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TRIP REPORT NO. CAR/KYR-1

**TECHNICAL ASSISTANCE IN DEVELOPING
STEP-DOWN UNIT COSTING
METHODOLOGY AND SOFTWARE SUPPORT**

September 12–September 22, 1994, Karakol, Kyrgyzstan

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Summary

Stan Hildebrand and Alexander Telyukov spent two weeks in Karakol, Kyrgyzstan under Task 022 of the *ZdravReform* Action Plan. The purpose of their effort was to upgrade accounting practices at the hospital facilities of Issyk-Kul' Oblast by introducing the step-down method of apportioning administrative and paraclinical costs onto the costs of clinical departments.

A team planning meeting was conducted in Bethesda Maryland on September 2, 1994, to begin this consultancy. The consultant departed the U.S. for Karakol, Kyrgyzstan to work with personnel from the Karakol Health Administration and the Mandatory Insurance Fund.

The work began on Monday, September 12, with the meeting arranged by Dr. Tolon Kyrgyzbayev, Head, Oblast Health Administration, and attended by Dr. Kyrgyzbayev himself, Dr. Ainagul' Shayakhmetova, Head, Department of Health insurance, Health Ministry of Kyrgyz Republic, Dr. Tokon Ismailova, Head of the Informatics Center of the Oblast' Health Administration, and chief medical officers and chief economists from several city and Oblast hospitals and polyclinics. The scope of work and data needs were presented and discussed. Dr. Kyrgyzbayev confirmed the originally suggested scope of work by assigning the consultants to working with the Central Oblast Hospital during this consultancy.

A meeting was called by Dr. Kyrgyzbayev on Thursday, September 15. At this meeting the consultants presented their preliminary data findings and unit costing methodology, in Russian text to administrators, chief medical officers, chief economists and accountants of city and Oblast hospitals and polyclinics. Discussions were very informative, centering around direct and indirect cost methodology, statistical allocations and application to polyclinic operations.

The participants were assigned to collect chapter direct and indirect expenditure data and allocation statistics for their facilities and prepare the direct and indirect unit cost spreadsheet. A follow-up session was scheduled for Thursday, September 22.

On September 22, the consultants presented the computer program titled '**Step-down Unit Costing**' in Russian language text. Discussions were focused on the simple algorithms allocating depreciation and chapter direct and indirect expenditures.

Agreement has been reached with the Labor and Employment Department of Karakol State Administration, the only owner of 486 computers in Karakol public sector, that the **Step-down Unit Costing Program** will be installed on one of their computers and access will be provided to local users for entering data and performing analytic calculations using the programmed spreadsheet. This site is temporary, awaiting the installation of computers from either Abt or the Ministry of Health in Bishkek. The Ministry has assigned computer specialists to maintain the program and train hospital and polyclinic personnel.

The **Step-down Unit Costing Program**, Annex A, is a product of this consultancy. The program is available in English and Russian language text. It provides a basic and simple approach to determining unit operating costs by clinical specialty for hospitals and polyclinics.

Scope of Work

This consultancy is a continuation of technical assistance that began in July 1994. During the July technical assistance, experts presented and discussed a simple spreadsheet printout and schematic diagram step-down costing approach.

There were five tasks defined for each consultant. The tasks were as follows:

1. Hildebrand and Telyukov–Review financial records and budget plans from the oblast hospital to assess the availability and quality of financial records and to gain an understanding of the existing accounting system. Interview the chief medical officer and chief accountant of the hospital to determine the organizational structure of the hospital.
2. Hildebrand–Design, develop and install computer program for unit costing accounting system for use by hospitals and polyclinics.
Telyukov–Draft methodology and procedure guidelines for the modification of the existing accounting system so that they conform with standard unit costing methodology.
3. Hildebrand–Prepare training materials on how to use the new computer program.
Telyukov–Conduct training workshop for hospital and polyclinic managers, administrators and economists of the demonstration site hospitals and polyclinics on the new methodology and unit cost accounting computer program.
4. Hildebrand–Provide follow-up assistance to financial personnel in the implementation of the unit costing accounting system in the eight hospitals of the demonstration.
Telyukov–Coordinate and supervise the implementation of the unit costing system in the eight hospitals.
5. Hildebrand and Telyukov–Calculate capitation rate to be used for planning 1995 health expenditures and setting health insurance government and employer contributions.

The outputs of this technical assistance are defined as follows:

1. Assessment of financial planning and accounting system and current organizational structure of the oblast hospital.
2. Spreadsheet computer program of unit cost accounting system completed and installed in available computers. Draft manual on methodology and procedures for implementing new unit costing accounting completed and distributed to all hospitals and polyclinics in the demonstration site.
3. Training materials on use of unit cost accounting computer program completed and financial personnel trained in use of program. Key hospital and polyclinic personnel trained in use of the new methodology and computer program.
4. Data from 1994 hospital budgets converted and re-organized into unit cost computer program and 1994 semi-annual report produced.

5. Capitation rate for government and employers established.

Background

The Kyrgyzstan health care financing system is the centralized “top-down” bureaucratic allocation process, much like the process in the former Soviet Union, which was based on nationally planned budgets formulated and passed by Parliament and implemented by the Ministry of Finance. Historically, the majority of the health care resources available to the Kyrgyzstan Ministry of Health hospitals were allocated to hospitals.

This consumption-oriented approach failed to encourage the efficient use of scarce resources. The system simply allocated resources based on traditional planning production inputs, such as number of beds and staff.

The Kyrgyzstan government is in the process of reforming its health care reimbursement system to address the problems of scarce resources and inefficiencies. The government seeks to¹:

1. Increase the level of resources available for spending on health.
2. Allocate available resources more efficiently.
3. Relieve government budget pressures and allow for more sustainability in financing of care.

In response to these issues the Ministry of Health has chosen to pilot test a health insurance model in the Issyk-Kul’ Oblast. Issyk-Kul’ Oblast is designated as a ‘Mandatory Health Insurance’ experiment. The present structure of the experiment includes the town of Karakol and the three surrounding rayons, Dzhetiougouz, Ak-Sou and Tyup.

In the spring, representatives from USAID, Abt Associates Inc., and the leadership and experts from Kyrgyzstan met to discuss areas of technical assistance to be provided during the implementation of the ‘Mandatory Health Insurance’ experiment. This led to the collection of experts that began the technical assistance critical to the transition to the performance-based ‘Mandatory Health Insurance’ financing system. Several interlinked and critical areas of technical assistance were identified to support the implementation of the health insurance experiment. One of these was the development and implementation of cost recovery mechanisms.

The technical assistance provided during this consultancy developed and documented a unit costing program. The program provides a basic approach to costing and simple algorithms allocating operating costs for hospitals and polyclinics to clinical specialty departments.

The **Step-down Unit Costing Program** is available in English and Russian language text. See Annex B for the Russian text.

¹ Technical Assistance in Developing a Health Insurance Reform Demonstration in Issyk-Kul Oblast, Kyrgyzstan: Progress, Problems, and Prospects, Abt Associates Inc., Jack Langenbrunner, et al., p2.10.

Activities

The work began on Monday, September 12, with the meeting arranged by Dr. Tolon Kyrgyzbayev, Head, Oblast Health Administration, and attended by Dr. Kyrgyzbayev, Dr. Ainagul' Shayakhmetova, Head, Department of Health Insurance, Health Ministry of Kyrgyz Republic, Dr. Tokon Ismailova, Head of the Informatics Center of the Oblast' Health Administration, and Chief Medical Officers and chief economists from several city and Oblast hospitals and polyclinics. The scope of work and data needs were presented and discussed. Dr. Kyrgyzbayev confirmed the originally suggested scope of work by assigning the consultants to working with the Central Oblast Hospital during this consultancy.

The participants were quite knowledgeable of the consultants data needs. They had attended the July training sessions and were looking forward to further enhancing their present costing methodologies. Dr. Kyrgyzbayev suggested the consultants present their findings and a preliminary cost accounting program to administrators and chief economists of city and Oblast hospitals and polyclinics at a workshop later in the week. Thursday at 2:00 p.m. was set as the date for the workshop.

Dr. Kyrgyzbayev arranged a meeting for the consultants at the Central Oblast Hospital. Data collection and information gathering began there. The hospital is a 451 bed acute and general care facility and the largest hospital in the Oblast.

The Central Oblast Hospital provides multi-speciality inpatient clinical and polyclinic services to all who are referred by city polyclinics, preadmission diagnostics center of the Oblast hospital, or central rayon (rural district) hospital of Karakol Oblast. The specialties include: cardiology, urology, ophthalmology, internal medicine, neurology, general medicine, anesthesiology, trauma, general surgery, and ear, nose and throat. There are fourteen intensive care beds covered by anesthesiologists. A variable number of beds in internal medicine and surgical specialties, investigation shows no more than 25 at one time, are assigned for veteran day care. This service is a benefit to W.W.I. veterans and has not been included in unit cost calculation because utilization data are not available. The hospital supports inpatient and outpatient services through full service paraclinic departments.

Quarterly 1993, semi-annual 1994 and 1994 plan budget financial data were obtained and analyzed. The consultants reviewed the accounting methodology guidelines for chapter accounting and plan budget development.

Volumes of financial data and statistics information were reviewed and analyzed. The organizational structure, in accounting terms was evaluated. Clinical specialties were grouped and paraclinic departments organized based on functional relationship. Direct and indirect expenditures were identified within the chapter accounting system. Allocation criteria, statistical relationships and step-down methodologies were identified, discussed and tested.

The consultants presented their preliminary finding on Thursday, September 15 to a majority of the city and Oblast hospital and polyclinic managers and economists. The classification of accounting chapters based on direct and indirect costs, assignment of direct costs, and allocation of indirect costs by department function were presented and discussed. The allocation criteria, step-down methodology and statistics requirements were presented. Participants were requested

to apply the criteria and methodology to their facility. They were given one week to compare their facilities costing worksheet with the proposed costing methodology. A follow-up session was scheduled for September 22.

This follow-up session was very interactive, lasting beyond the scheduled two hours. Participants were most interested in the assignment of direct costs, allocation of indirect costs, development of functional statistics and the application of the hospital program to polyclinics. A number of economists and accountants remained after the presentation to discuss specific application of the methodology to their facility.

The consultants continued to refine the **Step-down Unit Costing Program**. Additional statistics for indirect cost and step-down allocation were added to the program. The program was originally written in English. The methodological guidelines were originally written in Russian. The Russian language text and program are the draft final product of the enhancements over the period of this consultancy.

The consultants presented the Russian language **Step-down Unit Costing Program** and text to the participants at the September 22 workshop. Most of the participants from the previous weeks workshop attended (15 of an estimated 21). Once again they were interested in the criteria for apportioning Chapter costs, selecting allocation statistics and analyzing outcomes. Many had prepared manual spreadsheets allocating costs based on the step-down unit costing methodology. Their questions showed they understood the methodology, criteria, algorithms and, in general the concept of costing procedures and services based on a central unit cost.

The consultants discussed the continuation of the workshops with the chief economist of the Oblast health administration. This idea was enthusiastically accepted since many of the participants had applied the criteria and methodology to their facilities' chapter expenditures. The participants agreed to meet weekly to discuss application of the methodology and utilization of statistics.

Findings

Task 1. Review financial records and budget plans from the Oblast hospital to assess the availability and quality of financial records and to gain an understanding of the existing accounting system. Interview the chief medical officer and chief accountant of the hospital to determine the organizational structure of the hospital.

Output 1: Assessment of financial planning and accounting system and current organizational structure of Oblast hospital.

Over the years financial economists and accountants have recognized the need to record expenditures for assets or liabilities that are not recognized in the chapter structure. This led to the modification of the chapter system to record numerous transactions including those that reflect the market value of assets for buildings and medical and non-medical equipment.

Health care facilities are allocated a finite amount of funds based on the projected resource needs of the facility as presented in their plan budget. The distributed funds are recorded in chapter accounts. There are eighteen chapter accounts identified in the accounting structure.

The present accounting structure utilizes twelve of the eighteen chapters. Each chapter is a functional field relating to a type of expenditure. Chapter accounting records a single entry of expenditure by these functional field. Once the funds allocated to a chapter are expended no more transactions may be recorded to that field. This system is very similar to a cash basis system.

Chapter headings are descriptive. Each describes the functional fund and type of expenditure to be recorded. Within the chapter there are subfields for recording more detail of an expenditure. These subfields, although limited in number provide details of expenditures based on single entries. Thus, it is assumed that an expenditure entry within a chapter means the funds have been distributed as cash. This system allows very little creativity.

This does not mean the chapter accounting structure should be changed. The costing system is based on the chapter accounting structure. Modifications to the system for accruals and recording market value of assets have been considered. Additional modifications will be considered as the costing system develops into a more sophisticated and detailed cost accounting program.

At this time the city and Oblast health facilities finance organizational structures are adequate to support the presently identified requirements of the 'Mandatory Health Insurance' for hospitals to bill for services and collect co-payments from patients. Each facility has at least one economist assigned to maintain the chapter reports and prepare plan budgets. Larger facilities have accountants trained in bookkeeping functions.

Task 2. Design, develop and install computer program for unit cost accounting system for use by hospitals and polyclinics. Draft methodology and procedure guidelines for the modification of the existing accounting system so that they conform with standard unit costing methodology.

Output 2. Spreadsheet computer program of unit cost accounting system completed and installed in available computers. Draft manual on methodology and procedures for implementing new

unit costing accounting completed and distributed to all hospitals and polyclinics in the demonstration site.

Development of the spreadsheet was based on the present situation and structure of the health system. It considers the present chapter accounting structure, availability of statistics for allocation basis and as an initial process to a more sophisticated unit costing based on procedural or cost center accounting. The consultants selected a costing approach that does not require the Kyrgyzstan health system to modify their chapter accounting system. This approach is given the title '**Step-down Unit Costing**'.

The computer program calculates cost of services of hospital or polyclinic clinical specialty departments. Data required to calculate unit costs are readily available to the user. The program has been written to allow the user to experiment with various allocation statistics to determine those most reflective of the operations of their facility.

The program, which was written in Russian, will be installed on a 486 computer located at the Labor and Employment Department of Karakol Oblast State Administration. The owners of the computers agreed to allow access to health care personnel if a time-share fee was paid.

Task 3. Prepare training materials on how to use the new computer program. Conduct training workshop for hospital and polyclinic managers, administrators and economists of the demonstration site hospitals and polyclinics on the new methodology and unit cost accounting computer program.

Output 3. Training materials on use of unit cost accounting computer program completed and financial personnel trained in use of program. Key hospital and polyclinic personnel trained in use of the new methodology and computer program.

On Thursday, September 15, the consultants presented preliminary data findings and the methodology and criteria for unit costing, in Russian text to administrators, chief medical officers, chief economists and accountants of city and Oblast hospitals and polyclinics. Discussions were very informative, centering around direct and indirect cost methodology, development of statistical allocations and application to polyclinic operations. On September 22, the consultants presented the **Step-down Unit Costing Program** in Russian. Discussions focused on the simple algorithm allocating depreciation, and Chapter direct and indirect expenditures. A computer specialist from the 'Mandatory Health Insurance Fund' in Bishkek was instructed in the use of the program. He will supervise the training of hospital and polyclinic personnel.

Task 4. Provide follow-up assistance to financial personnel in the implementation of the unit costing accounting system in the eight hospitals of the demonstration. Coordinate and supervise the implementation of the unit costing system in the eight hospitals.

Output 4. Data from 1994 hospital budgets converted and re-organized into unit cost computer program and 1994 semi-annual report produced.

Annex B, **Step-down Unit Costing Program**, Russian language text is the product of the Central Oblast Hospital semi-annual 1994 data. The system will be installed on the only computer in Karakol configured and capable of processing the program. City and Oblast hospitals and polyclinics will be allowed access to the computer located at the investment bank.

The bank has requested a time-share fee for use of the computer. Other computers have been promised by the Ministry of Health and the 'Mandatory Health Insurance' Fund.

Task 5. Calculate capitation rate to be used for planning 1995 health expenditures and setting health insurance government and employer contributions.

Output 5. Capitation rate for government and employers established.

Data were collected from the Ministry of Health and the Ministry of Social Welfare. A data format was designed, and development of data bases for this information has begun. The capitation rate will be completed in the United States and forwarded to Almaty.

Short-term Recommendations

Training and short-term seminars in management guidelines, financial analysis, business planning, resource allocation and decision making should be prepared for the economists and accountants. Participants should be instructed in analyzing outcomes and preparing inputs for facility and financial planning. Insurance procedure training and patient relations seminars will prepare them for billing and collection requirements. Training modules for each area should be 1 to 2 days in length and presented consecutively. The PriDev, Health Care Improvement Project has developed and presented these programs in Russia. Scheduling a workshop in Karakol should be considered for November 1994.

Training workshops on cost accounting and the **Step-down Unit Costing Program** should be prepared for city and Oblast hospital and polyclinic economist and accounting

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Annex A
Step-Down Unit Costing Program (English)

Annex B
Step-Down Unit Costing Manual and Program (Russian)