



HHS Public Access

Author manuscript

J Psychoactive Drugs. Author manuscript; available in PMC 2016 November 01.

Published in final edited form as:

J Psychoactive Drugs. 2015 ; 47(5): 417–425. doi:10.1080/02791072.2015.1090645.

Exploring Massachusetts Health Care Reform Impact on Fee-for-Service Funded Substance Use Disorder Treatment Providers

Dail Fields, PhD¹,

Center for Research on Behavioral Health and Human Services Delivery, Institute for Behavioral Research, University of Georgia

Jana Pruett, LCSW, and

School of Social Work, University of Georgia, jpruett@uga.edu

Paul M. Roman, PhD

Center for Research on Behavioral Health and Human Services Delivery, Institute for Behavioral Research and Department of Sociology, University of Georgia, Phone: 706-542-6090/
proman@uga.edu

Abstract

The Affordable Care Act (ACA) is forecast to increase the demand for and utilization of substance use disorder (SUD) treatment. Massachusetts implemented health reforms similar to the ACA in 2006 -2007 that included expanding coverage for SUD treatment. This study explored the impact of Massachusetts health reforms from 2007 to 2010 on SUD treatment providers in Massachusetts, who relied on fee-for-service billings for more than 50% of their revenue. The changes across treatment facilities located in Massachusetts were compared to changes in other similar fee-for-service funded SUD treatment providers in Northeast states bordering Massachusetts and in all other states across the US. From 2007-2010, the percentage changes for Massachusetts based providers were significantly different from the changes among providers located in the rest of the US for admissions, outpatient census, average weeks of outpatient treatment, residential/in-patient census, detoxification census, length of average inpatient and outpatient stays, and provision of medication assisted treatment. Contrary to previous studies of publicly funded treatment providers, the results of this exploratory study of providers dependent on fee-for-service revenues were consistent with some predictions for the overall effects of the ACA

Keywords

Affordable Care Act; health reforms; fee-for-service addiction treatment

The Affordable Care Act (ACA) is forecast to increase the demand for and utilization of substance use disorder (SUD) treatment service providers because it will require mental health and SUD insurance coverage, apply Federal parity protections for SUD treatment, and provide previously uninsured persons with treatment access through private health insurance and Medicaid (U.S. Congress 2006; Beronio, et al. 2013). Increased coverage of

¹ Corresponding Author, Phone: 706-542-6054/ dfields414@att.net.

payment for SUD treatment provided by the ACA may remove significant barriers that may currently limit utilization of SUD treatment providers. Based on combined data for 2007-2010, the National Survey of Drug Use and Health estimated that 32% of those perceiving an unmet need for SUD treatment cited lack of health coverage and inability to afford the anticipated cost as primary barriers to obtaining available treatment (SAMHSA 2010). On a national basis, providing insurance coverage to these persons could increase the patients utilizing SUD treatment providers by at least 12% (SAMHSA 2011a). The ACA may also change the types and characteristics of SUD treatment service providers, since as more persons are provided coverage, the portion of total SUD treatment services financed by health insurance and Medicaid is likely to increase, while the portion supported by public grants decreases (Buck 2011).

Since changes in treatment utilization for SUD would be indicators that the predictions about the impact of the ACA are accurate, examining these changes is important. However, the implementation of ACA has moved more slowly than might have been expected, and there are yet to be reports in the secular media about changes in numbers of people seeking treatment. The experience of Massachusetts, which earlier implemented legislation similar to the ACA, may suggest national changes in SUD treatment as the ACA becomes fully implemented across the nation.

In 2006-2007, Massachusetts expanded the Medicaid system and mandated coverage for treatment of substance use and psychiatric disorders, foreshadowing similar provisions of the ACA and the Mental Health Parity and Addictions Act of 2008 (Holaha & Blumberg 2006; SAMHSA 2014). The Massachusetts health reforms created a 'natural experiment' offering a partial test of predictions for the effects of ACA on SUD treatment providers (Long & Stockley 2011)

Previous studies have shown limited effects of Massachusetts health care reform on SUD treatment organizations (Capoccia et al. 2012). These works focused on fundamentally different sets of SUD treatment providers than those considered in the present study. Capoccia and colleagues (2012) examined a sample of large Massachusetts treatment providers which derived over 60% of their revenues from state appropriations and block grant funds and found that these organizations experienced minimal changes in new admissions from 2006-2009. Across this sample, admissions increased by 19% only in 2010. Although availability of increased insurance coverage might also increase length of patient stay in treatment, the service units delivered within these organizations also remained essentially unchanged over the study period (Capoccia et al. 2012). A separate research report in 2010 also found that publicly funded facilities in Massachusetts experienced no increase in demand for SUD treatment following health reform and suggested that Massachusetts' health reforms would likely benefit fee-for-service funded providers (NASADAD 2010).

Officials in Massachusetts also have suggested that newly insured individuals might primarily use fee-for-service SUD treatment providers (Stewart & Horgan 2011). Further, the 2009-2010 revision of the Massachusetts SUD Strategic Plan predicted that expanded coverage might shift patient demand from providers funded by public sector block grants to

fee-for-service providers (State of Massachusetts 2010). Other research has also suggested that increases in demand for treatment services due to expanded coverage under ACA may occur primarily among treatment providers able to efficiently bill for third party reimbursement and manage the flexibility and risks inherent to a fee-for-service business model (Buck 2011).

These predictions suggest that patterns of admissions and service utilization due to Massachusetts reforms may have been different within SUD treatment providers operating on fee-for-service revenue, rather than public grant funds. This is the first research question of this study. Thus the present study explores the impact of the Massachusetts health reforms from their early stages in 2007 through implementation to 2010 in a sample of SUD providers who relied on fee-for-service billings to insurance, Medicaid, Medicare, or self-paying patients for more than 50% of their revenue. The second question is whether the reforms affected fee-for-service dependent providers in Massachusetts differently than in other locations. To answer this question, changes over 2007- 2010 in Massachusetts fee-for-service treatment providers were compared to changes over the same period in samples of similar fee-for-service based treatment providers located both in northeastern states contiguous to Massachusetts, and located across the US.

Many of the projected effects of the ACA and the Massachusetts reforms on SUD treatment providers focus on expanded demand for services due to increased resources available to patients. Greater resources available to SUD patients may be reflected in higher levels of treatment admissions as well as on-going census levels (Buck 2011). Patients with more insurance resources may stay in treatment longer, and higher levels of admissions may require larger numbers of employees. Thus this study explored changes in the following demand and capacity related variables in each group of fee-for-service dependent SUD treatment providers: annual admission levels across all types of services; census levels for residential/inpatient, outpatient and detoxification services; average length of stay for residential/inpatient and outpatient services; and number of employees. If fee-for-service dependent treatment providers attract larger numbers of patients, these providers may be challenged to maintain high quality and comprehensive care (Ducharme, et al., 2007) which includes both core SUD treatment services as well as medically assisted treatment options, and wrap-around services covering co-occurring problems such as general medical disorders, transportation, legal and other services. As a result, this study also explored changes in the following quality of care related variables: provision of combined core and wrap-around services; provision of medically assisted treatment; and percentage of counselors with masters' degrees. .

Methods

The National Treatment Center Study (NTCS)

Longitudinal information about the organizations studied was drawn from the National Treatment Center Study (NTCS). The NTCS is a national study of organizations that provide SUD treatment and which rely on fee-for service funding for more than 50% of their revenue. The initial sample for this study was selected using a two-stage stratified process where treatment providers were randomly sampled within population strata. Telephone

screening was used to establish eligibility for the study. Eligibility focused on treatment organizations available in communities. SUD treatment providers included in the NTCS must offer SUD treatment at ASAM Level 1 outpatient services or higher and receive more than 50% of their annual revenues from fee-for-service billings to third parties including health insurance, Medicaid, Medicare, and patient payments. Selection of participant organizations excluded counselors in private practice, halfway houses, transitional living facilities, methadone maintenance facilities, court-ordered driver education, correctional, and VA facilities (Fields & Roman, 2010; Fields, et al., 2012)

Treatment providers participating in the NTCS were visited every 2 years. The data for this study were collected during on-site visits and face-to-face interviews in 2007-2008 and 2009-2010. Data were collected from these treatment providers using interviews of administrative and clinical directors conducted on-site. Both directors were provided with revenue, census, and treatment services questions in advance of the interviews and asked to consult organizational records for these data prior to the site visits. Interview guides and informed consent procedures were approved by the University of Georgia Institutional Review Board.

Data collected from each provider include measures of internal management practices, revenues, patient referral sources, levels of care, and adoption of evidence-based practices such as comprehensive care and medication assisted treatment. Empirical investigations of organizations are often faced with a lack of archival data about constructs of interest, and thus rely on data reported by key informants (Kumar, Stern & Anderson, 1993). Key informants have been used in research studies to describe organizational variables including innovation adoption, environmental influences, power of major suppliers and customers, human resource practices, and quality management practices (Fields, Roman & Blum, 2012; Fields & Roman, 2010; Phillips, 1981).

To maintain sample size over the life of the NTCS, replacements for organizations that left the sample through closure or other attrition were randomly drawn from updated directories of providers. In 2007-2008, 345 fee-for service dependent treatment providers participated in the NTCS; in 2009-2010, 329 treatment centers were involved. Since the focus of the study was on changes occurring across a group of providers between 2007 and 2010, it was necessary that the same providers were present for both time periods (Singer & Willett 2003). A sample of 274 SUD treatment providers provided NTCS data in both 2007 and 2010 was available for analysis, representing retention of 79% across the two data collection periods. Massachusetts sample

Nine SUD treatment providers located in Massachusetts provided NTCS data in 2007 and 2010 and these providers form the study sample. In order to assess the extent to which the study sample is representative of all SUD treatment providers in Massachusetts Table 1 compares the study sample of Massachusetts SUD treatment providers with 307 Massachusetts treatment organizations that responded to the National Survey of Substance Abuse Treatment Services (N-SSATS) in 2010.

As this table shows, the providers in the study sample were similar to Massachusetts N-SSATS-2010 respondents in for-profit/non-profit status, and in size distribution. However, organizations in the study sample were larger on average and more likely to offer outpatient, residential/inpatient, and detox services than overall N-SSATS-2010 Massachusetts respondents. Further, providers in the Massachusetts sample received 50% or more of revenues from fee-for service billings while Massachusetts N-SSATS participants may have received larger percentages of revenue from public funds. (N-SSATS 2010 state level data does not provide the SUD treatment provider percentage of revenue by source). The N-SSATS data at the state level are also aggregated across all participating survey respondents. In 2010, Massachusetts N-SSATS respondents included 4 providers operated by the Department of Veterans Affairs and 1 operated by the department of Defense. Federally operated SUD treatment providers were excluded from the NTCS sampling frame. Inclusion of the federally operated treatment providers may have unknown impact in the comparison of the Massachusetts study sample with the Massachusetts N-SSATS respondents shown in Table 1.

Comparison samples

The NTCS comparison sample for Northeastern states contained 32 SUD treatment providers who provided NTCS data in both 2007 and 2010 and that were located in the states of New York, New Hampshire, Vermont, Maine, and Connecticut. These NTCS participants also received 50% or more of their revenues from fee-for-service billing. These states also had comparable levels of SUD admissions per 100,000 residents to Massachusetts over the same time period (SAMHSA 2011b). The SUD treatment providers in the Massachusetts study sample were somewhat larger (mean = 77 employees) than the SUD treatment providers in the NTCS participants in the Northeast comparison sample (mean = 53 employees). The Massachusetts SUD treatment providers in the study sample obtained 92% of revenue fee-for-service, a larger percentage than the Northeast comparison sample SUD treatment providers (79% on average)

The comparison sample for all of the US outside Massachusetts contained 265 SUD treatment providers who provided NTCS data in both 2007 and 2010. These NTCS participants also received 50% or more of their revenues from fee-for-service billing. The SUD treatment providers in the Massachusetts study sample were somewhat larger (mean = 77 employees) than the SUD treatment providers in the NTCS participants in the comparison sample for the rest of the US (mean = 39 employees).

The Massachusetts treatment centers obtained 92% of revenue fee-for-service, a larger percentage than fee-for-service dependent SUD treatment providers in the rest of the US (82% on average). Neither of these measures (mean employees and percent fee-for-service revenue) was significantly different from those in the comparison samples of SUD treatment providers in the Northeast and US.

Measures

Annual admissions—These are total admission to all forms of treatment offered by the SUD treatment provider in the past year. In order to capture the changes in the treatment

system over 2007-2010, the aggregate admissions were summed across the Massachusetts sample and across the comparison samples.

Residential/Inpatient census—Clinical directors were asked to provide the current patient census for each of inpatient SUD treatment (less than 30 days in residence), residential SUD treatment (greater than 30 days) and inpatient psychiatric services. The summed values was used as a point estimate of the treatment center census for residential/inpatient services. The aggregate residential/inpatient census was summed across the Massachusetts and comparison samples.

Outpatient census—Clinical directors provided current patient census levels for partial hospitalization (day treatment), intensive outpatient, and traditional outpatient. These values were summed as a point estimate of the treatment center outpatient census. The aggregate outpatient census was summed across the Massachusetts and comparison samples.

Detox census—Clinical directors of each treatment center also provided current patient census for inpatient and outpatient detox services. These were summed to form the detox census for each center. The aggregate census was summed across the Massachusetts and comparison samples.

Average inpatient length of stay—Clinical directors were asked to provide the average length of stay in days for each of type of residential/inpatient treatment. These values were averaged for each treatment center to estimate the average inpatient length of stay measures in days. The values for treatment centers were then averaged across centers in the Massachusetts and comparison samples.

Average outpatient length of stay—Clinical directors provided the average patient length of stay in weeks for each type of outpatient treatment. These values were averaged for each treatment center to estimate the average outpatient length of stay. The values for treatment centers were then averaged across centers in the Massachusetts and comparison samples.

Comprehensive care index—Following Ducharme and colleagues (2007) the extent of comprehensive care used an index of core and ancillary services. This index summed indicators of use of the ASI at intake/assessment; patient random drug testing; one or more 12-step groups; use of buprenorphine, naltrexone, methadone, disulfiram, or SSRIs, aftercare/continuing care; childcare; transportation assistance; treatment for HIV/AIDS patients; integrated care for dual diagnosis patients; and links with primary medical care; employment services; financial aid; family counseling; and legal services. The index values for treatment centers were averaged across centers in each sample.

Percentage providing medication assisted treatment—Clinical directors indicated if their treatment center prescribes or dispenses any medications for SUD treatment. The responses were coded 1 if yes and 0 if no. The percentage in each sub-sample offering this treatment approach was calculated.

Percentage of counselors with masters degrees—Administrative directors provided the number of SUD counselors with masters' degrees working in each center. This number was divided by the total number of counselors to obtain the percentage.

Total employees—Administrative directors were asked for the total number of employees working in each organization (full-time and part-time, both clinical and non-clinical). These totals were summed across all organization in the Massachusetts and both comparison samples.

Analytic Plan

To explore impacts of Massachusetts health reforms on the fee-for-service funded system of providers, this study investigated changes in measures aggregated across the organizations within each sub-sample in each time period. That is, the research question is directed at estimating the effects of health reform on fee-for-service dependent SUD providers within each of the geographic areas (Massachusetts, contiguous northeastern states, and the rest of the US). This approach does not claim that the individual centers in the subsample are representative of all fee-for-service dependent providers in Massachusetts, the contiguous Northeastern states, or the rest of the US. The sum of the values within each sub-sample is used as a point estimate of the population value (Wallace & Silver 1988). This approach treats the changes in aggregated values of each of the study variables across centers in each sub-sample as estimates of the changes occurring within fee-for-service treatment provider system in each geographic area. This follows the approach taken in previous studies of Massachusetts health reforms (Capoccia, et al. 2012). Since this study focuses on differences in the changes over time between the geographic sub-samples, the extent and direction of percentage changes in key treatment system variables were assessed for statistical significance using t-tests (Nunnally 1959)

Results

Massachusetts-based SUD treatment providers primarily funded by fee-for service revenues had substantially increased admissions from 2007-2010. These treatment organizations also increased the number of outpatients in treatment, and the average weeks that these patients stayed in treatment. Both changes are consistent with patients using increased access to insurance coverage to enter and remain in treatment. However the Massachusetts treatment organizations had reduced residential/in-patient and detoxification census levels and these patients averaged shorter stays. Within this group of Massachusetts providers, total employees were reduced by 18%. These changes are described in the left-hand portion of Table 2.

Compared to treatment providers in adjoining states, Massachusetts facilities had larger changes in admissions, increases in outpatient census, decreases in average length of residential/inpatient stay, decreases in detox patients. In addition, the Massachusetts providers decreased the number of employees, while similarly funded organizations in the Northeast increased.

The patterns of changes in Massachusetts based treatment providers from 2006 -2010 are compared to the sample of similarly fee-for-service funded treatment centers located in the rest of the US in Table 3. Admissions increased in the Massachusetts centers, but declined in similarly funded organizations in other states; outpatient census and average length of stay both increased in the Massachusetts sample, but outpatient census decreased while length of stay in treatment remained essentially constant in other states. Finally, the detoxification census in the Massachusetts centers declined by 11%, but increased by 89% in treatment centers located elsewhere.

There were no significant differences between Massachusetts treatment providers and those in the Northeast or the rest of the US in the changes in two indicators. These were the extent to which a center provides comprehensive care (basic SUD treatment essentials as well as wrap-around services) and percentage of counselors with masters' level education. Two other indicators of treatment quality increased significantly more in Massachusetts providers than in treatment centers in other states. These were provision of medication assisted treatment and average outpatient length of stay.

Discussion

The patterns of changes following implementation of health care reforms for Massachusetts treatment organizations which derive most of their income from fee-for-service funding are consistent with the effects forecasted for ACA. Specifically, across our sample of fee-for-service treatment organizations in Massachusetts, patient admissions outpatient census, average outpatient weeks of stay in treatment, and provision of medication assisted treatment increased significantly more than across a sample of SUD treatment providers located across the US. At the same time, residential/inpatient census and average length of stay, as well as detox census decreased across the Massachusetts providers and these changes differed significantly from the changes for treatment providers across the country. The changes across Massachusetts providers also differed significantly from change patterns within treatment providers reliant on fee-for-service funding located within the Northeast US. The northeast sample include SUD treatment providers located in Vermont and Maine, states which implemented more limited forms of health care reforms than Massachusetts..

These differences in changes between Massachusetts and the sample of SUD treatment centers across the US are consistent with changes forecasted due to the ACA (Buck 2011). These forecasts predict that health care reform Medicaid expansion and parity requirements will result in greater aggregate demand for SUD treatment since more prospective patients would now have means of payment. They also suggest a shift away from residential treatment (which is not often covered by Medicaid plans or health insurance) and increased emphasis on medically-assisted treatment. The changes in the samples of treatment organizations studies here also differed from previously reported patterns over the same time period in a set of publicly funded treatment SUD treatment providers within Massachusetts (Capoccia et al. 2012)

Although these analyses were explored in samples that may not be representative of all fee-for-service revenue based providers in each location, the differences observed tend to

support the perspective that health care reform may have greatest impact on those SUD treatment providers whose business model is based on billing third parties for reimbursement. Expanded insurance coverage may not only increase admissions at these facilities, but also enable persons already in treatment to remain for longer periods, a positive implication as longer engagement in outpatient treatment is associated with better treatment outcomes. It is notable that from 2007-2010, two indicators of treatment quality (average outpatient length of stay and provider offering medication assisted treatment) had larger positive changes in the Massachusetts sample compared the centers located across the US. The changes in two other indicators of quality (provision of comprehensive care and percentage of counselors with masters' level education) were not different across the Massachusetts centers compared to SUD treatment providers located across the country. However, the negative percentage change in employees within the Massachusetts centers was significantly different from the positive change in employees across the sample of SUD treatment providers across both the Northeast and US as a whole. The decrease in overall SUD treatment staff across the Massachusetts providers does bring into question the stability of these quality indicators.

These results suggest that health care reform policies and funding incentives resulted in changes in the types of SUD treatment handled by different types of providers. For example, a goal of the Massachusetts Strategic Plan for Substance Abuse was a shift from inpatient episodes of care to outpatient settings at treatment centers (State of Massachusetts 2010). Across the fee-for-service Massachusetts providers in this study, residential/inpatient census and average length of stay decreased. In addition, although Medicaid expenditures for detox services increased within Massachusetts as a whole from 2007-2010, the detox census in the study sample decreased over the same period (Capoccia et al. 2012). These changes are consistent with previous research suggesting that health reforms shifted SUD treatment emphases from acute-care to a recovery-oriented system-of-care model focused more on outpatient care.

Some of these changes may also reflect effects of Massachusetts' 2008 implementation of a managed care system in conjunction with health reforms. Managed care covering SUD treatment may have imposed treatment guidelines and incentives for use of lower-cost treatment methods, creating pressures that shifted more acute cases requiring inpatient care to public sector supported treatment centers (Long & Stockley 2011). Treatment providers that are heavily reliant on reimbursement sources may be very responsive to policies and procedures that affect third party payments and fine-tune treatment practices accordingly.

While our data do not have the precision to measure the various factors that might have contributed to the decline in the organizational workforces among the treatment providers we examined, it appears logical that the reduced delivery in these centers of both detox and residential services effected the management decisions to make staff reductions. This highlights the possibly greater economic sensitivity to patient flow in centers primarily dependent on fee for service revenues as compared to those benefiting from public revenues. Whether detox and residential patients were shifted to the public sector is beyond the scope of our data, but the small changes in caseload revealed in the publicly funded organizations studied by Capoccia and his colleagues do not offer strong support to this possibility.

Study limitations

The sample of fee-for-service funded SUD treatment providers in Massachusetts is small, comprising 3% of the 307 SUD treatment providers in Massachusetts. While this small sample is similar in type of ownership and size distribution to the N-SATSS 2010 inventory of Massachusetts facilities, it may differ in other unmeasured ways. These unmeasured variables could account for the changes in the Massachusetts study sample as well as the differences in changes between the study sample and other comparable treatment providers in the northeast and the rest of the US. Although healthcare reforms including increased coverage for SUD treatment were implemented in Massachusetts in 2006, we do not have information about the familiarity of the sampled treatment providers with reforms, the extent to which these facilities helped prospective patients obtain coverage, or the extent of premium costs or co-pay requirements faced by SUD patients. Data about the sources of revenue, census levels, staffing, and the dependence on fee-for-service billings were provided by administrative directors acting as key informants. While these directors were provided with these questions in advance and asked to consult organizational records, it is possible that these key informants did not have completely accurate data. The sources of revenue, census levels, or utilization levels were not verified with insurance claims data or other publicly available information about the SUD treatment providers. While the comparison of the changes in Massachusetts providers with similar providers located elsewhere helped control for effects of other trends, the small sample size limited the ability to isolate such other effects through techniques such as multivariate regression.

Conclusions

Overall, our results support the forecast that the ACA, Medicaid expansion, and increased coverage requirements may contribute to increased admissions and services provided by SUD treatment providers who focus on reimbursements from health insurance, self-paying clients, and Medicaid/Medicare. The results suggest also that these centers may shift treatment emphasis in response to reimbursement policies and priorities. In general, providers which are more reliant on income from third party billings may be responsive to policy driven changes in revenue opportunities while working within the challenge of managed-care environments. However, the treatment system overall may need further support and incentives for expansion, since Massachusetts rates of unmet treatment need from 2002-2010 showed no significant decline (Zhu et al. 2010).

Acknowledgement

Data collection and analyses were supported by Research Grant R37DA013110 awarded to the University of Georgia Research Foundation by the National Institute on Drug Abuse.

References

- Beronio, K.; Po, R.; Skopec, L.; Glied, S. ASPE Research Brief. U.S. Department of Health and Human Services Office of the Assistant Secretary for Planning and Evaluation; 2013. Affordable Care Act Will Expand Mental Health and Substance Use Disorder Benefits and Parity Protections for 62 Million Americans..
- Buck JA. The looming expansion and transformation of public substance abuse treatment under the Affordable Care Act. *Health Affairs (Millwood)*. 2011; 30(80):1402–1410.

- Capoccia VA, Grazier KL, Toal C, Ford JH, Gustafson DH. Massachusetts's experience suggests coverage alone is insufficient to increase addiction disorders treatment. *Health Affairs*. 2012; 31:1000–1008. [PubMed: 22566439]
- Ducharme L, Mello H, Roman P, Knudsen H, Johnson J. Service Delivery in Substance Abuse Treatment: Reexamining “Comprehensive” Care. *The Journal of Behavioral Health Services and Research*. 2007; 34(2):121–136. [PubMed: 17390225]
- Fields DL, Roman PM. Total quality management and performance in substance abuse treatment centers. *Health Services Research*. 2010; 45(6):1630–50. [PubMed: 20698897]
- Fields D, Roman PM, Blum TC. Management systems, patient quality improvement, resource availability, and substance abuse treatment quality. *Health Services Research*. Part. 2012; 43I(3): 1068–1090. [PubMed: 22098342]
- Garfield RL, Lave JR, Donahue JM. Health reform and the scope of benefits for mental health and substance use disorder services. *Psychiatric Services*. 2010; 61:1081–1086. [PubMed: 21041345]
- Holaha JH, Blumberg L. Massachusetts health care reform: a look at the issues. *Health Affairs (Millwood)*. 2006; 25(6):w432–w443.
- Kumar N, Stern L, Anderson JC. Conducting Inter-organizational Research Using Key Informants. *Academy of Management Journal*. 1993; 36(6):1633–51.
- Long SK, Stockley K. The Impacts of State Health Reform Initiatives on Adults in New York and Massachusetts. *Health Services Research*. 2011; 46(1, Part II):365–387. [PubMed: 21091471]
- NASADAD (National Association of State Alcohol and Drug Abuse Directors). The effects of health care reform on access to and funding of substance abuse services in Maine, Massachusetts, and Vermont. The Association; Washington (DC): 2010.
- Nunnally, JC. *Tests and Measurements: Assessment and Prediction*. McGraw-Hill Book Co.; New York: 1959.
- Phillips LW. Assessing Measurement Error in Key Informant Reports: A Methodological Note on Organizational Analysis in Marketing. *Journal of Marketing Research*. 1981; 18(4):395–415.
- SAMHSA (Substance Abuse and Mental Health Services Administration). Comparison of 2002-2003 and 2009-2010 percentages for persons aged 12 or older, 12 to 17, 18 to 25, and 26 or older. 2010 Available from:.
- SAMHSA (Substance Abuse and Mental Health Services Administration). Results from the 2010 National Survey on Drug Use and Health: Summary of National Findings. SAMHSA; Rockville, MD: 2011a. NSDUH Series H-41, HHS Publication No. (SMA) 11-4658
- SAMHSA (Substance Abuse and Mental Health Services Administration). Data on Substance Abuse Treatment Facilities. SAMHSA; Rockville, MD: 2011b. National Survey of Substance Abuse Treatment Services (N-SSATS): 2010.. DASIS Series S-59, HHS Publication No. (SMA) 11-4665
- SAMHSA. [July 1, 2014] Mental Health Parity and Addiction Equity.. Substance Abuse and Mental Health Administration. 2014. Available at <http://beta.samhsa.gov/health-reform/parity>.
- Singer, JD.; Willett, JB. *Applied Longitudinal Data Analysis*. Oxford University Press Inc.; New York: 2003.
- State of Massachusetts. Massachusetts Substance Abuse Strategic Plan 2010. 2010. Available from: <http://www.mass.gov/governor/docs/strategic-plan-update-july-2010.pdf>
- State of Massachusetts. [June 18, 2013] Health Reform Facts and Figures [Internet: Massachusetts: The Connector's Homepage. 2013. Available from: <http://www.mahealthconnector.org>.
- Stewart MT, Horgan CM. Health services and financing of treatment. *Alcohol Research & Health*. 2011; 33(4):389–394. [PubMed: 23580023]
- Congress, US. [14 November 2012] An Act Providing Access to Affordable, Quality, Accountable Health Care St. 2006. 2006. c. 58 Available at <http://www.malegislature.gov/Laws/SessionLaws/Acts/2006/Chapter58>.
- Wallace, TD.; Silver, JL. *Econometrics*. Reading: Addison-Wesley Publishing Co.; 1988.
- Zhu J, Brawarsky P, Lipsitz S, Huskamp H, Haas JS. Massachusetts and disparities in coverage, access, and health status. *Journal of General Internal Medicine*. 2010; 25(12):1356–1362. [PubMed: 20730503]

Comparison of Massachusetts study sample to N-SSATS 2010 Massachusetts respondents.

Table 1

	Study sample ¹	N-SSATS Massachusetts ²
Number of organizations	9	307
Total patients in treatment ³	1708	39444
Pct. offering outpatient treatment	89%	63%
Pct. offering residential/inpatient	67%	48%
Pct. offering detox	55%	30%
Average patients per organization	190	128
Pct. for-profit	21%	22%
Pct. < 30 patients ⁴	33%	38%
Pct. > 60 patients	44%	43%

¹Data describing the study sample are drawn from the sample of treatment providers in the National Treatment Center Study (NTCS) of SUD treatment providers who received more than 50% of revenues from fee-for service billings and which participated in on-site visits and interviews in both 2007 and 2010.

²The N-SSATS comparison data are drawn from the national Survey of Substance Abuse treatment Services (N-SSATS): 2010 Data on Substance Abuse Treatment Facilities. The data on the variables shown are reported at the state level by N-SSATS aggregated across all responding treatment providers. In 2010, the 307 responding SUD treatment providers in Massachusetts included 5 Federally operated facilities (4 operated by Department of Veterans Affairs and 1 by the Department of Defense). Federal facilities were excluded from the sampling frame and protocol used to collect data for the study sample.

³Total patients in treatment for N-SSATS respondents is a point-prevalence report of the patients receiving or enrolled in treatment on March 31, 2010. Total patients in treatment for the study sample is also a point-prevalence report of the patients receiving or enrolled in treatment on the date of the site visit and interviews with administrative and clinical directors per the NTCS (National Treatment Center Study) protocol. These dates vary across 2009-2010

⁴The cut-points of 30 and 60 patients are used by N-SSATS and presented here in order to compare the size distribution of the study sample with the size distribution of the N-SSATS participants.

Changes in Massachusetts treatment providers compared to similar treatment providers in Northeastern states

Table 2

	Massachusetts study sample (N=9) ¹		Northeast comparison sample (N=32) ²		t value for difference in % change		
	2007-8	2009-10	% Change	2007-8		2009-10	% Change
Total admissions	16112	22095	37%	31803	31451	-1%	4.58**
Residential/IP census	216	161	-25%	431	358	-17%	0.55
Outpatient (OP) census	1109	1392	26%	5691	4138	-27%	6.21**
Detox patient census	174	155	-11%	62	72	16%	3.56**
Average Residential/IP length of stay (Days)	14.7	9.6	-35%	41	39.7	-4%	3.92**
Average OP Length of stay (Weeks)	6.3	10.6	68%	17	23.2	34%	1.91
Comprehensive Care Index	7.5	13.7	83%	8	14.8	85%	0.15
Medication assisted treatment.	67%	78%	17%	75%	78%	4%	1.41
Average % Counselors with Masters	69%	67%	-3%	56%	56%	0%	0.21
Total employees	753	619	-18%	1427	1680	18%	2.23*

* p < .05

** p < .01

¹ Massachusetts study sample is from the National Treatment Center Study (NTCS) of SUD treatment providers who received more than 50% of revenues from fee-for service billings and which participated in on-site visits and interviews in both 2007 and 2010.

² Northeast comparison sample is from the National Treatment Center Study (NTCS) of SUD treatment providers who received more than 50% of revenues from fee-for service billings, participated in on-site visits and interviews in both 2007 and 2010, and were located in states contiguous to Massachusetts.

Changes in Massachusetts SUD treatment providers compared to similar treatment providers in all other USA states

Table 3

	Massachusetts study sample (N=9) ¹			Other states in USA (N=265) ²		t value for difference in % change
	2007-8	2009-10	% Change	2007-8	2009-10	
Total Admissions	16112	22095	37%	291222	217805	-25% 21.97**
Residential/IP census	216	161	-25%	3639	3367	-7% 2.03*
Outpatient (OP) census	1109	1392	26%	20142	20009	-1% 5.97**
Detox patient census	174	155	-11%	760	1437	89% 29.80**
Average Residential/IP length of stay (Days)	14.7	9.6	-35%	35.3	31.3	-11% 2.22*
Average OP Length of stay (Weeks)	6.3	10.6	68%	13.2	13.6	3% 10.30**
Comprehensive Care Index	7.5	13.7	83%	7.35	13.6	85% 0.16
Medication assisted treatment.	67%	78%	17%	59%	59%	0% 7.78**
Average % Counselors with Masters	69%	67%	-3%	50%	52%	5% 0.33
Total employees	753	619	-18%	9653	10475	9% 2.30*

* p < .05

** p < .01

¹ Massachusetts study sample is from the National Treatment Center Study (NTCS) of SUD treatment providers who received more than 50% of revenues from fee-for service billings and which participated in on-site visits and interviews in both 2007 and 2010.

² Northeast comparison sample is from the National Treatment Center Study (NTCS) of SUD treatment providers who received more than 50% of revenues from fee-for service billings, participated in on-site visits and interviews in both 2007 and 2010, and were located in states contiguous to Massachusetts.