

PN-ACB-514
96243

**CENTRAL ASIA INFECTIOUS DISEASE PROGRAM
CAIDP**

**HEALTH FACILITIES ASSESSMENT
Zhambul-Kazakstan
Osh-Kyrgyzstan
Ferghana-Uzbekistan**

November 1996

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BASICS Activity Code Number: 000 KG/UZ/KZ 02 013
USAID Contract Number: HRN-C-00-93-00031-00

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ACKNOWLEDGMENTS

The writer wishes to thank all those who were involved in the health facility assessment in November 1996, whose efforts provided the information for this report: Dr. Alain Roisin (BASICS consultant), Prof. Dr. Bakhtyar Kadirov (MOH), Dr. Diyara Gazieva (BASICS NTO) and the Oblast Health Department of Ferghana in Uzbekistan; Dr. Elisabeth Szumilin (BASICS consultant), Dr. Ludmilla Zemlianykina (MOH) and the Oblast Health Department of Osh in Kyrgyzstan; Dr. William Adih (BASICS consultant), Dr. Svetlana Zhakizheva (MOH), Dr. Aigul Kuttumuratova (BASICS NTO) and the Oblast Health Department of Zhambul in Kazakstan. The technical input of John Murray (BASICS Technical Officer) was highly valued. Appreciation is also expressed to Tom Moore (RPM) and Dr. Aigul Kuttumuratova for their participation in the prescription analysis, and, with Dr. Diyara Gazieva, for the implementation of the simulated purchase survey.

The input of Dr. Laurence Laumonier (BASICS regional advisor) during the different stages of the survey, analysis and report writing was highly valued, as was the efficient logistics support of the BASICS Regional Office staff in Almaty.

The Central Asia Infectious Disease Program (CAIDP) is a collaborative program implemented by the USAID/Basic Support for Institutionalizing Child Survival (BASICS) Project, the Centers for Disease Control and Prevention (CDC) and the USAID/Rational Pharmaceutical Management (RPM) Project.

ACRONYMS

ARI	acute respiratory infection
BASICS	Basic Support for Institutionalizing Child Survival Project
BCG	Bacillus of Calmette and Guerin (tuberculosis vaccine)
CAIDP	Central Asian Infectious Disease Program
CAR	Central Asian Republics
CDD	control of diarrheal diseases
DD	diarrheal diseases
DPT	diphtheria, pertussis, and tetanus vaccine
DT	diphtheria and tetanus toxoid combination vaccine (for use in young children)
EPI	Expanded Programme on Immunization
FAP	feldsher (medical assistant) accoucheur (midwife) post
HW	health worker
IMCI	integrated management of childhood illness
MCH	maternal and child health
MOH	Ministry of Health
NID	national immunization days
NIS	Newly Independent States
NTO	national technical officer
ORS	oral rehydration salts or oral rehydration solution
ORT	oral rehydration therapy
RIHFA	Rapid Integrated Health Facility Assessment
RPM	Rational Pharmaceutical Management
SUB	rural rayon (etrap) hospital; rural outpatient clinic
SVA	rural hospital; rural medical ambulatory clinic
Td	tetanus and diphtheria toxoid combination vaccine (for use in older children and adults)
UNICEF	United Nations Children's Fund
WHO	World Health Organization

EXECUTIVE SUMMARY

At the request of the respective Ministries of Health, BASICS carried out a rapid integrated health facility assessment (RIHFA) in Ferghana Oblast in Uzbekistan, Osh Oblast in Kyrgyzstan, and Zhambul Oblast in Kazakhstan as an important activity of the USAID-funded Central Asian Infectious Disease Program (CAIDP) in November 1996. The purpose of the survey was to assess current knowledge and practice of the health workers in charge of the care of children at outpatient clinics, adequacy of training and supervision of the same health workers, and adequacy of equipment and supplies at the health facilities visited. Equally important was the introduction to national and oblast health officials of a low cost tool to quickly evaluate key areas of child health care. The survey results would enable each MOH to focus the training activities of the CAIDP which were to be implemented in the same oblasts, and would enable the oblast health departments to identify important areas for improvement in their health system.

In each oblast, a sample of outpatient clinics was selected. The absence of reliable data on the activity status of the lower-level health facilities prevented the selection of an equal probability sample of all facilities in the oblast. Facilities visited during preliminary assessments of the CAIDP, those too difficult to reach, and those with a patient load less than four sick child consultations a day were excluded from the sample frame. The lowest tier of health facilities (FP, FAP) were also excluded. Within the sample frame an equal probability sample was taken, adding one lowest-level facility (FAP, FP) to each rural facility (SUB, SVA). At each of the selected facilities, children under 5 years old who presented with the complaint of diarrhea, fever, or cough/difficulty breathing/pneumonia were included for observation.

Survey instruments were adapted for the Central Asian Republics (CAR), translated into Russian and field tested in Zhambul rayon of Almaty Oblast. The final version of the questionnaires was translated into Kazakh, Kyrgyz and Uzbek on request of the respective MOH. Training of surveyors, data collection, preliminary analysis and preliminary indicator presentation took place between 11 and 29 November, 1996, and was possible in this limited time period thanks to intense and excellent collaboration between national and oblast level MOH officials, BASICS regional and local staff, BASICS and RPM Washington staff and international consultants. The RPM consultant and BASICS country staff conducted a simulated purchase survey in December 1996, to gather complementary information on prescription practices in pharmacies. Data on prescribing practices were analyzed through the Prescription Analysis Software System (PASS) by RPM.

In general, facilities visited were functional, with staff present, and reasonably well equipped. Many were in need of maintenance or repair. Lack of reliable electricity, heating, potable water in the facility, functional latrines, functional diarrhea corners, a reliable timing device will interfere with adequate case management in several of the facilities visited.

Poor availability of essential drugs interferes with adequate case management in many facilities. Ready availability seems to be a problem also in private pharmacies visited.

Main reason given for this situation are the present economic constraints. Rethinking distribution systems, investigation of local self-financing schemes and introduction of a valid inventory tool at facility level may render the problem less acute.

The 513 children included in the survey were, in general, promptly examined for the presented complaint. The total consultation time tends to be on the short side, and this tendency may be enhanced by the planned health insurance systems in some places. Severity of disease was not systematically assessed, nor were all necessary history questions for ARI and diarrhea asked. Specifically, ear problems were neglected in many ARI cases, as well as the presence of blood in the stool in many diarrhea cases. Systematic assessment of severity and exclusion of concurrent diseases should be emphasized in the upcoming ARI and DD training. Drug dispensers tend to ask almost no questions that would help them assess severity of the disease.

The immunization status of children is not assessed systematically in all cases, and even when assessed and found not up-to-date, children are not always systematically referred for vaccination. In spite of the recent diphtheria problems, caretakers' immunization status for diphtheria was given even less attention. Adequate attention to the immunization status may diminish lost opportunities.

Respiratory rate was counted only in a minority of the ARI cases. Except for Ferghana, the same is true for checking the ears of children with ARI. Not all diarrhea cases were weighed or checked adequately for dehydration. Nutritional status, including specific micronutrient deficiencies, were not systematically checked. All of these shortcomings may be mended through adequate case management training, as planned during the CAIDP.

Adequate classification of the illness could not be checked, since the surveyors did not have training in the WHO-recommended classification. National treatment guidelines do not exist as independent references. Existing *prikazes* that could serve as a reference often date from the Soviet era, are not always in line with WHO-recommended practices and are not always available in the clinical setting. Ample attention should be given to a review of existing *prikazes* for discrepancies with WHO-recommended practices. Appropriate WHO material should be made available in Russian and, where necessary, in the national languages.

In all three oblasts, prescription of drugs could be more rational. The pattern found in the observed cases (more drugs than necessary per treatment, too many injections and antibiotics) entails more costly treatments, with excess cost related to drugs that are not necessary. Introduction of standard case management may alter these practices at the health facilities. Antibiotics have precise indications where epidemiological or laboratory evidence suggests a bacterial infectious agent. In absence of this evidence, use of antibiotics is not only ineffective and a waste of resources, but it can also result in resistant strains of microorganisms. This is especially serious when national capacity for laboratory monitoring of antimicrobial sensitivity is limited or nonexistent. In all training, health care staff should be made aware of the detrimental consequences of unjustified use of antibiotics.

Minimal treatment information for prescribed drugs (what, how, how much and during what period) was given reasonably well by most health workers. The administration of ORS has to be recommended in a way that is at once exact and specific, and also easy to comply with at home. Preferably, recommendations should be those stated in the IMCI algorithm.

Prescription practices of drug dispensers are worse than those of the health workers on all accounts. In the present climate of privatization, more and more drug dispensing will go on at outlets not under direct government control. However, quality assurance will probably involve the government in the future. Ideally, all drug dispensers should be licensed and aware of recommended standard treatments. This is not easily done, because seldom are governments able to dictate anything to the private sector. While the private sector is still building up, this may be a good time to look for strategies to influence prescribing practices at private drug outlets for the better.

Possible savings can be made by opening access to the international market and rational procurement. For many of the prescribed drugs, sources exist that are less expensive (38-71 percent less, depending on the oblast) than the local market. Adhering to rational prescribing practices (standard treatments, i.e., only necessary medicine in its appropriate form and dosage) can also diminish treatment costs. For non-pneumonia ARI, this could entail more than 90 percent savings compared with the present cost per treatment per case. Adherence to standard treatment can be promoted through training in adequate case management, but this alone will not be sufficient. Aggressive promotion of essential drug lists, free access to low-cost essential drugs on the international market, appropriate regulation of drug licensing and quality control, and control of prices and reasonable profit margins on essential drugs are also needed.

General signs for referral to the hospital are well known to the health workers. Specific signs (severe malnutrition, severe dehydration, abnormally sleepy child, failure of treatment) should be better known. More than 90 percent of the health workers mentioned encountering difficulties when referring children to the hospital, mostly because of socio-economic difficulties invoked by the parents. Minimizing unnecessary referral through adequate case management may encourage caretakers to follow referral advice in spite of the difficulties. Enough attention should be given during training to the scenario "where referral is impossible" in order to ensure adequate treatment as much as possible. Present efforts in health reform should take existing barriers to adequate referral into account and propose ways to alleviate them.

While most health workers are regularly briefed on new developments, apparently none of the health workers had any clinical hands-on training during the year prior to the survey.

Most health workers had a functioning supervisor, received at least two supervisory visits during the last six months and were able to recall specific activities that took place during the last supervision. Little more than half could give a schedule for supervision. Supervisors tend to see and treat patients during the visits. Report reviewing and teaching are other frequently mentioned activities.

Almost all health workers claim to get feedback from their supervisor, but rarely was a record of that feedback found. The recommended frequency of supervision is often still once a month; this should be adapted to economic reality.

Quality of supervision is unlikely to be ideal: quality of care is not regularly, nor systematically, assessed. The present system seems to focus more on the needs of program managers (national and oblast level), than on the need for supportive supervision of peripheral health workers. A systematic approach to supervisory activities should be developed, including a feasible schedule of supervisory visits, standard supervisory checklists, and adequate strategies for providing feedback and education to health workers. As suggested by the different oblast health departments, parts of this survey could be adapted for this purpose. Specifically, clinical case management should be addressed during supervisory visits. Supervisors should therefore be trained in clinical case management, and, during the development of training strategies for each oblast, a realistic supervision schedule and adequate checklists should be developed to assess health workers' performance. A workshop on integration of the checklists into the present system should be attached to one of the master trainer courses.

Required reports are mostly kept adequately up-to-date, even when preprinted forms are no longer available. Manual duplication of the forms on blank paper unnecessarily burdens the health workers. Planned interventions should take into account that the current health system lacks funding to ensure necessary stocks of preprinted forms. Revision of monitoring and supervision systems should aim at reducing the number of forms needed.

Most health workers saw it as their task to communicate health topics or messages to caretakers, but only a minority was aware of the importance of ensuring comprehension of the given messages. One of the frequently mentioned difficulties is that caretakers "do not understand" or "do not follow advice anyway", which may reflect more the perception of the health worker. Specific danger signs that would urge the caretaker to come back with the child are mentioned in barely half of the cases. Very few health workers checked comprehension of the recommended treatment and danger signs. The importance of explaining complete treatment, home case management, danger signs and when to come back with the child needs to be stressed during the clinical case management course. Ample attention should be given during the clinical training course on the way health workers communicate. Systematic checking of how well the caretakers have understood messages given should be stressed.

Health workers' knowledge of the national vaccination schedule is excellent. Lack of reliable electricity interferes heavily with the immunization cold chain in Osh and Zhambul. In the three oblasts, frozen DPT was found in at least one refrigerator. In Osh and Zhambul, vaccine was kept in the non-functional refrigerators. Less than half of the facilities visited had all antigens used for routine vaccination in stock. This survey cannot assess the extent to which the present cold chain management has problems, but the results indicate that there is probably room for improvement. A more specific and detailed assessment is needed before specific interventions for improvement can be contemplated.

Caretakers' knowledge of the child's immunization status is good, but almost no caretakers knew the six diseases prevented by childhood vaccination, nor all the possible normal side-effects of vaccination. When children were turned away for vaccination, the most frequent reason was illness. Health workers are the most important source of information for caretakers regarding immunization; they should be sure to inform caretakers accurately about the diseases prevented by the vaccinations offered, the normal side-effects of the different vaccinations, as well as the immunization status of their children. All three countries have been adapting their list of contraindications to the WHO-recommended list. Uzbekistan still shows the biggest discrepancy in the present list. Only Kyrgyzstan actually monitors the number of children turned away for contraindications, through its newly adapted immunization monitoring system. The fact that too many children seem to be turned away for "illness" needs to be further investigated in each oblast to assess actual adherence of health workers to the new policies. The ongoing effort to limit the contraindications to vaccination to the WHO-recommended ones should be pursued and its implementation monitored.

While at the most 20 percent of the caretakers went elsewhere before coming to the health facility, more than half of the children with ARI or diarrhea were treated at home before being brought to the health facility. There are indications that children may be brought to the health facility later after onset of illness in Zhambul than in Osh and Ferghana. Traditional methods (herbs, rubbings) are used primarily for ARI. Further investigation of these methods could be undertaken during the qualitative research. At best, half of the children with diarrhea were treated with ORS or home fluids, and seldom was it mentioned that feeding of the child was continued. Both for ARI and diarrhea, a considerable number of cases was given antibiotics before consulting the health worker.

General aspects of home case management are rather well known by the caretakers, but specific disease-related danger signs to watch for are rarely mentioned. Knowledge of what ORS does, how to prepare it and how to administer it could be improved. Improving the communication skills of the health workers may lead to increased caretaker knowledge of exact home case management. The diarrhea case management training will have to stress the need to make sure that caretakers know exactly how to prepare ORS, and how to administer it. Diarrhea treatment corners are excellent tools for this purpose. The misconception that ORS will stop diarrhea may prevent mothers from continuing ORS if the expected outcome is not there after a few administrations, and thus prevent its true valuable action—prevention of dehydration. The communication module of the diarrhea case management course should specifically address this misconception.

With increasing privatization of the health sector, public awareness of health is very important. Mass media like radio and television could be used to increase this awareness, but the mentioned electricity problems may hinder their frequent use. Apparently television is more popular than radio in all three oblasts, though the large majority of the caretakers came from rural areas.

Health messages distributed through both media could reach more than 80 percent of caretakers in Ferghana and Osh. However, in Zhambul, probably only a little more than half would be reached. More specific research is needed in Zhambul to assess alternatives.

The survey results have served as the basis for discussions with the national and oblast counterparts of the CAIDP and to focus the remaining activities of the CAIDP. Selected topics, presented in the Workshop on the Implementation of Diarrheal Disease and Acute Respiratory Infections Programs in the Central Asian Republics, helped focus discussions on priorities to be addressed by the recommendations of the workshop on training, monitoring and supervision of health workers in the outpatient clinic setting. Specifically, counterparts requested BASICS assistance to develop checklists for monitoring and supervision of DD and ARI case management, to be integrated in the existing supervision activities.

National, oblast and rayon level health staff were trained in the survey techniques, collection and analysis of survey data and the use of data to improve the quality of case management in outpatient health facilities. At the request of the counterparts, the survey questionnaires and guidelines will be further adapted to integrate the experience of the November surveys, and made available in English and Russian for future use to counterparts and other interested parties.

Promotion of democracy and decentralization are part of the strategic objectives of the USAID mission in the CAR. The present tendency within the MOH is to increasingly put the responsibility for health care in the hands of local (mainly oblast level) authorities. This survey provides the oblast governments with a low cost tool to quickly assess their health facilities for major problems and decide on how to address them and monitor improvement.

I. INTRODUCTION

Kazakstan, Kyrgyzstan and Uzbekistan have implemented ARI/CDD programs, based on WHO recommendations, to different degrees. The ongoing programs have had success, witness thereof is the decline in disease-specific mortality rates. However, these programs may require different interventions in different stages of the program. Also, in spite of the relative success, the mortality due to diarrheal disease (DD) and acute respiratory infection (ARI) was still above the European average.. Routine reporting provided little clues as to the reason why. Therefore, the program managers of the respective ministries of health concluded that a rapid assessment, investigating strong and weak points of the present strategies as well as possible areas for new interventions, was called for. This was all the more important because the short-term technical assistance under the USAID-funded CAIDP would allow rapid implementation of some of the new interventions.

BASICS was requested by the MOH of the three countries to assist with the part of the assessment focused on actual health worker performance in outpatient facilities in the CAIDP target oblasts of Ferghana(Uzbekistan), Osh(Kyrgyzstan) and Zhambul(Kazakstan). RPM was requested to assist with specifically assessing the present prescription behaviour in selected health facilities. The Rapid Integrated Health Facility Assessment (RIHFA) has been developed as an assessment tool for primary health care programs which are planning to integrate child health care services. The RIHFA should under no circumstance be seen as a tool to criticize ongoing efforts. On the contrary, its application reflects the genuine concern of all those involved on the national, oblast and rayon level to offer optimal assistance with the available resources. The report mentions strengths and weaknesses, and if it tends to focus on the weaknesses, it does so only because the weaknesses may best reflect areas where new approaches may be successful. It needs to be noted that, throughout the survey, all expatriate consultants were impressed by the general technical level of the interviewed health workers, and the dedication shown by both health workers and survey participants, performing their tasks in often very difficult circumstances.

The starting point for the survey in the CAR was the version of the RIHFA, used in Ethiopia in 1996. This version was adapted by the BASICS consultant (*Paul Ickx*), in cooperation with the MOH national CDD/ARI coordinators and BASICS NTOs in late September-early October, 1996. Much of this was done via telecommunication, since BASICS NTOs were involved in a preliminary assessment of CDC at the same time. During the same period, the RPM consultant (*Paul Ickx*) integrated the questions necessary to obtain prescription data into the questionnaires. This adapted version of the questionnaire was translated into Russian, field tested in the Zhambul rayon of Almaty oblast in Kazakstan, October 7 through 11, and further refined. It was then reviewed in Washington, October 14-18, by BASICS technical officer (*John Murray*) and the consultants who would supervise the survey activities in each country (*William Adih, Paul Ickx, Elisabeth Szumilin*). Participant guidelines were translated into Russian and questionnaires into Kazakh, Kyrgyz and Uzbek the last two weeks of October, while the EPI-INFO entry screens were adapted to the revised questionnaires.

One week was taken to finalize participant guidelines, training guidelines, determine the actual survey timeline and sampling for each oblast. This work was done in Almaty the first week of November, by the national CDD/ARI coordinators, BASICS NTOs and BASICS consultants (*Adih, Ickx, Szumilin, Roisin*). Supervision of survey activities in each oblast, including surveyor training, data collection and analysis, was carried out by the national CDD/ARI coordinator, assisted by the BASICS consultant and BASICS NTO from November 11-29, 1996. Separate reports were written by country and for the prescription analysis and the simulated purchase survey, carried out in December by the RPM consultant and BASICS NTOs in Almaty. These reports can be found in the appendixes. Throughout preparation and the actual survey, the regional office provided intense logistics support.

II. OBJECTIVES

The objectives of the health facility assessment were as follows:

1. To determine
 - a) current knowledge and practices of health workers at outpatient clinics regarding the assessment and management of sick children
 - b) the barriers to effective case management practices
 - c) the adequacy of training and supervision of health workers
2. To use information obtained on case management practices, training, supervision and barriers to public health practice to
 - a) prioritize and plan improvements in outpatient health facilities at all levels, including staffing, clinic organization, equipment requirements, drug and material supplies and communication
 - b) improve and develop pre-service and in-service training for health care workers in the outpatients clinic setting
 - c) improve and develop a strategy for supervising and monitoring health worker performance
3. To train national, oblast and rayon level personnel in survey techniques, collection and analysis of survey data, and the use of data to improve the quality of case management in outpatient health facilities.

III. METHODOLOGY

A. Sampling

Sampling was done by the coordinating teams of each oblast. A coordinating team was constituted by the BASICS consultant, the BASICS NTO (national technical officer) and the national coordinator for CDD/ARI of each country, during the preparatory week of November 4-9, in Almaty. The sampling frame contained all health facilities in the three target oblasts.

The sampling frame for each oblast was as follows:

Table 1: Sampling frame
(Health Facilities Assessment, CAIDP, November 1996)

	Ferghana	Osh	Zhambul	Total
Polyclinic	40	15	6	61
SVA	140	49	32	221
SUB	38	60	14	112
FAP	648	140	88	876
Total	866	264	140	1270

It was not possible to obtain an equal probability sample of health facilities in each oblast:

- All facilities which were not accessible during the five- to six-day data collection period were excluded; this interfered with the sampling more in Zhambul and in Osh than in Ferghana.
- All facilities that had been identified from available reports as seeing fewer than four sick children a day were excluded from the sample.
- All facilities visited during preliminary assessments of the CAIDP were excluded, since the health staff might have changed their attitude towards the target diseases due to feedback during these assessments. This led to exclusion of two rayons from the sample in Zhambul, since several facilities had been visited, but could not be identified.
- FAPs were selected based on information about their activity status given at the supervising facility, and in Ferghana no effort was made to include FAPs in proportion to their numbers since the health reform would integrate FAPs in the higher level health facilities in the near future.

The resulting sample consisted of following type of facilities:

Table 2: Survey sample
(Health Facilities Assessment, CAIDP, November 1996)

	Ferghana	Osh	Zhambul	Total
Polyclinic	4	8	6	18
SVA	14	5	6	25
SUB	4	12	5	21
FAP	9	14	13	36
Total	31	39	30	100

In each facility, the sample consisted of all infants and children under 5 years of age presenting to a health facility during the period of observation whose mothers described them as having **fever, cough/difficulty breathing/pneumonia, or diarrhea**. The total number of infants and children, therefore, represents clusters brought to the sampled health facilities. The larger number of children observed allows greater statistical precision than when health facilities are used as the unit of measurement. The habit of performing home visits combined with the absence of heating in many facilities urged the coordinating teams to make the survey vehicle available to bring children to the facility. In a few cases, the surveyor would accompany the health worker on a home visit.

B. Survey Instruments

The survey instruments were designed to obtain information on key aspects of the knowledge and practices of health care workers and of mothers leaving the health facility. In addition, information was gathered on the health facility, including the availability of materials and supplies. The survey was designed to assess important aspects of the case management of sick children, but did not require that "standard case management" training had been conducted in the past.

Four survey instruments were used at each outpatient health facility:

- a) Observation of how a health worker manages the sick child
- b) Interview of health personnel regarding knowledge and practices of case management of sick children
- c) Exit interview with the caretaker of the child as s/he leaves the health facility
- d) Assessment of facilities and supplies

Survey instruments were translated into Russian, Kazakh, Kyrgyz, and Uzbek, and were administered in Russian or the national language. Questionnaires were field-tested at health facilities in Russian in advance to check both the comprehension of the questions by surveyors and interviewed persons, and the accuracy of the translation.

C. Field Work

Field work in each oblast was conducted by teams, each comprising a supervisor and two or three surveyors. In each oblast, the coordinating team was reinforced by a person of the local health administration. The coordinating teams were responsible for collecting questionnaires and entering questionnaire data into the EPI-INFO database during the survey week. At each health facility, the supervisor was responsible for introducing the team and explaining the purpose of the visit. During the clinic visit, the supervisor identified children meeting the case definition for entry into the survey and gave an identification card to the caretakers of these children to ensure that they were followed in the clinic. In addition, the supervisor conducted the facility equipment and supply review section of the survey. One surveyor was stationed in the consulting room and conducted the health worker observation component of the survey; at the end of the clinic this surveyor also conducted the health worker interview. The second surveyor conducted exit interviews with caretakers as they left the clinic with their child. The supervisor monitored the performance of the surveyors regularly to ensure that questionnaires were correctly completed; errors or incomplete questionnaires were corrected in the health facility. At the end of the day, the supervisor reviewed all questionnaires for completeness and accuracy.

Training of survey teams was conducted by the coordinating teams November 11-16, 1996, in each of the oblast centres. Training included a review of survey methodology and objectives, implementation plan for field activities and careful review of the survey instruments. Training involved group activities, role plays and practice sessions at local outpatient health clinics. Inter-surveyor reliability was more than 80 percent for each of the questionnaires by the end of the training period. Field work was conducted November 18-23, 1996. A different health facility was visited on each of the five to six days available for the survey. At each health facility, survey teams attended the entire clinic session which was usually conducted between 8:00 A.M. and 14:00 P.M.

D. Data Analysis

Questionnaire data were coded and then entered into EPI-INFO (version 6.0) software by consultant staff and BASICS NTOs during the survey week. Preliminary data analysis was conducted November 25-29, 1996, by the survey teams, some additional staff of the oblast health department and coordinating team. Descriptive data analysis and key indicators were summarized and discussed with survey teams. The use of survey information to improve the quality of all health services was discussed, with an emphasis on how each participant would use the information in his own area.

The survey findings were presented and distributed to oblast and rayon health officials by the end of the week, to discuss priorities for improving the quality of child care in their areas. Translated copies of these findings and recommendations are attached in Appendixes D, E, and F.

Prescription data were extracted and converted for use in the Prescription Analysis Software System during December in Almaty by the RPM pharmaceutical management consultant and BASICS NTO for Kazakstan, and in Washington by the RPM country program officer.

E. Simulated Purchase Survey at Pharmaceutical Outlets

During December 1996, a simulated purchase survey was carried out by the RPM pharmaceutical management consultant and BASICS NTO for Kazakstan and for Uzbekistan. Pharmaceutical outlets are a readily accessible source of drugs, and are reportedly to an increasing degree visited directly, without visiting a clinician first. Data of this survey was analyzed in January 1997, with input from the RPM country program officer in Washington. Results of this survey on practices of dispensers, are compared where appropriate with those of the health workers throughout the report.

IV. FINDINGS, DISCUSSION AND RECOMMENDATIONS

The design of the survey allows for assessment of whether certain actions were performed, certain questions asked, certain topics discussed or mentioned in answer to open-ended questions. It does not allow for qualitative evaluation of most of the findings.

A. General Descriptive Information

In total, 513 children were seen by the following categories of health workers in each oblast:

Table 3: Number of children observed by type of health worker
(Health Facilities Assessment, CAIDP, November 1996)

	Ferghana¹	Osh	Zhambul	Total
Physician	120	101	117	338
Nurse	0	12	0	18
Feldsher	42	47	74	157
Total	162	160	191	513

¹ In the Ferghana database, one feldsher was originally listed as a nurse. This mistake was corrected after the analysis for the country report had been finished, which explains the discrepancy between the country report and the general report on this point.

The sex ratio of the children is similar in Ferghana (1.4) and Osh (1.6), both of which differ with Zhambul (0.8). While both in Ferghana and Zhambul, less than 10 percent of the cases came from urban families, one-third of the cases came from urban families in Osh. More than 80 percent of the caretakers walked to the facility in all three oblasts, and more than 90 percent spent less than 30 minutes to come to the facility, while the average time to come to the facility was close to 15 minutes in all three oblasts. This gives the impression that health facilities are in general readily accessible. However, remote and isolated health facilities had been excluded from the sample.

The reasons cited for visiting the health facility were distributed as follows:

Table 4: Reasons for visiting the health facility
(Health Facilities Assessment, CAIDP, November 1996)

	Ferghana n=162	Osh n=160	Zhambul n=191
Fever	60 (37%)	58 (36%)	59 (31%)
ARI	131 (81%)	136 (85%)	160 (84%)
Diarrhea	24 (15%)	42 (26%)	29 (15%)

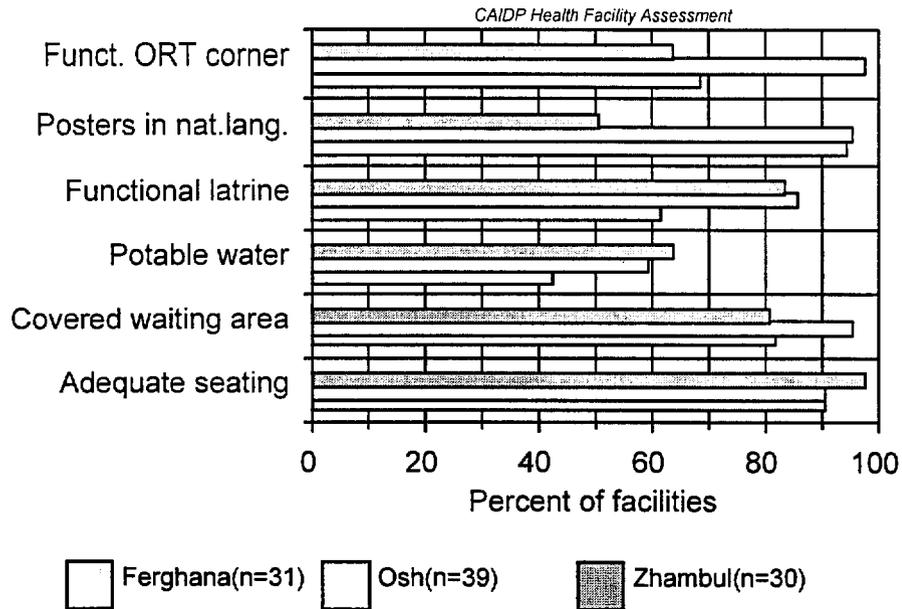
The survey took place during the ARI season, which explains the predominance of this complaint.

B. Facilities, Equipment and Supplies

Many facilities visited need urgent maintenance and/or repair, but even those in poor condition gave a remarkable impression of cleanness on the day of the visit. The majority of the facilities had a covered waiting area for patients, and adequate seating for the patient and health worker during consultation. Lack of heating interfered with the normal functioning of the facilities in all three oblasts. Lack of electricity for long stretches of time was a problem in Zhambul and Osh. The latter interferes with adequate cold chain management for vaccines, as discussed in section IV.J. Home visits are often preferred by the caretakers over a visit to an unheated facility. It is not possible to assess to what degree a temperature close to 0° Celsius interfered with the normal physical examination of the patients.

Figure 1

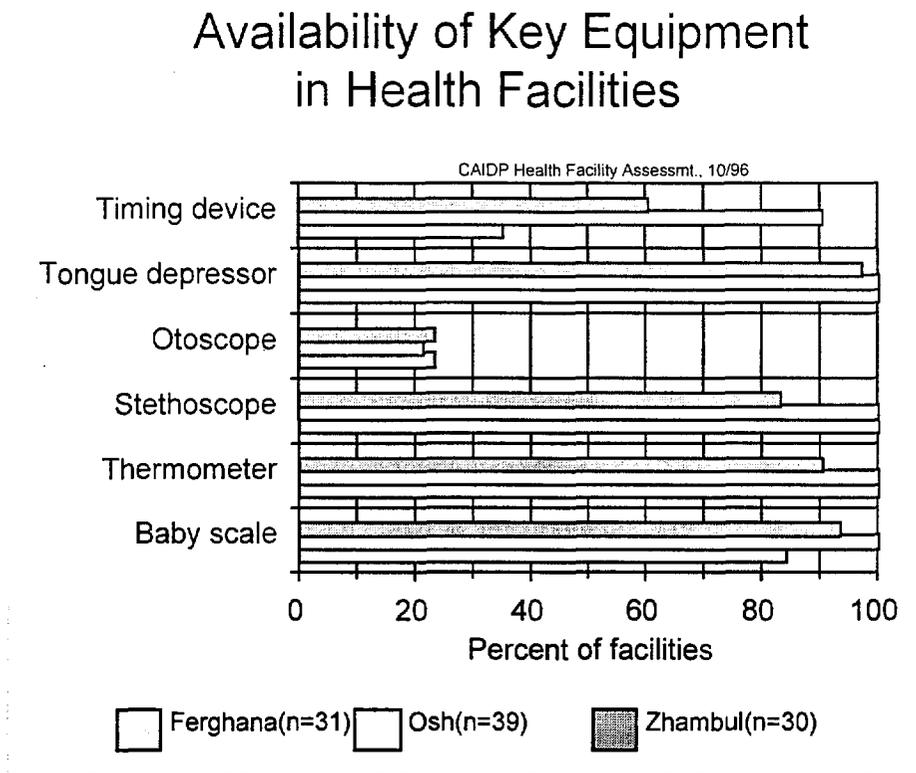
Health Facility Accommodations, CAR HF Assessment, October 1996



One would expect potable water and a functional latrine to be available at all health facilities; it seems to be a problem in all three oblasts, and could interfere with proper DD case management. Functional ORT corners were available in almost all facilities in Osh, and in two-thirds of the facilities in Ferghana and Zhambul. Posters with health messages in the national language were available in almost all facilities in Ferghana and Osh, but in only half of the facilities in Zhambul.

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Figure 2

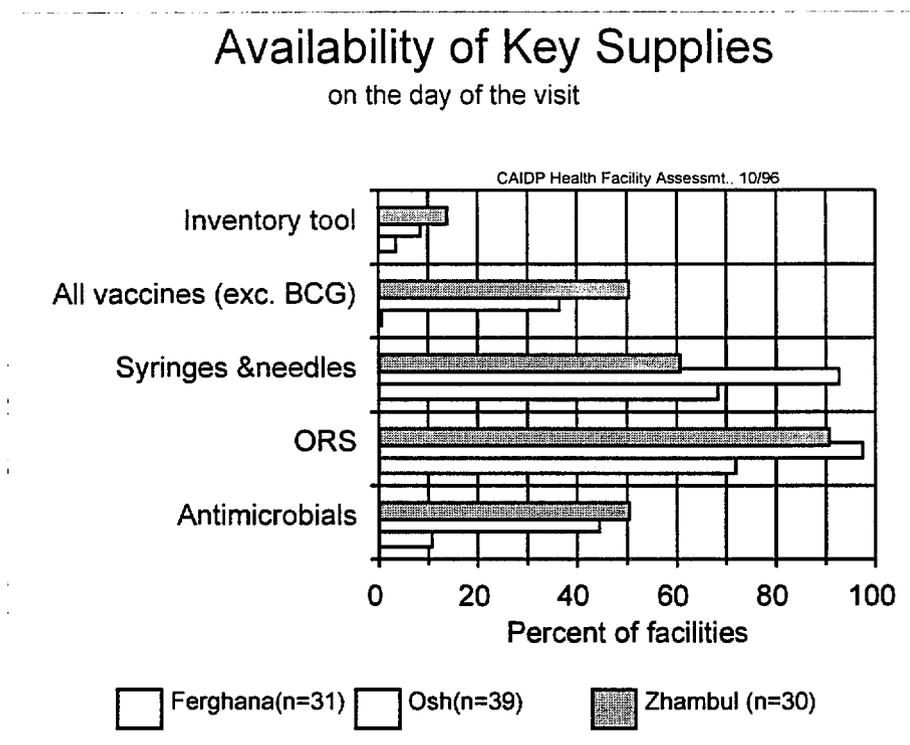


Thermometers, stethoscopes, and tongue depressors were available in almost all facilities. An adequate timing device (a watch indicating seconds or a special timer) is available in most facilities in Osh, in two-thirds in Zhambul, and in only one-third of the facilities in Ferghana. Megaphones and flip charts are virtually unavailable in all three oblasts. Counselling cards (original or adapted UNICEF case management cards for diarrhea and/or ORS) are available in at least three-quarters of the facilities. Adequate sterilizing equipment is not available in many facilities.

- Heating, potable water and functional latrines are problems to be addressed urgently. Even if all other equipment is available, these deficiencies are likely to interfere negatively with the availability of quality basic child health care at the visited facilities.*
- The absence of an adequate timing device in several facilities will interfere negatively with the ability of health workers to use respiratory rate for assessing and classifying ARI in children. It has to be addressed during the planning of the ARI clinical course: either select trainees from those facilities that have an adequate timing device, or provide a timing device at the course.*

- *If posters or handouts with health messages are to be understood properly, they should contain messages in the local language of the target group. This may entail the need for bilingual materials in districts with mixed populations.*
- *A functional ORT corner should be available in all facilities. It would be interesting to investigate how ORT corners can function properly without a source of potable water in the facility.*

Figure 3



Availability of key drugs recommended as first-line drugs in the treatment of diarrhea and ARI is problematic and seems dependent on “humanitarian” supplies. For none of the three oblasts were antimicrobial pharmaceuticals indicated for first line treatment of pneumonia (Cotrimoxazole, Ampicillin or Amoxicillin) found in more than half of the facilities. A more sensitive measure of availability is the absence of stock-outs in the month (or three or six months) prior to the visit. Ninety percent or more of all visited facilities reported stock-outs for vaccines, ORS, syringes and needles, cotrimoxazole, or necessary registration and reporting forms during the month previous to the visit. It was not possible to validate this, since hardly any adequate inventory tool was available: “humanitarian” drugs are scrupulously monitored in most facilities, drugs of other origin to different degrees, but no record gives a number that adequately reflects the real availability of essential drugs in the facility. It should be noted that while anaemia is a widespread problem in the region, few facilities had iron tablets available on the day of the visit.

Ready availability of commonly used drugs seems to be a problem in (private) pharmacies also: only 62 percent of drugs recommended were actually dispensed. Mostly they were not available, as observed by surveyors in the simulated purchase survey who were instructed to buy all recommended drugs.

In Zhambul and Ferghana, the facilities relied almost solely on governmental distribution systems for drugs and supplies. In Zhambul, the health workers have to pick up their supplies at a central distribution point and transport them to the facilities, while in Ferghana, supplies are delivered to the facility. In Osh, facilities rely on governmental sources, direct supply by humanitarian aid and private sources, and most health workers have to pick up their drugs. In all three oblasts, less than one-third of the facilities had a functioning vehicle available.

Health workers blamed the poor availability of essential supplies almost exclusively on economic factors: lack of finance, fuel and transport. Lack of supplies and essential medicine was listed most frequently in the three oblasts as the main problem interfering with the normal functioning of the facility.

- *Without the availability of essential drugs, little impact on the childhood mortality/morbidity can be expected, even when case management by the health worker is flawless. The present social and economic transition, with a drive toward privatization that is different in the three countries, makes it difficult to formulate tailored answers to the problem. In the short run, the agreement between UNICEF and the respective MOH to ensure necessary supply of key drugs (ORS and Cotrimoxazole) to the CAIDP oblasts should be followed up to ensure sufficient supply in the target oblasts for the coming year.*
- *In the long run, the present distribution systems, largely unchanged since the Soviet era, should be evaluated and adapted to the changing pharmaceutical market.*
- *In the oblasts where health workers have to pick up their supplies, it should be taken into account that only a minority has ready access to a functioning vehicle.*
- *Given the present economic constraints and limited public funds, it will pay to investigate schemes where the population of the catchment areas of health facilities could participate in the financing of a system to ensure adequate supply of essential drugs.*
- *Even when essential drugs are readily available, an inventory tool that accurately reflects the stock level of each drug, regardless of its origin, is needed in order to enable health staff to monitor the total quantities in stock and place an order (from the different available sources) before stock-outs occur.*

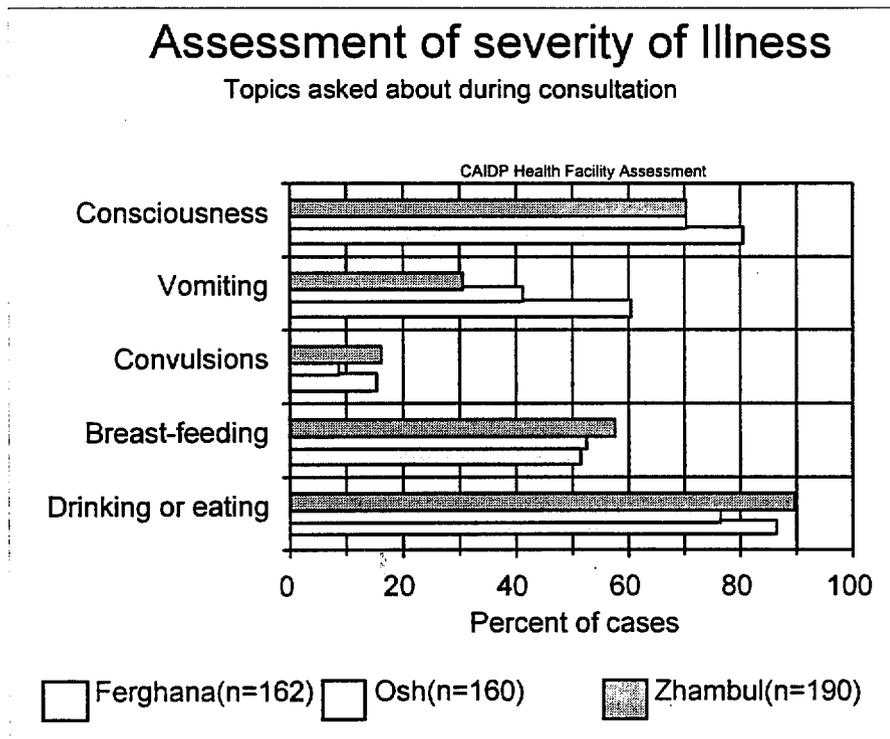
C. Assessment of Illness

Average consultation time was 15 minutes in Ferghana, 14 minutes in Osh and 10 minutes in Zhambul.

- *While 20 minutes would be a more comfortable average for the management of new cases of sick children, a lower limit of 15 minutes per case could be acceptable to implement all aspects of adequate case management (assess, classify, treat, communicate). The issue of rather short average consultation times should be taken into account during the development of the training strategy.*
- *In Kazakstan, a health insurance system is being implemented, where insurance companies reimburse physicians according to number of patients seen. Local health staff claimed that a minimum of six patients per hour is required for the physician to earn the equivalent of his present salary. This would in practice result in an even lower average consultation time than the present 10 minutes, which is already too low to ensure adequate case management in many cases.*

Although the presenting complaint was examined for in almost all cases, and adequately so in most cases, systematic assessment of severity of illness is weak in all three oblasts.

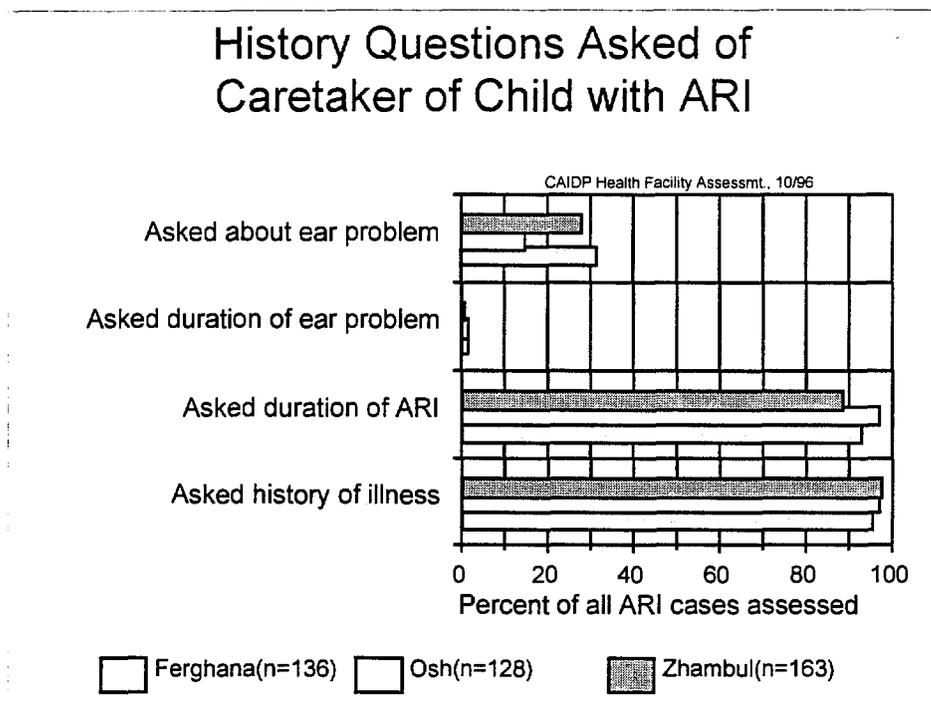
Figure 4



Very few health workers ask all questions recommended in the IMCI guidelines to assess severity of disease, but all cases were asked at least one question. A low percentage of cases were asked all four key history questions. Ear problems particularly are neglected in all three oblasts, while a large proportion of children were seen for ARI. This is in line with the practice of focusing almost immediately on the presented complaint. Treatment prior to the visit was not systematically assessed.

Specifically for the ARI cases, history of the disease was assessed as follows:

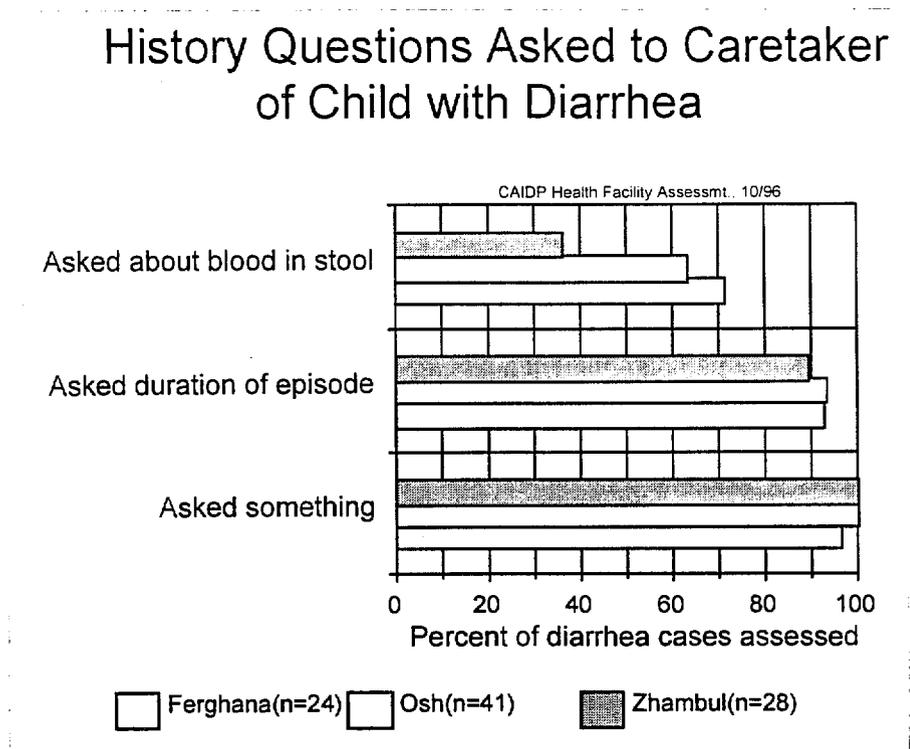
Figure 5



Almost all health workers asked some history questions about the illness, often trying to assess the duration. Ear problems were only addressed by a minority of the health workers.

For diarrhea specifically, history was assessed as follows:

Figure 6



While history and duration of the diarrhea episode were well addressed, the presence of blood in the stool was not assessed for all cases.

Dispensers in pharmacies asked almost no questions that might enable them to evaluate the severity of the case:

Table 5: Assessment of cases at pharmaceutical outlets
(Health Facilities Assessment, CAIDP, November 1996)

	ARI cases n=30	Diarrhea cases n=34
No history questions asked	7 (23%)	7 (21%)
No questions related to severity asked	21 (70%)	16 (47%)

None of the cases was asked all questions to assess severity of the case. In one-fifth of the cases, no question was asked at all to further specify the presented illness.

- *Systematic assessment of severity of disease in young children, preferably based on the WHO algorithm of the IMCI, should be included in all training. Even if IMCI is not (yet) implemented, no health worker should fail to assess all sick children for signs of severe illness. Care should be taken that this approach is integrated into the curriculum of the 'family practitioners' to be trained.*
- *Likewise, even if IMCI is not implemented, health workers should exclude, at least through questions, common child illnesses other than the one presented. Since both DD and ARI will be addressed in follow-on activities, care should be taken to integrate the assessment parts of the two clinical courses as far as possible during training.*
- *Treatment prior to the visit should be assessed systematically, since it has consequences for further treatment.*
- *It is normal that health workers should have more clinical knowledge than dispensers. However, dispensers should be able to assess the severity of disease before dispensing pharmaceuticals. Approaches to upgrade basic clinical knowledge of dispensers at pharmaceutical outlets should be explored.*

The personnel of the health facilities visited has both curative and preventive functions, one of the preventive tasks being immunization and its promotion. This includes both the primary immunization of infants and children, as well as the diphtheria immunization of older children and adults, due to the recent diphtheria outbreaks in the region.

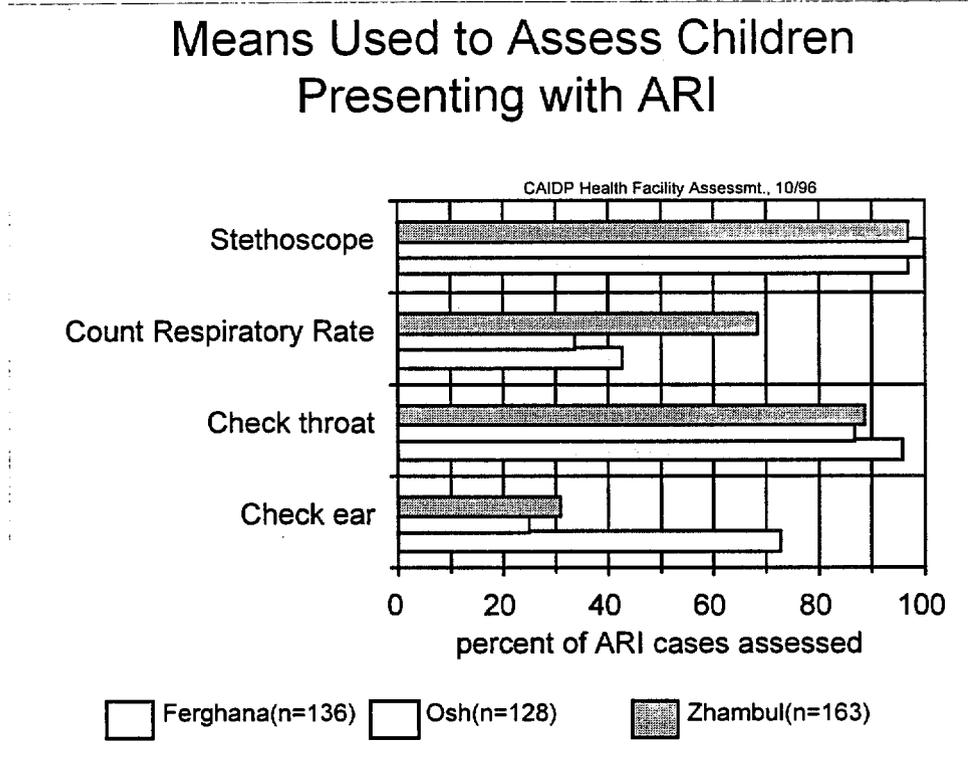
Table 6: Screening of vaccination status of child and caretaker
(Health Facilities Assessment, CAIDP, November 1996)

	Ferghana n=162 cases	Osh n=160 cases	Zhambul n=191 cases
Child's vaccination status checked	138 (85%)	66 (41%)	52 (27%)
Child not up-to-date vaccinated or referred	105 (65%)	53 (33%)	11 (6%)
Caretaker's vaccination status checked	47 (29%)	6 (4%)	4 (2%)
Caretaker not up-to-date vaccinated or referred	68 (42%)	0	63 (33%)

While child's vaccination status is checked in the majority of cases in Ferghana, less attention is given to the caretaker's diphtheria vaccination status. In both other oblasts, none is really systematically addressed.

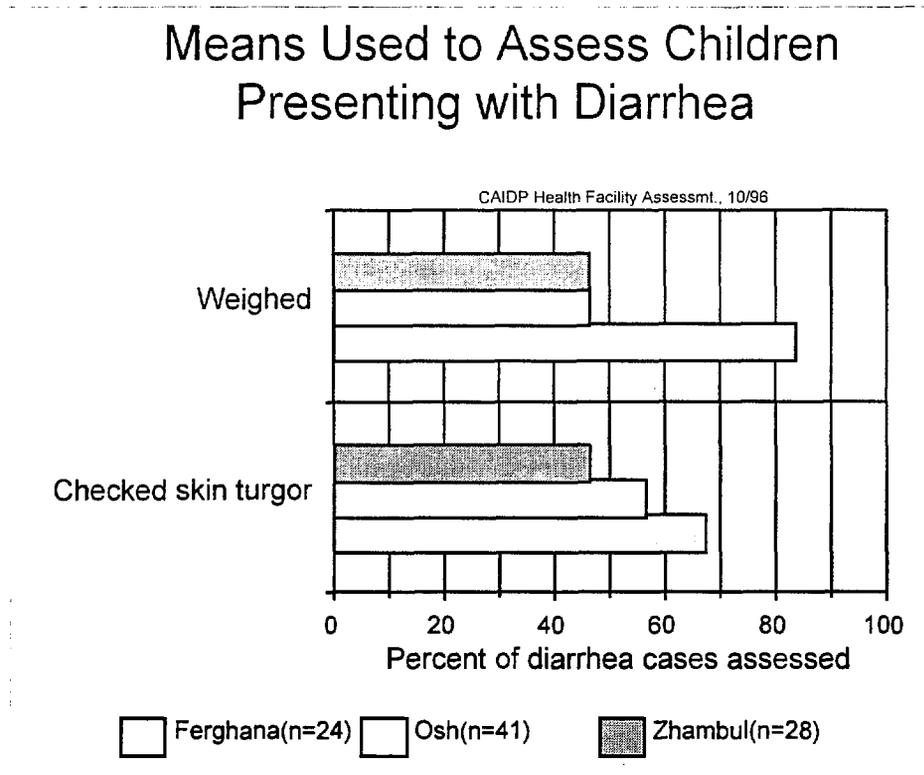
- *Even within their present mandate, health workers should address immunization status systematically. Introduction of IMCI would reinforce this. Both ARI and CDD training should include reference to the need for assessing immunization status and referring individuals not up-to-date for vaccination.*

Figure 7



The presented complaint was assessed and examined in most cases. While almost all ARI cases were examined with a stethoscope, only a minority had their respiratory rate assessed, except for Zhambul, where more than half had their respiratory rate checked. Except for Ferghana, only a minority of ARI cases had their ears checked.

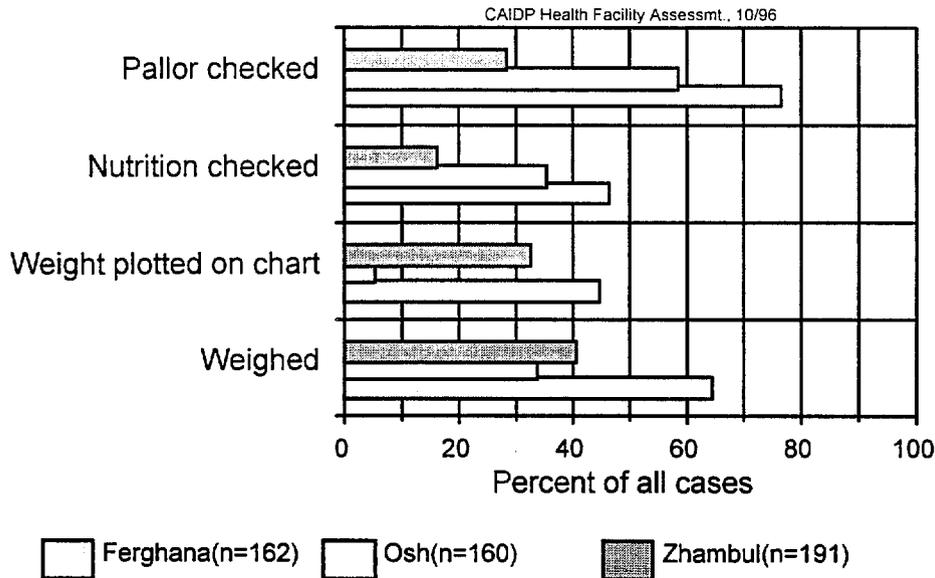
Figure 8



Though cases were few, not all diarrhea cases were assessed for dehydration (skin pinch) or weighed. Some have pointed out that the survey took place outside the diarrhea season, which could influence the health worker's alertness for the disease. However, any diarrhea should be checked for its severity.

Figure 9

Means Used to Assess Nutritional Status



Not all children were weighed and only a minority of the cases had their weight plotted on a growth chart or were checked for general nutritional status (assessment of muscle mass). Pallor as a sign of anaemia was not systematically assessed.

- *Training should include the counting of respiratory rate as a valuable tool for assessing and classifying ARI. The higher proportion of ARI cases assessed by counting respiratory rate might reflect the higher exposure to ARI case management through (theoretical) training of the health workers in that oblast.*
- *Training in ARI case management should include routine examination for throat and ears. Routine examination of ears was not included in the ARI case management training so far, but will be in te clinical case management training.*
- *Training should emphasize the importance of assessing the presence of blood in the stool of diarrhea cases, as well as the need to properly assess dehydration in diarrhea cases.*

- *Systematic assessment of nutritional status should be included in all training concerned with sick children. Reports show that while wasting (acute undernutrition) is not a major problem in the region, stunting (growth retardation) probably is. So are deficiencies in several micronutrients (iron, vitamin C, iodine...).*

D. Classification of Illness

National treatment guidelines do not exist as independent references, but are included in *prikazi*. During the Soviet era, these *prikazes* were mostly uniform in the countries, although not always in line with the WHO recommendations. Since the emergence of the NIS, many *prikazes* have been amended, often to bring them closer to WHO recommendations. Since the relevant *prikazes* were not available in a usable form during the preparation of the survey, adaption of the survey tools to the country-specific recommendations on case management was not possible and time constraints prohibited adequate training of the surveyors in standard case management of ARI and DD. Therefore the classification of the illness by the health workers could not be validated. Also, due to the unavailability of the *prikazes* in a usable form during preparation, it was not possible to determine whether and to what extent the recommended treatment differs from WHO recommendations.

Most health facilities had a copy of some of the *prikazi*, though these were often locked away for safe keeping. Copies of all necessary *prikazi* were available as reference to the clinical personnel in only a minority of the cases. In Zhambul, all visited facilities had a Russian or local language version of the UNICEF-WHO standard case management chart for diarrhea and/or ARI.

- *Before starting the planned training of trainers for ARI and DD, existing prikazi should be assessed for discrepancies with WHO recommendations regarding standard case management. It is of no use to train health workers in case management that does not conform with the prikazes, since they are the legal reference for the health worker's practice.*
- *Where existing prikazes contradict or omit parts of the recommended WHO standard case management guidelines, commitment of the respective MOH should be obtained to pursue updating the prikazes to bring them in line with WHO recommendations, at least to the point where they will not contradict case management practices as contained in the training.*
- *Existing publications on the scientific basis of the WHO recommendations regarding case management, classification and treatment should be made available in Russian language to national and oblast level key counterparts of the CAIDP program.*

- *If the above is deemed not to be feasible, the training materials will have to be adapted to the existing prikazi, or, if this leads to case management unacceptable to BASICS, the training should not be undertaken.*

E. Treatment ²

The table below summarizes the findings of the survey regarding prescribed treatments. It includes a column that indicates the prescription/dispensing practices at 64 pharmacies in Almaty in December 1997³. It is useful to compare prescription practices at private pharmacies and health facilities, since more and more private pharmacies are becoming an alternative source of pharmaceuticals for the general public.

Table 7: Prescription practices—all cases
(Health Facilities Assessment, CAIDP, November 1996)

	Ferghana n=162	Osh n=160	Zhambul n=191	Outlets n=64
Average number of items prescribed per case*	3.7	2.3	1.9	
Average number of drugs prescribed per case	3	2.1	1.8	2.8
% of all drugs prescribed under generic name**	81	61	78	28
patients for whom an injection was prescribed	45 (28%)	32 (20%)	19 (10%)	
patients for whom an antibiotic was prescribed	107 (66%)	110 (69%)	105 (55%)	37 (58%)

* Several treatments contained 'home treatments' which could not be included in the pharmaceutical analysis.

** refers to total number of drugs prescribed for all problems

To different degrees, too many drugs were prescribed per case in the three oblasts. This increases the cost per treatment. It may also interfere with patient compliance: it is more difficult to discern the necessary drug and to remember exact administration for all drugs in a list of many. In comparison with health workers, drug dispensers recommended more remedies.

A large percentage of drugs were prescribed under their generic name⁴. This was less the case in Osh, where more private sources for drugs are used by the health workers.

² A detailed analysis, oblast by oblast, of the prescription practices in the three oblasts is given in the RPM report in Appendix A.

³ For detailed information, see Appendix B: Simulated Purchase Survey, Almaty, Kazakstan, December 1996

⁴ Generic name= name under which it is listed in Mashkowski's reference work.

Brand name drugs are, in general, more expensive than generic drugs. Generic substitution, an issue in many countries and a burden for dispensers, is avoided if health workers prescribe by generic names. In comparison with health workers, drug dispensers seem to prefer more brand names.

More than half of all patients had an antibiotic prescribed, while most were seen for conditions that did not necessitate its use. Likewise, in pharmacies in Almaty an antibiotic was recommended for more than half of the cases, while none of the presented illnesses needed an antibiotic; in 48 percent of these cases the antibiotic was actually sold.

The extent of rational prescribing practices for diarrhea is reflected in Table 8:

**Table 8: Treatment prescribed for children diagnosed with diarrhea
(Health Facilities Assessment, CAIDP, November 1996)**

	Ferghana n=22	Osh n=28	Zhambul n=26	Outlet n=34
ORT	15 (68%)	20 (71%)	24 (92%)	1 (3%)
Anti-diarrheal	1 (5%)	3 (11%)	1 (4%)	23 (68%)
Antibiotic	10 (46%)	12 (43%)	10 (38%)	25 (73%)

While health workers' diarrhea treatment practices need to be improved, they are far more rational than those of the drug dispensers.

The extent of rational prescribing practices for ARI is reflected in Table 9:

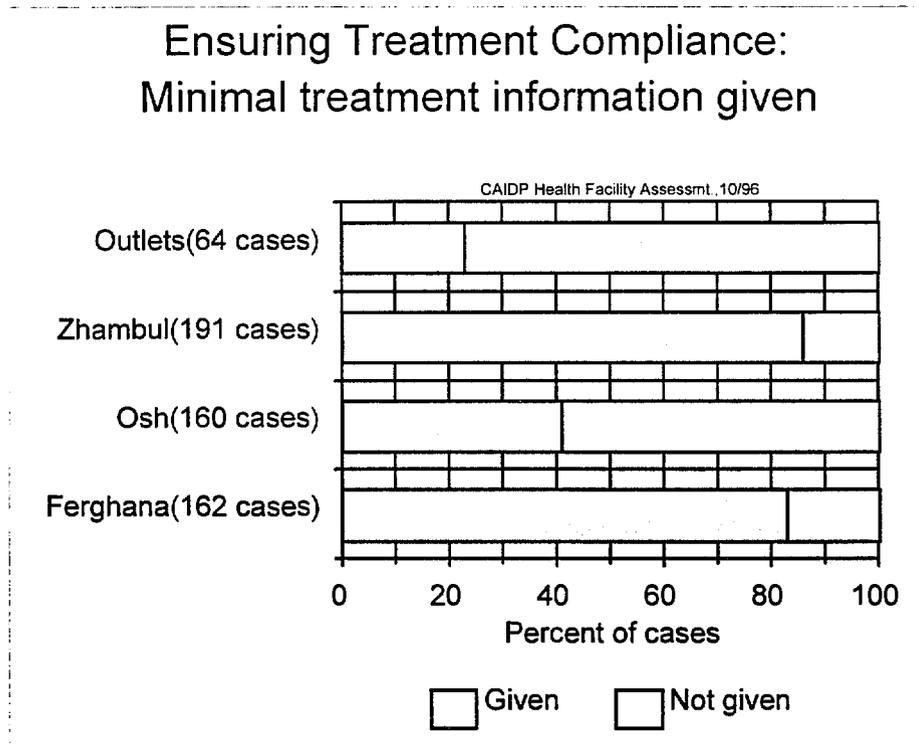
**Table 9: Children diagnosed with ARI who had an antibiotic prescribed
(Health Facilities Assessment, CAIDP, November 1996)**

	Ferghana n=130	Osh n=134	Zhambul n=159	Outlet n=30
Non-pneumonia	86 (66%)	98 (73%)	94 (59%)	7 (23%)
Pneumonia	22 (17%)	67 (50%)	100 (63%)	

While many children who did not need antibiotics were prescribed antibiotics, many of those who needed to get at least one dose before referral did not get antibiotics. Drug dispensers seemed to be less inclined to give antibiotics to children with "common cold"; however, they were presented a clear-cut case that certainly did not need antibiotics.

Compliance with the recommended treatment becomes very difficult if the minimal information to ensure a full course of treatment is not given to the caretaker. This minimal information includes four topics: how to give the drug, the amount per dose, how many times a day to give the dose, and for how many days the treatment should be continued.

Figure 10



This minimal treatment information was given in the large majority of the cases for medications prescribed in Ferghana and Zhambul, for less than half of the cases in Osh, and less than a fourth of the cases in the visited pharmaceutical outlets. While in Osh most cases were given all information except the length of treatment, in the pharmaceutical outlets many were given almost none.

Specifically for diarrhea, the most popular way of prescribing dosage was “one teaspoon every 5 minutes during 1, 2 or 3 days” or “often, until the end of the diarrhea.” Both of these non-specific instructions are unlikely to ensure exact administration at home.

- In all three oblasts, prescription of drugs could be more rational. The pattern described above (more drugs than necessary per treatment, too many injections and antibiotics) entails more costly treatments, with excess cost related to drugs that are not necessary. Introduction of standard case management may alter these practices at the health facilities.*

- *Antibiotics have precise indications where epidemiological or laboratory evidence suggests a bacterial infectious agent. In absence of this evidence, use of antibiotics is not only ineffective and a waste of resources, but it can also result in resistant strains of microorganisms. This is especially serious when national capacity for laboratory monitoring of antimicrobial sensitivity is limited or nonexistent. In all training, health care staff should be made aware of the detrimental consequences of unjustified use of antibiotics.*
- *In the present climate of privatization, more and more drug dispensing will go on at outlets not under direct government control. However, quality assurance will probably involve the government in the future. Ideally, all drug dispensers should be licensed, and should be aware of recommended standard treatments. This is not easily done, because seldom are governments able to dictate anything to the private sector. While the private sector is still building up, this may be a good time to look for strategies to influence prescribing practices at private drug outlets for the better.*
- *The administration of ORS has to be recommended in a way that is at once exact and specific, and also easy to comply with at home. Preferably, recommendations should be those stated in the IMCI algorithm.*

F. Cost of the Visits

Health workers did not mention any cost for services offered at the health facility. In Osh, a little more than half mentioned that patients had to pay for records kept in the facility, be it small sums. In all three oblasts, the main expected cost was for the recommended medicine: more than two-thirds of all caretakers mentioned specific amounts, sometimes quite high, and a substantial number of caretakers claimed to have to borrow money to pay for them. The data obtained in the oblasts did not allow for exact cost calculations. Applying Almaty market prices to the prescribed drugs in the three oblasts, allowed for comparison of prescribed drugs and amounts with:

- 1) the International Price Indicator for the prescribed drug
- 2) “ideal” cost, i.e., the cost if only necessary drugs had been prescribed in quantities as recommended in the IMCI algorithm

In both cases, results indicated substantial possible savings.

Cost of treatment depends mainly on the actual cost of the available drugs, and the prescribing practices. The former depends largely on government procurement rules and regulations, import regulations, foreign exchange regulations, and price regulations (i.e., ease of access to the world market for those that import/produce pharmaceuticals).

The latter depends on the adherence to rational prescription principles of individual health workers and dispensers. The table below lists an estimation of possible savings, based on the observed practices.

Table 10: Cost implications of present prescription practices
(Health Facilities Assessment, CAIDP, November 1996)

	Ferghana n=162	Osh n=154	Zhambul n=190	Outlet n=64
For all cases, % possible savings through rational procurement*	38	39	71	
For all cases, % possible savings through rational prescribing**	48	46	36	66
For diarrhea cases, % savings possible through rational prescribing	69	69	19	36
For non-pneumonia ARI cases, % savings possible through rational prescribing	96	93	93	97

* Rational procurement: making sure that pharmaceutical substances on the market are available at the lowest possible price. Savings are expressed by comparing cost based on actual Almaty market prices with costs based on average prices listed in the International Price Indicator guide.

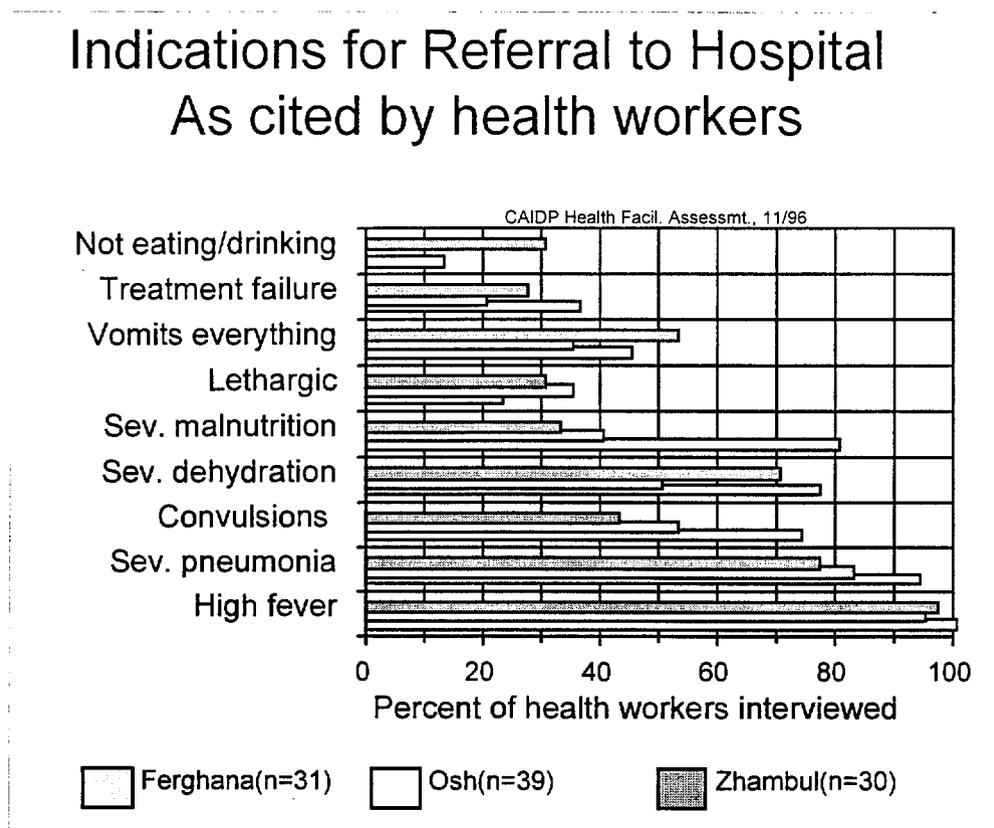
** Rational prescribing: compares the actual cost of treatment with the cost of the recommended standard treatment, but keeps the actual prices of the prescribed/recommended drugs.

Of course, most excessive costs are for those illnesses that do not need expensive drugs, and it is not surprising that the cost of the actual treatment for non-pneumonia cases was 15 to 25 times more than what the standard treatment would have cost.

- *The present efforts, through privatization of pharmaceutical wholesalers and retailers and opening access to the international pharmaceutical market, should be continued, along with regulation on drug licensing and quality control of pharmaceuticals, to make low-cost essential drugs available nationwide.*
- *Essential drug lists, containing the drugs of the recommended standard treatment schedules, should be developed where they do not exist and be more aggressively promoted where they have been developed.*
- *Along with privatization, some mechanism of control on prices and profit margins on pharmaceuticals should be developed. In at least one case, an ORS treatment would have cost more than an available antibiotic treatment for simple diarrhea, which certainly is no incentive for caretakers to stick to the most effective treatment.*

G. Knowledge of the Health Worker

Figure 11

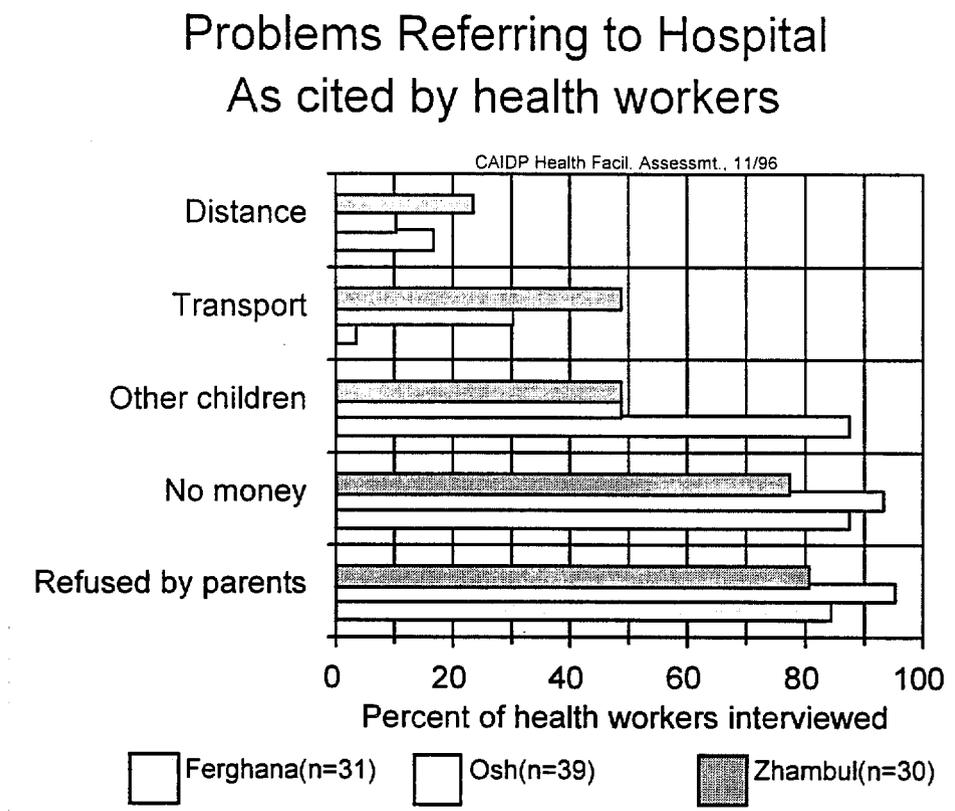


General signs for referral to a hospital are well known to most of the health workers. Some specific signs could have been expected to be mentioned more frequently (severe malnutrition, severe dehydration, lethargy, failure of treatment), and better knowledge of these may prevent unnecessary referral.

- *Training in ARI and DD case management should reinforce the knowledge of specific signs for referral to the hospital.*
- *The criteria for hospitalization presently mentioned in the existing prikazi should be updated and brought in line with the criteria as taught in the ARI and DD case management courses.*

35

Figure 12



More than 90 percent of the health workers mentioned at least three of the signs for referral listed in Fig. 11. However, almost all mentioned having been unable to refer children to the hospital in the past. The main reason for being unable to refer is refusal by the parents, which seems mostly linked to financial constraints (no money, no transport, no one to look after the other children).

- *With outpatient facilities that are readily accessible to caretakers, and health workers that have sufficient knowledge of when to refer a child, it is important to have a health structure that allows for easy referral, with minimal barriers for the parents to follow the health worker's advice. Present efforts in health reform should take the existing barriers into consideration and propose ways to alleviate them.*
- *Adequate case management should prevent health workers from referring sick children to a hospital unnecessarily. This may limit the number of referrals to those that are absolutely necessary, which may in turn urge caretakers to go to the hospital in spite of economic constraints. Also, since the WHO case management guidelines address the case "where referral is impossible", it may urge the health workers to propose an adequate alternative when parents refuse to go, and ensure that sick children at least get treated.*

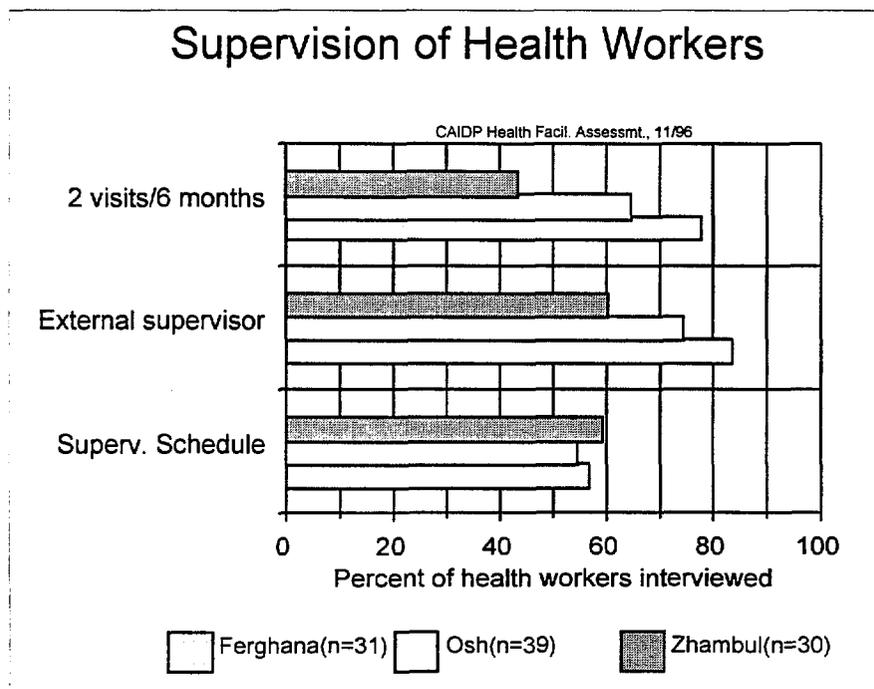
In 56 of the 64 visited pharmaceutical outlets, caretakers were let go without any specific information about signs that might indicate a worsening of the condition. In 10 cases, the caretaker was advised that it was better to see a physician anyway.

While most health workers have received some kind of training recently, few of the sessions seemed specifically related to the diseases addressed by the CAIDP, and most courses seemed to correspond with lectures, often presenting clinical cases, but without hands-on clinical practice. In fact, the different forms of training were confusing for the surveyors; training was also confused with “instructions,” and “clinical” was confused with “therapeutic.” This confusion prevented any more detailed valid interpretation of the data.

- *The planned ARI/CDD training should focus on hands-on clinical training, since this aspect has been largely neglected in the present in-service training.*
- *If this part of the questionnaire will be incorporated into regular supervision, Russian terms need to be revised to convey exactly what they mean in English.*

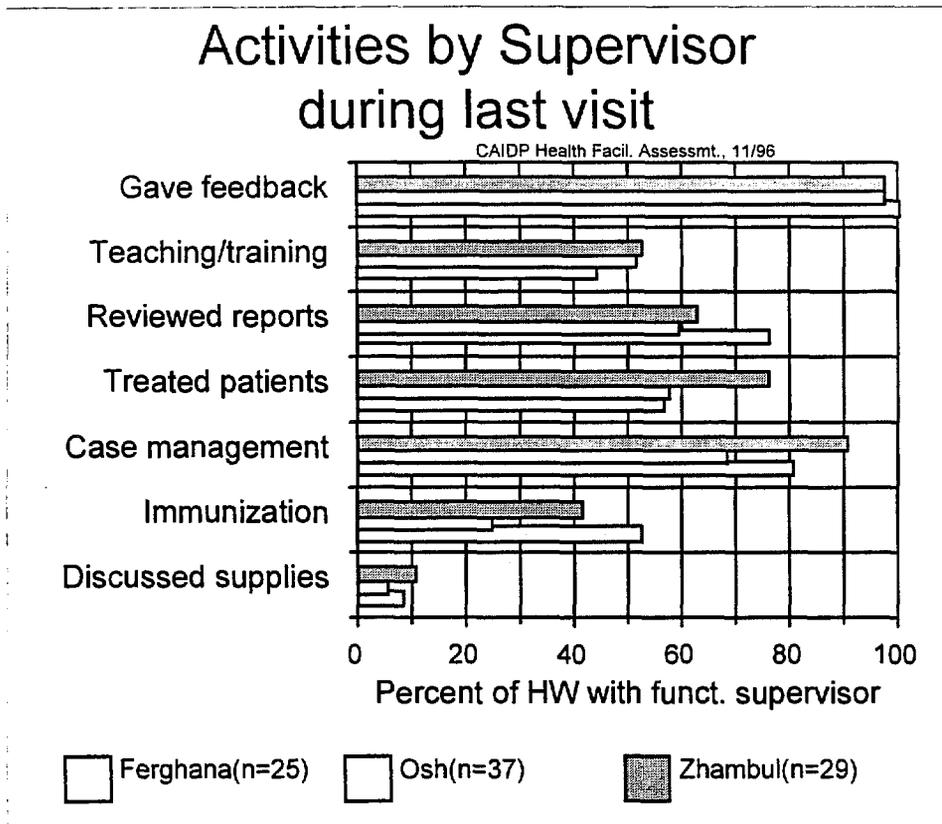
H. Supervision

Figure 13



Most health workers claimed to have a functioning supervisor: 25/31 (81%) in Ferghana, 37/39 (95%) in Osh, and 29/30 (97%) in Zhambul. Nevertheless, only slightly over half could give a schedule for supervision. In Ferghana, none of the supervisors worked in the same facility as the health worker; this was also the case for most health workers in the other two oblasts. In Ferghana and Osh, most health workers with a functioning supervisor had received at least two visits by the supervisor in the last six months; in Zhambul fewer than half claimed this frequency of supervision. Lack of readily available transport was reported to be the main reason for infrequent supervision.

Figure 14



Activities of the supervisor to a great extent involve case management, treatment and report reviewing. It is unclear to what extent the supervisor actually observes the health worker at work: the option “Observes case management of the health worker” was often interpreted as “Performs case management.” The low proportion of health workers who receive performance feedback from their supervisors, and the reactions of the surveyors (mostly health personnel with some supervisory function) on the observation checklist, lead us to suppose that actual observation of case management is hardly ever performed during supervision visits.

Almost all health workers received feedback from the supervisory visit, mostly oral, although in Zhambul this feedback was left unspecified by many. Rarely were records found at the facilities regarding the findings of the supervisory visit.

- *It is encouraging that most health workers can identify a specific supervisor, and that supervisory visits are actually taking place. Under the present economic restraints, care should be taken not to lose what has been achieved. Schedules should be revised and adapted to the new reality of diminished resources for supervision (i.e., it is counterproductive to stick to a monthly supervision schedule, when in reality a supervisor can visit only every three months). Frequency of supervision should be adapted to the local resources.*
- *Quality of supervision is unlikely to be ideal: quality of care is not regularly, nor systematically, assessed. The present system seems to focus more on the needs of program managers (national and oblast level), than on the need for supportive supervision of peripheral health workers. A systematic approach to supervisory activities should be developed, including a feasible schedule of supervisory visits, standard supervisory checklists, and adequate strategies for providing feedback and education to health workers. As suggested by the different oblast health departments, parts of this survey could be adapted for this purpose.*
- *Specifically, clinical case management should be addressed during supervisory visits. Supervisors should therefore be trained in clinical case management and, during the development of training strategies per oblast, a realistic supervision schedule and adequate checklists should be developed to assess health workers' performance. A workshop on integration of the checklists into the present system should be attached to one of the master trainer courses.*

Only in Ferghana, a report is sent monthly on MCH activities; the two other oblasts do not have such reports. Morbidity and EPI reports are kept in all three oblasts, and are generally up-to-date, even when preprinted forms are no longer available. The health workers use the reports mostly for assessing targets and/or epidemiological surveillance. It is noteworthy that even while many facilities did not have preprinted report forms available, most facilities had the essential reports in handwritten form and updated.

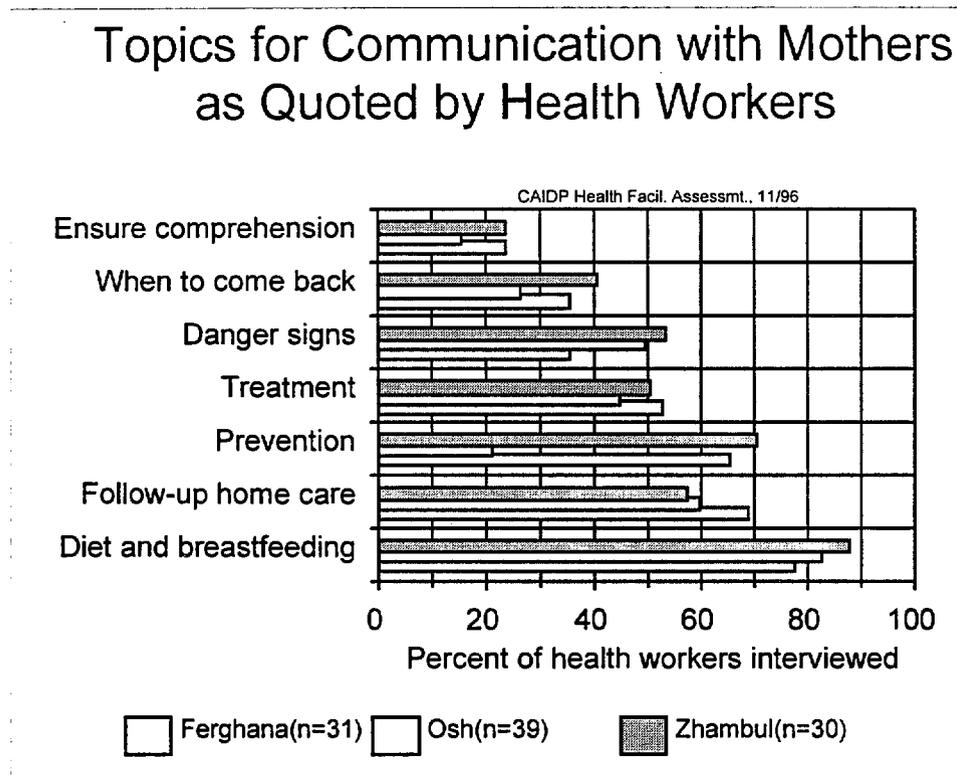
- *Absence of preprinted registration and reporting forms burdens the health workers who have to duplicate the forms manually on blanks. It is laudable that most of them do so. Planned interventions (ARI/CDD case management in the short run, IMCI in the long run) should take into account that the health system currently lacks the funds to assure necessary stocks of preprinted forms, except where costs are covered at least partly by outside funding.*

Reduction of the number of forms needed without loss of quality, as was done in Kyrgyzstan for immunization monitoring and reporting, should be priority when revising monitoring and supervision in the health system.

I. Interpersonal Communication

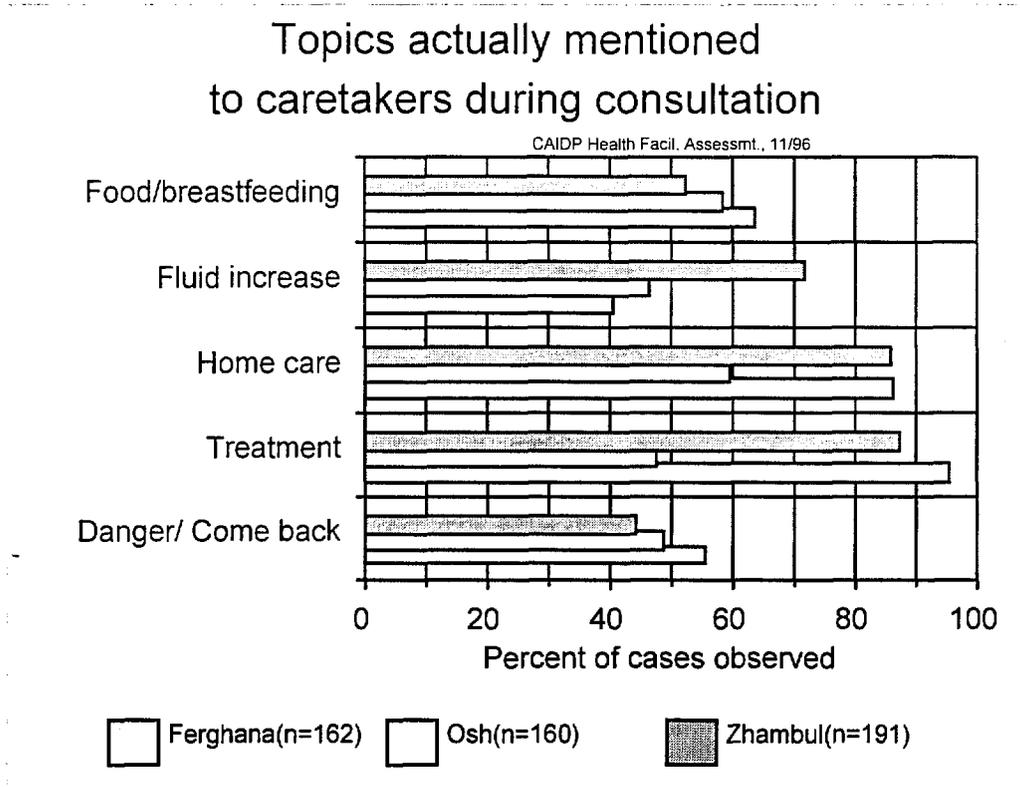
All interviewed health workers mentioned at least one item that should be a topic of communication with caretakers. Few thought it was not their job to communicate with mothers.

Figure 15



Most frequently mentioned topics are related to diet and feeding, and home case management of the sick child. Communicating danger signs and when to come back with the child were seen as important by less than half of the health workers. Only a minority mentioned that it was their job to ensure that caretakers had understood the given messages.

Figure 16



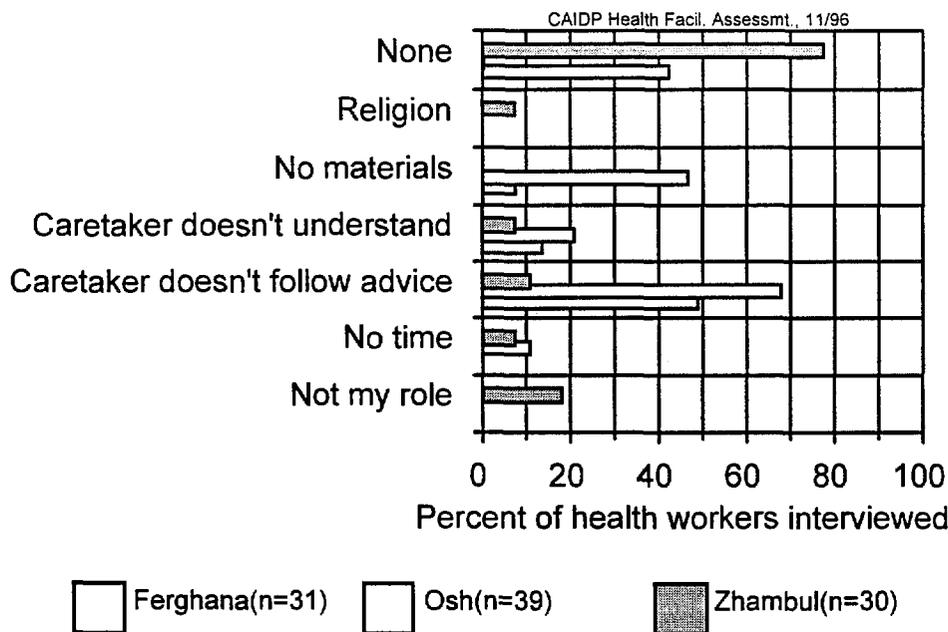
As mentioned before, the survey tools are not designed to evaluate the quality of the communication. For example, during observation of the consultation, topics were ticked off as “communicated” when anything related to the topic was mentioned. Therefore, survey results indicating that more than half of the caretakers were advised to continue feeding the sick child do not provide information about how elaborately or appropriately this was done.

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The figure below illustrates difficulties reported by health workers in explaining treatment to those caretakers whose child had oral medicine prescribed:

Figure 17

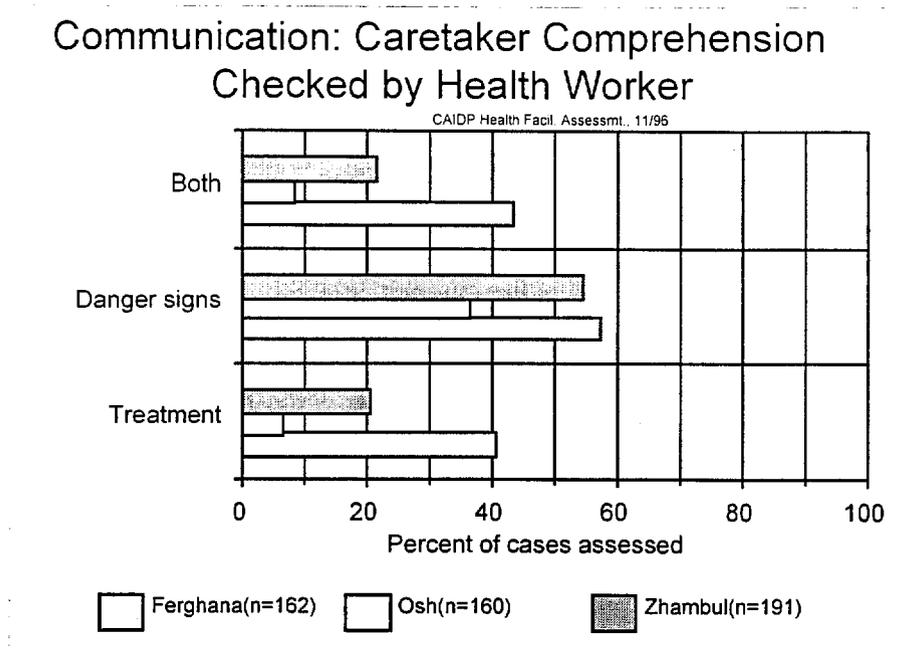
Difficulties Communicating with Caretakers, Cited by Health Workers



Many interviewed health workers in Ferghana and Zhambul thought they did not have any difficulty communicating with mothers. In many other countries in the West, this answer is typical for technically well-trained medical workers, who when checked in more detail, prove to hardly communicate adequately with patients at all. Whether this is the case here needs to be investigated further. Main difficulties that were listed were related to the perception of the mothers: "they don't understand," "they don't follow advice anyway." In Osh, a considerable number of health workers claimed not to have adequate materials.

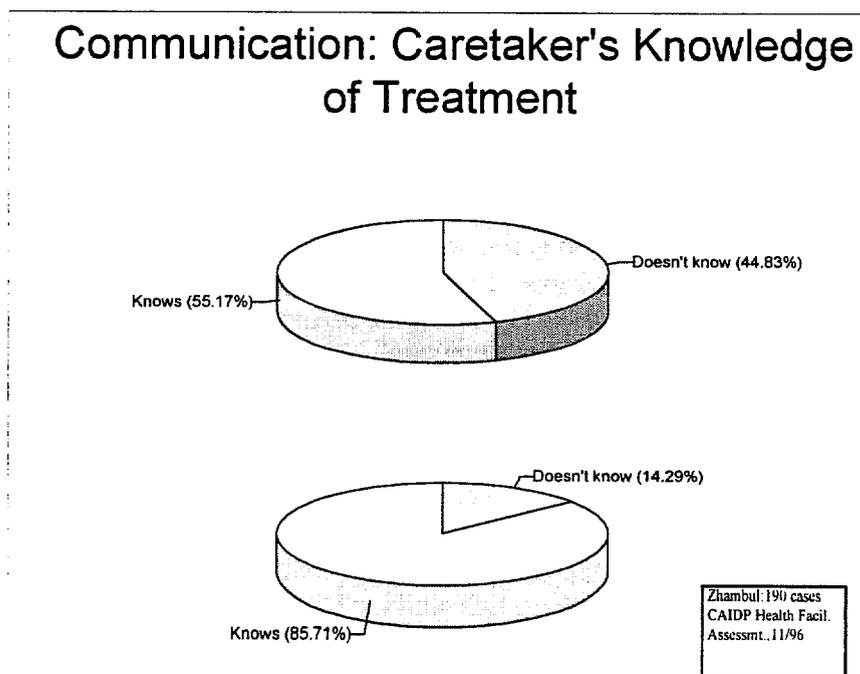
42

Figure 18



An important part of adequate case management is to make sure that treatment, general home case management measures, and danger signs that indicate the child has to be brought back to the health facility are understood by the caretaker. The majority of the health workers did none of these. Figure 19 illustrates how important it is to check the comprehension by caretakers of the messages transmitted.

Figure 19



- *The need to explain complete treatment, home case management, danger signs and when to come back with the child must be stressed during the clinical case management course.*
- *Ample attention should be given during the clinical training course on the way health workers communicate. Systematic checking of the comprehension by the caretakers of messages given should be stressed.*

J. Immunization

At the time of the visit, all facilities in Osh and almost all facilities in Ferghana and Zhambul had a refrigerator, and most of these were in reasonable general condition. Those that did not have a refrigerator had cold boxes and ice packs, enabling them to carry out immunization with vaccine collected at a referral facility. One-third of the refrigerators in Osh, and two-thirds in Zhambul, were not working at the time of the visit, due to power cuts. The majority of the refrigerators that were not working still contained vaccine.

- *All three countries are in the process of adapting or renewing their cold chain. The lack of electricity should be taken into account when developing an adequate cold chain strategy and selecting new cold chain equipment. For example, in regions with poor power supplies it may make sense to consider greater reliance on cold boxes and switching to immunization sessions once or twice a week. If new refrigerators are bought, hold over times as long as possible should be considered. This way, 'safe' facilities could actually store the vaccines of 'unsafe' facilities, which would be supplied once or twice a week with vaccine.*

Not all refrigerators contained a thermometer in good working order, nor did all refrigerators have an updated temperature chart. In all three oblasts, temperatures outside the recommended 4-8° Celsius were found either on the thermometer or on the temperature chart. In some facilities, discrepancies between chart and thermometer were found. In all three oblasts, frozen vials of DPT/DT or Td were found in at least one facility, and expired vaccine in more than one facility.

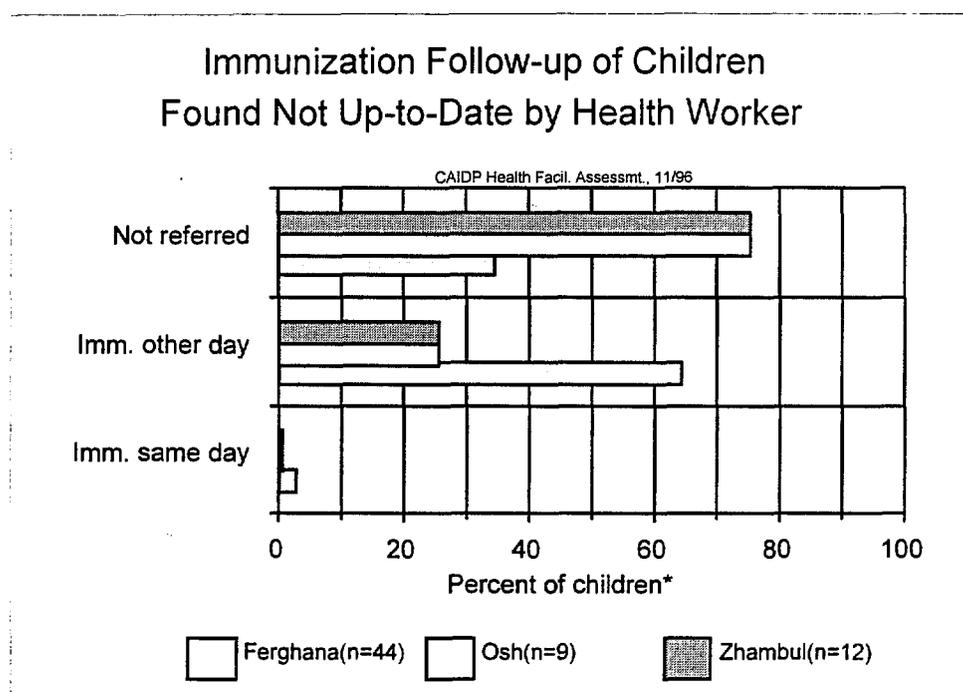
- *This survey cannot assess the extent to which the present cold chain management has problems. Results indicate that, aside from faulty electricity supplies, there is probably room for improvement. A more specific and detailed assessment is needed before specific interventions for improvement can be contemplated.*

With few exceptions, health workers could produce updated immunization registers. In Osh and Zhambul, all antigens (with exception of BCG, which is administered in the maternities) are offered on all working days. Less than half of the facilities had all of these antigens in stock on the day of the visit. None had all in stock in Ferghana, but that can be contributed to the fact that they do not necessarily offer immunization all working days. Preprinted vaccination report forms and child immunization forms were available in less than half of the facilities.

- *Stock-outs of vaccine on days immunization is offered can result in missed opportunities. The reasons for these stock outs should be investigated and addressed. If they cannot be mended, alternative strategies (e.g., fixed immunization days) should be looked into.*

More than two-thirds of all health workers knew their national primary immunization schedule correctly, but in Ferghana, DT and Td are not administered according to international guidelines. More than two-thirds of the facilities offer immunization more than once a week, and the large majority offers all antigens at each immunization schedule. Mothers cited health workers to be the main source of information on immunization.

Figure 20



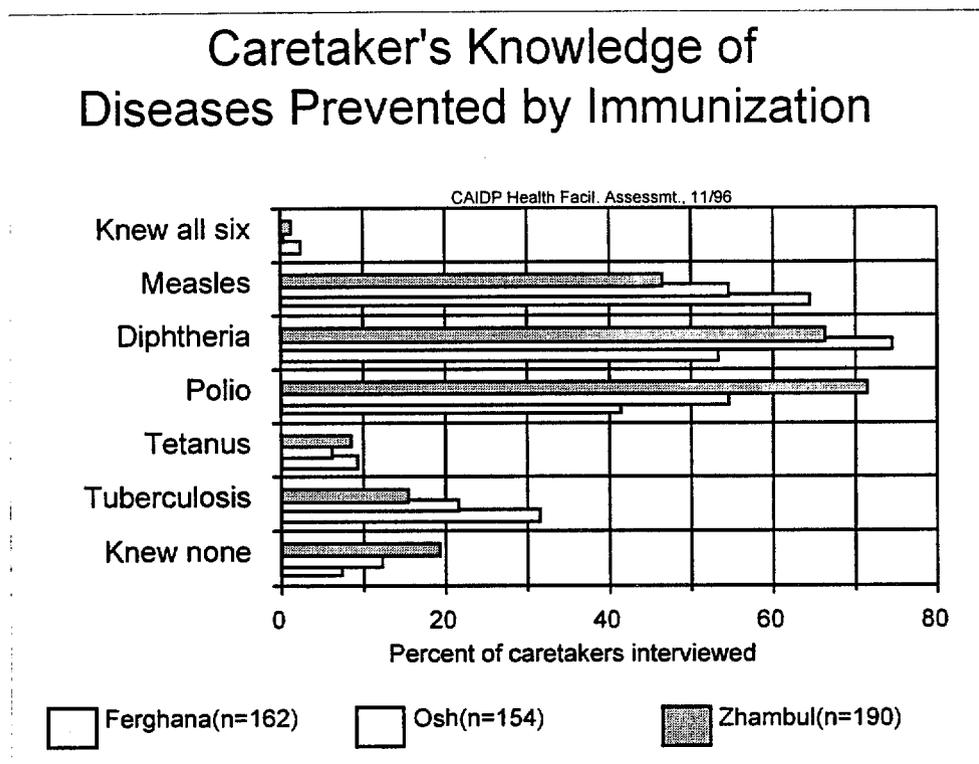
*children found not up-to-date when vaccination status checked by the health worker

As seen in Table 6 (page 21), only in Ferghana did health workers check the immunization status of the majority of the children. To assess missed opportunities, the surveyors checked the immunization status of children in the clinical record and found that 20 to 30 percent were not up-to-date when age and vaccination status were compared with the recommended national schedule. In Ferghana, health workers identified 27 percent of children as not up-to-date, whereas surveyors found 29 percent. The difference was much greater in Osh and Zhambul, where surveyors identified 20 and 23 percent respectively, but health workers found only 6 percent not up-to-date in each oblast. Figure 20 above further illustrates missed immunization opportunities, based on observation of what happened with children identified as not up-to-date.

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- Knowledge by the health workers of the national primary immunization schedule is very good. It is all the more a pity that health workers fail to a great extent to check the immunization status of every child on every visit, or to refer explicitly the children found not up-to-date to the next immunization session. Missed opportunities for immunization could be reduced if all children's immunization status were checked and those not up-to-date were specifically referred for immunization.*

Figure 21

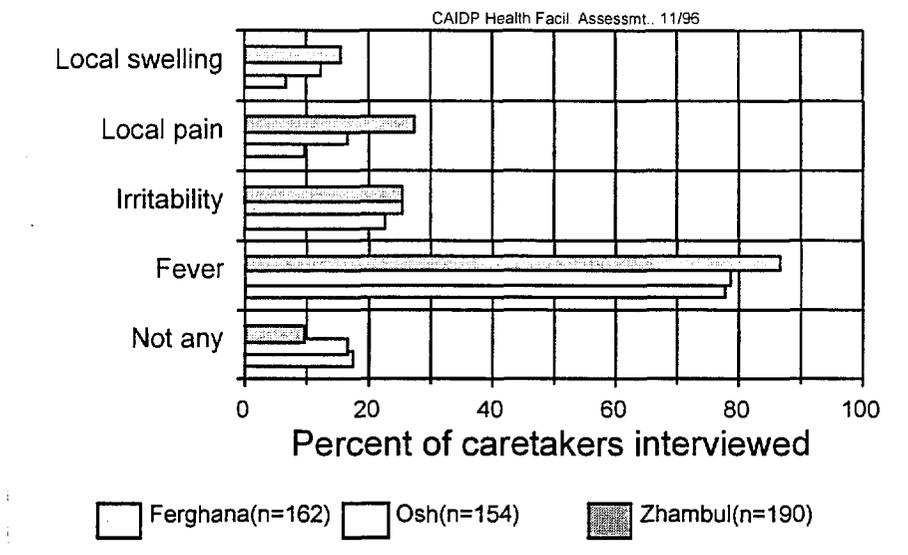


Almost no caretakers knew all six diseases currently addressed by the primary immunization schedule. Like in many other countries, measles is better known, as are the two diseases that got special attention through mass campaigns and NIDs in the Central Asian republics.

fb

Figure 22

Caretaker's Knowledge of Potential Side Effects after Vaccination



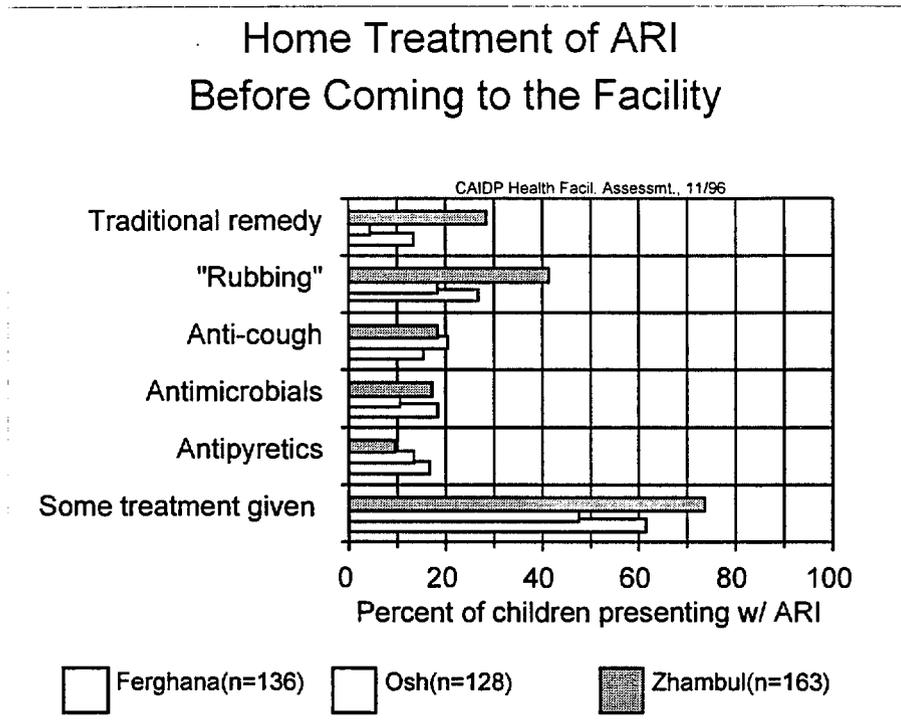
Fever was cited by most caretakers as a side effect to be expected after immunization. Irritability, local pain and swelling were only cited by a minority. In Ferghana and Zhambul, a considerable number of caretakers claimed to have been turned away when they presented a child for vaccination, mostly because the child was considered too ill to be vaccinated. Caretakers seemed to know the exact vaccination status of their child quite well in Osh and Ferghana, those in Zhambul less so.

- *Health workers are the most important source of information for caretakers regarding immunization. Health workers should make sure to inform caretakers correctly on the diseases prevented by the offered vaccinations, the normal side effects of the different vaccinations, as well as on the immunization status of their children.*
- *All three countries have been adapting their list of contraindications to the WHO-recommended list. Uzbekistan still shows the biggest discrepancy in the present list. Only Kyrgyzstan actually monitors the number of children turned away for contraindications, through its newly adapted immunization monitoring system. The fact that too many children seem to be turned away for "illness" needs to be further investigated in each oblast to assess actual adherence of health workers to the new policies. The ongoing effort to limit the contraindications to vaccination to the WHO-recommended ones should be pursued and its implementation monitored.*

K. Home Case Management before Coming to the Health Facility

Caretakers were questioned as to what they did before coming to the health facility. Ten to 20 percent of the caretakers claim to have gone elsewhere before coming to the health facility, mostly to traditional healers in Zhambul, to pharmacies in Osh. In Osh and Ferghana, clearly two-thirds of all cases were brought to the health worker within three days after the onset of the illness. Confusion over exact data entry on the questionnaires prevented interpretation of this data for Zhambul.

Figure 23



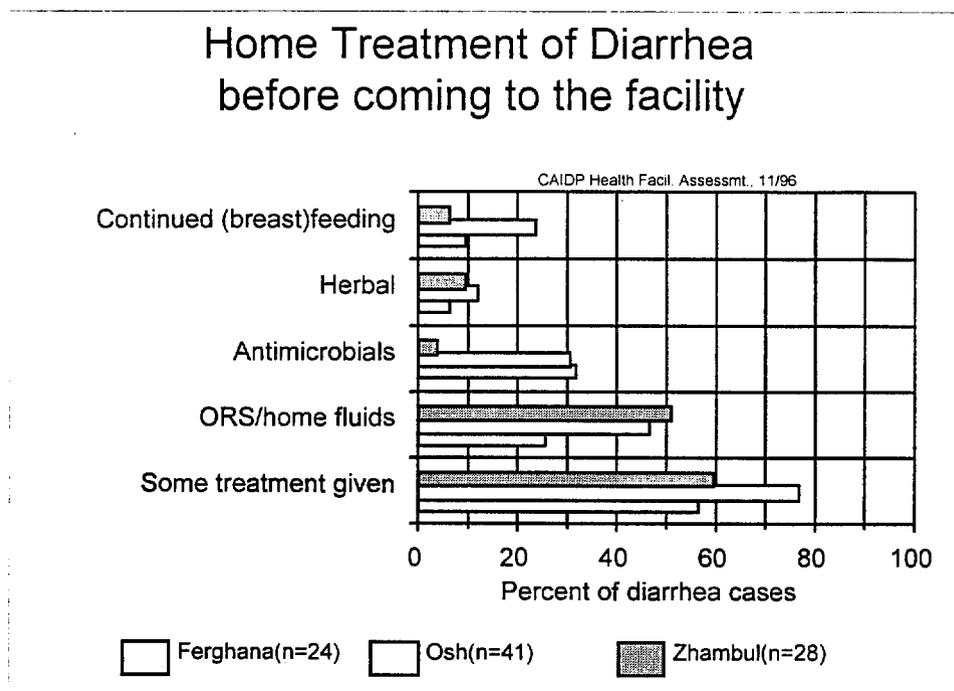
Half or more of the caretakers claimed they gave some treatment to the sick child. "Rubbing" with alcohol, sheep fat or other mixtures seems quite popular. Also frequently reported are other traditional remedies (mainly herbal infusions, often mixed with honey), especially in Zhambul. Ten to 20 percent of the caretakers gave an antibiotic or a cough mixture before visiting the health worker. Many of the cough mixtures would not be considered "soothing", because of the active substances they contain.

- Traditional treatment of diseases that do not require specific treatments like antibiotics is not necessarily bad, e.g., rubbing the child's torso, warm drinks with honey will do no harm and may actually be an adequate soothing remedy in case of simple ARI. However, further assessment of the most commonly used traditional treatments may be useful.*

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- *Caretakers need increased awareness of appropriate use of antibiotics and other pharmaceuticals. Increased knowledge of rational use of drugs and increased communication skills of health workers can contribute to this. Both need to be addressed in the planned standard case management training.*

Figure 24

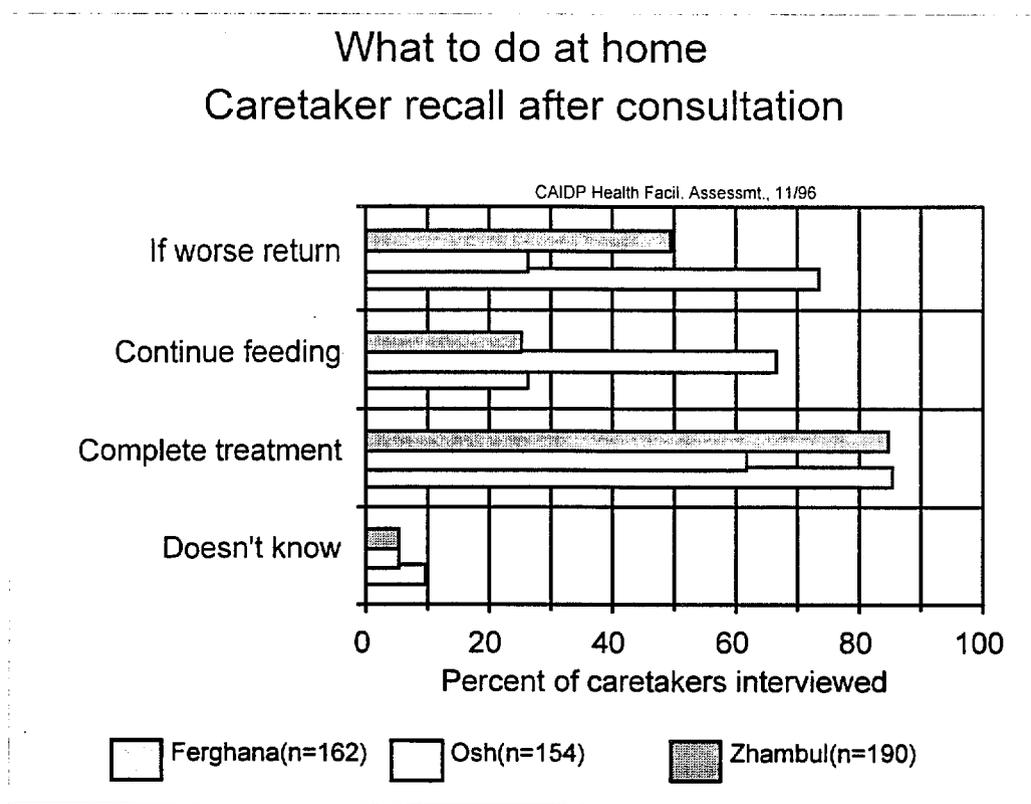


The total number and the proportion of children presenting with diarrhea during this survey is much smaller than during the diarrhea season (May-September). Findings are given for consideration, but are less statistically valid than the findings for ARI. At the best, half of the diarrhea cases were treated with ORT at home, but up to one-third in Ferghana and Osh were treated with antibiotics. Continued feeding and breastfeeding were little mentioned as home care measures taken; one caretaker in Ferghana mentioned they stopped feeding the child.

L. Home Case Management after Coming to the Health Facility

The knowledge and practice of caretakers after a visit to the health facility are probably among the best indicators for evaluating the intervention of the health worker in the outpatient setting. While the health worker can assess, classify, recommend treatment, and give danger signs to watch for, it is the caretaker who will actually give treatment and care, and y watch the child for danger signs.

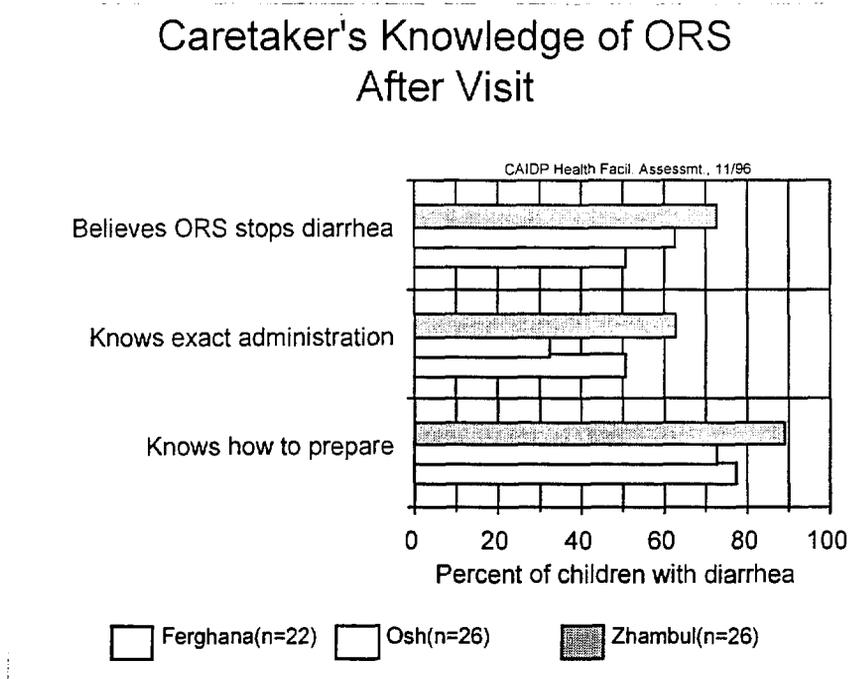
Figure 25



General measures of home care for the sick child were rather well known by the caretakers: about two-thirds in each oblast knew at least two measures, and in all oblasts less than 10 percent knew none at all. While most caretakers listed signs of general worsening (fever, sicker child, difficulties eating or drinking) as a reason to take the child back to the health worker, only a minority listed specific disease-related signs for bringing the child back. This confirms the neglect of the health worker to mention danger signs, as illustrated in figure 16.

50

Figure 26



Even after visiting the facility, not all caretakers with a child with diarrhea knew how to prepare ORS, even fewer knew how to administer it appropriately to the child. Many caretakers thought ORS would stop the diarrhea.

- *All of the above are factors that will interfere with appropriate treatment at home of the child with diarrhea. The diarrhea case management training will have to stress the need to make sure that caretakers know exactly how to prepare ORS and how to administer it. Diarrhea treatment corners are excellent tools for this purpose.*
- *The misconception that ORS will stop diarrhea may prevent mothers from continuing ORS if the expected outcome is not there after a few administrations. This will thus prevent its true valuable action—the prevention of dehydration. The communication module of the diarrhea case management course should specifically address this misconception.*

M. Mass Media

Mass media, i.e., radio and television, are often seen as adequate tools to inform the general public on health measures. Caretakers were asked how many times a day/week/month they listened to the radio and/or watched television.

Table 11: Caretakers who listen to the radio
(Health Facilities Assessment, CAIDP, November 1996)

	Ferghana n=162	Osh n=154	Zhambul n=190
Daily	84 (52%)	52 (34%)	44 (23%)
Weekly	10 (6%)	12 (8%)	10 (5%)
Not once a month		2 (1%)	13 (7%)
Never	62 (38%)	75 (49%)	120 (63%)

Table 12: Caretakers who watch television
(Health Facilities Assessment, CAIDP, November 1996)

	Ferghana n=162	Osh n=154	Zhambul n=190
Daily	122 (75%)	52 (34%)	89 (47%)
Weekly	10 (6%)	6 (4%)	11 (6%)
Not once a month			53 (28%)
Never	28(17%)	28 (18%)	32 (17%)

Many caretakers reportedly added the qualifying statement 'if we have electricity' to their response, indicating that the stated frequency may convey more a desire than a reality.

- *Apparently, television is more popular than radio in all three oblasts, even if the large majority of the caretakers come from rural areas. Health messages distributed through both media could reach large proportions of caretakers in Ferghana and Osh. However, in Zhambul, probably only a little more than half would be reached. More specific research is needed in Zhambul to assess alternatives.*

V. CONCLUSIONS

In general, the survey findings on current knowledge and practices of health care workers at outpatient clinics regarding the assessment and management of sick children show that nowhere are health workers completely unaware of all aspects of adequate case management for ARI and DD. However, an additional effort can be made to improve health worker performance in the following areas:

- systematic assessment of severity of disease
- systematic checking for concurrent diseases
- bring assessment, classification and recommended treatment of ARI and DD in line with the WHO guidelines
- increase exact knowledge of the health workers on when to refer
- increase interpersonal communication skills of the health workers

All of these can be addressed in the clinical case management course on ARI and DD, with emphasis on “clinical”. It is important to integrate these courses and include, to the extent possible, elements of the IMCI algorithm.

If the training is to have an impact, monitoring and supervision of the trained health workers should be addressed with specific attention to improving the performance of the health workers in the clinical setting. Approval and cooperation of the respective MOH will have to be obtained in order to integrate this into the existing supervisory structure. A special session on supportive monitoring and supervision could be helpful.

The unclear situation on *prikazes* that are contradictory to the WHO recommendations should be addressed with the ministry counterparts. A strong commitment to promote change or completion of those *prikazes* that might prevent full implementation of adequate case management should be obtained before starting the training.

Attitudes and practices of caretakers need to be further assessed, and this will be addressed in the qualitative survey.

Some potential obstacles to adequate case management cannot be addressed satisfactorily by the CAIDP. Availability of key drugs and supplies, and of electricity and heating in the facilities may at the moment even be beyond the control of the oblast government. Lack of these may be linked to the transition currently taking place in the region.

UNICEF has volunteered to make available some of the key supplies for standard treatment of ARI and DD to the respective governments for use in the target oblasts. We hope relevant findings of the surveys will be taken into account by all involved in the reform of the health system.

Key information on knowledge and practices of health workers, on adequacy of training and supervision, and on present barriers to effective case management has been made available to project partners and counterparts in early draft form (mainly tables) in December. It has been used, along with other information, as the basis for discussions with the national and oblast counterparts of the CAIDP and to focus the remaining activities of the CAIDP. Selected topics, presented in the Workshop on the Implementation of Diarrheal Disease and Acute Respiratory Infections Programs in the Central Asian Republics, helped focus on priorities to be addressed by the recommendations of the workshop on training, monitoring, and supervision of health workers in the outpatient clinic setting. Specifically, counterparts requested BASICS' assistance to develop checklists for monitoring and supervision of the DD and ARI case management, to be integrated in the existing supervision activities.

National, oblast and rayon level health staff were trained in the survey techniques, collection and analysis of survey data, and the use of data to improve the quality of case management in outpatient health facilities. On request of the counterparts, the survey questionnaires and guidelines will be further adapted to integrate experience of the November surveys, and made available in English and Russian for future use to counterparts and other interested parties. On request, the tools developed for the Central Asian Republics have been made available to the WHO consultant who will use the questionnaires and participant guidelines as reference to conduct a similar survey in Azerbaijan in May-June 1997.

Promotion of democracy and decentralization are part of the strategic objectives of the USAID mission in the CAR. This survey provides the oblast governments with a low cost tool to quickly assess their health facilities for major problems and decide on how to address them and monitor improvement. The comments of the supervisors and health department officials involved in the survey all pointed at the fact that this was "the first time we actually looked at what happens in reality and what is really there". Such a tool is very valuable for local governments that are increasingly asked to pick up the responsibilities of their health systems.

APPENDIXES

APPENDIX A

**Rational Pharmaceutical Management
CENTRAL ASIA INFECTIOUS DISEASES PROGRAM
HEALTH FACILITIES SURVEY
JANUARY 1997**

**Paul L. Ickx, M.D.
Thomas Moore**

DRAFT

Contract No.: HRN-5974-A-00-2059-00

BACKGROUND AND PURPOSE OF STUDY

The Central Asian Infectious Disease Project (CAIDP) aims at reducing the mortality of children under the age of five due to Acute Respiratory Infections (ARI) and Diarrheal Diseases (DD) through targeted interventions. The ready availability of essential drugs for the treatment of these diseases, at affordable prices is one of the prerequisites for the program to be successful. Purpose of the study is to provide information on prescribing habits in the CAIDP target oblasts in three Central Asian countries for diarrhea and ARI in children under five years old. The CAIDP will use the information in planning appropriate interventions for the year 1997, to improve health care delivery to the target group.

DATA ENTRY AND ANALYSIS

Collection of prescription data was performed by the surveyors of the BASICS facility survey. The questionnaire for the Observation of Health Worker Practices was modified to allow for registration of the additional data needed for the prescription analysis and during the preparation week of the Facility Survey, the surveyors were briefed on how to collect and register the data. Data from the BASICS facility survey forms were entered into EPI-INFO software by BASICS consultants and BASICS NTOs. RPM converted the files containing drug prescribing information into data base files for use in Prescription Analysis Software System (PASS). Tables, graphs, and findings were prepared from the PASS reports. The conversion was necessary for two reasons: to allow cross analysis of drug cost data; and to prevent reentry of data through PASS user screens. The conversion proved to be quite laborious, and required manipulation of the PASS data, since certain calculations only take place when entered through user interfaces. Problems encountered with the data was:

- Epi-Info files contained rough data, that required a considerable amount of cleaning up;
- local expertise on the prescribed drugs was lacking, causing difficulty in obtaining drug information (package size, costs, generic names for prescribed brands);
- absence of clearly defined standard treatment guidelines for comparison of actual treatment.

The cleaning up of the Epi-Info data involved:

- classification of the listed diagnoses according to the ICD9 coding, used by PASS;
- replacing narrative with numbers for dosage, frequency of administration and length of treatment for many drugs;
- converting listed dosage to standard units;
- excluding for further analysis those records that did not refer to pharmaceutical therapies.

In absence of a generally used Essential Drug List, preference was given to Mashkovski's pharmacotherapeutic reference¹ in order to classify prescribed drugs by therapeutic class, widely used as the (only) reference work of this kind in the former Soviet Union. The disadvantage of this reference work is that *it is not thorough in discussing indications for use, monitoring of adverse effects and dosages and administration*².

In the absence of clearly defined standard treatment guidelines, the Integrated Management of Childhood Illnesses (IMCI) guidelines,³ were used to compare actual prescribing habits. According to the IMCI guidelines, the following drugs would be considered rational prescribing for the respective illnesses:

- **Diarrhea:** oral rehydration solution (ORS) with or without a non-narcotic analgesic
- **Unspecified pneumonia:** antimicrobial with or without a soothing cough medicine and with or without a non-narcotic analgesic
- **Other respiratory tract infections (ORTI):** a soothing cough medicine with or without a non-narcotic analgesic

Although originally included in the data collection, the collection of cost data on the used drugs proved impossible in the allotted time period for the survey. In order to be able to give at least indicative figures, prices were collected on the local market in Almaty. These prices were used for cost calculations in the three oblasts. This diminishes the validity of the cost analysis to a certain extent. However, price difference for the same product between pharmacies in Almaty were of the same order of importance as differences between the Almaty prices and the prices in the oblasts, for the few drugs that could be compared. This made the cost analysis still worthwhile: although the figures themselves cannot be taken as exact, their order of magnitude will still give indications where possible savings could be made.

¹ Mashkovski, MD. *Pharmaceutical remedies: a manual for physicians*. Moscow, Russia, 1994.

² Armstong E, Bykov A, Savelli A. *Introducing formulary drug selection in Russia*. *Am J Health-Syst Pharm*. 1996; 53:426-8.

³ WHO/UNICEF *Approach To Integrated Management of Childhood Illnesses*, November, 1995.

RATIONALE OF OBTAINED INFORMATION⁴

All facilities included in the sample in the three oblasts were MOH facilities. Most facilities in the sample suffered from chronic lack of essential drugs, including those needed for treatment of ARI, DD or fever (see the Health Facility Survey reports). Most caretakers were given prescriptions to be bought at pharmacies, many of which also suffered from uncertain availability of essential drugs⁵. The same information was obtained through PASS for the three oblasts. Below the rationale for obtaining some of this information.

Average number of drugs prescribed per curative outpatient encounter.

Both too high and too low an average number prescribed can indicate poor prescribing practices. The poor practices can be explained by lack of pharmaceutical information and education, or by chronic lack of supplies that force health workers to prescribe what is available. Too high an average number prescribed can interfere with patient compliance: if drugs have to be bought, only part of them may be bought if the patient's financial situation doesn't allow. Too many drugs in one prescription may confuse the patient, who may decide not to buy the most needed/effective drug.

Percentage of drugs prescribed by generic name

It is easier to control drug costs in the health care system, if health workers prescribe by generic names instead of brand names. Brand name products are in general more expensive than generic products (we counted as generic, drugs listed under the product name in Mashkovski's reference). Generic substitution, an issue in many countries and an additional burden for dispensers, is avoided if health workers prescribe by generic names.

Percentage of encounters prescribed injections

The increasing importance of AIDS and Hepatitis B as public health problems provides a good reason to assess the extent of injectable therapies and promote their rational use. Injections are essential for some therapies, but overuse, which is common, wastes scarce resources, since injections are in general more expensive than their oral equivalents, and exposes patients to risks for adverse reactions and disease. Both of these outcomes are less likely with oral therapies.

⁴ Adapted from: *Rapid Pharmaceutical Management Assessment: An Indicator-based Approach*, Rational Pharmaceutical Management, Arlington & Latin American and Caribbean Health and Nutrition Sustainability Project, Bethesda.

⁵ Ickx P, Moore T. RPM Trip Report: Central Asian Infectious Disease Program, Preliminary Assessment. September 1996.

Percentage of encounters prescribed antimicrobials

Antimicrobials, like injections are costly therapies and are frequently overused. Antimicrobials have precise indications where epidemiological or laboratory evidence suggest a bacterial infectious agent. In absence of this evidence, use of antimicrobials is not only ineffective and a waste of resources, but it can also result in resistance. Health care staff and those that dispense and/or sell antimicrobials should be aware of the detrimental consequences of unjustified use of antimicrobials. In countries where policies regulate the sale of antimicrobials with a prescription, compliance should be enforced. Antimicrobial resistance of common infections has rendered formerly useful drugs ineffective. This is partly caused by indiscriminate, empirical and uninformed prescribing practices and other forms of overuse. This is especially serious when national capacity for laboratory monitoring of antimicrobial sensitivity is limited or nonexistent.

Comparison of cost of drugs with International Price Indicator (IPI) Guide⁶

If government pays for the drugs prescribed in the health system, drug costs often make up a considerable part of the public health budget, and if excessive, may interfere with rational distribution and ready availability of essential drugs throughout the system. If patients get prescriptions and buy the prescribed drugs, excessive costs may interfere with treatment compliance: prescribed drugs are not bought in therapeutic quantities. In the case of antimicrobials, possible consequences go beyond the health of the individual: if antimicrobials treatment courses are routinely too short, strains of microorganisms resistant against the most commonly used antimicrobials will emerge. Directly, through its own purchases, or indirectly, through import and foreign exchange regulations, linked to drug licensing policies and quality control of pharmaceuticals imported or manufactured, governments can influence the availability throughout the country of low cost essential drugs of good quality. The IPI for a product is the average quoted price, obtained through international bidding from non-profit drug suppliers and procurement agencies. High ratios between local prices and the IPI suggest that less expensive sources for the same drugs could be available. For our study, we compared the most costly drugs

Listing of the Most Costly Drugs⁷

Even when a large number of different drugs are prescribed, it is usual to select a limited number which accounts for 80% or more of the total value of all prescribed drugs, due to very high unit costs, large quantities prescribed, or a combination of both. In general, if prescribing practices are rational, only essential drugs should be found among the most costly drugs. If specific health problems are studied, only drugs with proven therapeutic value for the problem should be found.

⁶International Drug Price Indicator Guide, MSH, 1995.

⁷ Most costly drugs: the drugs that make up 80% or more of the total cost.

Comparison of actual average cost per treatment with the cost of the standard treatment.

Even without being able to lower the price of the products prescribed through change in procurement and distribution practices, costs could be reduced if health workers adhered strictly to recommended standard treatment guidelines. For our exercise we compared the actual average cost per treatment for ARI and DD with the cost of the recommended standard treatment, if the recommended drugs were available at local prices.

After analysis with PASS, the following information is provided:

- Average cost of drug treatment for diarrhea and ARI
- Identification of the most expensive drugs prescribed
- Percentage of drugs prescribed by generic name and by injection
- Number of drugs prescribed per patient visit
- Percentage female to male patients
- Drug prescribing pattern by type of facility

I. Zhambul - Kazakstan

I. A. Prescribing patterns

The following data refers to the survey in general for all treated diagnoses. Primary health care is provided at the FAP, SUB, and SVA health facility levels. The CRB (rayon level hospital) and city and *oblast* hospitals provide more critical care. Table 1 illustrates prescribing habits encountered in these facilities.

Table 1: Zhambul - Prescribing Habits By Type of Facility

Facility Type	# Facilities	# Encounters	# Female	Average # Problems	Average # Drugs	% Injection	% Generic
FAP	13	74	66	1.2	1.8	5	72
SUB	5	37	57	1.2	1.7	19	89
SVA	6	32	41	1.4	2.1	19	78
CRB	5	38	50	1.3	1.9	5	79
HOSPITAL (city&oblast)	1	10	50	1.1	2.2	10	80
All facilities	30	191	56	1.2	1.9	10	78

- Physicians treat 100% of patients at all health facility levels except FAPs, where feldschers treat all the patients.
- 75% of observed patients were treated in either FAPs, SUBs, or SVAs.
- 22% of drugs were prescribed as brand names, which are typically more expensive than generic named drugs.
- 10% of drugs prescribed were by injection which are more expensive than oral dosage forms; e.g., average price of ampicillin 500 mg tablets in the IPI Guide is US\$0.07/tablet, whereas ampicillin 500 mg injectable is US\$0.26/vial.

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Table 2: Zhambul - Frequency of Health Problems

Health Problem	Number
Other respiratory tract infections (ORTI)	159
Diarrhea - simple	26
Miscellaneous skin and subcutaneous infections	15
Nutritional deficiency	13
Unspecified pneumonia	9
Otitis media	6
Other	4
Dysentery	2
Total	234

- ORTI made up 68% of the problems, pneumonia 4%, and simple diarrhea 11%.

Table 3: Zhambul - Prescribing Habits by Diagnosis

Drug/Class/Type	Diarrhea	ORTI	Pneumonia	Nutritional Deficiency	Other	Total
Antimicrobials	7	99		0	0	106
Cough/Expectorant Mixtures	0	11		0	0	11
Paracetamol	4	2		0	2	8
Nose Drops	0	2		0	0	2
ORS	24	16		0	13	53
Vitamins	0	15			0	15
Calcium Salts	0			0	0	0
Other Analgesics	0			0	0	0
Miscellaneous				0		0
Total # Drugs	35	132		0	15	182
Total # Problems	26	159	9	13	27	234
Total # Encounters						
Avg. # Drugs Per Encounter						1.8

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- According to IMCI guidelines, antimicrobials should not be prescribed for ORTI and diarrhea. They were prescribed however, in 62% of the ORTI cases and in 27% of simple Diarrhea cases.
- Vitamins, calcium compounds, and the miscellaneous drugs are unnecessary drugs for these health problems.

Table 4: Zhambul - Most Costly Drugs Prescribed*
Comparison with International Price Guide (Average Cost in US\$)

Generic Name	Strength	Route	Actually Dispensed:			Average International Price:		
			Cost/Issue Unit	Quantity Dispensed	Total Cost	Cost/Issue Unit	Quantity Dispensed	Total Cost
co-trimoxazole	480mg	po	0.2/tab	473.5	94.7	0.015/tab	473.5	7.10
benzylpenicillin sodium	1ml	inj	0.4/vial	81.5	32.6	0.19/vial	81.5	15.49
ampicillin	500mg	inj	0.7/vial	43	30.53	0.26/vial	43	11.18
benzylpenicillin sodium	500u	inj	0.26/vial	115	29.3	0.19/vial	115	21.85
oral rehydration salts	1ml	po	0.44/each	50	22.0	0.1/each	50	5.0
co-trimoxazole	120mg	po	0.06/tab	375.5	22.53	0.006/tab	375.5	2.25
paracetamol	24mg	po	0.02/ml	674	13.48	0.005/ml	674	3.37
herbal cough suspension	40mg	po	0.03/ml	342	10.26	0.002/ml	342	0.68
gentamycin sulphate	8mg	inj	0.4/ml	2.5	8.58	0.08/ml	2.5	0.2
bacillus cereus	35mg	po	0.25/cap	30	7.5	0.25/cap	30	7.5
mukaltin	50mg	po	0.03/tab	206.9	6.21	0.03/tab	206.9	6.21
paracetamol	500mg	po	0.04/tab	151.89	6.08	0.006/tab	151.89	0.81
Total most costly drugs					284.37			
Total cost of all drugs					345.69			

* 83% of all drugs prescribed by cost

- Comparing costs of the most costly drugs in Table 2 above, with the average price in the IPI Guide:

actual drug costs	284.37
IPI Guide costs	- <u>81.74</u>
potential savings	202.63 US\$ (71% of actual drug cost)

- By cost, 45% of the most costly drugs prescribed were for injectable drugs.
- 6 of the 12 drugs were antimicrobials, even though the majority of patients (79%) were diagnosed with ORTI (68%) and diarrhea (11%).
- The drugs bacillus cereus and mukaltin are unnecessary drugs; money spent for these could be used to purchase essential drugs.

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- Only soothing cough mixtures are recommended by IMCI guidelines, yet various cough mixtures including mucolytics were prescribed (23%).
- If unnecessary drugs such as antimicrobials for diarrhea and ORTI, calcium compounds, mucolytics, vitamins, and other miscellaneous drugs had been prescribed properly, they would represent considerable savings to the health facility and/or patient. For example, the following are percentages of unnecessary drugs by therapeutic or chemical class:
 - antimicrobials -- 30%
 - vitamins -- 3%
 - calcium compounds -- 1%
 - miscellaneous drugs -- 4%

Total savings would have been 38% (131.36 US\$) of total drug costs (345.69 US\$) for drugs prescribed in this survey.

Table 5: Zhambul - Average Cost of Treatment By Diagnosis

US\$	Diarrhea	ORTI	Pneumonia
Sample Average Cost of Treatment	1.23	1.66	5.05
IMCI Average Cost of Treatment	1.00	0.11	2.07*
Possible savings (% of Sample Average Cost of Treatment)	19%	93%	59%

*averages adult and pediatric Cotrimoxazole tablets, since both were prescribed

- The average cost of treatment for diarrhea is skewed, since the local cost of one packet of ORS is, on the average, four times the IPI price. If ORS were available at a price similar to the IPI price, possible savings would amount to 76% per case instead of the 19% indicated above.
- The average cost of treatment by provider type was 2.08 US\$ for physicians, and 1.38 US\$ for feldschers. It is normal that average treatment cost is higher for physicians than for non-physicians since physicians tend to see more serious cases, which may require more expensive medicine.

II. Osh - Kyrgyzstan

II. A. Prescribing Patterns

The following data refers to the survey in general for all treated diagnoses. Primary health care is provided at the FAP, SUB, and SVA health facility levels. The CRB (rayon level hospital) and city and *oblast* hospitals provide more critical care. Table 1 illustrates prescribing habits encountered in these facilities.

Table 1: Osh - Prescribing Habits By Type of Facility

Facility Type	# Facilities	# Encounters	% Female	Average # Problems	Average # Drugs	% Injection	% Generic
FAP	13	62	47	1.2	2.2	27	59
SUB	12	43	26	1.1	2.2	19	53
SVA	5	19	21	1.2	2.7	11	84
CRB	7	28	50	1.3	2.9	14	61
HOSPITAL (City & Oblast)	1	8	50	1.0	1.6	13	63
All Facilities	38	160	39	1.2	2.3	20	61

- Physicians treat the majority of patients (98%) at all health facility levels except FAPS, where feldschers treat the majority of patients (89%).
- For primary care, 78% of observed patients were treated in either FAPs, SUBs, or SVAs.
- 39% of drugs are prescribed as brand names, which are typically more expensive than generic named drugs.
- 20% of drugs prescribed were by injection which are more expensive than the oral dosage form. e.g.. average price of ampicillin 500 mg tablets in the IPI Guide is US\$0.07/tablet, whereas ampicillin 500 mg injectable is US\$0.26/vial.

Table 2: Osh - Frequency of Health Problems

Health Problem	Number
ORTI (Osh Region Tuberculosis Infection) (CI-01)	120
Diarrhea (simple)	28
Non-fungal deficiency	9
Miscellaneous skin and subcutaneous infections	8
Unspecified pneumonia	7
Other	4
Total	186

- ORTI made up 72% of the problems, pneumonia 2%, and simple diarrhea 15%.

Table 3: Osh - Prescribing Habits by Diagnosis

Drug/Class/Type	Diarrhea	ORTI	Pneumonia	Nutritional Deficiency	Other	Total
Antimicrobial	12	95	4	0	0	111
Cough/Expectorant Mixtures	0	80	2	0	0	82
Paracetamol	2	39	0	0	100	42
Nose Drops	0	10	0	0	0	10
ORS	20	3	1	0	100	25
Vitamins	2	18	0	3	0	21
Calcium Salts	0	16	0	0	0	16
Topical Antibiotics	0	5	0	0	2	5
Other Analgesics	0	3	0	0	0	3
Miscellaneous	2	14	0	0	1	17
Total # Drugs	38	265	7	3	5	319
Total # Problems	28	134	4	9	11	186
Total # Encounters						160
Avg # Drugs Per Encounter						2.1

- According to IMCI guidelines: antimicrobials should not be prescribed for ORTI and diarrhea.
- Vitamins, calcium compounds, and the miscellaneous drugs are unnecessary drugs for these health problems.
- Only soothing cough mixtures are recommended by IMCI guidelines, yet various cough mixtures including mucolytics were prescribed in 60% of the encounters.

**Table 4: Osh -Most Costly Drugs Prescribed *
Comparison with International Price Guide (Average Cost in US\$)**

Generic Name	Strength	Route	Actually Dispensed			Average International Price		
			Cost/Issue Unit	Quantity Dispensed	Total Cost	Cost/Issue Unit	Quantity Dispensed	Total Cost
ascorbic acid	50mcg	po	0.11/ml	1000	110	0.11/ml	1000	110
ampicillin	500mg	ip	0.71/vial	106	75.26	0.28/vial	106	27.56
co-trimoxazole	120mg	po	0.06/sach	688.5	40.11	0.06/sach	688.5	40.11
benzylpenicillin Na	500iu	inj	0.26/vial	94	24.44	0.19/vial	94	17.86
oral rehydration salts	1ml	po	0.44/sach	48	21.12	0.1/sach	48	4.8
benzylpenicillin Na	1mu	inj	0.4/vial	23	9.04	0.19/vial	23	4.37
ampicillin & oxacillin	500mg	inj	0.68/vial	11	7.26	0.66/vial	11	7.26
broncholytine	0.8mg	po	0.02/ml	263.5	5.27	0.02/ml	263.5	5.27
cotrimoxazole	480mg	po	0.07/sach	25.75	1.55	0.01/sach	25.75	0.98
phenoxymethipem	100mg	po	0.08/sach	58	4.64	0.02/sach	58	1.16
calcium gluconate	500mg	po	0.03/sach	120	3.60	0.03/sach	120	3.60
Total most costly drugs					305.98			
Total cost for all drugs					638.73			

* 91% of all drugs prescribed by cost

- Comparing costs of the drugs above with the average price in the IPI Guide:

actual drug cost	305.98
IPI Guide cost	-186.37
potential savings	119.61 US\$ (39% of actual drug cost)

- By cost, 40% of the most costly drugs prescribed were injectables.
- 7 of the 11 drugs in Table 2 are antimicrobials even though 87% of the problems diagnosed were ORTI (72%) and diarrhea (15%).
- The drug combination ampicillin and oxacillin is impractical, costly and offers no advantage over a single antibiotic.
- The drugs broncholytine, calcium gluconate, and ascorbic acid are unnecessary drugs for treating ARI and diarrhea; money spent for these could be used to purchase essential drugs.

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- If unnecessary drugs, such as antimicrobials for diarrhea and ORTI, calcium compounds, vitamins, mucolytics, and other miscellaneous drugs had been prescribed properly, they would represent considerable savings to the health facility and/or patient. For example, the following are percentages of unnecessary drugs by therapeutic or chemical class:
 - antimicrobials -- 34%
 - vitamins -- 6%
 - calcium compounds -- 5%
 - miscellaneous drugs -- 1%

Total savings would have been 46% (155.60 US\$) of total drug costs (338.27 US\$) prescribed in this survey.

Table 5: Osh - Average Cost of Treatment By Diagnosis

US\$	Diarrhea	ORTI	Pneumonia
Sample Average Cost of Treatment	3.42	1.83	14.66
IMCI Average Cost of Treatment	1.00	0.11	1.80*
Possible savings (% of Sample Average Cost of Treatment)	71%	93%	88%

*pediatric Cotrimoxazole tablets used for calculations

- The average cost of treatment for diarrhea is skewed, since the local cost of one packet of ORS is, on the average, four times the IPI price. If ORS were available at a price similar to the IPI price, possible savings would amount to 91%, instead of the 71% indicated above.
- The average cost of treatment by provider type was 2.03 US\$ for physicians, 1.62 US\$ for nurses, and 2.40 US\$ for feldshers. It is normal that average treatment cost is higher for physicians than for non-physicians, since physicians tend to see more serious cases, which may require more expensive medicine. The fact that the treatment of feldshers is more expensive than doctors' treatment needs to be investigated further in order to assess whether it is due to poor prescribing practices of the feldshers.

III. Ferghana - Uzbekistan

III. A. Prescription Patterns

The following data refers to the survey in general for all treated diagnoses. Primary health care is provided at the FAP, SUB, and SVA health facility levels. The CRB (rayon level hospital) and city and *oblast* hospitals provide more critical care. Table 1 illustrates prescribing habits encountered in these facilities.

Table 1: Ferghana - Prescribing Habits by Type of Facility

Facility Type	# Facilities	# Encounters	% Female	Average # Problems	Average # Drugs	% Injection	% Generic
FAP	8	47	40	1.4	3.0	21	69
SUB	4	19	26	1.6	3.6	32	58
SVA	14	75	38	1.4	3.8	28	84
CRB	2	10	60	1.9	3.6	27	64
HOSPITAL (city&oblast)	2	10	30	1.4	3.5	50	80
All facilities	31	162	39	1.5	3.5	28	81

- Physicians treat 100% of patients at all health facility levels except FAPs, where feldschers treat the majority of patients (89%).
- 29% of observed patients were treated in FAP facilities.
- For primary care, 87% of observed patients were treated in either FAPS, SUBs or SVAs.
- 19% of drugs were prescribed as brand names, which are typically more expensive than generic named drugs.
- 28% of drugs prescribed were by injection, which are more expensive than the oral dosage form. e.g., average price of ampicillin 500 mg tablets in the IPI Guide is US\$ 0.07/tablet, whereas ampicillin 500 mg injectable is US\$ 0.26/vial.

Table 2: Ferghana - Frequency of Health Problems

Health Problems	Number
Chronic and acute Urinary infections (UTI)	102
Non-urinary infections	36
Diarrhea - simple	19
Unspecified pneumonia	19
Miscellaneous skin and subcutaneous infections	7
Other	6
Otitis media	3
Total	236

- ORTI made up 55% of the health problems, pneumonia 6%, and simple diarrhea 9%.
- It is notable that nutritional deficiencies made up 23% of the problems studied.

Table 3: Ferghana - Prescribing Habits by Diagnosis

Drug/Class/Type	Diarrhea	ORTI	Pneumonia	Nutritional Deficiency	Other Diagnoses	Total
Antimicrobials	12	101	7	0	7	127
Cough/Expectorant Mixtures	0	91	4	0	0	95
Paracetamol	1	41	5	0	0	47
Nose Drops	0	15	0	0	0	15
ORS	15	0	0	0	0	15
Vitamins	2	16	2	18	1	39
Calcium Salts	1	45	2	0	0	48
Antidiarrheal	7	0	0	0	0	7
Ethyl Alcohol	0	21	0	0	0	21
Topical Antibiotics	0	10	0	0	2	12
Other Analgesics	2	33	3	0	0	38
Miscellaneous	4	12	3	5	0	24
Total # Drugs	44	385	26	23	10	488
Total # Problems	22	130	14	54	16	236
Total # Encounters						162
Avg. # Drugs Per Encounter						3

- According to IMCI guidelines, antimicrobials should not be prescribed for ORTI and diarrhea
- Vitamins, calcium compounds, antidiarrheals, topical antibiotics, ethyl alcohol and miscellaneous drugs are unnecessary for these health problems.

Table 4: Ferghana - Most Costly Drugs Prescribed*
Comparison with International Price Guide (Average Cost in US\$)

Generic Name	Strength	Route	Actually Dispensed			Average International Price		
			Cost/Issue Unit	Quantity Dispensed	Total Cost	Cost/Issue Unit	Quantity Dispensed	Total Cost
ampicillin	250mg	po	0.2/tab	341.8	68.36	0.04/tab	342	13.68
benzylpenicillin sodium	500IU	inj	0.25/vial	248.7	64.82	0.19/vial	250	47.5
locortene/iodochloro	0.2mg	top	0.17/gr	280	47.6	0.17/gr	280	47.6
multivitamins	1tab	po	0.08/tab	474	42.66	0.04/tab	474	1.9
ampicillin	500mg	inj	0.21/vial	65	39.05	0.28/vial	55	14.3
spiritus ethilicus	0.96mg	top	0.018/ml	1530	29.07	0.005/ml	1530	7.65
ascorbic acid	50mg	po	0.11/ml	195	21.45	0.11/ml	195	21.45
potassium iodide	20mg	top	0.13/ml	154	20.25	0.03/ml	675	20.25
calcium chloride	0.05mg	top	0.006/ml	2827.5	16.97	0.006/ml	2827.5	16.97
esmarck	2000ml	rect	2.85/ml	6	17.16	2.85/ml	6	17.16
bromhexine	0.04mg	po	0.17/tab	207.59	14.53	0.07/tab	207.59	14.53
oral rehydratn salts	1ml	po	0.25/each	30	7.5	0.1/each	30	3
aminoacid mixture	1ml	inj	1.14/vial	10	11.4	1.14/vial	10	11.4
co-trimoxazole	48mg	po	0.019/ml	250	4.75	0.019/ml	250	4.75
polymyxine sulphate	500IU	inj	0.91/vial	10	9.1	0.91/vial	10	9.1
ferrous sulphate	150mg	po	0.004/tab	154	0.62	0.004/tab	154	0.62
co-trimoxazole	120mg	po	0.009/tab	134	1.21	0.009/tab	134	1.21
Total most costly drugs					442.56			251.16
Total cost of all drugs					557.16			

* 80% of all drugs prescribed by cost

- Comparing costs of the drugs above with the average price in the IPI Guide:

actual drug cost	442.56
IPI Guide cost	<u>-251.16</u>
potential savings	191.40 US\$ (43% of actual cost)

- 29% of the cost of all drugs prescribed went to injectable drugs, which are more expensive and often unnecessary as compared with oral dosage forms.
- 6 of the 16 drugs above are antimicrobials even though a majority of patients (64%) were diagnosed with ORTI (55%) and diarrhea (9%).
- The drugs, antimicrobials for ORTI and diarrhea, aminoacid mixture, bromhexine, esmarck, calcium chloride, locortene/iodochloroquine, multivitamins, ascorbic acid, potassium iodide, and spiritus ethilicus (ethyl alcohol) are considered unnecessary drugs; money spent for these could be used to purchase essential drugs. If these drugs had been prescribed properly, they would represent considerable savings to the health facility and/or patient. The following are percentages of total drug costs that would have been saved by therapeutic or chemical class:

- antimicrobials -- 23%
- vitamins -- 4%
- calcium compounds -- 10%
- antidiarrheal -- 1%
- ethyl alcohol -- 4%
- topical antibiotics -- 2%
- miscellaneous drugs -- 4%

Total savings would have been 48% (266.48 US\$) of total drug costs (555.16 US\$) encountered in this survey; this savings could have been spent on more essential drugs.

Table 5: Ferghana - Average Cost of Treatment By Diagnosis

US\$	Diarrhea	ORTI	Pneumonia
Sample Average Cost of Treatment	3.22	2.79	5.57
IMCI Average Cost of Treatment	1.00	0.11	2.48*
Possible savings (% of Sample Average Cost of Treatment)	69%	96%	55%

*averages adult and pediatric Cotrimoxazole tablets and syrup, since both were prescribed

- The average cost of treatment by provider type was 4.00 US\$ for physicians, and 1.78 US\$ for feldschers. It is normal that average treatment cost is higher for physicians than for non-physicians, since physicians tend to see more serious cases, which may require more expensive medicine.
- The average cost of treatment for diarrhea is skewed, since the local cost of one packet of ORS is, on the average, four times the IPI price. If ORS were available at a price similar to the IPI price, possible savings would amount to 91%, instead of the 69% indicated above.

APPENDIX B

**RATIONAL PHARMACEUTICAL MANAGEMENT
SIMULATED PURCHASE SURVEY
ALMATY, KAZAKSTAN
DECEMBER 1996**

DRAFT

Paul L. Ickx, M.D.
Thomas Moore

Contract No.: HRN-5974-A-00-2059-00

EXECUTIVE SUMMARY

As part of the Central Asian Infectious Disease Program (CAIDP), RPM planned and executed a survey of the treatment provided by drug sellers's in drug retail outlets for diarrhea and acute respiratory infection (ARI) in December, 1996. The results reported here are being used along with data collected during the Health Facility Survey, executed in November 1996, under the CAIDP, to prepare interventions aimed at improving health care delivery by providers in children 0-5 years old.

The survey was carried out by a team consisting of two BASICS National Technical Officers (NTOs) of Kazakstan and Uzbekistan, an MSH Pharmaceutical Management Consultant, four data collectors, and back-stopped in Washington by the MSH Country Program Officer.

The team surveyed various types of drug retail outlets, including private, government owned but privately managed, and government owned and managed outlets. All outlets were located in various rayons of Almaty City, Kazakstan. (If funds become available, RPM plans to conduct a similar survey in all countries of the CAIDP). Based on the survey protocol described in the *Guide for Improving Diarrhea Treatment Practices and Licensed Drug Sellers*,¹ the survey team prepared questionnaires to assess a drug seller's: evaluation of the patient's condition; instruction to the caretaker of the recommended drug treatment, and understanding of warning signs that the patient is not responding to treatment and needs to see a clinician. The four women of child bearing ages were trained to gather information through dialog with drug sellers. The information was entered on questionnaires only after leaving the drug retail outlet. A total of 64 pharmacies were visited during the survey. At 30 sites data collectors requested assistance for a child with symptoms of a common cold, indicative of the possibility of an ARI. At 34 additional sites, data collectors requested assistance for a child with symptoms of uncomplicated diarrhea. In order to verify drug availability, those drugs recommended by the drug seller were purchased by the data collector.

Responses were compared with the WHO/UNICEF Integrated Management of Childhood Illnesses (IMCI) guidelines² for diarrhea and ARI. A large percentage of drug sellers working in various types of drug retail outlets in Almaty demonstrated little clinical knowledge when recommending drugs for the two diseases. Drug sellers in 20% (for diarrhea) to 23% (for ARI) of the outlets visited, did not ask any questions related to the presented disease. Drug sellers in 47% (for diarrhea) and 70% (for ARI) of the outlets visited did not address any of the key signs and symptoms, that would allow assessment of the degree of severity of the disease.

Correctness and completeness of drug information given by drug sellers to the caretaker was determined to be poor, because of types of drugs recommended, and information on how to take the

¹ Guide for Improving Diarrhea Treatment Practices of Pharmacists and Licensed Drug Sellers, WHO, Geneva, 1993. WHO/CDD/93.43, Annex D.

² WHO/UNICEF Approach To Integrated Management of Childhood Illnesses, November, 1995.

drug. For example, for common cold antimicrobials were sold in 12% of the encounters. For all diarrhea cases, the drug sellers recommended Oral Rehydration Solution (ORS) in only four cases (13%), but sold other drugs quite frequently: antimicrobials (46%), antidiarrheals (68%). Expected drug action was not mentioned half the time, potential side effects hardly ever (5%), and complete drug administration information was never given to the caretaker. Minimal drug administration (how to complete a full course of treatment) for all dispensed drugs was given in 17% of the ARI cases and 29% of the diarrhea cases.

Knowledge of the most cost effective drug was not demonstrated. The average monthly wage in Almaty in May 1996 was 6452 TEK (US\$ 90.90)).³ In this survey the recommended drugs averaged 252 TEK (US\$ 3.60) for common cold, and 109 TEK (US\$ 1.56) for diarrhea. Following the recommendations in the IMCI guidelines, the cost of drug treatment would be 8 TEK (US\$ 0.11) for common cold, and 70 TEK (US\$ 1.00) for diarrhea. Patients spent 97% more for treatment of ARI and 36% more for diarrhea, than was necessary.

Drug availability proved to be a problem, as demonstrated by the fact that recommended drugs were available for purchase only 69% of the time for ARI and 56% of the time for diarrhea.

The results of the survey suggest that improvement in drug use may be achieved by improving the knowledge of retail outlet drug sellers of standard treatments for the investigated diseases. Knowing what questions to ask a caretaker, as well as what basic drug information to provide the caretaker, is needed by drug sellers before proper treatment can be expected.

³Kazakstan Economic Trends, Centre of Economic Reforms, GOVERNMENT OF KAZAKSTAN, Second Quarter 1996

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I. SURVEY PROTOCOL

Based on the survey protocol described in the *Guide for Improving Diarrhea Treatment Practices of Pharmacists and Licensed Drug sellers*, the survey team developed questionnaires and protocols for both diarrhea and common cold cases. The questionnaires were evaluated for feasibility by the BASICS National Technical Officer (NTO), and the National CDD/ARI Coordinator of the MOH of Kazakhstan. The MOH of Kazakhstan readily provided support for the survey to take place in Almaty. The resulting protocols were then translated into Russian. Both English and Russian protocols are listed in Annexes 1 and 2, respectively.

The objective of the survey was to assess several key aspects of correct diarrhea and common cold case management in children at drug retail outlets, which are readily accessible to the public. The key aspects are:

- What information is obtained before recommending a treatment?
- What treatment is recommended and actually sold?
- What is the cost of treatment?
- What information is given about the sold treatment to ensure correct administration?
- What additional information is provided to indicate when the sick child should get professional help, should the treatment prove inadequate?

The NTOs of Kazakhstan and Uzbekistan were designated as field supervisors. Each supervised two data collectors. The latter were women of child bearing age, two of them had paramedical backgrounds.

The data collectors were introduced to the survey's purpose, protocol and forms. Role playing took place under supervision of NTOs and RPM consultants. Based on the observation of the role playing, it was decided that one data collector would do all diarrhea interviews, and the other one, all ARI interviews for each team. One afternoon was taken for field trial in nearby drug retail outlets. One anticipated difficulty was to prevent the data collectors from volunteering too much information when they presented themselves at the drug retail outlet. Based on findings during the field practice, it was decided that the data collector would go to the outlet, focus on questions to be asked, and absorb drug sellers' questions and comments; after each shop visit, the supervisor would fill out the forms in the car.

The diarrhea scenario presents a child with simple diarrhea, without dehydration. The ARI scenario presents a child with common cold. Care was taken during training and field testing that the data collectors would not suggest a more serious illness, either in their initial presentation or when answering questions of the retailer. It was explicitly stressed that none of the presented cases should require antimicrobial treatment.

Questionnaires were designed to assess a drug seller's evaluation of the seriousness of the presented illness; instruction to the patient's caretaker on how to properly comply with recommended drug treatment, and how to understand signs that the patient is not responding to treatment, and needs to see a clinician.

II. SAMPLING

At the national level, lists of licensed drug retail outlets need updating, and were not available in a format useful for purposes of the survey. In addition, many people are suspected of buying their drugs from unlicensed drug retail outlets. In order to include all probable sources of pharmaceuticals available to the general public, the survey team decided to select geographical areas and investigate the first drug retail outlet encountered, regardless of the type of outlet. In absence of a reference database, maps of the city rayons were photocopied from a telephone directory. With a pencil, locations were randomly pinpointed on the map and the nearest intersection marked as "base," on condition that it was at least two blocks away from a previously selected "base."

With a vehicle, one supervisor and two data collectors went to each of the "bases." From the "base," one data collector went to the right and one went to the left. The first outlet that sells drugs was included in the survey; these were not necessarily pharmacies such as *apteka* or *derikhana*, but could be a shop, stall, or whatever type of outlet offering pharmaceuticals for sale or distribution.

In each of the eight rayons of Almaty oblast, four "bases" were selected by the method described above, for a total of sixty four drug retail outlets, 34 of which were to be visited for diarrhea, and 30 for ARI.

III. DISCUSSION OF FINDINGS

III.A. Types of Drug Retail Outlets and Number Included in Survey

It proved difficult for the data collectors and supervisors to classify the exact type of drug retail outlet. The recent privatization of many state owned pharmacies, commercialization of others still under state control, newly established private enterprises, establishing of some as a chain of drug retail outlets, kiosks and tables on the sidewalk (*lotok*⁴) that display a variety of pharmaceuticals, and incomplete control of licensing by the government, made the classification difficult. When in doubt, the term *outlet* was used for those shops that didn't fit other categories. In *Table 1*, *Private* includes pharmacies, kiosks and *lotok*, all privately run; *Other outlet* was used when classification was unclear.

Table 1

Type	ARI	Diarrhea
Private	19	23
State	3	9
State commercial	4	2
Other outlets	4	0
Total	30	34

⁴ *Kiosk*: small stand that sells pharmaceuticals, privately run, often located in hotel halls, in or next to hospital compounds; *Lotok*: roadside table or board that offers pharmaceuticals for sale, often near markets

III.B. Results of the ARI Scenario

III.B.1. Assessment of the cases

Table 2 contains a list of clinical questions from the *IMCI guidelines* for ARI, and illustrates how frequently drug sellers asked the questions.

Table 2

Questions Asked	Number Drug sellers N = 30
1. Stridor at rest?	3 (10%)
2. Blood in sputum?	0
3. Child is able to eat/drink?	2 (7%)
4. Child is breathing fast?	2 (7%)
5. Child is abnormally sleepy?	2 (7%)
6. Child vomits after coughing?	0
7. Is there chest indrawing?	0
8. Did child take any drugs yet?	8 (28%)
9. Did child take any special fluids?	1 (3%)
10. Did child eat anything special?	1 (3%)
11. What age is the child?	14 (47%)
12. What is the temperature?	14 (47%)
13. How long has the child been sick?	8 (27%)
No question at all	7 (23%)

Drug sellers in seven (23%) of all outlets did not ask any questions for further specification of the illness. If we take into account only questions number 1 to 7, which reflect some of the most important signs to evaluate for ARI, we find that **21 drug sellers (70%) did not ask any of the severity questions** at all.

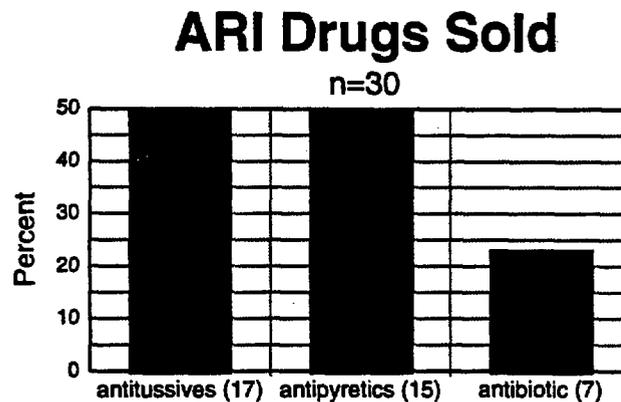
III.B.2. Recommended Treatment

For the thirty cases of ARI, 84 remedies were recommended, for an average of 2.8 remedies per case. Of these, 58 (69%) were actually available and purchased, representing a total value of 7,551 TEK (US\$ 107.87). Thus, for available products, the average cost per case was 252 TEK (US\$ 3.60), compared with recommendations from the IMCI guidelines, where average cost would be 8 TEK (US\$ 0.11), mainly for the purchase of soothing cough syrup. Average drug treatment costs were US\$ 3.60 for the sample, and US\$ 0.11 for IMCI treatment. Therefore, **inappropriate dispensing caused caretakers to spend 97% more money for treatment than necessary.**

Sold drugs by therapeutic class for the 30 cases are illustrated in Figure 1. The seven antimicrobials dispensed were cotrimoxazole (6), erythromycin (1); and the antipyretics were paracetamol (10), acetylsalicylic acid (4), amidopyrine compound (1). The seventeen antitussives varied in composition from soothing to medicinal cough syrups. Since antimicrobials and medical cough syrup are not required for the common cold, nor is paracetamol recommended with absence of fever, the cost of the drugs was an unnecessary expense for the caretakers.

Figure 1

Of the total number of drugs sold, 16 (28%) were generic, while 72% were for more expensive brand names; none were injectable.



In order to ensure treatment compliance, caretakers should understand why and how a dispensed drug should be used. (S)he therefore needs to be informed about the following drug parameters:

- expected action against the cause or symptoms of the illness
- possible dangers and side effects
- how to administer the drug (by mouth, by rectum, by injection, etc)
- how much to give each dose
- how many times a day to administer the dose
- how many days are necessary to complete the course of treatment.

For the drugs dispensed during the survey, drug sellers provided caretakers with the following information (each dispensed drug is counted):

Table 3

Information provided	Number of Drugs N = 58
1. Drug action explained	21 (36%)
2. Side effects and/or contraindications explained	2 (3%)
3. Way of administration explained	42 (72%)
4. Dosage per administration	41 (71%)
5. Number of administrations per day	37 (64%)
6. Number of days per course of treatment	15 (26%)
No information at all	11 (19%)

For 11 (19%) of the dispensed drugs, no information was given at all. Minimal information explaining how to give a full course of treatment (all items 3 to 6 above) for all dispensed drugs, was given by drug sellers in only 5 (17%) of the drug retail outlets.

III.B.3. Recommendations for Follow up

The table below illustrates the number of drug retail outlets where drug sellers mentioned any signs of progressive illness and recommended a visit to a doctor or clinic for these conditions:

Table 4

Condition Mentioned	Number of Outlets N = 30
Breathing becomes difficult	1
Breathing becomes fast	1
Child is unable to drink	0
Child is not feeding well	0
Child has high fever	2
Child becomes sicker in general	0
Child becomes abnormally sleepy	0

For 93% of visits, caretakers were sent away without any specific information about signs that could indicate the given treatment was ineffective and the child was getting worse; only 2 drug retail outlets mentioned at least one. Recommendations for general home care of the child or treatment other than for drugs, are illustrated in the Table 5 below.

Table 5

Advice Given	Number of Outlets N = 30
1. Clean stuffy nose	0
2. Continue giving fluids and food	1 (3%)
3. Increase fluid intake	2 (7%)
4. No recommendation for follow-up	22 (73%)
5. Go see a doctor anyway	5 (17%)

III.C. Results of the Diarrhea Scenario

III.C.1. Assessment of the case

Table 6 contains a list of questions from the *Guide for Improving Diarrhea Treatment Practices of Pharmacists and Licensed Drug Sellers*, which illustrates how frequently drug sellers asked the questions.

Table 6

Question Asked	Number Drug Sellers N=34
1. Frequency of stools?	13 (38%)
2. Blood in stool?	3 (9%)
3. Presence of fever?	8 (24%)
4. Change in consciousness?	3 (9%)
5. Vomiting present?	4 (12%)
6. Abdominal cramps?	2 (6%)
7. Did child take any drugs?	3 (9%)
8. Did child take any special fluids?	2 (6%)
9. Did child eat anything special?	5 (15%)
10. What age is the child?	14 (41%)
11. How long is the child sick?	7 (21%)
No question at all	7 (21%)

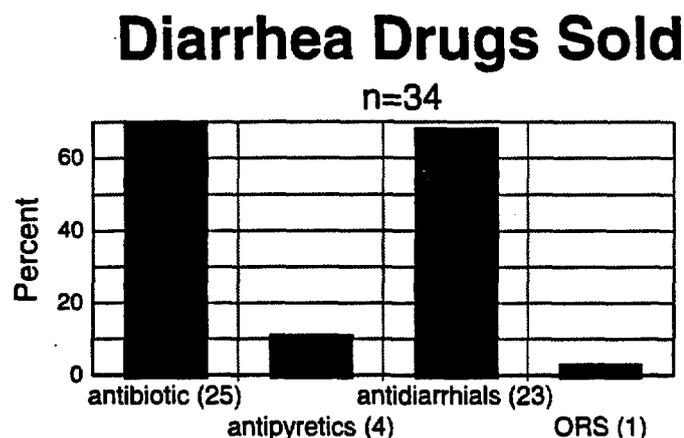
Drug sellers in 21% of all drug retail outlets did not ask questions to assess the illness any further. Questions one to six above, cover the most important signs to evaluate for severity of diarrhea, and it is notable that 16 (47%) of drug sellers asked none of the six severity questions at all.

III.C.2. Recommended Treatment

For the 34 cases of diarrhea, 96 remedies were recommended, an average of 2.8 remedies per case. Of these, 54 were actually dispensed because of availability, representing a total value of 3,594 TEK (US\$51.34). Thus, for available drugs, the average cost per case was 109 TEK (US\$1.56) compared with recommendations in the IMCI guidelines, where average costs would be 70 TEK (US\$1.00), for purchasing ORS and paracetamol. Average drug treatment costs were US\$ 1.56 for the sample, and US\$ 1.00 for IMCI treatment. Therefore, **inappropriate dispensing caused caretakers to spend 36% more money for treatment than necessary.**

Sold drugs by therapeutic class for the 34 cases are illustrated in Figure 2 below. The 25 antimicrobials dispensed were levomycetine, furazolidine, phtalazol, and cotrimoxazole; the 23 antidiarrheals were smecta, loperamide, activated charcoal, enterol, and bactisubtil; and the four antipyretics were all paracetamol. Since antimicrobials are not required, and antidiarrheals are never indicated for uncomplicated diarrhea, the money spent on these two classes of drugs was an unnecessary expense for the caretakers.

Figure 2



Only four drug sellers recommended the use of ORS for diarrhea; however, because of unavailability, ORS was actually sold in only one case. It is notable that in the one case where ORS was sold, the antibiotics levomycetin and a combination of tetracycline and nystatin, were also dispensed. Data collectors reported the most frequent reason for not purchasing a recommended drug was its unavailability in the outlet at the time of the visit. Of the total number of drugs dispensed, 44% were generic, and 56% were for more expensive brand name drugs; one was injectable.

In order to ensure treatment compliance, it is necessary that caretakers understand why and how a dispensed drug should be used. (S)he therefore needs to be informed about:

- the action of the drug against the cause or symptoms of the illness
- possible dangers and side effects of the drug
- how to administer the drug
- how much to give each time it is administered
- how many times a day to administer it
- how many days are necessary to complete the course of treatment.

This information was given for dispensed drugs as follows:

Table 7

Information provided	Number of drugs N=54
1. Drug action explained	30 (56%)
2. Side effects and/or contraindications explained	3 (3%)
3. Way of administration explained	49 (91%)
4. Dosage per administration	44 (81%)
5. Number of administrations per day	43 (80%)
6. Number of days per course	22 (41%)
No information at all	4 (7%)

No information was given for 7% of the drugs dispensed; and only minimal information (explaining how to take a full course of treatment--items 3 to 6 above) was given by only 10 (29%) of the drug retail outlets.

III.C.3. Recommendations for follow up

Drug sellers should be aware of certain measures that could enhance recovery, as well as of certain symptoms that show the provided treatment does not have the expected effect, that the child is getting worse, and should be seen by a clinician. In Table 8 below are the number of drug retail outlets that recommended a visit to a doctor or clinic for certain conditions:

Table 8

Condition mentioned	Number of outlets N=34
Diarrhea persists	6
Child starts vomiting	0
Child makes high fever	3
Child becomes lethargic	0

In 82% of the visits, the caretaker was sent away without any specific information about signs that could indicate the given treatment was ineffective and the child was getting worse. Only 6 outlets mentioned at least one of these signs, three mentioned two of them. Recommendations for treatment other than for drugs are illustrated in the Table 9 below.

Table 9

Advice Given	Number of Drug Sellers
1. Continue giving food and fluids	1 (3%)
2. Increase fluid intake	6 (18%)
3. Watch fluid loss due to diarrhea	0
4. No recommendations for follow-up	22 (65%)
5. Go see a doctor anyway	5 (15%)

III.D. General Observations

A large proportion of the actual drugs sold was provided in adult dose form, which complicates the administration of exact doses to children. Many of the antimicrobials were not provided in quantities large enough to ensure a full course of treatment without having to buy more of the medicine. This carries the risk that caretakers will never buy the remaining quantities to give a full course of treatment, and risks in the long run the emersion of strains of microorganisms, resistant to the most frequently abused antimicrobials. Unfortunately, the survey protocol used did not permit systematic collection of this information.

IV. Conclusions and Recommendations

The main objectives of the simulated purchase survey were to assess the drug seller's knowledge of key clinical aspects of diarrhea and ARI treatment in children, the drug sellers' adherence to internationally recommended treatments for diarrhea and ARI, and the practice of providing drug information to the caretaker of a child presenting with either of these diseases. In addition, the survey was designed to demonstrate availability of the recommended drugs and give an impression of needlessly incurred costs due to poor prescription practices.

Contrasting the drug seller's clinical knowledge with that of the WHO/UNICEF IMCI guidelines, it is evident from the sample, that a large proportion of drug sellers working in various types of drug retail outlets in Almaty either do not know, or have not been trained to utilize clinical knowledge when recommending drugs for the two diseases. For example, drug sellers for ARI (23%) and for diarrhea (21%), did not ask any questions relating to the disease; nor did drug sellers address the six to seven key symptoms allowing for assessment of the severity of the diseases, in 70% of the encounters for ARI, 47% for diarrhea.

Both for ARI and diarrhea, antimicrobials and other drugs were needlessly recommended and dispensed. It unnecessarily burdens the patients with elevated costs. The prescription of antimicrobials without valid indication, especially in amounts that do not cover a full course of treatment, carries the danger of enhancing the emergence of strains of microorganisms, resistant to the most commonly prescribed antimicrobials.

The correctness of drug information given to the caretaker was found to be poor for two reasons: the types of drugs recommended, and information on how to take the drug. For diarrhea, on only four occasions did the drug seller recommend Oral Rehydration Solution (ORS), while antimicrobials and antidiarrheals were sold 46%, and 68% of the time, respectively. However, because of unavailability, ORS was sold in only one case, and worth noting that the drug seller also sold the caretaker antimicrobials. Combining results for both diseases, with respect to "how to take the drug," expected drug action was not mentioned on average for 56% of recommended drugs, potential side effects 96%, actual dose 19%, frequency of daily dosing 28%, and duration of treatment in days 67%. Overall, for no drug recommended in the survey was complete drug administration information given to the caretaker. Minimal drug administration information (needed to allow a complete course of treatment) on all dispensed drugs was given in 23% of all cases.

Drug availability also proved to be a problem in that only 58 of 84 recommended drugs for ARI were available for purchase in respective drug retail outlets, and only 54 of 96 for diarrhea. Most of the drugs available for sale were in the adult dose form, encumbering the caretaker with how to give the proper child's dose.

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While dispensing drugs that were available for purchase, drug sellers did not provide any information on signs indicating that the illness is worsening due to ineffective treatment in 93% of the encounters for ARI, and 82% for diarrhea. However, for both diseases an average of 16% of the drug sellers did encourage the caretaker to take the sick child to a physician anyway. For the diarrhea cases, there was no mention of concern with fluid loss; but in one case, the drug seller did mention to continue giving food and fluids to the sick child. Generic drugs were recommended 28% of the time for ARI, 44% for diarrhea, indicating a heavier use of more expensive brand name drugs.

Being a former Soviet country, Kazakstan is still involved in changing its infrastructure. For that reason, the government does not currently have complete control of licensing of drug retail outlets, as evidenced by the sale of drugs at such unlicensed "outlets" as drugs displayed on tables in the markets. The government should continue its present efforts to regulate the pharmaceutical market. The present effort to privatize the health sector should address the problems shown in the survey: that is, a mechanism should be found to ensure minimal awareness by drug sellers of the adequate treatment and case management of the most common diseases.

Because of the gaps in drug seller knowledge of clinical aspects of drugs and diseases, poor quality of drug information provided to the patient, and procurement of most cost effective drugs, it is apparent that much knowledge is needed by drug sellers before proper treatment could be expected.



APPENDIX C

9/1

USAID/BASICS
Rapid Integrated Health Facility Assessment

1. OBSERVATION CHECKLIST - SICK CHILD

Province/district: _____ MW			
Category _____		Date __ \ \	
Facility Name _____		Facility Type _____	
Interviewer No _____	Child's age _____	Child sex M / F	ID No _____

BEGIN TIMING THE INTERVIEW NOW TIME: _____

1. What reason does the caretaker give for bringing the child to the health center (**Tick all that apply**)
- ___ Diarrhea/vomiting ___ Fever ___ Difficulty breathing/cough/pneumonia

SCREENING

Does the health worker determine the child's:

- | | | | |
|----|---|---|---|
| 2. | Clinic record..... | Y | N |
| 3. | Age by asking caretaker..... | Y | N |
| 4. | Weight..... | Y | N |
| | a. Plot weight on a weight for age chart..... | Y | N |
| 5. | Temperature | | |
| | a. By thermometer..... | Y | N |
| | b. By touch..... | Y | N |
| 6. | Respiratory Rate..... | Y | N |

Does the health worker ask questions about:

- | | | | |
|-----|--|---|---|
| 7. | Drinking or eating..... | Y | N |
| 8. | Breast-feeding..... | Y | N |
| 9. | Convulsions..... | Y | N |
| 10. | Vomiting..... | Y | N |
| 11. | Change in consciousness/lethargy/sleepiness..... | Y | N |

A. All severity questions (Q.7 to Q.11) asked?	Y	N
--	---	---

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- | | | | |
|-----|---|---|---|
| 12. | History of diarrhea..... | Y | N |
| a. | Blood in stool..... | Y | N |
| b. | Duration of diarrhea..... | Y | N |
| 13. | History of fever..... | Y | N |
| a. | Duration of fever..... | Y | N |
| 14. | History of cough/difficulty breathing..... | Y | N |
| a. | Duration of cough/difficulty breathing..... | Y | N |
| 15. | History of ear problems..... | Y | N |

B.	All key history questions (Q.12 - Q.15) asked?	Y	N
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- | | | | |
|-----|--|----------|----------|
| 16. | History of home treatment with: | | |
| a. | Herbs/rubbing with ointments or spiritus/plasters.... | Y | N |
| b. | Western medicine..... | Y | N |
| 17. | Does the health worker check/ask about the child's immunization status? | Y | N |
| a. | IF YES, is the child referred for vaccination: | | |
| | _____Today _____Another day _____ Not referred | | |
| 18. | Does the health worker ask about the caretaker's diphtheria vaccination status? | Y | N |
| a. | IF YES, is the parent referred for vaccination: | | |
| | _____Today _____Another day _____ Not referred | | |

EXAMINATION

Does the health worker:

- | | | | |
|-----|-----------------------------------|---|---|
| 19. | Examine ears..... | Y | N |
| 20. | Examine throat..... | Y | N |
| 21. | Look for stiff neck..... | Y | N |
| 22. | Examine chest | | |
| a. | By counting respiratory rate..... | Y | N |
| b. | By stethoscope..... | Y | N |
| 23. | Look for skin turgor..... | Y | N |

C.	Child examined according to visit (Q.1)?	Y	N
-----------	---	----------	----------

- | | | | |
|-----|--|---|---|
| 24. | Look for pallor (conjunctival/palmar)..... | Y | N |
| 25. | Look for visible "wasting"..... | Y | N |

D. Child examined for nutrition status (Q.24 and Q.25 circled Y)?	Y	N
--	----------	----------

Diagnosis and Treatment

Does the health worker diagnose the child as having :

- 26. Diarrhea/gastroenteritis/gastroenterocolitis..... Y N
- 27. Dehydration..... Y N
If YES, is it ___Mild ___Severe ___Not stated
- 28. Dysentery/bloody diarrhea/hemocolitis..... Y N
- 29. Upper respiratory tract infection (cough, sore throat, viral) Y N
- 30. Lower Respiratory Tract Infection (pneumonia,bronchitis,..)Y N
- 31. Meningitis, meningoencephalitis..... Y N
- 32. Fever, other cause..... Y N
- 33. Measles..... Y N
- 34. Hypotrophy/malnutrition/vitamin deficiency..... Y N
- 35. Other..... Y N Specify _____
- 36. No diagnosis..... Y N

37. Mark in detail all the medicine the health worker administers or prescribes:
(If more than 10, please add on the back of previous page)

Name, strength and form of the medicine	Number taken each time	Number of times per day	Total number of days

E.	Is medication appropriate for diagnosis?	Y	N
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F.a	Diarrhea case received appropriate medication?	Y	N	N/A
F.b	Dysentery case received appropriate medication?	Y	N	N/A
F.c	Pneumonia case received appropriate medication?	Y	N	N/A

If ORS (Rehydron) is given or prescribed (Q.37), does the health worker:

38.	Explain how to prepare ORS/Rehydron.....	Y	N	N/A
39.	Demonstrate how to prepare ORS/Rehydron.....	Y	N	N/A
40.	Ask the parent to demonstrate how to prepare ORS/Rehydron	Y	N	N/A

Interpersonal communication

41. If other oral medicine is given or prescribed (Q.37), does the health worker:

a.	Explain how to administer oral medication.....	Y	N
b.	Demonstrate how to administer oral medication.....	Y	N
c.	Ask an open ended question to verify the comprehension to administer oral medication.....	Y	N

Does the health worker:

42.	Explain when the child needs to be seen again.....	Y	N
43.	Explain the need to give the same quantity or more liquid at home.....	Y	N
44.	Explain the need to continue feeding or breast-feeding at home.....	Y	N
45.	Tell the caretaker to bring the child back when the child:		
a.	Is not able to drink or drinking poorly.....	Y	N
b.	Is not able to breast-feed.....	Y	N
c.	Becomes sicker.....	Y	N
d.	Develops a fever.....	Y	N
e.	Develops fast or difficult breathing.....	Y	N
f.	Develops blood in the stool.....	Y	N

G.	Are at least two of the Q.45 - messages checked?	Y	N
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Does the health worker:

46.	Ask the caretaker to repeat the instructions on when to return with the child	Y	N
47.	Ask the parent questions to see if (s)he has understood?.....	Y	N
48.	Ask the parent if (s)he has any questions?.....	Y	N

49. Criticize the caretaker or show disapproval.....Y N

CHECK THE TIME OF THE INTERVIEW AS THE CARETAKER LEAVES:

TIME: _____ DURATION OF INTERVIEW: _____

Ask the caretaker to see the prescription slip, and check the prescribed treatment

Ask medical worker to see the child's clinic record and check the following:

The diagnosis (see Q.26-Q.36)

The treatment (see Q.37)

The immunization record and write date of birth and tick all of the following that have been given to the child:

Date of birth: _____

IMMUNIZATION	RECEIVED
Polio at birth	Y N
BCG	Y N
DPT-1	Y N
Polio-1	Y N
DPT-2	Y N
Polio-2	Y N
DPT-3	Y N
Polio-3	Y N
Measles	Y N
DPT-4	Y N

H. Is the child up to date with his/her vaccinations	Y	N
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End of Sick Child Checklist

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2. EXIT INTERVIEW - SICK CHILD

Province/district: _____	Date _________
Facility Name _____	Facility Type _____
Interviewer No _____	Child's age _____ ID No _____

Greet the caretaker and tell you would like to ask some questions about her visit to the health center today.

50. Where do you live? ___ City ___ Rayon center
 ___ Oblast center ___ Village/farm
 ___ Camp (utgune)

51. What is your relation to the sick child:

___ mother ___ father ___ grandmother ___ grandfather
 ___ sister ___ brother ___ aunt ___ uncle
 ___ other, specify: _____

52. What form of transportation did you use to come here today? (**Choose principal form of transportation**)

___ Walked ___ Animal ___ Taxi ___ Bus ___ Private car

___ Other - Specify: _____

53. How long did it take you to get here? _____ minutes

54. Did you have any problems getting here?..... Y N

If yes, what was the primary problem? (Tick only one response)

___ Takes too long to get here
 ___ Had to find someone to look after the children
 ___ Had to miss work
 ___ Transport too expensive
 ___ Hours are inconvenient
 ___ No public transportation available
 ___ Other: _____

55. Did you go anywhere for help/treatment/advice before coming here?..... Y N
 If yes, where did you take it? (**Prompt and tick all that apply**)
 ___ Another medical facility ___ Hospital
 ___ Pharmacy/drug seller ___ Traditional healer/taup/babka/znakhar
 Other: _____
56. How long was your child sick before you took it to this health facility
 ___ Today/previous night ___ Number of days ___ Don't know
57. **Does the child have diarrhea**..... Y N
If NO, go to Q.10, else:
58. Did you treat the diarrhea at home?..... Y N
 If yes, what did you do? (**Tick all that apply**)
 ___ Gave ORS/RHF
 ___ Used herbs/rubbing with ointments or spiritus/
 ___ continued breast feeding
 ___ continued to feed
 ___ Other treatment: _____
59. Have you ever heard of the use of ORS/RHF for diarrhea?..... Y N
 a. If yes why do people give ORS/RHF to children with diarrhea? (**Tick only one**)
 ___ to prevent dehydration
 ___ to stop diarrhea
 ___ Other: _____
 ___ don't know
60. How do you prepare ORS ___ correct (mix 1 sachet with 1 liter of water)
 ___ incorrect
 ___ don't know
61. **Does the child have fever**..... Y N
If no, go to Q.14; else:
62. Did you treat the fever at home? Y N
 If Yes, how did you treat it? (**Tick all that apply**)
 ___ Gave Aspirin/paracetamol ___ Gave herbs/traditional medicine
 ___ Gave antibiotics ___ Gave a non-identified medicine
 ___ Gave a rubbing with ___ Removed child's clothing
 ___ Other: _____

63. Does the child have cough/difficult breathing/pneumonia?..... Y N
If NO, go to Q.16, else:

64. Did you treat cough/difficult breathing/pneumonia at home?..... Y N
If yes, what did you do? (Tick all that apply)
 Gave Aspirin/paracetamol Gave herbs/ <local term>
 Gave antibiotics Gave a non-identified medicine
 Gave a cough medicine Applied rub-ins
 Other: _____

65. Did the health worker give or prescribe any oral medicine today?..... Y N
If NO, go to Q.17, else:
 Complete for the listed medicine by asking for each type of medicine:
 HOW MUCH medicine will you give the child EACH TIME?
 HOW MANY TIMES will you give it to the child EACH DAY?
 HOW MANY DAYS will you give the medicine to the child?

Medicine	How much each time?	How many times a day?	How many days?	All correct (Y/N)?
Antibiotic tab/syr (please list all)				
Aspirin tab/syr or Paracetamol tab/syr (please list all)				
ORS/RHF				

A. Caretaker knows how to give ALL essential medications correctly? Y N

66. What will you do for your child when you return home? **(Tick all that apply)**
 Doesn't know
 Continue feeding/breast-feeding the child
 Complete course of medications/ORS/RHF
 Bring the child back if he/she doesn't get better or gets worse

B. Caretaker knows at least 2 aspects of home-management?	Y	N
--	----------	----------

67. How will you know that the child becomes more ill at home? **(Tick all that apply)**
- | | |
|--|---|
| <input type="checkbox"/> doesn't know | <input type="checkbox"/> Vomiting begins or continues |
| <input type="checkbox"/> fever begins or doesn't go away | <input type="checkbox"/> child unable to drink/breast-feed |
| <input type="checkbox"/> child unable to eat | <input type="checkbox"/> child has convulsions |
| <input type="checkbox"/> diarrhea continues | <input type="checkbox"/> child has rapid or difficult breathing |
| <input type="checkbox"/> child becomes sicker | |
| <input type="checkbox"/> Other: _____ | |

C. Caretaker knows at least 2 signs of child getting worse at home?	Y	N
--	----------	----------

68. Did your child receive an immunization today? Y N
IF NO: (Tick a single response) PROMPTED QUESTION
- Referred for vaccination another day
 Was not given or referred for vaccination
 Up to date
69. How did you learn when and where to come for routine immunization? **(Tick all that apply)**
- | | |
|---|---|
| <input type="checkbox"/> Doctor/nurse/midwife/flasher | <input type="checkbox"/> family/parents |
| <input type="checkbox"/> community volunteer | <input type="checkbox"/> radio |
| <input type="checkbox"/> poster | <input type="checkbox"/> television |
| <input type="checkbox"/> neighbor or friend | |
| <input type="checkbox"/> other: _____ | |
70. Where do you take your child normally for immunization? **(Tick a single response)**
- this health facility another health facility
 never immunized before
71. Which diseases will be prevented by the immunizations your child received? **(Tick all that apply)**
- | | |
|---|---------------------------------------|
| <input type="checkbox"/> don't know | <input type="checkbox"/> measles |
| <input type="checkbox"/> diphtheria | <input type="checkbox"/> tuberculosis |
| <input type="checkbox"/> tetanus | <input type="checkbox"/> polio |
| <input type="checkbox"/> whooping cough | <input type="checkbox"/> hepatitis |
| <input type="checkbox"/> other: _____ | |
72. Do you know what might happen as normal side effects of the immunization? Y N
If yes, what were you told? (Tick all that apply)
- Fever Pain at injection site
 Irritability Swelling other: _____

73. Have you and your child come to this health facility to be vaccinated and been turned away for some reason?..... Y N
 If yes, what was the reason? (**Tick all that apply**)

- Immunization session canceled
- Immunization session stopped before you arrived
- health facility closed
- No immunization given the day you visited
- No vaccines or supplies available
- No staff present to give vaccinations
- child was too ill to give vaccinations
- child had contraindications to immunization
- other: _____

74. Ask the caretaker date of birth and age of the child and what vaccines the child has received up till now (**tick all that apply**)

Date of birth: _____ Age in months: _____

IMMUNIZATION	RECEIVED
Polio at birth	Y N
BCG	Y N
DPT-1	Y N
Polio-1	Y N
DPT-2	Y N
Polio-2	Y N
DPT-3	Y N
Polio-3	Y N
Measles	Y N
DPT-4	Y N

75. Ask the caretaker whether (s)he received an Td vaccination: Y N
 If Yes, when was the last time (month and year): _____

76. When will you bring your child back to the health facility? (**Tick all that apply**)
- Doesn't know
 - No need to return
 - Return if child becomes worse at home
 - Return for follow up
 - Return for next immunization
 - Knows when to come back
 - Doesn't know when to come back
77. How often do you listen to the radio? (**Tick a single response**) **PROMPTED QUESTION**
- Every day
 - At least once a week
 - Every 2 weeks
 - Every month
 - Less frequently than every month
 - Never listen
78. How often do you watch TV? (**Tick a single response**) **PROMPTED QUESTION**
- Every day
 - At least once a week
 - Every 2 weeks
 - Every month
 - Less frequently than every month
 - Never listen
79. How much did you pay today for transportation to the health facility: _____
the services received _____
medication _____
80. Did you have to borrow money to pay for the services you received today?.....Y N

END OF THE INTERVIEW

Thank the person for the interview and ask him/her if (s)he has any questions.

Be sure that (s)he knows: **how to prepare ORS for a child with diarrhea**
how to take the prescribed medication
when to return if the child becomes worse at home
when to return for vaccination

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3. HEALTH CARE WORKER INTERVIEW

Oblast/rayon: _____ MW	
Category _____	Date __ \ __ \ __
Facility Name _____	Facility Type _____
Interviewer No _____	

Introduce yourself to the health care worker. Tell him/her that you would like to ask some general questions about the clinic, followed by some general questions about his/her job.

81. What are the normal hours of operating at this facility?
 Opening time _____ Closing time _____ **Total number of hours:** _____
82. Do you charge fees for any of the services of this health facilityY N

Service	Fee
Sick child out-patient clinic	
Well baby clinic	
Healthy pregnant women check-up	
Immunization clinic	
Reproductive health/family planning clinic	
Health education	
Paperwork/forms/registers	

83. Where do you usually get your medications and supplies? **(Tick a single response)**
 ___ Government pharmacy/warehouse ___ private pharmacy/ supplier
 ___ humanitarian assistance/NGO/Mission
 ___ Other: _____
84. How are medicine and supplies usually received? **(Tick a single response)**
 ___ delivered to the facility ___ picked up from the supplier ___ both

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85. What is the most common source of delay in delivery of supplies? (**Tick a single response**)
- | | |
|--|---|
| <input type="checkbox"/> Inadequate transport | <input type="checkbox"/> Insufficient fuel |
| <input type="checkbox"/> Administrative difficulties | <input type="checkbox"/> Insufficient staff |
| <input type="checkbox"/> Financial problems | <input type="checkbox"/> Stock out at the central store |
| <input type="checkbox"/> Other: _____ | |
86. Do you have a copy of the national treatment guidelines?..... Y N
 If **yes**: Can we see them? Y N
 Do you use them?..... Y N
87. Do you have a functioning supervisor?..... Y N
 If **no**, go to Q.13, else:
88. Do you have a schedule for supervisory visits?..... Y N
89. Does your supervisor work in this health facility?..... Y N
 If **No**, how many times have you had a visit from your supervisor:
 in the last six months: _____
 in the last twelve months: _____
90. What did your supervisor do the last time he visited you? (**Tick all that apply**)
- | |
|---|
| <input type="checkbox"/> Delivered supplies |
| <input type="checkbox"/> Observed immunization technique |
| <input type="checkbox"/> Observed management of sick children |
| <input type="checkbox"/> Reviewed reports prepared by health worker |
| <input type="checkbox"/> Updated health worker on current information |
| <input type="checkbox"/> Discussed problems with supplies and equipment |
| <input type="checkbox"/> treat sick children |
| <input type="checkbox"/> Other: _____ |
91. Did you receive feedback from that supervisory session? Y N
 IF YES, in what form? Supervisory register Written report
 Oral report Other (specify) _____
92. What does your supervisor do to keep your technical skills up to date? (**Tick all that apply**)
- | | |
|--|--|
| <input type="checkbox"/> Nothing | <input type="checkbox"/> Workshops |
| <input type="checkbox"/> Performance feedback | <input type="checkbox"/> Training sessions |
| <input type="checkbox"/> Monthly meetings | <input type="checkbox"/> Sends documents |
| <input type="checkbox"/> Other (specify) _____ | |

93. Do you have to submit any reports such as the number of patients seen, or the number of doses of vaccine administered?Y N

If NO, go to question 17

IF YES, ask the TYPE of report, HOW OFTEN and if the reports are UP TO DATE?

Type of report	How often/year	Up to date?	
_____	_____	Y	N
_____	_____	Y	N
_____	_____	Y	N
_____	_____	Y	N
_____	_____	Y	N

94. Do you keep a copy of the reports that you send?Y N

95. How do you use the information collected in these reports to help you with your job? **(Tick all that apply)**

- Ordering stock
- Epidemio surveillance
- Doesn' t use info./doesn't know
- Other:(specify) _____
- Assessing targets
- Communication with community/personnel
- improve skills

96. What type of feedback do you get from these reports?

- None
- Written report
- Oral discussion
- Other (specify) _____

97. What are the most difficult problems that you face in doing your job? **(Tick all that apply)**

- Lack of training
- Mothers don't bring children to clinic
- Staff shortages / lack of time
- Lack of supplies and/or stock
- Lack of supervision
- Lack of feedback on performance
- Inadequate transport
- Lack of motivation (financial or other)
- Poor working environment (health facility, housing)
- lack of learning materials
- Other:(specify) _____

98. Have you discussed these problems with your supervisor? Y N
99. How many training sessions related to child health have you received in the last 12 months? _____
If NO training received, go to Question 22
100. What type of training was it? _____
101. Did your last training involve clinical practice? Y N
102. In this health facilities, at what ages do you give: (age in DAYS and in MONTHS as required, for children under five years of age only)

	First	Second	Third	Fourth
DPT				
Polio				
BCG				
Measles				

A. EPI vaccination schedule all correct?	Y	N
---	----------	----------

103. To whom do you give DPT _____ children up to 3 years of age
 _____ children from 3 up to 7 years of age
 _____ persons of 7 years and older
 _____ don ' t know
104. To whom do you give DT _____ children up to 3 years of age
 _____ children from 3 up to 7 years of age
 _____ persons of 7 years and older
 _____ don ' t know
105. To whom do you give Td _____ children up to 3 years of age
 _____ children from 3 up to 7 years of age
 _____ persons of 7 years and older
 _____ don ' t know

106. What days are immunizations given? **(circle days)**
 Number of immunization days/week
 M T W T F Sa _____

107. Do you offer all antigens on every vaccination day?..... Y N

108. Do you have a special consultation for healthy pregnant women check-up? Y N

IF **YES**, on what days is the check-up held **(circle days)**
 Number of consultation days/week
 M T W T F Sa _____

IF **NO**, why are these check-ups not held at your facility? **(Tick all that apply)**

- No training
- No staff
- not my job
- No space available
- No supplies
- Don't know

109. Please tell me the signs that would make you refer a child to a hospital? **(Tick all that apply)**

- Child is lethargic/abnormally sleepy/unconscious
- Child has had convulsions
- Child is not eating or drinking
- Child has not responded to usual treatment
- Child looks very unwell
- Child has a very high fever
- Child vomits everything
- Child has a severe dehydration
- Child has a severe pneumonia
- Child has a severe hypotrophia/anemia
- Other:(specify) _____

B. Health worker knows at least 3 signs for referral?	Y	N
--	---	---

110. a. Have you ever wanted to refer a child to hospital but been unable to do so?Y N

If NO, go to question 31

b. If **YES**, why could you not refer the child? (**Tick all that apply**)

- | | |
|--|---|
| <input type="checkbox"/> Hospital too far | <input type="checkbox"/> Mother/parents refuse to go |
| <input type="checkbox"/> No transport available | <input type="checkbox"/> No fuel available |
| <input type="checkbox"/> No one to look after the children at home | <input type="checkbox"/> Parents didn't have enough money |
| <input type="checkbox"/> referral does not have doctors/medicine | <input type="checkbox"/> Other (specify) _____ |

111. What messages/advice/ health education do you give to caretakers when they bring their child to the health facility?

(**Tick all that apply**)

- Giving information on danger signs to watch for
- Giving information on what to do at home
- Giving information on how to give medicine at home
- Giving nutrition or feeding advice
- Finding out what mothers have done at home and what the symptoms of the child ' s illness are
- Giving information on how to prevent illness
- Telling mothers when to come back to the health facility
- Ensuring that mothers understand what to do at home
- Giving group talks
- Other (specify) _____

112. What makes it difficult for you to give messages/advice/health education to caretakers when they bring their child to the health facility? (**Tick all that apply**)

- It isn ' t really my role
- Someone else does it
- No time
- I don ' t know how to do it
- They do not follow the advice anyway
- they don ' t understand what we say
- I don ' t have any education materials
- It is not important
- language barriers
- Other (specify) _____

END OF THE HEALTH WORKER INTERVIEW

Thank the health worker for his/her cooperation and answer any questions that he/she may have about the correct recommendations for immunizations or management of sick children.

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4. EQUIPMENT AND SUPPLY CHECKLIST

Oblast/rayon _____	Date ___/___/___
Facility Name _____	Facility type _____
Interviewer No. _____	

113. Category of health staff with child case management responsibilities

Category	Assigned to the facility	Present the day of the survey
Physician	_____	_____
Nurse	_____	_____
Midwife	_____	_____
Intern	_____	_____
Feldsher	_____	_____

Patient and worker accommodation

- | | | |
|---|---|---|
| 114. Is there adequate seating for patients? | Y | N |
| 115. Is there a covered waiting area? | Y | N |
| 116. Is there a source of clean, potable water in the facility..... | Y | N |
| 117. Is there a <u>functional</u> toilet or latrine | Y | N |
| 118. Are health information posters displayed | Y | N |
| IF YES: Are they written in the local language | Y | N |
| 119. Is an ORT corner present and being used? | Y | N |

Equipment and supplies

112

Are the following equipment and supplies present in the health facility

120. Transportation
- | | | | | | |
|--------------------|---|---|----------------------------------|---|---|
| - Vehicle | Y | N | If YES, In working order? | Y | N |
| - Motorcycle | Y | N | | Y | N |
| - Bicycle..... | Y | N | | Y | N |
| - Animal..... | Y | N | | Y | N |
121. Social Mobilization equipment
- | | | | | |
|-----------------------------------|---|---|----------------------------------|----|
| - Megaphone | Y | N | If YES, In working order? | YN |
| - Flipchart | Y | N | | YN |
| - Counseling cards/pamphlets..... | Y | N | | YN |
122. Weighing material
- | | | | | |
|----------------------------|---|---|----------------------------------|----|
| - Adult weight scale | Y | N | If YES, In working order? | YN |
| - Baby weight scale | Y | N | | YN |
- Medical supplies
123. - Thermometer
124. - Stethoscope
- | | | | | |
|--------------------|---|---|---|---|
| -Regular | Y | N | Y | N |
| -Obstetrical | Y | N | Y | N |
125. - Otoscope
126. - Tongue depressor
127. Watch with a second hand or other timing device
128. Steam sterilizer/autoclave.....
129. Cooker or stove
130. Boiling sterilizer.....
131. Measuring and mixing utensils
132. Cups and spoons
133. Refrigerator at facility.....

If NO, go to question 30

- Type: ___Electric ___Kerosene ___Gas ___Solar

- Condition: ___Good ___Fair ___Poor

- Is the refrigerator working when you inspect it: Y N

- Thermometer inside?..... Y N

- Temperature chart?

Temp: _____

If NO, go to Q. 22

In the last 30 days, temperature recorded up to date ?..... Y N
 - Temperature above 8/C (number of days)
 - Temperature below 0/C (number of days)

Vaccines		Available			Expired		
134.	BCG	Y	N	N/A	Y	N	N/A
135.	OPV	Y	N	N/A	Y	N	N/A
136.	DPT	Y	N	N/A	Y	N	N/A
137.	Measles	Y	N	N/A	Y	N	N/A
138.	DT/Td.....	Y	N	N/A	Y	N	N/A
139.	Are frozen vials of DPT,DT or Td in fridge?	Y	N	N/A			
140.	Frozen cold packs on the day of the visit.....	Y	N				
141.	Cold boxes				Y	N	
	Condition: ___Good ___Fair ___Poor						

Availability of drugs and other supplies the day of the survey: Tick all conditions that apply for each item

Supplies		Available		Expired		
142.	Cotrimoxazole.....	Y	N	Y	N	N/A
143.	Amoxicillin.....	Y	N	Y	N	N/A
144.	Ampicillin.....	Y	N	Y	N	N/A
145.	Penicillin	Y	N	Y	N	N/A
146.	Chloramphenicol tablets.....	Y	N	Y	N	N/A
147.	Nalidixic acid tablets.....	Y	N	Y	N	N/A
148.	Injectable Penicillin	Y	N	Y	N	N/A
149.	Injectable Chloramphenicol	Y	N	Y	N	N/A
150.	Paracetamol	Y	N	Y	N	N/A

151. Aspirin Y N Y N N/A
152. Tetracycline eye ointment Y N Y N N/A
153. Iron tablets..... Y N Y N N/A
154. Vitamin A capsules..... Y N Y N N/A
155. Anti-Worm tablets..... Y N Y N N/A
156. Sterile water for injection Y N Y N N/A
157. ORS /rehydron..... Y N Y N N/A
158. IV solution for severe dehydration..... Y N Y N N/A
159. IV sets..... Y N Y N N/A
160. Needles
- a. Reusable..... Y N Y N N/A
- b. Single use..... Y N Y N N/A
161. Syringes
- a. Reusable..... Y N Y N N/A
- b. Single use..... Y N Y N N/A
162. Rupture of stock in the last 30 days?Y N
- IF YES, specify:**

Item	Tick if Yes
Vaccines	
Syringes/needles	
ORS	
Essential Drugs	
Cards/forms	

163. Are drugs and other supplies adequately organized and stored appropriately.....Y N

Documentation and record keeping

Are the following items present in the health facility?

- | | | | | |
|------|--|---|---|--------------------------------------|
| 164. | Immunization register (#64)..... | Y | N | If YES , is it up to date? YN |
| 165. | A stock of vaccination reporting forms (#5,#6).... | Y | N | |
| 166. | A stock child immunization forms (#63) | Y | N | |
| 167. | A stock of clinical record booklets (#112) | Y | N | |
| 168. | A stock of essential drugs cards | Y | N | |
| 169. | Notifiable disease report forms (#1,#2)..... | Y | N | |
| 170. | Is a patient register kept | Y | N | If YES , is it up to date? YN |
| 171. | Number of visits in last month | | | _____ |
| 172. | Number of visits 0-4 seen in last month | | | _____ |
| 173. | Average No. of visits per working day | | | _____ |

END OF EQUIPMENT AND SUPPLY CHECKLIST

APPENDIX D

Uzbekistan Health Facility Assessment

**Using Local Planning to improve the Quality of Child Care
at Health Facilities in the Ferghana Oblast**

**Oblast Directorate
Ministry of Health of Uzbekistan**

BASICS/USAID

Alain J. Roisin, MD, MPH

January 10, 1997 (preliminary report)

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Annex 4: Key Indicators and Supporting Information

ACRONYMS

ARI	Acute lower respiratory tract infections
BASICS	Basic Support for Institutionalizing Child Survival
CAIDP	Central Asian Infectious Diseases Program
LRTI	Lower Respiratory Track Infection
MOH	Ministry of Health
ORS	Oral Rehydration Salts
ORT	Oral Rehydration Therapy
UNICEF	United Nations Children's Fund
USAID	United States Agency for International development
URTI	Upper Respiratory Tract Infection
WHO	World Health Organization
Rayon	District
Oblast	Province

ACKNOWLEDGMENTS

Thanks are extended to Dr. Khodjirakhmatova Zayevna and her staff of the Health Care Departement of Ferghana, Dr. Kadirov , President of the Pediatric Association in Tashkent, Dr. K. Yulchief, Responsible for Mother and Child Care.

The logistical support of Dr. S. Kuchkarov was invaluable in the conduct of this data collection and planning approach. The technical support and ongoing contributions of Dr. Paul Ickx, Basics consultant in Almaty was most appreciated. The efforts and diligence of all participants in the assessment are acknowledged with gratitude and thanks in some times difficult condition. Finally, the cooperation and participation of the health workers in the different health facilities and the children and caretakers who visited peripheral health facilities during the conduct of this assessment are recognized with thanks.

EXECUTIVE SUMMARY

A rapid health facility survey was conducted with the Department of Health Care of the Ferghana Oblast of Uzbekistan between November 11 and November 27, 1996.

The facility assessment was designed to collect integrated information on the quality of case management for the common causes of childhood morbidity and mortality in the Oblast. In addition, the survey was designed to collect information on the facility itself, such as the availability of drugs, supplies, materials and clinic organization. The survey was conducted by a team of local health staff who were then responsible for the collection, analysis and interpretation of survey data. All types of facilities were sampled for this assessment.

The survey found that examination according to diagnosis was well conducted. The knowledge of the mother on general home health care was judged more than appropriate. Deficiencies were found in several aspects of integrated case-management, including the assessment of sick child (history and severity checking and the education of mothers). In addition, there are gaps in the provision of training and supervision of health workers. Many facilities have adequate materials and supplies, with the exception of supply of drugs which was almost unexistant. Survey data were summarized as key indicators and survey team proposed 4 of these indicators as program indicators which will be used for program planning and which will be used to monitor and evaluate progress over time.

It is hoped that this survey has increased the capacity of local MOH staff to collect, interpret and use survey data to manage and plan public health programs. Survey data will be used to review the content of the training which will take place in the early 1997. The methodology used during the survey will also be the frame for integrated supervision strategies. It was also felt that the drug distribution system has to be totally revised in order to provide appropriate treatment for the children who are more in need.

BACKGROUND

Ferghana Oblast has a population of approximately 2,499,500 people, with almost 15 % of the population under the age of five years. In Ferghana, two primary health problems are responsible for the majority of all infant and child morbidity and mortality: pneumonia, diarrhea. The infant mortality rate in 1995 was reported to be 26.8/1000 live births overall. There are no good data available on the maternal mortality rate. The vaccination coverage is considered correct despite the number of contraindication still enforced.

The CAIDP is implemented in 3 different Oblast in 3 different countries to improve the health of mothers and children by focusing on the four most important causes of morbidity and mortality. One component of this program is to improve the quality of primary health care provided at health facilities in the focus districts. An integrated health facility survey was planned and conducted in order to develop strategies for improving facility-based care.

HEALTH FACILITY ASSESSMENT

A. OBJECTIVES

The objectives of the health facility assessment were as follows:

1. To determine:

- a) Current knowledge and practices of health care workers at outpatient clinics regarding the assessment and management of sick children.
- b) The barriers to effective case management practices.
- c) The adequacy of training and supervision of health workers.

2. To use information obtained on case management practices, training, supervision and barriers to public health practice to:

- a) Prioritize and plan improvements in outpatient health facilities at all levels, including staffing, clinic organization, equipment requirements, drug and material supplies and communication.
- b) Improve and develop pre-service and in-service training for health care workers in the outpatient clinic setting.
- c) Improve and develop a strategy for supervising and monitoring health worker performance.

3. To train Oblast and Rayon staff in survey techniques, collection and analysis of survey data and the use of data to improve the quality of case management in outpatient health facilities.

B. METHODOLOGY

Sampling

The sampling frame for this survey comprised all health facilities (n=208) including polyclinics, SVA, SUB and FAP. It was possible to obtain an equal probability sample of health facilities in the Oblast, except for the FAPs (648 units) which were judged of lower priority in the actual context (FAPS will be soon integrated into SVA or SUB). 8 FAPS were randomly matched to SVA or SUB.

A sample of total of 30 facilities were selected and 31 were visited. The list of the health facilities visited is presented in the Annex 1.

In each health facility, the sample consisted of all infants and children under five years of age presenting to a health facility during the period of observation whose mothers described them as having fever, cough/difficulty breathing/pneumonia or diarrhea. The total number of infants and children therefore represent clusters brought to the sampled health facilities. The larger number of children observed permits greater statistical precision than when health facilities are used as the unit of measurement. Only one health worker was enrolled in each health facility, he (she) is the persons most often in charge of treating children.

Survey instruments

The survey instruments were designed to obtain information on key aspects of the knowledge and practices of health care workers and of mothers leaving the health facility. In addition, information was gathered on the health facility, including the availability of materials and supplies. The survey was designed to assess important aspects of the case-management of sick children but did not require that "standard case management" training has been conducted in the past, accurateness of diagnosis was then not assessed.

Four survey instruments were used at each outpatient health facility:

- a) Observation of how a health worker manages the sick child,
- b) Interview of health personnel regarding knowledge and practices of case management of sick children,
- c) Exit interview with the caretaker of the child as they leave the health facility,

d) Assessment of facilities and supplies.

Survey instruments were translated into Russian and Uzbek, the national language. Copies of the final questionnaires are included in Annex 5.

Field work

Field work was conducted by 5 teams each comprising a supervisor and two surveyors. In addition, a coordinating team was allocated to supervise all teams in the field. The coordinating teams were also responsible for collecting questionnaires and entering questionnaire data into the EPI Info data base during the survey week. At each health facility, the supervisor was responsible for introducing the team and explaining the purpose of the visit. During the clinic visit, the supervisor identified children meeting the case definition for entry into the survey and gave an identification card to the mothers of these children to ensure that they were followed in the clinic. In addition, the supervisor conducted the facility equipment and supply review section of the survey. One surveyor was stationed in the consulting room and conducted the health worker observation component of the survey; at the end of the clinic this surveyor also conducted the health worker interview. The second surveyor conducted exit interviews with caretakers as they left the clinic with their child. The supervisor monitored the performance of the surveyors regularly to ensure that questionnaires were correctly completed; errors or incomplete questionnaires were corrected in the health facility. At the end of the day, the supervisor reviewed all questionnaires for completeness and accuracy. Survey teams and their itinerary are listed in Annex 2 and 3.

Training of survey teams was conducted between November 11 and 15 1996 in Ferghana, the capital of the oblast. Training included a review of survey methodology and objectives, conduct of the field activities and careful review of the survey instruments. Training involved group activities, role plays and practice sessions at five local outpatient health clinics. Following the field visits, some survey questions were further modified.

Inter-surveyor reliability was 80-90% for each of the questionnaires by the end of the training period even if this tool was not used as extensively as it should have been. Field work was conducted between November 18 and 23, 1996. A different health facility was visited on each of the 6 days available for the survey. At each health facility, survey teams attended the entire clinic session which was usually conducted between 8:00am and 02:00 pm.

Data analysis

Questionnaire data were coded and then entered into EPIINFO (version 6.0) software by consultant staff. Data analysis was conducted between November 24 and December 27, 1996 by the consultant epidemiologist. Descriptive data analysis and key indicators were summarized and

discussed with survey teams. The use of survey information to improve the quality of all health services was discussed, with an emphasis on how each participant would use the information in their day to day practices. The results were not desegregated in sub samples since the survey was not designed to do so.

C. RESULTS

1. General descriptive information

A total of 31 health facilities were visited and observations conducted on 162 children. Over the 31 health facilities 4 were polyclinics, 14 SVAs, 4 SUBs and 9 FAPS. The distribution of ages of children observed ranged from 1 to 59 months, with a mean of 19 months and a median of 16 months. The sex distribution is as following: male 88, female 63, unknown 11. 22 children (14%) were hospitalized by the end of the consultation.

The hours of operation of health facilities visited ranged between 3 and 12 hours, with a mean of 8 hours 35 minutes, the median was 10 hours.

Of all health workers responsible for seeing sick children at the facilities visited, 23/31 (74%) were Pediatricians, 1/31 (3%) was a Nurse and 7/31 (23%) were Felchers. A total of 120/162 (74%) of all sick children were seen by Pediatricians, 36/162 (22%) by Felchers and 6/162 (4%) by a Nurse.

Table 1: Type of health workers seeing sick children in outpatient clinics and number of children seen

TYPE OF HEALTH WORKER SEEING SICK CHILDREN	Number of HWs	Number of children seen
Pediatricians	23	120
Nurse	1	6
Felchers	7	36
TOTAL	31	162

Comments:

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Pediatricians were most frequently responsible for seeing sick children in the outpatient setting (polyclinics, SVAs and SUBs). The Felchers and the nurses were only found in FAPS. If children are most often seen by pediatrician, it is direct consequence of our sampling approach. When looking at the frequency of visits by health worker category, the felchers carry most of the work on a quantitative basis but maybe not on a qualitative basis. This fact has to be kept in mind and maybe analysed more in depth. This has also implications for training; both of these groups should be able to effectively assess, classify and treat the common causes of infant and childhood mortality and morbidity. Felchers should be able to assess quickly if a child has to be referred or not to another level of care. The relatively high density of the population and of the health infrastructure should permit in almost all cases this quick referral.

2. Facility equipment, supplies and record keeping

Patient and health worker accommodation and the availability of basic equipment is summarized in Figures 1, 2 and 3. The majority of all facilities visited had functional equipment available including infant and adult weighing scales thermometers. Adequate sterilizing equipment were not available in about one of two health facility. The majority of all facilities visited had adequate seating, a covered waiting area, health education posters in the local language. A functional ORT corner, latrine and potable water were available in about two third of health facilities.

Figure 1: Patient and Health Worker Accommodation (N=31)

Health education posters displayed	29/3194%
Adequate seating	28/3190%
Covered waiting areas	26/3184%
Functional ORS corner	21/3168%
Latrine working	19/3161%
Potable water	13/3142%

A refrigerator was present in 27/31 (87%) of facilities. All refrigerators were powered by electricity. All refrigerators were described as being functional on the day of the survey. The condition of cold-chain equipment is summarized in Figure 3; all proportions were calculated using functional refrigerators. An up to date temperature chart was present in 21/27 (78%) facilities with a functioning refrigerator. A cold box and cold packs were present in 22/31 (81%) of facilities. In the 30 days before the survey, the refrigerator temperature had been recorded to be out of the normal temperature range (0 - 8 degrees centigrade) at 3/27 (11%) of facilities. But the

day of the visit 4 refrigerators (%) were found with a temperature below 0 degrees and 17 (64%) were below 4 degrees.

Figure 2: Availability of Functional Equipment (N=31)

Thermometer	31/31	100%
Infant weighting scale	28/31	90%
Cooker	22/31	71%
Boiling sterilizer	19/31	61%
Steam or boiling sterilizer + cooker	16/31	52%
Timing device	13/31	42%
Steam sterilizer	6/31	19%
Adult scale	6/31	19%

Figure 3: Availability of Cold Chain Equipment (N=27)

Working refrigerator	27	100%
Working thermometer in fridge	25	93%
Cold boxes in usable condition	22	81%
Temperature chart up to date	21	78%
Frozen cold packs	20	74%

The proportion of facilities with a stock of medications, disposable needles or syringes on the day of the survey is summarized in Table 2. Expired essential medications were seen in one case for iron tablets.

Of 27 facilities with functional refrigerators, 0/27 (0%) had all vaccines available on the day of the survey. No polio, DPT, measles or BCG vaccine was available at 3 facilities (10%). Expired BCG vaccine was noted at 2 facilities, OPV at 2, DPT at 2, measles at 1, DT at 1.

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Table 2: Proportion of health facilities with stock available on the day of the survey

STOCK ITEM	PROPORTION WITH STOCK AVAILABLE ON THE DAY OF THE SURVEY (N=31)
Amp/Amoxicillin tabs/syrup	7% (2/31)
Cotrimoxazole tabs	7% (2/31)
Penicillin	10% (3/31)
Paracetamol tabs	3% (1/31)
Aspirin tabs	26% (8/31)
ORS	71% (22/31)
Vitamin A capsules	3% (1/31)
Disposable needles	29% (9/31)
Syringes	36% (11/31)

At least one stock-out of essential medications had occurred in the month preceding the survey at 28/31 (90%) of facilities, for ORS it was 8/31 (26%) and ORS + essential drugs 29/31 (94%). At least one stock-out of necessary cards and forms had occurred in the previous month at 30/31 (97%) of facilities. 17/31 HF did not have stock outs of needles and syringes in the month preceding the survey. Supplies were most frequently provided by the Government store (28/31). The only cause of delayed supplies according to health workers is related to financial problems.

A schedule for supervisory visits was available in 14/31 (45%) of facilities. The proportion of facilities conducting basic documentation and record-keeping is summarized in Figure 4. Most of the forms are not available anymore; when needed they are replicated by hand by the health workers in charge.

Figure 4: Availability of Documentation and Records (N=31)

Up to date vaccination register	97% 30/31
Up to date patient register	87% 27/31
Schedule for supervisory visits	45% 14/31
Stock of child immunization forms	26%8/31

Comments

The majority of facilities had all essential equipment available adequate seating. The number of functioning ORT corners should be increased. Availability of potable water and latrines and sterilizing equipment was less than acceptable. Even if it was not quantified in our survey several health facilities did not have any heating system when the outside temperature was around 0 degrees, this would refrain the patients to consult and any physical exam would also be difficult to conduct. Not all the conditions are met to make possible acceptable basic child health services at health facilities and to make sure that they are available at the majority of sites. A functional refrigerator was present in 27/31 (87%) of facilities. The facilities lacking such a device would get their vaccines with cold boxes from the nearest health facility. A more in depth survey should be done to assess the physical status of these refrigerator, emphasis should be put on the status of the joint (tight enough, not dry) and the thermostat. Overall, 21/27 (78%) refrigerators had an up to date temperature chart available, but the quality of the record keeping could be put into doubt since during the day of the survey it was observed that the temperature was below 4 degrees in 64% of the refrigerator. Health worker training and supervision should reinforce the regular use of a temperature chart and an understanding of its importance.

Almost none of facilities had the essential medications available on the day of the survey with the exception of ORS present in 71% of facilities. Financials constraints were described as the first and main cause of this situation. Also most of the time only injectable preparation are only available even in drug store. There is no justification for such situation, the injectable drugs are more expensive, potentially harmful and in usual condition not more effective. Delays in the delivery of essential supplies will impact on the quality of case-management that can be provided.

From our point of view this is going to be the biggest challenge that the project is going to face. There are a number of points at which the delivery of drug supplies to facilities could be compromised, including the ordering and delivery of drugs to peripheral sites, the maintenance and use of stock inventories and at the level of the central store. At many health facilities,

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supplies need to be picked up from a central store by health workers who often did not have the means to do so. An assessment of the mechanisms for delivering drugs and supplies to peripheral sites should be considered.

Most facilities did not have a schedule of supervisory visits. A written treatment guidelines for health workers is not available, most of the workers refer to the current "prikazi" or to their medical education. This will also have important implications in the implementation of new therapeutic approaches.

3. Observation of sick children

Of 162 children observed a total of 60 (37%) were described as having fever, 131 (81%) ARI and 24 (15%) diarrhea. The number of children described as having both ARI and diarrhea was 5/162 (3%) and the number of children with all three symptoms was 2/162 (1%). The median consultation time was 14 minutes with a range between 7 and 25 minutes, the median was 15 minutes.

Table 3: History questions asked to the mothers of sick infants and children by presenting complaint

HISTORY	PRESENTING COMPLAINT			QUESTIONS TOTAL N=162
	FEVER N= 60	ARI N=131	DIARRHEA N=24	
Eating/drinking	82% (49/60)	87% (114/131)	92% (22/24)	86% (140/162)
Breastfeeding(*)	88% (14/16)	94% (47/ 50)	80% (8/10)	90% (55/ 61)
Convulsions	27% (16/60)	15% (19/131)	13% (3/24)	15% (24/162)
Change in consciousness	78% (47/60)	81% (106/131)	79% (19/24)	80% (130/162)
Vomiting	60% (36/60)	53% (70/131)	100% (24/24)	60% (97/162)
All severity questions	15% (9/60)	10% (13/131)	4% (1/24)	9% (14/162)
Duration of illness	93% (56/60)	95% (125/131)	92% (22/24)	
Home treatment:				

	FEVER N= 60	ARI N=131	DIARRHEA N=24	TOTAL N=162
traditional	17% (10/60)	19% (25/131)	8% (2/24)	17% (27/162)
Western	83% (50/60)	58% (76/131)	75% (18/24)	62% (100/162)
Hx of ear problems	25% (15/60)	32% (42/131)	8% (2/24)	28% (46/162)
Hx. of fever	100% (60/60)	73% (95/131)	67% (16/24)	73% (119/162)
Hx. of coughing or difficulty breathing	95% (57/60)	98% (129/131)	50% (12/24)	75% (147/162)
Hx. of diarrhea	60% (36/60)	55% (72/131)	96% (23/24)	59% (95/162)
Blood in stool	3% (2/60)	5% (6/131)	71% (17/24)	12% (19/162)
All history questions	15% (9/60)	13% (17/131)	8% (2/24)	12% (19/162)

(*) children < 1 year of age

The histories taken by health workers for children with fever, ARI and diarrhea are summarized in Table 3. Questions to assess the severity of the illness (eating, drinking, Breastfeeding, convulsions and a change in conscious state) were not asked by the majority of health workers. Most health workers asked history questions about the presenting illness and the duration of this illness, with 100% of health workers asking about the history of fever if this was the presenting complaint, 99% asking about a history of ARI and 96% about a history of diarrhea. Almost all of health workers who asked about the history of the presenting complaint, also assessed the duration of the illness. Questions about a history of diarrhea were asked to 59% of all caretakers, regardless of the presenting complaint, with questions about a history of fever being asked to 74% of all caretakers and questions about a history of a lower respiratory tract infection to 91% of all caretakers. Questions about treatment with western medicines prior to coming to the clinic were asked in almost two third of cases (62%) and questions about the use of traditional medicines prior to the clinic visit were asked less frequently (17%).

The proportion of caretakers of sick children who were asked for the child vaccination card at the time of the consultation was 136/162 (84%). Of the 43 children who were in need of a vaccination the day of the visit, 1 was given a vaccine on the same day, 27 were referred for vaccination on another day and 15 did not get any advice.

Table 4: Number of children examined by examination area

EXAMINATION AREA	PROPORTION OF CHILDREN EXAMINED			
	FEVER N= 60	ARI N=131	DIARRHEA N=24	TOTAL N=162
Weighed the child	58% (35/60)	63% (82/131)	83% (20/24)	64% (103/162)
Plotted weight/age	42% (25/60)	46% (60/131)	50% (12/24)	44% (72/162)
Look for wasting	37% (22/60)	46% (60/131)	58% (14/24)	46% (75/162)
Conjunctival pallor	67% (40/60)	75% (98/131)	100% (24/24)	76% (123/162)
Respiratory rate	20% (12/60)	22% (29/131)	25% (6/24)	22% (35/162)
Chest: stethoscope	100%	100%	100%	100% (162/162)
Ears	67% (40/60)	75% (98/131)	54% (13/24)	72% (116/162)
Skin turgor	37% (22/60)	34% (44/131)	67% (16/24)	36% (59/162)
Stiff neck	34% (20/60)	22% (29/131)	29% (7/24)	23% (37/162)
Throat	97% (58/60)	98% (129/131)	92% (22/24)	98% (158/162)
Correct examination	98% (59/60)	98% (129/131)	67% (16/24)	95% (154/162)

The proportion of mothers who were asked for their own Td vaccination card at the time of the consultation for their child was 47/140 (34%). Of the 47, 20 were referred for vaccination another day, 27 did not get an advice. Interviews with mothers after they had left the consultation found that 137/162 (85%) of women coming to facilities with their children had received a Td vaccination, within a year prior to the interview.

The proportion of infants and children examined by examination area is summarized in Table 4. About 50 percent of the children were weighed, plotted on a growth chart or observed for signs of malnutrition. Almost a three quarters were screened for conjunctival pallor. The respiratory rate was counted in only 22% of cases, with all respiratory examinations conducted at least with

a stethoscope. Of those cases with a presenting complaint of diarrhea, 67% had the skin turgor checked for signs of dehydration. The ears were examined in 72% of cases.

Appropriate treatment was defined according to WHO standard which is quite different from the local practices and based on the diagnosis made by the health worker. Children referred for hospitalization were excluded from this analysis. The overall number of children treated appropriately according to the diagnosis made by the health worker was 48/143 (34%). Only one case of dysentery was seen and referred, appropriateness of treatment was then impossible to evaluate. Treatment for diarrhea, upper respiratory infection and pneumonia is summarized in Table 5.

Table 5: Proportion of cases treated appropriately according to National Treatment Guidelines

HEALTH WORKER DIAGNOSIS % TREATED APPROPRIATELY

Simple Diarrhea	41% (7/17)
URI	33% (40/121)
Pneumonia	20% (1/5)

Treatment received according to the diagnosis made by the health worker is summarized in Table 6. The majority of cases of diarrhea received an oral rehydration fluid, but a to high proportion of diarrhea cases were given an antibiotic or an antidiarrheal. A high proportion of simple upper respiratory tract infections were also given antibiotics. Most of the pneumonia cases were receiving injectable drugs.

Table 6: Treatment given by health workers by diagnostic category

DIAGNOSIS AND TREATMENT	PROPORTION GIVEN
Simple Diarrhea: Given ORT	88% (15/17)
Simple Diarrhea: Given antidiarrheal	56% (9/17)
URTI: Given antibiotic	66% (80/121)
Pneumonia and AB injectable	80% (4/5)

Health education messages given to mothers at the time of the interview are summarized in Table 7. Key messages were not consistently given, in particular advice to continue feeding or breastfeeding and to return if the child worsened at home. Advice was given on how to administer oral medications in almost 95% of cases, but health workers rarely demonstrated how to give oral medications or verified that caretakers had understood correctly (50%). For this analysis, children who were hospitalized were excluded.

Table 7: Health education messages given to mothers by health workers by diagnosis

MESSAGE GIVEN	HEALTH WORKER DIAGNOSIS			TOTAL (N=140)
	URTI (N=121)	PNEUMONIA (N=5)	DIARRHEA (N=17)	
Explain how to administer medications	96% (116/121)	100% (5/5)	88% (15/17)	95% (133/140)
Demonstrate how to administer medications	6% (7/121)	100% (5/5)	12% (2/17)	6% (9/140)
Verify caretakers' comprehension of how to administer medications	50% (61/121)	60% (3/5)	47% (8/17)	50% (70/140)
When to return for follow-up	98% (119/121)	100% (5/5)	94% (16/17)	98% (137/140)
Give the same or more fluids	41% (49/121)	40% (2/5)	65% (11/17)	42% (59/140)
Continue feeding or breastfeeding	69% (84/121)	40% (2/5)	71% (12/17)	67% (96/140)
Return if the child becomes worse; gives at least 2 signs of severity	56% (68/121)	60% (3/5)	83% (9/17)	56% (78/140)

Of children for whom ORS was prescribed, 14/15 (93%) were given an explanation on how to prepare it at home. Five health workers did not ask any of the caretakers questions to verify the comprehension of how to give ORS (5/15). Demonstrations on how to prepare ORS were given to 2/15 (13%) of caretakers.

Health workers infrequently gave instructions on when to return with their sick children. Messages given to caretakers on when to return are summarized in table 8. The most frequently

given general messages was to return if the child became sicker. Health workers rarely instructed caretakers to return if their child was not drinking (25/140, 18%) or eating/breastfeeding (15/140, 15%).

Table 8: Health education messages on signs of when to return with the child by health workers by diagnosis

MESSAGE GIVEN	HEALTH WORKER DIAGNOSIS			
	URTI (N=121)	PNEUMONIA (N=5)	DIARRHEA (N=17)	TOTAL (N=140)
Not drinking	17% (20/121)	0% (0/5)	35% (6/17)	18% (25/140)
Not eating or breastfeeding	12% (14/121)	0% (0/5)	6% (1/17)	11% (15/140)
Getting sicker	56% (68/121)	0% (3/5)	41% (7/17)	55% (77/140)
Fever persists or develops	49% (59/121)	60% (3/5)	41% (7/17)	47% (66/140)
Develops fast or difficult breathing	31% (38/121)	40% (2/5)	0% (0/17)	27% (40/140)
Develops blood in the stool	1% (1/121)	0% (0/5)	12% (2/17)	2% (3/140)

Health workers criticized caretakers about the management of their children in 13/140 (9%) of cases. Open ended questions to check whether the caretaker had understood were asked in 49/140 (35%) of cases and caretakers were asked if they had any questions in 36/140 (26%) of cases.

Comments

The average consultation time for all outpatient visits was 14 minutes. All training designed to improve the case-management practices of health workers should take this into consideration; on the average during this period of time, it should be possible to the health workers to consistently implement all the task which will be promoted by the program. The only problem which could occur later on is an increase in demand due for example to better drug availability and as a consequence a diminution of availability for the health workers.

A high proportion of all cases in both districts were asked history questions about the presenting illness and the duration of the symptoms which are key to the assessment and classification of sick children. Questions which are considered important for assessing the severity of the illness were asked much less frequently, in particular a history of convulsions and vomiting (except for diarrhea). Performance was better for questions which were specific for the presenting complaint, although only a relatively small proportion of cases of diarrhea were asked about a history of blood in the stool. Improved training could reinforce the importance of each of these areas when assessing all sick children.

Most of caretakers were asked for their child's vaccination card at the time of the sick child visit. Since the immunization cards are kept at the health facility level, find out about the immunization status of the child was not an issue. Despite the fact that almost all the children in need of vaccination were not up to date the same day, two third were given an appointment for another day. Nevertheless one third of the caretakers was not told about the need to complete immunization schedule. It is felt that those children would be immunized anyway, the major obstacle to almost 100% vaccine coverage remains unacceptable contraindications by WHO standard.

Less than two-thirds of all children were weighed and 50% had their weight plotted on a growth monitoring chart or observed for overall nutritional status. Nevertheless it is not clear for us if their nutritional status was really assessed and appropriate action taken. It is suggested to conduct a more in depth investigation on this subject. The weight chart used is based on national standard developed in Tashkent. All the children had a chest examination with a stethoscope; among children with ARI, counting respiratory rate was only practiced in about 25 percent of the cases, although it is a sensitive diagnostic measure of the severity of lower respiratory tract infections. The ears were examined in three quarter of the cases of fever or ARI. Only two third of children with diarrhea had skin turgor assessed. The importance of a complete nutritional assessment should be emphasized during health worker training and supervision. Counting respiratory rate should be reinforced as a technique for assessing lower respiratory tract infections. All children with simple diarrhea should have their hydration status assessed. Many of these clinical tasks are simple and not time consuming; improved training and supervision should stress a simple and systematic approach to all sick children using existing resources.

A low proportion of cases of simple diarrhea were treated appropriately; although ORT was given frequently, antibiotics and antidiarrheal agents were overused. Antibiotics were also being given for a high proportion of cases of simple upper respiratory tract infections. A high proportion of health workers treated children with pneumonia with injectable antibiotics. The assessment and classification of sick children was not validated, so this measure does not necessarily reflect the quality of the diagnosis made. Appropriate treatment for common diseases should be reinforced as part of pre- and in- service training and supervision.

22 children (14%) were hospitalized, they left the consultation without treatment. It was felt that in some cases such decision was not necessary. We do not know if these children were

effectively hospitalized or if they remained at home without treatment. This aspect will also have to be investigated more in depth later on.

Key health education messages on the management of sick children at home were given to a low proportion of caretakers. Very few caretakers were given information on the signs of severity at home. All of these messages are considered essential for the management of sick children at home in order to prevent mortality. This component of case management was least well conducted by health workers, and could also be addressed through strengthened training and supervision. Improving the messages given to mothers does not require any additional resources and should not require a lot of time if health workers are familiar with the key messages. Maybe it was felt by health workers that mothers already know about those signs.

4. Interview with the caretakers of sick infants and children

The time taken by mothers to reach the health facility ranged from 1 to 70 minutes, with a mean time of 13 and a median time of 10 minutes. Overall, 13/162 (8%) of caretakers reported experiencing problems getting to the health facility on the day of the survey. Reported problems were that it was not possible to find a baby sitter (8/13, 62%), that public transportation was not available (4/13, 31%) and that caretakers had to miss work in order to come to the facility (1/13, 8%).

Few caretakers had taken their child somewhere else for the same illness before coming to the health facility in 12/162 (7%) of cases. Providers visited are summarized in Table 9. The most frequent providers visited were traditional healers. The number of days between the onset of the illness and the clinic visit ranged from 0 to 9 days, with a mean of 2 days and a median of 1 day, 55 children visited the clinic the day of the onset. Data were only available from 119 caretakers.

Of all children whose caretakers described them as having diarrhea, 18/23 (78%) said that they had done something to treat their infant or child at home. Home treatment of diarrhea by district is summarized in Table 10.

Table 9: Providers visited by caretakers before the clinic visit for the same illness

PROBLEM	TOTAL
Another government health facility	33% (4/12)
Private Provider	25% (4/12)
Traditional healer	42% (5/12)

Drug seller or pharmacist 0% (0/12)

Table 10: Home case management provider by caretakers for children with diarrhea

HOME MANAGEMENT STRATEGY	TOTAL
ORS	44% (8/18)
Traditional therapies	11% (2/18)
Continue feeding	17% (3/18)
Other medicines/drugs	33% (6/18)

Of all caretakers, 152/162 (94%) had previously heard of ORS. Of these caretakers, 41/152 (27%) knew correctly why ORS is given to children with diarrhea while 99/152 (65%) believed that it would stop the diarrhea. Overall, 118/153 (73%) of caretakers knew correctly how to prepare ORS, 18/153 (11%) proposed a wrong preparation and 26/152 (16%) did not know how to prepare ORS.

Table 11: Home case management provider by caretakers of children with fever

HOME MANAGEMENT STRATEGY	TOTAL
Aspirin/paracetamol	91% (50/55)
Rubbing	42% (23/55)
Antibiotic	7% (4/55)
Other medicines	0% (0/55)
Traditional medicine	7% (4/55)
Removing clothes/tepid bath	13% (7/55)

A total of 55/63 (87%) of caretakers who said that their infant or child had fever had done something to treat their child at home. Home treatment of fever is summarized in Table 11. The most frequent home treatment for fever was aspirin/paracetamol (91%).

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A total of 83/136 (61%) of mothers who said that their infant or child had ARI had done something to treat their child at home. Home case management strategies are summarized in Table 12. The most frequent home treatments were the use of rubbing/compress/bath (48%). Antibiotics were already given in two third of the cases.

Table 12: Home case management provider by caretakers of children with ARI

HOME MANAGEMENT STRATEGY	TOTAL
Aspirin/paracetamol	27% (22/83)
Cough syrup	25% (21/83)
Antibiotic	31% (26/83)
Traditional medicine	22% (18/83)
Rubbing/bath/compress	48% (40/83)

The proportion of mothers with correct knowledge of how to administer the oral medication given to them by the health worker is summarized in Table 13. Caretakers were asked to describe the daily dose and the number of days for which they would give the medicine. To be correct, the amount of each dose, number of times a day that they would give this dose and the number of days for which they would continue had to be correct according to WHO guidelines for each medication. Correct knowledge of correct administration of oral medications was perfect for ORS and more than acceptable for antibiotics and antipyretic agents.

Table 13: Proportion of mothers with correct knowledge of how to administer oral medications by medication

MEDICATION	CORRECT KNOWLEDGE OF DOSAGE SCHEDULE
Antibiotic tab or syrup	79% (75/95)
Paracetamol or aspirin tab	93% (69/74)
ORS	100% (13/13)

The proportion of caretakers who knew at least one general and one specific strategy for the management of their child at home was 128/162 (62%), 15 (9%) did not know. General home case management strategies were not illness specific and included continuing to feed or breastfed (26%, 42/162), to complete the course of treatment (85%, 137/162) and to bring the child back if they got worse at home (73%, 118/162).

A total of 137/162 (85%) of caretakers knew at least 2 signs of worsening or severe illness in their child at home. The most frequently reported signs of severe illness at home were high or persistent fever (80%, 130/162), unable to eat/drink (64%, 103/162), and difficulty breathing (43%, 69/162).

Of all caretakers, 21/162 (13%) did not know when to bring their child back to the health facility. A majority said that they would return to immunize their child (135/162, 83%) and only 15 percent (25/162) said when the child became worse at home.

Radio was never listened to by 61/162 (38%) of caretakers. Radio was, however, listened to at least once a day by 85/162 (52%) of caretakers. TV was never listened to by 28/162 (17%) of caretakers. TV was, however, listened to at least once a day by 122/162 (75%) of caretakers.

Comments

Only 8% of caretakers coming to health facilities had experienced a problem getting to the health facility. Problems reported were related to the lack of babysitter and transportation, remoteness of the health facility was not an issue. It is important that health workers and health planners are aware of these factors when planning health education strategies aimed at encouraging others to bring their children to health facilities when they notice danger signs, rather than delaying attendance.

Most caretakers brought their children directly to the health facility when they became ill and within 1 days of the onset of the illness; this suggests that mothers are aware of the importance of relatively timely visits to health facilities. Nevertheless, a substantial number of caretakers (7%) went somewhere else for the same illness before coming to the health facility, most frequently to another medical consultant or a traditional healers.

Almost three quarter caretakers reported treating diarrhea at home, one of two with ORS, only 11% of them giving traditional therapies but 33% of them giving medicines and drugs. A high proportion (94%) of caretakers had heard of ORS and correct knowledge of how to prepare ORS was high (73%), despite the fact that 11 percent of the caretakers believe that they know it. It is worth noting that a not to high proportion (65%) of caretakers believed, incorrectly, that ORS would stop their child's diarrhea which may lead to reduced compliance with therapy at home. All essential aspects of home case-management for diarrhea may be reinforced by improving the ability of health workers to better counsel mothers at the time of the facility visit. Nevertheless it

may be said that the CDD program in Ferghana valley is a 50 percent success, and that it will be close to 100 percent when the use of other drugs will be abandoned by doctors and parents and when ORS will be correctly started at home as soon as the diarrhea start.

Almost all caretakers with children with fever had treated their children at home. Aspirin or paracetamol was the most frequently used treatment approach, followed by the use of traditional methods. Antibiotics were given to 7% of children with fever. The regular use of antipyretic agents at home is encouraging. Antibiotics may be overused at home.

The caretakers of 61% of all children with ARI had treated their children at home. The most frequently used home treatment strategy was the use of traditional medicines. Antibiotics were already started in one third of the cases.

Knowledge of caretakers on how to give oral medications was good for all essential medications, quite often better than the knowledge of the doctors. This could maybe explain why the health workers do not put enough emphasis on how to administer drugs.

Over three quarter of the caretakers of sick children knew how to manage their children correctly at home and understood signs of worsening or severe illness. This is an encouraging finding; these behaviors are critical to reducing mortality from the common childhood diseases. The relatively high level of knowledge of danger signs, coupled with the relatively high proportion of mothers who come directly to health facilities after the onset of the illness suggests that a high proportion of caretakers who reach facilities are attending in a timely fashion. Nevertheless improving communication between health workers and their clients is required to further reinforce these principles.

5. Interview with the health care worker

Overall, 25/31 (81%) of health workers had a supervisor. Of those health workers with supervisors, all had received at least 1 supervisory visit over the 6 months preceding the survey. Overall, therefore, 25/31 (81%) of all health workers had received at least 1 supervisory visit in the previous 6 months. Of those health workers who had supervisors, all had received some type of feedback from the last supervisory visit. The most frequent form of feedback provided by supervisors was written or oral reports which had been provided to 23/25 (92%) of health workers. Of those health workers receiving supervision, 24/25 (96%) said that their supervisors organized workshops to keep their skills up to date. Table 14 summarizes what supervisors had done at the time of the last supervisory visit.

Table 14: Supervisors activities at the time of the last supervisory visit

ACTION	TOTAL
Delivered supplies	0% (0/25)
Observed vaccination technique	52% (13/25)
Discussed problems with medicines and supplies	8% (2/25)
Viewed reports	76% (19/25)
Gave HWS information	44% (11/25)
Observed case management practices	80% (20/25)
Treat sick children	56% (14/25)

All health workers reported using the information that they obtained from routine reports. The most frequent uses for routine report information were for assessing targets (25/19, 74%) and for epidemiological surveillance (30/31, 65%). All health workers reported that they had received feedback from routine reports from whom 13 were written (42%).

The most common problems reported by health workers when doing their job are summarized in Table 15. The most frequently reported problems were a lack of supply, transport and motivation.

Table 15: Most common problems faced by health workers

PROBLEM REPORTED BY H.W.s	PROPORTION REPORTING
Lack of training	10% (3/31)
Mothers don't come to clinic	10% (3/31)
Lack personnel or time	45% (14/31)
Lack of supplies or stock	77% (24/31)
Lack of supervision	6% (2/31)
Lack of learning material	19% (6/31)
Lack of transport	65% (20/31)
Lack of motivation	65% (20/31)
Poor environment and living conditions	32% (10/31)

The proportion of health workers responsible for seeing sick children who had received at least 1 training in the previous 12 months was 26/31 (84%). Clinical practice had been included in all last training sessions.

The proportion of health workers with correct knowledge of the infant/child vaccination schedule was 30/31 (97%). All workers knew target age for DPT, 13/31 (42%) for DT and 6 (19%) for Td.

The number of clinic vaccination days ranged from 0 to 6 with a mean and median of 3 days. The number of antenatal clinic days ranged from 1 to 6 with a median of 1 and a mean of 2.

All facilities are conducting vaccinations. Eleven of the facilities (35%) reported that they offered vaccination sessions 6 days a week. Fifteen (48%) were vaccinating less than 3 days a week. Antenatal clinics were offered by 25/31 (81%) of facilities from whom 16 (64%) were operating only one day a week.

Figure 5: H.W. Knowledge of When to Refer a Sick Child

Refuse food/drink	13% (4/31)
Severe pneumonia	94% (29/31)
No response to treatment	35% (11/31)
Severe dehydration	77% (24/31)
Malnutrition/anemia	48% (15/31)
Lethargic or unconscious	23% (7/31)
High fever	100% (31/31)
Convulsions	74% (23/31)
Looks very unwell	39% (12/31)
Vomiting	45% (14/31)

All health workers knew at least 3 signs of when to refer a sick child to hospital. Figure 5 summarizes the reasons for referral given by health workers. A total of 30/31 (97%) of health workers had wanted to refer a sick child in the past, but had been unable to do so. The reasons for being unable to refer sick children are summarized in Table 16. The most frequent reasons for non-referral were linked to parent's problems: baby sitter not available, no money to pay for transportation and/or refusal to go to a referral center.

Table 16: Reasons given by health workers for being unable to refer sick children in the past

REASON GIVEN	TOTAL
Hospital too far	17% (5/30)
Parents refused to go	83% (25/30)
No transport available	0% (0/30)
Parents had no money for transport or care	87% (26/30)
No-one to look after other children at home	87% (26/30)
No drug at hospital	27% (8/30)

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All health workers interviewed believed that they had a role in communicating with the caretakers of sick children. Health workers self-described roles in communicating with caretakers are summarized in table 17. The communication tasks most frequently given were to advise about feeding, the home treatment and the prevention of illnesses.

Table 17: Health workers self-reported roles in communicating with caretakers

ROLE GIVEN	TOTAL
Give signs of severe or worsening illness at home	35% (11/31)
advice on home treatment	68% (21/31)
Describe how to give medications	52% (16/31)
advice on the prevention of illness	65% (20/31)
Explain when to return for the next visit	35% (11/31)
Ensure that caretakers have understood how to manage their child	23% (7/31)
Nutrition/feeding advice	71% (22/31)
Asking about home treatment and symptoms	13% (4/31)

Comments

Most health workers had a supervisor who had visited at least once in the previous 6 months. All supervisors left the facility with a feedback. If supervisors had clinical practices during their visits, it is believed that they worked on their own and that they did not observe the clinical practice of their supervisees. It is encouraging that so many health workers have a supervisor and that supervisory visits are occurring. The quality of the supervision provided is unlikely to be ideal, since quality of care is not regularly assessed. Establishing regular supervisory practices is difficult in many countries and getting supervisors to the facilities is often the most difficult step; this had already been accomplished in the majority of health facilities visited. A systematic approach to supervisory activities including the use of standard supervisory checklists, a schedule of supervisory visits and strategies for providing feedback and education to health workers is required. This survey was a first step in this direction.

All health workers reported that they submitted routine reports and used the data from routine reports in some way. It has already been noted that disease and vaccination registers are also generally complete. Timely completion of reports is encouraging and suggests that there is a basis for a functional health information system. The interpretation, reporting and dissemination of routine information will need to be addressed as the health information system is further developed.

The most frequently reported problems by health workers were a lack of drug, motivation and transportation. The reorganisation of supervision and an adequate supply of essential drug will be the key elements to revitalize the health system. Under the present strong economical constraints, it will be important to find out what could be the participation of the population in the financing of such service.

Most health workers interviewed had received training in the 12 months prior to the survey. The training included clinical practice. We are not sure that these answers reflect what we are looking for. A more in depth analysis of the content of these workshop should be conducted. Nevertheless the function exist and then it could be updated easily.

Health worker knowledge of the vaccination schedules of mothers and children was found to be high with the exeption for Td and DT vaccines, although it is clear from the health worker observation that health workers are missing opportunities to vaccinate children. It is still necessary to continue to put emphasis on unacceptable contraindications for vaccination.

Most facilities gave vaccinations on 3 days of the week. This does not seem to be an obstacle to obtain a high coverage.

A high proportion of health workers knew at least 3 signs of severity that would prompt them to refer a sick infant or child to hospital. Most health workers had been unable, however, to refer a sick infant or child; most common reasons given for non-referral were that parents refused to refer their children or because parents did not have enough money to pay for transportation or further medical care. The barriers to the effective referral of sick children will need to be further investigated in order to develop strategies for addressing these barriers.

All health workers described themselves as having a role in communicating with caretakers, most frequently in the areas of home case management, prevention of childhood diseases and nutrition advice. It is clear from the observations of case management, however, that many key aspects of home case-management of sick children are not adequately addressed by health workers. Again, there is a gap between the knowledge and practices of health workers. Key messages and strategies for communicating these messages need to be further developed and health workers need to be trained in the routine use of communication strategies.

6. Selection of program indicators

Data were analyzed by the surveyors who calculated indicators and supporting information in a number of key areas including health worker practice (screening, clinical examination, immunization, treatment, interpersonal communication), health worker knowledge (training and supervision), caretaker knowledge and practice (management of the sick child at home) and facility equipment and supplies (availability of drugs and supplies, availability of equipment and record keeping). These results are summarized in Annex 3. They then selected the most important indicators for improving the quality of integrated child health care in their own areas. The following criteria were used to rank indicators:

- a. Public health or clinical importance
- b. Feasibility of changing the indicator
- c. Resources required to make a change in the indicator
- d. Time required to make a change in the indicator

Indicators which had public health importance, and could feasibly changed in a timely fashion with existing resources were ranked most highly. After ranking, each team selected the top ranked indicators. A final list was compiled by consensus.

D. KEY PROGRAM INDICATORS

The four selected key program indicators proposed to carefully monitor and evaluate progress over time and to develop specific facility-based program activities, are the following:

1. Proportion of children screened for severe illness, the baseline is only 7% and the objective will be 80% .
2. Proportion of children receiving appropriate treatment according to diagnosis, the baseline is 35% and the objective will be 100% .
3. Proportion of caretakers who know to correctly manage the child at home, the baseline is already high 79% and the objective will be 100%
4. Proportion of caretakers who know at least two signs of when to return if the child become worst at home, the baseline is already high 85% and the objective will be 100% .

From our point of view, even if the last two indicators are pertinent, it would have been better to evaluate those based on health workers practice, where improvement is definitely necessary.

DISCUSSION AND RECOMMENDATIONS

Our knowledge of the area is limited, we then prefer to be modest in the discussion and recommendations. We will only make some suggestions based on what we have been able to see, from discussion with Dr. Kadirov and from our experience.

Most of the steps to be taken are straightforward. Still due to local specificity, we see two major difficulties. The first will be to modify the "minds" regarding the treatment practices and the second will be an appropriate supply of essential drugs.

1. Modification of treatment practices

In the local context a legal and scientific approach should be combined. We will have to prove that our approach is based on scientific grounds, internationally recognised references should be presented. A regional seminar on this subject could be organised, it should gather decision makers from the different ministry of health and internationally recognised experts. The next step will be implement this into prikazi so it could be implemented in the field. At least two potential obstacles are foreseen:

- 1) the implementation of different precisis in the Fergana Valley and
- 2) the short duration of the project.

2. Supply of essential drugs

Appropriate health care is not viable without appropriate supply of essential drugs. In the context of liberalism and shortness of money inventive approaches will have to be found to do this. We suppose that a balance of private and state money will have to be found.

Annex 1: Health facilities visited

Polyclinic:

rayon/town	hf-name
1 ALTYAVYK	ALTYAVIK
2 DANGARA	DANGARA
3 T_FERGANA	6
4 T_MARGILAN	2

SUBs and matched FAPs

rayon/town	hf-name
5 BUVAYDA	BUVAIDA SUB + FAP
6 DANGARA	KHUDOIBERDIEV
7 FURKAT	INGICHKA SUB + FAP
8 UCHKUPRIK	DEKHANOV SUB

SVAs and matched FAPs

rayon/town	hf-name
9 BAGDAD	OLCHIN SVA + FAP
10 BAGDAD	KHAZINI
11 BUVAYDA	OKKURGON
12 BUVAYDA	SHURTEPA
13 DANGARA	JULVA SVA + FAP
14 FERGANA	OK BILLOL SVA + FAP
15 KUVA	ABIDOV SVA + FAP
16 KUVA	DUSTLIK
17 KUVASOI	VALIK SVA + FAP
18 RHISTAN	OKER
19 RHISTAN	BUJAI SVA + FAP
20 TASHLAK	ARABMOZOR
21 UCHKUPRIK	SARRYKURGON
22 UZBEKISTAN	HATAMTOI

Annex 2: Survey teams

#	Name	origin	team	quest.
6	S. Satvaldiyev	Dangara	1	1
12	B.K.Igamberdiyev	Dangara	1	2
1	Sh.U. Akhmedov	Tashkent	1	4
15	U. Saidakhmedov	Furkat	2	1
2	D.D. Mukhamedov	Tashkent	2	2
7	M. Rakhimov	Uzbekistan	2	4
17	N.D.Abdullayev	Fergana	3	1
10	N.M.Ackbarov	Uzbekistan	3	1
8	Kh. Karimov	Tashlak	3	2
14	A.A.Abdumadjidov	Fergana	3	4
9	A.M.Tashmatov	Okhunbabaev	4	1
13	M.N.Isakova	Kuvasai	4	2
16	A.Nadjmitdinov	Bagdad	4	4
5	T.V.Kiselyova	Tashkent	4	4
4	M.N.Baltabayeva	Tashkent	5	1
11	Z.Shadmanova	Fergana	5	2
3	I.O.Uvarova	Tashkent	5	4

Annex 3: Itinerary

Itinerary

#	rayon/town	hf-name	type	team	day	base
22	UZBEKISTAN	HATAMTOI	SVA	1	1	Yaypan
21	UCHKUPRIK	SARRYKURGON	SVA	1	2	
7	FURKAT	INGICHKA	SUB	1	3	
57	FURKAT	INGICHKA	FAP	1	4	
8	UCHKUPRIK	DEKHANOV	SUB	1	5	Kokand
11	BUVAYDA	OKKURGON	SVA	1	6	
13	DANGARA	JULVA	SVA	2	1	Dangara
63	DANGARA	JULVA	FAP	2	2	
6	DANGARA	KHUDOIBERDIEV	SUB	2	3	
5	BUVAYDA	BUVAIDA	SUB	2	4	
55	BUVAYDA	BUVAIDA	FAP	2	5	
2	DANGARA	DANGARA	POLY	2	6	
9	BAGDAD	OLCHIN	SVA	3	1	Bagdad
59	BAGDAD	OLCHIN	FAP	3	2	
12	BUVAYDA	SHURTEPA	SVA	3	3	
19	RHISTAN	BUJAI	SVA	3	4	
69	RHISTAN	BUJAI	FAP	3	5	
10	BAGDAD	KHAZINI	SVA	3	6	
18	RHISTAN	OKER	SVA	4	1	Rhistan
1	ALTYAVYK	ALTYAVIK	POLY	4	2	
14	FERGANA	OK BILLOL	SVA	4	3	Fergana
64	FERGANA	OK BILLOL	FAP	4	4	
94	FERGANA	OK BILLOL	FAP	4	3 (additional FAP)	
4	T_MARGILAN	POLY #2	POLY	4	5	
3	T_FERGANA	POLY #1	POLY	4	6	
17	KUVASOI	VALIK	SVA	5	1	Fergana
67	KUVASOI	VALIK	FAP	5	2	
15	KUVA	ABIDOV	SVA	5	3	
65	KUVA	ABIDOV	FAP	5	4	
16	KUVA	DUSTLIK	SVA	5	5	
20	TASHLAK	ARABMOZOR	SVA	5	6	

Annex 4: Key indicators and supporting information: Health facility quality of care assessment

1. HEALTH WORKER PRACTICE

a) Screening:

No	Indicator	Result (%)
1	Proportion of children screened for severe illness (all severity questions asked)	9% (14/162)
2	Proportion of children who were asked all key history questions	12% (19/162)

b) Clinical examination:

No	Indicator	Result (%)
3	Proportion of children who were examined appropriately	95% (154/162)
4	Proportion of children who had nutritional status examined (cases examined for pallor and visible wasting)	42% (68/162)
4a	Proportion of children who were weighed the day of the survey	64% (103/162)
4b	Proportion of children whose weight was plotted on a growth chart	46% (72/162)

c) Immunization:

5	Proportion of children who had their vaccination card checked at sick child clinic	84% (136/162)
5a	Proportion of children who needed to be immunized the day of the visit and where immunized the same day	2% (2/43)

d) Treatment:

6	Proportion of children who received an appropriate treatment for the diagnosis made by the health worker(*)	33% (46/140)
7	Proportion of children with diarrhea who received ORS(*)	88% (7/17)

8	Proportion of dysentery cases who received an antibiotic	n.a.
9	Proportion of URTI cases who received an antibiotic(*)	33% (40/121)
9b	Proportion of LRTI cases who received an antibiotic(*)	20% (1/5)
10	Proportion of children with diarrhea who received an antibiotic or an antidiarrheal(*)	56% (9/16)
10b	Proportion of children with simple URTI who received an antibiotic(*)	66% (80/121)

e) Interpersonal communication (*)

11	Proportion of children whose mothers were told how to administer oral medication	95% (110/116)
12	Proportion of children whose mothers were counseled on the importance of giving fluids at home	42% (59/140)
13	Proportion of children whose mothers were counseled on the importance of giving food or breastfeeding at home	69% (96/140)
14	Proportion of children whose mothers were given advice on when to return	56% (78/140)
14b	Proportion of children whose mothers were shown how to give oral medication	7% (8/116)
14c	Proportion of children whose mothers were asked questions to verify whether or not they had understood	37% (43/116)

2. HEALTH WORKER KNOWLEDGE

a) Training

15	Proportion of health workers who have received training in the management of child illness in the last 6 months	84% (26/31)
15a	Proportion of last training sessions which involved clinical practice	100% (26/26)
15b	Proportion of health workers with correct knowledge of the EPI calendar	97% (30/31)

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- | | | |
|-----|---|--------------|
| 16 | Proportion of health workers with correct knowledge of when to refer a sick child | 100% (31/31) |
| 16a | Proportion of health workers who had been unable to refer sick children in the past | 97% (30/31) |
| 16b | Proportional distribution of reasons for being unable to refer sick children | see pg 28 |

b) Supervision

- | | | |
|-----|---|--------------|
| 17 | Proportion of health workers who had received at least one supervisory visit in the last 6 months | 81% (25/31) |
| 17a | Average number of supervisory visits per year ¹⁴ | |
| 17b | Proportion of health workers who have received feedback from supervisor | 100% (31/31) |

3. CARETAKER KNOWLEDGE AND PRACTICE

a) Management of the sick child at home

- | | | |
|-----|--|---------------|
| 18 | Proportion of children receiving oral medications whose caretakers knew correctly how to administer the drug at home | 81% (114/140) |
| 19 | Proportion of caretakers who know how to correctly manage the child at home | 79% (128/162) |
| 20 | Proportion of caretakers who know at least 2 signs of when to return if the child becomes worse at home | 85% (137/162) |
| 20a | Proportion of cases of diarrhea whose caretakers know how to prepare ORS | 91% (21/23) |
| 20b | Proportion of caretakers who know how to prepare ORS | 73% (118/162) |
| 20c | Proportion of caretakers who already know about ORS and believe that ORS/RHF will stop diarrhea | |

4. FACILITY EQUIPMENT

a) Availability of drugs and supplies

21	Proportion of health facilities which have experienced at least one stock out in the previous month	100% (31/31)
21a	Proportion of health facilities which have experienced at least one stock out of ORS in the previous month	26% (8/31)
21b	Proportion of H.F. which have experienced at least one stock out of essential drug in the previous month	90% (28/31)
21c	Proportion of health facilities which have experienced at least one stock out of ORS and essential supplies in the previous month	94% (29/31)
22	Proportion of health facilities with up to date immunization and patient registers	87% (27/31)
22a	Proportion of health workers who received feedback from routine reports	100% (31/31)

(*) hospitalized cases were excluded from these analysis

APPENDIX E

**HEALTH FACILITY ASSESSMENT
REPUBLIC OF KYRGYZSTAN
OSH OBLAST**

**Study done in collaboration
with the Ministry of Health of Kyrgyzstan
and BASICS.**

November 1996

**Elisabeth Szumilin MD, MPH
Ludmila Zemlianykina MoH representative**

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Acronyms

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Acronyms

ARI: Acute respiratory infections.

FAP: A health facility run by a medical assistant, and a midwife.

SVA: A health facility where at least one doctor is present, and at least one midwife and one nurse.

SUB: A rural hospital, with 20 beds or so, with an outpatient department attached to it.

CRB: The central point for referral at rayon level. An outpatient department is attached to it.

NB: When the central rayon hospital was not big enough, USSR built like dependancies, either in the town itself, either in one of the other main town of the rayon. They are small hospitals, between the SUB and the CRB levels, with one outpatient department attached to them.

MoH: Ministry of Health.

ORS: Oral rehydratation salts, or Regydron, the Russian name for ORS.

ACKNOWLEDGMENTS

I have to thank especially Ludmila Zemlianykina for her constant commitment to this survey. Thanks are extended to Paul Ickx and Laurence Laummonier, from the BASICS regional office in Almaty with whom was done the preparation of this survey and the preliminary analysis. I thank the representatives of the Ministry of Health in Osh oblast, Dr.Rissaliev, and Dr.Kadirova his assistant in child's health programs and all the survey team without whom this assessment would not have happened.

BACKGROUND

Osh oblast is the southwestern region of Kyrgyzstan and is bordered by China on the East, Uzbekistan on the West and Tadjikistan on the South. The oblast is 700 km at the widest point, with a population of 1,450,000 people, 52% of them under 15 years old. Data from the oblast Health Department show that there were 48,156 live births and 1644 infant deaths in the 12- month period September 1995-August 1996 for an infant mortality rate of 34 deaths per 1000 live births.

Of the 1344 infant deaths reported in 95, 29% (390) were attributed to pneumonia, 21% (282) to other acute respiratory infections, 17% (228) to diarrhoea and 17% (232) to perinatal diseases. In all the diarrhoea and acute respiratory infections accounted for 67% of all infant deaths. If the majority of children are dying in the hospitals (76%), children who live in rural areas are more than twice as likely to die at home than those children living in urban areas.

1. OBJECTIVES OF THE ASSESSMENT

• 1.1. Introduction

The Ministry of health with the collaboration of BASICS decided to conduct a health facility assessment to collect information on the quality of case-management of all important causes of infant and child morbidity and mortality in Kyrgyzstan (Acute respiratory infections, diarrhoeal diseases, diphtheria, undernutrition, measles, meningitis). The assessment was designed for primary health care programs which are planning to integrate child health care services. Information collected by this assessment will help programs plan and prioritize a number of program elements which are essential for integration of child health services including: health worker training, health worker supervision, drug and equipment supply.

This assessment provides information which will allow the development of strategies to improve integrated health worker performance with a focus on the management of diarrhoea and respiratory infections.

• 1.2. Objectives

The objectives of the health facility assessment were

To determine

- a) Current knowledge and practices of medical workers at outpatient clinics regarding the assessment and management of sick children.
- b) The barriers to effective case-management practices for sick children.

- c) The adequacy of training and supervision of medical workers.

To use the information obtained on case-management practices, training, supervision and barriers to integrated child health programs to

- a) Improve and develop pre-service and in-service training for medical workers in the outpatient facilities.
- b) Improve and develop a strategy for supervising and monitoring medical performance of health workers over time.
- c) Prioritize and develop strategies for improving case management strategies, and the availability of essential drugs and medical supplies.
- d) To train local health staff in survey techniques, collection and analysis of survey data and the use of data to improve the quality of integrated case management in outpatient health facilities.

Information was collected on the management of the following clinical presentations: fever (measles, ear infection, throat infection, meningitis), acute respiratory tract infections, diarrhoeal diseases (simple diarrhoea, persistent diarrhoea, or dysentery), undernutrition. Children were aged between 0 and 59 months.

2. METHODOLOGY

• 2.1. Sampling

The sampling frame was taken from the exhaustive list of health facilities in Osh oblast, with rough data on 1995 consultations load for each facility. Because of the very small case load of the FAPs, we could not follow exactly the classical methodology. For the same reasons we excluded from the sampling frame all health facilities with a target population of less than 1500 people. We did a two stage sampling. At first we chose at random 23 health facilities which were not FAPs. Then from this level and after having taken information on the operating FAPs under the responsibility of each sampled SVAs or SUBs, we chose 13 functioning FAPs.

We also excluded from the sampling frame all the 8 polyclinics of Osh and one rayon which were thought to be “contaminated” by former visits or by our clinical practice exercises.

During the week and due to the general poor frequentation of the SVAs and the FAPs, we had to exchange some SVAs for bigger structures (like SUBs, NBs and CRBs). In the same way 3 teams visited 2 health facilities in one day being not able to find any children in the first hours of the visit. Therefore the central rayon level is over-represented in the sampling, and the FAP level under-represented.

A total of 39 health facilities were visited over a total of 271 (14%).

Table 1: Type of health facility sampled:

TYPE OF HEALTH FACILITY	TOTAL
City hospital (polyclinic)	½ (50%)
Rayon hospitals (CRB & NB) (polyclinic)	7/13 (54%)
SVAs	5/49 (10%)
SUBs	12/60 (20%)
FAPs	14/140 (10%)

The sample consisted of all infants and children under 5 years of age presenting to the health facility (or for 13 of them following a home visit from the doctor) and whose mothers described them as having fever, diarrhoea or cough/difficulty breathing.

All together, there are 10 rayons, and 3 cities in Osh oblast.

7 rayons were sampled, and 2 cities (Osh and surroundings, and Kyzyl Kiya).

Table 2: Distribution of the number of observations by rayons/cities:

NAME OF THE RAYON	TOTAL OBSERVATIONS
Batken	10% (16/160)
Kadamjai	4% (6/160)
Kara Kuldja	9% (14/160)
Kara Suu	18% (29/160)
Lyailyak	8% (12/160)
Nookat	8% (12/160)
Uzgen	11% (18/160)
Kyzul Kiya city	7% (11/160)
Osh	26% (42/160)

Kara Suu and Osh are the most populated rayons of the oblast.

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- **2.2. Survey instruments**

The survey instruments were designed to obtain information on key aspects of the knowledge and practices of medical workers and caretakers. In addition, information was gathered on the health facility including the availability of drugs and equipment. The survey was designed to assess important aspects of the case-management of sick children but did not require that “standard case management” training has been conduct in the past.

Four survey instruments were used at each outpatient health facility:

- a) Observation of the management of the sick child by the health worker.
- b) Interview of the health worker regarding knowledge and practice of case management for a sick child.
- c) Exit interview with the caretaker as they leave the facility.
- d) Assessment of equipment and supplies.

Survey instruments were translated in Russian, Kyrgyz and Uzbek. But all the questionnaires were filled by the surveyors in Russian. They were already field tested at health facilities. Anyhow some small translation mistakes should be further corrected.

- **2.3. Field work**

Finally we had 6 teams of 3 people, and one extra staff. Each team comprised one supervisor and two surveyors. 2 more people were coordinating the field work with one constantly visiting the teams for ensuring that all was going smoothly and collecting the already filled questionnaires, the other was responsible for data entry into the EPIINFO data base.

At each health facility the supervisor was responsible to introduce the team, and explain the purpose of the visit. During the clinic visit, the supervisor identified children meeting the case definition for entry in the survey and gave an identification card to the mothers of these children to ensure that they were followed in the clinic. In addition the supervisor conducted the facility equipment and supply review section of the survey. One surveyor was stationed in the consulting room and conducted the health worker observation component of the survey. He also conducted the health worker interview once all the consultations were finished. The second surveyor conducted exit interviews with caretakers in a separate room, as they left the clinic. The supervisor monitored the performance of the surveyors regularly to ensure that questionnaires were correctly completed; errors or incomplete questionnaires were corrected in the health facility. At the end of the day the supervisor reviewed all questionnaires for completeness and accuracy.

Training of survey team was conducted between November 11th and 15th in Osh city. Training included a review of survey methodology and objectives and careful review of the survey instruments. Training involved role plays with the entire group and then among sub groups, practice sessions at 2 local outpatients clinics. These different exercises allowed clarification of each question

and inter-surveyor reliability was over 80% for each of the questionnaires. Field work was conducted from November 18th to 23th, including Saturday. At each facility the survey team arrived at 8.00. But some had to wait several hours before being able to see a child. In such case, nurses from the health facility were asked to do home visiting and bring any child whose mother described the child as having one of the 3 symptoms under study.

- **2.4. Data analysis**

Questionnaire data were coded and then entered into EPIINFO software by consultant staff. Preliminary data were compiled by the consultant and data analysis was conducted during the third week from November 26th to 29th with all the survey team and the Ministry of Health representative. Key indicators were discussed. The use of survey data to improve the quality of health services was discussed and for each of the main groups of indicators, some were selected with regards to the feasibility to change them with a minimum additional resources, and in a short term program option. Propositions were discussed and recommendations suggested.

The last day, the preliminary findings were presented to the authorities of the Ministry of Health in Osh oblast, and a preliminary report translated in Russian was given to them.

3. RESULTS

3.1. General descriptive information

Two important features have to be mentioned at first:

Practically none of the health facilities was heated, while the outside temperature during the survey was approaching 0° Celsius.

Those health facilities are poorly attended by caretakers of sick children. 8% of the observations were done following a home visit from the health worker. Almost half of the children were brought to the health facility on the day of the survey through the system of home visiting nurses, who would convince the mother to bring the sick child to the health facility on that day. 60% of the health workers reported as a major problem that caretakers do not bring the children at the health facility.

Observations were conducted on the case management of 160 children. The distribution of age of the children ranged from 0 to 59 months, with a mean of 18 months. 76% of the children were below 24 months of age. The sex ratio (M/F) is 1.6.

40 health workers were interviewed.

The hours of operation of health facilities ranged between 6 and 12 hours with a mean of 8.8 hours. If the nurses and feldshers assigned to the health facility were almost all presents on the day of the

survey, 27% of the doctors were absent. 58% (23/40) of the health workers said that at least one service was not free. 22% (18/23) reported that the immunization service will cost between 1 to 3 coms (one bread is costing from 2 to 3 coms). 22/23 (96%) answered that the clinical records or other personal file will be paid from 1 to 15 coms.

Table 3: Type of health workers seeing sick children in outpatients clinics, and number of children seen:

HEALTH WORKER CATEGORY	NUMBER OF HWS	NUMBER OF CHILDREN SEEN
Doctors:	25 (62%)	101(63%)
Feldshers:	13 (33%)	47 (29%)
Nurses:	2 (5%)	12 (8%)
TOTAL:	40	160

This repartition only reflects the sampling frame, where 36% of the health facilities were FAPs.

Immunization sessions are available everywhere with a mean of 5 days a week, ranging from 2 to 6 days. All antigens are supposed to be given in 88% of the time (35/40). The BCG should be excluded from these figures. It is supposed to be given at the maternity.

Antenatal clinics are offered in 31 of the health facilities (78%), with a mean of 4.5 days a week.

3.2. FACILITY EQUIPMENT

- **Patient and worker accommodation**

It was found generally adequate (if we can omit the lack of heating) except for potable water which was not available in 41% of the health facilities. Latrines were present in 85% of the facilities (33/39). Only one health facility didn't have an ORT corner and 85% of the ORT corners had the necessary measuring utensils, cups and spoons. Posters in local language were present in all but one health facility.

- **Medical material**

If thermometers, regular stethoscopes, tongue depressors and baby scales were everywhere available, only 21% of the health facilities had an otoscope. 62% (24/39) had a steam sterilizer, but 4 of them were not in working order.

- **Transport**

28% of the health facilities had a vehicle in working order. 73% of them were found in SUBs.

- **Cold chain**

Graph 1: Cold chain equipment (see annexe)

If all the health facilities were equipped with an electrical refrigerator, 3 of them categorized has being in a bad condition, 12 (31%) were not working on the day of the survey due to electricity cut offs. Only 72% had a thermometer inside, and only 44% had a temperature chart up to date, with one health facility having 19 days below 0°Celsius. Over the 23 times where the temperature was recorded by the surveyors, 2 of them (9%) were below 0 on the day of the survey, and none over 8°Celsius. All but one had a cold box, and all but two, frozen icepacks available. If no vial was found completely frozen, it doesn't mean that the DPT, DT and Td were all good, as the exact flocculation test was not done.

Table 4: Availability of vaccines on the day of the survey

VACCINE TYPE	AVAILABLE
BCG	18% (7/39)
Polio	48% (19/39)
DPT	92% (36/39)
Measles	92% (36/39)
DT, Td	85% (33/39)

The BCG vaccine is supposed to be kept and administered at the maternity, which explains this low figure, but in the mean time it is not logical that these figure is not simply 0. The striking point is the lack of polio in more than half of the facilities. Moreover 80% of the facilities complained of vaccine shortages within the last month. Measles was expired in one facility (3%) and DT/Td in one also.

Table 5: Availability of drugs on the day of the survey

Stock item	City polyclinics	SVAs	SUBs	FAPs	TOTAL
Cotrimoxazole tabs	38% (3/8)	0	75% (9/12)	29% (4/14)	41% (16/39)
Penicillin tabs	0	0	67% (8/12)	7% (1/14)	23% (9/39)
Paracetamol or aspirin	13% (1/8)	40% (2/5)	50% (6/12)	36% (5/14)	36% (14/39)
ORS	100% (8/8)	100% (5/5)	92% (11/12)	100% (14/14)	97% (38/39)
Iron tabs	50% (4/8)	40% (2/5)	75% (9/12)	29% (4/14)	49% (19/39)
Mebendazole tabs	25% (2/8)	0	25% (3/12)	7% (1/14)	15% (6/39)
disposable syringes & needles	50% (4/8)	60% (3/5)	92% (11/12)	64% (9/14)	69% (27/39)

Only 39% of the facilities had Cotrimoxazole and ORS available on the day of the survey. The apparent availability of supplies at the SUB level reflects a recent donation from a Deutsche humanitarian organization for this level. But the drugs were mainly aimed for the inpatient department of the SUBs. Therefore the real figures of drug availability for the outpatient department are even lower.

Disposable syringes and needles are not widely available.

At least one stock out of essential medications had occurred in the month preceding the survey at 33/39 facilities (85%).

- **Main supplier**

Graph 2: Main drugs supplier for the health facilities (see annexe)

45% of the drugs are mainly provided through humanitarian help, 30% mainly through the government, and 23% are mainly coming from private suppliers. 65% of the health workers are blaming financial problems as the most common cause of delay in delivery of supplies, 23% central stock out, and 10%, inadequate transportation.

- **Record keeping:**

Immunization and patient registers are present and up to date, except for one facility. But there is a general lack of blank forms.

Graph 3: Record keeping (see annexe)

Discussion

If the equipment of the health facilities is in general adequate, we can suppose that lack of heating system, and lack of essential drugs are important reasons which prevent the parents to visit the facility for seeking health care advice for their children, at least this winter.

Humanitarian aid is the main provider of the health facilities. Private supply is not rare, above all at the FAP level with 43% (6/14) of the feldshers answering that it is their main mean of supply. They would buy some drugs, and sell it to the caretakers when needed. 32% of the caretakers (50/154) answered that they would not pay anything for the drugs on that day, including the ones whose child was referred to the hospital. The others caretakers would most of the time go to a private pharmacy to buy the drug prescribed by the health worker. For the 96 caretakers who said that they will have to pay for the drugs on that day, the cost mean was 29 coms, ranging from 1 to 200 and with a median of 20 coms. It is an important sum and 10% of them had to borrow money for buying the drugs on that day.

The repartition of the humanitarian help is unequally targeted to different health levels: usually the donations are made for the inpatient department, which was confirmed by the higher availability of essential drugs at the SUB level, drugs in fact intended to be used by the inpatient department. None of the SVAs had Cotrimoxazole on the day of the survey, and 85% of the facilities (33/39) reported stock out of essential drugs in the last month.

If ORT corners are present and equipped, they are not functional in winter because of the lack of heating. But it was said that most of the mother's knowledge about ORS and its correct utilization was given through these ORT corners in summer. If ORS was prescribed by the doctor, the mother is supposed to go directly to this corner where the nurse will explain and demonstrate the way of administration.

The cold chain equipment is available, but 1/3 of the refrigerators were not working due to electricity cut-offs which can last from a few hours to a few days. This led to inadequate storage of vaccines in this season, and two recorded temperatures were below 0 on the day of the survey. All the refrigerators should be equipped with a thermometer, and the use of temperature charts should be emphasized. Adapted solutions for the winter should be discussed and recommendations made to prevent the vaccines to be frozen. Freeze watches should be everywhere available.

Shortages of polio vaccines are common, and as we will see later, this is an important reason for decreasing the immunization coverage. Another reason is the lack of disposable syringes and needles. From the discussion with the surveyors, it seems that some parents refuse to have their children immunized with reusable material, and nevertheless cannot afford the price of the disposable material at the private market (2 to 3 coms).

3.3. HEALTH WORKER PRACTICE

Among the 160 children, 136 had at least respiratory symptoms, 57 at least fever, and 41 at least diarrhoea. 87 had 2 conditions, and 13 came with the 3 complaints.

- **Screening**

Proportion of children screened for severe illness

Only 2.5% of the health workers asked for all the five questions related to the severity of illness. 48% asked for three, 20% for four. The questions that they usually forgot is about convulsions. 72% of the feldshers asked for 3 questions or more, while only 51% of the doctors did so.

Table 6: Proportion of children screened for severe illness by question

In this table, it was considered that over 24 months, the question about breast-feeding was no more relevant.

QUESTIONS ASKED	PROPORTION OF HEALTH WORKERS
Drinking/eating	76% (121/160)
Breastfeeding	52% (83/160)
Convulsions	8% (13/160)
Vomiting	41% (65/160)
Consciousness	70% (112/160)

Proportion of children who were asked all key history questions

Totally, 55% of the time, the health worker asked 3 key history questions, but only 4% of the time he inquired about the four main ones. This fall is mainly due to the question about ear problems, which was not asked 88% of the time.

Table 7: History questions asked by presenting complaint

HISTORY QUESTION	PRESENTING COMPLAINT			
	Fever (N=57)	ARI (N=136)	Diarrhoea (N=41)	TOTAL
Hist of fever	98% (56/57)	86% (117/136)	83% (34/41)	86% (137/160)
Duration	88% (50/57)			52% (83/160)
Hist of cough /difficulty breathing	97% (55/57)	97% (132/136)	78% (32/41)	93% (148/160)
Duration:		90%(123/136)		81% (129/160)
hist of diarrhoea	56% (32/57)	62% (84/136)	100% (41/41)	64% (103/160)
Duration:			93% (38/41)	31% (50/160)
Blood in stool			63% (26/41)	21% (33/160)
Hist of ear pb.	11% (6/57)	13% (18/136)	5% (2/41)	12% (19/160)

These results are indicating that most of the health workers are asking questions about the presenting illness and the duration of this illness, but less are systematically assessing the four main areas pertaining to high child mortality or disability. Independently of the complaint, 86% are inquiring about fever, and 93% about respiratory tract infections symptoms. But only 60% will ask about diarrhoea, if the symptom had not been mentioned by the mother. These findings may have been emphasized due to this winter season, where cough or difficulty breathing were the most common complaints. Even when the main complaint was diarrhoea, only 63% of the health workers asked for presence of blood in the stool which is yet a very important sign to recognize dysentery cases.

Only 12% of the time, questions about ear problems were asked. 46% of the health workers asked for history of home treatment with herbs, and 41% with western medicine.

- **Clinical examination**

Table 8: Proportion of children examined by examination area

EXAMINATION AREA	PROPORTION OF CHILDREN EXAMINED			
	General	Fever	ARI	Diarrhoea
Throat	86% (49/57)	81% (110/136)	76% (31/41)	78% (125/160)
Stiff neck	11% (6/57)	7% (9/136)	12% (5/41)	8% (13/160)
Stetho	98% (56/57)	93% (127/136)	98% (40/41)	93% (149/160)
Resp.rate	18% (25/57)	19% (26/136)	7% (3/41)	18% (28/160)
Skin turgor	44% (25/57)	46% (63/136)	56% (23/41)	48% (76/160)
Examined for reason of visit	84% (48/57)	85% (116/136)	56% (23/41)	83% (133/160)
Nutrition	PROPORTION OF CHILDREN EXAMINED			
Pallor	51% (29/57)	58% (79/136)	66% (27/41)	58% (93/160)
Wasting	37% (21/57)	37% (50/136)	46% (19/41)	35% (56/160)
Both	30% (17/57)	32% (43/136)	39% (16/41)	31% (49/160)
Weighed	35% (20/57)	33% (45/136)	46% (19/41)	33% (52/160)

The use of the stethoscope is general, whatever the main complaint is. But only in 19% of respiratory symptoms the respiratory rate was counted. For diarrhoea complaints, 56% of the children were assessed for degree of dehydration through the skin turgor measurement but only one health worker ever stated the degree of dehydration of a diarrhoea case. Curiously even the children without diarrhoea were assessed for skin turgor almost half of the time.

78% of the health workers would assess the throat, which is quite important in this time of diphtheria outbreak (and as well to prevent complications from streptococcal tonsillitis). But only 8% will assess the stiff neck, even if Kyrgyzstan had to face a meningitis outbreak recently.

- **Nutrition**

The nutrition status is not systematically assessed and 33% of the children were weighted, even if all the health facilities were equipped with baby scales. Lack of heating of the health facility can explain partly these low findings. Apparently, the obligation to weight the child is valid until one year of age, and the plot chart in the clinic record doesn't go further. Anyhow, only 8% of the under 12 months children had their weight plotted on this chart.

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The proportion of children weighted if one of the symptoms is diarrhoea is a little bit higher than for the other complaints, 46% against 34%.

- **Immunization**

41% (66/160) of the health workers will ask for the immunization status of the child or look at it in the clinic record. Among the 32 children who were not up to date, 31% (10/32) were checked and 30% (3/10) immunized on that day while the other 70% (7/10) were not referred. The polio at birth policy was considered to have started for the newborns since 1994 included. It was considered that the child was up to date if the month when he has to receive the corresponding dose was not finished. If the criteria were more strict, and the up to date component coded exactly considering the date of birth, as it is usually the case in any immunization survey, the coverage would have been around 73%. With the more flexible criteria which was chosen for this coding the immunization coverage within this population of children who went to the health facility on that day was 80%. It could be higher if the regular shortages of polio vaccines would not hampered the results: 8% of the children could not received DPT and polio on the same day, lowering the general results.

- **Treatment**

Table 9: Proportions of cases treated appropriately according to WHO guidelines:
Cases referred to hospital have been excluded from these calculations)

DIAGNOSTIC MADE	APPROPRIATE TREATMENT	AT LEAST GIVEN ORS/RHF
Diarrhoea/gastro-enteritis	48% (11/23)	87% (20/23)
Cold/Bronchitis/URTI	29% (35/122)	
LRTI (Pneumonia)	0% (0/2)	

For simple diarrhoea, it seems that the national recommendations are following the WHO guide lines. The posology of ORS prescribed was difficult to code. Giving one tea spoon every 5 minutes during 1, 2 or 3 days was not rare as a posology. Often also, was often stated, and until the end of diarrhoea. One cup ofml after each liquid stool was never found. More detailed and "feasible" posology should be taught. Anyhow those two ones, in this survey were coded as correct.

For ARI, the existence of national guide lines was all but not clear, especially for bronchitis cases. We chose to code the results using the WHO guide lines. But it may been a too strict decision in that sense that children are also dying from ARI which are not classified as pneumonia by the Kyrgyz medical workers, as it was said in the introduction. This problem of classification and treatment of the ARIs should be clearly addressed and national guide lines available. If it would have been the case, this indicator would certainly have been higher because it seemed evident in all the discussions that "lower bronchitis" have to be given antibiotics in Kyrgyzstan. That is also strenghtening the fact that respiratory rate should be counted, as a threshold between ARIs which absolutely need fast

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antibiotic therapy, and the ones which can be seen again after two days of symptomatic treatment for further assessment.

Most of the time the treatment was classified as inappropriate because of over-prescription of antibiotics. For the diarrhoea/gastro-enteritis, 48% (11/23) of the cases were given antibiotics, and 18% (2/11) of these cases were also given an antidiarrheal (Furazolidone) while one case received only Furazolidone (8%) . 87% were prescribed ORS or RHF. For the upper respiratory tract infections, 71% received an antibiotic. For the 4 cases of pneumonia, 2 were hospitalized, the 2 others received more than one antibiotic and the treatment was classified as inappropriate.

For the 128 children who were given at least one medicine, the mean of the total number given by child is 2.3, and it is a quite positive finding.

Graph 4: Number of drugs given by child (see annexe)

18% (26/138) received only one
43% (58/138) received only two
27% (37/138) received only three
11% (15/138) received only four
1% (2/138) Received 5 drugs.

19% of them received an injectable (26/138). 88% (23/26) of the time it was an antibiotic. 2 cases received an injectable antipyretic, one case injectable vitamins. Here also the findings are important and positive. If the discussion for oral versus injectable therapy has to happen, at least the injectables are given for antibiotherapy only, or almost only.

- **Interpersonal communication**

Graph 5: Communication with caretaker (see annexe)

ORS was sometimes prescribed for fever which was said to be a UNICEF policy in Kyrgyzstan. When it was prescribed, 71% (17/24) of the mothers were explained how to prepare it, and 54% (13/24) were shown by gestures how to mix it (without doing it). Continue to feed or breastfeed the child was explained 63% of the time, and give the same quantity or more fluids at home in 50% of the time.

Only 46% (65/142) of the mothers of cases who received oral treatment were explained how to give it, and even less (27%) if they had understood. 9% were asked if they had any questions.

Discussion

- **The integrated approach of the management of the sick child**

has not yet been introduced in Kyrgyzstan, and that may explain the global low scores for the screening and the clinical examination: a high proportion of all cases were asked history questions about the presenting illness and the duration of symptoms which are key to the assessment and classification of sick children but much less cases were systematically assessed for the 4 main areas pertaining to high child mortality and disability. Even for diarrhoea cases, the presence of blood in the stool was not asked in more than one third of the cases, and the skin turgor not assessed in also one third of the cases. The degree of dehydration was stated only once.

The severity of the child condition neither was systematically assessed with only 8% of the cases who were asked about convulsions.

Health workers should be trained in a more integrated approach of the child's condition. If the reported symptoms are most of the time correctly assessed, except for diarrhoea, other important areas and severity signs should not be forgotten knowing that infants and children may have several conditions at a time. Counting respiratory rate was rarely practiced although it is a sensitive diagnostic measure of the severity of respiratory tract respiratory infections. If this was done systematically, the caretakers would also benefit of this attitude as most probably a lot of them in Kyrgyzstan has a watch at home.

High fever should not be a severity sign for referring the child to the higher health level as it is a very usual complaint and child is getting worse is not specific enough.

If formerly, nutrition and immunization were assessed within the healthy child clinics, and data reported in the clinic record available to the doctor at the time of consultation, health workers should now take a more pragmatic attitude, and systematically check those points at each visit. They are narrowly linked to child survival, and are the responsibility of the health worker.

- **Appropriate treatment**

The assessment and classification of sick children was not validated. Furthermore half of the sick children were invited to come on the health facility on the day of the survey, who would otherwise have stayed at home which may have over selected mild cases in the sample. The classification of ARI diseases was not very satisfying, because it is unclear if in Kyrgyzstan the simple bronchitis have to be treated with antibiotics, as was said by part of the surveyors to be the national protocol. This point could not be analyzed separately.

There is a general over use of antibiotics by the health workers and it is obvious for the diarrhoea/gastro-enteritis cases, where most of the health workers (88%) have been exposed to the national protocol which is the WHO one at least knowing where to find the guide line in the health

facility. ORS was prescribed in 87% of the diagnosis of simple diarrhoea, but 9 cases were also given antibiotics. Totally 48% of the 23 cases were treated appropriately, not considering the referrals to the hospital.

For ARI cases which were not pneumonia, only 29% were not prescribed antibiotics.

For 7 malnutrition cases (qualitative and/or quantitative) and while some children were diagnosed as having anemia, none has ever been prescribed or given iron tablets while this drug was available in 49% of the health facilities.

Less than half of the health workers checked the immunization status of the child, but in another hand, this status was not so bad and would be better if shortages of polio won't hamper it. This preventive activity is often run separately from the curative one and managed by nurses through the healthy child clinic. The general coverage would benefit of a more integrated approach, every visit should be used to check the immunization status of the child and if he is not immunized on that day, at least an appointment should be given after the disease episode to update his status. The health workers should be trained in the cold chain rules in winter times as well, and solutions found for the vaccines not to be frozen.

The communication with the caretakers is far to be satisfying. Less than half of the health workers would explain the way to give medicine at home and as few the severity signs. It was said by the surveyors during the discussion that one of the reason of this poor score is that the caretakers know how already. This was not confirmed by the caretaker's interview.

Two other problems arose in the discussion: the unequal repartition of the doctors in the oblast, and their high "turn over": As almost one third has left the job (27%), the others have to assume more functions, especially at the SUBs, CRBs and NBs levels leaving less time for each patient. The organization is such that a mother is not sure to find again the same doctor when she will come back, and inversely (A lot of central facilities are functioning with doctors who changed every 3 hours, and apparently with irregular schedule). It is not a good environment for installing a confident relationship between both caretakers and doctors. The child becomes anonymous, and it was felt to be a problem especially for the communication with the caretaker. It is to be noted that in describing their problems when communicating with the caretakers, 68% of the health workers reported that caretakers would not follow the advice anyway.

Improving the messages given to mothers particularly about the dangerous signs at home would be an important mean to reduce child's mortality. A positive finding was that 100% of the mothers answered that their knowledge about immunization is coming from the health workers themselves and this programme is quite good even if it still needs improvement to reach the minimum 95% coverage. If more emphasize was given by the health workers in communication of key messages, we can expect that caretakers would benefit from it, in the same way than their knowledge about immunization.

3.4. CARETAKER KNOWLEDGE AND PRACTICE

90% of caretakers were mothers, and 5% grandmothers. They would bring the child after a mean of 3.7 days of illness, ranging between 0 days to 2 months.

The mean time for the caretaker to arrive at the health facility was 15 minutes, ranging from 2 minutes to 2 hours with a median of 10 minutes. 83% (138/154) came on foot. Excepting the home visits, 24% (34/140) said that they had problems to come, the main problem (56% - 19/34) being to find somebody to look after the other children at home and 21% (7/34) were complaining of lack of public transportation.

Caretakers had taken their child somewhere else for the same illness before coming to the health facility in 35/154 of the cases (23%). 57% (20/35) went at first to a pharmacy (13% of all caretakers), 23% to a traditional healer (5% of all caretakers) and 20% had visited another health facility (5% of all caretakers).

Of all children whose caretakers described them as having diarrhoea, 76% (28/37) had treated it at home:

Table 10: Home management for diarrhoea:

HOME MANAGEMENT FOR DIARRHOEA	Total (N = 28)
ORS	57% (16/28)
Herbs/traditional medicine	14% (4/28)
Furazolidone/antibiotics	39% (11/28)

Of all caretakers (154 persons), 91% had previously heard about ORS, 78% knew correctly how to prepare ORS and 27% knew that it was given to prevent dehydration, while 64% thought that it will stop diarrhoea.

For fever symptoms, 77% (41/53) of the caretakers did something at home.

Table 11: Home management for fever

HOME MANAGEMENT FOR FEVER	Total (N = 41)
Aspirin/paracetamol	88% (36/41)
Antibiotics	10% (4/41)
Rubbing	37% (15/41)
Herbs/traditional medicines	15% (6/41)

For symptoms of ARI, 53% (60/128) of the caretakers managed the child at home.

Table 12: Home management for ARI

HOME MANAGEMENT FOR ARI	Total (N = 60)
Aspirin/paracetamol	27% (16/60)
Antibiotics	22% (13/60)
Cough medicine	43% (26/60)
Rubbings	38% (23/60)
Herbs/traditional medicine	8% (5/60)

56% of caretakers whose children were given oral medications **knew correctly how to administer the drug at home**. This indicator was coded as correct if the caretaker was able to repeat (or read) the exact prescription given by the health worker, including the amount of each dose, the number of times a day, and the total number of days, even if the prescription was incorrect but mentioned those three components.

61% knew at least two **general aspects of home management**, 68% will go on to feed or breast-feed the child, and 61% will complete the course of medications.

The indicator about the **mother's knowledge of the child getting worse** has to be itemized because a global score is less meaningful. 73% answered "if fever starts or continues" and 63% "if the child is getting worse". But if we consider the other answers which are more specific, 37% did not mention any (37/154), 53% one (81/154), 23% two (35/154) and one mother three. None of the caretaker mentions more than 3 of these more specific signs. The stratification of this knowledge by class of symptoms showed that 54% (20/37) of the mothers whose children had diarrhoea will come back if the diarrhoea continues, only 5% (2/37) if the child is vomiting everything. For respiratory symptoms, only 32% (41/128) of the mothers answered that they will come back if the child has rapid or difficulty breathing, which is practically the same result than all symptoms confounded.

Graphic 6: Dangerous signs known by caretakers (see annexe)

Of all caretakers, 9/154 did not know **when to bring the child back**, 44% (67/154) will come back if the child is getting worse (getting worse being so vague...). 60% said that they know when to come back, either for the next obligatory visit, or for next immunization.

Television is more often watched than **radio** listened: 78% (120/154) will watch TV everyday, and 18% (28/154) never, while 36% (55/154) will listen to the radio everyday and 51% (79/154) never.

93% (143/154) caretakers said they were immunized at least once against diphtheria. Only 3% (4/154) of them or their child have been once turned away for immunization, and almost 100% of the information about immunization was given by the health worker.

Discussion

23% of the caretakers had sought advice elsewhere before coming. Quite an important percentage (13%) had bought some drugs at a private pharmacy, and 5% said that they went to the traditional healer. A high percentage of caretakers started to manage the child at home, before coming to the health facility, 3 to 4 days after the beginning of the symptoms. More than half started to give ORS for diarrhoea, and 88% gave an antipyretic for fever. These attitudes would be positive only if the caretakers are able to recognize severity signs. Anyhow, more than one third of diarrhoea cases were given antibiotics or Furazolidone at home before receiving any advice from the health worker, and 22% of ARI were given antibiotics. There is an overall tendency not to seek advice from the health worker in time if not at all: as it was said, half of the children were convinced by home visiting nurses to come at the health facility on the day of the survey who might otherwise have stayed at home. And it is certainly not the distance between home and the health facility which prevented the caretaker to bring these children.

Moreover only 41% of the health workers asked about history of home treatment with western medicines.

All together these attitudes lead to inappropriate treatment, which can be at first dangerous, and secondly expansive for the family.

The main dangerous signs known by the caretakers are not specific enough. To be more powerful, key messages should be given on general conditions as eating, drinking or vomiting, change in consciousness or convulsions as well as been more specific and related to the symptoms itself especially fast breathing for respiratory symptoms, and daily frequency, presence of blood and duration of diarrhoea. Messages should also be given on using only efficient home management cares, emphasizing the uselessness to give western medicines, if the health worker thinks that the child does not need it. This may be a difficult task to carry out if the health workers themselves are overusing these "western drugs".

If traditional healers are rarely consulted, the use of herbs, traditional medicines and traditional behaviors like rubbings is frequent. Emphasize should be given to study the efficiency and safety of these traditional measures for managing mild cases in the same time than education on severity signs is given to the caretakers and the health workers. Both attitudes will promote the use of simple cares for managing simple cases, and will save the drugs given for free for the serious cases. That has to be understood by both the health workers and the caretakers in the same time, in order not to contribute to an even less regular frequentation of the health facilities by the caretakers.

Caretakers are leaving the health facility with incorrect knowledge of the prescription. This point was even majored by the possibility of the caretaker to read the prescription given, when answering this question. As the prescription is most of the time taken by the pharmacy, we can wonder what is the real proportion of parents arriving at home who still knows how to give their child the prescribed medicine.

3. 5. HEALTH WORKER KNOWLEDGE

- **Training**

If we consider a training about the management of child illness to last more than one day, and include clinical practice, none of the health workers had received any. Anyhow 87% of them said that they had received what they consider to be a training in the last year. These training were not always related to child illness, and these figures have to be interpreted with caution because they include monthly meetings, lectures on infectious diseases and other exercises. These different training would last between half an hour to three.

77% of the health workers knew the EPI calendar. Most of the mistakes were due to the polio at birth which was forgotten. 95% knew correctly when to give DPT, 78% DT and 98% Td.

Graphic 7: Knowledge on when to refer a sick child (see annexe):

90% (36/40) knew at least 3 signs on when to refer a sick child, but 100% answered that they had wanted to refer a sick child in the past, but had been unable to do so.

Table 13: Reasons given by health workers for being unable to refer sick children in the past

REASON GIVEN	TOTAL
Parents refused to go	95% (38/40)
No money	93% (37/40)
No one to look after children at home	48% (19/40)
No transport	30% (12/40)
Hospital is too far	10% (4/40)

National guidelines were available for 88% of the health workers (35/40). But it seems that it pertains more to the WHO guide line on diarrhoea, than to the guide line on ARI.

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- **Supervision**

If all but 2 health workers said that have a supervisor (95%), 8 of them were said to be working in the same health facility. 100% (38/38) of the health workers who have a supervisor had received at least one supervisory visit in the last 6 months, with a mean of 10 visits per year, ranging from 1 to 44. If 97% said that they have received a feedback from this visit, it is most of the time an oral one (92% - 35/38).

The following graphic summarized what the supervisor did during the last visit. It is important to note that the “management of sick children” category does not mean that the supervisor observed the consultation, but that he participated actively to it. The “treat sick children” is in relation with the habit to show chronic or complicated cases to the supervisor, when it is not his own “private” client.

Graph 8: Supervisor tasks during the last visit

Feedback was given to 97% (37/38) of the health workers. 92% (35/37) of the time it was oral feedback. To keep their technical skills up to date, 76% (29/ 38) of the health workers answered that they had workshops, 32% (12/38) monthly meetings.

Only one health worker answered that he did not have to submit report. Reports on EPI activities seem more regular, with 80% of the health workers answering that they had to submit mensual (30/32), trimestrial (1/32) or annual (1/32) reports. 25/40 health workers (63%) report on morbidity, 20 of them monthly (80%).

- **Interpersonal communication**

Giving feeding and nursing advice has been the most frequent self-reported role.

Table 14: Health workers self reported role in communicating with caretakers

ROLE GIVEN	TOTAL
Feeding/nursing advice	83% (33/40)
Giving information on home management	58% (23/40)
Information on danger signs	48% (19/40)
Information on how to give the medicine at home	43% (17/40)
What mothers have done, and symptoms of child's illness	30% (12/40)
Information on when to come back	28% (11/40)
Giving group talks	28% (11/40)
Prevention of illnesses	20% (8/40)

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Mothers understand home management	15% (6/40)
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On the other hand, if none of the health workers thinks that it is not his role to communicate with the caretaker, they reported that this role is not always straightforward.

Table15: What prevents the health worker from communicating with mothers

REASON	TOTAL:
They do not follow the advice	68% (27/40)
No education material	48% (19/40)
They do not understand	20% (8/40)
No time	10% (4)

- Health workers' problems**

The health workers reported a lot of different problems. The most frequently reported problems are the lack of supply or stock, the lack of transport, the lack of motivation (mainly problems with salaries). 60% of them mention that the mothers don't bring the child to the health facility as a problem.

Table 16: Problems reported by the health workers

PROBLEM REPORTED BY HWS	PROPORTION REPORTING
Lack of supplies/stock	83% (33/40)
Lack of transport	73% (29/40)
Lack of motivation/salary	65% (26/40)
Mothers don't bring the child...	60% (24/40)
Lack of learning supplies	55% (22/40)
Poor working environment	45% (18/40)
Staff/time shortage	40% (16/40)
Lack of training	5% (2/40)

Discussion

Health workers who were interviewed did not received formal training on the case management of diarrhoeal diseases or acute respiratory infections in children. Yet several have been held in Osh

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oblast. The participants to central training should be chosen with regards to their disponibility and pedagogical skills. Too often they are attended by rayons' or oblast's responsible who have themselves too many responsibilities to be able to find enough time to be able to reproduce and disseminate the informations received during the training in their rayon.

One responsible of training should be identified in each rayon as well as at the oblast level, whose main task will be to disseminate the information he had received. He will liaise with the Ministry of Health responsible and the supervisors.

The supervisors are regularly visiting the health facilities under their responsibility, in spite of the difficulties of transport and salary and it is a very positive point. But their role has to be reviewed in order to make these visits more efficient especially with regards to training: treating sick children should not be their major task. Observing the consultation is essential to advice and upgrade the health worker's knowledge. Regular review of the different activities of the health facility are also under their responsibility in order to recognize any problems and discuss solutions with the health worker as well as with the Ministry of Health's responsible.

For supporting the supervisors in these different tasks, standards checklists should be created and regularly used to identify the major problems which have to be addressed in the training program and to monitor changes over time and the impact of both training and supervision. This objective assessment would be a major tool for improving the case management of sick children.

Workshops are held and regularly attended by the health workers which could be also used to update their knowledge especially on diarrhoeal diseases and acute respiratory infections which are the two main causes of child's mortality in Kyrgyzstan. They could be organized by the responsible of training, include clinical practice, and surveyors should be train to evaluate the impact of such a formation in the field.

All together a network is already in place to improve the health worker's knowledge on management of sick children. With a better understanding of each other's role and responsibility a lot can be achieved to improve child's survival.

If regular reporting is the rule for the immunization and curative activities, the general lack of blank forms does not facilitate the monitoring of the different activities. The simplification of the immunization reporting forms was felt as a very positive point within informal discussions, and this example could be taken to simplify the other reporting forms as well. There is a general lack of paper, and if registers are kept and up to date, that requires sometimes a lot of imagination from the health workers themselves.

If a high proportion of health workers knows at least 3 signs for referral, they are far from knowing all of them. While practically no intravenous therapy was available at the outpatient department level, only 50% of the health workers answered that they would refer a severely dehydrated child. 35% would refer the child if he is vomiting everything (including the prescribed drugs...) and 35%

as well if he is lethargic or has trouble in consciousness. Stratification by health worker categories did not change the general findings.

It is a striking feature that 100% of the health workers answered that they had been at least once in the past been unable to refer a sick child, the main problems being that parents refuse to go, being unable to find somebody to look after the other children at home or/and having financial problems. If all the caretakers of children who were referred to a higher level answered that they did not have anything to pay for the drugs on that day it does not mean that the hospitalization is free of charges, on the contrary. Even food is rarely given for free.

These findings are essential. Parents sometimes don't have the means to follow the health worker's advice when the child's condition is diagnosed as serious and needs referral. In another hand, it seems that the criteria for hospitalization are confusing and should be further clarified as we were told that over 38° of fever, every child should be hospitalized. The hospitals are interested to have enough children hospitalized as the bed occupancy rate conditions the budget that they will receive and that may lead to over-hospitalization of mild cases. The referral signs are not well known by the health workers. This confusion does not help the parents to take the life saving decision for their child.

The WHO protocol on classification and treatment of diarrhoea was available for 88% of the health workers. At the question "can we see it?", the surveyors stated that it took sometimes quite a while for the health worker to be able to localize the guide line and it was stated that if one exemplar exists, it is not readily available for all the health workers at the time of the consultation, but rather locked in the director's desk. That may be reflected by the 22/40 (55%) of health workers who are complaining of lack of learning supplies.

4. SELECTION OF PROGRAM INDICATORS

On the third week, discussion of the results found for the main indicators took place. The global results are given in annexe. Within each of the four main class of indicators, feasible solutions to improve their score were proposed. They are hereby not ranked, but were chosen with regards to the feasibility to improve them with a minimum of additional resources and within short term programs.

The selected key program indicators will be used to monitor and evaluate progress over time, as well as to develop specific program activities. A lot of emphasize was given to training and supervision.

- **1. Proportion of health workers who has received at least one day training including clinical practice in management of diarrhoea in children under 5 years of age in the last 12 months.**

Baseline 0%

- **2. Proportion of health workers who have received at least one day training including clinical practice in management of acute respiratory infections of children under 5 years in the last 12 months.**

Baseline 0%

Supportive indicators

Proportion of rayons where one responsible for training has been chosen.

Proportion of rayons where this responsible has received at least a 3 day training including clinical practice on management of diarrhoeal diseases and acute respiratory infections.

Baseline 0%

- **3. Proportion of facilities that have received at least one supervisory visit in the last 2 months.**

Baseline within the last 6 months: 95%

Supportive indicators

Distribution of the tasks performed by the supervisor during the last visit.

- **4. Clinical assessment**

Proportion of children screened for severe illness.

Baseline: 2.5%

Proportion of caretakers of sick children who were asked all key history questions.

Baseline: 4%

Proportion of diarrhoea examined appropriately.

Baseline: 56%

Proportion of ARI cases who had the respiratory rate counted.

Baseline: 19%

Proportion of health workers who know ALL the referral signs.

Baseline: 0%

Supportive indicators

Distribution of the referral signs they report.

- **5. Proportion of diarrhoeal cases which are appropriately treated**

Baseline 48%

- **6. Proportion of ARI cases which are appropriately treated**

Baseline 29%

Supportive information

Proportion of health workers who has the national ARI guide lines in their possession.

Baseline: unknown

- **7. Proportion of health facilities with essential medications available on the day of the survey.**

Baseline: 39%

- **8. Immunization**

Proportion of refrigerators which have a thermometer inside.

Baseline: 72%

Proportion of facilities with up to date temperature chart:

Baseline 44%

- **9. Caretaker's knowledge**

Proportion of caretakers who knows at least two severity signs (excluding fever continues, and child is getting worse)

Baseline 23%

5. RECOMMENDATIONS PERTAINING TO IMPROVEMENT OF THESE SELECTED INDICATORS

Proportion of health workers who have received at least one day training including practices

It was felt that if training in the integrated approach will be the best, it may be difficult to make it happened at rayon level within a day. But health workers are practically all coming to the rayon level once a month and for one day. This existing fact should be used to organize training on one disease at a time, with regular sensibilization on the integrated approach. Lectures should not be the only rule, and health workers should feel free to report on the difficulties they meet to apply the recommendations. Otherwise the training will be of lesser practical value. Clinical practices is another important training issue, but are difficult to organize unless the number of participants is settled to a minimum. Recommendations, as it is discussed further, have to be clearly stated by the Ministry of Health of Kyrgyzstan, and not only by international organizations following the WHO recommendations.

While it has been shown that health workers need further training in the case management of children diseases, it is also clear that an effective path has to be designed in order to be sure that any training received at the central level will be disseminate and reach health workers at the periphery. Training should address key issues as systematic assessment of the severity of the child's condition, systematic checking of all 4 areas pertaining to high child's mortality and disability, appropriate examination and appropriate treatment given. The integrated approach should be mentioned even if immunization and nutrition activities are taken in charge by other health personal. Interpersonal communication with the caretakers should be given full consideration.

This strategy will be reinforced by an ongoing supervision system, where the role of the supervisors will be reviewed.

Recommendations

- Chose one doctor in each rayon whose main task will be to disseminate the training he himself will received. This person should be chosen with regards to her disponibility and pedagogical skills and not to his rank in the hierarchy. Most of the pediatrians who participated to this survey are really aware of the importance of developing such a function and could be chosen.
- Develop a unit at the oblast level where these doctors will be trained in the case management of the sick child especially for diarrhoeal diseases and acute respiratory infections. This training should include clinical practices.

- Provide these persons with a clear job description of their role and responsibilities in their rayon.
- Provide these persons with the necessary means to conduct training in their rayons: any training material available at the central level should be regularly sent to the rayons.
- Develop their knowledge in the use of objective tools for measuring the impact of the activity.

**Proportion of facilities that have received at least one supervisory visit in the last 2 months.
Distribution of the tasks performed by the supervisor during his last visit.**

Visits from a higher health level exists regularly. Anyhow, this ongoing activity could be slowly reduced due to economical difficulties. That is the reason why this indicator, which baseline is good, has to be thoroughly followed.

A supervision network exists particularly for the FAP level and supervisory visits are being made in spite of the difficulties. But the distribution of tasks performed by the supervisor is not satisfying. The supervisor's role should be reviewed, and his responsibility in sustaining skills of the health workers emphasized. Supervision can be strengthened by training supervisors to evaluate systematically the different services provided by the health facility, using a supervisory checklist. Another checklist can be created to help them to assess the quality of the management of the sick child, while observing the consultation. These objective tools will be essential to monitor the impact of training sessions received, and to detect in time any problem pertaining to case management of the sick child.

Supervisors and responsible of training should liaise monthly. Responsible of training should as well report monthly to the responsible of training of the oblast and to the Ministry of Health authorities.

Recommendations

- Develop a comprehensive job description for the supervisors.
- Develop an integrated supervisory checklist based on key program indicators.
- Develop a specific checklist to support an objective assessment of the quality of the case management of the sick child by the health worker.
- Develop the use of these checklists to monitor program activities.
- Conduct monthly meeting between the supervisors and the responsible of training, in order to identify major problems to effective case management of sick children, and discuss solutions.

Supervision should be particularly strengthened at the peripheral level. The supervision's task should be taken within their working hours. It should not be another burden on their shoulders, while 1/4 of the former posts are actually unoccupied.

Clinical assessment of sick children

This survey has pointed out important omissions in the assessment of the sick child. Both formal training and supervision practices should use these findings to improve the quality of the assessment and emphasize the integrated approach of the general condition of the child: screening for severity signs and all history questions asked should be systematically assessed. For ARI counting of respiratory rate should become a systematical behavior. Parents will be sensibilized and may reproduce this positive attitude at home, to recognize the severity of their child's condition, and the need for help. Diarrhoea cases should be systematically asked both questions on duration and blood in the stool as well as degree of skin turgor systematically assessed and degree of dehydration systematically stated.

In Kyrgyzstan where a network for referral exists even if the referral rules should be clarified, the poor knowledge of the referral signs by the health workers is a major problem.

Recommendations

- Create a supervisor's checklist for the evaluation of the clinical assessment of the sick child based on the main findings of this survey. This checklist will help the supervisor to lead the discussion and conduct the on-the-spot training, at the end of the consultations. It will be a regular baseline who will help him to strengthen his advice on the weakest points to assess for the health workers under his responsibility.
- Promote the integrated approach of the management of the sick child in medical universities, and during the refreshment courses of health workers.

Appropriate treatment

If the use of the WHO guide line for diarrhoea is the actual national protocol, it was less clear for the acute respiratory infections. This point has to be clarified before any training or effective supervision programs on classification of ARIs and their treatment can start. Anyhow, overuse of antibiotics for mild cases seem general. Possible barriers to the acceptance of symptomatic treatments for cases which don't need more should be further investigated. The caretakers are already under using the health facilities, and they may be a strong belief in the population that antibiotics are the best treatment for diarrhoea or even mild respiratory symptoms. Any recommendations on the correct use of antibiotics should be done both at the health worker and the population levels in order not to worsen the already existing habit to not visit the health facilities for advice.

Recommendations

- Discuss with the national health authorities the rationales for the use of the WHO recommendations in the classification and treatment of ARI.
- Develop and diffuse at all levels a national protocol of classification and treatment of ARI cases.
- Distribute more widely the WHO recommendations for classification and treatment of diarrhoea. Each health worker should have one.

Interpersonal communications and caretaker's knowledge

It seems that there are important barriers to communication. 68% of the health workers stated that the parents don't follow their advice anyway, and 20% that parents don't understand. Those findings should be further investigated. If some key messages are well known by the health workers and the caretakers, like the necessity to continue feeding/breastfeeding at home or the importance to give ORS for diarrhoea, improving the knowledge of both health workers and parents on the severity signs to watch out will be crucial for improving child's survival. The health workers reported the lack of training material to support them in this responsibility. Anyhow simple messages like how to give medicine at home were not given half of the time. On the other hand, all the caretakers said that their knowledge about immunization comes from the health workers, which is quite positive. 77% of the caretakers are watching TV. Some programs on health are regularly shown, but it was said that they are too long and sophisticated. Short and key messages should be created and regularly shown.

Recommendations

- Emphasize during training and supervision the importance of interpersonal communication in the case management of a sick child.
- Create and distribute pamphlets to all caretakers, through health facilities and maternities. These pamphlets should contain general advices on nutrition, immunization and on home management of a sick child as well as more specific advices on the two main killer diseases for children in Kyrgyzstan. Special attention should be given to the recognition of severity signs and the necessity to seek health advice as soon as those signs are recognized.
- Develop short TV spots addressed to care takers with the same contents than the pamphlet.
- Develop the use of written prescription given and kept by the caretaker at home.

Proportion of health facilities with Cotrimoxazole and ORS available on the day of the survey.

The lack of essential drugs for the outpatient department is general. To improve the case management of sick children, it is crucial that drugs are both available and not wasted.

The main provider in this sample was humanitarian help, but it was said that this help is more often targeted to the in patient departments.

At first, the function of the outpatient department has to be clearly defined: Doctors in the hospitals will often state that all dysentery cases, and all simple as well as severe pneumonia have to be hospitalized, therefore there is no reason to give these essential drugs to the outpatient department. In the other hand, children are dying of these diseases in Osh oblast because of delay in starting the treatment and late referral. Economical considerations should be kept in minds, and all the health workers reported that they were not able to refer a sick child at least once in the past, because the parents refused to go (or did not have the means to go...). It would be interesting to evaluate the number of children who are referred to an hospital and the number who actually goes.

The path towards child's survival in Kyrgyzstan should take in consideration the increasing economical problems of the parents, the increasing difficulties of transport which makes the role of the health workers in periphery more crucial.

Once this question of responsibility given to the outpatient department is settled, several measures have to be taken. A central stock has to be constantly available either provided by humanitarian help, either by the government in case of shortfall.

To manage correctly the distribution system, tools have to be created. If morbidity registers are filled out by the health facilities, lack of reporting form is a problem to monitor the monthly case load of diarrhoeal cases, including dysentery and ARI, including simple pneumonia, and therefore to be able to extrapolate the quantity of drugs needed by each health facility at the outpatient level for this program. Regular control of the correct use of essential drugs should be part of the ongoing supervision activities to reduce their wastage.

Stock cards should be available to facilitate the monitoring of the system.

Recommendations

- Ministry of Health's authorities should clearly defined the responsibilities of the out patient department regarding diagnosis and treatment of under 5 children suffering from diarrhoea or ARI as well as undernourished children. The primary health care program's rule and responsibilities have to be clearly defined. That will certainly be difficult to achieve in these times of economical problems, where each one is fighting for keeping his position, even if these position is secondary for the child's survival program aims. Anyhow, without any clear understanding of each one responsibility, the other recommendations are useless.

- Conduct a review of the existing drug management system, and create tools to monitor the distribution of essential drugs linked to child's survival at the outpatient department level. This process will be of a major importance while discussing with any humanitarian organizations about the needs of the primary health care program and the use of the donated drugs.
- On going supervision should include review of treatment for diarrhoea and ARI cases of under 5 children. Wastage of drugs will therefore be reduced.

Immunization and Cold chain

Health workers and caretakers are aware of the importance of the immunization program. If a few children were not up to date on the day of the survey, it was mainly due to regular shortages of polio vaccines. The quality of vaccines anyhow may suffer of the frequent electricity cut-offs. It is essential that the temperature at which are kept the vaccines is thoroughly checked, and recommendations given to the health workers to prevent the vaccines to be frozen.

Recommendations

- Equip all the refrigerators with a thermometer and a freeze watch.
- Discuss simple solutions to apply when the temperature is reaching 0° Celsius.
- Train the health workers and the supervisors in the maintenance of the cold chain also in freezing times.

APPENDIX F

Kazakstan Health Facility Assessment

**Using Local Planning to improve the Quality of Child Care at
Health Facilities in Zhambul Oblast**

**Zhambul Oblast Ministry of Health
Kazakhstan Ministry of Health**

USAID/BASICS

William Adih, M.D., Dr. P.H.

December, 1996

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Annex 1: Health Facilities Visited

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Annex 4: Key Indicators and Supporting Information

ACRONYMS

ARI	Acute lower respiratory tract infections
BASICS	Basic Support for Institutionalizing Child Survival
CRB	Central Rayon Hospital
FAP	Feldsher's Midwife Point
IMR	Infant Mortality Rate
MOH	Ministry of Health
ORS	Oral Rehydration Salt
ORT	Oral Rehydration Therapy
SES	Sanitary Epidemiological Station
SUB	Rural Hospital
SVA	Rural Polyclinic
UNICEF	United Nations Children's Emergency Fund
USAID	United States Agency for International development
BASICS	Basic Support for Institutionalizing Child Survival
WHO	World Health Organization

ACKNOWLEDGMENTS

Sincere thanks go to Dr. Laurence Laummonier-Ickx, BASICS' Regional Advisor for Central Asia and the entire staff of BASICS, Almaty Office, for their important input and support in diverse ways. The technical input and support of Dr. Paul Ickx, consultant for BASICS, Central Asia, is greatly appreciated and acknowledged. Dr. Svetlana Rahimzhanovna Zhakizheva, National CDD/ARI Coordinator (MOH) and Dr. Aigul Kuttumuratova, Country Technical Officer, BASICS, Kazakstan, are specially recognized for their great contribution and support. Sincere gratitude goes to the physicians who constituted the Surveyor Team for their enthusiastic and dedicated work. Finally, special appreciation goes to all the health workers in Zhambul Oblast, the caretakers and their children who willingly participated in this assessment.

EXECUTIVE SUMMARY

A rapid health facility survey was conducted with the Zhambul Oblast Ministry of Health Kazakstan between October 31 and November 29, 1996. The facility assessment was designed to collect integrated information on the quality of case management for the common causes of childhood morbidity and mortality in the Oblast. In addition, the survey was designed to collect information on the facility itself, such as the availability of drugs, supplies, materials and clinic organization. The survey was conducted by a team of physicians drawn from the Zhambul Oblast who were then responsible for the analysis and interpretation of survey data. Facilities in five Rayons (Chuiskeyi, Lugovskoi, Merkenskiyi, Kordaiskiyi, Sarysusskiyi) and Zhambul City were sampled for this assessment. The survey found that some critical aspects of case-management and supervision are being conducted well by primary health care workers in the Oblast, and that the public health knowledge of both health workers and mothers is high in some areas. Deficiencies were found in several aspects of case-management, including the assessment of sick children, screening vaccination status, examination of children, and the education of mothers. In addition, there are gaps in the provision of training and supervision of health workers. Many facilities have adequate materials and supplies, with the most frequent problem identified being an irregular supply of drugs. Survey data were summarized as key indicators. With consideration for public health importance, feasibility to be changed in a timely fashion with existing resources, a number of the key indicators were identified to be used for program planning, and for monitoring and evaluating progress over time. It is hoped that this survey has increased the capacity of local MOH staff to collect, interpret and use survey data to manage and plan public health programs.

BACKGROUND

Kazakhstan gained full independence in 1991. It is the second largest Republic in the former Soviet Union and is bordered by the Russian Federation, China, Kyrgyzstan, Uzbekistan and Turkmenistan. The total population of the Republic in 1994 was 16, 607, 900. The birth rate dropped from 18.7 per 100 in 1993 to 18.3 in 1994. This along with a growing mortality rate and an increase in emigration has contributed to a declining population. According to IMF's estimates, the GDP at the end of 1994 amounted to US\$ 561 per capita. Although Kazakhstan has great potential, it is presently suffering from a lack of the necessary resources to bring about economic recovery, the transformation to a market economy and a revitalized system of social protection (WHO, 1995).

Maternal mortality rate has increased from 62.8% 100, 000 births in 1993 to 69.4 in 1994 (WHO, 1995). According to estimates of national specialists, 70 % of these deaths were preventable (WHO, 1995). Respiratory infections, especially pneumonia, and diarrhea are responsible for the majority of all infant and child mortality. The Infant Mortality Rate (IMR) in Kazakhstan in 1994 was reported to be 26.8 per 1000 live births (WHO, 1995). In 1994, Acute Respiratory Infections (ARI) were responsible for 25% of infant deaths while diarrhea caused 13% of infant mortality (third major cause of infant mortality, UNICEF, 1995). ARI are also the main reason for consultation in children of all age groups, accounting for 60-65% of all consultations. Morbidity due to Respiratory diseases among all diseases is 58%. (UNICEF, 1995). The episodes of Diarrhea is seasonal with increasing number of cases during the summer period (UNICEF, 1995).

In the Zhambul Oblast where this Integrated Health Facility Assessment was undertaken, although CDD/ARI programs have been implemented since 1990, IMR is still high. In the first half of 1996, IMR was 29.3 per 100 live births (Kuttummuratova, 1996). With respect to ARI mortality in 1995, of the 20 Oblasts in Kazakhstan, Zhambul ranked high in case numbers (2nd) and rates (5th). With respect to diarrhea mortality in 1995, Zhambul also ranked high in case number (2nd) and rates (2nd) (BASICS, 1996).

HEALTH FACILITY ASSESSMENT

1. OBJECTIVES

The objectives of the health facility assessment were as follows:

1. To determine
 - a) Current knowledge and practices of health care workers at outpatient clinics regarding the assessment and management of sick children.
 - b) The barriers to effective case management practices.
 - c) The adequacy of training and supervision of health workers.

- d) To use information obtained on case management practices, training, supervision and barriers to public health practice to:
 - i) Prioritize and plan improvements in outpatient health facilities at all levels, including staffing, clinic organization, equipment requirements, drug and material supplies and communication.
 - ii) Improve and develop pre-service and in-service training for health care workers in the outpatient clinic setting.
 - iii) Improve and develop a strategy for supervising and monitoring health worker performance.
2. To train Oblast and Rayon health staff in survey techniques, collection and analysis of survey data and the use of data to improve the quality of case management in outpatient health facilities.

2. METHODOLOGY

SAMPLING

It is important to emphasize that sampling was carried out in the background of concerns expressed in several quarters that lower level facilities (FAPs and SVAs) would not yield the adequate number of children that meet the inclusion criteria for the survey (sick children, 0 - 59 months old with symptoms of fever, ARI and diarrhea). Because of the current economic crisis which has resulted in shortage of drugs, supplies and materials, particularly in SVAs and FAPs, as well as lack of light and heating (it is cold at this time of the year), most FAPs, and to some extent, SVAs have not been functional.

A listing of all health facilities in 8 rayons (2 rayons that have been deemed contaminated by previous visits by BASICS, CDC and RPM were eliminated) and 2 Zhambul City facilities with Out Patient Departments was obtained and classified in to the following categories: 1) Eight CRBs, 2 Zhambul City Hospital and Polyclinics (2 other such facilities were excluded because they were selected for use as sites for practical training for surveyors), and 3 city Sanitary Medical Facilities; 2) SUBs (24); SVAs (57); and FAPS (165). To enhance the chance of finding adequate number of sick children with symptoms of fever, ARI and Diarrhea, rayons with SUBs and SVAs whose patient load was less than 4 sick children per day were eliminated. The remaining rayons formed the sampling frame and comprised category 1: 4 Rayon CRBs and 2 Zhambul City Children Hospitals; category 2: 14 SUBs; category 3: 32 SVAs; and category 4: 88 FAPs. The total number of health facilities forming the sampling frame was 140 (6+14+32+88) (Table 1).

Table 1. Sampling Frame, Zhambul Oblast Integrated Quality of Care Assessment, November 1966

LOCATION	CRB	SUB	SVA	FAP
Chuiskyi Rayon	1	1	6	16
Merkenskiy Rayon	1	1	6	32
Lygovskoi Rayon	1	4	8	24
Kordaiskiy Rayon	1	8	12	16
Zhambul City	1 (Children's Hospital # 1)			
Zhambul City	1(Children's Polyclinic # 2)			
Total	6	14	32	88

The one CRB in each of the rayons was automatically selected. In addition, one of the two Zhambul City Polyclinics was randomly selected. SUBs SVAs and FAPS were selected in the following manner:

Identification of proportion of SUBs, SVAs, and FAPs in the total number of health facilities:

The proportion of SUBs, SVAs and FAPs in the total sample was: SUBs $14/140 = 10\%$, SVAs $32/140 = 22\%$, FAPs $88/140 = 62.9\%$.

Application of proportions to the remainder of the sample size required for the survey (30-5=25 health facilities):

Application of the proportion of SUBs, SVAs and FAPs in the total sample to the sample size required yielded: SUBs were $(0.1 \times 25 = 3)$; SVAs were $(0.23 \times 25 = 6)$; FAPs were $(0.63 \times 25 = 16)$. Therefore, the sample should include 4 CRBs, and 1 Zhambul City Children's Polyclinic; 3 SUBs, 6 SVAs; and 16 FAPs $(5+3+6+16=30)$.

The names of the 14 SUBs and 32 SVAs were listed and numbered. Using a random number table, the final list of health facilities were selected. The 16 FAPS were to be identified at site (information on functional FAPs was to be obtained from CRBs, SUBs or SVAs during data collection.

Based on a six day work week, 30 facilities were visited by five groups of interviewers, with each group visiting a facility each day. Three FAPs that had to be visited on Saturday were replaced by one CRB (Sarysusskiy rayon) and two SUBs since there was the concern that FAPs and SVAs are not operational on Saturdays. The final sample, therefore, comprised 5 CRBs, and 1 Zhambul City Children's Polyclinic; 5 SUBs, 6 SVAs; and 13 FAPS. The final sample of facilities in each rayon are listed in Annex 1.

The sample consisted of all infants and children under five years of age presenting to a health facility during the period of observation whose mothers described them as having **cough/difficulty breathing/pneumonia, diarrhea or fever.**

Survey instruments

The survey instruments were designed to obtain information on key aspects of the knowledge and practices of health care workers and of caretakers of children. In addition, information was gathered on the health facility, including the availability of materials and supplies. The survey was designed to assess important aspects of the case-management of sick children.

Four survey instruments were used at each outpatient health facility: a) Observation of how a health worker manages the sick child b) Interview of health personnel regarding knowledge and practices of case management of sick children c) Exit interview with the caretaker of the child as they leave the health facility d) Assessment of facilities and supplies.

Survey instruments were translated into Russian and Kazak and administered in these two languages. Copies of the final questionnaires are included in Annex 4.

Field work

Field work was conducted by 5 teams, each comprising a supervisor and two surveyors. A coordinating team, consisting of survey consultant, BASICS National Technical Officer (NTO) and MOH ARI/CDD Coordinator supervised in the field. The team visited each team at least once. In addition, the coordinating team was responsible for collecting questionnaires and entering questionnaire data into the Epi Info data base during the survey week. At each health facility, the supervisor was responsible for introducing the team and explaining the purpose of the visit. During the clinic visit, the supervisor identified children meeting the case definition for entry into the survey and gave an identification card to the mothers of these children to ensure that they were followed in the clinic. In addition, the supervisor conducted the facility equipment and supply review section of the survey. One surveyor was stationed in the consulting room and conducted the health worker observation component of the survey; at the end of the clinic this surveyor also conducted the health worker interview. The second surveyor conducted exit interviews with caretakers as they left the clinic with their child. The supervisor monitored the performance of the surveyors regularly to ensure that questionnaires were correctly completed; errors or incomplete questionnaires were corrected in the health facility. At the end of the day, the supervisor reviewed all questionnaires for completeness and accuracy. Survey teams are listed in Annex 2.

Training of survey teams was conducted between November 11 and 16, 1996 in Zhambul City, administrative center of Zhambul Oblast. Training included a review of survey methodology and objectives, conduct of the field activities and careful review of the survey instruments. Training involved group activities, role plays and practice sessions at the OPD of a Children's Hospital. Inter-surveyor reliability was 92-96% for each of the questionnaires by the end of the training period. Field work was conducted between November 18 and 23, 1996. A different health facility was visited on each of the 6 days available for the survey. At each health facility, survey teams attended the entire clinic session which was usually conducted between 8:00am and 2:00 pm.

Data analysis

Questionnaire data were coded and then entered into EPIINFO (version 6.0) software by survey consultant and BASICS' NTO. Guided by survey consultant, data analysis was conducted between November 25 and 27, 1996 by the surveyors. Descriptive data analysis and key indicators were summarized and discussed with surveyors. The use of survey information to improve the quality of all health services was discussed, with an emphasis on how each participant would use the information in their own areas. The survey findings were used by oblast and rayon level surveyors to discuss priorities for improving the quality of maternal and child health. On November 28, 1996, surveyors presented preliminary findings to the Zhambul Oblast MOH. Over 70 health officials drawn from all over Zhambul Oblast attended the presentation at which the Chief of Oblast Health Care Dept. was the chairman.

3. RESULTS

A. General descriptive information

A total of 30 health facilities were visited and observations conducted on 191 children. The distribution of ages of children observed ranged from 1 to 59 months, with a mean of 21 months and a median of 17 months. The hours of operation of health facilities visited ranged between 6 and 10 hours, with a mean of 8.6 hours.

Out of 191 physicians assigned to the facilities visited and who have child case management responsibilities, 128, representing 67% were present on the day of survey (Table 2). Similarly, 79%, 89%, 100%, 80% of the complement of nurses, midwives, interns and feldshers respectively were present on the day of the survey. A total of 117/191(61%) of all sick children were seen by physicians and 74/191 (39%) by feldshers.

Table 1. Category of health staff with child case management responsibilities, Zhambul Oblast Integrated Quality of Care Assessment, November 1996

<i>Category</i>	<i>Assigned to facility</i>	<i>Present on day of survey</i>
Physician	191	128 (67%)
Nurse	345	274 (79%)
Midwife	37	33 (89%)
Intern	6	6 (100%)
Feldsher	60	45 (80%)

Comments

Physicians and feldshers were most frequently responsible for seeing sick children in the outpatient setting. This has implications for training: both these groups should be able to effectively assess, classify and treat common causes of infant and childhood morbidity and mortality.

B. Facility, equipment, supplies and record keeping

Patient and health worker accommodation and availability of basic equipment is summarized in Figures 1,2 and 3. The majority of all facilities visited had functional equipment available including infant and adult weighing scales, thermometers and cookers. The majority of all facilities visited had adequate seating and a functional latrine available. A little over half of the facilities had a steam sterilizer, potable water, health education posters in the local language or a functioning ORS corner available.

A refrigerator was present in 28/30 (93%) of facilities. A total of 27/28 (96%) were powered by electricity. Only a total of 7/28 (25%) were described as being functional on the day of the survey. This situation was due largely to the lack of electricity in these facilities (a result of the current economic crisis). The condition of the cold chain equipment is summarized in Figure 3; An up to date temperature chart was present in 6/7 (86%) of facilities with a functioning refrigerator. A cold box was present in 8/28 (29%) of the facilities with refrigerators, of which 5/8 (63%) were in usable condition. Frozen cold packs were present in 5/7 (71%) of facilities with a functioning refrigerator. In the 30 days before the survey, the refrigerator temperature had not been recorded to be out of the normal temperature range (0 - 8 degrees centigrade) in any of the health facilities.

Figure 1: Patient and Health Worker Accommodation
 Kazakhstan Integrated Quality of Care Assessment, November 1996

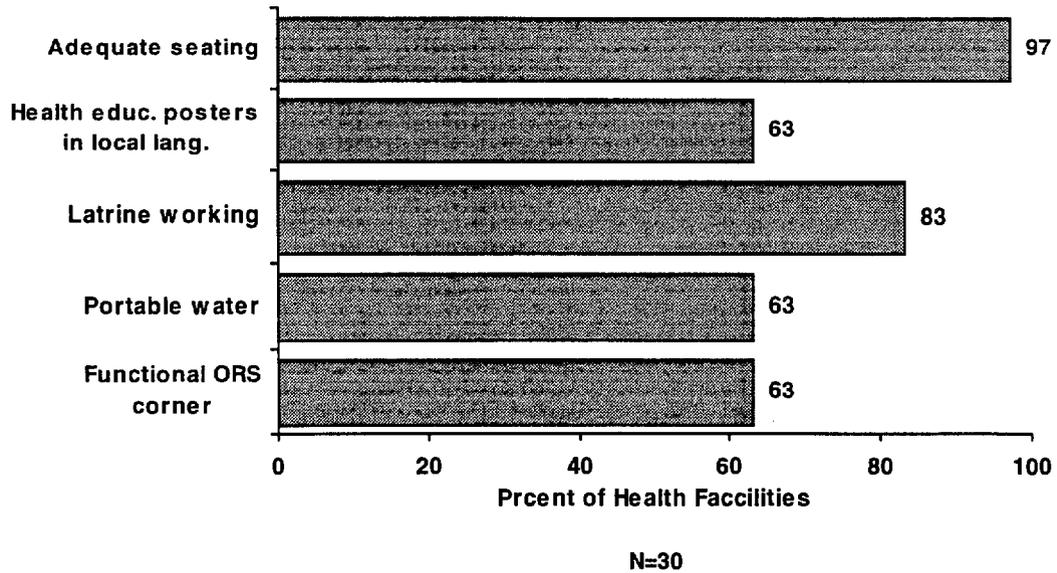


Figure 2: Availability of Functional Equipment
 Zhambul Oblast Integrated Quality of Care Assessment, November 1996

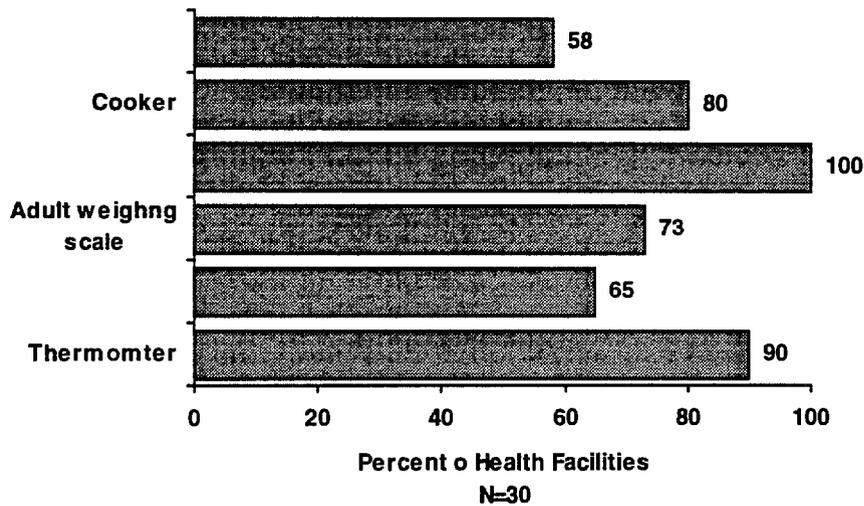
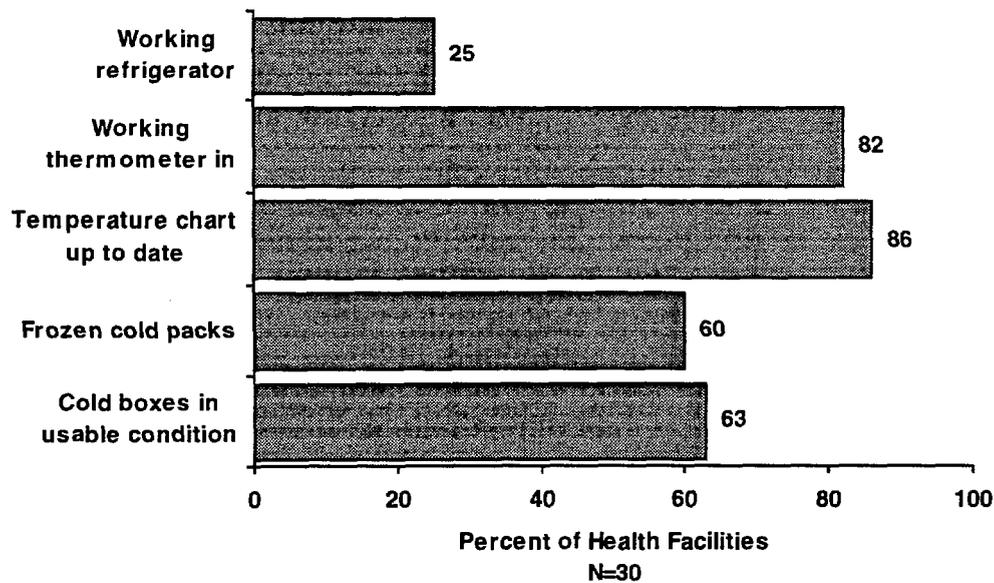


Figure 3: Availability of Cold Chain Equipment
 Zhabul Oblast Integrated Quality of Care Assessment, November 1996



The proportion of health facilities with a stock of medications, disposable needles or syringes on the day of the survey is summarized in Table 3. Of essential medications, expired cotrimoxazole was noted in the stock of 3/14 (21%) of facilities. Similarly expired paracetamol, aspirin, ORS and vitamin A were noted in 4/22 (18%), 1/6 (17%), 4/27 (15%), and 1/15 (20%) of health facilities respectively.

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**Table 3. Proportion of health facilities with stock available on the day of the survey
Zhambul Oblast Integrated Quality of Care Assessment, November 1996**

<i>STOCK ITEM</i>	<i>PROPORTION WITH STOCK AVAILABLE ON THE DAY OF SURVEY N = 30</i>
Amoxicillin	10% (3/30)
Cotrimoxazole	47% (14/30)
Paracetamol	73% (23/30)
Aspirin	20% (6/30)
ORS	90% (27/30)
Vitamin capsules	50% (15/30)
Disposable needles	47% (14/30)
Syringes	58% (17/30)

Of facilities with functional refrigerators, 5/7 (71%) had BCG available on the day of the survey. Similarly 6/7 (86%) of these facilities had Polio, DPT, measles and DT available on the day of the survey. Of facilities with functional refrigerators, expired polio, DPT and DT were noted at 1 facility (17%). However, of all the health facilities, expired polio and DPT were noted in 3/21 (14%) of facilities; measles and DT were noted in 1/20 (5%), 1/19 (5%) of facilities respectively.

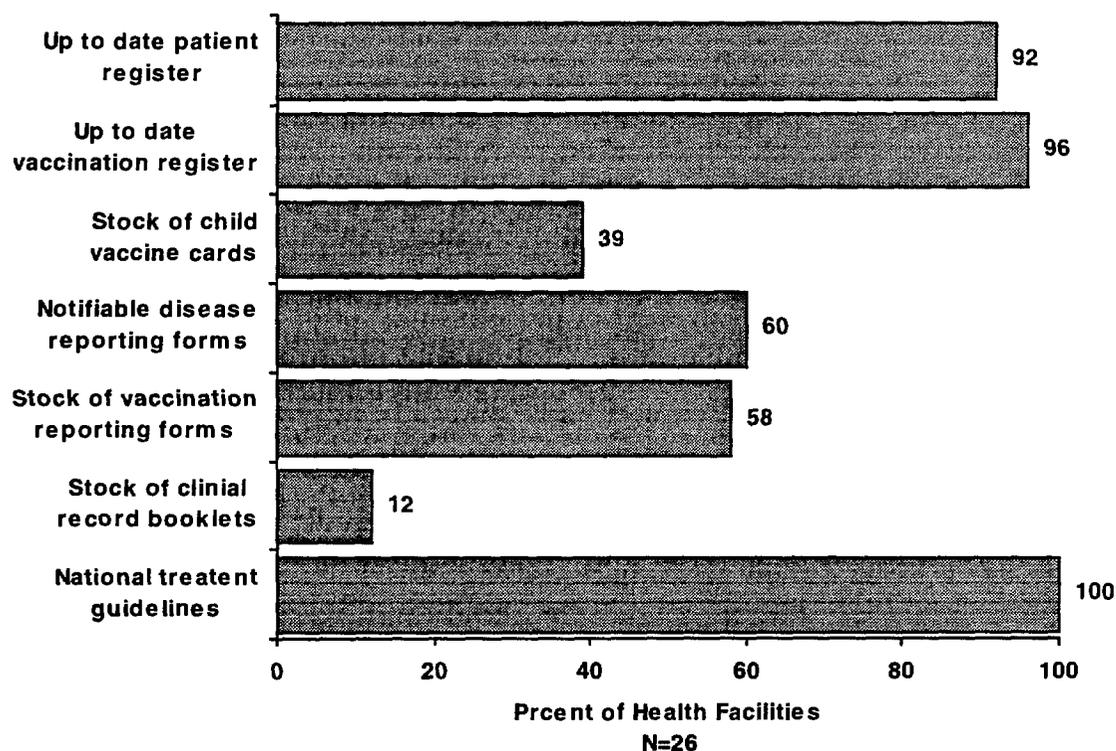
At least one stock-out of essential medications had occurred in the month preceding the survey at 15/30 (50%) of facilities. At least one stock-out of necessary cards and forms had occurred in the previous month at 12/30 (40%) of facilities. At least one stock-out of needles and syringes had occurred in the month preceding the survey at 17/30 (57%) of facilities. Supplies were most frequently provided by the Government warehouse. The most common causes of delayed supplies, according to health workers, are summarized in Table 4; financial problem was the most frequently mentioned cause of delay.

A schedule for supervisory visits was available in 17/29 (59%) of facilities and a copy of the national treatment guidelines was available in all facilities (100%). The proportion of facilities conducting basic documentation and record-keeping is summarized in Figure 4.

Table 4: Most Frequent reasons given by health workers for a rupture of essential supplies, Zhambul Oblast Integrated Quality of Care Assessment, November 1996

<i>CAUSE OF SUPPLY RUPTURE</i>	<i>PROPORTION MENTIONING</i> N=30
Financial problems	77% (23/30)
Inadequate transportation	10% (3/30)
Insufficient fuel	3% (1/30)
No stock at Central Store	3% (1/30)

**Figure 4: Availability of Documentation and Records
Zhambul Oblast Integrated Quality of Care Assessment, November 1996**



Comments

The majority of facilities had essential equipment available as well as adequate seating, potable water and latrines; all of these are required for the provision of basic child health services at the health facilities and it is encouraging that they are available at the majority of sites. A functional refrigerator was present in only 7/28 (25%) of facilities which will limit the ability of the majority of facilities to provide regular immunization services. Since this situation was due to the

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very irregular supply of electricity (there is also lack of gas), a first step will be to consider providing all facilities with kerosene refrigerators for use until supply of regular electricity is restored. This survey was carried out in November when it was very cold, so it is not surprising that refrigerator temperature had not been recorded to be out of the normal range (0 - 8) degrees centigrade. This will not be the case when the weather warms up. In the mean time, health workers have devised means of preserving vaccines, including keeping them in below-ground storage and in refrigerators in Sanitary Epidemiological Stations (SES) where supply of electricity is less irregular. The vaccines are sent to the health facilities in cold boxes on days of vaccination. A cold box was present in only 8/28 (29%) of health facilities with refrigerators, of which 5/8 (63%) were in usable condition. All health facilities must be provided with cold boxes and existing cold boxes should be rehabilitated while strengthening the ability of health workers to provide regular cold box maintenance. Ninety percent of facilities did not have at least one essential medication available on the day of the survey and 50% of facilities had experienced at least one stock-out of essential medications in the previous month. Delays in the delivery of essential supplies will impact on the quality of case-management that can be provided. There are a number of points at which the delivery of drug supplies to facilities could be compromised, including the ordering and delivery of drugs to peripheral sites, the maintenance and use of stock inventories and at the level of the central store. At many health facilities, supplies need to be picked up from a central store by health workers who often did not have the means to do so. An assessment of the mechanisms for delivering drugs and supplies to peripheral sites should be considered. Only 59% of health facilities had a schedule of supervisory visits. Introduction of a schedule of supervisory visits should be considered as part of a strategy to improve routine supervision and quality of care.

C. Observation of sick children

Of 191 children observed a total of 60 (31%) were described as having fever, 161 (84%) ARI and 28 (15%) diarrhea. The number of children described as having both ARI and diarrhea was 41/144 (28%) and the number of children with all three symptoms was 30/144 (21%).

The median consultation time was 10 minutes, with a range between 4 and 22 minutes. The histories taken by health workers for children with fever, ARI and diarrhea are summarized in Table 5. Of questions to assess the severity of illness (eating, drinking, breastfeeding, convulsions, change in consciousness and vomiting), those regarding breastfeeding, vomiting and convulsions were not asked by the majority of health workers. Most health workers asked history questions about the presenting illness and the duration of this illness, with 98% of health workers asking about the history of fever if this was the presenting complaint, 98% asking about a history of ARI and 100% about a history of diarrhea. Over 80% of health workers who asked about the history of the presenting complaint, also assessed the duration of the illness. Questions about a history of diarrhea were asked to 59% of all caretakers, regardless of the presenting complaint, with questions about a history of fever being asked to 90% of all caretakers and questions about a history of ARI to 91% of all caretakers. Questions about treatment with western medicines prior to coming to the clinic were asked in 41% of cases and questions about the use of traditional medicines prior to the clinic visit were asked less frequently (35%).

Table 5: History questions asked to the mothers of sick infants and children by presenting complaint, Zhambul Oblast Integrated Quality of Care Assessment, November 1996

HISTORY QUESTIONS	PRESENTING COMPLAINT			
	FEVER N=60	ARI N=161	DIARRHEA N=28	TOTAL N=191
Eating/drinking	92%	87%	100%	89%
Breast-feeding	50%	58%	64%	56%
Convulsions	13%	19%	4%	16%
Change in consciousness	75%	68%	79%	70%
Vomiting	33%	24%	86%	30%
Duration of illness	80%	89%	89%	
Home treatment: traditional	42%	35%	32%	35%
Home treatment: western	40%	43%	32%	41%
Hx of ear problems	25%	27%	18%	27%
Hx. of fever	98%			90%
Hx. of coughing or difficulty breathing		98%		91%
Hx. of diarrhea			100%	59%
Blood in stool			36%	9%

The health worker checked or asked about the child's immunization status in 52/191 (27%) of cases. Of 43 children who were not up to date with their vaccination, none was referred for vaccination on the day of the visit and only 3 were referred for vaccination on another day. The proportion of mothers who were asked about their own diphtheria status at the time of the consultation for their child was 3/191(2%). Of the 3 instances, none was referred for vaccination on the day of the sick child visit and 1 was referred for vaccination on another day. Interviews with mothers after they had left the consultation found that 33/160 (21%) of women coming to facilities with their children had never received a Td vaccination.

The proportion of infants and children examined by examination area is summarized in Table 6. Few of the children were weighed, plotted on a growth chart or observed for signs of malnutrition. Almost a third were screened for conjunctival pallor. The respiratory rate was counted in only 28% of cases, with most respiratory examinations conducted with a stethoscope. Of those cases with a presenting complaint of diarrhea 46% had the skin turgor checked for signs of dehydration. The ears were examined in 32% of cases.

Table 6: Number of children examined by examination area, Zhambul Oblast Integrated Quality of Care Assessment, November 1996

EXAMINATION AREA	PROPORTION OF CHILDREN EXAMINED			
	FEVER N=60	ARI N=161	DIARRHEA N=28	TOTAL N=191
Weighed the child	38%	38%	54%	40%
Plotted weight/age	32%	32%	32%	32%
Observed nutritional state	18%	12%	39%	20%
Conjunctival pallor	32%	26%	32%	28%
Chest: count respiratory rate	28%	39%		34%
Chest: stethoscope	97%	97%		95%
Ears	33%	30%		32%
Skin turgor			46%	18%

Appropriate treatment was defined according to the National Treatment Guidelines and based on the diagnosis made by the health worker. The overall number of children treated appropriately according to the diagnosis made by the health worker was 90/191 (47%). Treatment for diarrhea, dysentery, and respiratory tract infections is summarized in Table 7. While the majority of cases of simple diarrhea were treated appropriately, the two cases of dysentery were treated inappropriately. Less than half (43%) of the cases of upper respiratory tract infections (cough, sore throat, bronchitis) were treated appropriately. Sixty seven percent of cases of lower respiratory tract infections (pneumonia) received appropriately treatment.

Table 7. Proportion of cases treated appropriately according to National Treatment Guidelines, Zhambul Oblast Integrated Quality of Care Assessment, November 1996

<i>HEALTH WORKER DIAGNOSIS</i>	<i>% TREATED APPROPRIATELY</i>
Simple Diarrhea	85% (24/26)
Dysentery	0% (0/2)
URTI (Cough, sore throat, bronchitis)	43%/159)
LRTI (Pneumonia)	67% (6/9)

Treatment received according to the diagnosis made by the health worker is summarized in Table 8. The majority of cases of diarrhea received an oral rehydration fluid, but a high proportion of diarrhea cases were given an antibiotic. A high proportion of simple upper respiratory tract infections were also given antibiotics.

Table 8. Treatment given by Health workers by diagnostic category, Zhambul Oblast Integrated Quality of Care Assessment, November 1996

<i>DIAGNOSIS AND TREATMENT</i>	<i>PROPORTION GIVEN</i>
Simple Diarrhea: Given ORT	92% (24/26)
Simple Diarrhea: Given antidiarrheal	4% (1/26)
Simple Diarrhea: Given antibiotic	39% (10/26)
URTI: Given antibiotic	59% (93/159)

Health education messages given to mothers at the time of the interview are summarized in Table 9. Key messages were not consistently given, in particular advice to continue feeding or breastfeeding and to return if the child worsened at home (51% and 42% respectively). Advice was given on how to administer oral medications in almost 87% of cases, but health workers rarely demonstrated how to give oral medications or verified that caretakers had understood correctly (10% and 21% respectively).

Table 9: Health education messages given to mothers by health workers by diagnosis, Zhabul Oblast Integrated Quality of Care Assessment, November 1996

MESSAGE GIVEN	HEALTH WORKER DIAGNOSIS			
	UPRTI (N=152)	PNEUMONIA (N=9)	DIARRHEA (N=25)	TOTAL (N=182)
Explain how to administer medications	90% (137/152)	89% (8/9)	68% (17/25)	87% (158/182)
Demonstrate how to administer medications	8% (12/152)	11% (1/9)	24% (6/25)	10% (19/182)
Verify caretakers comprehension of how to administer medications	20% (30/152)	11% (1/9)	36% (9/25)	21% (39/182)
When to return for follow-up	85% (129/152)	67% (6/9)	88% (22/25)	86% (156/182)
Give the same or more fluids	65% (103/152)	67% (6/9)	88% (22/25)	71% (129/182)
Continue feeding or breastfeeding	49% (75/152)	22% (2/9)	72% (18/25)	51% (93/182)
Return if the child becomes worse; gives at least 2 signs of severity	39% (59/152)	44% (4/9)	56% (14/25)	42% (76/182)

Of children for whom ORS was prescribed, 23/25 (92%) were given an explanation on how to prepare it at home. To verify the comprehension of how to give ORS, health workers asked only 1/25 (4%) of caretakers to demonstrate how to prepare ORS. Demonstrations on how to prepare ORS were given to only 4/25 (16%) of caretakers.

Health workers infrequently gave instructions on when to return with their sick children. Messages given to caretakers on when to return are summarized in Table 10. The most frequently given general messages were to return if the child became sicker (78/191, 41%) and if fever developed (81/91, 42%). Health workers rarely instructed caretakers to return if their child was not drinking (19/191, 10%) or eating/breastfeeding (10/191, 5%).

Health workers criticized caretakers about the management of their children in 16/191 (8%) of cases. Open ended questions to check whether the caretaker had understood were asked in 89//191 (47%) of cases and caretakers were asked if they had any questions in 55/191 (29%) of cases.

Table 10: Health education messages on signs of when to return with the child by health workers by diagnosis, Zhambul Oblast Integrated Quality of Care Assessment, November 1996

MESSAGE GIVEN	HEALTH WORKER DIAGNOSIS			
	URTI (N=159)	PNEUMONIA (N=9)	DIARRHEA (N=26)	TOTAL
Not drinking	6% (10/159)	0% (0/9)	46% (12/26)	10% (19/191)
Not eating or breast-feeding	3% (4/159)	0% (0/9)	15% (4/26)	5% (10/191)
Getting sicker	35% (56/159)	44% (4/9)	69% (18/26)	41% (78/191)
Fever persists or develops	42% (66/159)	22% (4/9)	46% (12/26)	42% (81/191)
Develops fast or difficult breathing	18% (29/159)	33% (3/9)		17% (33/191)
Develops blood in the stool			15% (3/26)	2% (4/191)

Comments

The average consultation time for all outpatient visits was 10 minutes. All training designed to improve the case-management practices of health workers should take this into consideration; it is unlikely that health workers will consistently practice strategies which require more than 10 minutes to complete. A high proportion of all cases were asked history questions about the presenting illness and the duration of the symptoms which are key to the assessment and classification of sick children. Health workers did not ask all the questions which are considered important for assessing the severity of the illness, in particular a history of convulsions, vomiting

and breastfeeding were asked much less frequently. Performance was better for questions which were specific for the presenting complaint, although only a relatively small proportion of cases of diarrhea were asked about a history of blood in the stool. Improved training could reinforce the importance of each of these areas when assessing all sick children.

Health workers asked or checked children's vaccination status in a low proportion of cases. In addition, the proportion of mothers who were asked about their own diphtheria status was very low (2%). Exit interview data suggest that 23 % of children and 21% of mothers coming to facilities who are eligible for vaccination were not referred for vaccination on the day of vaccination. These data suggest that health workers are missing opportunities to vaccinate children and their mothers. Awareness of the importance of checking the vaccination cards of children and their mothers is low. Vaccinating a child and their mother, or referring them for vaccination, at the time of the sick visit is a critical strategy for reducing missed opportunities to vaccinate. Health worker training could stress the importance of this activity; asking for and checking the vaccination card is simple, does not require much time to complete and does not require additional resources. Facilities that do not vaccinate daily should at least ensure that the mother understands that she should return with her child on the day that vaccinations are given.

A small proportion of children had their nutritional status assessed (looking for visible "wasting"). A low proportion of all children were weighed and plotted on a growth monitoring chart. Very few children were observed for overall nutritional status (wasting and observing for pallor, 17/191, 9%). A full nutritional assessment is considered to be important for all sick children. For those children with a complaint of ARI, the chest was usually examined with a stethoscope; counting respiratory rate was infrequently practiced, although it is a sensitive diagnostic measure of the severity of lower respiratory tract infections. The ears were infrequently examined as a component of an assessment for fever or ARI. Only a 46% of children with diarrhea had skin turgor assessed. The importance of a complete nutritional assessment should be emphasized during health worker training and supervision. Counting respiratory rate should be reinforced as a technique for assessing lower respiratory tract infections. All children with simple diarrhea should have their hydration status assessed. Many of these clinical tasks are simple and not time consuming; improved training and supervision should stress a simple and systematic approach to all sick children using existing resources.

A high proportion of health workers treated children with simple diarrhea appropriately according to their own diagnosis. A lower proportion of cases of upper respiratory tract infections and pneumonia were treated appropriately. Although ORT was given frequently in the treatment of simple diarrhea, antibiotics were overused. Antibiotics were also being given for a high proportion of cases of simple upper respiratory tract infections. The assessment and classification of sick children was not validated, so this measure does not necessarily reflect the quality of the diagnosis made. Appropriate treatment for common diseases should be reinforced as part of pre- and in- service training and supervision.

Key health education messages on the management of sick children at home were not consistently given. Very few caretakers were given information on the signs of severity at home that should prompt them to bring the child back to the health facility. All of these messages are considered essential for the management of sick children at home in order to prevent mortality.

This component of case management was least well conducted by health workers, and could also be addressed through strengthened training and supervision. Improving the messages given to mothers does not require any additional resources and should not require a lot of time if health workers are familiar with the key messages.

D. Interview with the caretakers of sick infants and children

The time taken by mothers to reach the health facility ranged from 2 to 90 minutes, with a median time of 10 minutes. Overall, 26/190 (14%) of caretakers reported experiencing problems getting to the health facility on the day of the survey. Reported problems were that it took too long to get to the facility (10/26, 39%) and the need to find someone to look after the other children (9/26), 35%).

Caretakers had taken their child somewhere else for the same illness before coming to the health facility in 24/190 (13%) of cases. Providers visited are summarized in Table 11. The most frequent providers visited were traditional healers, other health facilities, drug sellers and pharmacists. The determination of the number of days between the onset of illness and clinic visit would not be reliable because instead of "number of days" for a response option, the Russian and Kazak translations carried "few days." This anomaly was discovered the first few days of data collection and we tried to rectify it during supervision. Unfortunately, the information could not reach some teams in the field early enough. So that while some of the caretakers indicated # days, others selected the option "few days."

Table 11. Providers visited by care takers before the clinic visit for the same illness, Zhabul Oblast Integrated Quality of Care Assessment, November 1996

<i>PROBLEM</i>	<i>TOTAL</i>
Another health facility	29% (7/24)
Traditional Healer	54% (13/24)
Drug seller or pharmacist	17% (4/24)

Of all children whose caretakers described them as having diarrhea, 19/32 (59%) said that they had done something to treat their infant or child at home. Home treatment of diarrhea is summarized in Table 12.

Table 12. Home case management provided by caretaker for children with diarrhea, Zhambul Oblast Integrated Quality of Care Assessment, November 1996

<i>HOME MANAGEMENT STRATEGY</i>	<i>TOTAL</i>
ORS	63% (15/24)
Traditional therapies	8% (2/24)
Continued breastfeeding	8% (2/24)
Continued to feed	4% (1/24)

All the caretakers of children with diarrhea had previously heard of ORS 32/32, 100%). Of these caretakers, 5/32 (16%) knew correctly why ORS is given to children with diarrhea while 23/32 (72%) believed that it would stop the diarrhea. Overall, 28/32 (88%) of caretakers knew correctly how to prepare ORS.

A total of 57/71 (80%) of caretakers who said that their infant or child had fever had done something to treat their child at home. Home treatment of fever is summarized in Table 13. The most frequent home treatment for fever was aspirin/paracetamol (48%) and rubbing ointment or spirit (26%).

Table 13: Home case management provided by caretakers of children with fever, Zhambul Oblast Integrated Quality of Care Assessment, November 1996

<i>HOME MANAGEMENT STRATEGY</i>	<i>TOTAL</i>
Aspirin/paracetamol	48% (42/87)
Antibiotic	8% (7/87)
Rubbing with ointment/spiritus	26% (23/87)
Traditional Medicine	9% (8/87)
Removed clothes	6% (5/87)

A total of 119/163 (70%) of mothers who said that their infant or child had ARI had done something to treat their child at home. Home case management strategies are summarized in Table 14. The most frequent home treatments were the use of rubbing with ointment or spirit (33%) and traditional medicines (23%).

Table 14: Home case management provided by caretakers of children with ARI, Zhambul Oblast Integrated Quality of Care Assessment, November 1996

<i>HOME MANGEMENT STRATGY</i>	<i>TOTAL</i>
Aspirin/paracetamol	7% (14/201)
Antibiotic	14% (28/201)
Cough medicine	15% (30/201)
Traditional medicine	23% (46/201)
Rubbing with ointment/spiritus	33% (67/201)

The proportion of mothers with correct knowledge of how to administer the oral medication given to them by the health worker is summarized in Table 15. Caretakers were asked to describe the daily dose and the number of days for which they would give the medicine. To be correct, the amount of each dose, number of times a day that they would give this dose and the number of days for which they would continue had to be correct according to the national treatment guidelines for each medication. Correct knowledge of correct administration of oral medications was just fairly high for antibiotics and antipyretic agents. Seventy six percent of caregivers knew the dosage schedule for ORS. The most frequent error for the administration of antibiotics was that caretakers did not know how long to give them, or reported that they would give them for less than 5 days.

Table 15: Proportion of mothers with correct knowledge of how to administer oral medications by medication, Zhambul Oblast Integrated Quality of Care Assessment, November 1996

<i>MEDICATION</i>	<i>CORRECT KNOWLEDGE OF DOSAGE SCHEDULE</i>
Antibiotic	59% (65/110)
Paracetamol or aspirin	61% (51/83)
ORS	76% (16/21)

The proportion of caretakers who knew at least two general strategy for the management of their child at home was 118/190 (62%). General home case management strategies were not illness specific and included continuing to feed or breastfeed, to complete the course of treatment and to bring the child back if they got worse at home.

A total of 178/190 (94%) of caretakers knew at least 2 signs of worsening or severe illness in their child at home. The most frequently reported signs of severe illness at home were high or persistent fever (49%), difficulty breathing (42%) and inability to eat (14%).

The situation cited most by caretakers as the one that would prompt them to bring the child back to the health facility is if the child becomes sick or the need for follow-up (49% of all situations). Next caretakers said they would bring the child back to the health facility for the next vaccination (34% of all situations).

Radio was listened to every day by 43/190 (23%) of caretakers. Sixty four percent of caretakers never listen to the radio. While 90/190 (47%) of caretakers watch TV every day, 12/190 (6%) watch TV at least once a week and 33/190 (17%) never watch TV.

Comments

Only 14% of caretakers coming to health facilities had experienced a problem getting to the health facility. Problems reported were that it took too long to get to the facility and the need to find someone to look after the other children. It is important that health workers and health planners are aware of these factors when planning health education strategies aimed at encouraging mothers to bring their children to health facilities when they notice danger signs.

A substantial number of caretakers (13%) went somewhere else for the same illness before coming to the health facility, most frequently to traditional healers and drug sellers. It may be important to develop health education programs to improve the management of children in the community. Over one half of caretakers reported treating diarrhea at home, with 8% of them giving traditional therapies. Oral fluids are fairly used for the treatment of children with diarrhea at home. The use of traditional therapies for the treatment of children with diarrhea is likely to be an ineffective management strategy and may be associated with complications. A high proportion of caretakers had heard of ORS and knowledge of how to prepare ORS was high amongst those who had ever been shown how to prepare it. It is worth noting that a high proportion of caretakers believed, incorrectly, that ORS would stop their child's diarrhea which may lead to reduced compliance with therapy at home. All essential aspects of home case-management for diarrhea may be reinforced by improving the ability of health workers to better counsel mothers at the time of the facility visit.

The caretakers of 80% of all children with fever had treated their children at home. Aspirin or paracetamol was the most frequently used treatment approach, followed by rubbing with ointment or spirit. Antibiotics were given to 8% of children with fever. The regular use of antipyretic agents at home is encouraging. Antibiotics may be overused at home.

The caretakers of 70% of all children with ARI had treated their children at home. The most frequently used home treatment strategy were rubbing with ointment or spirit and traditional medicines. The types and usage patterns for traditional medicines should be further investigated.

Knowledge of caretakers on how to give oral medications was just fairly high for antibiotics and antipyretic agents. Just about 60% of caregivers had the correct knowledge of the dosage schedule for antibiotics and paracetamol or aspirin. This measure does not distinguish between errors made because health workers had incorrectly prescribed the medication (providers do not have correct knowledge of the dosage schedule) or because caretakers had not understood correct instructions (providers do not communicate the dosage schedule effectively to mothers). In

either case, there is a need to improve the prescribing practices of health workers to focus on both the correct dosage of commonly used medications and on strategies for communicating these dosages to caretakers.

Over half of the caretakers of sick children knew how to manage their children correctly at home and understood signs of worsening or severe illness. This is an encouraging finding; these behaviors are critical to reducing mortality from the common childhood diseases. Never-the-less a substantial proportion of caretakers do not have good knowledge of home case management or of when to seek care for their children; improving communication between health workers and their clients is required to further reinforce these principles.

E. Interview with the health care worker

Overall, 29/30 (97%) of health workers had a supervisor. Of those health workers with supervisors, 18/29 (62%) had received at least 1 supervisory visit over the 6 months preceding the survey. Overall, therefore, 18/30 (60%) of all health workers had received at least 1 supervisory visit in the previous 6 months. Of those health workers who had supervisors, 28/29 (97%) had received some type of feedback from the last supervisory visit. The most frequent form of feedback provided by supervisors was oral report which had been provided to 21/28 (75%) of health workers followed by written reports which had been provided to 6/28 (21%) at the time of the last supervisory visit. Table 16 summarizes what supervisors had done at the time of the last supervisory visit.

Table 16. Supervisors activities at the time of the last supervisory visit, Zhambul Oblast Integrated Quality of Care Assessment, November 1996

<i>ACTION</i>	<i>TOTAL</i>
Delivered supplies	3% (1/29)
Observed vaccination session	28% (8/29)
Discussed problems with medicines and supplies	7% (2/29)
Viewed reports	62% (18/29)
Updated health workers on current information	52% (15/29)
Observed case management practices	62% (18/29)
Treat sick children	76% (22/29)

The most frequent uses for routine report information were for assessing targets (14/19 (74%)) and for epidemiological surveillance 8/29 (28%). The proportion of health workers reporting that they had received feedback from routine reports was 28/30 (93%).

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The most common problems reported by health workers when doing their job are summarized in Table 17. The most frequently reported problems were a lack of supplies, poor working environment and a lack of transport.

Table 17: Most common problems faced by health workers, Zhambul Oblast Integrated Quality of Care Assessment, November 1996

<i>PROBLEMS REPORTED BY H.Ws</i>	<i>PROPORTION REPORTING</i>
Lack of training	3% (1/30)
Mothers don't come to clinic	33% (10/30)
Lack of personnel or time	17% (5/30)
Lack of supplies or stock	97% (29/30)
Lack of supervision	0% (0/30)
Lack of feedback	0% (0/30)
Lack of transport	63% (19/30)
Lack of motivation	37% (11/30)
Poor working environment	73% (22/30)
Lack of learning materials	10% (3/30)

The proportion of health workers responsible for seeing sick children who had received at least 1 training in the previous 12 months was 20/30 (67%). ***The question about the type of training received in the last 12 months cannot be reliably answered because the definition of training was misunderstood.*** Clinical practice was reported to be included in 8/20 (40%) of last training sessions, however the term "clinical practice" was interpreted like "clinical subject covered".

The proportion of health workers with correct knowledge of the infant/child vaccination schedule was 25/30 (83%), while 100%, 80% and 93% of health workers knew correctly the target groups for DPT, DT and Td vaccinations respectively. The number of clinic vaccination days ranged from 1 to 6 with a mean of 5 days. The number of antenatal clinic days ranged from 5 to 6 with a mean of 6.

All the health facilities conduct vaccinations. Nineteen of the facilities reported that they offered vaccination sessions 6 days a week (19/30, 63%) with 5/30 (17%) vaccinating 5 days a week and 2/30 (7%) vaccinating 3 and 2 days a week. One facility reported vaccinating 1 day a week (1/30,

3%). Antenatal clinics were offered by 23/30 (77%) of facilities. Overall, 19/23 (83%) offered antenatal clinics 6 days a week and 4/23 (17%) offered clinics 5 days a week.

**Figure 5: Health Worker Knowledge of When to Refer a Sick Child
Zhambul Oblast Integrated Quality of Care Assessment, November 1996**

All the health workers knew at least 3 signs of when to refer a sick child to hospital. Figure 5 summarizes the reasons for referral given by health workers. A total of 26/30 (87%) of health workers had wanted to refer a sick child in the past, but had been unable to do so. The reasons for being unable to refer sick children are summarized in Table 18. The most frequent reasons for non-referral were that parents didn't have enough money to pay for transportation or care and that they refused to go to a referral center.

Table 18: Reasons given by health workers for being unable to refer sick children in the past, ZhambulOblast Integrated Quality of Care Assessment, November 1996

<i>REASON GIVEN</i>	<i>TOTAL</i>
Hospital too far	27% (7/26)
Parents refused to go	92% (24/26)
No transport available	54% (14/26)
Parents didn't have enough money	88% (23/26)
No one to look after other children at home	54% (14/26)
No fuel available	19% (5/26)

All health workers interviewed believed that they had a role in communicating with the caretakers of sick children. Health workers self-described roles in communicating with caretakers are summarized in Table 19. The communication tasks most frequently given were to advise caretakers on the prevention of illnesses and what to do at home.

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Table 19: Health worker self-reported roles in communicating with caretakers, Zhabul Oblast Integrated Quality of Care Assessment, November 1996

<i>ROLE GIVEN</i>	<i>TOTAL</i>
Give signs of severe or worsening illness at home	53% (16/30)
Advise on what to do at home	57% (17/30)
Advise on how to give medicines at home	50% (15/30)
Advise on the prevention of illness	70% (21/30)
Explain when to return for the next visit	40% (12/30)
Ensure that caretakers have understood how to manage their child	23% (7/30)
Find out what mothers have done at home & what the symptoms of the child's illness are	17% (5/30)
Giving group talks	17% (5/30)

Comments

Most health workers had a supervisor who had visited at least once in the previous 6 months. More than half of all health workers had received feedback from their supervisors. More than half of supervisors had observed clinical practice at the time of their last visit. It is encouraging that so many health workers have a supervisor and that supervisory visits are occurring. The quality of the supervision provided is unlikely to be ideal, since quality of care is not regularly assessed. Establishing regular supervisory practices is difficult in many countries and getting supervisors to the facilities is often the most difficult step; this had already been accomplished in the majority of health facilities visited. A systematic approach to supervisory activities including the use of standard supervisory checklists, a schedule of supervisory visits and strategies for providing feedback and education to health workers is required.

Almost all health workers (29/30, 97%) reported that they submitted routine reports and used the data from routine reports in some way. It has already been noted that disease and vaccination registers are also generally complete. Timely completion of reports is encouraging and suggests that there is a basis for a functional health information system. The interpretation, reporting and dissemination of routine information will need to be addressed as the health information system is further developed.

The most frequently reported problems by health workers were lack of supplies, lack of transportation and poor working environment. Transportation shortages may be associated with the lack of drugs and supplies since health workers often have to pick up supplies themselves.

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Two thirds of health workers interviewed had received training in the 12 months prior to the survey. Very little training had been received in the area of standard case-management of the most important causes of childhood morbidity and mortality. Less than half of the training sessions involved clinical practice. Clinical practice is essential for both teaching and sustaining new skills. Regular training, as well as supervision, is important for introducing and maintaining new skills. A clear in-service training strategy is required. The quality of the training will be affected by other peripheral constraints to practice, such as the consultation time available. As previously mentioned, this survey has identified a number of areas where training in simple skills could improve the quality of case-management for sick children.

Health worker knowledge of the vaccination schedules of children was high although it is clear from the health worker observation that health workers are missing opportunities to vaccinate children. Similarly, although health worker knowledge of the target group for Td was high, the case-management observation revealed that very few health workers checked the vaccination status of women at the time of the sick child visit. Thus healthworkers are not implementing the concept that a woman coming to the clinic with her child is a possible target for Td vaccination. About two thirds of facilities gave vaccinations on 6 days of the week. Providing these services each day is considered desirable to reduce missed opportunities to vaccinate or provide antenatal care. Despite good health worker knowledge of the importance of vaccinations, and the presence of daily vaccination clinics, missed opportunities to vaccinate remain common; there is a gap between the knowledge and practice of health workers. Barriers to avoiding missed opportunities to vaccinate need to be addressed during follow-up.

There are a number of reasons why daily vaccination services may not be provided by facilities including staff shortages, lack of clinic space, misconceptions about the time or logistics involved. In some clinics, it may be possible to re-organize service delivery using existing resources and this should be investigated where possible.

A high proportion of health workers knew at least 3 signs of severity that would prompt them to refer a sick infant or child to hospital. More than half of all health workers had been unable, however, to refer a sick infant or child; most common reasons given for non-referral were that parents refused to refer their children or because parents did not have enough money to pay for transportation or medical care. Some of the reasons why parents are refusing to go to referral centers are that these facilities are not heated (it is cold) and they do not have the necessary drugs. The barriers to the effective referral of sick children will need to be further investigated in order to develop strategies for addressing these barriers.

All health workers described themselves as having a role in communicating with caretakers, most frequently in the areas of home case management and prevention of childhood diseases. It is clear from the observations of case management, however, that many key aspects of home case-management of sick children are not adequately addressed by health workers. Again, there is a gap between the knowledge and practices of health workers. Key messages and strategies for communicating these messages need to be further developed and health workers need to be trained in the routine use of communication strategies.

F. Discussion of Indicators and Presentation to Zhambul Oblast MOH

Data were analyzed by the team of physicians who conducted the survey who calculated indicators and supporting information in a number of key areas including health worker practice (screening, clinical examination, immunization, treatment, interpersonal communication), health worker knowledge (training and supervision), caretaker knowledge and practice (management of the sick child at home) and facility equipment and supplies (availability of drugs and supplies, availability of equipment and record keeping). These results are summarized in Annex 3. These indicators were then discussed extensively; while positive results of the survey were commended, the discussion focused on deficiencies that can be feasibly addressed with existing resources and in a timely fashion. A preliminary report, detailing findings of the survey, conclusions and recommendations for action, was prepared by the team of physicians and presented on November 28, 1996 to the Zhambul Oblast Ministry of Health. In attendance were the Chief of Oblast Health Care Department and over 70 representatives, including heads of Oblast, Rayon and Zhambul City Hospitals, as well as, other physicians, nurses, feldshers and other health care workers, drawn from all over Zhambul Oblast.

G. Key Program Indicators

Key indicators for improving the quality of integrated child health care have been identified, based on the following criteria:

- a. Public health or clinical importance
- b. Feasibility of changing the indicator
- c. Resources required to make a change in the indicator
- d. Time required to make a change in the indicator

The key program indicators should be used to monitor and evaluate progress over time and to develop specific facility-based program activities. The key indicators are:

- 1) Proportion of health workers who had been trained in a child health topic in the previous 12 months.
Baseline = 67%
- 2) Proportion of health workers who have received at least one supervisory visit in the last 6 months
Baseline = 60%
- 3) Proportion of facilities with essential medications always available in the previous month
Baseline = 50%

4) Immunization

a) Proportion of children who had their vaccination status checked at the time of the sick child visit

Baseline= 27%

b) Proportion of children eligible for vaccination and referred for vaccination on the day of sick child visit

Baseline = 0%

5) Clinical assessment

a. Proportion of children screened for severe illness

Baseline = 2%

b. Proportion of caretakers of sick children who were asked all key history questions

Baseline = 17%

6) Nutritional assessment

a. Proportion of children who were weighed on the day of the survey

Baseline = 40%

b. Proportion of children whose weight was plotted on a growth chart

Baseline = 32%

c. Proportion of children who had nutritional status examined

Baseline = 9%

Proportion of children with diarrhea who are managed inappropriately

Proportion of children with diarrhea who inappropriately received an antibiotic

Baseline = 39%

8) Proportion of children with simple URTI who are managed inappropriately

Proportion of children with simple URTI who inappropriately received an antibiotic

Baseline = 59%

9) Interpersonal communication

- a. Proportion of children whose mothers were shown how to administer the oral medication

Baseline = 10%

- b. Proportion of children whose mothers were counseled on the importance of giving fluids at home

Baseline = 71%

- c. Proportion of children whose mothers were counseled on the importance of giving food or breastfeeding at home

Baseline = 52%

- d. Proportion of children whose mothers were given advice on when to return

Baseline = 41%

H. Discussion and recommendations

- 1) Proportion of health workers who had been trained in a child health topic in the previous 12 months.

Training had been received by 67% of staff responsible for seeing sick children. Training did not always involve clinical practice. In-service training is important for both introducing and sustaining new skills. Health worker knowledge of the EPI calendar and of the target group for Td vaccination was relatively high. In the area of case management, health workers generally did not check for symptoms of severe illness, checked child's or mother's immunization status, referred eligible children for vaccination on the day of visit, ask key history questions, assess nutritional status, or conduct an appropriate examination. Health education messages on the home management of children were not systematically given, although health workers had a high level of knowledge of the importance of health communication. Practice in all of these areas could be improved with simple training and supervision strategies without the expenditure of additional resources. When designing a training strategy, all of the factors which influence the sustainability of these practices should be considered, such as the average consultation time, the availability of drugs and supplies, the frequency of vaccination clinics, and the staffing of the clinic and barriers to the referral of very sick children. Some of these factors may need to be addressed for training to be effective. Others may be overcome by improving awareness of them as potential barriers and developing strategies for their management as a component of training. A mechanism for providing training should be considered in tandem with on going supervision.

Recommendations

- a) Develop simple in-service training for the different categories of health care workers with responsibility for child care management which focuses on the key indicators. Training should be developed and conducted in collaboration with supervisory activities.
- b) Consider using survey data to assist with the planning of pre-service training programs, in particular those components which focus on case-management practices and the barriers to effective case-management practices.

2) Proportion of facilities that have received at least one supervisory visit in the last 6 months

The majority of health facilities visited had received at least one supervisory visit in the previous six months. It is encouraging that supervisory visits are being made. The quality of the feedback given to health workers and the activities undertaken to keep health workers up to date remain uncertain. Supervision can be strengthened by training supervisors to evaluate facilities systematically using a supervisory check-list and by training them to provide feedback and educate health workers at the time of the supervisory visit. In addition, the regularity and timeliness of supervisory visits can be improved by developing strategies for conducting integrated supervision. Schedules for supervisory visits should be distributed in advance to health staff at all levels. Supervisors should be educated in the identification of possible barriers to effective case-management and trained in strategies for overcoming these barriers. Regular supervision is critical to maintaining skills at the clinic level.

Recommendations

- a) Develop a regular supervisory approach using existing resources; develop an integrated supervisory check-list based on key program indicators.
- b) Use information collected from supervisory visits to monitor program activities; establish a supervisory data-base to track changes in program indicators
- c) Conduct in-service training in supervisory techniques for supervisors.

3) Proportion of facilities with essential medications always available in the previous month

Essential medications and ORS had been available at all times in the 30 days preceding the survey in only 10% of the facilities. Only 47% of facilities had stock of cotrimoxazole available on the day of the survey. Over prescription of antibiotics might have contributed to the shortage. Drug availability in public facilities is important for ensuring that health workers can provide quality case-management. At many facilities, the lack of adequate transportation prevented the delivery and collection of supplies in a timely fashion. Developing skills for the management of stock inventories at health clinics should be a

component of routine pre- and in-service training. It may be possible to manage existing stocks of essential medications by improving prescribing practices and reducing the inappropriate use of antibiotics and other medications. It was noted that the inappropriate use of antibiotics is common in many of the facilities visited, for example. The system for ordering, storing and distributing drugs to peripheral sites need to be reassessed; drugs and supplies should be distributed based on the number of cases seen by each facility. A formal review of the drug distribution system should be considered to identify areas that may not be functioning effectively.

Recommendations

- a) Conduct a review of the existing drug and vaccine management and distribution system; identify areas that need strengthening and develop a strategy for addressing these gaps
 - b) Develop a regular supervisory approach (see section 2) which emphasizes importance of the rational use of drugs and the use of stock cards
- 4) Proportion of mothers and children who had their vaccination cards checked at the time of the sick child visit

A low proportion of children had their vaccination status checked on day of the sick child visit. In addition, none of the children who were eligible for vaccination was referred for vaccination on the day of the visit. Missed opportunities to vaccinate mothers and children is an important problem in the facilities visited. Checking the vaccination status of every child and mother is a relatively simple, quick and inexpensive clinical action. Vaccination of those infants and children who need vaccines on the day of the visit is ideal in order to eliminate missed opportunities to vaccinate. If this is not possible then caretakers should at least be referred to the next vaccination session and the importance of this next visit strongly reinforced. The current barriers to regular assessments of the vaccination status of children and their mothers should be investigated as well as the barriers to the provision of daily vaccination sessions.

Recommendations

- a) Evaluate barriers to avoiding missed opportunities to vaccinate at health facilities and develop strategies for overcoming these barriers in collaboration with local health staff as a part of an integrated supervisory approach. Supervision and training approaches should reinforce the importance of referral for severely ill children and discuss strategies for addressing barriers to referral.
- 5) Clinical assessment of sick children (screened for severe illness, asked all key history questions)

There is evidence that health workers may not be regularly using an integrated or combined approach to the assessment of sick children. The majority of health workers did

not screen for severe illness or ask all core history questions to caretakers. There are number of reasons why health workers may not be screening children systematically, including lack of awareness of the importance of this approach, lack of practical training in approaches or methods to follow, time restrictions, poor clinic organization and other factors. In service training and supervision of health workers should re-enforce the importance of these aspects of the assessment of sick children.

Recommendations

- a) Develop an integrated approach to supervision which emphasizes a comprehensive approach to the assessment of children
 - b) Work with local health workers to identify barriers and possible solutions to improving case management practices in the clinic setting
 - c) Incorporate these principles into pre and in-service training strategies.
- 6) Nutritional assessment of sick children (weighing all children, plotting weight on a growth chart, examination of nutritional status)

Sick child visits provide an opportunity for identifying malnourished children and counseling caretakers on feeding practices. Nutritional status is not systematically assessed. The first step in improving nutritional screening practices will be to ensure that all children are weighed and plotted on a growth monitoring chart. Most facilities visited had a functional weighing scale available. The barriers to weighing children need to be further investigated in the context of regular supervision.

Recommendations

- a) Develop an integrated approach to supervision which emphasizes nutritional screen as a component of a comprehensive approach to the assessment of children
- b) Work with local health workers to identify barriers and possible solutions to improving nutritional screening in the clinic setting
- c) Incorporate these principles into pre and in-service training strategies.

Proportion of children with diarrhea who are managed inappropriately

Proportion of children with diarrhea who inappropriately received an antibiotic
Baseline = 39%

Although a high percentage of children with simple diarrhea received appropriate treatment with ORS, a high percentage of these children were inappropriately given antibiotics. It was noted that functional oral rehydration corners were present in just a

little over half of health facilities (63%); this may reflect a lack of awareness about the importance of oral rehydration for the prevention and management of dehydration. It was noted that 13% facilities experienced at least a stock out of ORS in the 30 days preceding the survey. The recommendation and use of oral fluids is a simple, cheap and effective treatment strategy. Regular supervision should emphasize these principles clearly. Over 80% of caretakers of children with diarrhea who had heard of ORS for the management of diarrhea knew correctly how to prepare it at home, although the majority of them believed incorrectly that ORS would stop diarrhea. Improving the use of ORT should also emphasize the importance of correctly instructing caretakers on the administration of these fluids at home. Possible barriers to the acceptance of oral fluids by caretakers and communities may need to be investigated; it was noted that about 10% of caretakers who had treated their child with diarrhea at home had given herbs or other traditional medicines.

Recommendations

- a) Develop an integrated approach to supervision which emphasizes the management of diarrhea
- b) Work with local health workers to identify barriers and possible solutions to improving the management of diarrhea in the clinic setting

Incorporate these principles into pre and in-service training strategies

8) Proportion of children with simple URTI who are managed inappropriately

Proportion of children with simple URTI who inappropriately received an antibiotic
Baseline = 59%

A high proportion of cases of upper respiratory tract infections were inappropriately treated; over half the cases of URTI inappropriately received. A relatively high proportion of cases of lower respiratory tract infections (pneumonia) were treated appropriately with antibiotics.

Recommendations

- a) Develop an integrated approach to supervision which emphasizes the management of acute respiratory tract infections
- b) Work with local health workers to identify barriers and possible solutions to improving the management of diarrhea in the clinic setting
- c) Incorporate these principles into pre and in-service training strategies

9) Interpersonal communication (feeding and breastfeeding, when to return)

Key counseling messages were not systematically given by health workers, although knowledge of the importance of communication was widespread. There are a number of possible reasons for this including; no systematic training or reinforcement of the importance of communicating with caretakers; lack of knowledge of the most importance messages to give; lack of appreciation of the important role that home case management plays in the outcome for each child; lack of time to adequately counsel caretakers; a lack of health education materials. Strategies for improving communication will need to be developed in close collaboration with health workers. Possible strategies to improve communication may be to reinforce communication principles through the provision of regular supervision and in-service training, to provide simple health education materials and to consider reorganization of clinic activities to allow the health worker more time to conduct counseling. The quality of counseling will also need to be addressed; although 87% of caretakers were told how to administer oral medications at home, only 58% of them knew how to correctly give the medications when asked at the exit interview. Counseling on how to give medications will need to emphasize practical demonstrations.

Recommendations

- a) Develop an integrated approach to supervision which emphasizes simple approaches to counseling for each child
- b) Work with local health workers to identify barriers and possible solutions to improving counseling in the clinic setting

Incorporate these principles into pre and in-service training strategies

Develop simple counseling materials for health staff which focus on key home management messages.

Annex 1: Health Facilities Visited

Chuiskyi Rayon

CRB Tolebi
SVA Zhana-Zhol
SVA Balasugin
FAP Zhambul
FAP Berlik Usten
FAP Belbasar Zhos

Lugovskoi Rayon

CRB Kulan
SUB Algabas
SUB Podgornyi
SVA Kamenka
FAP Kzyl-Tu
FAP Zharly-Su

Kordaiskiy Rayon

CRB Giorgiveka
SUB Urken Salutor
SUB Betkainar
SUB Shortobe
SVA Zhanaturmys
FAP Stchmentnezavodskaya

Merkenskiy Rayon

CRB Merke
SVA Oktyabrskaya
SVA Kazakstanskaya
FAP Plodoyagoni
FAP Kishlak
FAP Spatai
FAP Aktogan
FAP Voroshilova
FAP Kostogan
FAP Sarymoldaev

Sarysuskiy Rayon

CRB Baikadan

Zhambul City

Zhambul City Children Polyclinic # 2

Annex 2: Survey Teams

Chuiskyi Rayon

Ismaelova Gulsiya Gomarovna - Chief City Pediatrician

Utebasova Saule - Chief of Shymkent Oblast CDD/ARI Training Center

Estemesova Rymbala Rysbekovna - Chief of the Children Polyclinic, Lugovskoi CRB

Lugovskoi Rayon

Zheglov Evgeni Vladimirovich - Chief of Zhambul Oblast CDD/ARI Training Center

Kyzdarbekov Askar Myrzahmetovich - Chief of Dept. #1 of Oblast Infectious Diseases Children's Hospital

Semizbaeva Raisa Pazylovna - Chief of the City Children's Polyclinic, Karatau City, Zhambul Oblast

Baribaeva Gulmaral Kistaubaevna - Rayon Chief Pediatrician, Kordai Rayon, Zhambul Oblast

Kordaiskiy Rayon

Suiyndykov Kozhan T. - Chief of MCH Division Zhambul Oblast Health Care Dept.

Golovenko Marina M. - Assistant of the Dept., Institute of Pediatrics; Minor

Researcher of the Republican Training Institute for Doctors, Dept. of Infectious Diseases

Mamyrbayeva Gulnara Gulsiya - City Chief Pediatrician, Zhambul City

Alimhodzhaeva Balhia Abdulhodzhaevna - Chief of the Consultation - Polyclinic of Zhambul

Merkenskiy Rayon

Eselbaeva Maizhamal Dospaevna - Deputy Chief Doctor Of the Polyclinic, Zhambul City Children Polyclinic #1

Zhaksylykova Gulnara Sagindykovna - Pediatrician of the Zhambul City Children's Polyclinic #2

Baigeldieva Kushahira Abdibekovna - Physician of the ORT Point, Zhambul City Children's Polyclinic #2

Botsieva Asia - Chief of the Shymkent Oblast CDD/ARI Training Center

Merkenskiy and Sarysuskiy Rayons, and Zhambul City

Sinitsina Tatyana Aleksandrovna - Zhambul Oblast Chief Pediatrician

Sarymlodaena Saule Ahmediyaevna - Physician of Pulmonology of the Zhambul Oblast Children's Hospital

Syleimenova Ahsipa -

Annex 3: Persons Met During Conduct of Survey

Seidumanov Manat Turarovich - Chief of Oblast Health Care Dept.

174. Saurbaev Tolen Kambarbekovich - Deputy Chief of Oblast Health Care Dept.
175. Sinitsina Tatiyana Aleksxandrovna - Oblast Chief Pediatrician
176. Sheglov Evgeny - Head of Oblast CDD/ARI Training Center
177. Esilbaeva Maikamal Dostaevna - Chief Doctor, Zhambul City Children Polyclinic,
Head of the City CDD/ARI Training Center

Tsoi Vladimir Vasilevich - Chief Doctor of the Oblast Children Infectious
Diseases Hospital

Abdrashitov Mihail Valentinovich - Deputy Chief Doctor of the Oblast Children
Infectious Diseases Hospital

Annex 4: Key Indicators and Supporting Information

HEALTH WORKER PRACTICE

a). Screening

No	Indicator	<u>Numerator</u> <u>Denominator</u>	Result (%)
1	Proportion of children screened for severe illness	Cases with all severity questions asked ----- Total number of cases observed	2% (4/191)
2	Proportion of children who were asked all key history questions	Cases with all key history questions asked ----- Total number of cases observed	17% (33/191)

b) Clinical examination:

No	Indicator	<u>Numerator</u> <u>Denominator</u>	Result (%)
3	Proportion of children who were examined appropriately	Cases examined according to reason for visit ----- Total number of cases observed	88% (168/191)
4	Proportion of children who had nutritional status examined	Cases examined for pallor and visible wasting ----- Total number of cases observed	9% (17/191)
	Supporting information		
	Proportion of children who were weighed the day of the survey	Cases whose weight was determined ----- Total number of cases observed	40% (77/191)
	Proportion of children whose weight was plotted on a growth chart	Cases whose weight was plotted on a chart ----- Total number of cases observed	32% (61/191)

c) Immunization:

No	Indicator	<u>Numerator</u> <u>Denominator</u>	Result (%)
5	Proportion of children eligible for vaccination according to schedule & received it on day of visit	Cases who received vacc. on day of visit <hr/> Number of cases not up to date with vacc.	0% (0/43)
	Supporting information		
	Proportion of children whose schedule of vaccination was checked on day of visit	Cases whose HW asked for vacc. status <hr/> Total number of cases observed	27% (52/191)

d) Treatment:

No	Indicator	<u>Numerator</u> <u>Denominator</u>	Result (%)
6	Proportion of children who received an appropriate medication for the diagnosis made by the health worker	$\frac{\text{Cases with treatment appropriate for diagnosis}}{\text{Total number of cases observed}}$	47% (90/191)
7	Proportion of children with diarrhea who received ORS/Attmit	$\frac{\text{Number of cases with diarrhea who received ORS/Attmit}}{\text{Number of cases with diarrhea}}$	85% (22/ 26)
8	Proportion of dysentery cases who received an antibiotic	$\frac{\text{Dysentery cases who received an antibiotic}}{\text{Total number of dysentery cases}}$	0% (0/2)
9	Proportion of LRTI (pneumonia) cases who received an antibiotic	$\frac{\text{LRTI (pneumonia) cases who received an antibiotic}}{\text{Total number of ARI cases}}$	67% (6/9)
	Supporting information		
	Proportion of children with diarrhea who received an antibiotic or an antidiarrheal	$\frac{\text{Diarrhea cases who received an antibiotic or an antidiarrheal medication}}{\text{Total number of diarrhea cases}}$	Antibiotic 39% (10/26) Antidiarrhea 4% (1/26)
	Proportion of children with simple URTI who received an antibiotic	$\frac{\text{Cold/allergy/simple cough/bronchitis cases who received an antibiotic}}{\text{Total number of cold/allergy/simple cough/bronchitis cases}}$	59% (93/159)

e) Interpersonal communication

No	Indicator	<u>Numerator</u> <u>Denominator</u>	Result (%)
11	Proportion of children whose mothers were told how to administer oral medication	Cases whose mothers were told by HW how to administer oral medication <hr/> Total number of cases given oral medications	87% (158/182)
12	Proportion of children whose mothers were counseled on the importance of giving fluids at home	Cases whose mothers were told by HW the need to give the same quantity or more liquid at home <hr/> Total number of cases observed	71% (135/191)
13	Proportion of children whose mothers were counseled on the importance of giving food or breastfeeding at home	Cases whose mothers were explain by HW the need to continue feeding or breastfeeding at home <hr/> Total number of cases observed	52% (99/191)
14	Proportion of children whose mothers were given advice on when to return	Cases whose mothers were told at least two messages on when to bring the child back <hr/> Total number of cases observed	41% (79/191)
	Supporting information		
	Proportion of children whose mothers were shown how to give oral medication	Cases whose mothers were shown how to give oral medications <hr/> Total number of cases observed	10% (19/191)
	Proportion of children whose mothers were asked questions to verify whether or not they had understood	Cases whose mothers were asked question to verify the comprehension <hr/> Total number of cases observed	30% (58/191)

2. **HEALTH WORKER KNOWLEDGE**

a) **Training**

No	Indicator	$\frac{\text{Numerator}}{\text{Denominator}}$	Result (%)
15	Proportion of health workers who see sick children who have received training in the management of child illness in the last 12 months	$\frac{\text{Number of health workers who have received at least one training in the last 12 months}}{\text{Total number of HW interviewed}}$	67% (20/30)
	Supporting information		
	Proportion of last training sessions which involved clinical practice	$\frac{\text{Number of last training sessions with clinical practice}}{\text{Total number of last training sessions}}$	40% (8/20)
	Proportion of health workers with correct knowledge of the EPI calendar	$\frac{\text{Number of health workers with correct knowledge of the EPI calendar}}{\text{Total number of HW interviewed}}$	83% (25/30)

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No	Indicator	<u>Numerator</u> <u>Denominator</u>	Result (%)
16	Proportion of health workers with correct knowledge of when to refer a sick child	Number of health workers who know at least 3 signs for referral <hr/> Total number of HW interviewed	100% (30/30)
	Supporting information		
	Proportion of health workers who had been unable to refer sick children in the past	Number of health workers who have been unable to refer a child to hospital <hr/> Total number of HW interviewed	93% (26/28)
	Proportional distribution of reasons for being unable to refer sick children	Number of each reason why HW could not refer a child <hr/> Total number of HW who have been unable to refer	No Money 40% (23/58) No one to care for other kids 24% (14/58) No Transport 24% (14/58) Hospital far 12 (7/58)

b) Supervision

No	Indicator	<u>Numerator</u> <u>Denominator</u>	Result (%)
17	Proportion of health workers who had received at least one supervisory visit in the last 6 months	Number of HW who received at least one supervisory visit in the last 6 months <hr/> Total number of HW interviewed	60% (18/30)
	Supporting information		
	Proportion of health workers who have received feedback from supervisor	Number of HW who received feedback from supervisor <hr/> Number of HW who received at least one supervisory visit in the last 6 months	97% (28/29)

3. **CARETAKER KNOWLEDGE AND PRACTICE**

a) **Management of the sick child at home**

No	Indicator	<u>Numerator</u> <u>Denominator</u>	Result (%)
18	Proportion of children receiving oral medications (antibiotic tab/syr, aspirin tab/syr, ORS) whose caretakers knew correctly how to administer the drug at home	Caretakers who know how to give ALL essential medication correctly <hr/> Total number of caretakers interviewed	58% (96/166)
19	Proportion of caretakers who know how to correctly manage the child at home	Number of caretakers who know at least one general and one specific aspect of home case management <hr/> Total number of caretakers interviewed	62% (118/190)
20	Proportion of caretakers who know at least 2 signs of when to return if the child becomes worse at home	Number of caretakers who know at least 2 signs of child getting worse at home <hr/> Total number of caretakers interviewed	94% (178/190)
	Supporting information		
	Proportion of cases of diarrhea whose caretakers know how to prepare ORS	Number of caretakers who correctly know how to prepare ORS <hr/> Total number children with diarrhea	88% (28/32)
	Proportion of caretakers of children with diarrhea who believe that ORS/RHF will stop diarrhea	Number of caretakers of diarrhea cases who believe that ORS/RHF will stop diarrhea <hr/> Number of mothers of children with diarrhea and who have heard of ORS/RHF	72% (23/32)

4. **FACILITY EQUIPMENT**

a) **Availability of drugs and supplies**

No	Indicator	<u>Numerator</u> <u>Denominator</u>	Result (%)
21	Proportion of health facilities which have experienced at least one stock out of ORS and essential supplies in the previous month	Number of health facilities which have experienced at least one stock out in the previous month <hr/> Total number of health facilities visited	93% (27/29)
	Supporting information		
	Proportion of health facilities which have experienced at least one stock out of ORS/Rehydron in the previous month	Number of health facilities which have experienced at least one stock out of ORS in the previous month <hr/> Total number of health facilities visited	13% (4/30)
	Proportion of health facilities which have experienced at least one stock out of essential drugs in the previous month	Number of health facilities which have experienced at least one stock out of essential drugs in the previous month <hr/> Total number of health facilities visited	50% (15/30)
	Proportion of health facilities which have stock of Cotrimoxazole on the day of visit	Number of health facilities which have stock of Cotrimoxazole on the day of visit <hr/> Total number of health facilities visited	47% (14/30)
	Proportion of health facilities which have stock of ORS/Regidron on the day of visit	Number of health facilities which have experienced at least one stock out of ORS in the previous month <hr/> Total number of health facilities visited	90% (27/30)

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b) Record keeping

No	Indicator	<u>Numerator</u> <u>Denominator</u>	Result (%)
22	Proportion of health facilities with up to date immunization and patient registers	Number of health facilities with up to date immunization and patient registers <hr/> Total number of health facilities visited	EPI = 97% (28/29) OPD 93% (27/29)
	Supporting information		
	Proportion of health workers who received feedback from routine reports	Number of feedbacks (oral or written) received <hr/> Total number of HW who have to submit reports	97% (28/29)