



Medication-assisted treatment improves child permanency outcomes for opioid-using families in the child welfare system



Martin T. Hall, Ph.D., M.S.S.W.^{a,*}, Jordan Wilfong, M.S.W.^a, Ruth A. Huebner, Ph.D.^{b,1}, Lynn Posze, M.A.^c, Tina Willauer, M.P.A.^c

^a Kent School of Social Work, University of Louisville, Louisville, KY

^b Eastern Kentucky University and Graduate Faculty, University of Kentucky, Lexington, KY

^c Sobriety Treatment and Recovery Teams, Kentucky Department for Community Based Services, Frankfort, KY

ARTICLE INFO

Article history:

Received 5 May 2016

Received in revised form 25 July 2016

Accepted 14 September 2016

Available online xxxx

Keywords:

Opioids

Medication-assisted treatment

Child welfare

ABSTRACT

Parents who use opioids and are involved in the child welfare system are less likely to retain custody of their children than parents who use other drugs. No previous studies have described medication-assisted treatment (MAT) utilization and child permanency outcomes for this population. The Sobriety Treatment and Recovery Team (START) model is a child welfare-based intervention focused on families with co-occurring substance use and child abuse / neglect issues. This study examined the prevalence and correlates of MAT utilization among parents in the START program with a history of opioid use, and compared child outcomes for families who received MAT services to those who did not. Of the 596 individuals with a history of opioid use in the START program, 55 (9.2%) received MAT. Receipt of MAT services did not differ by gender, age, county of residence, or drug use, though individuals who identified as White were more likely to participate in MAT. In a multiple logistic regression model, additional months of MAT increased the odds of parents retaining custody of their children. To address barriers to MAT, results-focused educational interventions may be needed for the child welfare workforce, as well as programs to improve collaboration and decision-making between the child welfare workforce, court personnel, and drug addiction treatment providers.

© 2016 Elsevier Inc. All rights reserved.

1. Introduction

Over 2 million Americans have substance use disorders from prescription opioids, and nearly 500,000 from heroin (Substance Abuse and Mental Health Services Administration, SAMHSA, 2013). Opioid use increases the likelihood of developing life-altering problems such as transmission of HIV and hepatitis, incarceration, post-traumatic stress disorder, and parenting deficits (Schilling, Dornig, & Lundgren, 2006), as well as homelessness and premature death (World Health Organization, 2004).

Among families involved with child welfare, between 50% and 80% of abused or neglected children have substantial safety risks due to parental substance use disorders (Semidei, Radel, & Nolan, 2001; Young, Boles, & Otero, 2007). Furthermore, parents with substance use disorders do not regularly reunify with their children after they are placed in foster care (Bishop et al., 2000), with one study showing a reunification rate as low as 10% (Ryan, Marsh, Testa, & Louderman, 2006).

Finally, reunification rates are lower for parents with opioid use than parents with alcohol use (Choi & Ryan, 2007; Grella, Needell, Shi, & Hser, 2009) or cocaine use (Choi & Ryan, 2007).

Previous research on drug addiction treatment for parents involved with the child welfare system focused on how service completion impacts reunification outcomes (Green, Rockhill, & Furrer, 2007). Results from these studies have been mixed; some conclude that treatment completion increased reunification rates (Green et al., 2007; Smith, 2003), while others found that even when treatments helped parents reach sobriety, reunification rates were unaffected (Gregoire & Schultz, 2001). However, research in this area generally does not discriminate between type of substance use problem, thus creating difficulties assessing intervention outcomes based on specific drugs used (Smith, 2003).

Medication-assisted treatment (MAT) is an established intervention for individuals with opioid use disorders (Maremmanni, Pani, Pacini, & Perugi, 2007; Roman, Abraham, & Knudsen, 2011). The World Health Organization (2004) has identified MAT as the most effective treatment for opioid use disorders, and the effectiveness of MAT increases when people receive treatment for longer time periods (Simpson, 1993). However, a recent national study found that around 1.3 million individuals with opioid use disorders could benefit from MAT but are not receiving it (Jones, Campopiano, Baldwin, & McCance-Katz, 2015). Barriers to the implementation of MAT include: lack of availability, stigma,

* Corresponding author at: Kent School of Social Work, 303 Patterson Hall, University of Louisville, Louisville, KY 40292. Tel.: +1 502 852 3490.

E-mail address: martin.hall@louisville.edu (M.T. Hall).

¹ Former: Kentucky Department for Community Based Services, Frankfort, KY.

absence of a prescribing physician, and exclusive commitment to the 12-step model of treatment (Roman et al., 2011).

Research on drug addiction treatment for parents with opioid use disorders who are involved in the child welfare system – especially the use of MAT – is lacking, though mothers who receive MAT may be more likely to retain custody of their infant children (Lundgren, Fitzgerald, Young, Amodeo, & Schilling, 2007). This is notable because the Adoption Assistance and Child Welfare Act of 1980 (Public Law 96–972) mandates that states make reasonable efforts to reunify families before terminating parental rights (Wulczyn, 2004). Though *reasonable efforts* are somewhat undefined, the laws are clear that whenever possible, children should be raised by their parents. The law is also clear on the timeline for doing so; the Adoption and Safe Families Act (ASFA; Public Law 105–89) of 1997 requires a termination of parental rights for children living in foster care for 15 of the most recent 22 consecutive months. These mandates require timely and effective interventions that address opioid use and help parents retain custody of their children.

One promising approach is the Sobriety Treatment and Recovery Team (START) model, a child welfare-based intervention focused on families with co-occurring substance use and child abuse / neglect issues (Huebner, Willauer, & Posze, 2012). START uses a system-of-care approach to partner with local drug addiction treatment providers and the courts. Additionally, START child welfare workers receive special training in substance use and motivational interviewing, and are paired with a *family mentor*, an individual in sustained recovery from addiction who coaches and supports parents with child welfare and drug addiction treatment. The START worker and family mentor dyads maintain 12–15 cases, a lower number than is common in child welfare. This allows teams to deliver intensive, individualized services using both formal and natural supports to promote recovery and family well-being. START supports the use of MAT when it is indicated and geographically available. Previous research indicated that the children of parents receiving START entered state custody at roughly half the rate of similar families (Huebner et al., 2012); and 42.3% were reunified by case closure (Huebner, Posze, Willauer, & Hall, 2015).

The purpose of this study is to describe MAT use and related outcomes among opioid users in the START program. The study has two primary aims. First, we will describe prevalence and correlates of MAT utilization among child welfare parents with a history of opioid use that received services in the START program. We hypothesize that MAT is underutilized, even though the START program promotes its use. The second aim of the study will be to compare child outcomes for opioid users in the START program who received MAT services to those who did not. The primary outcome of interest will be permanency status – specifically, whether or not parents in the START program retained custody of their children at case closure. As such, this manuscript will be among the first to describe the relationship between MAT utilization and permanency status for families involved in the child welfare system.

2. Methods

2.1. Sample and procedure

Participants in this study were drawn from the START program in Kentucky. As noted, START is a child welfare-based intervention focused on families with co-occurring substance use and child abuse / neglect (CA/N). Families receiving START were required to meet the following criteria: (1) referred to the state's child protective services regional intake or child abuse hotline because of suspicion of CA/N; (2) a finding of CA/N was substantiated by child protective services investigative worker; (3) substance use was the primary child safety risk factor; (4) at least one child in the family was 5 years of age or younger; (5) prior child protective services cases, if applicable, were closed at the time the new case was referred; and (6) referrals to START from

the child protective services investigative worker had to occur within 30 days of the initial hotline report.

The sample for the current study consisted of closed START cases with at least one adult family member reporting opioid use. This resulted in a sample of 596 adult opioid users representing 413 unique families. Adult opioid users in this sample were most often the biological parent(s) of children in the cases. However, other adults in the household (e.g., non-biological parents, grandparents) were included if they also received START services and reported opioid use. Of the 413 families, 172 (41.6%) consisted of families with 2 or more adults reporting opioid use, and in the remaining 241 families (58.4%), only one adult reported opioid use (because there were either no other adults in the household, or if other adults were present, they did not report opioid use). Families in the sample were residing in 5 counties within Kentucky, including urban, small city, and rural areas. Parents entered the START program between the years of 2007 and 2015.

2.2. Measures

2.2.1. Demographics

Self-reported demographic data for the following variables were included: gender, age, race (i.e., White, other races), and county of residence (Boyd, Daviess, Jefferson, Kenton, Martin).

2.2.2. Substance use

Current use of the following nine categories of psychoactive substances was assessed (yes or no): alcohol, marijuana, cocaine, opiates, methadone, benzodiazepines, barbiturates, methamphetamines, and amphetamines.

2.2.3. Household opioid use

Household opioid use was measured by dichotomizing the number of adult opioid users in the household (i.e., one adult opioid user versus two or more adult opioid users).

2.2.4. Medication assisted treatment

MAT utilization was assessed during parents' involvement in START. This included the use of methadone, buprenorphine, and naltrexone. The variable was initially dichotomized (yes or no) as having received any type of MAT. However, since a small number of clients received less than a month of MAT and studies suggest that greater length of time on MAT is associated with more favorable outcomes (Greenfield & Fountain, 2000), the variable was again dichotomized as either no MAT (0) versus more than 1 month of MAT services (1). Finally, months of MAT received during the START program was calculated.

2.2.5. Permanency outcomes

Of the 558 families who received START services, 416 cases had been closed. Five common permanency outcomes were identified at case closure: (1) child(ren) remained with at least one parent(s) who received START services ($n = 222$); (2) some children remained with parent(s) and some were placed elsewhere ($n = 14$); (3) child(ren) placed into permanent custody of a relative ($n = 122$); (4) parental rights were terminated and children were placed in foster care ($n = 55$); and (5) permanency was unresolved at START closure ($n = 3$). For the purposes of this analysis, the permanency outcome variable was reduced to two outcomes: (1) child(ren) remained with at least one parent who received START services ($n = 222$); or (2) all other possible outcomes ($n = 191$). The three families whose permanency status was unresolved at START closure were excluded, resulting in a final sample of 413 closed cases.

2.3. Data analysis

Data analysis consisted of two steps. First, individuals and families who received no MAT and those with at least 1 month of MAT were

compared using chi-square tests for categorical variables and *t* tests for continuous variables. Second, months of MAT, along with the demographic variables gender, age, race, and county of residence were entered as independent variables into a multiple logistic regression model to identify correlates of permanency status at case closure. Tolerance and variance inflation factors (VIF) were used to assess multicollinearity, and all tolerance values were above .94 and VIF values below 1.1.

3. Results

Demographic characteristics for the sample are presented in Table 1. A total of 596 individuals with opioid use problems had completed START services at the time this study was conducted. The mean age for adults was 27 years, and women constituted approximately two-thirds of the sample. Consistent with the racial background of the state of Kentucky (U.S. Census Bureau, 2016), the sample was largely White. START participants in the study resided in five Kentucky counties which varied in population density: Boyd (medium metropolitan); Daviess (small metropolitan); Jefferson (large central metropolitan); Kenton (large fringe metropolitan); and Martin (nonmetropolitan).

Of the 596 individuals with a history of opioid use in the START program, 55 (9.2%) received MAT during their involvement with START. The amount of time individuals received MAT ranged from less than 1 month to 24 months, with an average of approximately 7 months. Roughly a third of START participants who participated in MAT received 3 months or less; another third received 4 to 8 months of MAT; and the final third received between 9 months and 2 years.

Table 2 presents results of bivariate comparisons of START participants who received no MAT and those who received at least 1 month. Receipt of MAT services did not differ by gender or age, though there was a significant statistical difference based on race; all 55 START participants who received more than 1 month of MAT were White. County of residence did not differ by group, nor did rates of other problematic substance use or number of opioid users in the household. Finally, families that received at least 1 month of MAT services were significantly more likely than those with no MAT to retain custody of their children at case closure.

The following variables were entered into a multiple logistic regression model to identify correlates of permanency status at case closure: gender (1 = male, 0 = female), age (years), race (White = 1, other races = 0), county of residence (Boyd, Daviess, Jefferson, Kenton, Martin [reference group]), household opioid use (0 = one adult, 1 = two or more adults), and months of MAT services. Table 3 includes model coefficients, statistical tests, ORs, and 95% confidence intervals for ORs. Two variables were significant at $p < .05$. Families with one adult opioid

user in the household were almost as twice as likely to retain custody of their children compared to families with two or more adult opioid users. Additionally, MAT was significantly associated with families remaining intact, with each additional month of MAT resulting in a 10% increase in the odds of parents retaining custody of their children.

4. Discussion

A relatively small portion of opioid users (9.2%) in this sample of families involved in the child welfare system received MAT. We are not aware of other studies to report on prevalence of MAT utilization among this population, however several reasons may explain the underutilization of MAT. First, there is an issue of capacity; a recent study using national data found that the number of individuals with opioid use disorders far exceeds MAT capacity (Jones et al., 2015). In fact, some counties where START was implemented had a very limited drug addiction treatment infrastructure – including MAT opportunities – at the time the program was initiated (Hall et al., 2015).

Other factors are also likely involved. MAT utilization has a long history of stigmatization (Earnshaw, Smith, & Copenhaver, 2013), and is often located away from both other health care services (Olsen & Sharfstein, 2014) and psychosocial treatment services. While Narcotics Anonymous (NA) does not take an official position on MAT, it does affirm NA groups' right to limit those receiving MAT, "...to participate only by listening and by talking with members after the meeting or during break" (Narcotics Anonymous World Service, Inc., 1996, para. 6; see White, 2011, for an extensive review of this topic). Additionally, courts often hold unfavorable opinions of MAT; a nationwide survey of U.S. drug courts found that nearly half had policies that prohibit its use (Matusow et al., 2013). This finding is consistent with our experience, as some courts where START operates require that parents discontinue MAT in order to retain or regain custody of their children. Finally, the underutilization of MAT in the START program, which promotes its use, raises concerns about MAT utilization among parents receiving usual child welfare services.

There were few demographic differences between individuals who received at least 1 month of MAT and those who did not. There were no significant differences by group with regard to gender, age, county of residence, or substance use history. However, there were differences by race, as White individuals were more likely to receive MAT compared to participants of other races. Previous studies have found that compared to individuals who are White, minority populations were less likely to engage in MAT (Baxter, Clark, Samnaliev, Leung, & Hashemi, 2011), and once engaged, were less likely to be retained (Mancino et al., 2010). This finding appears to be at least partly a result of access. One recent intervention showed that *mobile medication units* were more successful in enrolling African Americans into MAT as compared to conventional clinic-based MAT (Hall et al., 2014). However, social and cultural factors may also be involved, as a qualitative study of drug addiction treatment providers in predominantly African-American communities identified, "...long-held perceptions of methadone as a way to control and restrict users, Blacks and persons of color in particular..." (Eversman, 2015, p. 198). Though African American families have shown positive outcomes in the START program – a previous evaluation that included all families (i.e., not just opioid users) found that a higher percentage of African American than White families retained custody of their children (Huebner, Posze, Willauer, Hall and Oliver, 2015) – increasing MAT utilization by African Americans and Latinos will be a focal area for the program in the future.

In this study, duration of MAT was positively associated with parents retaining custody of their children at case closure, even when accounting for greater number of household opioid users. In fact, compared to parents who received no MAT, a year of MAT increased the odds of parents retaining custody of their children by 120%. This outcome is consistent with previous studies showing other positive outcomes of increased duration of MAT. For example, increased duration of MAT

Table 1
Demographic characteristics of 596 opioid users in the Kentucky START program.

Variable	<i>n</i>	(%)
Gender		
Men	204	(34.2)
Women	392	(65.8)
Race		
African American	49	(8.2)
Hispanic/Other	6	(1.0)
White	538	(90.3)
Age		
18–24	245	(41.1)
25–29	189	(31.7)
30 and older	162	(27.2)
County		
Boyd	104	(17.4)
Daviess	3	(.5)
Jefferson	197	(33.1)
Kenton	212	(35.6)
Martin	80	(13.4)

Note. There were 3 missing values for the race measure.

Table 2
Bivariate comparisons of opioid users in the START program based on receipt of medication-assisted treatment (MAT).

Variable	No MAT ^a (n = 541)	At least 1 month of MAT (n = 55)	Results
Gender, n (%)			$\chi^2(1) = 3.0, p = .08$
Male	191 (35.3%)	13 (23.6%)	
Female	350 (64.7%)	42 (76.4%)	
Age, M (SD)	27.2 (5.7)	28.3 (6.4)	$t(581) = -1.3, p = .19$
Race			$\chi^2(1) = 6.5, p = .01$
Other races	58 (10.7%)	0 (0.0%)	
White	483 (89.3%)	55 (100.0%)	
County			$\chi^2(4) = 6.1, p = .19$
Boyd	91 (16.8%)	13 (23.6%)	
Daviss	3 (0.6%)	0 (0.0%)	
Jefferson	178 (32.9%)	19 (34.5%)	
Kenton	191 (35.3%)	21 (38.2%)	
Martin	78 (14.4%)	2 (3.6%)	
Other substances used			
Marijuana	348 (64.3%)	36 (65.5%)	$\chi^2(1) = .03, p = .87$
Cocaine	169 (31.2%)	14 (25.5%)	$\chi^2(1) = .76, p = .38$
Alcohol	213 (39.4%)	17 (30.9%)	$\chi^2(1) = 1.5, p = .22$
Amphetamines	45 (8.3%)	5 (9.1%)	$\chi^2(1) = .04, p = .84$
Methamphetamines	37 (6.8%)	5 (9.1%)	$\chi^2(1) = .39, p = .53$
Barbiturates	50 (9.2%)	5 (9.1%)	$\chi^2(1) = .00, p = .97$
Benzodiazepines	258 (47.7%)	27 (49.1%)	$\chi^2(1) = .04, p = .84$
Household opioid use			
1 adult user	222 (41.0%)	19 (34.5%)	$\chi^2(1) = .87, p = .35$
2 or more adult users	319 (59.0%)	36 (65.5%)	
Permanency ^b			$\chi^2(1) = 5.0, p = .03$
All children remained with at least one parent	195 (52.0%)	27 (71.1%)	
All other outcomes	180 (48.0%)	11 (28.9%)	

^a Four individuals received between 1 and 16 days of MAT and were included in the No MAT category.

^b Permanency outcomes are at the family (n = 413) level.

has been associated with reduced illicit opioid use (Condelli & Dunteman, 1993), other drug use and criminal activity (Simpson & Sells, 1982), and risk of viral infection and sexually transmitted diseases (Greenfield & Fountain, 2000). Future research is urgently needed to establish the utilization rates of MAT in the general child welfare system, and where underutilized, better understand whether underutilization results from lack of availability, prohibition by local courts, unfavorable opinions by child welfare workers and traditional 12-step drug addiction treatment providers, or all of the above. Interventions may be needed to educate the child welfare workforce on the benefits of MAT (Lundgren et al., 2007), as well as improve practical service linkages between child welfare systems, the courts, 12-step drug addiction treatment providers and MAT providers.

This study has two main limitations. First, participants were not randomized to MAT. Thus, it is possible that individuals who received longer durations of MAT may have differed from those who did not in an unknown way – for example, individuals who received longer durations of MAT may have been more motivated to retain custody of their children than individuals who received little or no MAT. Additionally, individuals who received longer durations of MAT may have been served by START child welfare workers or peer mentors who held more favorable

views of MAT. Second, it is possible that opioids were not the primary drug of choice for all individuals in the sample, and thus MAT might not have been warranted in all cases. This limitation may have resulted in a downward bias of the MAT utilization rate found in this study. Also, it is possible that individuals who received MAT had more severe opioid use disorders than those who did not. If true, however, this could be perceived as a strength of the study given that parents with opioid use have been found to be less likely to retain custody of their children than parents who use other drugs (Choi & Ryan, 2007; Grella et al., 2009). In spite of these limitations, this study makes an important contribution, as it is the first to document the benefits of MAT for families involved in the child welfare system.

Acknowledgements

This research was supported in part by funding from the Children's Bureau, an office of the Administration on Children & Families, U.S. Department of Health and Human Services. Additional funding was provided by the Kentucky Department of Community Based Services. We would also like to thank the families who participated in START, as well as START teams and drug addiction treatment providers.

Table 3
Multiple logistic regression analysis (with simultaneous entry of variables) identifying correlates of START participants retaining custody of their children.

Variable	b	SE	Wald	p	OR	[95% CI]
Gender (women vs. Mmen)	-0.69	0.43	2.6	.10	.50	[0.2, 1.2]
Age, in years	0.02	0.02	0.87	.35	1.0	[1.0, 1.1]
Race (white vs. other races)	-0.41	0.35	1.4	.24	.67	[0.3, 1.3]
County: Boyd vs. Martin	0.47	0.40	1.4	.24	1.6	[0.7, 3.5]
County: Jefferson vs. Martin	0.08	0.37	0.05	.83	1.1	[0.5, 2.2]
County: Kenton vs. Martin	0.45	0.36	1.6	.21	1.6	[0.8, 3.2]
Household opioid users (1 adult vs. 2 or more adults)	0.65	0.23	8.3	.00	1.9	[1.2, 3.0]
Months of MAT	0.11	0.04	6.5	.01	1.1	[1.0, 1.2]

Note. For households with 2 or more adult opioid users, demographic variables were based on the adult who received the most MAT; if no adult in the household received MAT, demographic variables were based on the biological mother. Daviss county was excluded from the model because of the small sample size (n = 3). OR = odds ratio; CI = confidence interval.

References

- Baxter, J. D., Clark, R. E., Samnaliev, M., Leung, G. Y., & Hashemi, L. (2011). Factors associated with Medicaid patients' access to buprenorphine treatment. *Journal of Substance Abuse Treatment*, 41, 88–96.
- Bishop, S. S., Murphy, J. M., Hicks, R., Quinn, D., Lewis, P. J., Grace, M., & Sellinek, M. S. (2000). What progress has been made in meeting the needs of seriously maltreated children? The course of 200 cases through the Boston juvenile court. *Child Abuse and Neglect*, 24, 241–254.
- Choi, S., & Ryan, J. P. (2007). Co-occurring problems for substance abusing mothers in child welfare: matching services to improve family reunification. *Children and Youth Services Review*, 29, 1395–1410.
- Condelli, W. S., & Duntzman, G. H. (1993). Exposure to methadone programs and heroin use. *American Journal of Drug and Alcohol Abuse*, 19, 65–78.
- Earnshaw, V., Smith, L., & Copenhaver, M. (2013). Drug addiction stigma in the context of methadone maintenance therapy: an investigation into understudied sources of stigma. *International Journal of Mental Health and Addiction*, 11, 110–122.
- Eversman, M. H. (2015). We want a living solution": views of harm reduction programs in black U.S. communities. *Journal of Ethnicity in Substance Abuse*, 14, 187–207.
- Green, B. L., Rockhill, A., & Furrer, C. (2007). Does substance abuse treatment make a difference for child welfare case outcomes: a longitudinal analysis. *Children and Youth Services Review*, 29, 460–473.
- Greenfield, L., & Fountain, D. (2000). Influence of time in treatment and follow-up duration on methadone treatment outcomes. *Journal of Psychopathology and Behavioral Assessment*, 22, 353–364.
- Gregoire, K. A., & Schultz, D. J. (2001). Substance-abusing child welfare parents: treatment and child placement outcomes. *Child Welfare*, 60, 433–452.
- Grella, C. E., Needell, B., Shi, T., & Hser, Y. (2009). Do drug treatment services predict reunification outcomes of mothers and their children in child welfare? *Journal of Substance Abuse*, 36, 278–293.
- Hall, M. T., Huebner, R. A., Sears, J. S., Posze, L., Willauer, T., & Oliver, J. (2015). Sobriety treatment and recovery teams in rural Appalachia: implementation and outcomes. *Child Welfare*, 9, 119–138.
- Hall, G., Neighbors, C. J., Iheoma, J., Dauber, S., Adams, M., Culleton, R., ... Morgenstern, J. (2014). Mobile opioid agonist treatment and public funding expands treatment for disenfranchised opioid-dependent individuals. *Journal of Substance Abuse Treatment*, 46, 511–515.
- Huebner, R. A., Posze, L., Willauer, T., & Hall, M. T. (2015a). Sobriety treatment and recovery teams: implementation fidelity and related outcomes. *Substance Use & Misuse*, 50, 1341–1350.
- Huebner, R. A., Posze, L., Willauer, L., Hall, M. T., & Oliver, J. (2015b). Application of the evaluation framework for program improvement of START. *Journal of Public Child Welfare*, 9, 42–64.
- Huebner, R. A., Willauer, T., & Posze, L. (2012). The impact of sobriety treatment and recovery teams (START) on family outcomes. *Families in Society: The Journal of Contemporary Social Services*, 93, 196–203.
- Jones, C. M., Campopiano, M., Baldwin, G., & McCance-Katz, E. (2015). National and state treatment need and capacity for opioid agonist medication-assisted treatment. *American Journal of Public Health*, 105, e55–e63.
- Lundgren, L. M., Fitzgerald, T., Young, N., Amodeo, M., & Schilling, R. F. (2007). Medication assisted drug treatment and child well-being. *Children and Youth Services Review*, 29, 1051–1069.
- Mancino, M., Curran, G., Han, X., Allee, E., Humphreys, K., & Booth, B. M. (2010). Predictors of attrition from a national sample of methadone maintenance patients. *American Journal of Drug and Alcohol Abuse*, 36, 155–160.
- Maremmani, I., Pani, P. P., Pacini, M., & Perugi, G. (2007). Substance use and quality of life over 12 months among buprenorphine maintenance-treated methadone maintenance-treated heroin-addicted patients. *Journal of Substance Abuse Treatment*, 33, 91–98.
- Matusow, H., Dickman, S. L., Rich, J. D., Fong, C., Dumont, D. M., Hardin, C., ... Rosenblum, A. (2013). Medication assisted treatment in US drug courts: results from a nationwide survey of availability, barriers and attitudes. *Journal of Substance Abuse Treatment*, 44, 473–480.
- Narcotics Anonymous World Services, Inc. (1996). World Service Board of Trustees Bulletin #29: regarding methadone and other drug replacement programs. (Retrieved from) <https://www.na.org/?ID=bulletins-bull29>
- Olsen, Y., & Sharfstein, J. M. (2014). Confronting the stigma of opioid use disorder—and its treatment. *JAMA*, 311, 1393–1394.
- Roman, P. M., Abraham, A. J., & Knudsen, H. K. (2011). Using medication-assisted treatment for substance use disorders: evidence of barriers and facilitators of implementation. *Addictive Behaviors*, 36, 584–589.
- Ryan, J. P., Marsh, J. C., Testa, M. F., & Louderman, R. (2006). Integrating substance abuse treatment and child welfare services: findings from the Illinois alcohol and other drug abuse waiver demonstration. *Social Work Research*, 30, 95–107.
- Schilling, R., Dornig, K., & Lundgren, L. (2006). Treatment of heroin dependence: effectiveness, costs, and benefits of methadone maintenance. *Research on Social Work Practice*, 16, 48–56.
- Semidei, J., Radel, L. F., & Nolan, C. (2001). Substance abuse and child welfare: clear linkages and promising responses. *Child Welfare*, 60, 109–128.
- Simpson, D. D. (1993). Drug treatment evaluation research in the United States. *Psychology of Addictive Behaviors*, 7(2), 120–128.
- Simpson, D. D., & Sells, S. B. (1982). Effectiveness of treatment for drug abuse: an overview of the DARP research program. *Advances in Alcohol & Substance Abuse*, 2, 7–29.
- Smith, B. D. (2003). How parental drug use and drug treatment compliance relate to family reunification. *Child Welfare*, 62(3), 335–365.
- Substance Abuse and Mental Health Services Administration (SAMHSA) (2013). *Results from the 2012 national survey on drug use and health: summary of national findings*. Rockville, MD: Substance Abuse and Mental Health Services Administration.
- U.S. Census Bureau (2016). State and county QuickFacts. (Retrieved from) <http://quickfacts.census.gov/qfd/states/21000.html>
- White, W. L. (2011). Narcotics anonymous and the pharmacotherapeutic treatment of opioid addiction in the United States. (Retrieved from) http://www.williamwhitepapers.com/pr/_books/full_texts/2011%20NA%20&%20Medication-assisted%20Treatment.pdf
- World Health Organization (2004). *Substitution maintenance therapy in the management of opioid dependence and HIV/AIDS prevention*. Geneva, Switzerland: United Nations Office on Drugs and Crime.
- Wulczyn, F. (2004). Family reunification. *Future of Children*, 14, 95–113.
- Young, N., Boles, S. M., & Otero, C. (2007). Parental substance use disorders and child maltreatment: overlaps, gaps and opportunities. *Child Maltreatment*, 12, 137–149.