

ASSESSMENT OF MEDICATION ASSISTED THERAPY PROGRAM IN KAZAKHSTAN

Authors

This report was prepared by staff members of ICAP, including:

Azizbek Boltaev, Regional Prevention Advisor for Central Asia, ICAP, Columbia University
Anna Deryabina, Director for Central Asia, ICAP, Columbia University
Andrea Howard, Director of the Clinical and Training Unit, ICAP, Columbia University

The report would not be possible without inputs from members of the assessment team, including:

Emilis Subata, Director, Vilnius Center for Addictive Disorders, Lithuania;
Sharon Stancliff, Medical Director, Harm Reduction Coalition, USA;
Oleg Aizberg, Associate Professor, Department of Psychiatry and Addiction Medicine, Belarus Academy for Post-graduate Medical Education, Belarus;
David Otiashvili, Director, Addiction Research Center/Alternative Georgia, Georgia;
Kuralay Muslimova, Facilitator, Global Health Research Center for Central Asia, Kazakhstan.

ICAP would like to extend its sincere gratitude to the assessment participants who shared their experiences, concerns, and lessons learned.

The authors would like to express their appreciation to the Ministry of Health of the Republic of Kazakhstan, the Republican AIDS Center and the Republican Narcology Center for their support in conducting this assessment, as well as representatives of international organizations for provided commentaries and recommendations.

Disclaimer

This publication has been supported by the President's Emergency Plan for AIDS Relief (PEPFAR) through Cooperative Agreement Number 5U2GPS003074 from the Center of Disease Control and Prevention (CDC). Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the CDC.

The Republican AIDS Center of the Republic of Kazakhstan provided partial financial contribution to data collection for this report through funding from the Global Fund to fight AIDS, Tuberculosis and Malaria.

Contents

Acronyms	4
1. Executive summary	5
2. Introduction.....	8
3. Assessment goals and objectives.....	11
4. Methods	12
4.1. Data collection methods and tools	12
4.2. Measurement of outcomes.....	13
4.3. Statistical analysis.....	14
4.4. Site selection	15
4.5. Assessment Team.....	15
5. Description of MAT services in Kazakhstan	16
5.1. Overall structure and policy environment.....	16
5.2. Costing and financing	17
5.3. Supply management of commodities.....	18
5.4. Human resources	18
5.5. Infrastructure	19
5.6. Monitoring and Evaluation	21
6. Evaluation of MAT Services in Kazakhstan	24
6.1. Continuity of care and comprehensiveness of spectrum of services available to MAT patients.....	24
6.1.1. Proportion of patients on MAT with at least one complete clinical review in the last quarter.....	24
6.1.2. Proportion of MAT patients screened for Hepatitis C and Hepatitis B.....	24
6.1.3. Proportion of patients on MAT with at least one psychosocial counseling session during the last month.....	25
6.2. MAT adherence	26
6.2.1. Proportion of patients who remain free from non-prescribed opioids at six months after initiation of MAT.....	26
6.2.2. Proportion of patients on MAT remaining in care at six months after initiation of MAT.....	26
6.2.3. Proportion of patients who remain free from non-prescribed opioids at twelve months after initiation of MAT.....	27
6.2.4. Proportion of patients on MAT remaining in care at twelve months after initiation of MAT	28
6.2.5. The average daily dosage of methadone received by patients enrolled in MAT three months or longer.....	28
6.3. Patients' satisfaction with the program and their own health status	29

6.4 Evaluation of patient behaviors (sexual, injection and criminal) 31

6.4.1. Proportion of patients on MAT with at least one sexual and drug related risk assessment completed during the last one month 31

6.4.2. Drug use 31

6.4.3. HIV Risk Behavior 33

6.4.4. Criminal Behavior 35

6.5. Drug Use Related Expenses 35

7. Limitations..... 37

8. Conclusions 38

9. Recommendations 40

10. References 41

ATTACHMENT 1 43

ATTACHMENT 2..... 45

Acronyms

AIDS	Acquired Immune Deficiency Syndrome
ARV	antiretroviral drugs
ART	antiretroviral therapy
CAR	Central Asian region
CDC	Centers for Disease Control and Prevention
C&T	care and treatment
GFATM	The Global Fund to Fight AIDS, TB and Malaria
HIV	human immunodeficiency virus
IRB	institutional review board
MAT	Medication-assisted therapy
M&E	monitoring and evaluation
MOH	Ministry of Health
NGO	non-governmental organization
OD	outpatient department
OI	opportunistic infection
OST	opioid substitution therapy
PEPFAR	United States President's Emergency Plan for AIDS Relief
PHC	primary health care
PLHIV	people living with HIV
PWID	people who inject drugs
RAC	Republican AIDS Center
RNC	Republican Narcology Center
STI	sexually transmitted infection
TB	Tuberculosis
TA	technical assistance
UNAIDS	The Joint United Nations Program on HIV/AIDS
UNDP	United Nations Development Program
UNGASS	United Nations General Assembly Special Session
UNICEF	United Nations Children's Fund
UNODC	United Nations Office on Drugs and Crime
USG	United States Government
VCT	voluntary counseling and testing

1. Executive summary

In September 2010, ICAP at Columbia University received funding from the US Centers for Disease Control and Prevention (CDC), under the President's Emergency Plan for AIDS Relief (PEPFAR), to work with the Ministries of Health (MOH) and other governmental and non-government partners to strengthen HIV care, treatment and prevention services in Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan (the SUPPORT Project).¹ The assessment of pilot medication assisted therapy (MAT) projects in Kazakhstan is an integral part of the SUPPORT Project's work plan and results of this assessment will be used for provision of technical support to improve MAT.

The purpose of this assessment was to collect information on the scale and quality of the existing MAT services for people who inject drugs (PWID) in Kazakhstan, and to identify any gaps in such services. The assessment results will be presented to MOH and other stakeholders in order to plan, coordinate and implement interventions to improve opioid drug dependence treatment, particularly MAT, in Kazakhstan. The information will also be used by ICAP to guide the development of strategies and activities aimed at advancing HIV prevention services in the region.

The protocol and data collection tools were developed jointly by ICAP teams in New York and Almaty. Prior to their use in the field, the teams consulted stakeholders and made revisions based on their feedback. The assessment included a mixture of qualitative and quantitative research methods, including interviews with MAT patients, PWID, MAT staff, key stakeholders and healthcare service users, as well as medical record reviews. A review of prior assessments conducted by other agencies was also performed.

Key findings of the assessment include:

1. The pilot MAT project in Kazakhstan clearly demonstrated the feasibility and efficacy of prescription of methadone to treat opioid dependence in the local context.
2. Legislation of the Republic of Kazakhstan is favorable for the introduction of MAT as a standard of care for treatment of opioid dependence.
3. MAT proved to be efficacious in reducing non-prescribed opioid use, criminal activities, and HIV risk behavior and in improving patients' perception of their health.
4. Enrollment in MAT is associated with significant reductions in patients' spending on non-prescribed psychoactive substances, resulting in reduction of social harms caused by drug-related crimes.
5. Methadone-based MAT may be provided in Kazakhstan at a relatively low cost: in 2011 the cost of a daily dose of methadone medication per patient was lower than KZT 150 or USD 1.
6. Current monitoring and evaluation of MAT in Kazakhstan is mainly focused on the evaluation of short-term results of the program (expenditures for setting up MAT sites, supplies used, number of patients enrolled, number dropped out, and number who completed therapy). There is a lack of information about patients' feedback and service satisfaction, and the quality of the staffs' interaction with patients is not being properly evaluated. Also, little information is regularly collected and reported on the

¹ SUPPORT is a five-year initiative funded by the U.S. Centers for Disease Control and Prevention (CDC) under the President's Emergency Plan for AIDS Relief (PEPFAR). The SUPPORT Project is led by ICAP at the Mailman School of Public Health at Columbia University and will be implemented in four countries of Central Asia (Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan) during 2010-2015. This Project is intended to provide technical assistance to strengthen facility-based HIV prevention, care, support and treatment services, including improvement of HIV related laboratory services, as well as to improve strategic information systems (surveillance, M&E, and informatics).

actual outcomes of MAT, including reductions in risk behavior, drug use, and criminal behavior and the health status of patients.

7. The scale and quality of technical assistance available to support MAT implementers in Kazakhstan are inadequate to support the expansion of high quality MAT.
8. Current information sharing practices and strategies as they relate to MAT are inadequate to effectively provide evidence-based information about methadone and other types of MAT to various stakeholders, including the general public, medical professionals and PWID. There is resistance to expansion of MAT in the country based on incorrect information about the clinical safety and effectiveness of opioid agonists for the treatment of drug dependence.
9. The lack of a centralized mechanism for procurement of methadone and the unregistered status of methadone in the Republic of Kazakhstan result in interruptions in supply and an unjustifiably high cost of the medication. These factors also preclude further scale-up of availability of MAT.
10. Provision of MAT is often interrupted due to patients' need to undergo inpatient treatments in other medical facilities or to move away from their home cities where they receive MAT. Kazakhstan's legislation has no provisions that allow taking methadone outside of the facilities providing MAT.

Based on the findings of the assessment, the following recommendations are provided for improving the treatment of opioid dependence, specifically MAT, in Kazakhstan:

1. Support staged expansion of MAT starting with localities with a high prevalence of intravenous opioid use and HIV among PWID, followed by other regions of the country where there might be a need for such therapy. In doing so, it is important to consider MAT as a standard component of the spectrum of available treatment methods for opioid dependence.
2. Integrate MAT topics into the curricula of medical schools and post-graduate courses.
3. Train and involve narcologists from the primary health care outpatient narcology departments in the provision of MAT to opioid dependent patients receiving services at their respective clinics. Doing so would contribute to scaling up the availability of MAT and will also reduce the workload of narcologists currently working in the pilot MAT projects who are exclusively authorized to prescribe methadone to eligible patients.
4. Select, train, and engage specialists in addiction psychiatry from medical institutions to work as technical advisors to provide support to current and new MAT sites ensuring provision of quality services in line with national and international standards.
5. Update current clinical guidelines on the use of methadone based on lessons learned and WHO recommendations, and adopt full clinical guidelines and standards on provision of opioid substitution medications for the treatment of opioid dependence.
6. Establish a state-controlled mechanism of procurement and distribution of medications for MAT to the country's narcological facilities.
7. Improve MAT monitoring and evaluation procedures ensuring collection and analysis of data directly related to service provision (consumption of materials; number of patients on MAT, etc.) as well as outcomes of MAT (changes in behavior and health status). At the same time, it is important to standardize information collected from different MAT sites, simplify reporting forms, and introduce health management information systems that would contribute to the improvement of data quality and reduce the burden of paperwork for staff.
8. Develop comprehensive advocacy and communication strategies for MAT-related issues in order to deliver easy to comprehend evidence-based information and reduce

negative impacts of false information. Non-government and community-based organizations should be engaged in such activities as intensively as possible, especially to implement interventions to promote MAT among PWID and their families.

9. Continue adherence to evidence-based medicine in the decision-making process as it relates to the development of HIV and drug dependence treatment services. Strengthen emphasis on the results of state-of-the-art research data, such as Cochrane reviews,^{2,3,4} that repeatedly confirm the safety and effectiveness of MAT compared to other methods of treatment.

² Mattick RP, Breen C, Kimber J, Davoli M. (2009). Methadone maintenance therapy versus no opioid replacement therapy for opioid dependence. *Cochrane Database of Systematic Reviews*, Issue 3.

³ S, Amato L, Vecchi S, Davoli M. (2008). Maintenance agonist treatments for opiate dependent pregnant women. *Cochrane Database Syst Rev*.(2):CD006318. Review.

⁴ Connock M. et al. (2007) Methadone and buprenorphine for the management of opioid dependence: a systematic review and economic evaluation. *Health Technology Assessment*; 11(9):1-171, iii-iv. Review.

2. Introduction

Central Asia is one of the few regions in the world where the HIV epidemic remains clearly on the rise. Currently, Kazakhstan faces a concentrated epidemic with the most common mode of transmission being through syringe and needle sharing among PWID.⁵

Kazakhstan is located on a major drug trafficking route from Afghanistan, resulting in the availability of inexpensive heroin and a high prevalence of drug use in the country. Rapid diffusion of drug use along these trafficking routes, coupled with widespread migration, has created an environment that is increasingly conducive to the spread of HIV, as well as hepatitis, tuberculosis (TB), and other sexually transmitted infections (STI). The high prevalence of unsafe injecting practices combined with risky sexual behaviors, such as inconsistent condom use among the general population and most at-risk populations (MARPs), increase the potential for rapid spread of HIV.

In 2011, the primary reported mode of transmission among newly registered HIV cases was heterosexual transmission (50.7%), surpassing injection drug use (47.3%) which was the leading mode of transmission in the past. As in previous years, men constituted the majority of registered HIV cases (71.3%).

According to HIV integrated biobehavioral surveillance (IBBS) data from 2010, the estimated number of people who injected drugs during the last 12 months was 119,140, which is 3.5 times higher than the number of PWID officially registered with the drug addiction treatment service. The average duration of drug use was 10 years with 11% of PWID using drugs for less than two years. Heroin is the main drug being injected (87.2%) with home-made raw opium solutions used by 12.6% of IBBS respondents. A relatively large proportion of PWID surveyed (21%) had experienced a non-fatal drug overdose in the last 12 months. Twenty-two percent reported using drugs in the company of unfamiliar people. The proportion of respondents who engaged in needle sharing had decreased from 9% in 2006 to 4.5% in 2010, and only 62.2% of PWID used sterile injection paraphernalia during the last injection of drugs. However, all these data should be considered with caution because of respondent bias and sampling errors.⁶

Medication assisted therapy (MAT), more widely known in the region as opioid substitution therapy (OST), is a rigorously evaluated and evidence-based medical intervention to treat opioid dependence that consists of prescription of methadone or buprenorphine as a replacement for illicit opioid narcotics, such as heroin. Research conducted to date in the area of opioid addiction treatment has generated a great amount of evidence demonstrating that MAT in combination with psychosocial support produces the best outcomes in terms of reduced frequency of illicit drug use and injections, decreased criminal behavior and improved social functioning.⁷

The MAT program was piloted in Kazakhstan in October 2008 as part of the national multicomponent HIV project funded by the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM). The two initial sites included the cities of Pavlodar and Temirtau. In May 2010, based on encouraging outcomes of the pilot MAT project⁸, the MOH approved expansion of the MAT program to two additional sites in Ust-Kamenogorsk and Almaty.⁹ As of March 1, 2012

⁵ WHO, UNAIDS, UNICEF. (2011). Global HIV/AIDS Response – Epidemic update and health sector progress towards Universal Access – Progress Report. Geneva.

⁶ Deryabina A. et al. Report on Evaluation of HIV Integrated Biobehavioral Surveillance in the Republic of Kazakhstan. ICAP/ Columbia University. 2012

⁷ WHO, UNODC, UNAIDS. (2004). Substitution maintenance therapy in the management of opioid dependence and HIV/AIDS prevention: position paper.

⁸ Ережепов Н., Каражанова А. (2010). Отчет о пилотной программе опиоидного замещения в Республике Казахстан на 2009-2009, РНПЦ МСПН. Павлодар.

⁹ Ministry of Health, Order No.333 (12 May 2010). "On expansion of accessibility of opioid substitution therapy"

in Pavlodar, Temirtau and Ust-Kamenogorsk there were 102, 85 and 78 patients ever enrolled in MAT, respectively. The number of patients currently receiving MAT was 48 in Pavlodar, 35 in Temirtau and 35 in Ust-Kamenogorsk.

The sociopolitical environment around MAT in Kazakhstan is ambiguous. On the one hand, the Government of Kazakhstan has demonstrated strong support for MAT since 2005 when President Nazarbayev urged Kazakh healthcare to introduce innovative methods of HIV prevention, including the use of methadone to treat drug users.^{10,11} MAT has been included in the country's Program on counteraction to the HIV/AIDS epidemic in the Republic of Kazakhstan as well as in the State Program Salamatty Kazakhstan as one of the measures of HIV prevention among PWID. There are many HIV service organizations supporting MAT, and they are actively engaged in the activities of the Inter-sectorial Working Group on Opioid Substitution Therapy established under the Ministry of Health.¹² The Ministry of Health confirmed its support for MAT based on the encouraging results of the pilot MAT project and is working towards expanding access to this medical service.¹³ On the other hand, there are many cases in which MAT has been actively opposed by different groups, including medical specialists and community organizations. Anti-MAT publications often appear in the Kazakhstani media. It should be noted that those who oppose the development of MAT in Kazakhstan often use false or misinterpreted information about methadone. For example, MAT opponents often argue that, "...according to WHO data one-third of all patients receiving methadone die," referring to the WHO/UNODC/UNAIDS Position Paper on Opioid Substitution Therapy¹⁴ as a source of such data. But in fact, this document states that, "The death rate for people with opioid dependence in methadone maintenance treatment is one-third to one-quarter the rate for those not in treatment," which means that enrollment on MAT reduces the death rate among PWID by 66-75%. In another case, in an open letter^{15,16} to the President of Kazakhstan that called to suspend MAT pilot project, signatories, in addition to the above mentioned misinformation, stated that, "... (according to data of Professor Shane Darke from National Drug and Alcohol Research Centre at the University of New South Wales, Australia) overdose with methadone among participants of substitution therapy is 67%". This again is incorrect, as Dr. Darke wrote that 66% of patients receiving methadone reported having experienced at least one (non-fatal) heroin overdose ever in their life.¹⁷

As the result of this active opposition,¹⁸ MAT implementation in Almaty was not started, and as of January 2012 MAT was available only in three sites in Kazakhstan. Community Board hearings were held at the Ministry of Health to discuss expansion of MAT program, but no final conclusion about its implementation was achieved.

Interim assessments of the pilot MAT project in Kazakhstan were carried out by the Republican Narcology Center (RNC) in 2009 and 2010. These assessments were endorsed by the Ministry of Health and concluded that, "...[provision of] opioid substitution therapy improved patients'

¹⁰ Шарман А. Синдром приобретенного иммунодефицита. Монография, часть 1.3 Употребление инъекционных наркотиков и инфекция ВИЧ http://www.zdrav.kz/data/cms/file/part1_3.pdf

¹¹ Harm Reduction Development 2005. IHRD. <http://www.hivpolicy.org/Library/HPP001740.pdf>

¹² Ministry of Health, Order No.449 (04.09.2009). On Establishment of the inter-sectorial Working Group on Opioid Substitution Therapy.

¹³ Ministry of Health, Order No.333 (12 May 2010). "On expansion of accessibility of opioid substitution therapy".

¹⁴ WHO, UNODC, UNAIDS. (2004). Substitution maintenance therapy in the management of opioid dependence and HIV/AIDS prevention: position paper.

¹⁵ VZGLYAD, Weekly Newspaper, #09(191); (9.03.2011). <http://www.respublika-kz.info/files/news/issue/0/125.pdf>

¹⁶ CARAVAN, Republican Newspaper, #9 (04.03.2011). <http://www.caravan.kz/article/25555/print>

¹⁷ Darke Shane, et al. (2000). The relationship between suicide and overdose among methadone maintenance patients. Technical report #100. NDARC, <http://ndarc.cms.med.unsw.edu.au/sites/ndarc.cms.med.unsw.edu.au/files/ndarc/resources/TR.100.pdf>

¹⁸ Kuneikova L. (Reporter). (3.02.2011) Almaty's physicians refuse to introduce a heroin-substitution program for drug addicts. (in Russian: Алматыские врачи отказываются вводить программу героинозамещения для наркоманов). KTK News, SC "Commercial Television Company", Almaty. Accessed on 15.05.2012 from <http://www.ktk.kz/ru/news/video/2011/02/03/11351/>

health, social and psychological characteristics, decreased frequency of illegal drug use and criminal activities".¹⁹ Other key results of the MAT pilot project reported by the RNC were:

- Good retention in treatment: 62-69% of patients remained in therapy for at least six months;
- Improved quality of life, including better relationships with family members;
- No serious side effects or adverse effects of MAT.

Based on its findings, RNC recommended expanding MAT with methadone to other territories of Kazakhstan.²⁰

In 2011, the Ministry of Health formed a working group of medical specialists to review results of the pilot MAT Project in Kazakhstan. Findings of this working group were similar to the previous assessments and included statements that, "...patients receiving methadone indicate that they "did not seek heroin", "...improved relationships within families", etc. However, members of the working group interpreted such self-reports as "imaginary or virtual" (in original text: мнимый), suggesting that they did not reflect reality. The working group recommended, "...to elaborate standards on OST that should be used only for treatment of HIV-infected opioid dependent patients".²¹

Despite the two assessments listed above, there were no formal assessments of the MAT pilot project conducted by independent external specialists. It is anticipated that the current assessment will build on the findings and lessons learned from previous studies, and produce reliable evidence-based data to inform the development of improved drug dependency treatment services in Kazakhstan.

¹⁹ Ережепов Н., Каражанова А. (2010). Отчет о пилотной программе опиоидного замещения в Республике Казахстан на 2009-2009, РНПЦ МСПН. Павлодар.

²⁰ Ministry of Health, Order No.333 (12 May 2010). "On expansion of accessibility of opioid substitution therapy"

²¹ Субханбердина А.С., Комарова О.Н., Кожаметова Б.А., Садыкова А.Б.(18.01. 2011) Отчёт рабочей группы по результатам оценки хода реализации пилотного проекта по опиоидной заместительной терапии в городах Павлодар и Темиртау. Министерство здравоохранения Республики Казахстан. Астана.

3. Assessment goals and objectives

The purpose of this assessment was to collect and analyze data indicating the extent to which the MAT program in Kazakhstan complies with the minimal recommendations developed by World Health Organization for psychosocially assisted pharmacological treatment of opioid dependence²² and the Principles of drug dependence treatment.²³

The overall goal of this assessment was to provide data to inform improvements in opioid drug dependence treatment, particularly MAT, services in Kazakhstan.

Specific objectives included:

1. Describing the existing models of providing MAT to PWID.
2. Assessing the quality and efficacy of the current MAT models.
3. Identifying the existing capacity building needs to improve quality, efficiency and effectiveness of the drug dependence treatment systems in general, and MAT specifically.
4. Providing specific and feasible recommendations to MOH for improving quality, efficiency and effectiveness of the drug dependency treatment systems in general, and MAT specifically.

Data collection activities in Kazakhstan were carried out between February and March 2012.

²² WHO. (2010). Guidelines for the psychosocially assisted pharmacological treatment of opioid dependence

²³ UNODC, WHO. (2008). Principles of drug dependence treatment. Discussion Paper.

4. Methods

4.1. Data collection methods and tools

The assessment was conducted using qualitative and quantitative research methodologies including: i) systematic review of relevant documents; ii) semi-structured interviews with key stakeholders and staff involved in provision of MAT at narcological centers; iii) semi-structured interviews with opiate dependent persons not in treatment, as well as MAT patients; iv) MAT site/narcological facility assessments; and v) medical chart review. Information was triangulated across the various data collection methodologies to assess the outcome measures described below. The following data collection methods were employed:

- a. **Document review:** The assessment team reviewed all available relevant written documents, protocols, reports and standard operating procedures (SOPs) relating to provision of MAT including: national clinical guidelines related to drug dependence treatment and management of HIV in PWID; training reports and program implementation reports; presentations and reports from assessments conducted by other agencies; routine patient monitoring tools, such as registers or forms for drug dependence treatment services, outpatient registers, and electronic databases; data dissemination reports; and official MOH statistical reports.
- b. **Semi-structured interviews with key stakeholders:** The assessment team conducted interviews with stakeholders representing a wide range of positions and responsibilities within the narcological system to gather qualitative information about the structure and components of treatment provision.
- c. **Semi-structured interviews with staff involved in provision of MAT:** The assessment team also conducted interviews with staff involved in the provision of drug dependency treatment services at the site level, including staff of narcological dispensaries, pharmacists, nurses, and narcologists of MAT sites. The semi-structured interviews were used to collect more detailed information on the treatment and care processes and describe existing challenges.
- d. **Interviews with patients receiving MAT:** The assessment team conducted individual interviews with MAT patients (Pavlodar: n=42; Temirtau: n=22; Ust-Kamenogorsk: n=29). Eligible patients (those who were enrolled in MAT for more than 3 months) were invited for an interview by the MAT staff who provided general information about the purpose of the assessment. Patients who were interested met with a member of the assessment team, who provided more detailed information about the assessment and obtained informed consent. Each patient was interviewed using a standardized questionnaire that was based on validated research instruments used in other countries, in particular by a Multi-center collaborative study on opioid substitution therapy for opioid dependence led by WHO.²⁴
 - i. **Treatment Perceptions Questionnaire (TPQ).**²⁵ The TPQ was utilized to assess patients' satisfaction with the MAT services, and their experiences with MAT and other drug dependency treatment services, including their perception of the quality and acceptability of the services.

²⁴ Robert A., et al. (2009). WHO Collaborative Study on Substitution Therapy of Opioid Dependence and HIV/AIDS. Protocol.

²⁵ Marsden J., et al., (2000) Assessing client satisfaction with treatment for substance use problems and the development of the Treatment Perceptions Questionnaire (TPQ). *Addiction Research*; 8:455-70

- II. **Opiate Treatment Index (OTI).**²⁶ The OTI was used to measure the clinical outcomes of MAT. The OTI is a validated drug dependence treatment outcome assessment tool recommended by WHO that measures six treatment outcomes: drug use, HIV risk-taking behavior, social functioning, criminality, health status, and psychological functioning. Due to the time it takes to complete this assessment, only the following sections of OTI were utilized: Drug use and Criminality. In addition, questions developed by the investigators related to patients' overall satisfaction with their own health and their drug related expenses in the last 30 days were added to this part of the questionnaire.
- III. **HIV Risk Questionnaire-Short Version (HRQ-Short).**²⁷ Risks associated with drug use and sexual behaviors were assessed by using a short version of the HIV Risk Questionnaire provided by its developer.²⁸ The HRQ-Short Version assesses the frequency with which injecting drug users have participated in specific injecting, sexual and other risk-practices in the previous month that may expose them to blood borne viruses. The instrument consists of seven questions measuring frequency of HIV risk behaviors focusing on sexual and drug use practices.

In addition, through semi-structured interviews, detailed information was collected on: accessibility of drug dependency treatment services; personal experiences using narcological services; perceived quality of services; cost considerations; potential and actual reasons that could lead to drop outs from treatment; factors that could improve uptake and adherence to MAT; unmet needs related to drug dependence and HIV-related treatment services; and perspectives on improvement of services, to evaluate the level of acceptability and satisfaction with existing services.

- e. **Interviews with PWID not receiving MAT:** Interviews with PWID (n=10 at each site) were conducted in all of the MAT sites. Interviewers collected information about respondents' knowledge about MAT, their attitudes to this type of intervention, data about accessibility of narcological care and HIV prevention services for PWID, PWIDs' perspectives regarding barriers to narcological care and HIV prevention services, as well as potential ways to improve the current situation.
- f. **Facility audit:** The assessment team conducted facility audits that included an assessment of providers' building characteristics, including geographical location; distance from public transportation lines; conditions of waiting areas and rooms for counseling and treatment (including infection control measures); and provisions for storing and dispensing MAT medicines and other commodities.
- g. **Patients' charts and registries review:** Medical charts and registers were reviewed by the assessment teams to assess the scope and the quality of existing MAT services.

4.2. Measurement of outcomes

The following components of the MAT service delivery system were assessed during literature review, facility audits and interviews with medical staff and PWID:

²⁶ Darke Shane, et al. (2000). The relationship between suicide and overdose among methadone maintenance patients. Technical report #100. NDARC, <http://ndarc.cms.med.unsw.edu.au/sites/ndarc.cms.med.unsw.edu.au/files/ndarc/resources/TR.100.pdf>

²⁷ Copersino ML, et al. (2010). Measurement of self-reported HIV risk behaviors in injection drug users: comparison of standard versus timeline follow-back administration procedures. *Journal of Substance Abuse Treatment*; 38(1):60-5.

²⁸ HIV Risk Questionnaire-Short Version was developed and kindly provided for the use in this assessment by Dr. Robert Brooner, professor of medical psychology at Johns Hopkins University.

1. Overall structure and policy environment
2. Costing and financing
3. Supply management of commodities
4. Human resources (staffing)
5. Infrastructure
6. Monitoring and evaluation
7. Service delivery system characteristics

For medical record reviews and interviews with patients, the following indicators were used to assess the scope and quality of services (service delivery characteristics) provided by MAT sites:

- Indicator 1: Proportion of patients on MAT with at least one complete clinical review in the last quarter
- Indicator 2: Proportion of MAT patients screened for Hepatitis C and Hepatitis B
- Indicator 3: Proportion of patients on MAT with at least one psychosocial counseling session during the last month
- Indicator 4: Proportion of patients who remain free from non-prescribed opioids at six months after initiation of MAT
- Indicator 5: Proportion of patients on MAT remaining in care at six months after initiation of MAT
- Indicator 6: Proportion of patients who remain free from non-prescribed opioids at twelve months after initiation of MAT
- Indicator 7: Proportion of patients on MAT remaining in care at twelve months after initiation of MAT
- Indicator 8: Proportion of patients on MAT with at least one sexual and drug related risk assessment completed during the last month
- Indicator 9: The average daily dose of methadone received by patients enrolled in MAT for three months or longer

A detailed explanation of the indicators used for the medical record review, as well as the data extraction methods employed, are provided in Attachment I.

4.3. Statistical analysis

Means and standard deviations were calculated separately for each TPQ item. Differences in the mean frequency of use of non-prescribed psychoactive drugs for a period of 30 days prior to MAT enrollment and during the last 30 days on MAT were analyzed with paired t-tests at a two-sided significance level of 0,05. For a comparison of criminality rate and patients' overall satisfaction with their own health before and during their participation in MAT, the Wilcoxon Signed Ranks test was used. Daily drug related expenses were calculated by multiplying the mean cost of non-prescribed drugs consumed during the last three consecutive drug consumption days with the average number of drug consumption days in the census month. Differences between drug-related expenses before and after MAT enrollment were calculated using paired t-tests. The effect of MAT enrollment on the frequency of HIV risk behaviors was tested with McNemar's test. A p value <0.05 was used as the threshold for significance in all analyses.

4.4. Site selection

All three sites where MAT was implemented were included in the assessment:

1. City narcology dispensary in Temirtau, Karaganda oblast;
2. Oblast center for prevention and treatment of addiction disorders in Pavlodar, Pavlodar oblast;
3. Oblast narcology dispensary in Ust-Kamenogorsk, Eastern Kazakhstan oblast.

4.5. Assessment Team

The assessment team was comprised of staff from ICAP-Columbia University, and short-term external consultants with expertise in conducting assessments of health care interventions, including drug dependence treatment, and particularly medication-assisted therapy.

The assessment protocol was approved by the Ministry of Health and the Republican AIDS Center of Kazakhstan, the Ethics Committee of the Kazakhstan's School of Public Health, the US Centers for Disease Control and Prevention (CDC) and by the institutional review board (IRB) of Columbia University Medical Center.

5. Description of MAT services in Kazakhstan

5.1. Overall structure and policy environment

MAT is incorporated into the Kazakhstan's State healthcare reform program "Salamatty Kazakhstan" which is a single framework document that details national priorities in health care development, and specifies tasks and activities, as well as the amount of state budget allocated for activities in 2011-2015.²⁹

National legislation of Kazakhstan requires medical organizations to obtain a special license in order to operate with psychotropic and narcotic drugs, including methadone and buprenorphine. There are no additional legal obstacles for private and non-governmental medical organizations to obtain such a license compared to public medical entities.³⁰ However, the current practice is such that the MOH identifies and authorizes certain medical facilities to provide MAT to a certain amount of opioid dependent patients. So far only public/state-owned medical entities providing narcological services have been included on the list of entities that are authorized to provide MAT. The mechanism by which private and non-governmental medical organizations could be included on this list remains unclear.

Implementation of the existing MAT program in three sites (Temirtau, Pavlodar and Ust-Kamenogorsk) is regulated by the order of the MOH on expanded access to MAT in Kazakhstan. In addition, the Republican Applied Research Center on Medical and Social Problems of Drug Abuse (RNC) in collaboration with the Republican AIDS Center (RAC) and the United Nation's Office on Drugs and Crime (UNODC), elaborated a joint document titled "Expansion of accessibility of opioid substitution therapy in Kazakhstan 2011-2014: situation review, action plan and operational plan of introduction" that sets specific targets for the MAT program implementation in the country. Although the judicial status of the latter document remains unclear (by the time of assessment the document has not yet been approved by the Ministry of Health), these two documents allow considering Kazakhstan's MAT-related policy as an example of best practice, according to the Guidelines for the psychosocially assisted pharmacological treatment of opioid dependence.

Guidelines "Application of opiate agonists maintenance therapy in narcological practice of the Republic of Kazakhstan" elaborated by the RNC serve as clinical guidelines for provision of MAT in Kazakhstan. These guidelines were developed largely based on the WHO's Guidelines on psychosocially assisted pharmacological treatment

Box 1

BEST PRACTICE:

A strategy document is produced outlining the government policy on the treatment of opioid dependence. It aims for adequate coverage, quality and safety of treatment.

Guidelines for the psychosocially assisted pharmacological treatment of opioid dependence (WHO, 2009)

²⁹ The State Program on the Development of Health Care of the Republic of Kazakhstan for 2011-2015 "Salamatty Kazakhstan", Endorsed by President's Decree No.1113 (29 November 2010).

³⁰ MAT Policy Toolkit, Reference Inventory library for Kazakhstan. <http://www.eematkb.com/>. Accessed on 09.04.2012

of opioid dependence, (WHO, 2009) and reflect national laws, policies and conditions as recommended by WHO. However, some of the clauses of these guidelines do not correspond with the contemporary recommendations and they require revision. For example, the guidelines include a minimum age of 18 years old as one of the eligibility criteria. However, the best available evidence does not suggest any contraindications to including younger age groups in MAT, nor do they present any evidence that other non-opioid maintenance types of treatments are more effective for this group of opioid dependent patients.³¹ Two other inclusion criteria that cause concern include the requirement to justify (without any clarification on how) at least a three year history of injecting drugs and/or at least two documented unsuccessful treatment attempts. Although excluding “fresh” opioid users who have not yet developed dependence is reasonable, patients’ ability to prove the duration of their drug use and previous treatment attempts may be limited. This is especially true for people who use anonymous treatment services, which are provided by a variety of private clinics. Patients who receive treatment at these clinics are not officially registered as drug users in the narcological register, and clinics cannot provide documents confirming that the patients were in treatment.

In Kazakhstan, there is a procedure to officially register people with drug dependence. People are entered in the registry by a narcologist upon diagnosing mental and behavioral disorders related to drug use. The registry is maintained by the regional narcological dispensaries. Narcologists and nurses registering and making appointments for a patient have full access to the registry. A person may be removed from the registry after 5 years of being deemed drug-free.³² According to the information received during patient interviews, registration with narcology services often leads to registration in the police register, which may have negative consequences, such as withdrawal of the patient’s driving license and limitation of other civic rights. This discourages many PWID from using narcological services and enrolling in MAT programs.

Another serious problem with the current legislative norms related to MAT is the deprivation of patients’ rights to free movement. Once enrolled in a MAT program, patients cannot move or travel anywhere within and outside of the country without stopping MAT because they cannot receive take-home doses and prescriptions of methadone. PWID who participated in interviews indicated this as another serious problem discouraging them from initiating MAT.

5.2. Costing and financing

In Kazakhstan, MAT is virtually free for patients. The three existing MAT sites are fully supported by the GFATM-funded HIV project without involvement of state or municipal budgets for healthcare.

Box 2

BEST PRACTICE:

Clinical guidelines are detailed, comprehensive, evidence based and developed at a country level or lower, to reflect local laws, policies and conditions.

Guidelines for the psychosocially assisted pharmacological treatment of opioid dependence (WHO, 2009)

³¹ Smyth BP, et al. (2012). Outcome of heroin-dependent adolescents presenting for opiate substitution treatment. *The Journal of Substance Abuse Treatment*; 42(1):35-44.

³² UNODC. (2009). Accessibility of HIV prevention, treatment and care services for people who use drugs and incarcerated people in Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan: Legislative and Policy analysis and recommendations for reform.

However, the State program “Salamatty Kazakhstan” includes a budget of 1,244,000,000 Kazakh tenge (approximately 8.5 million US dollars) allocated for MAT services for 2011 to 2015, which is indicative of the MOH’s commitment to implement the MAT program.

In 2010, GFATM procured methadone hydrochloride at a cost of US \$18.5 per gram, which means that the cost of a recommended average daily dose of methadone (100 mg) is as low as US \$1.85. According to the GFATM Project Implementation Unit, the cost of methadone procured in 2011 is less than 50% of this price, as they have contracted with a new supplier. Besides purchasing methadone, GFATM also provides funding for the establishment of new MAT sites, including renovation and equipment, as well as additional compensation to narcology center staff involved in implementation of the MAT pilot.

5.3. Supply management of commodities

Methadone and buprenorphine are included in the list of medical substances that are strictly controlled by national regulatory bodies and their import, storage and administration require special permissions.³³ Partially due to the limited market capacity, neither methadone nor buprenorphine are officially registered in Kazakhstan. This significantly complicates the import of methadone, as a single-time import permission for controlled substances is required,³⁴ which makes it virtually impossible for narcological entities to procure it independently. This requirement has also impeded authorized providers of MAT services (e.g. narcology dispensaries) from procuring methadone and expending funds allocated for the expansion of MAT in the “Salamatty Kazakhstan” MAT budget. Key informants who participated in this assessment indicated that providers may face the same situation in 2012 if these drugs are not registered in Kazakhstan, and a centralized procurement mechanism is not established.

Currently methadone is procured by the Republican AIDS Center, the Primary Recipient of the GFATM HIV grant. Procurement is done based on the forecast provided by the Republican Narcology Center that collects information on methadone stock and potential demand from each MAT site on a monthly basis. The potential demand for methadone is calculated based on the assumption that each MAT patient requires a daily dose of 100 mg of methadone. Results of key stakeholder interviews show that this procurement mechanism is not very effective, and the complete procurement cycle (from forecasting and planning to product delivery) takes six to nine months. Current constraints in procurement management of MAT medications resulted in supply interruptions in 2010, and as a result sites had to significantly reduce the daily doses of methadone provided to patients for a two month period. These methadone supply interruptions led to a loss of patients who could not continue participating in the program with insufficient doses; some of these patients dropped out and went back to using heroin. Supply problems also harm the reputation of the program and promote a negative attitude towards MAT programs among PWID and service providers.

5.4. Human resources

All three MAT sites have standard staffing structures that include: a site coordinator, two narcologists, two nurses, a pharmacist, a social worker, and a psychologist.

All MAT staff members were recruited from the same narcology clinic. MAT-related functions were performed in addition to their main jobs. The percentage of staff time devoted to MAT

³³ “On drugs, psychotropic substances and precursors, and measures on combating their illegal circulation and abuse”, Law No. 279-1 (July 10, 1998 (with amendments and additions as of 07/17/2009)

³⁴ Government of the Republic of Kazakhstan, Decree No. 1693. On adoption of Provisions on provision of state control over circulation of drugs, psychotropic substances and precursors in the Republic of Kazakhstan”.

varies from 25% to 50% depending on the number of patients, their needs, and the ability to conduct individual counseling, group therapy, toxicology tests, etc. The role of the site coordinator is typically performed by the chief doctor of a narcology clinic. Responsibilities of the site coordinator include: overall management of the MAT site including daily staff supervision, service quality assurance, procurement, stock management, coordination of activities with other service providers, reporting to relevant bodies, etc. At each MAT site, teams meet regularly, no less than once per month, to discuss overall pilot project performance, patients' progress, and various clinical and operational challenges. In addition to the overall supervision provided by site coordinators, clinical supervision is also performed by a senior narcologist that has more experience in the field, including MAT-related trainings and practice. Although this peer-supervision is informal, in practice such vocational interaction contributes to ensuring the quality of clinical services, keeping the staff up-to-date about recent developments in the MAT field, and reducing work-related burn-out. However, more intensive on-site mentoring from more experienced clinicians and exposure to more established MAT programs would be beneficial to providers.

All but one of the narcologists that prescribe methadone under the pilot project learned how to treat patients with methadone during various trainings, seminars and study tours organized by international development partners within and outside of the country.

RNC has a three-day training module on MAT that was developed based on the existing MAT guidelines and various international training materials. Completion of this training module is a pre-requisite for all MAT staff before they begin working on the MAT project. However, none of the medical schools include opioid substitution therapy as part of their curricula on drug dependency treatment, which may contribute to the myths about methadone and biased attitude toward MAT among medical professionals.

Most of the narcologists at MAT sites pointed out that they have insufficient training on MAT. Narcologists and nurses at MAT sites reported that building their capacity in motivational interviewing was a priority in order to improve the quality of the MAT operation.

5.5. Infrastructure

As stated above, all MAT sites are located within the existing government drug narcological facilities.

Pavlodar. In Pavlodar, the MAT site is located at the Pavlodar Oblast Center for Prevention and Treatment of Addiction Disorders (thereafter referred to as the Pavlodar Narcology Center). There is a public transportation system that makes it relatively easy for patients from other parts of town to access the MAT service. The conditions of the building are suboptimal, although recently the first two floors of the building were partially renovated. A room where patients receive MAT is located on the first floor at the end of a long corridor and there is only one

Box 3

MINIMUM STANDARD:

Treatment of opioid dependence should be carried out by trained health-care personnel. The level of training for specific tasks should be determined by the level of responsibility and national regulations.

Guidelines for the psychosocially assisted pharmacological treatment of opioid dependence (WHO, 2009)

entrance to the building. Entrance to the MAT dispensing space/room is separated from a corridor by an iron lattice that has a small window through which a nurse gives out cups with methadone syrup. The dispensing room is very small (about four sq. meters), has a window with direct natural light and equipped with a table, a chair and a safe for storing methadone. The MAT dispensing area is located among several rooms where narcologists see ambulatory patients. The MAT dispensing area is adjacent to a needle exchange point administered by the Oblast AIDS Center where PWID can receive HIV- and safe injection-related counseling, exchange syringes and needles, and obtain free condoms. In the same end of the corridor, there is a room provided by Pavlodar Narcology Center to a non-governmental organization "INSIDE" that was set-up by MAT patients themselves. "INSIDE" is a place where MAT patients socialize, participate in self-help groups and attend seminars on various health issues with health specialists, including the Center's psychologist. Pavlodar Narcology Center has a drug storage room and a separate room to store stocks of methadone, which is maintained under an alarm system. Drug stocks include, among other medications, naloxone, naltrexone and various antidepressants. The Center's laboratory operates machines to conduct basic blood tests, urinalysis, blood biochemistry, and toxicology tests. There is a daytime outpatient department where patients, including those on MAT, can receive medical assistance, including treatment of addiction-related chronic somatic illnesses. There are separate rooms where the MAT clinical staff can provide counseling to patients in a confidential and quiet environment. Pavlodar Narcology Center has arranged for an HIV specialist from the Oblast AIDS Center to work on-site part-time, so that integrated HIV care can be offered to MAT patients. The MAT site in Pavlodar is open from 8:00 am to 10:00 am and from 17:00 pm to 18:00 pm.

Ust-Kamenogorsk. The MAT site in Ust-Kamenogorsk is located in the premises of the Eastern-Kazakhstan Oblast Narcological Dispensary (thereafter referred to as Ust-Kamenogorsk Narcology Center). The site is also easily accessible by public transportation. It is located on the upper three floors of the five-floor building. It was constructed to be used as a dormitory and does not seem to be properly adapted for hospital needs. The MAT dispensing room is located on the fifth floor of the building. Similarly to the site in Pavlodar, the Ust-Kamenogorsk Narcology Center has only one entrance, which makes access very inconvenient. There is a small waiting room where patients stay queue for methadone. The methadone is dispensed through a window in the wall by the MAT nurse. The dispensing room is relatively large (12 m²), has a window with natural light and is equipped with tables, a chair, a wardrobe and a safe for storing methadone. The MAT dispensing area is located among several rooms where narcologists see ambulatory patients. Ust-Kamenogorsk Narcology Center has a drug storage room and a separate room to store stocks of methadone, which is maintained under an alarm system. Drug stocks include, among other medications, vitamins, neuroleptics and various antidepressants. The Center's laboratory operates machines to conduct blood and urine tests, biochemistry, and toxicology tests. There is a daytime outpatient department where patients can receive medical assistance, including treatment of chronic somatic illnesses. Unfortunately, according to the MAT staff, patients on MAT cannot access medications procured from a state budget. During the interview, it was explained that, "...MAT patients must receive medications procured only by GFATM... and we cannot use governmental resources for these patients". There are separate rooms available for the MAT clinical staff to provide counseling to patients in a confidential and quiet environment. On the other side of the building, the Oblast AIDS Center occupies the first floor. The MAT site in Ust-Kamenogorsk is open from 8:00 am to 10:00 am and from 17:00 pm to 18:00 pm.

Temirtau. The MAT site in Temirtau is located at the Temirtau City Narcology Dispensary in the old part of the town. Although there is a public transportation system available, patients complain that it is difficult to access the site from other parts of the town. It is located in a

two-story old building. The MAT dispensing room is located on the first floor of the building, not far from a single entrance. There is a small waiting room where patients stay in queue for methadone, which is given out through a window in the wall by the MAT nurse. The dispensing room is very small (less than 2 m²), and does not have an exterior window or air conditioning system. It is equipped with a table, a chair, and a small safe for storing methadone. Clearly, there is a shortage of space in the building to satisfy all of the competing needs of the clinic. The MAT dispensing space is located adjacent to a room where people undergo toxicology checks that are often performed in the presence of police officers in accordance with law enforcement regulations. Also adjacent to the MAT dispensing room is a medical correction department that provides sobering up services for people brought in by police who are intoxicated with psychoactive substances, most often alcohol. The proximity of these services demotivates some patients from coming to the MAT site on a daily basis due to their fear of coming into contact with police or other persons they might know.

Temirtau Narcology Dispensary has a drug storage room and a separate room to store stocks of methadone, which is maintained under an alarm system. Drug stocks include, among other medications, vitamins, neuroleptics and various antidepressants. The Center's laboratory operates machines to conduct blood and urine tests, biochemistry, and immunoassay tests. There are no separate rooms available for the MAT clinical staff to provide counseling to patients in a confidential and quiet environment. The MAT site in Temirtau is open from 10:00 am to 11:00 am and from 17:00 pm to 18:00 pm. Many working patients complain that the late morning opening time of the MAT site does not allow them to receive methadone before the beginning of their work day.

In all MAT sites, methadone is measured and dispensed by manual pipettes that, according to nurses at the MAT sites, are inconvenient to use due to the viscous consistency of the medication. Pipettes break frequently and in such cases nurses are constrained to use large volume single-use syringes for dispensing doses of methadone.

5.6. Monitoring and Evaluation

Since 2005, the RNC in Pavlodar has been tasked by MOH to provide scientific support to the pilot MAT projects funded by GFATM and to conduct overall monitoring and evaluation. Thus, MAT sites report on a quarterly basis to RCN and monthly to RAC, the primary recipient of the GFATM grant. Purpose, content and structure of reports to these two supervising bodies differ from each other although they share some key indicators. The data reported to the RCN are collected for evaluation of the process and outcomes of the MAT project. The following types of paper-based data are collected about each individual patient:

- Patients' personal data
- Patients' sociodemographic profile
- Patients' biopsychosocial status
- Years of drug use
- Information about types of treatment currently and previously received
- Date of initiation of MAT
- Clinical Diagnosis based on ICD-10
- Daily dose of methadone prescribed (mg)
- Changes in prescribed doses of methadone with explanation of reasons
- Number of new patients
- Number of drop-outs with explanation of reasons
- Criminal charges of MAT patients
- Concurrent illnesses including HIV, HBV, HCV, TB

- Laboratory test results
- Results of psychological assessment with dates:
 - a. A short form of Minnesota Multiphasic Personality Inventory (MMPI-Short)
 - b. Addiction Severity Index
 - c. Zung Self-Rating Depression Scale
 - d. WHO QOL-100 (Quality of Life)
- Description of side effects related to MAT with observation dates
- Description of changes in patients' social well being
- Outcomes of therapy
- Reasons exclusion from MAT (if applicable)

It should be noted that since early 2011, due to uncertainty about whether the pilot MAT project would be continued or not, and dismissal of the RNC's specialist who was responsible for collection and quality control of the data from OST sites, information gathered was fragmentary and could not be adequately interpreted. Currently, RNC is in the process of optimizing collected data and an agreement has been signed with the RAC which envisages quarterly site visits to the MAT sites. At the end of 2011, a new focal point person was appointed within RNC who resumed collection of MAT-related data.

The technical guidance provided to the MAT sites related to monitoring and evaluation has been inadequate. It is important to emphasize that psychometric instruments, as with any other tools used to evaluate patients' psychological status, should be carefully selected before applying them to practice, considering both their validity and their practical value. The short version of the MMPI used in Kazakhstan lacks quality evidence of its validity,^{35,36} and thus it is not advisable to use it for patient monitoring purposes in the MAT project.

Based on the information extracted from reports of MAT sites, RNC produces consolidated reports on an annual basis. These data are also used to forecast needs for methadone and monitor stocks.

The following data are reported on a quarterly basis by each of the MAT sites to the RAC:

- Patients' sociodemographic profile
- Patients' biopsychosocial status
- Average daily dose of methadone per patient
- Remaining amount of methadone (mg)
- Number of new patients
- Number of drop-outs with explanation of reasons
- Criminal charges of MAT patients
- Concurrent illnesses (HIV, HBV, HCV, TB)

At the site level, MAT patients' records are kept in accordance with the MOH's Order #907 "About endorsement of primary medical documents of healthcare organizations". Clinics providing MAT services keep a special form for each patient called "ambulatory/outpatient card," that contains personal and medical data, including: full name; address and contact details; employment and marital status; current and previous diagnoses; data on previous (narcological) treatments received; health complaints; clinical status; laboratory and other diagnostics test results; treatment plans with indication of medication dosages and indicated duration; and routine records of the attending doctor, social worker and psychologist.

There are inconsistencies among MAT sites on forms used for recording toxicology test

³⁵ Archer RP, et al. (2001). Evaluation of an MMPI-A short form: implications for adaptive testing. *Journal of Personality Assessment*;76(1):76-89.

³⁶ Gass CS, Gonzalez C. (2003). MMPI-2 short form proposal: CAUTION. *Archives of Clinical Neuropsychology*; 18(5):521-7.

results, and the content and outcomes of counseling provided by a psychologist and a social worker. However, the evaluation team has also failed to identify any formally accepted standards on keeping such records. Although the current paper-based medical record-keeping practice allows the monitoring of patients' status and progress over the treatment course, it would be beneficial to elaborate standardized forms for behavioral and psychosocial assessment based on the best international practice.

In accordance with the Kazakhstan's Code "On people's health and healthcare system" article 95, "...information about fact of utilization medical care by patients, their diagnosis or any other data represent medical secret...". But in practice, law enforcement agencies do access these data due to inconsistent, or even conflicting, legislative norms and regulations described in detail by UNODC.³⁷

³⁷ UNODC. (2009). Accessibility of HIV prevention, treatment and care services for people who use drugs and incarcerated people in Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan: Legislative and Policy analysis and recommendations for reform.

6. Evaluation of MAT Services in Kazakhstan

In the absence of an effective MAT M&E system that would allow comprehensive and objective evaluation of the whole spectrum of treatment services provided by the existing MAT sites, this assessment was focused on assessing the ability of the MAT program to effectively improve the quality of life of PWID based on the following parameters:

1. Continuity of care and spectrum of services available to MAT patients
2. MAT adherence
3. Patient satisfaction with the program and his/her health status
4. Patient behavior (sexual, injection and criminal)

6.1. Continuity of care and comprehensiveness of spectrum of services available to MAT patients

According to the existing MAT guidelines, the spectrum of services provided to MAT patients should include: MAT, diagnosis of viral hepatitis, HIV and other STIs, and psychosocial care. Attending physicians are required to elaborate individual treatment plans addressing medical complications for each patient.³⁸ This means that patients on MAT should also receive treatment for other medical conditions, such as hepatitis and HIV, at the same institution where they receive MAT. All MAT patients are tested for HIV on an opt-out basis, however, only one of three MAT sites provides treatment of non-narcological illnesses and is actively engaged in ART counseling and monitoring.

6.1.1. Proportion of patients on MAT with at least one complete clinical review in the last quarter

Chart review revealed that documentation of complete clinical reviews³⁹ is not practiced at any of the three MAT sites in Kazakhstan. Complete clinical review is also not prescribed by the existing MAT guidelines. However, clinical staff at all three MAT sites indicated that all patients undergo review by all specialists (narcologists, psychologists and social worker) as well as urine toxicology tests on a quarterly basis, and that the results of these reviews are communicated within the MAT team and with the patient.

6.1.2. Proportion of MAT patients screened for Hepatitis C and Hepatitis B

The percentage of patients screened for both HBV and HCV ranged from 55% to 85% (Table 1). The low rate of HBV and HCV testing was mainly due to the fact that only the MAT site in Temirtau has the means to perform HCV and HBV testing (ELISA) on-site. In the remaining two sites, patients are referred to private laboratories where they must pay for their tests, which is not possible for many of them. Only a small fraction of patients that are HIV-positive were able to obtain HCV/ HBV screening at the AIDS Center for free. Both MAT patients and clinical staff indicated that

³⁸ Republican Applied Research Center on Medical and Social Problems of Drug Abuse. (2010). "Application of opiate agonists maintenance therapy in narcological practice of the Republic of Kazakhstan". Methodological recommendations, Pavlodar.

³⁹ Complete clinical review includes at a minimum one documented assessment and counseling by a doctor in charge and a social worker in charge as well as a urine toxicology test conducted during the report period.

the requirement to undergo these tests delays or even obstructs initiation of MAT by patients. However, the MAT site in Pavlodar allows all patients to start therapy prior to being screened for viral hepatitis.

Table 1. Proportion of MAT patients screened for Hepatitis C and Hepatitis B

Site	Number of charts reviewed (N)*	Number (%) of MAT patients screened for HBV (n1)	Number (%) of MAT patients screened for HCV (n2)	Number (%) of MAT patients screened for both HBV and HCV (n3)
Pavlodar	40	23 (58%)	31 (78%)	22 (55%)
Temirtau	73	62 (85%)	69 (95%)	62 (85%)
Ust-Kamenogorsk	73	45 (62%)	43 (59%)	41 (59%)

* all of the eligible charts at each of the sites were reviewed

6.1.3. Proportion of patients on MAT with at least one psychosocial counseling session during the last month.

Table 2. Proportion of patients on MAT with at least one psychosocial counseling session during the last month.

Site	Number of charts reviewed* (N)	Number of MAT patients with at least one psychosocial counseling session during the last 1 month (n)	Percentage of MAT patients with at least one psychosocial counseling session during the last 1 month (n/N*100%)
Pavlodar	47	10	21%
Temirtau	35	18	51%
Ust-Kamenogorsk	36	34	94%

* all of the eligible charts at each of the sites were reviewed

The percentage of MAT patients with at least one counseling session during the last month differed significantly between sites (Table 2). This is mainly due to the fact that in Pavlodar many patients attended group psychotherapy, which was not systematically recorded in patients' charts; and in Temirtau, specialists do not have the ability to conduct individual counseling sessions with their patients due to shortage of rooms, and thus only organize group-counseling sessions that also are not recorded in individual patient records.

6.2. MAT adherence

6.2.1. Proportion of patients who remain free from non-prescribed opioids at six months after initiation of MAT

Table 3. Proportion of patients who remain free from non-prescribed opioids at six months after initiation of MAT

Site	Number of charts reviewed (N)*	Number of MAT patients who remain free from non-prescribed opioids at six months (n2)	Percentage of MAT patients who remain free from non-prescribed opioids at six months (n2/N*100%)
Pavlodar	65	62	95%
Temirtau	34	23	68%
Ust-Kamenogorsk	40	38	95%

* all charts of all eligible patients enrolled in MAT at the site

The vast majority (95%) of MAT Patients in Pavlodar and Ust-Kamenogorsk remained free from non-prescribed opioids at six months after initiation of MAT. In Temirtau, over two thirds of patients (68%) remained free from non-prescribed opioids at six months after initiation of MAT (Table 3). Temirtau's comparably lower percentage of patients who remained free from opioids at 6 months after initiation of MAT is in part due to the fact that 21,7% (N=5) of patient charts did not have urine toxicology test results for the indicated time interval. According to MAT staff in Temirtau, some patients refuse to undergo toxicology testing and staff is not able to convince them to take the test and follow the established rules. When calculating this indicator, all patients who did not have urine toxicology test results were counted as positive for opioids.

6.2.2. Proportion of patients on MAT remaining in care at six months after initiation of MAT

Table 4. Proportion of patients on MAT remaining in care at six months after initiation of MAT

Site	Number of charts reviewed (N)*	Number of MAT patients remaining in care at six months (n2)	Percentage of MAT patients remaining in care at six months (n2/N*100%)
Pavlodar	102	73	72%
Temirtau	60	33	55%
Ust-Kamenogorsk	65	42	65%

* all charts of all eligible patients enrolled in MAT at the site

In all sites, the majority of patients remain in care for at least 6 months, with a six month retention rate ranging from 55% to 72% (Table 4). It is important to note that at the time of the assessment, MAT was not an accessible form of narcological care throughout the country. There were patients who wanted to continue MAT, but were not able to do so when they moved to other regions of the country. Reasons for discontinuation of MAT are summarized in Table 4a. The highest percentage of patients discharged from the MAT program due to the continuous breach of the rules of the MAT program, including regular omitted methadone doses, (32%) was registered in Temirtau. This is in part explained by late opening hours, inconvenient location, inability to obtain individual

counseling, etc. It is also important to note that among all patients who prematurely discontinued MAT, 22% did so due to the necessity to undergo inpatient treatment.

Table 4a. Reasons for discontinuation of MAT

	Pavlodar	Temirtau	Ust-Kamenogorsk
Total number of patients ever enrolled	102	85	78
Total number of patients dropped out from MAT	54	50	43
Reasons for discontinuation of MAT			
Criminal charges	5	2	5
Personal life circumstances (voluntary discharge)	18	11	16
Continued breach of rules of the MAT program	6	16	6
Completion of therapy (after methadone tapering)	20	5	6
Change of country of residence	2	3	9
Inpatient treatment	3	11	0
Death caused by concurrent illnesses	0	2 (1-myocarditis; 1-pneumonia)	1

6.2.3. Proportion of patients who remain free from non-prescribed opioids at twelve months after initiation of MAT

Table 5. Proportion of patients who remain free from non-prescribed opioids at twelve months after initiation of MAT

Site	Number of charts reviewed (N)*	Number of MAT patients who remain free from non-prescribed opioids at twelve months (n2)	Percentage of MAT patients who remain free from non-prescribed opioids at twelve months (n2/N*100%)
Pavlodar	51	47	92%
Temirtau	22	9	41%
Ust-Kamenogorsk	19	16	84%

* all charts of all eligible patients enrolled in MAT at the site

As at six months, the majority of MAT patients in Pavlodar (92%) and Ust-Kamenogorsk (84%) remained free from non-prescribed opioids at twelve months after initiation of MAT. Temirtau's comparably lower percentage (41%) of patients who remained free from opioids at twelve months after initiation of MAT is in part due to the fact that 50% (N=11) of patients' charts did not have records of urine toxicology test results for the indicated time interval. According to the MAT staff,

these patients refused to undergo periodic toxicology tests. This situation, besides highlighting a potential source of unidentified positive toxicology test results, indicates gaps in the staff's capacity to motivate patients to follow project rules.

6.2.4. Proportion of patients on MAT remaining in care at twelve months after initiation of MAT

Table 6. Proportion of patients on MAT remaining in care at twelve months after initiation of MAT

Site	Number of charts reviewed (N)	Number of MAT patients who remain in care at twelve months after MAT initiation (n)	Percentage of MAT patients who remain in care at twelve months after MAT initiation (n/N*100%)
Pavlodar	66	51	61%
Temirtau	50	22	46%
Ust-Kamenogorsk	31	19	61%

In Pavlodar and Ust-Kamenogorsk, the proportion of MAT patients remaining in care at twelve months after initiation of MAT is 61%, while in Temirtau this proportion was only 46% (Table 5). Of note, Temirtau had the highest proportion of drop-outs from MAT by patients that needed to undergo inpatient treatment. It is reasonable to assume that if were possible to continue MAT as an inpatient, a number of those patients would have remained in MAT, and the retention rate in Temirtau might have been comparable with that at the other two sites.

6.2.5. The average daily dosage of methadone received by patients enrolled in MAT three months or longer

The average daily dose of methadone among patients currently on MAT for three months or longer in Pavlodar, Temirtau and Ust-Kamenogorsk is 66 mg, 69 mg, and 73 mg, respectively (Table 7).

Table 7. The average daily dosage of methadone received by patients enrolled in MAT three months or longer

Site	Number of patients sampled	Average daily dose (mg)	Interquartile range (mg)
Pavlodar	41	66	55– 82
Temirtau	26	69	55-80
Ust-Kamenogorsk	32	73	30–110

International evidence suggests that the optimal daily dose of methadone is in the range of 60-120 mg.⁴⁰ According to patients interviewed at MAT sites, many of them try to avoid increasing their daily dose of methadone due to fears of possible disruptions in supply of methadone or discontinuation of the pilot MAT project. However, all clinicians interviewed report practicing flexible methadone dosing, depending on patients' individual needs and health conditions.

As stated in the policy environment section above, the current regulatory framework in Kazakhstan does not have provisions for ensuring uninterrupted access to opioid substitution medications for those patients on MAT who, for some reason, cannot attend the clinic to take

⁴⁰ WHO, 2009. Guidelines for the psychosocially assisted pharmacological treatment of opioid dependence.

his/her daily dose of medication. Such circumstances include, but are not limited to, being hospitalized for inpatient treatment, travel or moving to another city, being arrested, etc. For example, as indicated above, 22% of patients from Temirtau who left the MAT program did so due to the need to get inpatient treatment in a TB clinic. The staff from all three of the MAT sites reported that they had many cases when their immobilized patients required the medication in some other hospitals, or their homes, but did not get it due to bureaucratic barriers. Patients on MAT, even stabilized ones, are the only group of patients receiving prescribed medicine that cannot access their medication without daily in-person visits to their clinic.⁴¹ All other groups of patients with chronic illnesses that require opioid analgesics can be dispensed

take-home doses from licensed pharmacies upon presenting their prescriptions.⁴² This is partially due to the fact that according to the order of the Ministry of Health No.173, clinicians are not allowed to prescribe and pharmacies are not allowed to sell or distribute medications that are not registered in Kazakhstan. As already mentioned before, both methadone and buprenorphine are not registered in Kazakhstan and can only be used within the existing pilot sites. This situation contradicts WHO's best practice recommendations stating, "Take-home doses can be recommended when the dose and social situation are stable, and when there is a low risk of diversion for illegitimate purposes", and "Take-away doses may be provided for patients when the benefits of reduced frequency of attendance are considered to outweigh the risk of diversion, subject to regular review".

6.3. Patients' satisfaction with the program and their own health status

All MAT patients participating in interviews were asked to answer a self-administered Treatment Perception Questionnaire (TPQ). The TPQ consists of ten items related to patients' perceptions about the MAT staff and program design. Each item is scored on a five-point scale from 0 (strongly disagree) to 4 (strongly agree). Scores on negative items are recoded to measure positive evaluations on all items. Higher scores indicate greater satisfaction with the program. Therefore, for statements that are worded negatively, a higher score indicates greater disagreement with the statement.⁴³

The overall satisfaction level with MAT was rated by patients as average to low: the highest mean

Box 4

BEST PRACTICE:

Take-home doses can be recommended when the dose and social situation are stable, and when there is a low risk of diversion for illegitimate purposes.

Take-away doses may be provided for patients when the benefits of reduced frequency of attendance are considered to outweigh the risk of diversion, subject to regular review.

Guidelines for the psychosocially assisted pharmacological treatment of opioid dependence (WHO, 2009)

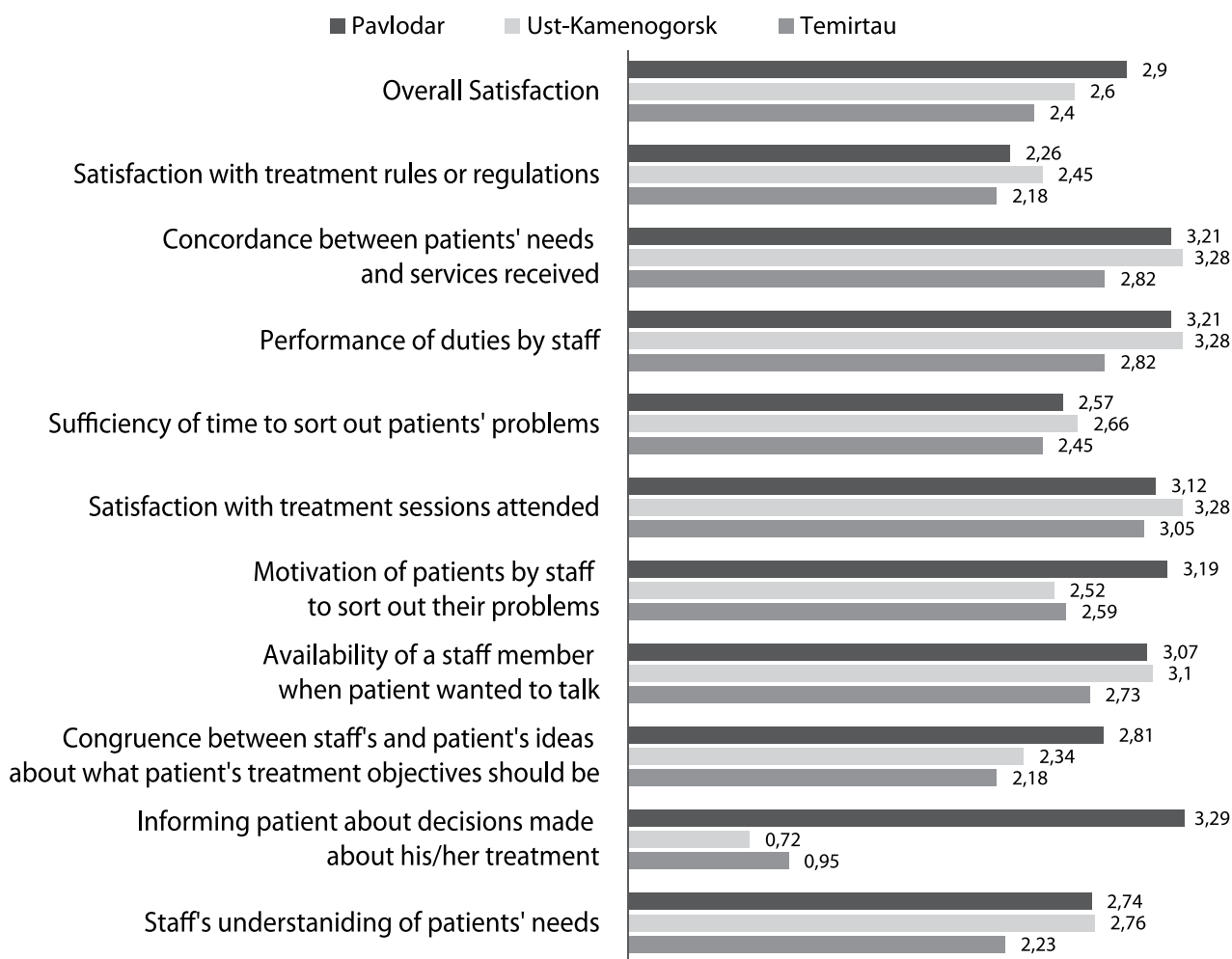
⁴¹ Ibid

⁴² Ministry of Health, Order No.173, (07.04.2005). "On adoption of Provisions on use of drugs, psychotropic substances and precursors that are under control for medical purposes in the republic of Kazakhstan".

⁴³ Morris Z, et al. (2008). Drug misuse treatment services in Scotland: predicting outcomes. *International Journal for Quality in Health Care*; Volume 20, Number 4: pp. 271 – 276.

score was 2,96 (SD=0,47) in Pavlodar, followed by Ust-Kamenogorsk and Temirtau where patients' overall satisfaction was scored 2,63 (SD=0,37) and 2,4 (SD=0,42), respectively. In Temirtau and Ust-Kamenogorsk, MAT patients gave considerably low scores to how well they have been informed about decisions made about their treatment: 0,95 (SD=0,38) and 0,72 (SD=0,45) respectively; in contrast, patients in Pavlodar rated their satisfaction in the same domain highly (M=3,29; SD=0,46). Results of MAT patients' treatment perception assessment are provided in Figure 1.

Figure 1. Patients' satisfaction with MAT services, by questions and sites (mean score; 0 = strong dissatisfaction; and 4 = strong satisfaction)



Patients' level of satisfaction with the dose of methadone they received to avoid experiencing withdrawal symptoms and craving drugs was higher than that of the global mean score calculated on the TPQ: in Pavlodar, Ust-Kamenogorsk and Temirtau patients scored 3,36 (SD=0,53), 3,48 (SD=0,51) and 3,14 (SD=0,47), respectively. This is an important finding as clinicians providing MAT most often rely on patients' feedback regarding the adequacy of methadone dosing as the sole measure of service quality. In addition to methadone dose patients' satisfaction with services has been identified as a strong predictor of retention in treatment and better treatment outcomes.^{44,45,46}

⁴⁴ Sanders L, Trinh C, Sherman B et al. (1998). Assessment of client satisfaction in a peer counseling substance abuse treatment program for pregnant and postpartum women. *Evaluation and Program Planning*; 21: 287–96.

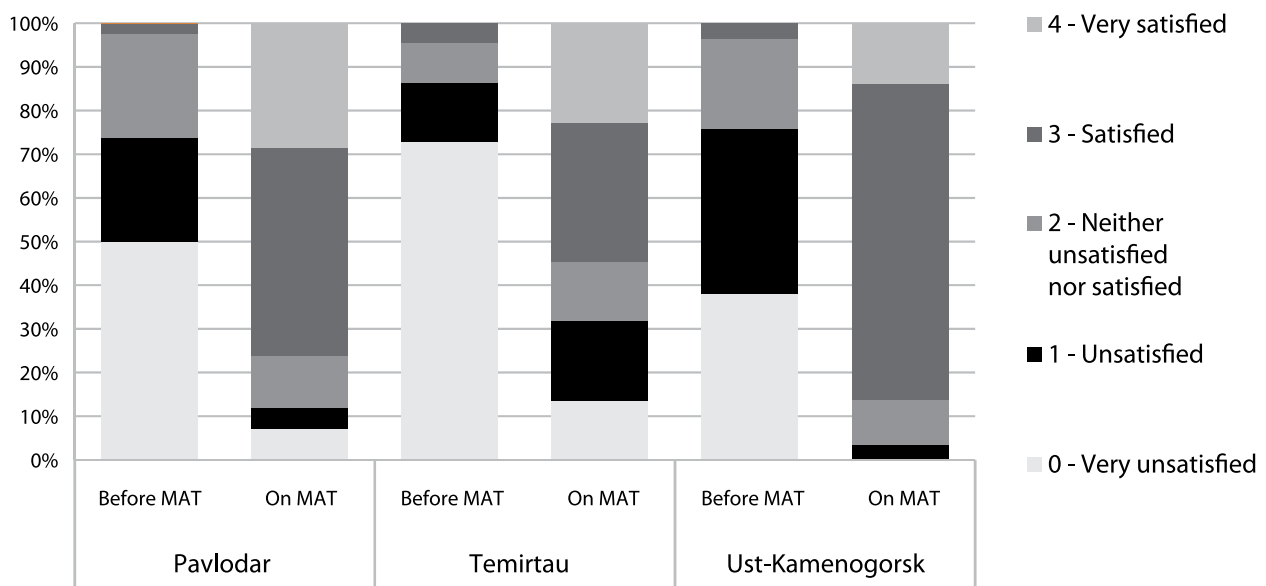
⁴⁵ Morris Z, McKeganey N. (2007). Client perceptions of drug treatment services in Scotland. *Drugs: Education, Prevention & Policy*; 14: 49 – 60.

⁴⁶ Marsden J., et al. (2000). Assessing client satisfaction with treatment for substance use problems and the development of the

MAT patients were asked, “How satisfied with your health status were you during the last 30 days?” and, “How satisfied with your health status were you before starting MAT?”, on a scale ranging from 0 (very satisfied) to 4 (very unsatisfied). A Wilcoxon Signed Ranks Test showed that there are statistically significant changes towards improvement in patients’ perception of their own current health status compared to the period before initiating MAT with methadone in Pavlodar (median [before MAT]=0.50, median [on MAT]=3.0, $Z=-5.337$, $P<0.001$); Temirtau (median [before MAT]=0.00, median [on MAT]=3.00, $Z=-3.486$, $P<0.001$); and Ust-Kamenogorsk (median [before MAT]=1.00, median [on MAT]=3.00, $Z=-4.662$, $P<0.001$) (Figure2).

Our observation of the relatively low level of perception of MAT by patients, and the significant increase in their health satisfaction after enrollment to MAT, suggests that many of them did like the methadone, but did not like how the service was delivered.

Figure 2. Level of satisfaction with own health status during the past 30 days among MAT patients, before and after enrollment in MAT, by site



6.4 Evaluation of patient behaviors (sexual, injection and criminal)

6.4.1. Proportion of patients on MAT with at least one sexual and drug related risk assessment completed during the last one month

According to the chart review, sexual and drug related risk assessments were not conducted in all three sites, so the proportion of patients on MAT with at least one sexual and drug related risk assessment completed during the last one month was 0 across all MAT sites in Kazakhstan.

6.4.2. Drug use

The Opioid Treatment Index (OTI) was used to assess the frequency of psychotropic drug use for non-medical purposes during the last 30 days before enrollment in MAT and the last 30 days prior to their interview. OTI was administered according to the OTI Manual: “...For each drug class,

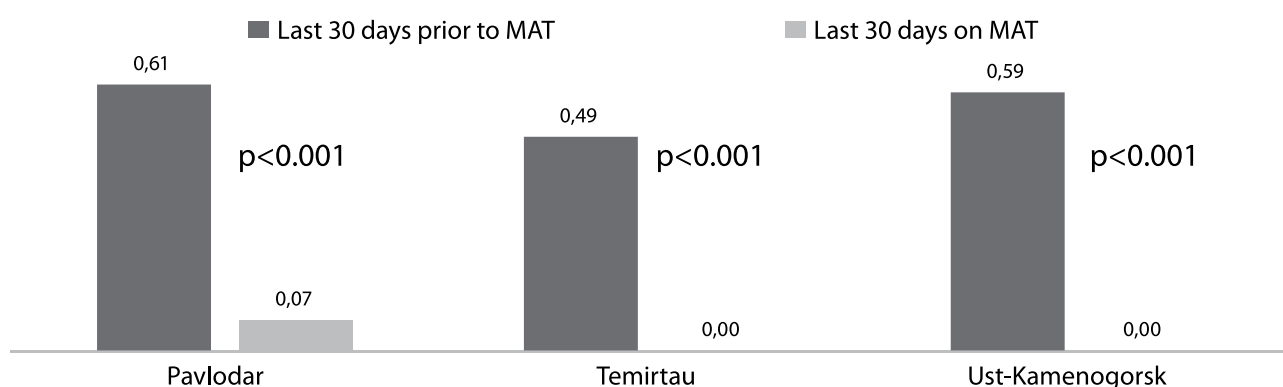
the subject was asked about the timeframe for their three most recent days of drug use, and how much they used on the last two occasions. The intervals between days of drug use were taken as an estimate of frequency of use, and the number of use episodes on the last two occasions was taken as an estimate of quantity consumed".⁴⁷ Table 7 below shows how the results were interpreted for the frequency scores.

Table 7. OTI drug use scores interpretation table

Frequency/Quantity	Score
Abstinence	0.00
Once a week or less	0.01-0.13
More than once a week	0.14-0.99
Daily	1.00-1.99
More than once a day	2.00 or more

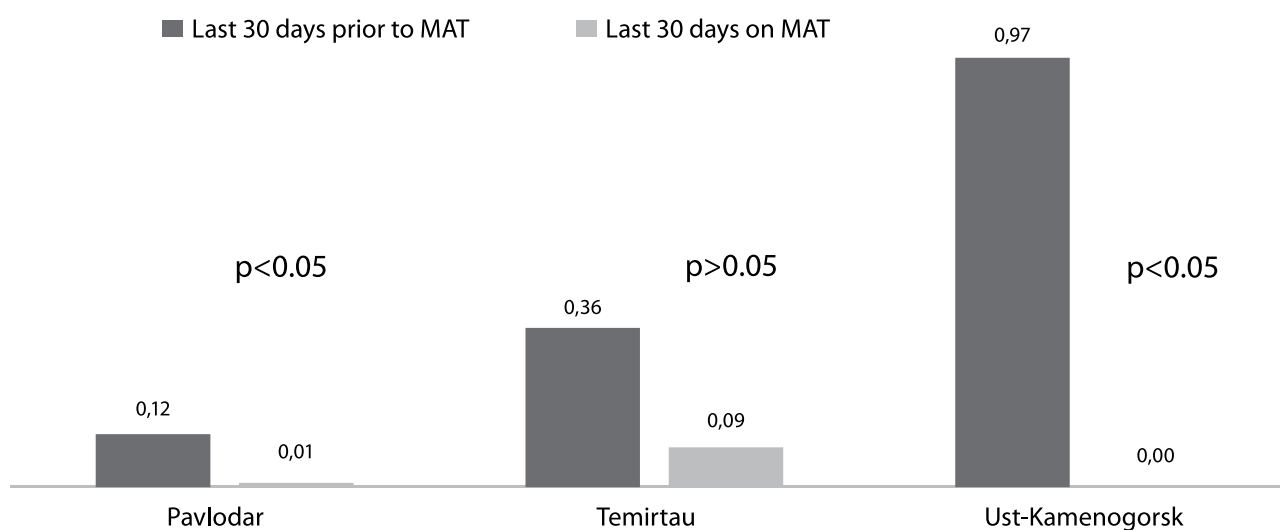
Heroin. Paired t-tests demonstrated a significant difference in frequency of heroin use by patients during the last 30 days prior to starting MAT and during the last 30 days on MAT across all three sites: in Pavlodar, prior to MAT, patients used heroin more than once a week ($M=0.61$, $SD=0.67$) and this was reduced to once a week or less ($M=0.07$, $SD=0.46$); $t(41)=4.09$, $p<0.001$); in both Temirtau and Ust-Kamenogorsk, the frequency of heroin use was reduced from more than once a week to abstinence [In Temirtau, ($M=0.49$, $SD=0.44$) and ($M=0.00$, $SD=0.00$); $t(21)=5.28$, $p<0.001$), and in Ust-Kamenogorsk ($M=0.59$, $SD=0.76$) and ($M=0.00$, $SD=0.00$); $t(28)=4.2$, $p<0.001$). Figure 3 demonstrates mean differences in heroin use. The relatively low level of heroin use prior to MAT enrollment can be explained by the fact that many MAT patients were enrolled at the time when they did not have easy access to heroin, which also stimulated them to enroll in the program.

Figure 3. Use of heroin in patients before and after enrollment into MAT program, by site



Opiates. A significant difference in the frequency of opiate use (other than heroine and prescribed methadone) by patients during the last 30 days prior to starting MAT and during the last 30 days on MAT was observed in Pavlodar and Ust-Kamenogorsk: mean frequency score of opiate use by patients in Pavlodar prior to MAT dropped from 0.12 ($SD=0.30$) to 0.01 ($SD=0.08$) during the last 30 days on MAT ($t(41)=2.2$, $p<0.05$) and in Ust-Kamenogorsk it dropped from 0.97 ($SD=1.9$) to 0.00 ($SD=0.00$); $t(28)=2.73$, $p<0.05$. In Temirtau, the frequency of opiate use also dropped, but this change was not statistically significant. Figure 4 below demonstrates mean differences in opiate use.

⁴⁷ Darke, Shane, Ward, Jeff, Hall, Wayne, Heather, Nick and Wodak, Alex (1991) The Opiate Treatment Index (OTI) researchers' manual. NDARC Technical Report 11, National Drug and Alcohol Research Centre, University of New South Wales.

Figure 4. Use of opiates in patients before and after enrollment into MAT program, by site

Other drugs. There were no patients that used cocaine, barbiturates or inhalants in the last 30 days prior to initiating MAT and during the last 30 days on MAT. Paired sample test did not identify any statistically significant differences in the frequency of use of other drugs, such as alcohol, cannabis, amphetamines and tranquilizers with two following exceptions:

- Mean frequency score of cannabis use among patients during last 30 days before initiating MAT dropped in Pavlodar from 0.88 (M=0.88, SD=2.65) to 0.11 (SD=0.72), during the last 30 days on MAT ($t(41)=2.4$, $p<0.05$).
- In Temirtau, the mean frequency score of tranquilizer use decreased significantly in patients on MAT compared to the last 30 days prior to initiation of MAT: (M=0.05, SD=0.21) and (M=0.65, SD=0.1), $t(21)=2.77$, $p<0.05$).

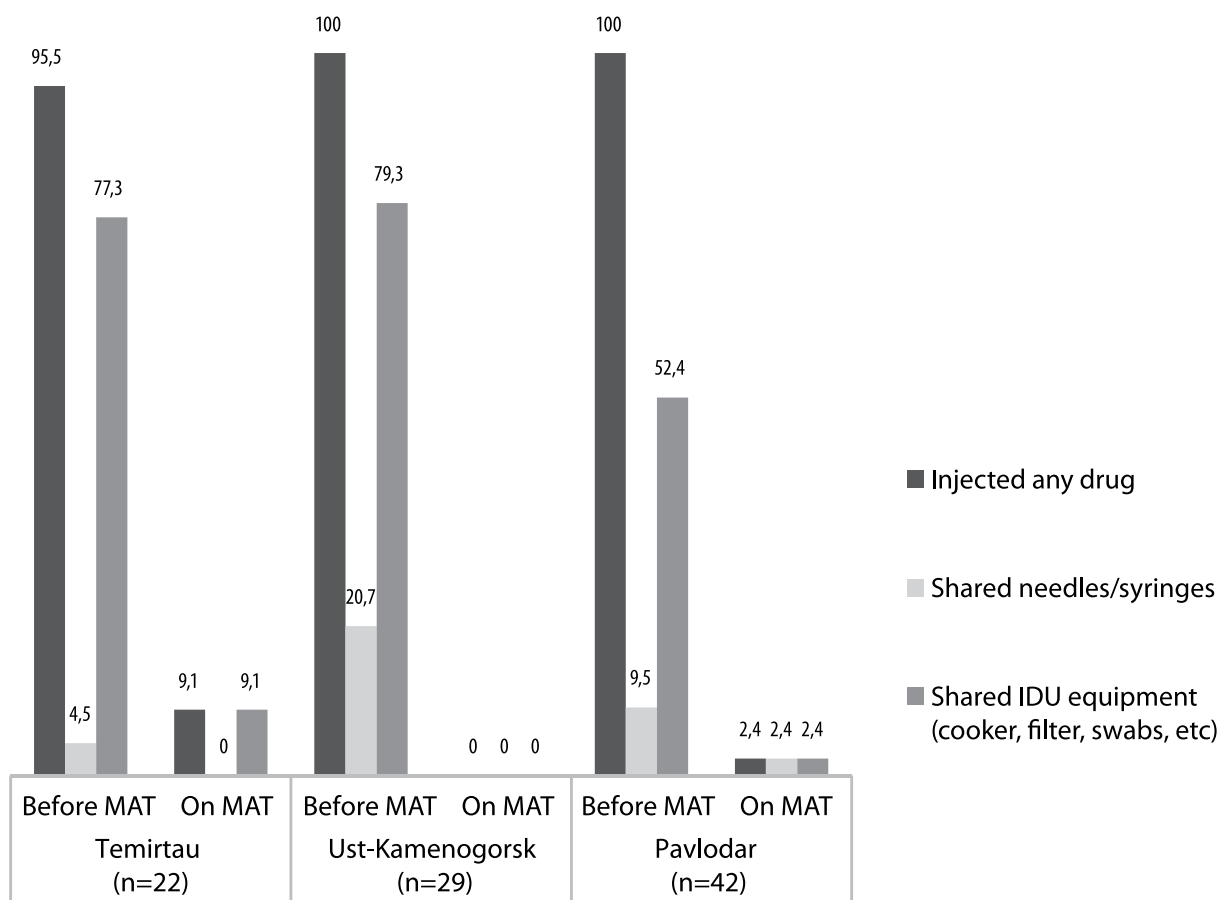
The details of the paired sample test results for all drugs covered during interviews are shown in Attachment II at the end of the report.

It should be noted that, according to patients and staff of the MAT project in Ust-Kamenogorsk, recently PWID in this region started injecting a drug called “Tropicamid,” which is an anticholinergic medication in the form of eye drops that is widely available in drug stores. As this medication was not in the list of psychoactive substances included in the OTI, the frequency of use of this medication among MAT patients and PWID remains unknown, and requires further study and elaboration of relevant response measures.

6.4.3. HIV Risk Behavior

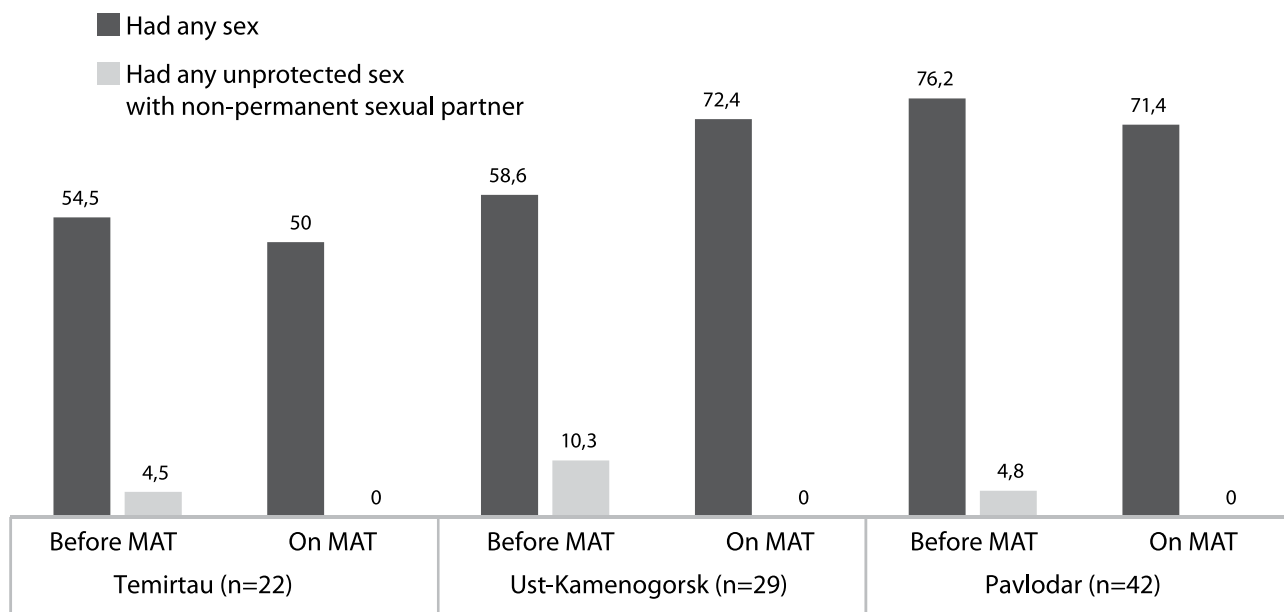
Drug injection related behavior. The assessment results showed that participation in MAT for at least 3 months resulted in a statistically significant reduction in HIV risk related to drug-taking behavior: The percentage of those who injected any drug during the last 30 days reduced from 95,5% before enrolling in MAT to 9,1% during the last 30 days on MAT in Temirtau ($P<0.001$); from 100% to 0% in Ust-Kamenogorsk ($P<0.0001$); and from 100% to 0.02 in Pavlodar ($P<0.001$). Similarly, the proportion of persons who shared any injection equipment (cooker, filter, swabs, etc.) reduced from 77,3% to 9,1% in Temirtau ($P<0.001$); from 79,3% to 0% in Ust-Kamenogorsk ($P<0.001$); and from 52,4% to 2,4% in Pavlodar ($P<0.0001$). Reductions in sharing syringes and needles were seen across all three sites; however, this parameter was low at baseline and differences were not statistically significant (see Figure 5).

Figure 5. Drug injection behavior before and after enrollment in MAT, in %



Sexual behavior. Over half of the patients in all three MAT sites had sex during the last 30 days before enrollment in MAT, however the proportion of participants reporting unprotected sex with a casual partner was low. There was no statistically significant changes in either of these parameters after enrollment in MAT.

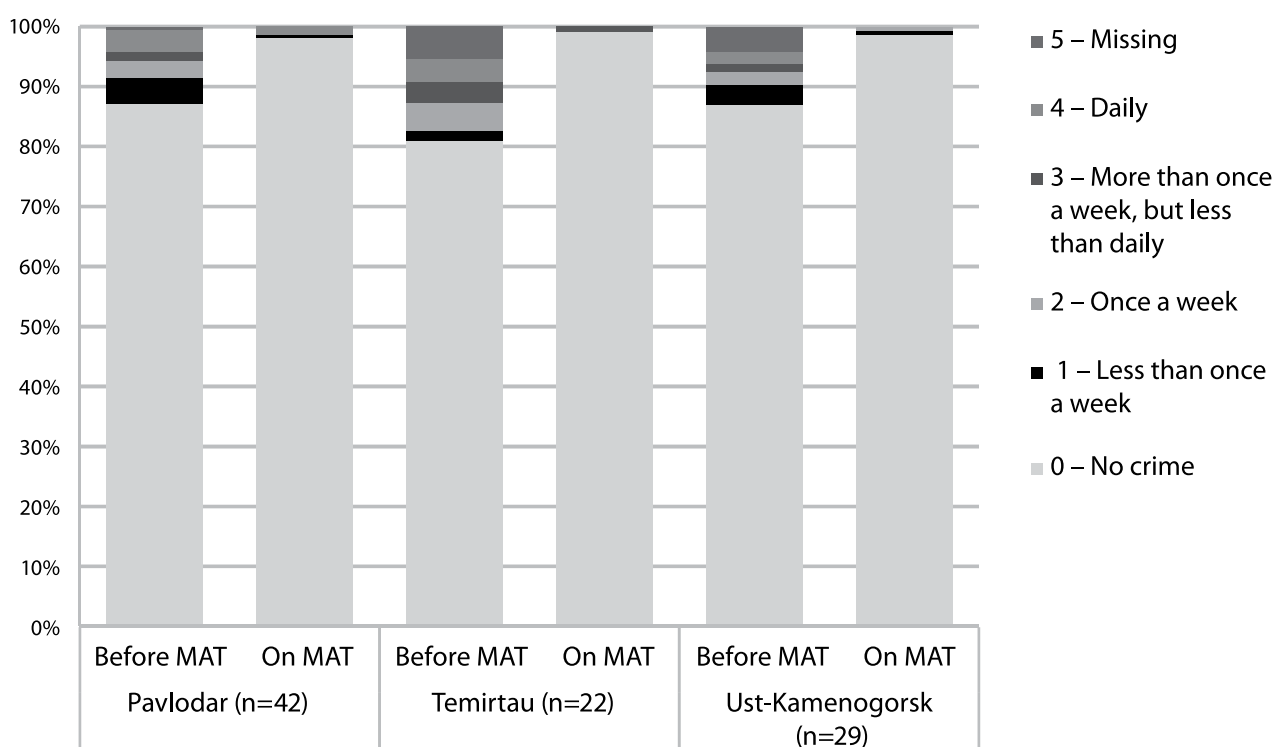
Figure 6. Sexual behavior before and after enrollment in MAT, in %



6.4.4. Criminal Behavior

Statistically significant reductions in engagement in criminal activities during the last 30 days were reported by patients who participated in MAT for three months or longer compared to the last 30 days prior to initiating MAT. As such, MAT patients in Pavlodar reported that 13.7% of them had committed any sort of crime (fraud; drug dealing; sex work; violence; and property crime) before starting MAT compared to 2.4% after starting MAT (Wilcoxon Signed Ranks Test: $Z=-3.473$, $P=0.001$). Similarly, initiation of MAT by patients in Ust-Kamenogorsk and Temirtau was associated with reductions in criminal behavior from 9% to 1.4% ($Z=-3.025$, $P=0.002$) and 13.6% to 0.9% ($Z=-3.090$, $P=0.002$), respectively. In addition, the data gathered suggests reductions in the frequency of all types of criminal activities among patients compared to the period before MAT (See Figure 7).

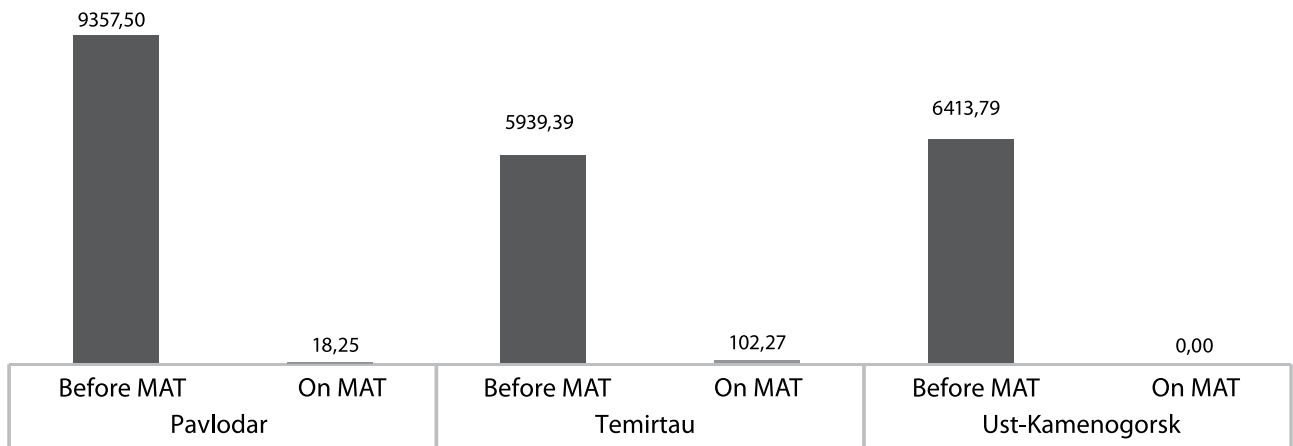
Figure 7. Criminal behavior before and after enrollment in MAT



6.5. Drug Use Related Expenses

Patients were asked about their expenses for the use of non-prescribed psychoactive substances (PAS) listed in the OTI questionnaire incurred on each of the last three days of use during MAT and just before starting MAT. Paired sample T-tests showed that patients' expenses for non-prescribed PAS on each day of use prior to MAT, on average, were significantly greater than during MAT across all three sites: in Pavlodar ($M=9357.5$ KZT, $SD=6184.7$ KZT and $M=18.25$ KZT, $SD=61.6$ KZT); $t(39)=9.52$, $p<0.0005$); in Temirtau ($M=5939.4$ KZT, $SD=4045.9$ KZT and $M=102.3$ KZT, $SD=288.9$ KZT); $t(21)=6.94$, $p<0.0005$); and in Ust-Kamenogorsk ($M=6413.8$ KZT, $SD=3905.5$ KZT and $M=0.00$ KZT, $SD=0.00$ KZT); $t(28)=8.84$, $p<0.0005$). Considering that heroin was the drug of choice for all patients across all three sites before joining MAT, and the frequency of drug use reported by participants, IDUs' average monthly expenses for non-prescribed PAS could range from 46831 KZT to 229403 KZT in Pavlodar; from 22419 and 118226 KZT in Temirtau; and from 35869 KZT to 147565 KZT in Ust-Kamenogorsk (Figure 8).

Figure 8. Mean expenditures for non-prescribed psychoactive substances by MAT patients on each day of use before and after enrollment in MAT, in tenge, by site



7. Limitations

This assessment had several limitations. First, it should be noted that the assessment team did not have any specialists with a background in law, and thus the review of the legislative framework related to the provision of MAT in Kazakhstan should not be interpreted as exhaustive and free from bias. However, this report's key findings related to the legislative framework do correspond with the conclusions made by an earlier legal review conducted by experts in laws related to drug control and public health led by UNODC.⁴⁸ Second, data collected on patients' criminal, drug use, and HIV risk behavior were based on self-report, and thus may be inaccurate. However the validity of our findings are supported by the correlation of self-reported drug use during the last 30 days prior to interview with the results of urine toxicology tests performed during the same period. Also, evidence from studies of outcomes of methadone maintenance therapy in other countries, including China,⁴⁹ Iran,⁵⁰ Germany,⁵¹ and Malaysia⁵² support the findings of our assessment.

⁴⁸ UNODC. (2009). Accessibility of HIV prevention, treatment and care services for people who use drugs and incarcerated people in Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan: Legislative and Policy analysis and recommendations for reform. UNODC ROCA, 2009.

⁴⁹ Yin W. et al. (2010) Scaling up the national methadone maintenance treatment program in China: achievements and challenges. *International Journal of Epidemiology*; 39, Supplement 2:ii29-37.

⁵⁰ Noori R, et al. (2012). Methadone maintenance therapy outcomes in Iran. *Substance Use Misuse*; 47(7):767-73. Epub 2012 Mar 15.

⁵¹ Michels H, Stöver H, Gerlach R. (2007). Substitution treatment for opioid addicts in Germany. *Harm Reduction Journal*; 2; 4:5. <http://www.harmreductionjournal.com/content/4/1/5>

⁵² Noordin NM, et al. (2008). Substitution treatment in Malaysia. *Lancet*; 372(9644):1149-50.

8. Conclusions

The assessment team identified the following strengths of the pilot MAT project:

1. The GFATM-funded pilot MAT project in Kazakhstan has clearly demonstrated the feasibility and efficacy of prescription of methadone to treat opioid dependence in the local context. With MAT, the frequency of heroin use was reduced from more than once a week across all three sites to once a week or less (Pavlodar) or total abstinence (Temirtau and Ust-Kamenogorsk). Statistically significant reductions in risky drug injection behavior as well as criminal behavior were observed at all three sites. MAT patients also reported an improvement in the perception of their own health status. The proportion of patients remaining free from opioids for 12 months after MAT enrollment ranged from 41% to 92%. The retention rates achieved in Kazakhstan's pilot MAT project (46-61% for 12 months) are consistent with those observed in other countries. For example, three large studies in the USA reported 12 month retention on methadone maintenance therapy ranging from 25% to 60%, as indicated in Table 4.^{53,54,55}
2. Legislation of the Republic of Kazakhstan is favorable for the introduction of MAT as a standard of care for treatment of opioid dependence. Methadone and buprenorphine are scheduled as narcotic substances allowed for medical use under strict control, and MAT is included in the State's health care development program, "Salamatty Kazakhstan," endorsed by the President of Kazakhstan.
3. Enrollment in MAT is associated with significant reductions in patients' spending on non-prescribed psychoactive substances. In the absence of MAT, these drug-related expenses may be as high as 229403 KZT per month per patient, causing additional social harms through drug-related crimes.
4. Methadone-based MAT may be provided in Kazakhstan at a relatively low cost: in 2010, a daily dose of methadone medication per patient was procured at a cost of US \$1.85, and in 2011, this cost was reduced to lower than 150 tenge, or US \$1.00. If methadone were to be produced locally so that Kazakhstan no longer depended upon external suppliers, the procurement cost would be even lower. According to the WHO,⁵⁶ for instance, 100 mg of methadone produced in Thailand is US \$0.1 and in New Zealand it costs US \$0.5.
5. Successful approaches to MAT delivery in Kazakhstan should be considered when scaling up MAT. For example, the MAT site in Pavlodar effectively integrated MAT and other narcological services with harm reduction programs, whereby injection equipment and condoms are provided at a Trust Point located in the same building with MAT. The Pavlodar site also supports the work of a MAT patients' self-help group, with the office of the NGO "INSIDE" located next to the MAT dispensing room. In addition, the Pavlodar Narcology Center has arranged for an HIV specialist from the Oblast AIDS Center to work part time at the MAT site, to provide integrated HIV care for MAT patients.

At the same time, there are certain weaknesses that obstruct effective implementation of MAT in Kazakhstan:

1. Current monitoring and evaluation of MAT in Kazakhstan is mainly focused on collecting data

⁵³ Sells SB, Simpson DD (eds.). (1976). *The Effectiveness of Drug Abuse Treatment*. Cambridge, MA: Ballinger.

⁵⁴ Hubbard RL, Marsden ME, Rachal JV, Harwood HJ, Cavanaugh ER, Ginzburg HM. (1989). *Drug Abuse Treatment: A National Study of Effectiveness*. Chapel Hill: University of North Carolina Press.

⁵⁵ Ball JC, Ross A. (1991). *The Effectiveness of Methadone Maintenance Treatment: Patients, Programs, Services, and Outcomes*. New York: Springer-Verlag.

⁵⁶ <http://www.who.int/entity/hiv/amds/ControlledMedicineDatabase.xls>

related to program implementation (number of patients enrolled, material expenditures, etc.) and does not allow for the adequate evaluation of the quality of services, patients' satisfaction and MAT's impact on patients' drug use, criminal and sexual behavior. There are inconsistencies in data collection and documentation approaches at the sites, which require both optimization and standardization.

2. There is a need to increase the scale of the technical assistance provided to support MAT implementers in Kazakhstan. Most of the technical assistance is provided with support from international agencies. Training on MAT for medical workers is not provided systematically, and there is rather weak involvement of the national system of cadre preparation, including pre- and postgraduate medical education.
3. There is a lack of well-conceived information sharing practices and strategies regarding MAT, which has resulted in the development of biased attitudes towards MAT among various stakeholders, including the general public, medical professionals and PWID. MAT opponents' arguments are influenced by incorrect information about opioid agonist therapy, including its clinical and pharmacological features.
4. An effective mechanism for procurement of methadone for narcological purposes is lacking, and as a result there are stock-outs, an unjustifiably high cost of the medication, an inability to procure methadone by individual clinics, and a consequent failure to implement clause #108 of the State Program "Salamatty Kazakhstan".
5. The current infrastructure of the facilities providing MAT impedes the provision of quality services and requires improvement. The opening hours of the MAT sites are not always responsive to patients' needs, who are obliged to visit narcological clinics on a daily basis, while carrying out their own social responsibilities, including employment and family related functions.
6. Provision of MAT is often interrupted due to patients' need to undergo inpatient treatment at other medical facilities or to move away from their home cities. The unregistered status of methadone in Kazakhstan does not allow for prescription of take-home doses of this medication in such circumstances. The absence of MAT for PWID in the penitentiary system does not only contribute to the interruption of the MAT course for incarcerated patients, but also seriously limits the health care system's ability to control HIV and other blood-borne diseases in this group of persons.
7. Infrastructure, staff's skills and the comprehensiveness of services provided to PWID differ among MAT sites. A system for the exchange of experiences and best practices is not well developed among the MAT sites.

9. Recommendations

1. Support staged expansion of MAT, starting with localities with a high prevalence of intravenous opioid use and HIV among PWID, with continuation to other places in the country where there might be a need for such therapy.
2. Train and authorize narcologists at outpatient departments of dispensaries to prescribe MAT to opioid dependent patients in their catchment area. Doing so would contribute to scaling up the availability of MAT, and will also reduce the workload of narcologists currently working in the pilot MAT project who are exclusively authorized to prescribe methadone to eligible patients.
3. Incorporate MAT into graduate and postgraduate medical curricula.
4. Select, train and engage specialists in addiction psychiatry from medical institutions to work as technical advisors to provide support to current and new MAT sites, ensuring the provision of quality services in line with national and international standards.
5. Adopt full clinical guidelines and standards for the provision of opioid substitution medications for treatment of opioid dependence based on lessons learned and WHO recommendations, including the opportunity to provide or continue MAT for patients undergoing planned or urgent medical care at inpatient hospitals; revision of admission and discharge criteria; and also expanding the opening hours of MAT sites to meet patients' needs.
6. Continue to improve the infrastructure of narcological facilities, ensuring that patients have access to a full range of services in confidential conditions. MAT sites should be equipped with automated dispensing machines, to improve methadone dispensing practices and contribute to the prevention of methadone diversion.
7. Establish a state-controlled mechanism of procurement and distribution of medications for MAT.
8. Improve monitoring and evaluation procedures for MAT, ensuring the collection and analysis of data related not only to program implementation, but also information on its impact on changes in patient behavior and health. At the same time, it is important to ensure standardization and simplification of data collection and reporting forms from various sites; increase data quality and reduce of paper work through the introduction of health management information systems (HMIS).
9. Develop comprehensive advocacy and communication strategies for MAT related issues in order to deliver easy to comprehend evidence-based information and reduce the negative impacts of false information. Non-government and community-based organizations should be engaged in such activities as intensively as possible, especially to implement interventions to promote MAT among PWID and their families.
10. Continue adherence to evidence-based medicine in the decision-making process as it relates to the development of HIV and drug dependence treatment services. Strengthen the emphasis on the results of state-of-the-art research data, such as Cochrane reviews, that repeatedly confirm the safety and effectiveness of MAT compared to other methods of treatment.

10. References

1. Ережепов Н., Каражанова А. (2010). Отчет о пилотной программе опиоидного замещения в Республике Казахстан на 2009-2009, РНПЦ МСПН. Павлодар.
2. Кунекова Л. (Репортер). (3.02.2011) "Алматинские терапевты отказываются вводить программу героинозамещения для наркоманов". Новости КТК (Коммерческая телевизионная компания), Алматы, версия взята 15.05.2012 с источника <http://www.ktk.kz/ru/news/video/2011/02/03/11351/>
3. Открытое письмо Президенту РК. Ежедневная газета «ВЗГЛЯД», выпуск №09 (191); (9.03.2011). <http://www.respublika-kz.info/files/news/issue/0/125.pdf>
4. Открытое письмо Президенту РК. Республиканская газета "КАРАВАН", выпуск №9 (04.03.2011). <http://www.caravan.kz/article/25555/print>
5. Статья "КТО лоббирует метадон в Казахстане?" (2011). Использовалась версия от 15.05.2012, взятая с источника <http://spgk.kz/КТО-lobbiruet-metadon-v-Kazakhstan.html>
6. Субханбердина А.С., Комарова О.Н., Кожахметова Б.А., Садыкова А.Б.(18.01.2011) Отчёт рабочей группы по результатам оценки хода реализации пилотного проекта по опиоидной заместительной терапии в городах Павлодар и Темиртау. Министерство здравоохранения Республики Казахстан. Астана.
7. Шарман А. Синдром приобретенного иммунодефицита. Монография, часть 1.3 Употребление инъекционных наркотиков и инфекция ВИЧ http://www.zdrav.kz/data/cms/file/part1_3.pdf
8. Archer RP, et al. (2001). Evaluation of an MMPI-A short form: implications for adaptive testing. *Journal of Personality Assessment*; 76(1):76-89.
9. Ball JC, Ross A. (1991) The Effectiveness of Methadone Maintenance Treatment: Patients, Programs, Services, and Outcomes. New York: Springer-Verlag.
10. Connock M. et al. (2007) Methadone and buprenorphine for the management of opioid dependence: a systematic review and economic evaluation. *Health Technology Assessment*; 11(9):1-171, iii-iv. Review.
11. Copersino ML, et al. (2010). Measurement of self-reported HIV risk behaviors in injection drug users: comparison of standard versus timeline follow-back administration procedures. *Journal of Substance Abuse Treatment*; 38(1):60-5.
12. Darke Shane, et al. (2000). The relationship between suicide and overdose among methadone maintenance patients. Technical report #100. NDARC. <http://ndarc.cms.med.unsw.edu.au/sites/ndarc.cms.med.unsw.edu.au/files/ndarc/resources/TR.100.pdf>
13. Darke S., et al. (1992). Development and validation of a multi-dimensional instrument for assessing outcome of treatment among opiate users: the Opiate Treatment Index. *Br J Addict*; 87(5):733-42.
14. Darke S., Ward J., Hall W., Heather N. and Wodak A. (1991) The Opiate Treatment Index (OTI) researchers' manual. NDARC Technical Report 11, National Drug and Alcohol Research Centre, University of New South Wales.
15. Deryabina A. et al. Report on Evaluation of HIV Integrated Biobehavioral Surveillance in the Republic of Kazakhstan. ICAP/Columbia University. 2012.
16. Gass CS, Gonzalez C. (2003). MMPI-2 short form proposal: CAUTION. *Archives of Clinical Neuropsychology*; 18(5):521-7.
17. Government of the Republic of Kazakhstan, Decree No. 1693. On adoption of Provisions on provision of state control over circulation of drugs, psychotropic substances and precursors in the Republic of Kazakhstan". Астана.
18. Harm Reduction Development 2005. IHRD. <http://www.hivpolicy.org/Library/HPP001740.pdf>
19. Hubbard RL, Marsden ME, Rachal JV, Harwood HJ, Cavanaugh ER, Ginzburg HM. (1989). Drug Abuse Treatment: A National Study of Effectiveness. Chapel Hill: University of North Carolina Press.
20. Marsden J, Stewart D, Gossop M et al. (2000). Assessing client satisfaction with treatment for substance use problems and the development of the Treatment Perceptions Questionnaire (TPQ). *Addictions research*; 8:455 – 70.
21. Marsden J., et al., (2000) Assessing client satisfaction with treatment for substance use problems and the development of the Treatment Perceptions Questionnaire (TPQ). *Addictions Research*; 8:455-70
22. MAT Policy Toolkit, Reference Inventory library for Kazakhstan. <http://www.eematkb.com/>. Accessed on 09.04.2012
23. Mattick RP, Breen C, Kimber J, Davoli M. (2009). Methadone maintenance therapy versus no opioid replacement therapy for opioid dependence. *Cochrane Database of Systematic Reviews*, Issue 3.
24. Minozzi S, Amato L, Vecchi S, Davoli M. (2008). Maintenance agonist treatments for opiate dependent pregnant women. *Cochrane Database of Systematic Reviews*.(2):CD006318. Review.
25. Morris Z, et al. (2008). Drug misuse treatment services in Scotland: predicting outcomes. *International Journal for Quality in Health Care*; Volume 20, Number 4; pp. 271 – 276
26. Morris Z, McKeganey N. (2007). Client perceptions of drug treatment services in Scotland. *Drugs: Education, Prevention & Policy*; 14: 49 – 60.

27. Michels H, Stöver H, Gerlach R. (2007). Substitution treatment for opioid addicts in Germany. *Harm Reduction Journal*; 2; 4:5. <http://www.harmreductionjournal.com/content/4/1/5>
28. Ministry of Health, Order No.173, (07.04.2005). "On adoption of Provisions on use of drugs, psychotropic substances and precursors that are under control for medical purposes in the republic of Kazakhstan".
29. Ministry of Health, Order No.333 (12 May 2010). "On expansion of accessibility of opioid substitution therapy".
30. Ministry of Health, Order No.449 (04.09.2009). "On Establishment of the inter-sectorial Working Group on Opioid Substitution Therapy".
31. Noori R, et al. (2012). Methadone maintenance therapy outcomes in Iran. *Substance Use Misuse*; 47(7):767-73.
32. Noordin NM, et al. (2008). Substitution treatment in Malaysia. *Lancet*; 372(9644):1149-50.
33. "On drugs, psychotropic substances and precursors, and measures on combating their illegal circulation and abuse", Law No. 279-1 (July 10, 1998 (with amendments and additions as of 07/17/2009).
34. Republican Applied Research Center on Medical and Social Problems of Drug Abuse. (2010). "Application of opiate agonists maintenance therapy in narcological practice of the Republic of Kazakhstan". Methodological recommendations, Pavlodar.
35. Robert A., et al. (2009). WHO Collaborative Study on Substitution Therapy of Opioid Dependence and HIV/AIDS. Protocol.
36. Sanders L, Trinh C, Sherman B et al. (1998). Assessment of client satisfaction in a peer counseling substance abuse treatment program for pregnant and postpartum women. *Evaluation and Program Planning*; 21: 287–96.
37. Sells SB, Simpson DD (eds.). (1976). *The Effectiveness of Drug Abuse Treatment*. Cambridge, MA: Ballinger.
38. Smyth BP, et al. (2012). Outcome of heroin-dependent adolescents presenting for opiate substitution treatment. *The Journal of Substance Abuse Treatment*; 42(1):35-44.
39. The State Program on the Development of Health Care of the Republic of Kazakhstan for 2011-2015 "Salamatty Kazakhstan", Endorsed by President's Decree No.1113 (29 November 2010).
40. UNODC, WHO. (2008). Principles of drug dependence treatment. Discussion Paper.
41. UNODC. (2010). Accessibility of HIV prevention, treatment and care services for people who use drugs and incarcerated people in Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan: Legislative and Policy analysis and recommendations for reform.
42. WHO, UNODC, UNAIDS. (2004). Substitution maintenance therapy in the management of opioid dependence and HIV/AIDS prevention: position paper.
43. WHO, 2009. Guidelines for the psychosocially assisted pharmacological treatment of opioid dependence. Geneva.
44. WHO, UNODC, UNAIDS. (2004). Substitution maintenance therapy in the management of opioid dependence and HIV/AIDS prevention: position paper.
45. WHO, UNAIDS, UNICEF. (2011). *Global HIV/AIDS Response – Epidemic update and health sector progress towards Universal Access – Progress Report*. Geneva.
46. Yin W. et al. (2010) Scaling up the national methadone maintenance treatment program in China: achievements and challenges. *International Journal of Epidemiology*; 39, Supplement 2:ii29-37.

ATTACHMENT 1

Definitions and Sampling frame for patient level indicators

Indicator	Sampling Frame	Numerator
		Denominator
Proportion of patients on MAT with at least one complete clinical review in the last quarter**	All MAT patients enrolled in MAT \geq 3 months prior to review	# of patients on MAT with at least one complete clinical review in the last quarter
		# of patients that started taking MAT \geq 3 months prior to review
Proportion of MAT patients screened for HCV antibody (anti-HCV) and HBV Surface antigen (HBsAg)	All MAT patients enrolled in MAT \geq 3 months prior to review	# of patients screened for anti-HCV and HBsAg
		# of patients that started taking MAT \geq 3 months prior to review
Proportion of patients on MAT with at least one psychosocial counseling session during the last 1 month	All MAT patients currently receiving MAT	# of patients on MAT with at least one psychosocial counseling session during the last 1 month
		# of patients that currently receive MAT
Proportion of patients who remain free from non-prescribed opioids at 6 months after initiation of MAT.	All MAT patients enrolled in MAT \geq 6 months prior to review	# of patients whose last urine toxicology test was negative
		# of patients that started taking MAT \geq 6 months prior to review and have a urine toxicology test result available
Proportion of patients on MAT remaining in care at 6 months after initiation of MAT.	All MAT patients enrolled in MAT \geq 6 months prior to review	# of patients continuing MAT without interruptions at 6 months after initiation of MAT.
		# of patients that started taking MAT \geq 6 months prior to review
Proportion of patients on MAT remaining in care at 12 months after initiation of MAT.	All MAT patients enrolled in MAT \geq 12 months prior to review	# of patients continuing MAT without interruptions at 12 months after initiation of MAT.
		# of patients that started taking MAT \geq 12 months prior to review
Proportion of patients who remain free from non-prescribed opioids at 12 months after initiation of MAT.	All MAT patients enrolled in MAT \geq 12 months prior to review	# of patients whose urine remains free from non-prescribed psychoactive substances at 12 months after initiation of MAT.
		# of patients that started taking MAT \geq 12 months prior to review and have a urine toxicology test result available

Proportion of patients on MAT with at least one sexual and drug related risk assessment completed during the last one month*	All MAT patients currently receiving MAT	# of patients on MAT with at least one sexual and drug related risk assessment completed during the last one month
		# of patients that currently receive MAT
The average daily dosage of methadone received by patients enrolled in MAT 3 months or longer	All MAT patients enrolled in MAT ≥ 3 months prior to review	Total daily dosage of methadone received by stabilized patients ≥ 3 months prior to review
		# of patients enrolled in MAT ≥ 3 months prior to review
<p>* Sexual and drug related risk assessment includes at a minimum one documented evaluation of patient's sexual and drug use practices using standardized set of questions for interview or self-evaluation.</p>		
<p>** Complete clinical review includes at a minimum one documented assessment and counseling by a doctor in charge; social worker in charge and urine toxicology test conducted during the report period.</p>		

ATTACHMENT 2

Paired sample test results for non-prescribed drug use

Site	Variable	Mean	Std. Deviation	T	Df	Sig. (2-tailed)
Pavlodar	PRE Heroin subtotal –	,61	,67	4,090	41	,000
	POST Heroin subtotal	,07	,46			
Temirtau	PRE Heroin subtotal –	,49	,44	5,284	21	,000
	POST Heroin subtotal	,00	,00			
Ust-Kamenogorsk	PRE Heroin subtotal –	,59	,76	4,200	28	,000
	POST Heroin subtotal	,00	,000			
Pavlodar	PRE Opiates subtotal –	,12	,297	2,198	41	,034
	POST Opaites subtotal	,01	,08			
Temirtau	PRE Opiates subtotal –	,36	,97	-1,875	28	,071
	POST Opaites subtotal	,09	,43			
Ust-Kamenogorsk	PRE Opiates subtotal –	,97	1,909	2,730	28	,011
	POST Opaites subtotal	,00	,000			
Pavlodar	PRE Alcohol subtotal –	,19	,900	-1,613	41	,115
	POST Alcohol subtotal	1,01	3,44			
Temirtau	PRE Alcohol subtotal –	,07	,163	-,928	21	,364
	POST Alcohol subtotal	,18	,559			
Ust-Kamenogorsk	PRE Alcohol subtotal –	,03	,096	-1,875	28	,071
	POST Alcohol subtotal	,31	,828			
Pavlodar	PRE Cannabis subtotal –	,88	2,65	2,397	41	,021
	POST Cannabis subtotal	,11	,72			
Temirtau	PRE Cannabis subtotal –	1,258	2,3303	1,727	21	,099
	POST Cannabis subtotal	,34	1,491			
Ust-Kamenogorsk	PRE Cannabis subtotal –	,53	1,40	1,272	28	,214
	POST Cannabis subtotal	,17	,928			
Pavlodar	PRE Tranquil subtotal –	,42	1,49	1,818	41	,076
	POST Tranquil subtotal	,00	,00			
Temirtau	PRE Tranquil subtotal –	,65	,996	2,772	21	,011
	POST Tranquil subtotal	,05	,213			
Ust-Kamenogorsk	PRE Tranquil subtotal –	1,04	2,126	1,290	28	,208
	POST Tranquil subtotal	,34	1,857			
Pavlodar	PRE Cocaine subtotal	,00a	,000	0	0	0
	POST Cocaine subtotal	,00a	,000			
Temirtau	PRE Cocaine subtotal	,00a	,000	0	0	0
	POST Cocaine subtotal	,00a	,000			
Ust-Kamenogorsk	PRE Cocaine subtotal	,00a	,000	0	0	0
	POST Cocaine subtotal	,00a	,000			
Pavlodar	PRE Hallucin subtotal	,00a	,000	0	0	0
	POST Hallucin subtotal	,00a	,000			
Temirtau	PRE Hallucin subtotal	,00a	,000	0	0	0
	POST Hallucin subtotal	,00a	,000			

Site	Variable	Mean	Std. Deviation	T	Df	Sig. (2-tailed)
Ust-Kamenogorsk	PRE Hallucin subtotal	,138	,581	1,279	28	,212
	POST Hallucin subtotal	,00a	,000			
Pavlodar	PRE Barbitur subtotal	,00a	,000	0	0	0
	POST Barbitur subtotal	,00a	,000			
Temirtau	PRE Barbitur subtotal	,00a	,000	0	0	0
	POST Barbitur subtotal	,00a	,000			
Ust-Kamenogorsk	PRE Barbitur subtotal	,00a	,000	0	0	0
	POST Barbitur subtotal	,00a	,000			
Pavlodar	PRE Inhalants subtotal	,00a	,000	0	0	0
	POST Inhalants subtotal	,00a	,000			
Temirtau	PRE Inhalants subtotal	,00a	,000	0	0	0
	POST Inhalants subtotal	,00a	,000			
Ust-Kamenogorsk	PRE Inhalants subtotal	,00a	,000	0	0	0
	POST Inhalants subtotal	,00a	,000			
Pavlodar	PRE Amphet subtotal –	,08	,540	1,000	41	,323
	POST Amphet subtotal	,00	,000			
Temirtau	PRE Amphet subtotal –	,00a	,000	0	0	0
	POST Amphet subtotal	,00a	,000			
Ust-Kamenogorsk	PRE Amphet subtotal –	,00	,000	0	0	0
	POST Amphet subtotal	,00a	,000			

