Retention and HIV seroconversion among drug users on methadone maintenance treatment in Yunnan, China

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Setting: Thirteen methadone maintenance treatment (MMT) clinics across Yunnan, the province with the highest human immunodeficiency virus (HIV) burden in China.

Objectives: To determine, among HIV-negative participants on MMT, the proportion lost to follow-up (defined as those who missed the 6-monthly follow-up examination), factors associated with loss to follow-up (LFU), HIV seroconversion rate and factors associated with seroconversion.

Design: Prospective cohort study from October 2008 to April 2011. All participants were administered a pre-tested structured questionnaire to capture associated factors and offered HIV testing every 6 months. χ^2 test and log-binomial regression were used for data analysis.

Results: Of 1146 participants, 541 (47%) were lost to follow-up in 2.5 years. Factors associated with higher LFU proportion include <6 months of previous MMT, inconvenient location of the MMT clinic and average methadone dose ≤ 60 mg/day, with adjusted relative risks (RRs) of respectively 1.4 (95%CI 1.2–1.5), 1.2 (95%CI 1.0–1.4) and 1.1 (95%CI 1.0–1.3). The overall HIV seroconversion rate was 6.6 (95%CI 3.7–11.0) per 1000 person-years. Not living with a partner contributed to higher HIV rates, with an adjusted RR of 3.6 (95%CI 1.0–12.8).

Conclusion: The retention rate of MMT participants in Yunnan was not satisfactory. Decentralising service delivery in the community and making directly observed treatment more convenient has the potential to improve retention.

Injecting drug users (IDUs) are known to have a high risk of human immunodeficiency virus (HIV) infection and other blood-borne viral infections such as hepatitis B and C, due to the common practice of sharing needles and syringes when using heroin.¹ With a low HIV prevalence of ~0.06%, China has more than 780 000 people living with HIV, of whom about 28% were estimated to be IDUs.² The burden of HIV/AIDS (acquired immune-deficiency syndrome) in Yunnan Province is the highest in China due to IDUs,¹ with more than 80 000 reported HIV-positive cases (cumulatively) in December 2010,³ and 5.92 per 100 000 population in 2011.⁴

To reduce the IDU-driven HIV epidemic in China and the risk of HIV infection among IDUs, methadone maintenance treatment (MMT) was introduced to Yunnan by the HIV/AIDS Asia Regional Programme (HAARP) in 2003. The MMT programme is a comprehensive package of services that includes health edu-

cation, direct observation of methadone consumption, participant follow-up and condom delivery at the MMT clinics. A high level of adherence to the MMT programme is essential to aid in reducing the sharing of needles and syringes and thereby reduce the spread of HIV/AIDS.^{5,6}

Several studies on MMT retention and its associated factors from China and other countries have limitations related to short follow-up period, small sample size, limited representativeness and the retrospective nature of the study designs.^{7–11} Information on HIV seroconversion rates among participants on MMT is scarce. The present study was conducted in a large cohort of HIV-negative persons enrolled into the MMT programme and followed for 2 and a half years across 13 clinics in Yunnan. The specific objectives were to determine 1) the number (proportion) lost to follow-up in the study cohort; 2) socio-demographics, knowledge about HIV/AIDS and clinic-related factors associated with loss to follow-up (LFU); and 3) the rate of HIV seroconversion and its associated factors.

METHODS

Design

This was a prospective cohort study.

Setting

Yunnan Province (population: 46 million) is located in the southwest of China, bordering Myanmar, Lao People's Democratic Republic and Viet Nam. Its geographical proximity to the infamous 'golden triangle'¹² provides easier access to illegal drugs at low prices, thus contributing to a large population of drug users in Yunnan. HAARP established harm reduction programmes in 19 counties of Yunnan Province; of these, 13 counties had an MMT programme, with one clinic in each county.¹³

Heroin-dependent drug users enter the MMT programme by 1) joining voluntarily (from the community); 2) referral from compulsory drug detention centres and prisons; and 3) outreach of IDU peers. Those who fulfil the eligibility criteria outlined in the national guidelines (Table 1) are registered and started on methadone treatment.¹⁴ Drug users are required to attend the clinic daily and consume their drug treatment under direct observation of a health care provider. While all new enrollees are initiated on a standard dose (60 mg/day), doses are sometimes individually adjusted and optimised based on both

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TABLE 1 Eligibility criteria of MMT enrolment as recommended by the National Work Group of Maintenance Treatment in Community for Opiate Addicted,¹⁴ China

1	Failure in previous drug detention treatment(s)
2	Experience of forced detention or of relapsing drug use
3	Age ≥ 20 years
4	Permanent local resident or migrant person who had stayed locally (in MMT clinic area) for >6 months (this criterion was removed after mid-2010)
5	Full capacity for civil conduct (normal psychological status).

MMT = methadone maintenance treatment.

the participant's subjective feeling of adequacy and the objective assessment by the physician. All new participants who do not know their HIV status are offered HIV counselling and testing once every 6 months, per national programme guidelines.¹⁴

Study population

All participants (old and newly registered IDUs) on MMT at these 13 clinics in October 2008, who were HIV-negative and willing to participate were enrolled in the study. Only HIV-negative participants were purposefully selected, as the primary study objective was to estimate HIV seroconversion in this population. This was a closed cohort study. Participants who missed the first 6-monthly follow-up examination were regarded as LFU and were excluded from the next round of examinations.

Data collection, data variables and source

All enrolled participants underwent blood tests for HIV infection and were administered a structured, pre-tested questionnaire by trained interviewers on five occasions: October 2008 (baseline), April 2009, October 2009, April 2010 and April 2011. The variables studied were 1) socio-demographic characteristics: age, sex, occupation, marital status, level of literacy, duration of MMT at enrolment; 2) knowledge about HIV/AIDS, assessed based on eight standardised questions recommended in the Chinese National HIV Sentinel Surveillance Guidelines; correct answers to ≥ 6 questions were considered an adequate level of knowledge (Table 2);¹⁵ 3) average daily methadone dosage at baseline (October 2008); 4) perceived convenience of the location of

the clinic and clinic opening hours (8 am–5.30 pm daily) and adequacy of methadone dosage; 5) LFU or not; and 6) HIV status at every scheduled follow-up examination. HIV testing was performed using enzyme-linked immunosorbent assay Type I + II (Beijing BGI-GBI Biotech Co, Beijing, China); positive specimens were confirmed using the Immunoblot test (MP Biomedicals, Santa Ana, CA, USA).

Data entry and analysis

Data were single-entered in Microsoft Excel (Microsoft, Redmond, WA, USA) by trained interviewers recruited for the purpose; 10% of all the data entered were randomly checked by the central research team. EpiData (version 2.2.2.180, EpiData Association, Odense, Denmark) was used for univariate and bivariate data analysis; STATA version 12.1 (Stata Corp, College Station, TX, USA) was used to perform multivariate analysis. The HIV seroconversion rate was calculated by dividing the number of new HIV cases identified in the cohort by the total number of person-years (py) of observation, i.e., the time between date of enrolment and date of final assessment or date of HIV seroconversion or LFU, whichever was earlier. As HIV status and LFU were assessed only during the scheduled 6-monthly follow-up examinations, we assumed that the date of HIV seroconversion and LFU were at the midpoint of the interval between the scheduled follow-up examinations.¹

Bivariate analysis was performed using the χ^2 test to examine variables associated with proportion of LFU; $P < 0.05$ was considered statistically significant. Relative risks (RRs) and 95% confidence intervals (CIs) were calculated to assess the magnitude of the association. To assess the independent effects of each variable after adjusting for other variables, multivariate analysis using log-binomial regression was performed and adjusted RRs were calculated. All factors found to have $P < 0.05$ during bivariate analysis and the variable sex were included in the multivariate analysis.

Ethics

Ethics approval was obtained from the ethics committee of the Red Cross Hospital, Kunming, Yunnan Province, China, and the Ethics Advisory Group of the International Union Against Tuberculosis and Lung Disease, Paris, France. According to the study protocol

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TABLE 2 Eight questions used to evaluate knowledge about HIV/AIDS nationwide in China

Question	Correct answer
1 A person who looks healthy can be HIV-infected	Yes
2 HIV can be transferred by transfusion	Yes
3 HIV can be transferred by sharing needles and/or syringes	Yes
4 Correct use of condoms by both sexes can reduce the risk of HIV infection	Yes
5 Having one HIV-free sex partner can reduce the risk of HIV infection	Yes
6 It is possible for an HIV-positive pregnant woman to transmit the virus to her baby	Yes
7 One will not be infected by HIV if one eats meals with HIV-infected people	Yes
8 HIV is not transmitted by mosquito bites	Yes
≥ 6 correct answers indicates adequate knowledge about HIV/AIDS	
< 6 correct answers indicates inadequate knowledge about HIV/AIDS	

HIV = human immunodeficiency virus; AIDS = acquired immune-deficiency syndrome.

FIGURE Flow chart showing participants enrolled into MMT and those lost to follow-up in 13 MMT clinics, Yunnan Province, China, October 2008–April 2011. HIV = human immunodeficiency virus; MMT = methadone maintenance treatment.

and the approved ethical requirements, every subject provided verbal but not written informed consent at the time of enrolment and before blood testing and the administration of the questionnaire. Individuals were informed about their HIV test results after undergoing voluntary counselling and testing by trained MMT clinic staff; patient confidentiality was ensured.

RESULTS

Enrolment of study participants and details of their follow-up examinations are shown in the Figure. Of 1935 participants attending the MMT clinics at baseline, 643 (33%) were HIV-positive and were excluded from the study; 133 (7%) refused to participate. Of the 1159 HIV-negative participants at baseline (976 [84%] males; mean age 35.4 years [range 16–75]), 13 converted to HIV-positive during the study period: 12 (8 males, 4 females) were found to be HIV-positive at the second examination in April 2009 and 1 person (male) converted between April 2010 and April 2011. These were excluded from the final analysis of factors associated with LFU, in accordance with the study protocol. Of the remaining 1146 participants, 541 (47%) were lost to follow-up by the end of the study period, of whom 256 (47%) were lost to follow-up during the first 6 months, after which LFU reduced progressively.

In the multivariate model, the factors associated with higher risk of LFU included <6 months of previous MMT, inconvenient

MMT clinic location and average daily methadone dose ≤ 60 mg (Table 3).

The total py of HIV-negative participant observation between October 2008 and April 2011 was 1967.75 (Table 4). The median observation time was 984.38 py (interquartile range [IQR] 940–1028). The overall HIV seroconversion rate was 6.6/1000 py (IQR 3.7–11.0), and that among males and females was respectively 5.4 (IQR 2.6–10.0) and 12.9/1000 py (IQR 4.1–31.1, $P = 0.27$). Not living with a partner was found to be associated with a higher HIV seroconversion rate in both the bivariate analysis and the multivariate model (Table 5).

DISCUSSION

Based on observations by MMT staff, the rates of and reasons for MMT LFU were not very different between HIV-positive and HIV-negative participants. Although nearly half of the participants on MMT were lost to follow-up by the end of 2 and a half years, this was one of the best retention rates reported from China (53% in Dehong Prefecture and 32–45% for most other sites at 24 months follow-up).¹⁶ In general, low retention rates (<50% in 2 years) have been reported across the world due to the unstable nature of drug users in general and barriers posed by drug control policies.^{7,17,18} Yang et al. treated participants who had been lost but returned to MMT as being retained in their cohort by study end point.¹⁶ Wang et al. defined LFU as missing 15 days of MMT within a 90-day time frame.¹⁹ However, the present study used a relatively strict definition of LFU, in which a person who returned to the MMT clinic after being declared as lost to follow-up was still considered lost for the purpose of our analysis. This may have led to an underestimation of our retention rates. The adoption of 6-month intervals to measure LFU was in accordance with the standard definition of LFU in HIV cohorts recommended by Chi et al.²⁰

Nearly half of those lost to follow-up were lost during the first 6 months of the follow-up period in our study, a fact reported across many studies.^{7–11,16} Retention improved progressively after the first 6 months; this was due to timely intervention by programme managers. The interim findings of the study were used to raise awareness about the problem of LFU, and to sensitise and motivate the MMT staff to perform better and train them in ‘soft’ skills, including better communication with participants and proactive follow-up (by telephone or home visits) of participants who missed doses. Provider-related factors have been shown to be essential in improving retention among MMT participants in other studies.²¹

The factors associated with retention in our study were similar to those of other studies:^{1,9–11,16,22,23} participants on longer MMT duration and those with a daily methadone dose of >60 mg were more likely to be retained. Although not objectively documented, it was anecdotally observed in our setting that many participants rejected a dose of >60 mg per day, fearing adverse drug reactions. Reassuring participants about the non-serious nature of the adverse effects and timely treatment are necessary to address this issue and improve retention, as non-adherence to MMT would mean reverting back to intravenous drug use and the subsequent higher risk of acquiring HIV. Clinic-related factors such as convenient location and flexible opening hours are extremely important in fostering retention. While we observed a statistically significant association of a convenient clinic location with retention, there was high LFU even among those who found the clinic location convenient. No association was found between marital status

TABLE 3 Factors associated with loss to follow-up among methadone maintenance treatment participants in Yunnan Province, China, October 2008–April 2011

Characteristic	Total <i>n</i> (%)	Loss to follow-up <i>n</i> (%)	RR (95%CI)	<i>P</i> value	Adjusted RR (95%CI)	Adjusted <i>P</i> value
Total	1146 (100)	541 (47)				
Sex						
Male	967 (84)	462 (48)	1.1 (0.9–1.3)	0.381	1.1 (1.0–1.3)	0.166
Female	179 (16)	79 (44)	1.0			
Age, years						
≤35	621 (54)	311 (50)	1.1 (1.0–1.3)*	0.035	1.1 (1.0–1.3)	0.079
>35	525 (46)	230 (44)	1.0		1.0	
Duration of previous MMT, months†						
<6	254 (22)	155 (61)	1.4 (1.2–1.6)*	0.000	1.4 (1.2–1.5)*	0.000
≥6	877 (77)	386 (44)	1.0		1.0	
Marriage status						
Not living with a partner	456 (40)	237 (52)	1.2 (1.0–1.3)*	0.008	1.1 (1.0–1.3)	0.075
Living with a partner	690 (60)	304 (44)	1.0		1.0	
Literacy status						
Literate	1084 (95)	516 (48)	1.2 (0.9–1.6)	0.293		
Illiterate	62 (5)	25 (40)	1.0			
Employment						
Employed	741 (65)	365 (49)	1.1 (1.0–1.3)	0.065		
Unemployed	405 (35)	176 (44)	1.0			
Adequate knowledge about HIV/AIDS (8 questions in all)						
≥6 correct answers	1100 (96)	520 (47)	1.0 (0.8–1.4)	0.832		
<6 correct answers	46 (4)	21 (46)	1.0			
Convenience of clinic location†						
Not convenient	120 (10)	68 (57)	1.2 (1.0–1.4)*	0.025	1.2 (1.0–1.4)*	0.030
Convenient	1011 (88)	472 (47)	1.0		1.0	
Convenience of clinic opening hours‡						
Not convenient	87 (8)	48 (55)	1.2 (1.0–1.4)	0.125		
Convenient	1043 (91)	492 (47)	1.0			
Self-perceived adequacy of methadone dose						
Adequate	1091 (95)	517 (47)	0.9 (0.7–1.3)	0.598		
Inadequate	55 (5)	24 (44)	1.0			
Average methadone dose, ml/day						
≤60	711 (62)	353 (50)	1.1 (1.0–1.3)*	0.038	1.1 (1.0–1.3)*	0.041
>60	435 (38)	188 (43)	1.0		1.0	

*Significant, $P < 0.05$.

†Data missing for 15 study participants.

‡Data missing for 16 study participants.

RR = relative risk; CI = confidence interval; MMT = methadone maintenance treatment; HIV = human immunodeficiency virus; AIDS = acquired immune-deficiency syndrome.

and retention in our study, unlike the study in Dehong, which reported a significant association.¹⁶ While we do not know and did not systematically document the exact reasons for LFU, based on experience and interaction with participants and providers during the course of the study we may speculate that one of the main reasons for LFU was ‘relapse’ (defined as participants reverting to injecting drug use), and this could be related to the inadequacy of the methadone dose. As discussed earlier, this in turn could be related to perceived fear of adverse drug reactions among participants. While the adverse reactions (gastric disturbances, constipation and dizziness) were not serious, they greatly affected general quality of life. Another reason often reported by participants was the inconvenience related to direct observation of methadone treatment, which required daily travel to the clinic, and associated costs in terms of time and money. Special, innovative efforts are required to make direct observation more convenient by decentralising the delivery of services into the community. Other crucial reasons for LFU could be related to police arrest and per-

TABLE 4 Calculation of observation py in the study cohort, October 2008–April 2011

Time period	
October 2008–April 2009	$[1159 \times (12^{\dagger} + 256^{\ddagger})] / 2^{\S} = 512.5$
April 2009–October 2009	$(891 \times 90^{\ddagger}) / 2^{\S} = 423$
October 2009–April 2010	$(80 \times 95^{\ddagger}) / 2^{\S} = 376.75$
April 2010–April 2011	$706 \times (1^{\dagger} + 100^{\ddagger}) / 2^{\S} = 655.5$
Total observation, py	1967.75

*HIV-negative at the start of the time interval.

†Persons with HIV seroconversion during the time interval.

‡Persons lost to follow-up during the time interval.

§The midpoint of the time interval was assumed to be the time of seroconversion and loss to follow-up.

¶If the examination was half-yearly.

py = person years; HIV = human immunodeficiency virus.

TABLE 5 Factors associated with HIV seroconversion among MMT participants in Yunnan Province, China, October 2008–April 2011

Characteristic	Total <i>n</i> (%)	Loss to follow-up <i>n</i> (%)	RR (95%CI)	<i>P</i> value	Adjusted RR (95%CI)	Adjusted <i>P</i> value
Total	618 (100.0)	13 (2.1)				
Sex						
Male	514 (83.2)	9 (1.8)	0.5 (0.1–1.5)	0.183	0.6 (0.2–2.2)	0.439
Female	104 (16.8)	4 (3.8)	1.0		1.0	
Age						
≤35 years	319 (51.6)	9 (2.8)	2.1 (0.7–6.8)	0.210	1.3 (0.4–4.5)	0.662
>35 years	299 (48.4)	4 (1.3)	1.0		1.0	
Duration of previous MMT, months*						
<6	103 (16.7)	4 (3.9)	2.4 (0.7–7.9)	0.142	2.2 (0.7–6.9)	0.179
≥6	499 (80.7)	8 (1.6)	1.0		1.0	
Marriage status						
Not living with a partner	228 (36.9)	9 (3.9)	3.8 (1.2–12.4) [†]	0.024 [†]	3.6 (1.0–12.8) [†]	0.045 [†]
Living with a partner	390 (63.1)	4 (1.0)	1.0		1.0	
Literacy status						
Literate	581 (94.0)	13 (2.2)	–	–		
Illiterate	37 (6.0)	0 (0)				
Employment						
Employed	383 (62.0)	7 (1.8)	0.7 (0.2–2.1)	0.543	1.3 (0.4–4.1)	0.677
Unemployed	235 (38.0)	6 (2.6)	1.0		1.0	
Adequate knowledge about HIV/AIDS (8 questions in all)						
≥6 correct answers	592 (95.8)	12 (2.0)	0.5 (0.7–3.9)	0.531	2.2 (0.7–6.9)	0.179
<6 correct answers	26 (4.2)	1 (3.8)	1.0			
Convenience of clinic location [†]						
Not convenient	53 (8.6)	1 (1.9)	0.9 (0.1–7.2)	0.955	0.4 (0.0–4.7)	0.485
Convenient	550 (89.0)	11 (2.0)	1.0		1.0	
Convenience of clinic opening hours [‡]						
Not convenient	40 (6.5)	1 (2.5)	1.3 (0.2–9.6)	0.812	1.9 (0.2–16.7)	0.565
Convenient	562 (90.9)	11 (2.0)	1.0		1.0	
Self-perceived adequacy of methadone dose						
Adequate	585 (94.7)	11 (1.9)	0.3 (0.1–1.3)	0.117	0.2 (0.1–1.0)	0.057
Inadequate	33 (5.3)	2 (6.0)	1.0		1.0	
Average methadone dose, ml/day						
≤60	368 (59.5)	10 (2.7)	2.3 (0.6–8.1)	0.211	2.5 (0.7–9.0)	0.176
>60	250 (40.5)	3 (1.2)	1.0		1.0	

*Data missing for 15 study participants.

[†]Significant, *P* < 0.05.[‡]Data missing for 16 study participants.

RR = relative risk; CI = confidence interval; MMT = methadone maintenance treatment; HIV = human immunodeficiency virus; AIDS = acquired immune-deficiency syndrome.

manent detention, which may have led to heroin use relapse, as described in other studies.^{7,16}

Overall, the observed HIV seroconversion rate was low in our study group (0.7/100 py), compared to a 4-year MMT cohort in Dehong Prefecture, Yunnan, China (4.1/100 py)²⁴ and a 20-year MMT cohort in Amsterdam (1.7/100 py).¹ Of the 13 seroconverted cases, 12 seroconverted during the first 6 months. It is possible that several of these were prevalent cases and were in the window period²⁵ at the time of initial HIV testing, thus indicating that the actual seroconversion rate could be much lower. This is an indirect indicator of the effectiveness of MMT by HAARP in reducing HIV transmission among IDUs, the ultimate goal of this intervention. Although, given the short follow-up duration, the high rates of LFU and the likelihood of a greater risk of HIV among the lost-to-follow-up cohort, these results should be viewed with caution. The World Health Organization and the Joint United Nations Programme on HIV/AIDS have both embraced a bold vision of 'zero new HIV infections, zero discrimination and zero HIV/AIDS deaths' by 2015.²⁶ If we are to

achieve this in concentrated HIV epidemic settings such as China, it is vital to improve the effectiveness of interventions such as MMT, and this is possible only by improving retention rates. Berg et al. found that an HIV-negative or -unknown steady partner had a protective effect on HIV seroconversion compared to no steady partner.¹ Our observations are in line with these findings. This may be explained by less at-risk behaviour, such as sharing needles and unsafe sex, among those who have stable partners.

Our study had several strengths: the large sample size, being one of the first studies to report on HIV seroconversion rates among MMT participants in routine settings, and adherence to STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) guidelines.²⁷ There were some limitations to our study. First, as the study sites were all MMT clinics under HAARP, the representativeness and generalisability of the findings may have limitations beyond the study setting. Second, the exact reasons for LFU were not examined, and very little information on provider-related factors was gathered or analysed.

CONCLUSION

Retention rates among MMT participants in Yunnan, although better than in most other studies reported from China, are still poor overall and need urgent attention. HIV seroconversion rates among retained IDUs were found to be low, indicating that interventions such as MMT could be effective in reducing the risk of HIV infection. Improving MMT retention has the potential to reduce the risk of HIV infection and transmission and realise the goal of zero HIV infections in China. Further research using qualitative design are required to understand the reasons for LFU from the perspective of participants and health care providers, which could be used to develop new, improved, participant-focused services.

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Contexte : Treize centres de traitement par méthadone (MMT) dans le Yunnan, la province la plus touchée par le virus de l'immunodéficience humaine (VIH) en Chine.

Objectifs : Déterminer, parmi les participants VIH négatifs, la proportion de perdus de vue (ceux qui ont manqué l'examen de suivi à 6 mois), les facteurs associés à cet abandon du suivi, le taux de séroconversion VIH et les facteurs associés.

Schéma : Etude prospective de cohorte d'octobre 2008 à avril 2011. Tous les participants ont rempli un questionnaire structuré prétesté afin d'identifier ces facteurs et on leur a proposé un test VIH tous les 6 mois. L'analyse des données a été réalisée à l'aide du test χ^2 et de la régression logarithmique binomiale.

Résultats : Sur 1146 patients, 541 (47%) ont été perdus de vue en 2

ans et demi. Les facteurs associés à cet abandon comprenaient : <6 mois de séjour préalable dans un centre MMT, localisation peu pratique du centre et dose moyenne de méthadone ≤ 60 mg/jour avec un risque relatif (RR) ajusté de 1,4 (IC95% 1,2–1,5), 1,2 (IC95% 1,0–1,4) et 1,1 (IC95% 1,0–1,3), respectivement. Le taux global de séroconversion était de 6,6% personnes-années (IC95% 3,7–11). Le fait de ne pas vivre avec un partenaire contribuait à un taux plus élevé de VIH avec un RR ajusté de 3,6 (IC95% 1,0–12,8).

Conclusion : Le taux de rétention des participants à un traitement en centre MMT au Yunnan n'était pas satisfaisant. Une prestation de services décentralisée au niveau communautaire avec observation directe du traitement serait plus pratique et pourrait améliorer cette rétention.

Marco de referencia: Trece consultorios de tratamiento de mantenimiento con metadona en Yunnan, la provincia donde se observa la más alta carga de morbilidad por la infección causada por el virus de la inmunodeficiencia humana (VIH) en la China.

Objetivos: Determinar la proporción de pérdidas durante el tratamiento de mantenimiento con metadona en los pacientes sin infección por el VIH (es decir, los pacientes que no acudieron al seguimiento mensual durante 6 meses), los factores que se asociaron con esta pérdida, la tasa de conversión de la serología frente al VIH y los factores relacionados con la seroconversión.

Métodos: Se llevó a cabo un estudio prospectivo de cohortes entre octubre del 2008 y abril del 2011. Se administró a todos los participantes un cuestionario estructurado validado, destinado a captar los factores asociados y se les propuso la prueba diagnóstica del VIH cada 6 meses. En el análisis de los datos se aplicó la prueba de la χ^2 y un análisis de regresión logística binaria.

Resultados: De los 1146 pacientes se perdieron durante el seguimiento 541 (47%) en 2,5 años. Los factores que se asociaron con una proporción más alta de pérdidas fueron los siguientes: una duración del tratamiento previo de mantenimiento con metadona <6 meses (riesgo relativo ajustado [RRa] 1,4; IC95% 1,2–1,5), una localización poco práctica del consultorio (RRa 1,2; IC95% 1,0–1,4) y una dosis promedio de metadona ≤ 60 mg/día (RRa 1,1; IC95% 1,0–1,3). La tasa global de seroconversión frente al VIH fue 6,6 (IC95% 3,7–11,0) por 1000 años-persona. El hecho de no vivir en pareja contribuyó a una tasa más alta de serologías positivas, con un RRa de 3,6 (IC95% 1,0–12,8).

Conclusión: En Yunnan, el índice de fidelización al tratamiento de mantenimiento con metadona de los participantes es deficiente. Se podría mejorar la retención de los pacientes mediante la descentralización de la prestación de los servicios hacia la comunidad y una mejor adaptación de la observación directa del tratamiento.