDD part of the survey.

People graduated in medicine and skilled in case management of ARI/DD according to WHO guidelines were selected as surveyors. At least one of the surveyors was practitioner (GP, paediatrician, infectious diseases specialist, etc). The other member of the team was either practitioner or another well-trained health expert from the Ministry of Health or Institute of Public Health. The first one was especially in charge for examining the child independently and the second always observed the management of ARI/CDD cases. Other details on responsibilities and qualifications of the surveyors are given separately.

2.4 Training of the surveyors

The consistency of surveyors' knowledge regarding ARI/CDD case management was crucial for the survey, therefore to their training was devoted all the necessary time and resources. The survey co-ordinator was responsible for the organisation of the training which was held the week before the fieldwork. The programme of the training was developed in five days during which the participants were instructed on:

- how to use the survey forms assigned to the individual surveyor;
- manage the flow of patients and survey activities at the health facility to ensure all tasks can be completed during the visit;
- identify solutions to potential problems in conducting the survey; and the more important:
- how to assure consistency with other surveyors in following the survey procedures and completing the survey forms.

At the end of training session participants underwent a test in order to strengthen their responsibility.

In the training were included three back up persons who might substitute they who quits for personal reasons or they who fail the test.

2.5 Pre-test

Before the training session a pre-test was conducted so that possible problems could be identified in time and procedures could be adjusted. The co-ordinator of the evaluation survey and the manager of the ARI/CDD programmes performed it in one health facility in Tirana

2.6 Method of supervision

One expert chosen among the surveyors, along with survey co-ordinator and programme manager, were assigned to assure the correct applications of survey procedures through the process of active supervision in the field. Other details on responsibilities and qualifications of the supervisors are given separately.

2.7 Quality assurance

Due to the very complicated nature of the information to be collected, a special session was organised during the training to check for the level of reliability and to try to maximize it.

A reliability rating was produced first and the field work started only after all the efforts were done to assure a level of more than 90 average percent of agreement for all surveyors. Supervisors were responsible to check and assure this consistency during the fieldwork. Supervisors were responsible as well for reviewing the forms completed by each surveyor and look for missing or incorrect entries and inconsistencies.

2.8 Data analysis

In order to produce the necessary indicators the data were organised in appropriate data bases and analysed using EPI Info 6 statistical package.

2.9 Assuring the support from Health Authorities

To assure the necessary support from the health authorities and to create a mechanism for appropriately delegating and solving possible problems or conflicts, a network of supportive bodies or focal points was set up. A central supportive body was created in Tirana including the director of the Institute of Public Health, the director of Primary Health Care in the Ministry as well as three other experts from University Hospital and Ministry. In periphery focal points were formed by Mother and Child Care responsables and/or Public Health Care directors. Other details on responsibilities and qualifications of the supportive bodies/focal points are given separately

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3. RESULTS

3.1 MANAGEMENT OF ACUTE RESPIRATORY INFECTIONS IN CHILDREN Analysis and discussions

A- DESCRIPTION OF THE SURVEY

The survey took place during the period 21 March – 9 April 2001. The total number of children with ARI enrolled in the survey was 161. This produces a mean of about 3 children for health facility visited. In five health facilities surveyors were not able to see children with ARI for different reasons. In only three health facilities the number of children was less than two.

In the tables below (1.1 and 1.2), a distribution of health facilities by type and district is presented. There are 26 districts of small, medium, and big size, covered by the survey. It can be observed a correlation between the population of the districts and number of children with ARI seen by district, which is most likely caused by the different district populations and shows the correctness of the sampling procedure.

In almost all the health facilities the personnel surveyed was composed by General Practitioners, many of them trained in paediatrics. Only in one case the health staff, working that particular day with children with ARI, was a nurse.

Table 1.1 *Distribution of health facilities and children observed by district and type of service*

District	Health centers	Hospital (outpatient department)	Urban	Rural	Children with ARI surveyed	Type of the district
Berat	2	1	2	1	14 (8,7%)	Big
Bulqize	1	0	0	1	1 (0,6%)	Small
Delvine	0	1	1	0	3 (1,9%)	Small
Devoll	1	0	0	1	2 (1,2%)	Small
Diber	2	0	0	2	6 (3,7%)	Big
Durres	3	1	1	3	4 (2,5%)	Big
Elbasan	4	0	3	1	12 (7,5%)	Big
Fier	3	1	2	2	11 (6,8%)	Big
Gjirokaster	0	1	1	0	2 (1,2%)	Big
Has	1	0	0	1	1 (0,6%)	Small
Kavaje	3	0	2	1	8 (5,0%)	Medium
Korce	4	0	0	4	6 (3,7%)	Big
Kruje	2	0	0	2	4 (2,5%)	Medium
Kucove	1	0	0	1	2 (1,2%)	Small
Kukes	2	0	1	1	3 (1,9%)	Big
Lezhe	2	0	1	1	6 (3,7%)	Medium
Librazhd	2	0	1	1	8 (5,0%)	Medium
Lushnje	4	0	1	3	20 (12,4%)	Big
Mat	2	0	1	1	5 (3,1%)	Medium
Tepelene	1	0	1	0	3 (1,9%)	Medium
Mirdite	1	0	1	0	2 (1,2%)	Medium
Pogradec	1	0	0	1	1 (0,6%)	Medium
Shkoder	3	1	2	2	9 (5,6%)	Big
Tirane	5	0	3	2	21 (13,0%)	Big
Vlore	3	1	1	3	7 (4,3%)	Big
TOTAL	53	7	25	35	161(100%)	

Table 2 presents the survey coverage. It compares the health facilities surveyed with the population of all health facilities from which the sample was selected.

The percentage of health services covered by the survey ranges from 6% to 33% of all health centres in the district.

Table 1.2 *Health facilities covered by the survey versus the total of health facilities in every district*

District	Total surveyed	Total in district
Berat	3 (19%)	16(100%)
Bulqize	1(10%)	10(100%)
Delvine	1(20%)	5(100%)
Devoll	1(17%)	6(100%)
Diber	2(13%)	16(100%)
Durres	4(27%)	15(100%)
Elbasan	4(15%)	26(100%)
Fier	4(17%)	23(100%)
Gjirokaster	1(6%)	16(100%)
Has	1(20%)	5(100%)
Kavaje	4(33%)	12(100%)
Korce	4(21%)	19(100%)
Kruje	2(28%)	7(100%)
Kucove	1(25%)	4(100%)
Kukes	2(13%)	16(100%)
Lezhe	2(17%)	12(100%)
Librazhd	2(17%)	12(100%)
Lushnje	4(21%)	19(100%)
Mat	2(15%)	13(100%)
Mirdite	1(13%)	8(100%)
Pogradec	1(11%)	9(100%)
Shkoder	4(18%)	22(100%)
Tepelene	1(9%)	11(100%)
Tirane	5(17%)	29(100%)
Vlore	3(17%)	18(100%)
TOTAL	60(17%)	349(100%)

Table 1.3 describes the number of cases observed in each age category. It is presented separately because the less-than-two-months age group is different in terms of strategies evaluation and treatment.

There were only 12 children less than 2 months old, or 8% of the total sample. The progressive growing number of children observed is likely to represent the actual age profile of acute respiratory infection cases visiting Albanian health facilities.

This is another indicator of correctness of the sampling procedure. Cases of patient children were found evenly distributed among health centres or hospitals.

Table 1.3 *Distribution of observed children by age group*

Age	Number of children surveyed
Less than 2 months	12 (8%)
2 months up to 12 months	38 (24%)
13 months up to 24 months	37 (23%)
25months up to 36 months	30 (19%)
37 months up to 48 months	28 (17%)
49 months up to 60 months	16 (9%)
Total 2 months up to 5 years	149 (92%)
All age groups	161 (100%)

Mostly medical doctors, some of them claiming to be paediatricians, provided the data on health facility. Among 16 nurses providing information, 8 were chief nurses. There was only one “mother and child inspector” involved in this activity.

B- MAIN INDICATORS OF THE PROGRAMME WE ARE EVALUATING

Below are represented the aggregated results according to the main indicators of acute respiratory infection control programme. We have to mention in the first place that, due to the fact that in the Albanian health centres does not exist the practice of keeping stocks of antibiotics, the first indicator (N 1) is modified and does not fully comply with the WHO/UNICEF indicator.

No.	Indicator	Nominator / Denominator	Result
1	Health facilities able to give standard ARI case management	Health facilities with at least one staff member trained in standard case management / Health facilities surveyed	57%
2	Pneumonia cases at health facilities who receive standard case management	Children classified with very severe disease, severe pneumonia, or pneumonia by the surveyor, and appropriately classified and referred or admitted to hospital or treated with appropriate antibiotic at home by the health worker / Children classified with very severe disease, severe pneumonia, or pneumonia by the surveyor	71%
3.	Health facility staff trained in standard ARI case management	Staff treating children with ARI in health facilities who have been trained in standard ARI case management / Staff treating children with ARI in health facilities	54%
4.	Caretakers of ARI patients seen at health facilities advised on home care	Children with ARI seen at health facilities and correctly not referred or admitted to the hospital by the health worker, whose caretaker received home care advice by the health worker / Children with ARI seen at health facilities and not referred or admitted to the hospital by the health worker	61%
5.	ARI cases at health facilities who should not receive antibiotics but were given them	Children classified with no pneumonia (cough or cold) by the surveyor and given an antibiotic by the health worker for no appropriate reason / Children classified with no pneumonia (cough or cold) by the surveyor and not given an antibiotic by the health worker for any reason	46%
6	Health personnel supervised by health authorities	Health personnel supervised on ARI at least once during the last three months. / Health workers interviewed	20%
7.	Health workers having good knowledge of standard ARI case management	Health workers giving 8 or more correct answers to knowledge questions / Health workers interviewed	30%
8.	Health facilities equipped with ARI case management guidelines	Health facilities equipped with ARI case management guidelines / health facilities observed	32%

C- DESCRIPTION AND ANALYSIS OF THE RESULTS

Two types of variables have been collected in the field: quantitative and qualitative. Both were necessary for a more complete picture of case management practices and clearer understanding of what the national ARI programme can do to improve the quality of care.

Both quantitative and qualitative data from this survey can help the national programme to:

- Describe the overall quality of case management provided for children with acute respiratory infections and the quality of specific assessment and treatment tasks
- Identify where problems in case management occur more frequently
- Explore possible reasons for incorrect case management

Keeping in mind that the overall survey objective is “To describe the case management practices of health workers at first level facilities”, we have developed first a group list of evaluation questions to be addressed.

Evaluation question 1:

What is the quality of case management of acute respiratory infection in the facilities surveyed?

To answer the question we have calculated in the following table the proportions regarding standard management of pneumonia, advices for caretakers on home care and non-correct prescription of antibiotics.

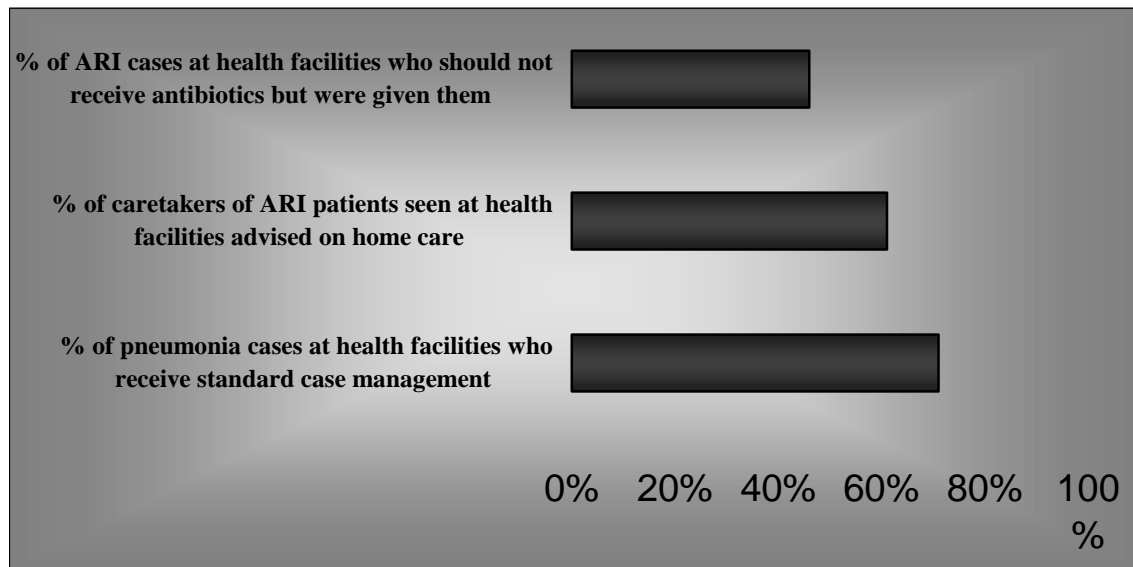
Table 2.1 *Three main indicators of ARI case management*

Indicator of quality of case management	Number	Proportion (IC 95%)
Pneumonia cases at health facilities who receive standard case management	40 of 56	71,4% (60-82)
Caretakers of ARI patients seen at health facilities advised on home care	86 of 142	60,6% (52-68)
ARI cases at health facilities who should not receive antibiotics but were given them	33 of 72	45,8% (35-57)

The most important indicator (the first one) shows that more than two thirds of surveyed cases receive "standard case management".

As one can see, the level of quality represented by the proportion in the third column has different meaning for different indicators. While this level has to be as higher as possible for the first and second indicator, it is expected to be low in the third indicator. The first indicator can be considered as the most important among the others as it embodies many qualities of the programme. The last indicator is less crucial but it influences in many ways the standards of case management quality.

Graph 1. Three main indicators of ARI case management



Evaluation question 1.1:

What is the quality of management of children with pneumonia, severe pneumonia and very severe disease in the health facilities?

This question aims to give a more detailed picture about the gaps in the standards of case management and is presented in the Table 2.2.

The discrepancies in the column relating to classification are explained mostly by many misclassifications of pneumonia, severe pneumonia or severe disease by health workers. The last one is completely missing from the health workers classifications, indicating a very scarce use of this category in ARI management practices in Albania.

The total numbers of severe pneumonia or pneumonia reported by health workers are quite similar to those of surveyors, but only 3 out of 7 severe pneumonia cases and 38 out of 49 pneumonia cases were correctly classified. 11 non-pneumonia cases are classified as pneumonia, whereas 8 pneumonia cases are considered as cold or cough.

We have to keep in mind that is more likely to get a low score when the number of cases is low.

With regard to treatment it is more likely to find little gaps according to the standards, but these remain at the level of details and do not affect too much the correlation between health workers and surveyors in three important variables; "refer/admit to hospital", "antibiotic at home" and "home care". Because of missing values, the presentation of the results for "severe pneumonia" by the means of percentages becomes less meaningful.

The decrease in correlation between health workers and surveyors relating to treatment of "not pneumonia cases" is caused only by the overuse of antibiotics. On surveyor's opinion, only 8 cases needed home treatment with antibiotics whereas the health workers treated 26 cough or cold cases with antibiotics.

The missing values increase as the number of combinations during analysis increase. This can explain differences in totals presented in the table.

"Correct case management" includes both correct classification and correct treatment.

Table 2.2 *Quality of case management of children with cough or difficult breathing*

Classification	Correct classification	Correct treatment	Correct case management
Very severe disease	0 of 5	0 of 5	0 of 5
Severe pneumonia	3 of 6 (43%)	3 of 5 (80%)	3 of 5 (60%)
Pneumonia	36 of 45 (78%)	41 of 45 (91%)	32 of 45 (71%)
Not pneumonia (cough or cold)	92 of 100 (92%)	61 of 88 (69%)	61 of 88 (69%)
Others (non ARI)	3 of 5 (60%)	1 of 3 (33%)	1 of 3 (33%)
Total	134 of 161 (83%)	106 of 146 (73%)	97 of 146 (66%)

Next evaluation questions will serve to explore problems in every of the three major components identified on the table above; classification, treatment, management

Evaluation question 1.2:

What is the quality of assessment of children with cough or difficult breathing?

Fast breathing and chest indrawing are two important signs that help to diagnose pneumonia and severe pneumonia.

The following tables demonstrate the quality of diagnosis performed by health workers through different symptomatic signs that help to identify particular problems. This series of tables includes the surveyor's judgement as the "gold standard" against which the health worker's performance is compared.

In the Table 2.3 it is represented the level of agreement between surveyor and health worker. In only two cases they disagree regarding to having or not fast breathing and in four other cases their counted rates differ with more than 5 breathing per minute. Two children considered by the surveyor as having a breath rate over 50 per minute are not considered so by the health worker and this makes a 91% agreement. Furthermore, from the table we can see that the specificity of the health system in testing "fast breathing" is excellent (100%), while sensitivity is much lower (75%).

The expression "when it is assessed" regards the fact that many health workers don't use at all the respective sign during the assessment of the case. This is shown more clearly in the following table (2.4).

Table 2.3 *Surveyor and health worker agreement on assessment of fast breathing (when assessed)*

Surveyor's finding of fast breathing	Health workers agreement with surveyor on fast breathing		
	No	Yes	Total
No	20	2	22
Yes	0	6	6
Total	20	8	28

Table 2.4 *Assessment of breath rate*

Breath rate	Cases	Percent
Assessed	28	17%
Not counted	131	81%
Don't know	2	1%

A more serious problem is the fact that health workers in the large majority of the cases (131 cases or 81% of total) have not counted the breath rate at all, presumably using different techniques (i.e. stethoscope) to diagnose pneumonia.

Table 2.5 *Surveyor and health worker agreement on assessment of chest indrawing (when assessed)*

Surveyor's finding of chest indrawing	Health workers agreement with surveyor on chest indrawing		
	Yes	No	Total
Yes	6	3	9
No	4	82	86
Total	10	85	95

The level of agreement between surveyors and health workers regarding chest indrawing is almost the same as for fast breathing; a little more than 92%. In 95 children assessed for this symptom, health workers were wrong in only 8 cases. This figure is generic and can hide the fact that among 10 cases with this symptom the health workers could identify it in only 6 cases. This means that their "sensitivity" is only 60% while the "specificity" is quite high (97%).

Although this symptom is used more than in previous case (birth rate), the problem is still significant as in more than 54 cases doctors did not look for it.

Table 2.6 *Assessment of chest indrawing*

Chest indrawing	Cases	Percent
Assessed	96	60%
Not counted	54	34%
Don't know	11	7%

Through danger signs the health worker can diagnose a seriously ill child and classify it as very severe disease.

Table 2.7 identifies the direction of error in the assessment of danger signs. A "false positive" means that the health worker identified a sign not found by the surveyor. A "false negative" means that the health worker missed a sign identified by the surveyor.

In the upper part of the cell are given cases in absolute figures; meanwhile in the lower part are presented the proportions.

Table 2.7 *Surveyor and health worker agreement on assessment of danger signs*

Danger signs	Sign identified by surveyor		Sign identified by health worker		Surveyor and health worker agreement		False positive	False negative
	Y	N	Y	N	Y	N		
Not able to drink or stopped feeding well	27	70	37	123	71	24	13	12
	28%	72%	23%	77%	75%	25%	14%	13%
Convulsions	2	85	3	157	85	0	0	0
	2%	98%	2%	98%	100%	0%	0%	0%
Abnormally sleepy	5	106	6	154	107	3	1	2
	4%	96%	4	96%	98%	2%	1%	2%
Stridor in calm child	12	83	11	149	86	8	6	2
	13%	87%	7%	93%	92%	8%	6%	2%
Severe malnutrition	3	88	1	150	87	2	2	0
	3%	97%	0,6%	99%	96%	4%	4%	0%
Wheezing	21	81	29	131	87	16	9	7
	21%	79%	18%	82%	85%	5%	9%	7%
Fever or low temperature	4	3	2	7	5	2	2	0
	57%	63%	22%	78%	71%	29%	29%	0%

Except for two signs ("not able to drink or stopped feeding well" and "wheezing"), the level of agreement or reliability of health worker diagnosis is well above 90%. "Fever" is a sign requested only for less-than-two-months old babies and the small numbers put in doubt any conclusion. The difference in totals between the two first columns and the following two, is created due to the same reasons discussed above; lack of assessment of signs from the health workers. This can be considered so far the main gap in fulfilling the standards.

Doctors are inclined to produce more false positive than false negative signs (more cases which are not) although the difference is not too wide and in singular cases is reversed (this is true for example for "abnormally sleepy").

Evaluation question 2.1

What is knowledge of health workers on assessment tasks?

In order to explore possible reasons for problems found in assessment, it is useful to look at the interview with health workers data. In this way we can see if the doctors know how to assess children according to standards and if gaps observed in practice are caused by lack of knowledge or other problems.

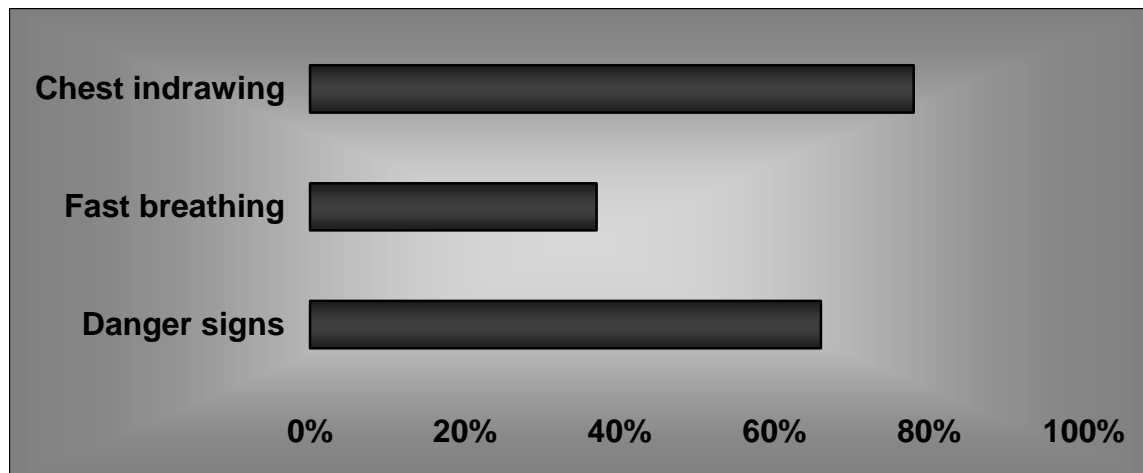
The data are collected through making health workers to solve simple exercises (for more details see questionnaire 3). There were in total 68 health workers included in the interview with almost no missing data. Table below shows the results

Table 2.8 *Health workers knowledge on ARI assessment tasks*

Knowledge of assessment tasks	Health worker have basic knowledge		Total
	Yes	No	
Danger signs	44 (66%)	23 (33%)	67 (100%)
Fast breathing	25 (37%)	43 (63%)	68 (100%)
Chest indrawing	53 (78%)	15 (22%)	68 (100%)

From the results one can see that there are a lot of gaps in health workers knowledge related to assessment of children with cough or difficult breathing. This is especially true in the case of fast breathing; the majority of respondents (63%) gave wrong answers when asked to check the correct definition of it. For more details on formulation of questions see the forms in the annex; Form 3 questions from 6 to 9.2.

Graph 2 *Health workers knowledge on ARI assessment tasks*



Evaluation question 2.2

What is the knowledge of health workers on classification of children with cough or difficult breathing?

Within the questionnaire were included two more questions, or better saying exercises, to be answered by the health workers. These exercises serve to produce a better view on the knowledge health workers have on standard classification of children complaining cough or difficult breathing. Such an information couldn't have been attained by using only previous questions (or exercises) aiming at the knowledge of assessment tasks.

Table 2.9 *Health worker's knowledge on classification of cough or difficult breathing.*

Knowledge of classification	Health workers have basic knowledge		Total
	Yes	No	
Classification of pneumonia	21 (33%)	43 (67%)	64 (100%)
Classification of no pneumonia, cough or cold	57 (86%)	9 (14%)	66 (100%)

The low result shown in the first row of the table comes because of health workers not having a clear perception over the distinction between "severe pneumonia" and "pneumonia". Most of them have classified as pneumonia instead of severe pneumonia a 14 months old child with a breathing rate of 56 per minute and chest indrawing. This reflects their poor knowledge on assessment tasks and especially fast breathing rate. Furthermore, even when they know to assess the signs, there is confusion about the practical use of distinction between different severity levels of pneumonia

Evaluation question 2.3

What is the knowledge of health workers on management of children with cough or difficult breathing?

In the case of a six months old child with severe pneumonia almost all questioned health workers would have sent urgently to the nearest hospital or admit him, but only 20 (29%) mentioned the first dose of a appropriate antibiotic and a even smaller proportion (18%) answered to have tried to keep the baby warm.

Table 2.10 Health worker's knowledge on management of severe pneumonia

Action	Yes	No	Total
Refer urgently to hospital	67 (99%)	1(1%)	68 (100%)
Give first dose of antibiotic	20 (29%)	48 (71%)	68 (100%)
Keep young infant warm	12 (18%)	56 (82%)	68 (100%)

Health worker's knowledge on management of pneumonia

28 (41%) doctors among 68 mentioned fast breathing when asked for the reason to prescribe an antibiotic to a two years old child with cough.

Only 11 (16%) answered correctly about the strategy of management of this child coming back to the health centre without getting any better.

Health worker's knowledge on home care (pneumonia or not)

Health workers consider fever a more serious sign for coming back to the health center than, lets say, increasing difficulties in breathing or an increasing breathing rate. 36 (54%) answered correctly about signs for coming back whereas 56 (84%) didn't forget to mention fever or 42 (63%) a persisting cough.

A similar proportion, 34 (51%), was scored for correct advise to be given to a mother for home care of a child without pneumonia.

Evaluation question 3.1**What is the quality of treatment of children with cough or difficult breathing?**

Some general results describing the quality of treatment have been presented previously. Here are given further details for discussing patterns in the treatment of pneumonia as well as revealing problems in giving instructions to the caretaker about imparting antibiotics at home.

Table 2.11 Correct treatment of children with pneumonia

Surveyor' classification (and treatment)	Health worker' agreement with surveyor on treatment				Total
	Admit/refer		Antibiotics at home		
	yes	no	yes	no	
Severe pneumonia (admit/refer)	4 (57%)	3 (43%)	-----	-----	7 (100 %)
Pneumonia (treat with antibiotic at home)	-----	-----	40 (93%)	3 (7%)	43 (100 %)

The errors related to admitting or referring to hospital severe pneumonia cases are caused mostly by misclassification of these cases as simple pneumonia. The treatment of pneumonia cases with antibiotics sounds correct and only 3 cases over 40 are missed. Meanwhile we have to mention that this table doesn't show the overuse of antibiotics, which may hide all the errors in diagnosing the cases. For details see below.

Evaluation question 3.2

How are antibiotics prescribed?

The instructions given in case of prescribed antibiotics at home are far from the required standards. In all cases the majority of health workers doesn't explain the dosage, doesn't tell to caretaker to return in two days and almost no one demonstrates the first dose.

Table 2.11 Prescription of antibiotics at home and instructions

Instruction with prescription of antibiotic	Cases in which caretakers received instructions		Total
	yes	no	
Dosage explained	33 (34%)	64 (66%)	97 (100%)
Told to return in 2 days	41 (41%)	59 (59%)	100 (100%)
All three instructions	2 (2%)	93 (98%)	95 (100%)

The table below (2.12) lists the antibiotics prescribed.

Table 2.12 Antibiotics prescribed

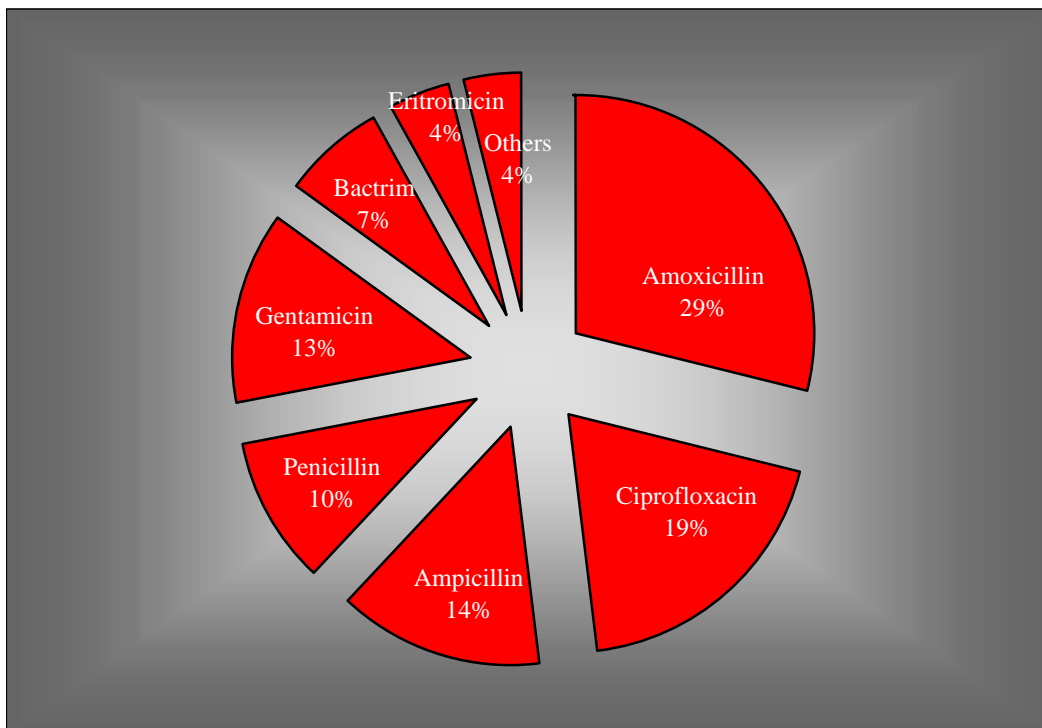
Antibiotic	Cases used	Proportion
Amoxicillin	42	29%
Ceporin	27	19%
Ampicillin	21	14%
Penicillin	15	10%
Gentamicin	19	13%
Bactrim	10	7%
Eritromicin	6	4%
Chloramfenicol	1	1%
Kanamycin	2	1%
Rovamicin	1	1%
Amikacin	2	1%

Note: Some of the antibiotics demonstrated above have been used as complementary treatment. This is especially the case for Gentamicin.

In 126 cases out of 161 at least one antibiotic is given, which makes up 78% of the total sample. In 24 cases, or in 20% of those who were prescribed antibiotics, the antibiotics were given without any apparent reason, while in about 50 other cases (40%) antibiotics were given on grounds of accompanying pharyngitis or suspected tonsillitis.

In about 65 % of the cases, recommended antibiotics like amoxicillin, ampicillin, penicillin, bactrim and eritromicin, have been advised, but unfortunately these antibiotics have been prescribed mostly in non-pneumonia cases (cough or cold). On the other hand it is worrying that the use of ciprofloxacin is widely spread and in about 20% of the cases health workers see it as first choice treatment. This antibiotic is not recommended to be used in children, because its long-term effects are still under study.

Graph 3 Antibiotics prescribed in acute respiratory infections



Evaluation question 3.3

Are caretakers advised on home care?

Table 2.14 *Instructions given on Home Care*

Indicators for Home Care	Parents are instructed		Total
	yes	no	
Told about two signs for coming back	56 (64%)	32 (36%)	88 (100%)
Given feeding/fluid instructions	32 (38%)	53 (62%)	85 (100%)

88 cases were considered to be in need for home care. Among them only 56 (64%) were told about signs for coming back. A child without pneumonia who develops two of the below signs may have pneumonia and must be reassessed;

- breathing becomes difficult;
- breathing becomes fast;
- child not able to drink;
- child becomes sicker

Instructions on feeding and giving fluids were considered even less by health workers. The majority of them (62%) didn't give any special instructions to the caretakers.

Evaluation question 4

What do mothers understand after health workers explain the dosage of antibiotics?

Communication of instructions and advises from health workers to caretakers is an important moment to be explored.

Mothers remind fairly well how many times their child must take the antibiotic per day (95%), but do not perform the same correct recall regarding "when to come back for reassessment".

On the following table (2.15) are presented the questions, which were asked to mothers and results of their answers.

Table 2.15 *Mothers understanding of health workers advice*

Questions	Mothers understand		Total
	Yes	No	
How many antibiotic per day	93 (95%)	5 (5%)	99 (100%)
For how many days to continue	70 (71%)	29(29%)	98 (100%)
When to come back for reassessment	58 (59%)	40 (41%)	98 (100%)

Next group of tables (2.16 a and b) serves to analyse problems in the communication between health personnel and caretakers.

Tables 2.16 a & b *Association between mothers recall and health workers advise***a-** *Two signs for coming back*

Health worker advised mothers on signs for coming back	Mothers claim to have been advised on signs for coming back			
		Yes	No	Total
	Yes	51	2	53
	No	19	11	30
	Total	70	13	83

OR = 15

b- *Instructions on feeding and liquids*

Health worker instructed mothers on feeding and liquids	Mothers claim to have been instructed on home care			
		Yes	No	Total
	Yes	28	3	31
	No	30	21	51
	Total	58	24	82

OR = 6.5

There is a clear and strong association between what mother recalls and doctor's advises although in the second case (table 2.16b) the association is weaker.

It is interesting to note that there are many mothers claiming to have been instructed or advised even when health workers didn't do it (!). This reveals limitations of the survey.

Anyhow as a conclusion, when caretakers are advised or instructed they understand and remind well. It doesn't seem to have important problems in health personnel - caretaker communication in Albania, regarding ARI/DD case management.

Evaluation question 5

What is the proportion of health facility staff trained and how does it affect the standard ARI case management?

These questions can be broken down into some other questions;

Evaluation question 5.1

What is the proportion of health facilities staff, trained in standard ARI case management?

The required proportion is presented in the tables below:

Table 2.17 Training in ARI case management of health workers interviewed

Health workers	Numbers	Proportions
Trained	25	38%
Not trained	41	62%
Total	66	100%

Furthermore, this proportion is projected into all health facilities staff and serves to calculate the important indicator of the ARI program;

Table 2.18 Proportion of health centres of at least one health worker trained in ARI case management

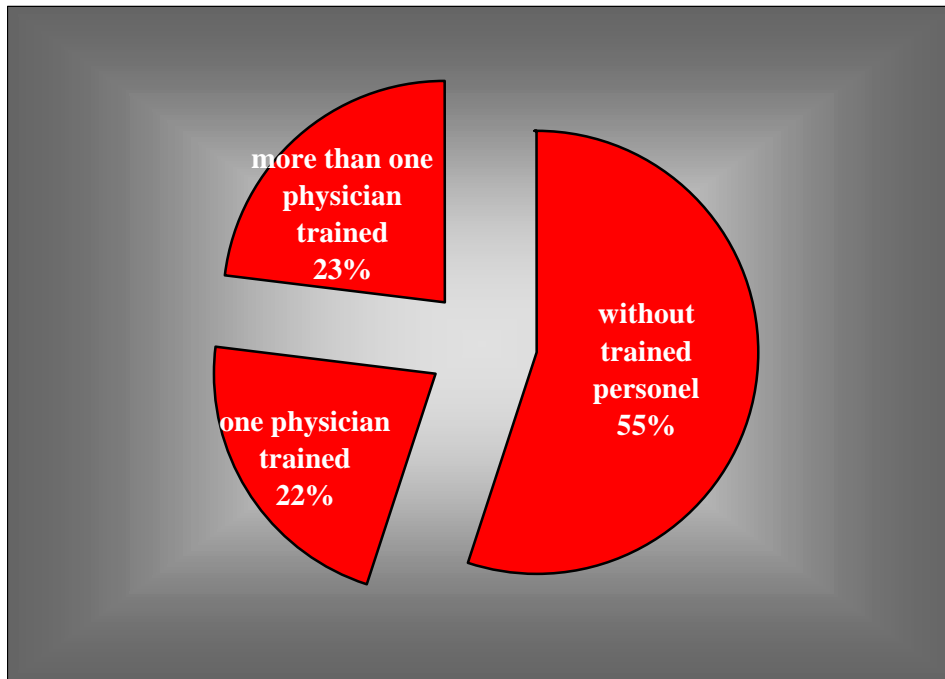
Type of health worker	Proportion of health facilities			Total health centres
	with no trained health workers	with at least one trained health worker		
		Only one	more than one	
Doctors	33 (55%)	13 (22%)	14 (23%)	60 (100%)
Nurses	50 (88%)	1 (2%)	6 (10%)	57 (100%)
Total	26 (43%)	14 (23%)	20 (33%)	60 (100%)

The total number of doctors who treat ARI cases in health facilities surveyed is 408; out of those 119 or 54 % are trained in standard ARI case management.

The low proportion of health workers trained among those interviewed as well as the high proportion of health facilities without trained staff can be explained either by a low training coverage or a high migration rate which has affected already all social classes and professions in Albania. The memory bias might be considered as well when

analysing this result, but a health worker who confuses the fact of being or not trained is better to be regarded as untrained.

Graph 4 Proportion of health centres of at least one health worker trained in ARI case management



The above proportion can be seen as an important cause of gaps noticed in the knowledge and practice of ARI case management.

This leads to the evaluation question 5.2:

Evaluation question 5.2

How does training have affected the standard ARI case management?

This can be partially investigated through testing the association between ability to correctly diagnose children with cough and difficult breathing and being trained on ARI case management.

Table 2.19 Correct classification of cases and training on ARI

	Health workers training on ARI case management			
		Yes	No	Total
Identical classification between health worker and surveyor	Yes	41	58	99
	No	6	43	49
	Total	47	101	148

OR = 3,9 (IC 95% 1,6-9,2)

The table clearly demonstrates that health workers who have been attending training on ARI case management, irrespectively of the time elapsed, perform much better the diagnosis of children with ARI than their colleges who haven't been at the training course. Likewise, odds for mistakes in classification are only 15% among trained, while among untrained personnel they increase by almost 4 times (74%).

Evaluation question 6

How well are equipped the health facilities for ARI case management?

Like the previous one this question can be broken down into some other questions:

Evaluation question 6.1

How available are antibiotic tablets in health facilities?

This question was formulated to fit with WHO/UNICEF standards but it doesn't apply for Albania.

Indeed, the survey shows that in only 4 health facilities visited (7%; hospitals), bactrim, amoxicillin or penicillin were available on stock. Other medicaments like paracetamol were found more frequently (in 16 cases or in 27% of all facilities)

Evaluation question 6.2

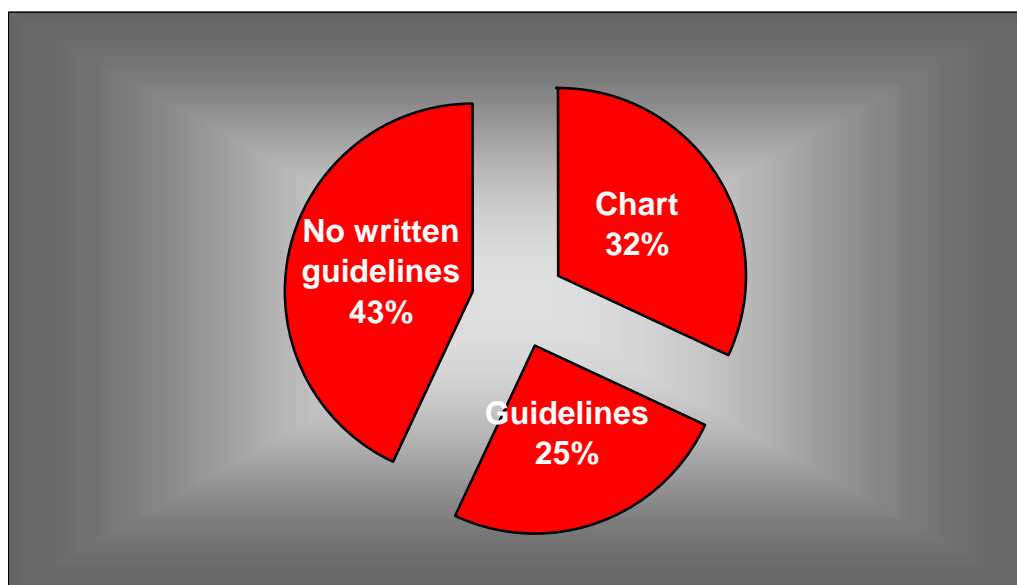
What is the proportion of health facilities with ARI case management chart/guidelines?

Table 2.20 *Proportion of health facilities with ARI case management chart/guidelines*

	Available in health facility		Total
	Yes	No	
Chart	18 (32%)	39 (68%)	57 (100%)
Guidelines	14 (25%)	41 (75%)	55 (100%)

The equipment of health facilities with guidelines is still very poor and can be accused as another cause of gaps in ARI case management demonstrated above.

Graph 5 *Proportion of health facilities with ARI case management chart/guidelines*



Evaluation question 7

What are the difficulties the health workers encounter when managing children with cough or difficult breathing?

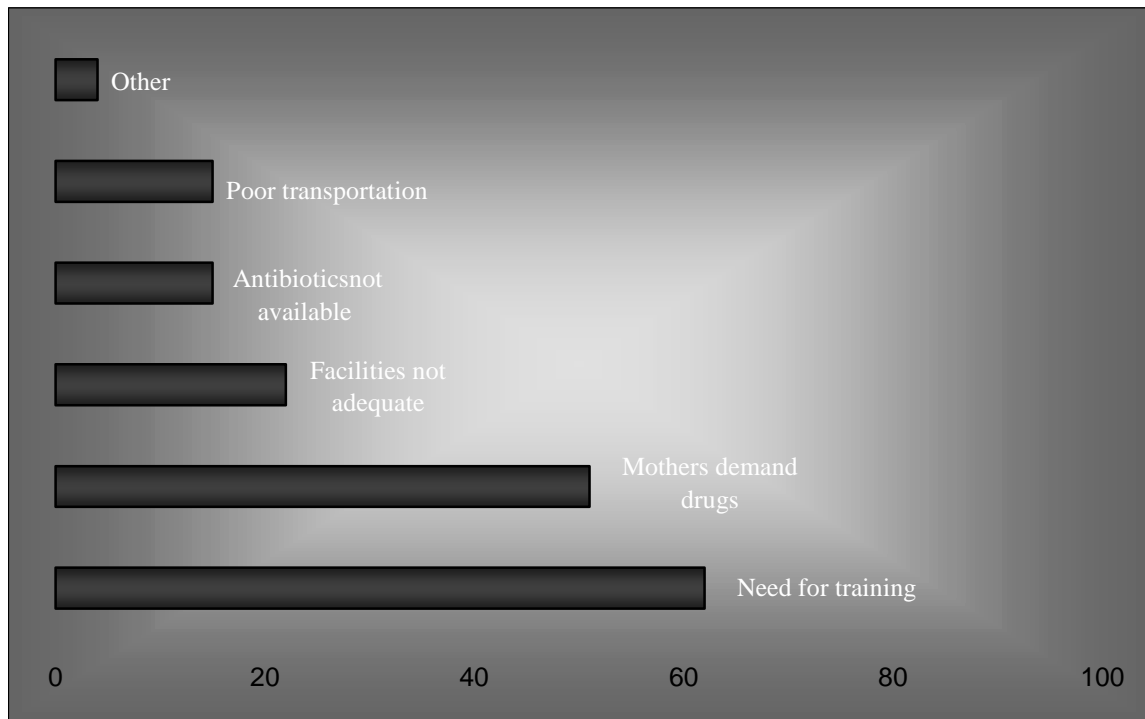
Table 2.21 *Difficulties the health workers encounter when managing children with cough or difficult breathing*

Difficulties	Scored by health workers	Total
Too little time to count breathes or do other assessment tasks	1 (1.5%)	68(100%)
No timing device available	2 (3%)	68(100%)
Mothers demand drugs	35 (51%)	68(100%)
Antibiotics not available	10 (15%)	68(100%)
Need training	42 (62%)	68(100%)
Facilities not adequate	15 (22%)	68(100%)
Poor transportation to referral facility, need to treat at home	10 (15%)	68(100%)

The difficulty mostly mentioned by health workers was poor continuous training. This corresponds, more or less, to the proportion of health centres without trained health workers or those who have been trained long time ago. 42 health workers questioned out of 68 considered it a top issue.

Mothers demanding drugs, especially antibiotics, was another frequent problem encountered with almost half of respondents mentioning it.

Graph 6 Difficulties the health workers encounter when managing children with cough or difficult breathing



DIARRHOEA DISEASES CASE MANAGEMENT

3.2 DIARRHOEA DISEASES CASE MANAGEMENT

Analysis of the results

A- DESCRIPTION OF THE SURVEY

The survey took place in two phases. First phase was performed along with the ARI evaluation identical survey; 21 March – 9 April 2001. As the number of children seen at this time was very low (much lower than 1 child per health facility), a third week of fieldwork was added to the survey period and this took place during 8 - 12 of September 2001. Only health facilities with zero cases during the first phase were revisited. Another reason for this second phase was the different periodicity of the diseases under study. The end of summer when traditionally the curbs of diarrhoea incidence is higher increases the chances for finding diarrhoea cases in the health facilities.

Total number of children with DD enrolled in the survey reached 110. This gives an acceptable mean of about 2 children for health facility visited.

The significant difference in numbers with the amount of ARI cases found can be explained with the differences, which exist in Albania between the frequency of acute respiratory infections and diarrhoea. Accordingly, there are more than 100,000 cases of upper and lower respiratory infections reported every year in Albania, while the yearly mean of diarrhoea reported cases is under 50,000.

In 9 health facilities surveyors were not able to see children with DD because of the lack of eligible patients. Anyhow, the interviews with health personnel were carried out in all the selected health facilities of the sample.

A distribution of health facilities by type and district is presented in the tables below. There are 26 districts of small, medium, and big size, covered by the survey. It can be observed a correlation between the population of the districts and number of children with diarrhoea diseases seen by district, which is most likely caused by the good sampling procedure.

In the majority of the health facilities the personnel surveyed was composed by GP, many of them trained in paediatrics. In seven cases the health staff, working that particular day with children with diarrhoea cases, was nurse.

Table 3.1 *Distribution of health facilities and children observed by district and type of services*

District	Health centers	Hospital (outpatient department)	Urban	Rural	Children with DD surveyed	Type of the district
Berat	2	1	2	1	5	Big
Bulqize	1	0	0	1	1	Small
Delvine	0	1	1	0	2	Small
Devoll	1	0	0	1	1	Small
Diber	2	0	0	2	2	Big
Durres	3	1	1	3	7	Big
Elbasan	4	0	3	1	6	Big
Fier	3	1	2	2	8	Big
Gjirokaster	0	1	1	0	1	Big
Has	1	0	0	1	0	Small
Kavaje	3	0	2	1	4	Medium
Korce	4	0	0	4	7	Big
Kruje	2	0	0	2	5	Medium
Kucove	1	0	0	1	2	Small
Kukes	2	0	1	1	4	Big
Lezhe	2	0	1	1	6	Medium
Librazhd	2	0	1	1	2	Medium
Lushnje	4	0	1	3	9	Big
Mat	2	0	1	1	1	Medium
Tepelene	1	0	1	0	0	Medium
Mirdite	1	0	1	0	1	Medium
Pogradec	1	0	0	1	2	Medium
Shkoder	3	1	2	2	5	Big
Tirane	5	0	3	2	16	Big
Vlore	3	1	1	3	13	Big
TOTAL	53	7	25	35	110	

Table 3.2 presents the survey coverage. It compares the health facilities surveyed with the population of all health facilities from which the sample was selected. The percentage of health services covered by the survey ranges from 6% to 33% of all health centres in the district.

The table 3.3 describes the number of cases observed in each age category.

Table 3.2 *health facilities enrolled in the survey versus the total of health facilities in every district*

District	Total surveyed	Total in district
Berat	3 (19%)	16(100%)
Bulqize	1(10%)	10(100%)
Delvine	1(20%)	5(100%)
Devoll	1(17%)	6(100%)
Diber	2(13%)	16(100%)
Durres	4(27%)	15(100%)
Elbasan	4(15%)	26(100%)
Fier	4(17%)	23(100%)
Gjirokaster	1(6%)	16(100%)
Has	1(20%)	5(100%)
Kavaje	4(33%)	12(100%)
Korce	4(21%)	19(100%)
Kruje	2(28%)	7(100%)
Kucove	1(25%)	4(100%)
Kukes	2(13%)	16(100%)
Lezhe	2(17%)	12(100%)
Librazhd	2(17%)	12(100%)
Lushnje	4(21%)	19(100%)
Mat	2(15%)	13(100%)
Mirdite	1(13%)	8(100%)
Pogradec	1(11%)	9(100%)
Shkoder	4(18%)	22(100%)
Tepelene	1(9%)	11(100%)
Tirane	5(17%)	29(100%)
Vlore	3(17%)	18(100%)
TOTAL	60(17%)	349(100%)

The data on the health facilities were mostly provided by medical doctors; some of them being specialised in paediatrics. Among 16 nurses providing information, 8 were chief nurses. There was only one “mother and child inspector” involved in this activity.

There were seen 41 children less than 12 months old, or 38% of total of the sample. In this table the babies under two months old are not given separately like we did in ARI case management evaluation because here it is less important. The progressive growing number of children observed is likely to represent the actual age profile of ARI cases visiting Albanian health facilities. This is another indicator of appropriateness of the sampling procedure. The cases were found proportionally distributed among health centres or hospitals.

Table 3.3 *Distribution of cases observed by age*

Age	Number of children surveyed
Less than 12 months	41
13 months up to 24 months	25
25 months up to 36 months	20
37 months up to 48 months	12
49 months up to 60 months	11
Total 12 months up to 5 years	68
All age groups	109

B- Main indicators of the programme

Below are given aggregated results regarding main indicators of the programme for the control of diarrhoea diseases in Albania.

Nr.	Indicator	Numerator / Denominator	Result
1	Health facilities able to give standard management to diarrhea cases	Health facilities with at least one member of personnel trained / Health facilities surveyed	58%
2	Diarrhea cases correctly managed in health facilities	Children with diarrhea who have been correctly managed by a health worker / Children with diarrhea observed during the survey	60%
3.	Diarrhea cases correctly assessed	Children with diarrhea who have been correctly assessed by a health worker / Children with diarrhea observed during the survey	76%
4.	Diarrhea cases correctly rehydrated (orally or IV)	Children with some or severe dehydration who have been correctly rehydrated by a health / Children with dehydration observed during the survey	82%
5.	Diarrhea cases whose caretakers have been correctly advised on home care	Diarrhea cases whose caretakers have been correctly advised on home care / Children with diarrhea without dehydration observed during the survey	74%
6	Health personnel supervised on diarrhea management	Health personnel supervised on diarrhea management / Health workers interviewed	30%
7.	Health personnel having good knowledge on standard case management	Health workers answered correctly to at least 8 out of 10 questions on knowledge / Health workers interviewed	44%
8.	Health facilities equipped with trisol	Health facilities equipped with trisol / Health facilities observed	54%
9.	Health facilities equipped with charts of diarrhea case management	Health facilities equipped with charts of diarrhea case management / Health facilities observed	60%

C-DESCRIPTION AND ANALYSIS OF THE RESULTS

The study was designed in order to provide not only quantitative data but qualitative considerations as well. Both types of evaluation were necessary for a more complete picture of case management practices and clearer understanding of what the national diarrhoea control programme can do to improve the quality of care.

The outcome of this survey can help the national programme to:

- Describe the overall quality of case management provided for children with diarrhea disease, and the quality of specific assessment and treatment tasks
- Identify where problems in case management more frequently exist
- Explore possible reasons for incorrect case management

Keeping in mind the overall survey objective, which is “To describe the case management practices of health workers at first level facilities”, a group list of evaluation questions to be addressed was first developed.

Evaluation question 1

What is the quality of case management of diarrhoea in the facilities surveyed?

To answer the question we have calculated the proportions in the following table (4.1) which synthesises many features of quality of case management of diarrhoea in Albania and can be considered as one of the most important among other tables presented here.

Table 4.1 Diarrhoea cases management

Indicator of quality of case management	Number	Proportion (IC 95%)
Diarrhea cases correctly assessed	77 out of 101	76% (67-84)
Diarrhea cases correctly rehydrated in health facility	27 out of 33	82% (66-92)
Diarrhea cases correctly advised on home ORS	41 out of 76	54% (43-65)
<i>(Diarrhea cases only Advised, without giving detailed instructions)</i>	99 out of 104	95% (90-98)
Diarrhea cases correctly advised on home case management	56 out of 76	74% (63-83)
Diarrhea cases given appropriate antibiotics	1 out of 51	0.5%
WHO/UNICEF indicator Diarrhea cases correctly managed	65 out of 109	60% (50-69)

The first indicator (diarrhoea cases correctly assessed) is calculated tabulating health workers conclusion about the degree of dehydration with the conclusion of surveyor. This indicator shows that about one fourth of cases surveyed weren't classified correctly. The worrying fact is that physicians made many errors when classifying severe dehydration; among 5 cases diagnosed by surveyors only two were identified by health workers. Details on how this assessment is done and how the conditions are diagnosed are presented below in this report.

The second indicator (diarrhoea cases correctly rehydrated) is a more complicated one in terms of calculating it. There were prepared at least ten variables for evaluating the quality of the tasks accomplished by the health workers when rehydrating a child in need.

In order to have a general, very rough indicator, which combines quality of ORS treatment in health centre with that of intravenous treatment, we aggregated many dichotomous variables which range from "correct preparation of ORS" and "amount of fluid ordered" to "follow up assessment of administration of ORS or IV fluid".

Although there were 28 cases diagnosed with some dehydration by health workers themselves, only 27 of them decided to provide either ORS treatment in the health facility (12 cases) or intravenous rehydration (15 cases). There were 33 cases that needed to have been rehydrated after surveyor's decision. All but in two cases these procedures were witnessed in hospitals and performed by experienced paediatricians. The two primary health care clinics where surveyors were able to see such treatment were in Shkodra and Kavaja.

The third indicator (diarrhoea cases correctly advised on home ORS) deals with the advises given by the health worker to caretakers, including correct recommendations on ORS or other fluids to be taken at home. This indicator in the table, on the third row, is calculated taking as denominator diarrhoea cases without any dehydration. On the fourth row a variant of this indicator is presented. Irrespectively of the plan A, B or C in all but two cases health workers advised parents to use ORS at home. This is an excellent result even if we decide to take the eight missing values observed in this case as negative. It shows clearly that doctors have been aware about the importance of prevention of dehydration in diarrhoea and this might be a factor for influencing the low frequency of severe dehydration related to diarrhoea presented during the study.

However, if we are going to integrate within the indicator the instructions given and their correctness, its value gets much lower. As health workers almost never demonstrate ORS preparation to the parents (only in five cases) we decided not to include this component in the indicator. Even so, the indicator shows that almost 55% of physicians either don't give instructions on how to use ORS at home or don't give it in a complete and correct way.

The fourth proportion indicator presented in the table 4.1 gives the proportion of health workers who advise parents about the so called "three rules of home case management of diarrhoea" which include;

- 1-the need to give increased fluids
- 2-the need to continue feeding, and
- 3-at least two out of seven danger signs when to bring the child back.

The situation here is slightly better with only 20 out of 76 cases without dehydration surveyed not being able to meet requirements for home case management of diarrhoea. "The need to continue feeding" was the advise the less mentioned by health workers while "the need to give increased fluids" was the most frequently observed.

Indicator five regards the correct use of antibiotics when a child with diarrhoea shows up at the health facility. Out of 110 eligible patients surveyed 65 were prescribed at least one antibiotic. 14 out them received the antibiotic as a cure for their accompanying sickness, mostly for angina. Among the reasons noted for the remaining 51 were mentioned:

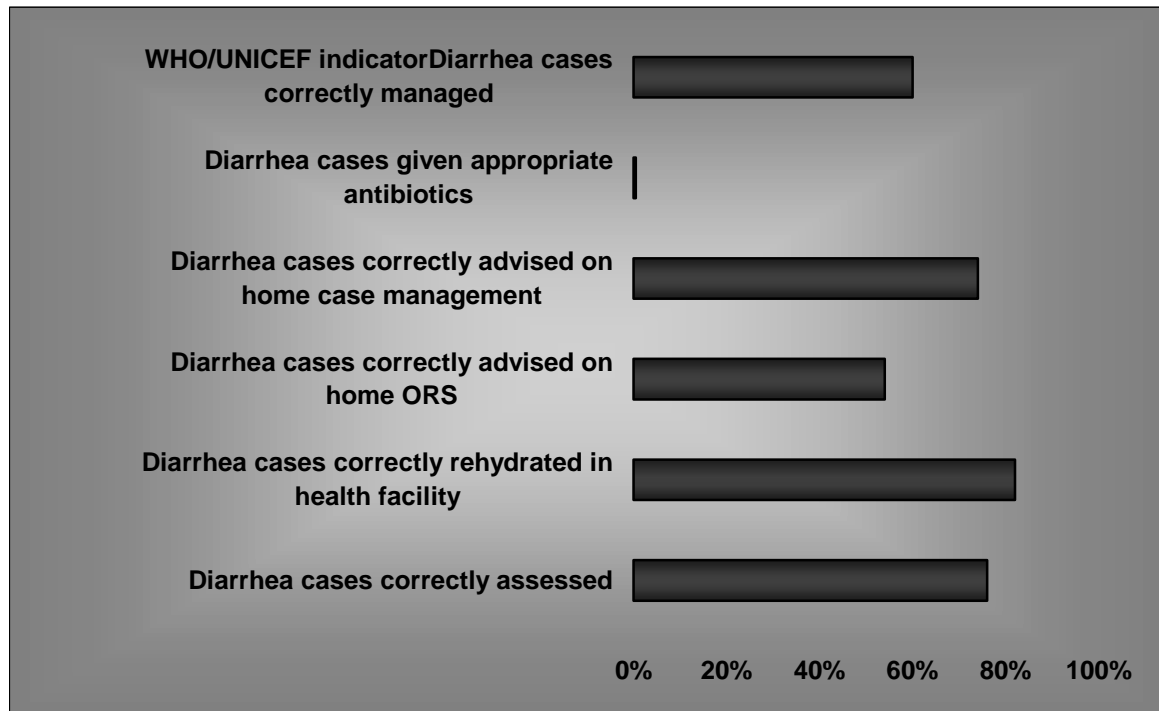
- "the infection",
- "fever",
- "little child",
- "green faeces" and even simply,
- "diarrhoea"

In one case health worker responded: "it is a routine", probably revealing an important underlying reason.

Taking into account that only one case of dysentery was reported (a second one was not considered dysentery by surveyor), only in this case the use of antibiotics could have been considered correct. Therefore the "appropriate antibiotic" indicator is presented extremely low revealing a serious problem in case management.

The last one is the indicator of WHO/UNICEF, which combines the above indicators except for "the correct use of antibiotics". As it defines as nominator only the cases where all the other procedures (assessment of dehydration, rehydration in health facility, advises on home management and home ORS) has been performed correctly, the proportion gets lower. While the assessment and rehydration in Albania is done correctly by large, the home instructions are neglected by health workers and this have influenced on the indicator which remains slightly under 60%

Graph 7 Indicators of quality of diarrhoea case management



Evaluation question 1.1

What is the quality of assessment of children with diarrhoea?

At this point it is helpful to explore possible reasons for any problems in the case management of children that we have found in the first look at the data. Health worker's difficulties in assessing children with diarrhoea may be a reason and this question aims at giving a more detailed picture about the gaps in standards of case management. It is analysed in the table below (4.2).

Table 4.2 displays the quality of performance on assessment tasks in order to help identify particular problems. This table compares the health worker's performance against the surveyor's decisions, which are in this case the golden standards.

It is important to see if there is, for example, any pattern of error related to the severity of dehydration.

Table 4.2. Surveyor and health worker agreement on degree of dehydration

Surveyor's conclusion	Health worker's agreement with surveyor on degree of dehydration		
	Agreed	Disagreed	Total number
No signs of dehydration	56 (82%)	12 (18%)	68 (100%)
Some dehydration	19 (68%)	9 (32%)	28 (100%)
Severe dehydration	2 (40%)	3 (60%)	5 (100%)
Total	77 (76%)	24 (24%)	101 (100%)

While health workers are quite accurate in identifying a child without signs of dehydration from another with dehydration, irrespective from the degree, they have more difficulties in distinguishing the different degrees of dehydration (i.e. light dehydration from severe dehydration). From 33 children considered dehydrated from surveyors health workers missed only 6, but when diagnosing the degree of dehydration among 5 children with severe dehydration they were able to identify only 2 or less than half of them. Small numbers of severe dehydration, anyhow, may make the problem look more serious.

A comparison regarding the agreement on diarrhoea with blood is impossible because of very few cases surveyed.

Evaluation question 1.1.1

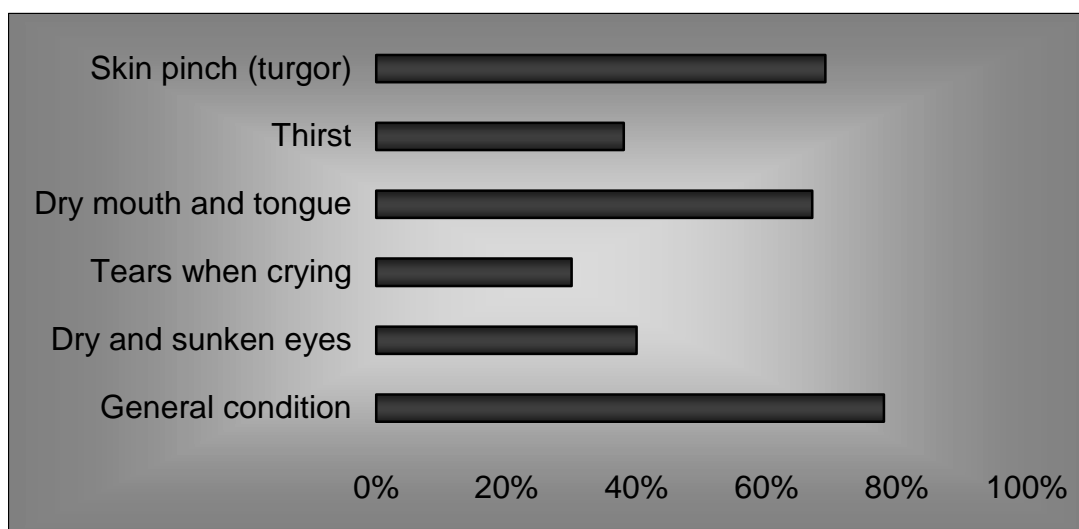
How frequently are the standard assessment tasks accomplished by health workers?

In the following table (4.3) is presented the use of assessment tasks including six signs of dehydration by health workers.

Table 4.3 The frequency of use of assessment tasks by health workers

Assessment task	Completed by health worker	
	Yes (%)	No (%)
When episode began	86	24
Bloody stool	46	54
Other illness	65	35
Signs of dehydration:		
General condition	78	22
Dry and sunken eyes	40	60
Tears when crying	30	70
Dry mouth and tongue	67	33
Thirst	38	62
Skin pinch (turgor)	69	31
Temperature	72	28
Nutritional status	42	58

The results show clearly that many assessment tasks are rarely performed. So, less than half of the health workers surveyed asked mothers about any blood in stool, less than half checked the child for thirst, sunken eyes, nutritional status, and tears when crying. Even without analysing the correctness of use of these tasks, one can see that there is a problem and it may constitute the bases for errors made by health workers when classifying children with diarrhoea.

Graph 8 The frequency of use of assessment tasks by health workers

To evaluate the ability of health workers in correctly using the assessment tasks, the result of the health worker are cross-tabulated with the decision of surveyor (the golden standard).

Table 4.4 *The agreement of health worker's decision with that of surveyor when using assessment tasks*

Assessment task as surveyor see it	Agreement with surveyor's decision	
	Yes (%)	No (%)
When episode began	100	0
Bloody stool	99	1
Other illness	88	12
Signs of dehydration:		
General condition	89	11
Dry and sunken eyes	82	18
Tears when crying	63	37
Dry mouth and tongue	84	16
Thirst	80	20
Skin pinch (turgor)	86	14
Nutritional status	81	19

The table shows that health workers in general use assessment tasks them correctly when practice them. They agree with surveyor decision in more than 80%-90% of the cases, with the exception of "tears when child is crying". According to the signs of dehydration they showed once more their reliability, always, except the above mentioned sign, whose specificity is very low (only 24%)

Evaluation question 1.2

How health workers give the instructions on home care?

This question explores the problems when health workers advise mothers to go home and use Oral Rehydration Salt (trisol) as prevention for dehydration. Problems can be noted either on the instructions how to use trisol or on other information given to mothers regarding home management of diarrhoea.

Table 4.5 *Quality of instructions regarding home ORS*

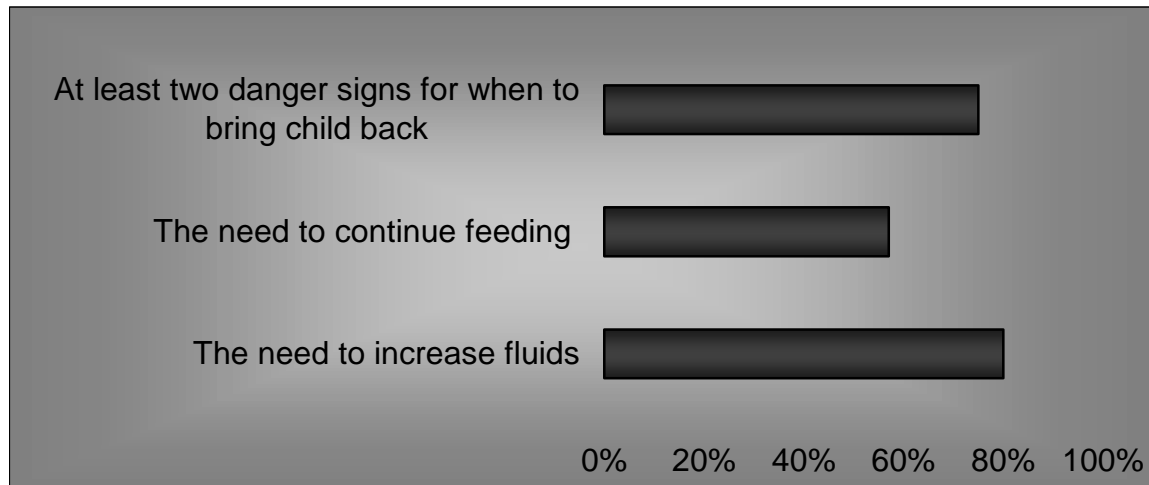
Does health workers:	YES	
	Numbers	Percent
Give specific instructions?	57 out of 72	79%
Explain that ORS replace fluid loss?	39 out of 72	53%
Explain how much to give?	38 out of 70	54%
Give instructions on how to prepare ORS solution?	41 out of 72	56%
Demonstrate ORS preparation?	4 out of 72	6%
Check to see if caretaker understands the instructions?	10 out of 67	15%

As we have mentioned above, the quality of instructions given to caretakers is not very good and this affects the overall quality of diarrhoea case management. Although about 80% of health workers give some instructions, some of them don't apply the standard ones. Subsequently, only about half of them uses the visit to explain to parents "ORS replace fluids" or explain correctly "how much trisol to give to the child", or explain well "how to prepare ORS solution". Even worse are presented the two last components of the home ORS instructions; almost never health workers demonstrate the preparation of ORS in front of the caretaker and only a small minority of them check if caretaker understands the instructions.

The other table (4.6) shows better results although still there are many health workers who do not advise correctly mothers on how to take care of a child with diarrhoea at home. This is especially the case of the need for continue feeding. It seems that health workers are not very aware about this instruction.

Table 4.6 *Three rules of home case management of diarrhoea*

Does health worker ensures that caretaker knows the three rules of home case management	YES	
	Number	Percent
The need to increase fluids	60 out of 75	80%
The need to continue feeding	44 out of 76	57%
At least two danger signs for when to bring child back	58 out of 77	75%

Graph 9 Three rules of home case management of diarrhoea**Evaluation question 2****How does training have affected the health workers practice when managing diarrhoea?**

To give an answer to this question were calculated the mistakes made during assessment of dehydration in relation of the training health workers have received in the past.

The results are presented in the Table 4.7 where the association between ability to correctly diagnose children with diarrhoea and being trained on DD case management is tested.

Table 4.7 Correct classification of cases and training on control of DD

	Health workers training on diarrhea case management		
	Yes	No	Total
Identical classification of health worker and surveyor, regarding the degree of dehydration			
Yes	37	42	79
No	6	24	30
Total	43	66	109

OR = 3,5 (IC 95% 1,3 - 10,3)

The odds ratio clearly demonstrates that health workers who have been attending training on diarrhoea case management, irrespectively of the time elapsed, perform much better the diagnosis of children with diarrhoea than their colleges who haven't attended the training course. Likewise, odds for mistakes in classification are only 16% among trained, while among untrained health workers they increase by three and a half times

(57%). It is very interesting that this association is quite similar with that discovered in ARI evaluation. This is a proof of similar impacts provided by similar approaches.

Evaluation question 3

How is the knowledge of health workers on diarrhoea management?

This question can be subdivided into three other questions to better evaluate the components of management; the assessment, rehydration and home treatment.

Evaluation question 3.1

How is the knowledge of health workers on dehydration assessment?

84 health workers were interviewed about their knowledge on assessment of children with diarrhoea.

Below are presented the answers of health workers when asked about the three questions to be formulated to a caretaker bringing a child with diarrhoea.

Table 4.8 *Three questions to be done to a caretaker bringing a child with diarrhea*

If a child has diarrhoea what questions do you ask about the illness?	The question is mentioned by health workers	
	Number	Percent
When the episode began	78 out of 84	92%
Is stool bloody	64 out of 84	76%
Does the child has other illness	39 out of 83	47%

Health workers ask almost always the mothers about the time when the episode began. The frequency of mentioning the second question (is stool bloody?), is getting lower and the question asking for other illness of the child is known by less than 50% of the health workers.

The next table (4.9) investigates on the knowledge about signs to look at when examining a child with diarrhoea. Only the presence of tears is mentioned by less than half of the health workers. It is very interesting to put this result in a framework with previous results regarding the use in practice of dehydration assessment signs. The "presence of tears" is rarely used and when used is not very reliable. This shows a link

between gaps in knowledge and practice and the association between training and practice reinforces this causal chain. The other signs are mentioned more frequently by health workers, especially the skin pinch or turgor.

Table 4.9 Knowledge on seven signs to look at when examining a child with diarrhea

What do you look for when you examine the child, to decide whether the child is dehydrated	The sign is mentioned by health worker	
	Number	Percent
Child's general condition	61 out of 84	73%
Sunken eyes	61 out of 84	73%
Presence of tears	40 out of 84	48%
Dry mouth and tongue	62 out of 84	73%
Thirst, ability to drink	51 out of 84	61%
Skin pinch abnormal	72 out of 84	86%
Total (at least four positive answers)	54 out of 84	64%

Evaluation question 3.2

How is the knowledge of health workers on treating a child with diarrhea and dehydration?

To provide an answer to this question, a block of "exercises" were required to be completed by health workers. They were allowed and even encouraged to refer to the wall diarrhoea management charts. The results are presented in following four tables. The correct answers are bolded.

Tables 4.10 Knowledge of health workers on treating diarrhea and dehydration

	Home with or without advice about ORS	Treat with ORS in facility	Admit or refer for IV rehydration
How should you treat a child with diarrhoea and some dehydration	24 (29%)	39 (47%)	20 (24%)
How should you treat a child with severe dehydration	-	-	81 (100%)

	400-600 ml	As much as child will take	Another amount	Don't know
How much ORS should you give a one year old 7 kg baby with some dehydration	40 (49%)	27 (33%)	9 (11%)	6 (7%)

	1000 (+- 50) ml	Other amount	Don't know
How much IV fluid should you give a 14 month old, 10 kg child with severe dehydration during the first three hours of treatment	40 (57%)	17 (24%)	13 (19%)

	Diarrhea with blood Suspected cholera Other illness requiring antibiotics	All other diarrhea
Which diarrhea cases you must give antibiotics	77 (98%)	2 (2%)

While health workers know very well (100% of them) that a serious case of dehydration must be referred for IV rehydration treatment to a specialised centre, many confuse the treatment of minor dehydration. Is a serious problem the fact that about 30% of interviewed health workers would have treated at home a child with some dehydration. About half of health workers know well details of treatment with ORS and 57% of them responds correctly to the quiz of the IV treatment.

It is very interesting the fact that almost all health workers questioned know the use of antibiotics in case of diarrhoea, while there is a significant overuse in practice. This discrepancy between knowledge and practice might be explained by other factors interfering with health workers everyday work. One of them is the pressure by mothers for the use of antibiotics (see later in this report)

Evaluation question 3.3

What is the knowledge of health workers on instructions to be given to mothers?

This evaluation question investigates on the reasons that might have caused the problems encountered during the supervision of cases management, more specifically when health workers advised mothers about home care.

To measure their knowledge on the issue to the health workers is asked the following question: "What advice do you give the caretaker when you see a child with diarrhea but not signs of dehydration?" (They are not prompted about the answers).

The answers are presented in the Table 4.11.

Table 4.11 Knowledge of health workers on advises to be given to caretaker

Advises	Mentioned by health worker	
	Number	Percent
To give increased fluids	78 out of 84	93%
To continue feeding	62 out of 83	74%
To come back to health worker if child develops danger signs (at least 2 of the following signs mentioned)	52 out of 83	63%
Many watery stools	64 /84	76%
Repeated vomiting	49/84	58%
Marked thirst	22/84	26%
Not eating or drinking well	28/84	33%
Fever	59/83	71%
Blood in stool	46/83	55%
Not getting better in 3 days	46/83	55%

The table 4.11 begins with a remarkable result; almost all health workers know that they have to remind parents about the necessity of giving increased fluids when their children have diarrhoea. Getting downwards into the table, the proportion of doctors having knowledge on advises to be given decreases. Many gaps can be observed in the knowledge related to the signs; mothers must be told about for bringing their children back into the clinic. With the exception of “many watery stools” and “fever”, other signs are not mentioned very often by interviewed health workers. There are some similarities with the results obtained from the health workers practice, but generally "knowledge" is better than "practice". This fact demonstrates the presence of other factors affecting the quality of instructions given to mothers by health workers.

The next table (4.12) presents the results concerning knowledge on home ORS instructions.

The question asked to the health workers was: "What instructions do you usually give the caretaker on the use of ORS? (they were not prompted to answer).

Table 4.12 Knowledge of health workers on home ORS instructions

Instructions	Mentioned by health workers	
	Numbers	Percents
Explain that ORS replaces fluid loss	67 out of 84	80%
Explain and/or demonstrate how much to give	56 out of 84	67%
Give instructions on how to prepare ORS	71 out of 84	81%

Instructions on home ORS are known fairly well by health workers; the proportions range between 67% and 81%. The comment made above, on other factors than knowledge affecting the practice, is still true in the case of instructions regarding home use of ORS.

Evaluation question 4.

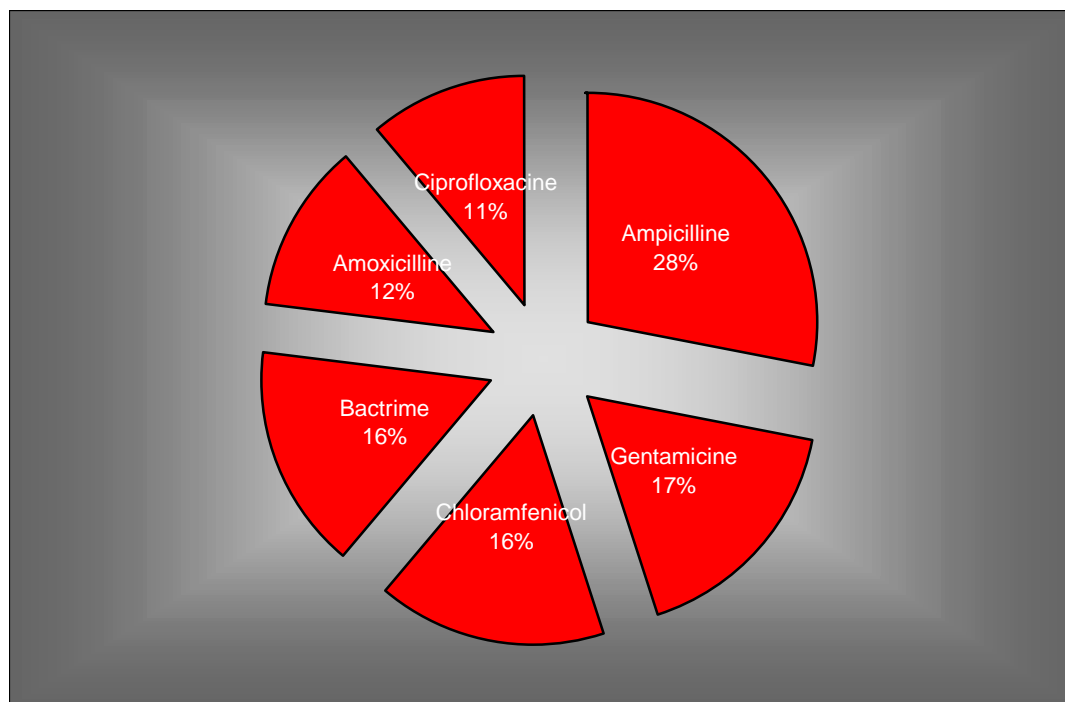
What is the attitude of health workers on drugs in diarrhoea cases?

This evaluation question regards the correct use of antibiotics when a child with diarrhoea is brought at the health facility. Out of 110 eligible patients surveyed 65 were prescribed at least one antibiotic. 14 out them received the antibiotic as a cure for their accompanying sickness, mostly for angina. Among the reasons noted for the remaining 51 were mentioned "the infection", "fever", "little child", "green feces" and even simply "diarrhea". In one case health worker responded: "it is a routine", probably revealing an important underlying reason.

The most frequently used antibiotics are listed below:

Table 4.13 a- The antibiotic used in children with diarrhea

Antibiotic used during the survey	Frequency	
	Cases	Percent
Ampicilline	22	28%
Gentamicine	13	17%
Chloramfenicol	12	16%
Bactrime	12	16%
Amoxicilline	9	12%
Ciprofloxacin	8	11%
Total	76	100%

Graph 10 The antibiotic used in children with diarrhea

Since there were not observed dysentery cases (except for one), on the table are presented the results of the question health workers were asked regarding their routine use antibiotics in case of dysentery.

Table 4.13 b- Antibiotics health workers use in case of dysentery

Antibiotics, health workers use in case of dysentery	Frequency	
	Cases	Percent
Chloramfenicol	29	30%
Bactrime	24	25%
Ampicilline	22	23%
Gentamicine	8	8%
Ciprofloxacine	7	7%
Negram	4	4%
Amoxicilline	2	2%
Total	96	100%

Note: more than one antibiotic is used/mentioned in many cases.

It is clear that there is not a "standard" or "evidence based" use of antibiotics even in the case of dysentery. When asked about their usual treatment in dysentery, health workers gave a large variety of antibiotics. Although the use of ciprofloxacin is lower

than in acute respiratory infections, it is still present with more than 10% of health workers using it in dysentery. They still use massively the anti-diarrhoea and/or anti-emetic medicaments. Among the later ones, "loperamid", "enteroseptol", "tanalbin" and "primperan" are the most frequently mentioned. This is another problem that must be addressed.

Evaluation question 5:

What is the proportion of health staff, trained in standard ARI case management?

Among those interviewed there are 49 out of 84 (58%) health workers participating in a course on diarrhoea case management. This figure is higher than the one resulted from the evaluation of ARI case management.

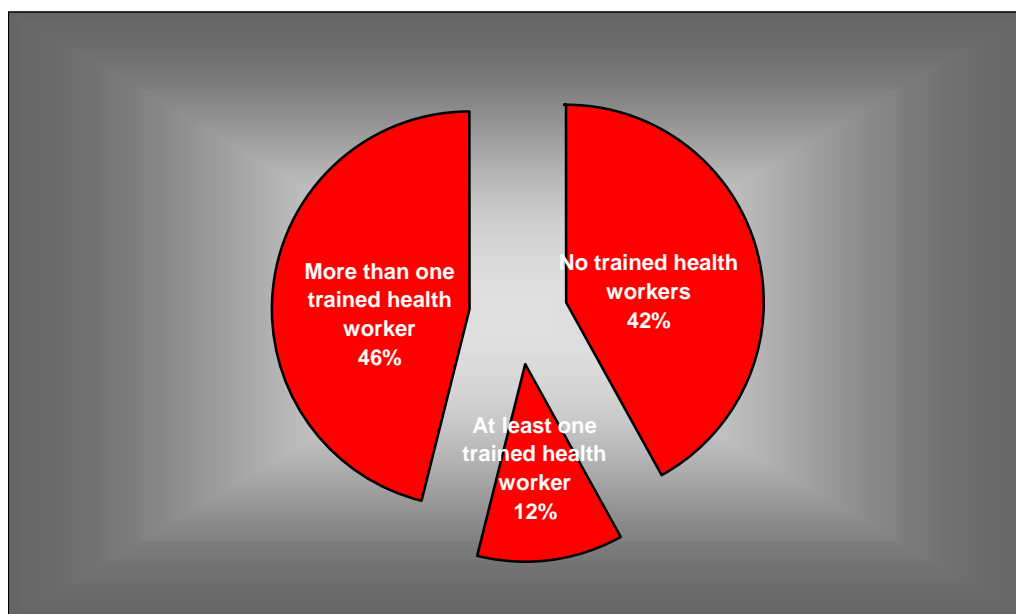
This proportion is projected into all health facilities staff and serves to calculate the important indicator of the program.

Table 4.14 *Proportion of health centres of at least one health worker trained in management of diarrhoea*

Type of health worker	Proportion of health facilities			Total health centers responded
	with no trained health workers	with at least one trained health worker		
		Only one	more than one	
Pediatricians	34 (58%)	8(14%)	27 (28%)	59 (100%)
Other doctors	41(69%)	6 (10%)	12 (21%)	59 (100%)
Nurses	49 (86%)	2 (4%)	8 (10%)	57 (100%)
All combined	25 (42%)	7 (12%)	27 (46%)	59 (100%)

The total of all health workers who treat ARI cases in health facilities surveyed is 323. 183 or 57% out of them have participated in the courses on diarrhoea case management

Graph 11 Proportion of health centres of at least one health worker trained in management of diarrhoea



The low proportion of health workers trained among those interviewed, as well as the high proportion of health facilities without trained staff, can be accused as an important cause of gaps noticed in knowledge and practice of ARI case management.

Evaluation question 6

What is the quality of supervision in diarrhoea cases management?

The data on supervision are presented in the two tables: Table 4.15 and 4.16;

Table 4.15 Supervision of diarrhoea case management coverage and supervisors training

	Proportion (%)
Facilities with a supervisor for diarrhoea case management	30%
Supervisors trained in case management	89%
Supervisors trained in supervisory skills	28%
Supervisors trained in both	22%

The health centres, which are supervised (periodically controlled) for their diarrhoea case management routine, constitute a minority among the health centres visited, only 18 out of 60.

Almost all the supervisors have participated in the training for diarrhoea case management but only a small minority is ever trained in supervisory skills.

In about 40% of the health facilities claiming to have a supervisor, health workers told that in the last three months no meeting with them have taken place.

When describing what their supervisor did during the last supervisory visit, health workers mentioned more frequently the “observation of case management” and “asking if there were any problems”.

Table 4.16 Details of supervisory work

Activity performed by the supervisor during his last supervisory visit	Proportion of health workers mentioning the activity (in %)
Observation of case management	18%
Asked if any problems in providing correct case management	17%
Reviewed records	11%
Feedback on case management	10%
Inspected supplies or facilities	9%
Other	12%

Evaluation question 7.1

What is the quality of the facilities for oral rehydration treatment (ORT)?

In the Table 4.17, showing the situation of ORT facilities in the study, one can see that more than half of the health centres are not equipped with special facilities for oral dehydration treatment. Even when those facilities exist, they are not always adequate or fully equipped.

Table 4.17 Facilities for ORT

	Proportion of health facilities answering positively (%)
Is there a separate area (corner) for ORT	45%
Is there adequate space for treatment (for several mothers, children, staff and equipment)	64%
Is there sufficient furniture for ORT (chairs, table, shelves for supplies)	42%
Are there facilities for caretakers to wash their hands	60%
Are there latrines for patients	63%

Evaluation question 7.2**Are the materials needed for the management of DD present at health facilities?**

Only 60% of health facilities are equipped with diarrhoea management charts. The conditions in which ORS is stored are in general within the standards.

Table 4.18 Materials for ORT

Materials	Proportion of health facilities answering positively (%)
Is there is health centre any written guideline for assessment and treatment of diarrhoea and dehydration (diarrhoea management chart)	60%
Is there a weighing scale that works in the assessment area for diarrhoea patients	70%
Is ORS stored properly	76%

Evaluation question 8**Are health centres equipped with the necessary drugs for diarrhoea treatment?**

54% of the facilities visited had in stock ORS packets. The others claimed to have had in the past but the stock was used up. For the antibiotics is the same situation

observed during the evaluation of ARI management; only hospitals (and not all of them) were provided with antibiotics to be used in dysentery.

Evaluation question 9

Is health education for caretakers a component of health facilities routine?

Table 4.19 *Health education*

	Proportion of health facilities answering positively (%)
Does health facility conduct regular health education sessions that include information on diarrhoea	61%
Are there health education posters on diarrhoea prevention	54%
Are there other health education materials available for teaching prevention	25%

It seems surprisingly high the proportion of facilities offering health education for caretakers, despite the frequency of sessions. If they would have been better equipped with health education posters and health education materials, probably the number of health facilities involved in this activity would have been even higher.

Evaluation question 10

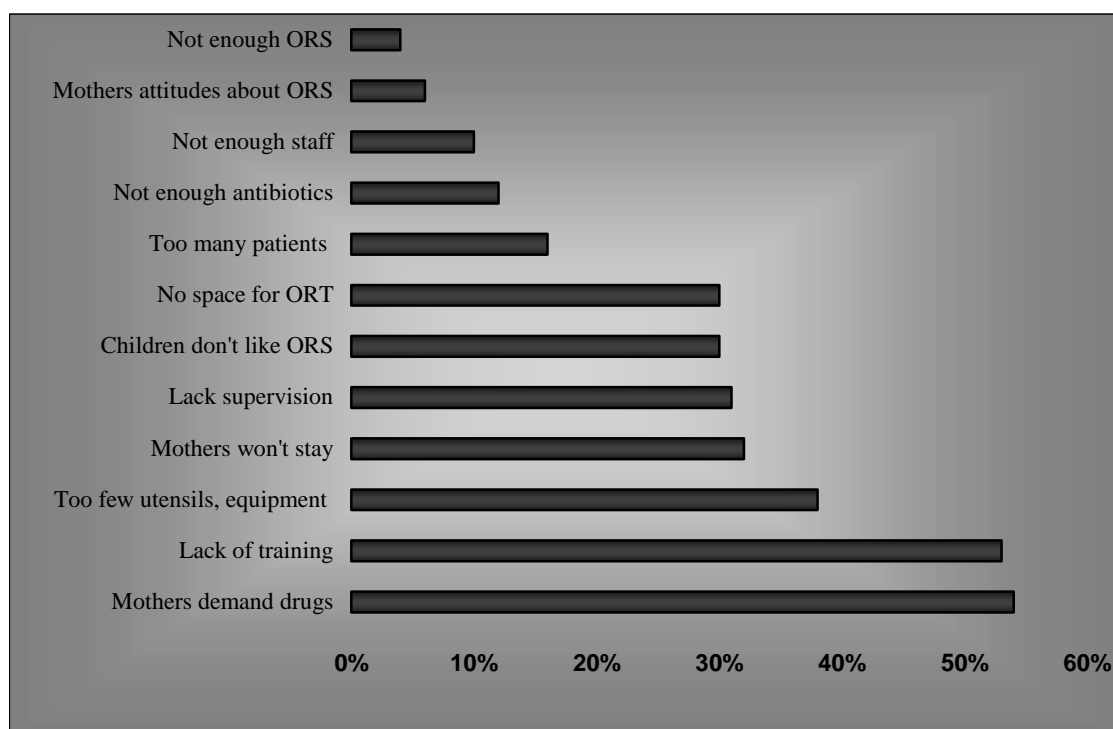
What are the difficulties or obstacles in managing children with diarrhoea perceived by health workers themselves?

Health workers answered in the following manner (Table 4.20) to the standardised question on commonest difficulties:

Table 4.20 Difficulties encountered by health workers in managing diarrhoea cases

Difficulties	Proportion of health workers mentioning the difficulty
Mothers demand drugs	54%
Lack of training	53%
Too few utensils, equipment	38%
Mothers won't stay	32%
Lack supervision	31%
Children don't like ORS	30%
No space for ORT	30%
Too many patients	16%
Not enough antibiotics	12%
Not enough staff	10%
Mothers attitudes about ORS	6%
Not enough ORS	4%

It is interesting to see that lack of training and demand of drugs by mothers are the most frequently mentioned as obstacles towards a better management of children with diarrhoea, while the lack of ORS is almost non existing. About one third of health workers mentioned other difficulties as “too few utensils, equipment”, “mothers won't stay”, “children don't like ORS”, “no space for ORT”, and “lack of supervision”

Graph 12 Difficulties encountered by health workers in managing diarrhoea

CONCLUSIONS AND RECOMMENDATIONS

4. CONCLUSIONS AND RECOMMENDATIONS

4.1 CONCLUSIONS,

Drawn from the evaluation of programme of acute respiratory diseases control (ARI)

- **The majority of health workers, who manage cases of diarrhea in children, practice the WHO/UNICEF standards. Nevertheless a significant part of them (29%) are still far from applying correct procedures.**
- **57 % of health facilities in Albania have at least one health worker trained on diarrhea case management. In 33 % of the health centers there are more than one health worker.**
- **The personnel of health centers have shown better results in treating pneumonia cases than in classifying them. The cause for this are the gaps in knowledge of severe pneumonia and very severe disease. The contrary is true for non-pneumonia cases; they are easily classified but their treatment is far from standards. The cause is overuse and/or misuse of antibiotics.**
- **Health workers are more inclined to use the traditional diagnostic methods versus methods advised by the programme. So, “chest indrawing” is checked in only 60% of the cases observed, while “breathing rate” is counted by an even lower proportion of health workers (17%).**
- **Antibiotics continue to be used in large scale in the cases complaining only for cough and fever. In 20% of the cases no reason is given for their prescription and in 40% of the cases they are prescribed for accompanying diseases like pharyngitis, tonsillitis ect. Uncertainty on disease classification, lack of knowledge regarding the standards and pressure from the patients, remain important reasons for such a practice.**
- **Amoxicilline is the most used antibiotic (about 30% of practitioners preferred it) followed by ciprofloxacin (used in about 20% of the cases). The use of later one constitutes a serious problem because this medicament is not recommended for children. Other antibiotics**

prescribed frequently are ampicilline, penicilline, gentamicine, and bactrime.

- **Regarding advice given to caretakers on home care, study showed many gaps and space for intervention. Only 61 % of mothers are given instructions. Even among them, no more than a small fraction receives correct and comprehensive advice according to the standard case management. Nonetheless, there are not discovered barriers in communication between health workers and caretakers. The vast majority of the later ones remind fairly all advises or instructions given.**
- **The knowledge of health staff on standard acute respiratory infection case management is weak. Only about one third of health workers have very good knowledge, the others have various gaps, which affect anyhow the everyday practice of management.**
- **The supervision of management of children with cough and/or difficulties in breathing is carried out infrequently in Albania. Only 20% of health workers have been supervised during the last three months.**
- **The training performed under the programme of ARI has produced long-term results. Health personnel trained on management of acute respiratory infections is about 4 times more capable to classify or diagnose patients than untrained personnel.**
- **In many health facilities, written guidelines or standard algorithms on management of children with ARI are missing. These materials were found present only in approximately one third of the health facilities visited.**

4.2 CONCLUSIONS,

Drawn from the evaluation of programme of control diarrhoea diseases (CDD)

- **The majority of health workers who are responsible for managing children with diarrhoea follow the procedures recommended by WHO/UNICEF. Nevertheless, an important part of them (40 %), still don't comply with correct standards.**
- **There are important improvements among health workers in terms of being aware about the dehydration prevention strategy. The use of oral rehydration solution (ORS) in prevention of dehydration, although often not accompanied with necessary instructions, is advised in almost all the cases.**
- **58 % of health centers in Albania have at least one health worker trained in management of diarrhea cases. In 46% of them there are more than one trained health workers.**
- **76% of the cases with diarrhea are correctly diagnosed by health workers and over 82% of dehydrated children are correctly rehydrated.**
- **The study unveiled many gaps with regard to advises to be given to caretakers for home treatment of diarrhea. This indicator has been the most important factor for decreasing the overall quality of diarrhoea case management. Though about 74% of parents are advised generally on home care, only 54% of them receive all the necessary instructions on correct use of ORS.**
- **Antibiotics are still in use as a treatment for diarrhea, eventhough the knowledge of health workers about diarrhea or dehydration treatment standards are generally good. Only one case out of 51 (0.5%), when antibiotics are used, is considered correct. In all other cases the use of antibiotics have been unnecessary. The parent's pressure for prescribing medicaments, especially antibiotics, remains an important cause of this practice.**

- **Chloramphenicol is showed to be the most frequently used medicament, followed by ampicilline. The use of ciprofloxacin remains a problem (10% of the cases) although the frequency of prescription is lower than in acute respiratory infections.**
- **The use of anti-diarrhea medicaments is very extensive (in 67% of diarrhea cases observed) and constitutes another serious problem.**
- **The majority of health facilities have problems of infrastructure regarding the treatment of dehydrated children; rehydration corners or other necessary equipment are not found in many health facilities visited.**
- **The supervision of management of children with diarrhea is carried out infrequently in Albania. Only about one third of health workers have been supervised during the last three months. Lack of supervision is mentioned by health workers themselves as one of the most important problems they encounter in their work.**
- **The training performed under the programme of CDD has produced long-term results. Health personnel trained on management of diarrhoea is about 4 times more capable to classify or diagnose patients than untrained personnel.**
- **The level of theoretical knowledge of health staff relating to standard management of diarrhea cases is various for different elements. Anyhow, only 44% of health workers are answered correctly 8 out of 10 theoretical questions or exercises.**
- **During the evaluation of a diarrhea cases health workers still make errors in differentiating the classification "severe dehydration" from "some dehydration" and these errors are affecting the treatment of the cases.**
- **Almost in no health centers have been observed intravenous rehydration. It seems that this procedure is a hospital exclusivity.**
- **Among the dehydration signs "tears", sunken eyes" and "thirst" are the least used in practice by health workers.**

4.3 RECOMMENDATIONS

Some recommendations can be formulated based on the conclusions listed above. They imply interventions aiming at the improvement of the case management quality in diarrhea and acute respiratory diseases:

- 1. The implementation in Albania of the Integrated Management of Childhood Illness strategy could find, without any doubt, a lot of space for improvement at long term and among other outputs it would generate important positive results in the health services quality enhancement**
- 2. The interventions listed below are identified as the most efficient ones at short term:**
 - To strengthen the supervision process in all the levels and increase the continuous support of the health personnel, especially by mother and child local inspectors.**
 - To provide clearer guidelines regarding the cases when to use antibiotics in acute respiratory infections and diarrhoea and which are the recommended antibiotics. The recommendations must address as well the use of anti-diarrhoea medicaments.**
 - To identify the health facilities where guidelines for acute respiratory infections and diarrhoea diseases case management are missing and provide them with the standard algorithms and posters.**
 - To increase the awareness and motivation of health workers making them spend more time in advising mothers and giving instructions on home care.**

