



KAZAKHSTAN DRUG MANAGEMENT SYSTEM ASSESSMENT

August 21 to September 5, 2004

CENTRAL ASIA TB CONTROL PARTNERSHIP

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EXECUTIVE SUMMARY

In August/September 2004, an assessment of the TB Drug Management System in Kazakhstan was carried out by a multi-disciplinary team of three consultants. Overall, the system has been relatively effective over the past several years in assuring availability of drugs to TB patients throughout the country – largely due to the hard work of dedicated staff from the National TB Program down to the service delivery points. One notable problem, a shortage of Rifampicin, was occurring at the time of the visit due to a delay in procurement. However, it was emphasized that this shortage was an unusual event, and had not occurred at any other point over the past 5 years.

The National TB Program will be creating a Thematic Working Group (TWG) on Drugs. As a result of the assessment, several recommendations were made for consideration of the TWG for changes to the drug management system that could result in a more efficient drug management system, more effective treatment, and procurement cost savings. These recommendations are:

- **The National TB Program should move toward procurement of limited set of Fixed-dose Combination Pills (RHZE) for the intensive phase, and one Fixed-dose Combination Pill (RH) for the continuation phase.** The advantages of FDCs for quality of treatment programs have been well-documented. In addition, use of such combinations simplifies procurement and drug management.
- **The TB Program should procure the FDCs in blister packs, each representing one week of treatment for patients.** Blister packs of FDCs have additional treatment advantages, and are also easier to manage and distribute.
- **The TB Program should assemble continuation phase “kits” for each patient upon discharge from the Dispensary.** This would simplify and lessen the work required to assure a constant supply of drugs for each patient. Furthermore, it could provide additional options for directly observed therapy.
- **Kazakhstan should procure drugs through the Global Drug Facility.** The GDF can assure the appropriate combinations of drugs, at a very high quality, and very low price.
- **Some TB drug procurement functions should be maintained at the Central Level in Kazakhstan.** This will help assure consistency in treatment throughout the country and in agreement with accepted international standards.
- **The Thematic Working Group should assign a subgroup to begin working on re-design of the Logistics Management Information System (LMIS).** After decisions are made concerning the recommendations above – the LMIS can be simplified and standardized nation-wide.

BACKGROUND:

In August/September, 2004 Dr. Movsar Makhmatov, of Project Hope/Almaty, Dr. Natalia Cebotarenco, and Tony Hudgins of John Snow, Inc. Logistics Services (JSI/LS) carried out a two-week assessment of the supply chain and drug management practices of the National Tuberculosis Program of Kazakhstan. This initial assessment is the basis for determining a technical assistance program, in conjunction with Project HOPE and its partners, for ensuring the continuous availability of quality TB drugs for Kazakhstan's National TB program.

The consultants must note frankly that the assessment was somewhat limited in geographical scope for several reasons: a) one participant was late in arriving, because of a visa problem followed by a denied boarding; b) the current move of the capital from Almaty to Astana required visiting both cities and visiting a number of officials in both locations; and c) protocol in Kazakhstan requires careful vetting of visits to clinical locations. As a result, only 2 dispensaries (TB facilities at city level for TB patient treatment) and 5 primary health care (PHC) facilities (for TB outpatient treatment) were visited. Project Hope's Regional Drug Management Advisor already has extensive knowledge of the system as a result of several years of working with the project. In addition, officials visited were very welcoming and open to discussion concerning the supply chain and its current strengths and weaknesses. One notable limitation was the cancellation of a meeting with the National TB Drug Supply Coordinator, scheduled for the second week of the assessment. This led to some uncertainty in the report of the details for forecasting and drug procurement. ¹

The JSI-developed Logistics System Assessment Tool (LSAT) was used as a framework for the assessment, after being adjusted to further address the topics of drug packaging and patient access, both of which are important in the directly observed therapy approach recommended by the World Health Organization for TB treatment. Actual interviews were carried out without a formal questionnaire, but the questioning followed the general concept of the *draft Pharmacy and Supply Chain Management Assessment Tool*.

Numerous documents have been written about the National TB Program in Kazakhstan; this report is intended to focus on the supply chain and drug management aspects of TB treatment. Obviously, the supply chain interacts strongly with treatment and policy decisions of the program. As such, conclusions of this report, while focusing on supply chain issues, will acknowledge that supply chain decisions will take into account other important program issues, as well.

¹ The National TB drug supply coordinator is involved only in forecasting of TB drug needs within the tender cycle, and is likely to be unaware of other TB drug procurement issues.

PRINCIPAL FINDINGS; OUTCOMES; ACCOMPLISHMENTS DURING THE VISIT:

Assessment of the Existing System:

The following assessment follows the traditional drug logistics cycle: Product Use, Procurement, Distribution, and Forecasting, all driven by a functioning Logistics Management Information System (LMIS). The following section includes suggested areas for improvement.

Product Use:

The Kazakh National TB Program carries out an integrated program for treatment of TB throughout the country. Each City and Oblast has at least one Dispensary, an inpatient facility that is used for the intensive, and sometimes for the continuation, phase of treatment. The duration of treatment for the intensive and the continuation phases depends on the treatment category of the patient. During the intensive and the continuation phases, patients receive treatment based upon the existing regulations (Prikaz) for their treatment category. The standard treatment regimens stated in the local TB Prikaz follow the WHO module of 1994, with the exception of the duration of the intensive phase for the 1st and the 2nd diagnostic categories of TB patients. For example, Category 1 patients in the intensive phase of treatment are currently treated with four mono-component drugs: Rifampicin (R), Isoniazid (H), Pirazinamide (Z), and Ethambutol (E) or Streptomycin.

At the time of the assessment, there were only mono-component drugs in the system, complicating both drug management and dispensing. It was reported that some 3-component fixed-dose combination pills (FDCs) had been procured in the past, but the dosage combinations were not according to the WHO Model List of Essential Medicines, and therefore made quantifying TB drug requirements and prescribing complicated. For this reason, we sometimes heard a preference for single component drugs.

Upon completion of the intensive phase of treatment in the Dispensary, the patient is discharged to a TB Nurse in an outpatient facility at the PHC level. The patient is formally introduced to the Doctor and the Nurse in the facility, and the continuation phase regimen is discussed. This phase of treatment is commonly 4 to 5 months, depending on the treatment category, and drug administration can be either daily or three times weekly. When it is thrice weekly, the administration is directly observed; when it is daily, either 5 or 6 days are observed, and patients are given the weekend dosages to take on their own. When treatment policies are reviewed it may be desirable to develop standard treatment guidelines which select one regimen, rather than continuing to use two different regimens.

At the time of the visit, there was a national shortage of Rifampicin because of a procurement shipment delay. The good news is that the system reacted fairly quickly to this problem, as supplies were transferred between Oblasts to improve general availability. In one Oblast (Almaty City), as the shortage became more acute, the available Rifampicin was reserved at the Dispensary level for intensive phase patients, and Ethambutol was substituted for continuation phase patients. This is an acceptable alternative under international treatment standards, although it is recommended that the continuation phase be prolonged to 6 months when in this situation.

It is important to note that, at the facilities visited, both availability of drugs and patient compliance were taken very seriously. There was significant monitoring of outpatient facilities by the Oblast-level staff, patient records were well maintained, and provider-patient relations seemed to be good.

Since a single nurse is generally responsible for the TB patients, and in the facilities visited, each nurse had 15 or fewer patients, patients and nurses tended to develop a close relationship, which should be beneficial for patient adherence. We were told that “a single missed visit by a patient would cause an inquiry into the patient’s whereabouts”. When asked about the desirability of a fixed-dose RH combination pill for the continuation phase, nurses universally responded that “it would be better for the patient - psychologically - to take one kind of pill.”

For TB treatment programs, accessibility for the patient is an especially important issue. In Astana, we were shown a map of facilities providing continuation treatment, and they were very densely located, presumably making access by patients, even on foot, fairly easy. In Almaty there are numerous facilities as well. As no rural areas were visited, the consultants were not able to evaluate access for rural TB patients. However, it is conceivable that access for the rural population to the Rayon clinics may be difficult, particularly during the winter months. At one point there was a mention of giving remotely located patients 30 days of supplies for self-administration, which would negate the direct observation of treatment which is the standard for Kazakhstan. A supply chain recommendation to be discussed later – namely preparing a continuation phase treatment kit for each patient—would make it easier to directly observe treatment closer to the patients’ home.

The local prikaz on TB does not address issues such as managing adverse reactions and managing TB cases in special situations (pregnancy, breastfeeding women, etc.). TB drugs are available in private pharmacies without a prescription.

Forecasting:

Forecasting is done annually using projected number of cases. The National Drug Supply Coordinator has developed detailed written guidelines for use at the Oblast level, which includes adjustment factors for prolonged treatment. Staff at the Oblast level have been trained in forecasting, and at the two Oblasts visited, staff seemed comfortable and knowledgeable with the methodology.

Each year, each Oblast forecasts its needs, and forwards its requirements to the National TB Center. The NTBC then forwards total TB drug needs to the Central level for procurement. Forecasted requirements take into account stock on-hand at the Oblast level, and allow for a 3-month buffer stock. The Oblast-specific calculations are also used to allocate shipments directly to the Oblast from the vendor(s).

It should be noted that although there is a current shortfall of Rifampicin due to a delayed/cancelled procurement, this is the first time this has happened in the past five years. Furthermore, there was no evidence of drug expirations from the recent past. In fact, drugs found in the stores and clinics were of recent manufacture, with distant expiration dates. In general, it can be said that the forecasting of drug requirements is working. One concern that was voiced, though, was that Oblast officials sometimes questioned projected increases because of a concern that showing an increase in cases would imply a worsening situation ². This is an area of concern for the future, especially if budgeting is decentralized, as there could be increased pressure from Oblast leaders to decrease forecasts for both demonstrating TB program “success” and for financial reasons. The consultants consider this an important reason for recommending that centralized quantification and procurement be continued.

2 Increases in drug use may actually indicate successful case finding, rather than an increase in prevalence.

Procurement:

Kazakhstan, unlike most of its neighbors, procures all its own TB drugs. According to the Procurement law and regulations, this must be done through open, national tenders. As noted earlier, all the drugs in the system at this time are mono-component drugs, in spite of international standards strongly favoring FDCs. The exact mechanisms of the procurement process were not investigated during this visit, in part due to the cancellation of the planned meeting with the National TB Drug Supply Coordinator. However, the team is also aware that procurement has been a major focus of the Rational Pharmaceutical Management Project (RPM) in the past. During our visit to the Committee of Pharmacy, we briefly discussed procurement with the Head of Drug Procurement Department, who noted that the main criterion for selection of supplier is price.

The procurement process is governed by law #321 and regulations #1158 and #63. The procedures for managing the tender process and assuring the quality of TB drugs need to be reviewed by the Thematic Working Group (TWG) for Drugs and evaluated for improvement.

It is also important to note that tenders are done specifying delivery of the drugs directly to the Oblasts/Cities from the vendor, twice per year. This spares the National TB Program from needing to operate a distribution (warehousing and transport) system.

In May 2004, there was a high-level WHO/USAID Mission to Kazakhstan to address some of the issues of drug supply. Experts made recommendations to the government that agreed with supply chain and drug management recommendation later in this report. The government agreed that it would look at additional information regarding the procurement of TB drugs from the Global Drug Facility (GDF). This would result in procurement of internationally recommended FDC drugs of assured quality and at reasonable prices. This change, though, would require prikaz changes, as sole-source tendering to a multinational (the WHO-sponsored GDF) is not currently allowed.

Distribution:

The physical distribution system in Kazakhstan is fairly simple: from vendors directly to the Oblast Dispensaries, then from the Oblast Dispensaries to the Rayon Outpatient Facilities, and then to patients.

Storage facilities at the Oblast were adequate. However, outpatient facilities varied in their physical maintenance of the drugs. Clinics tried to set aside a room for dispensing of TB drugs. Actual tablets were stored in different ways, in some facilities, the tablets were stored in the 1000 capacity bottles in which they were originally received at the Oblast, a practice that cannot assure that the expiration date on the containers really reflects the expiration date of the resupplied tablets. We were told that staff pay attention to this issue, and as all of the products encountered in original containers were quite fresh, it appeared that this was true and that expiry is probably not an issue. In one clinic, pills were stored in ragged, unmarked envelopes – each stuffed into an open container reflecting the regimen of an individual patient – clearly a substandard practice. However, one important positive aspect of this clinic's approach was the concept of setting aside the necessary quantities of tablets for each patient, an important concept that will be discussed in the 'Conclusions' section of this report. It is also important to note that staff were doing the best they could with the materials and training they had to work with.

Procurement is currently being carried out requiring that specified quantities, including a 3-month buffer stock, be delivered to the Oblasts on a semi-annual basis. This means that the NTBC does not need to operate warehouses at the central level or a delivery system from central to Oblast levels. There is a limited emergency stock at the national level, though, and transfers between Oblasts were carried out during the current national shortage of Rifampicin. This flexibility and responsiveness reflects well upon the management of the system.

Oblast nursing and medical staff carry out resupply of Rayon-level TB clinics and PHC facilities on a regular basis. However, the system differs from location to location. In Astana, the deliveries to PHC facilities were done monthly; in Almaty, the deliveries were done either monthly or weekly. Sometimes the quantities delivered were based on quantities dispensed, stock on-hand, and a buffer stock; sometimes the quantities were calculated based upon an aggregate of registered patients' needs, with no buffer stock. It is again important to note that all TB staff were making great efforts to assure that the required drugs were available and appropriately dispensed to patients. However, there is no standardized system. The system could be characterized as "personnel trying very hard to do the 'right thing', but each Oblast (and sometimes Rayon) doing it differently." Their procedures, whatever they may be locally, also maintain strong accountability for the drugs.

Visits of patients are recorded on an approved form for each patient which only records that the patient came to the clinic that day (or in the case of weekends, received the drugs for self-administration). In some facilities, patients brought their own glass for the water used for taking the drugs. As stated before, in the outpatient facilities, each nurse had few patients – fostering a friendly and collaborative relationship for treatment.

Logistics Management Information System (LMIS)

There was no standardized LMIS functioning within the system. This does not mean there was no accountability for the drugs; it is just that Oblasts are managing the data in different ways. Also, at individual facilities there were procedures for inventory control. It should also be emphasized, again, that TB personnel down throughout the system were trying their best to monitor the distribution of the drugs, with a focus on accountability rather than data aggregation. Since forecasts are done in Kazakhstan according to TB case projections, this is not a major problem. However, the lack of consistent protocols for LMIS make drug management more difficult for both PHC staff and for those trying to monitor and supervise the system. The existing system will be described from the bottom up.

PHC Level LMIS

There are two approved forms, used at the PHC level (continuation phase), related to the dispensing of drugs to patients. One is a Dispensary discharge form, which specifies the regimen to be followed by the patient; the second is a register for each patient, which records visits. The register form has a column for each day of the month, and a line for each month of treatment. Each visit of the patient is recorded by an "X". The register is not intended to be an LMIS form, but a patient care form. However, we believe it could be adapted for LMIS use, or its format, which is well understood in Kazakhstan, could be used in developing a specific LMIS form.

In Astana, the PHC clinics also had hand-drawn ledgers that recorded quantities of pills dispensed on a daily basis, which were tallied by the week and month, with ending balances recorded. While not exactly the same, there was significant consistency. They also mirrored the Patient Daily

Register in design, which made them easily understood by service providers. In addition, PHC facilities developed and forwarded a quarterly report of drugs dispensed to users, which was sent to the Oblast level. It followed a standard reporting format: beginning balance, received, dispensed, and ending balance. While there was no column for adjustments, we were told that the “comments” column was used for this purpose. However, with the emphasis on accountability for the drugs within the system, it is unlikely that losses would be reported in this way.

In Almaty, there was less attention to the recording of dispensed data, and there seemed to be no data passed up to the Oblast level. As stated before, resupply was done by a visiting nurse or doctor from the Oblast, who tallied the quantities needed for the registered patients, and then resupply the clinic up to this forecasted level.

Oblast Level LMIS

There is considerable attention paid at the Oblast level to maintaining accountability for the drugs. Issue vouchers from the vendor, along with their official certifications, were on-hand. In addition, there were product specific ledgers.

In Astana, the ledgers were hand-drawn, but were standard in format. In Almaty, there was an experimental computerized system, which served as a ledger. However, the format was similar to the patient daily record, with a column for each day of the month. Since issues were not that frequent (they issued to only three dispensaries, which in turn issued to outpatient facilities), this meant infrequent entries, not necessitating so many columns. There was no evidence that LMIS data was furnished to the Central level.

CONCLUSIONS and RECOMMENDATIONS

Potential changes that might be suggested for improving the effectiveness of the supply chain and product availability for patients are strongly interrelated with treatment issues and established government policies. Therefore, it is important that they be carefully reviewed and discussed by relevant stakeholders. The appropriate forum for such a discussion would be a meeting of the Thematic Working Group for Drugs, which has been proposed for each country as part of the Central Asia TB Control Partnership. The consultants believe there are a number of issues that need to be discussed by decision-makers, which when resolved, will have a major positive impact on the National TB Program.

The consultants suggest that these recommendations be discussed and answered by the Thematic Working Group at a national meeting in late January, 2005. During this meeting information would be provided on:

- The current status of TB in Kazakhstan,
- International standards for TB Treatment, with supporting statistical data on accomplishments in other countries,
- Managing the drug tendering process (supplier selection criteria, the Global Drug Facility option, etc.),
- Quality Assurance for TB drug procurement, and
- Existing Prikaz related to TB treatment in Kazakhstan.

Recommendation 1:

The National TB Program should move toward procurement of limited set of Fixed-dose Combination Pills (RHZE) for the intensive phase, and one Fixed-dose Combination Pill (RH) for the continuation phase.

The benefits of standard-dose FDCs from a therapeutic point of view have been well documented. Taking one type of pill is more satisfactory to the patient, also reducing confusion and the chances of medication errors. FDCs reduce the chance of patients developing resistant strains of TB, and eliminate monotherapy practices by physicians (using only one medicine) and treatment with an insufficient number of different loose drugs. Other advantages include easier supervision of drug intake and more flexibility to adjust dosages by body weight.

From the point of view of supply chain management, there are several additional benefits:

- Treatment regimens become more standardized when using FDCs, so quantification of future needs becomes less variable, easier, and more accurate.
- According to international statistics, FDCs are appropriate for virtually all patients. Large, bulk procurements are easier to manage and yield lower prices.
- Warehousing, transport, and LMIS management becomes easier.
- Local drug management and storage is easier.

It should be noted that non-standard FDCs have been procured in the past in Kazakhstan, which apparently led to difficulties in the calculation of dosages for individual patients. Standard-dose FDCs are specifically designed to facilitate and simplify these calculations.

Recommendation 2:

The TB Program should procure the FDCs in blister packs, each representing one week of treatment for patients.

Ideally, this should be done in addition to procuring FDCs. The supply chain management advantages are:

- There would be an established number of blister strips for each patient – helping simplify issuing, dispensing, and reordering.
- The blister packs provide sterility, dampness protection, and physical protection for the drugs, thus minimizing damage and loss.

Recommendation 3:

The TB Program should assemble continuation phase “kits” for each patient upon discharge from the Dispensary.

Kitting of TB drug kits is an established and recommended methodology in many countries. Since Kazakhstan provides virtually all of intensive phase treatment in the inpatient setting, kitting is less important for this phase. However, kits for the outpatient continuation phase could have several advantages:

- The kits would be prepared upon discharge according to the Patient Category, as stated in existing regulations (Prikaz). The nurses who currently resupply clinics could perform this task, which would actually be less time-consuming than the current system of weekly or monthly resupply of clinics. The kit could simply be a high-quality plastic box with the patient’s name, regimen, and other information on it. Ideally, it would contain the required number of blister strips of FDCs to complete the patient’s treatment; alternatively, it would contain internal, drug-packaging certified containers of FDCs. The least satisfactory option, but still better than the current system, would be a minimum of two internal, drug-packaging certified containers with mono-component loose drugs.
- This kit would be delivered to the outpatient facility when the patient is taken there to be introduced to the personnel in the facility. The kit would carry an important, reinforcing, implied message to the patient: “When I finish taking this (my) box of pills, I will be finished with my treatment, but not before then.”

There would be significant supply chain benefits to this approach:

- The job of resupplying the outpatient facility, generally done by nurses currently, will be easier. She/he will only quantify once for each patient.
- Sanitary, safe storage is virtually assured.
- The need for LMIS data collection below the Oblast/Dispensary level is eliminated. Once a kit is issued, it is considered (from a Logistics MIS point of view) to be dispensed. Unfinished kits would be returned to the system as positive “adjustments”.
- For remote, rural areas, kits would facilitate issuing to a level below the Rayon level. If it is

inconvenient to the patient to come regularly to the Rayon, the kit could be issued to a health worker closer to home. At the time of delivery of the kit, on-the-job training could be provided to the local dispenser.

Recommendation 4:

Kazakhstan should procure drugs through the Global Drug Facility.

The Global Drug Facility is a World Health Organization/United Nations managed provider of high-quality, properly dosed, reasonably-priced TB drugs, which follow recognized international standards for quality of treatment. While some countries receive these drugs through a grant mechanism (which can be complicated), countries can also procure directly using their own funds. In order to do this, the existing Prikaz in Kazakhstan which requires competitive tendering would need to be modified to allow the purchase of drugs directly from a multinational organization. There would be many advantages to this method of procurement:

- There is ample precedence for governments to directly procure through United Nations organizations expressly developed for this purpose: not just for TB drugs through the GDF, but for vaccines through UNICEF, and contraceptives through UNFPA.
- The GDF sells standard dose FDCs, packaged either in bulk or in blister packs. These products have all the supply chain advantages described above.
- The GDF strictly monitors and guarantees quality.
- The GDF, through its massive pooling of procurements, furnishes drugs at very low prices.

In considering procurement from the GDF, one issue that would need to be dealt with in Kazakhstan is in-country distribution. Currently the vendors distribute procured products directly to the Oblasts, as specified by the central office. GDF products would need to be cleared through customs, stored temporarily, repacked for each Oblast, and shipped to the Oblasts. This activity could be handled by the MOH or the NTBC, but might be best handled under contract by a local distributor.

Recommendation 5:

Some TB drug procurement functions should be maintained at the Central Level in Kazakhstan.

There is currently a Prikaz that requires that drugs be purchased by the Oblasts (decentralized procurement). While the mechanisms for this decentralization have not fully been described, the consultants would encourage some form of central control over the procurement process. While it is understood that decentralization of budgeting may occur, centralized drug selection and tendering has important advantages:

- Standardized national treatment protocols can be maintained, which is vitally important to TB control and to avoiding the development of drug-resistant TB strains.
- Drugs that doctors, nurses, and patients understand can be standardized.
- With standard formulations, forecasting is easier.
- National procurement is likely to lead to significant cost savings.

Centralized procurement can be accomplished in one of several ways, as follows:

- Continuation of the current system of centralized budgeting for procurement of TB drugs.

- *Pooled procurement*, in which Oblast funds are pooled (in proportion to their needs) at the central level for a single procurement.
- A *Preferred Vendor* approach, in which the drug formulations are selected by the central level, prices are obtained (through a competitive process), and Oblasts procure directly from the winning vendor at the agreed-upon price.

Recommendation 6:

The Thematic Working Group should assign a subgroup to begin working on re-design of the Logistics Management Information System (LMIS).

Implementation of the recommendations will affect (simplify) the LMIS. A group should work with a consultant to redesign form and ask for their approval and adoption.

PRINCIPAL CONTACTS:

Meetings during the logistic TB assessment of the supply chain for the National Tuberculosis Program of Kazakhstan:

Team composition:

Dr. Movsar Makhmatov, Project HOPE/Almaty

Dr. Natalia Cebotarenco, Consultant, JSI

Mr. Tony Hudgins, Coordinator for Country Programs, JSI

1. Meeting in U.S. Agency for International Development, Regional Mission for Central Asia

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Dr. Indira Aitmagambetova, Health Project Management Specialist office of Health and Education

2. Meeting in the Ministry of Justice ,

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Zhashibekov Gabdulhakim Baltasev, Chairman of Committee of Criminal –Executive system of MOJ

Akhmetov Marat Zaitovich, Head of medical supply department of penitentiary system of MOJ

Alibijanov Nurtai Erkosaevich, deputy of chairman of penitentiary system of MOJ

Diusembin Ikhsan Isleamovich, deputy of chairman of the Committee of Criminal –Executive system of MOJ

3. Meeting in the Ministry of Health, Republic of Kazakhstan.

Astana, # 66, Moscovskaia Str., Tel.: + 317 2 31 74 57; Fax: + 317 2 31 80 33

Dikanbaeva Saule Alecei, Vice Minister of Ministry of Health, RK Republic of Kazakhstan.

Nazirova Nurhan Ibraihanovna, Senior specialist of of Ministry of Health, RK Republic of Kazakhstan.

Rakishev G.B., Director of NTBC RK

4. Meeting in Ministry of Internal Affairs (MIA)

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Mr. Uskimbaev Kajimurat .Beisebaevich., Vice-Minister of MIA

Melnikova Natalia .Ivanovna, Head of medical supply department of MIA

5. Meeting in Committee for Pharmacy, Pharmaceutical and Medical Industry

Astana, # 66, Moscovskaia str., Tel.: + 317 2 31 71 24; Fax.: + 317 2 31 75 94

Pak Larisa Iun-Boevna, Head of the Committee for Pharmacy, Pharmaceutical and Medical Industry

Head of procurements' department of Committee for Pharmacy, Pharmaceutical and Medical Industry

6. Meeting in Astana TB Facilities

Astana, tel.: +317 2 35 54 41.

Zhusupova Rosa Zhaparovna , Head of Astana TB Facility

Main nurse of Astana TB Facility

Head of Primary Health Care facility “International” (Nine TB patients for continuation phase)

Head of Primary Health Care facility N 6 (Twenty one TB patients for continuation phase)

Head of Primary Health Care facility ”Molodejnaia” (Nine TB patients for continuation phase)

7. Meeting in National Center for Expertise of drugs, medical products and equipment.

63, Ablai Khan Ave., Almaty, Tel.: + 7 (3272) 73 16 72; Fax: +7 3272 73 55 00

Mrs. Berdimuratova Gulnara Daumovna, Director of National Center for Expertise of drugs, medical products and equipment

Mrs. Guniko Natalia Alexandrovna, deputy of director of National Center for Expertise of drugs, medical products and equipment

8. Republican Laboratory for expertise and standardize medications

62, Zheltoksan, Almaty, Tel.: +3272 78 00 84; Fax.: + 3272 79 25 76

Dr. Nikitin Sergey Alexandrovich, Director of Republican Laboratory for expertise and standardize medications

9. Meeting in National TB Center of Republic of Kazakhstan

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Dr.Rakishev G.B., director of National TB Center of Republic of Kazakhstan

Heads of TB departments of National TB Center of Republic of Kazakhstan

Head of polyclinic of National TB Center of Republic of Kazakhstan

Main nurse of polyclinics of National TB Center of Republic of Kazakhstan

10. Meeting in Almaty polyclinics N 3

Dr.Mendigaliyev Musagali, head of Almaty Polyclinic N 3

Deputy of head of polyclinic N 3

Nurse, responsible for TB patients in continuation phase

11. Meeting in Almaty city TB facility

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Dr. Mukushev Nurlan Raimkulovich, head of TB facility, Zhetysuskiy rayon, Almaty city