

A Randomized Controlled Trial of the Rochester Forensic Assertive Community Treatment Model

J. Steven Lamberti, M.D., Robert L. Weisman, D.O., Catherine Cerulli, J.D., Ph.D., Geoffrey C. Williams, M.D., Ph.D., David B. Jacobowitz, B.S., M.A., Kim T. Mueser, Ph.D., Patricia D. Marks, J.D., Robert L. Strawderman, Sc.D., Donald Harrington, M.S., Tara A. Lamberti, B.A., Eric D. Caine, M.D.

Objective: Forensic assertive community treatment (FACT) is an adaptation of the assertive community treatment model and is designed to serve justice-involved adults with serious mental illness. This study compared the effectiveness of a standardized FACT model and enhanced treatment as usual in reducing jail and hospital use and in promoting engagement in outpatient mental health services.

Methods: Seventy adults with psychotic disorders who were arrested for misdemeanor crimes and who were eligible for conditional discharge were recruited from the Monroe County, New York, court system. Participants were randomly assigned to receive either FACT (N=35) or enhanced treatment as usual (N=35) for one year. Criminal justice and mental health service utilization outcomes were measured by using state and county databases.

Results: Forty-nine participants (70%) completed the full one-year intervention period. Nineteen (27%) were removed

early by judicial order, one was removed by county health authorities, and one died of a medical illness. Intent-to-treat analysis for all 70 participants showed that those receiving the FACT intervention had fewer mean $\pm$ SD convictions (.4 $\pm$.7 versus .9 $\pm$ 1.3, $p=.023$), fewer mean days in jail (21.5 $\pm$ 25.9 versus 43.5 $\pm$ 59.2, $p=.025$), fewer mean days in the hospital (4.4 $\pm$ 15.1 versus 23.8 $\pm$ 64.2, $p=.025$), and more mean days in outpatient mental health treatment (305.5 $\pm$ 92.1 versus 169.4 $\pm$ 139.6, $p<.001$) compared with participants who received treatment as usual.

Conclusions: The Rochester FACT model was associated with fewer convictions for new crimes, less time in jail and hospitals, and more time in outpatient treatment among justice-involved adults with psychotic disorders compared with treatment as usual.

Psychiatric Services 2017; 68:1016–1024; doi: 10.1176/appi.ps.201600329

Providing treatment for justice-involved adults with serious mental illness in outpatient mental health settings is challenging. Patients with histories of arrest and incarceration are often enrolled in assertive community treatment (ACT) programs (1), which are generally effective in preventing psychiatric hospitalization and promoting housing stability. However, ACT has not been found to be effective in reducing criminal justice system involvement (2–4).

Clinicians have subsequently adapted the ACT model in a wide variety of ways to serve patients who have repeated contact with the criminal justice system. These adaptations include using boundary spanners (5), hiring forensic peer specialists (6), providing trauma-informed treatment (7), providing residential treatment (8), partnering with police (9), and including probation officers as team members (10). ACT teams that specialize in serving justice-involved individuals have become known as forensic assertive community treatment (FACT) teams (11).

Published reviews of FACT have revealed great variability in program structure, daily operations, and treatment

populations served (12–14). Consequently, outcomes for these programs have been mixed. Some studies of FACT interventions have reported significantly reduced criminal justice system involvement (15–19), others have failed to find consistently positive outcomes (20,21), and others have found evidence of increased jail recidivism (22). To address these disparate findings, a standardized FACT model was developed on the basis of a conceptual framework for preventing criminal recidivism among justice-involved adults with serious mental illness (23). Model development was also guided by experience with a prototype intervention (24) and by focus group input from FACT programs in three different states (25). In addition, consultation was obtained from experts in criminal justice, addiction treatment, psychiatric rehabilitation, and health psychology.

Based on this foundational work, the Rochester FACT model was established. The program consists of four components, including high-fidelity ACT provided by a team of criminal justice-savvy staff, identification and targeting of criminogenic risk factors, use of legal authority to promote

engagement in necessary interventions (legal leverage), and mental health–criminal justice collaboration to promote effective problem solving. A 13-item fidelity scale (Forensic Assertive Community Treatment Scale [FACTS]) was subsequently developed to operationalize these components and to assess fidelity to the Rochester FACT model. [The fidelity scale is available as an online supplement to this article.]

This article presents results from a randomized controlled trial examining the effectiveness of the Rochester FACT model in reducing jail and hospital use and in promoting engagement in outpatient mental health services among individuals with a psychotic disorder and a history of criminal justice involvement.

METHODS

Settings

The study took place at two primary sites, an academic medical center and a criminal court, in Monroe County, New York. All clinical interventions were based at Strong Ties Clinic, an outpatient program of the University of Rochester Medical Center (URMC) Department of Psychiatry. The clinic offers mental health services, primary medical care, and pharmacy services to all patients. Study recruitment was conducted at the Monroe County Courthouse, a public facility that houses Rochester City Court and attorney offices. Administrative approval was received from the New York State Office of Mental Health in November 2010 to begin initiating the research program at Strong Ties. The study was approved by the URMC Research Subject Review Board.

Study Design

A parallel-group randomized controlled design was used to assess service utilization outcomes over a one-year study period. Study inclusion criteria were ages 18 and older, presence of a *DSM-IV-TR* psychotic disorder, ability to speak English, adequate capacity to consent to research, recent conviction on a misdemeanor charge, and eligibility for a conditional discharge. All participants entered the study under a conditional discharge status, whereby their pre-enrollment sentences were suspended pending successful compliance with legal stipulations that included accepting mental health treatment and avoiding further criminal activity. Individuals involved in probation, parole, mental health court, assisted outpatient treatment, or other forms of legal leverage at the time of recruitment were excluded to enable comparison of leveraged (FACT) and nonleveraged treatment groups. Individuals facing felony charges were also excluded, but those with prior felony convictions were eligible for enrollment.

Recruitment and Randomization

A three-step process was utilized whereby potential study participants were first identified with assistance from the Public Defender's office. Those who expressed interest in the study after pleading guilty and accepting a conditional discharge subsequently met with a research team member to

provide informed consent in the presence of their defense attorneys. All participants consented to both the treatment intervention and the data collection arms of the study (26). Consenting individuals were then randomly assigned to a treatment group by using computer-generated assignment cards within a courtroom setting. [Participant identification, recruitment, and randomization are described in detail in an online supplement to this article.]

Baseline Assessment

Following randomization, participants were assessed at baseline. All baseline data were collected by the study health project coordinator, a research psychologist with ACT team experience. Baseline demographic data were obtained through face-to-face interviews and review of health records, and psychiatric diagnosis was confirmed by using the Structured Clinical Interview for DSM-IV-TR (27). Baseline clinical assessments included the Brief Psychiatric Rating Scale (BPRS) to assess symptoms (28), the Insight and Treatment Attitudes Questionnaire (ITAQ) to assess insight into need for treatment (29), the Medication Adherence Rating Scale (MARS) to assess medication adherence (30), the Addiction Severity Index (ASI) to assess severity of addiction (31), the Treatment Self-Regulation Questionnaire (TSRQ) to assess motivation for treatment (32), and the MacArthur Community Violence Inventory (MCVI) to assess involvement in violence as a victim or a perpetrator (33). To control for baseline recidivism risk, participants were also assessed with the Level of Service Inventory–Revised (LSI-R), an assessment tool shown to predict risk of reoffending (34).

Interventions

FACT. The FACT intervention was based on a conceptual framework that uses legal leverage to engage justice-involved individuals in treatments and services that target criminogenic risk factors (23). FACT group participants received legal leverage in the form of judicial monitoring within a standard criminal court setting, and all were enrolled in a single treatment team. The FACT intervention's ACT team component received a baseline score of 4.75 on the Dartmouth Assertive Community Treatment Scale, indicating high fidelity (35). The FACTS was subsequently used approximately six and 15 months after study initiation to assess intervention fidelity to the Rochester FACT model, with scores indicating high fidelity (4.69 and 4.61, respectively). FACT group clinicians conducted intake assessments that included review of available criminal justice and health records to identify risk factors for criminal recidivism, and they incorporated the risk factors into service plans for each participant. In preparation for study initiation, two authors (JSL and RLW) provided approximately six hours of instruction in mental health–criminal justice collaboration to all FACT group clinicians, the judge who monitored the FACT participants, and attorneys for the FACT participants. The FACTS was utilized as part of this training to provide an overview of the Rochester FACT model. To promote model

implementation, the FACT team psychiatrist (RLW) provided additional training and support to all team clinicians in an informal and ongoing way during daily team meetings. Also, mental health and criminal justice service providers shared information about their respective roles, responsibilities, and service systems on an ongoing basis during judicial monitoring meetings.

A single Rochester City Court judge provided judicial oversight to all study participants. However, only FACT group participants received active judicial monitoring. The judicial-monitoring process included weekly meetings between a FACT team liaison, the presiding judge, and representatives from the Public Defender and District Attorney offices. The FACT team liaison provided participant progress reports for review at each meeting. Problems were actively discussed, potential solutions were identified, and intervention strategies were agreed upon prior to each participant's court appearance. Weekly court appearances were initially required of all FACT group participants, with the frequency of subsequent meetings determined by the judge in collaboration with the FACT team liaison and attorneys.

Enhanced treatment as usual. Participants in enhanced treatment as usual (control group) received outpatient mental health treatment from teams that included a psychiatrist or nurse practitioner for pharmacotherapy, a licensed clinical social worker for supportive therapy, and a case manager. Participants were not scheduled to see the presiding judge until a return date nine months after their study enrollment. Of note, outpatient mental health clinics in the Rochester area had waiting lists for new patients ranging from one to three months at the time of study initiation. All control group participants were given intake appointments at Strong Ties Clinic within five business days of randomization as a service enhancement to ensure comparable access to care. Service enhancement was required by federal law governing research with prisoners as a vulnerable population (36).

Outcome Measures

The New York State Division of Criminal Justice Services (NYS DCJS) provided statewide criminal justice service utilization data for all participants, including arrest, conviction, and sentencing data (37). Incarceration data on all participants was obtained from the Monroe County Sheriff's Office, which oversees the 1,475-bed Monroe County jail (38). Mental health service utilization data were obtained from the Monroe County Mental Health Service (MCMHS) database (39). MCMHS is a countywide system that spans all publicly funded mental health agencies in Monroe County. Data provided by MCMHS contained psychiatric hospitalization, emergency room, and outpatient service use data for all participants. All data sets were provided in deidentified electronic formats with common participant identification numbers that enabled linking for data analysis.

Statistical Analysis

A Poisson regression model was used to detect changes in jail time, the primary outcome measure, between the two

treatment groups. The study sample size allowed detection of an 11% or greater change in the average number of jail days during a one-year follow-up period with 80% power and a type 1 error rate of 5% for a two-sided hypothesis test. The observed effect size substantially exceeded 11%, indicating sufficient power to detect such an outcome. Baseline categorical variables are presented as summary counts and percentages, and differences between the baseline variables of the treatment groups were analyzed by either Fisher's exact test for 2×2 matrices or Pearson's chi-square test with Yates' continuity correction. For continuous variables, the means, standard deviations, and p values resulting from Wilcoxon's rank sum test with a continuity correction are presented. In cases where variables contained one or more missing values, the number of participants with complete data is presented. Analyses examining the association between baseline variables and failed conditional discharge status are summarized. Participants with a failed conditional discharge were removed from the intervention arm of the study protocol for failing to comply with the judge's legal conditions but were continued in the data collection arm. These univariate analyses were conducted by using logistic regression analyses, with the reported p values coming from a likelihood ratio test of whether the baseline variable had an effect (versus no effect) on the odds of failed conditional discharge status. These analyses did not account for possible differences in duration of conditional discharge status, only whether or not a failed conditional discharge occurred during the study period.

Analyses were also performed to test the study hypotheses that FACT would have a greater effect than enhanced treatment as usual in preventing jail and psychiatric hospital use and in promoting outpatient mental health service use. The effect of FACT upon service utilization outcomes is summarized through regression coefficients, p values, and confidence intervals. Because each outcome measure could be viewed as a count, a negative binomial regression model was used to conduct these analyses. Analyses examined full one-year outcomes for all participants, including those who exited the study intervention arm early, using a constant offset equal to the natural logarithm of 365 days ("intent-to-treat" analyses). Additional analyses were conducted to examine outcomes only while participants were enrolled in the intervention arm of the study protocol by using an offset equal to the natural logarithm of days in protocol ("per-protocol" analyses). The p values for both intent-to-treat and per-protocol analyses are presented. Also, an exploratory analysis was conducted by using stepwise backward elimination to identify baseline variables most predictive of study outcomes (40) [see supplement for details of this analysis].

RESULTS

Study Procedures and Follow-Up

All recruitment and study intervention activities were conducted between February 10, 2011, and May 14, 2014. Seventy participants were randomly assigned to receive either

FACT (N=35) or enhanced treatment as usual (N=35) for one year. Forty-nine participants (70%) remained in the study intervention arm for one full year. Nineteen participants (27%), including nine from the FACT group and ten from the control group, were removed from the intervention arm by the judge for failing to comply with the conditions of discharge (that is, for demonstrating continuous treatment nonadherence combined with continuous criminal activity). One additional participant was removed from the control group by the county mental health director after the participant assaulted a nurse and a security guard while hospitalized. Individuals who failed to meet the terms of the conditional discharge were required to serve their original sentences, had no further judicial oversight, and became eligible for treatments other than the study treatment as determined by their treating clinicians. One FACT group participant died of medical causes unrelated to study participation. [A CONSORT diagram illustrating the flow of participants through the study is available in the online supplement.]

For all 70 study participants, the mean $\pm$ SD number of days in the intervention arm of the study protocol was 329.7 ± 67.0 . The mean number of days in the intervention arm of the protocol was 326.8 ± 78.6 for the FACT group and 332.5 ± 53.9 for the control group, a nonsignificant difference.

Descriptive analyses of study variables, both overall and by intervention group, are shown in Table 1. Study participants had considerable impairment and a significant degree of criminal justice system involvement at baseline. Participants were predominantly male, African American, never married, and unemployed, and nearly half had not graduated from high school. The most common diagnosis was schizophrenia, and 70% of participants self-reported having a co-occurring substance use disorder. On average, participants spent over two months in jail during the year before enrollment and had over 16 lifetime arrests. Also, 30% of those interviewed with the MCVI (N=17 of 56) reported perpetrating violence toward others that resulted in injury during the six months before enrollment. Mean total BPRS scores indicated that participants had a moderate level of symptomatology, and mean total ITAQ scores suggested that they had only partial insight into their illnesses and the need for treatment. Mean total MARS scores showed that participants had low levels of medication adherence at baseline. Mean ASI scores suggested that overall addiction severity was in the low range. LSI-R scores indicated that participants had a moderate risk of criminal recidivism. Mean TSRQ scores showed that after randomization, there was a trend for participants in the control group to feel greater autonomy in deciding whether to take antipsychotic medications compared with participants in the FACT group. There were no significant differences between study groups in any baseline measure.

Baseline characteristics of participants who received a failed conditional discharge and those who did not were compared. As shown in Table 2, individuals with failed conditional discharges had higher LSI-R scores and more severe psychiatric symptoms at baseline compared with individuals

with successful conditional discharges. There was also a trend among the participants with failed conditional discharges to have been sentenced to a higher number of lifetime jail days at baseline than participants with successful conditional discharges ($p=.060$).

Effectiveness Outcomes

State and county databases enabled both intent-to-treat and per-protocol analyses of service utilization outcomes. As shown in Table 3, these analyses produced very similar results. FACT group participants had fewer criminal convictions and spent fewer days in jail than control group participants. FACT group participants also spent more time in outpatient treatment and had more outpatient service contacts compared with control group recipients. In addition, FACT participants had less use of inpatient psychiatric services compared with control group participants. No significant differences were observed between the groups in numbers of emergency room visits, arrests, or incarcerations. However, approximately one-third of all FACT group incarcerations were due to judicial sanctions for noncompliance rather than new crimes. Analyses of incarceration data with and without sanction incarcerations are included in Table 3. Also, one FACT group participant had 50 emergency room visits, more than all other FACT participants combined. With this outlier removed, FACT group participants had significantly fewer emergency room visits compared with control group participants ($.8 \pm 1.6$ and 1.9 ± 2.7 , respectively; coefficient = $-.93$, standard error = $.43$, $p=.030$).

DISCUSSION

This study presents findings from the first randomized controlled trial of a standardized FACT intervention. Three randomized controlled trials of FACT interventions have been published previously, each featuring a FACT intervention that simply combined ACT with a mental health court (20) or probation (21,22). That approach failed to significantly reduce either conviction rates or time spent in jail; to the contrary, one study reported increased bookings (20) and another study reported greater jail recidivism (22). These findings are consistent with the observation by Redlich and colleagues (41) that “offenders who receive more intensive monitoring (e.g., via assertive community treatment teams) have higher reincarceration rates . . . than those receiving less intensive monitoring.” However, this pattern was not observed in this study.

Like other FACT-type interventions, the Rochester FACT model is an adaptation of the ACT model. However, it targets criminogenic risk factors, incorporates legal leverage to promote engagement, and utilizes mental health–criminal justice collaboration to promote effective problem solving. These elements and their implementation distinguish the Rochester model from other FACT-type interventions and from the standard ACT model in clinical practice (11,42,43). By targeting the drivers of crime, emphasizing shared problem solving, and avoiding overreliance on punishment, the Rochester FACT model represents a criminologically informed hybrid of

TABLE 1. Baseline characteristics of study participants randomly assigned to forensic assertive community treatment (FACT) or enhanced treatment as usual (control)

Characteristic	Total (N=70)			FACT (N=35)			Control (N=35)			p
	N responses	N	%	N responses	N	%	N responses	N	%	
Age (M±SD)	70	37.5±11.6		35	37.7±12.1		35	33.7±10.8		.169 ^a
Gender	70			35			35			1.00 ^a
Male		43	61		22	63		21	60	
Female		27	39		13	37		14	40	
Race-ethnicity	70			35			35			.299 ^b
African American		51	73		23	66		28	80	
Caucasian		13	19		9	26		4	11	
Hispanic		6	8		3	9		3	9	
Marital status	70			35			35			1.00 ^b
Never married		59	84		30	86		29	83	
Divorced		11	16		5	14		6	17	
Highest level of education	62			34			28			.451 ^c
Did not graduate high school		29	47		14	42		15	54	
Graduated high school		20	32		11	32		9	32	
Post high school		13	21		9	27		4	14	
Employment	70			35			35			.607 ^b
Unemployed		66	94		32	91		34	97	
Employed (paid, full- and part-time)		4	6		3	9		1	3	
Primary diagnosis	70			35			35			.379 ^b
Schizophrenia		36	51		18	51		18	51	
Depression with psychotic features		13	19		9	26		4	11	
Schizoaffective disorder		8	11		2	6		6	17	
Psychotic disorder, NOS		7	10		3	9		4	11	
Bipolar disorder with psychotic features		6	9		3	9		3	9	
Co-occurring substance use disorder	70			35			35			.778 ^c
Polysubstance use		32	46		15	43		17	49	
None		21	30		12	34		9	26	
Marijuana		10	14		4	11		6	17	
Cocaine		7	10		4	11		3	9	
Days homeless (M±SD) ^d	58	28.4±59.2		34	23.1±50.9		24	35.9±70.0		.276 ^a
BPRS (M±SD) ^e	58	39.0±7.2		34	39.7±7.7		24	37.9±6.3		.192 ^a
ITAQ (M±SD) ^f	57	15.4±5.8		33	14.3±6.4		24	16.8±4.7		.208 ^a
MARS (M±SD) ^g	54	3.4±2.6		32	3.6±2.6		22	3.1±2.6		.593 ^a
ASI, alcohol (M±SD) ^h	58	.1±.2		34	.1±.2		24	.1±.2		.853 ^a
ASI, drugs (M±SD) ⁱ	57	.1±.1		34	.1±.1		23	.1±.1		.980 ^a
TSRQ autonomy subscale (M±SD) ^j	56	5.67±1.55		33	5.38±1.70		23	6.09±1.23		.073 ^a
LSI-R (M±SD) ^k	56	25.7±7.5		33	26.0±7.1		23	25.2±8.1		.881 ^a
Lifetime arrests (M±SD)	70	16.3±20.6		35	17.6±24.2		35	14.9±16.5		.621 ^a
Lifetime conviction (M±SD)	70	7.9±11.9		35	9.0±13.6		35	6.9±10.1		.392 ^a
Hospital days (M±SD) ^{l,m}	70	8.3±22.9		35	7.5±17.0		35	8.9±27.8		.461 ^a
Jail days (M±SD) ^l	70	70.0±90.2		35	68.6±97.4		35	65.4±83.8		.986 ^a
Lifetime jail days (sentenced) (M±SD)	70	547±1079		35	625±1,327		35	468±767		.681 ^a
Lifetime months of probation (sentenced) (M±SD)	70	39.0±46.9		35	43.2±52.3		35	34.9±41.2		.730 ^a

^a Based on Wilcoxon's rank sum with continuity correction test^b Based on Fisher's exact test for 2×2 matrices^c Based on Pearson's chi-square test with Yates' continuity correction^d During six months prior to enrollment^e Brief Psychiatric Rating Scale (total score). Possible scores range from 18 to 126, with higher scores indicating greater symptom severity.^f Insight and Treatment Attitudes Questionnaire (total score). Possible scores range from 0 to 22, with higher scores indicating greater insight into need for treatment.^g Medication Adherence Rating Scale (total score). Possible scores range from 0 to 10, with higher scores indicating higher levels of medication adherence.^h Addiction Severity Index. Scores for study participants ranged from 0 to .70, with higher scores indicating greater severity of alcohol addiction.ⁱ Addiction Severity Index. Scores for study participants ranged from 0 to .47, with higher scores indicating greater severity of drug addiction.^j Treatment Self-Regulation Questionnaire. Possible scores range from 1 to 7, with higher scores indicating higher levels of perceived autonomy related to taking antipsychotic medications.^k Level of Service Inventory-Revised (total score). Possible scores range from 0 to 54, with higher scores indicating greater risk of criminal recidivism.^l During the year prior to enrollment^m Includes days in both general and state psychiatric hospitals

TABLE 2. Baseline characteristics of study participants, by failed conditional discharge status^a

Characteristic	Failed conditional discharge						p ^b
	No (N=50)			Yes (N=20)			
	N responses	N	%	N responses	N	%	
Age (M±SD)	50	35.5±12.3		20	36.4±9.8		.752
Gender	50			20			.697
Male		30	60		13	65	
Female		20	40		7	35	
Race-ethnicity	50			20			.116
African American		40	80		11	55	
Caucasian		7	14		6	30	
Hispanic		3	6		3	15	
Marital status	50			20			.389
Never married		41	82		18	90	
Divorced		9	18		2	10	
Highest level of education	43			19			.248
Did not graduate high school		22	52		7	37	
Graduated high school		11	25		9	47	
Post high school		10	23		3	16	
Employment	50			20			.095
Unemployed		46	92		20	100	
Employed (paid, full- and part-time)		4	8		0	0	
Primary diagnosis	50			20			.435
Schizophrenia		28	56		8	40	
Depression with psychotic features		10	20		3	15	
Schizoaffective disorder		4	8		4	20	
Psychotic disorder, NOS		5	10		2	10	
Bipolar disorder with psychotic features		3	6		3	15	
Co-occurring substance use disorder	50						.308
Polysubstance use		20	40		12	60	
None		18	36		3	15	
Marijuana		7	14		3	15	
Cocaine		5	10		2	10	
Days homeless ^c	41	26.8±64.6		17	32.4±44.9		.745
BPRS (M±SD) ^d	41	37.6±7.0		17	42.4±6.6		.018
ITAQ (M±SD) ^e	40	15.6±6.1		17	14.8±5.3		.655
MARS (M±SD) ^f	37	3.0±2.1		17	4.2±3.4		.109
ASI, alcohol (M±SD) ^g	41	.1±.2		17	.2±.2		.119
ASI, drugs (M±SD) ^h	40	.1±.1		17	.1±.1		.696
TSRQ autonomy subscale (M±SD) ⁱ	39	5.8±1.4		17	5.3±1.8		.289
LSI-R (M±SD) ^j	40	23.3±6.6		16	31.6±6.4		<.001
Lifetime arrests	50	14.4±21.0		20	21.0±19.3		.244
Lifetime convictions	50	6.4±11.4		20	11.8±12.7		.104
Hospital days ^{k,l}	50	5.9±13.4		20	14.1±37.3		.200
Jail days ^k	50	55.8±86.2		20	94.9±96.2		.116
Lifetime jail days (sentenced) (M±SD)	50	388±1012		20	943±1,163		.060
Lifetime months of probation (sentenced) (M±SD)	50	36.5±44.6		20	45.5±52.9		.472

^a Participants with a failed conditional discharge were removed from the intervention arm of the study protocol for failing to comply with the judge's legal conditions but were continued in the data collection arm.

^b Based on a likelihood ratio test (beta=0) in a logistic regression of whether the variable had an effect (versus no effect) on failed conditional discharge status

^c During 6 months prior to enrollment

^d Brief Psychiatric Rating Scale (total score). Possible scores range from 18 to 126, with higher scores indicating greater symptom severity.

^e Insight and Treatment Attitudes Questionnaire (total score). Possible scores range from 0 to 22, with higher scores indicating greater insight into need for treatment.

^f Medication Adherence Rating Scale (total score). Possible scores range from 0 to 10, with higher scores indicating higher levels of medication adherence.

^g Addiction Severity Index. Scores for study participants ranged from 0 to .70, with higher scores indicating greater severity of alcohol addiction.

^h Addiction Severity Index. Scores for study participants ranged from 0 to .47, with higher scores indicating greater severity of drug addiction.

ⁱ Treatment Self-Regulation Questionnaire. Possible scores range from 1 to 7, with higher scores indicating higher levels of perceived autonomy related to taking antipsychotic medications.

^j Level of Service Inventory-Revised (total score). Possible scores range from 0 to 54, with higher scores indicating greater risk of criminal recidivism.

^k During the year prior to enrollment

^l Includes days in both general and state psychiatric hospitals

TABLE 3. Comparison of criminal justice and service use outcomes for study participants randomly assigned to forensic assertive community treatment (FACT) or enhanced treatment as usual (control)^a

Outcome	Total		FACT		Control		Per-protocol analysis		Intent-to-treat analysis	
	M	SD	M	SD	M	SD	Coef.±ME	p	Coef.±ME	p
Total arrests	1.1	1.5	.8	1.3	1.3	1.7	-.53±.74	.165	-.50±.68	.159
Total convictions	.7	1.1	.4	.7	.9	1.3	-.88±.77	.028	-.86±.72	.023
N of incarcerations	1.9	2.3	2.3	2.3	1.5	2.2	.52±.62	.105	.42±.56	.151
N of incarcerations minus sanction incarcerations	1.4	1.9	1.3	1.5	1.5	2.2	-.11±.62	.967	-.16±.60	.602
Days in jail	32.5	46.7	21.5	25.9	43.5	59.2	-.62±.63	.056	-.71±.60	.025
N of emergency room visits	1.8	3.9	1.6	4.8	1.9	2.7	-.18±1.2	.778	-.19±1.1	.728
N of hospitalizations ^b	.6	1.2	.3	.7	.8	1.4	-.11±1.1	.051	-.11±1.0	.042
Days in hospital ^c	14.1	47.3	4.4	15.1	23.8	64.2	-1.69±1.4	.018	-1.68±1.4	.025
Days in treatment ^d	237.5	135.9	305.5	92.1	169.4	139.6	.64±.27	<.001	.59±.29	<.001
Outpatient treatment contacts ^e	63.0	65.3	112.0	59.3	14.1	14.5	2.1±.37	<.001	2.1±.38	<.001

^a Effect sizes and p values are from negative binomial regression of variables in the per-protocol and intent-to-treat analyses. The coefficient (coef.) is the estimated effect size (estimated regression coefficient). The margin of error (ME) is 1.96 times the estimated standard error of the regression coefficient. Variables in the per-protocol analysis were analyzed by using the period of eligibility to receive treatment as the offset. Variables in the intent-to-treat analysis were analyzed without an offset.

^b Includes hospitalizations in both general and state psychiatric hospitals

^c Includes days in both general and state psychiatric hospitals

^d Days between group assignment and participants' last contact with treatment providers

^e Includes all face-to-face contacts with FACT team members in the FACT group and all face-to-face contacts with treatment team members and with case managers in the control group

ACT, containing both clinical and criminal justice components. The study findings that FACT participants had fewer convictions for new crimes and less time in jail provide evidence of the model's effectiveness in preventing criminal justice system involvement. However, these results raise the question of how the findings were achieved without concomitant reductions in arrest or incarceration rates compared with the control group.

One possible explanation is the FACT judge's use of graduated sanctions, including bench warrants and brief incarceration, to address problem behaviors. Bench warrants were issued for arrest of FACT participants who missed court appointments in order to reengage rather than punish them. Because these arrests were not associated with new crimes, this strategy may explain, at least in part, why FACT participants had similar numbers of arrests but fewer convictions compared with the control group. Also, approximately a third of FACT group incarcerations were due to use of brief incarceration as a graduated sanction after less restrictive alternatives had failed. Because these incarcerations were short compared with incarcerations for new crimes, typically less than a week, their use was probably a factor in why FACT participants spent less time in jail compared with the control group despite having a similar number of incarcerations.

It is also possible that criminal justice outcomes may have been affected by the collaboration between FACT team clinicians and the judge. Rather than utilizing clinicians simply to report behavior problems, a process that can lead to increased incarceration (22,41,44–47), the Rochester FACT model features problem-solving approaches, including the use of therapeutic alternatives to punishment (48). Collaborative problem solving could potentially have led to fewer

convictions by the FACT group judge and less jail time among the FACT participants compared with control group participants without affecting the actual incidence of new crimes.

Criminal justice outcomes may also have been affected by factors beyond the role of the study judge. It is possible that the effectiveness of the Rochester FACT model, like all jail diversion interventions, depends less upon the method of diversion than upon the services that patients receive after jail diversion (49–51). FACT team clinicians in this study worked to address the criminogenic risk factors driving each participant's criminal justice system involvement. For example, FACT clinicians received training in cognitive-behavioral treatment for antisocial personality (52,53), and they conducted weekly groups to address participants' antisocial cognitions and behaviors as part of the study intervention (54). Addressing criminogenic risk factors is a core principle of effective correctional rehabilitation for offenders who do not have a mental illness (55–57), and employing this principle may also lead to crime reduction among offenders with a mental illness (58–60). However, study data did not permit determination of the extent to which the results were attributable to each of the possibilities discussed above or to other factors.

The positive study results were obtained even though the treatment provided to the control group was probably superior to standard outpatient mental health treatment. The control group received enhanced access to outpatient treatment along with case management and on-site medical and pharmacy services. In addition, the study population appeared to be at higher risk of criminal justice system involvement compared with individuals who are typically served by jail diversion programs (51,61). However, the results should be interpreted

with caution because of several methodological limitations, including a small sample size, missing baseline data, lack of detail about the distribution of service contacts, and lack of outcome data beyond service utilization. In the absence of clinical outcome data, for instance, it is unclear whether participants' symptoms actually improved, although improvement is suggested by significant reductions in the hospitalization rate in the FACT group. It is also possible that the study's positive outcomes were due to differences in the frequency of outpatient treatment contacts between the groups rather than the FACT model per se. Last, this research required active collaboration between the investigators and a judge, and the difficulties inherent in establishing such collaborative relationships may present a challenge to study reproducibility.

CONCLUSIONS

Study participants with severe mental illness and misdemeanor convictions who received the Rochester FACT model had fewer convictions for new crimes, spent less time in jail and hospitals, and spent more time in outpatient treatment compared with those who received enhanced treatment as usual. Further research is needed to refine the core components of the FACT intervention and to examine service utilization, clinical outcomes, and cost effectiveness among a range of study populations.

AUTHOR AND ARTICLE INFORMATION

Dr. Lamberti, Dr. Weisman, Dr. Cerulli, Mr. Jacobowitz, and Dr. Caine are with the Department of Psychiatry, Dr. Williams is with the Department of Medicine and the Department of Clinical and Social Sciences in Psychology, Dr. Strawderman and Mr. Harrington are with the Department of Biostatistics and Computational Biology, and Ms. Lamberti is with the School of Nursing, all at the University of Rochester Medical Center, Rochester, New York. Dr. Mueser is with the Center for Psychiatric Rehabilitation, Boston University, Boston. Judge Marks (ret.) is with the Monroe County Courts, Rochester, New York. Send correspondence to Dr. Lamberti (e-mail: steve_lamberti@urmc.rochester.edu).

The study was supported by grant R34-MH078003-01A from the National Institute of Mental Health. The authors acknowledge Edward J. Latessa, Ph.D., Steven Belenko, Ph.D., and John E. Elliott, J.D., for their consultation and support. All study activities, including design, conduct, data analysis, and interpretation, are the sole responsibility of the authors and do not represent the views of the National Institute of Mental Health, the Monroe County Office of Mental Health, the Monroe County Sheriff's Office, or the New York State Division of Criminal Justice Services.

Dr. Lamberti and Dr. Weisman are owners of Community Forensic Interventions, L.L.C., a company that provides training and technical assistance in community-based care of justice-involved adults with serious mental illness, which includes licensing agreements with the University of Rochester Medical Center. Dr. Williams reports equity ownership in Self-Determined Health ending in 2016. He is a member of the Pfizer speaker's bureau for Chantix and is a consultant for MAD*POW. The other authors report no financial relationships with commercial interests.

Received July 15, 2016; revisions received November 14, 2016, and February 13, 2017; accepted March 13, 2017; published online June 1, 2017.

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