Report on Program Outcomes for the
28 Day Substance Use Disorder Treatment Program
Main Institution, Hampden County Sheriff's Department, Ludlow, MA

Presented June 20, 2022 to

Nicholas Cocchi, *Sheriff*

Mary Baker, *Assistant Superintendent*

Data Collection by

Dana Hines, *LADC I*
Counselor

Report Preparation by

Sally Johnson Van Wright, *Ed.D., LICSW, LADC I*
Assistant Superintendent, Research

Nicole Harrington, *Ph.D.*
Research Assistant

Evidence Drives Excellence
HCSD Research Team

28-DAY PROGRAM OUTCOMES for FY21 & FY22

Purpose and Scope of the Report

The 28 Day Substance Use Disorder (SUD) program is a closed cycle treatment program five weeks in duration serving approximately 20 sentenced men per cycle. Delivered in medium security, the program has occurred at Hampden County Sheriff's Department since 1993. Standardized program evaluation data exists since FY14. The program is partially funded by the Department of Public Health (DPH) through the Bureau of Substance Addiction Services (BSAS). A combination of psycho-education and process group sessions, the program delivers 45 distinct topics and facilitated process groups in a twice-daily format for men housed in C5. Pre- and Post-test data provide indicators of attitude shifts as well as knowledge gain. The report details changes in the Readiness Ruler, a commonly used, reliable, and validated instrument from Motivational Interviewing, as well as multiple-choice SUD knowledge questions.

Fiscal years FY21 and FY22 suffered from COVID pandemic quarantine / mitigation restrictions at the facility, resulting in curtailed service delivery for those years. During that period, the SUD team revised and updated the program curriculum, increased individual counseling sessions, and delivered "Breakthru" (eight 1-hour sessions delivered over four weeks) in small in-person, masked cohorts. In March of 2022, the 28 Day program ended its pandemic hiatus, delivering two back-to-back treatment cycles. Therefore this report examines outcomes for four treatment cycles that occurred July and October 2020, March and June 2022. Researchers coded and analyzed paper copies of the pre- and post-tests (available in English and Spanish) using SPSS, the Statistical Package for Social Scientists. Simple statistical measures comprise the analysis. Total sample is 54 men, of whom 42 were program completers (77.7% completion rate).

Data in this report include the following:

1) Demographics and drugs reported in the sample (*who participated?*)

2) Shifts in attitude and orientation towards change (*how did they grow?*)

3) SUD knowledge gain (*what did they learn?*)

Highlights from the Results:

- Attitudes towards change improved
- Recognition of problematic use increased
- SUD knowledge increased

STATISTICAL DATA

1. WHO PARTICIPATED?

SUD (100%)

All individuals who participated in the 28 Day Program evaluated as having SUD per treatment team review, utilizing multiple sources to mitigate any tendency to under-report. Measures include a Texas Christian University (TCU) SUD evaluation score of 4 or higher, a high CAGE score, & / or a significant history of SUD per casework documentation across all incarcerations. In addition, counselors confirm Health Trax ICD-9 diagnosis of SUD for each participant. All resided in C5, a medium security housing unit for men in Ludlow. All 54 participants identified as men, with no participants identifying as transgender or gender non–conforming; the program / facility does have the capacity to serve the latter.

Age

Ages ranged from 23 to 60, with 37% being between ages 31 and 40. The mean average was 36, and the most common age was 31. Average age of graduates and non-completers did not differ significantly.

Age characteristics in the treatment group were similar to the Sentenced Release population (N = 403) except that they were more clustered around middle age groups (fewer in both youngest and oldest groups). The mean of 36 was close to the overall mean age of 37. The mode of 31 was close to the mode of 32 for the overall men's sentenced population.

Age of 28 Day Participants (N=54)

|	Frequency	%
18-24	3	5.6
25-30	14	25.9
31-40	20	37.0
41-50	14	25.9
Over 50	3	5.6
Total	54	100.0
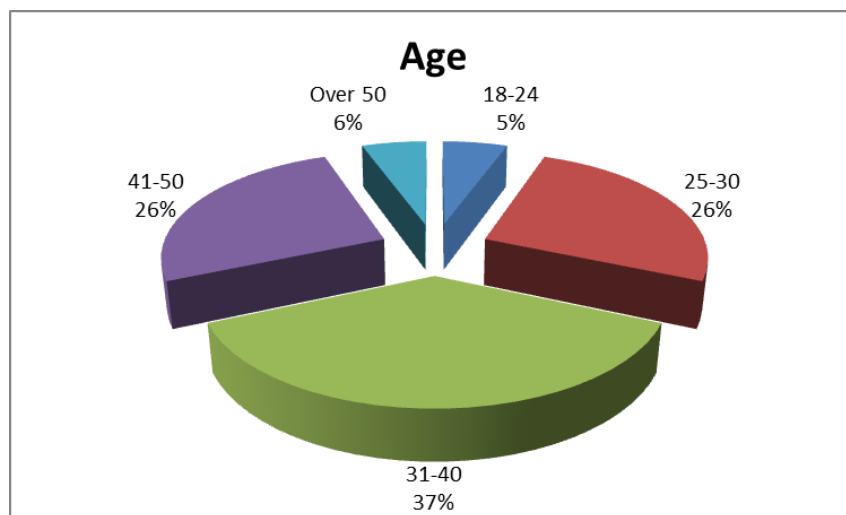
Race / Ethnicity

Culture groups in the sample included only three backgrounds: Black 14.5% (8 persons), Hispanic 60% (33 persons), and White 25.5% (14 persons).

The treatment group was more Hispanic and less Black than the Sentenced Release population (N = 403), which last year was 22.6% Black, 49.7% Hispanic, 26.8% White, and 1% all others combined.

Race of 28 Day Participants (N = 54)

	Frequency	%
Black	8	14.8
Hispanic	32	59.3
White	14	25.9
Total	54	100.0
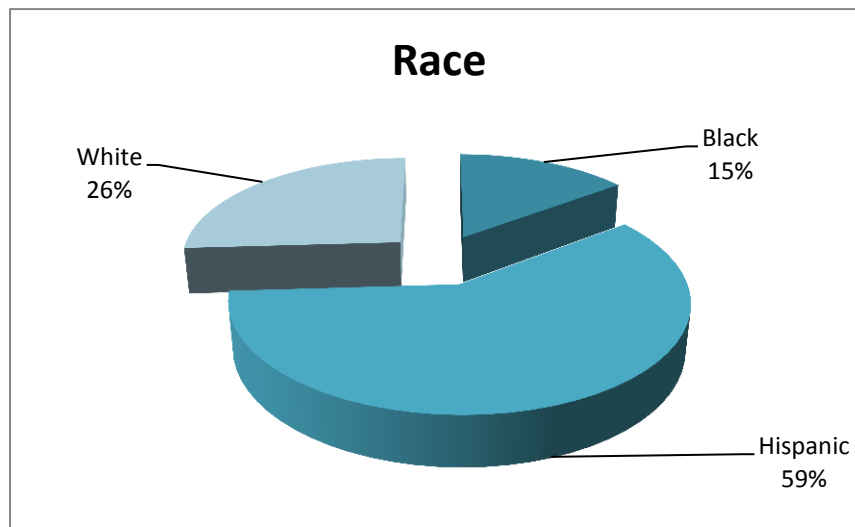
Among 42 Graduates, there were 8 Blacks (19% of graduates), 22 Hispanics (50%), and 13 Whites (30.9%).

Among those who did not complete the program, 0 were Black, 11 were Hispanic, and 1 was White.

Drugs

"_Drugs of choice_" varied widely, with about a quarter (13 men = 24%) reporting more than one drug.

Marijuana was the most commonly reported drug of choice (24 persons = 44.4%), followed by heroin / opioids combined (15 = 27.7%), powder / crack cocaine combined (12 = 22.2%), and alcohol (7 = 13%).

Upon Intake "Drug of Choice"		
in participants' words	_Frequency_	_Percent_
adreneline	1	1.9
alcohol	5	9.3
alcohol, marijuana	2	3.7
angel dust	1	1.9
cocaine	5	9.3
cocaine, heroin	1	1.9
cocaine, marijuana	1	1.9
cocaine, opiates	1	1.9
cocaine, opioids	1	1.9
crack	1	1.9
crack, heroin	1	1.9
heroin	5	9.3
heroin, benzo	1	1.9
heroin, crack	1	1.9
heroin, marijuana	1	1.9
marijuana	18	33.3
marijuana, dust	1	1.9
none	2	3.7
opiates	1	1.9
opiates, benzo	1	1.9
PCP	2	3.7
perc, marijuana	1	1.9
Total	54	100.0

Drugs Considered by Participants as
Causing Most Problems in their Lives

BEFORE TREATMENT	AFTER TREATMENT
(Listed by person)	*(Listed by person)*

Asked on the pre-test which drugs personally "*caused you the most problems*," eight men (14.8%) reported more than one drug. Heroin / opioids were most problematic at a combined 27.8%, followed by alcohol (24.9%) and cocaine (combined types 21.2%). In contrast, marijuana was considered most problematic by only 5.6% of respondents or 4.9% of all drug mentions. Ten men (18.5% of 54) stated "None."

Since early SUD treatment especially targets problem recognition, the researchers analyzed which drugs were recognized as problematic on the post-test versus pre-test.

A clinically notable absence occurred when zero men at post-test stated "None" in answer to the question which drug causes you most problems.
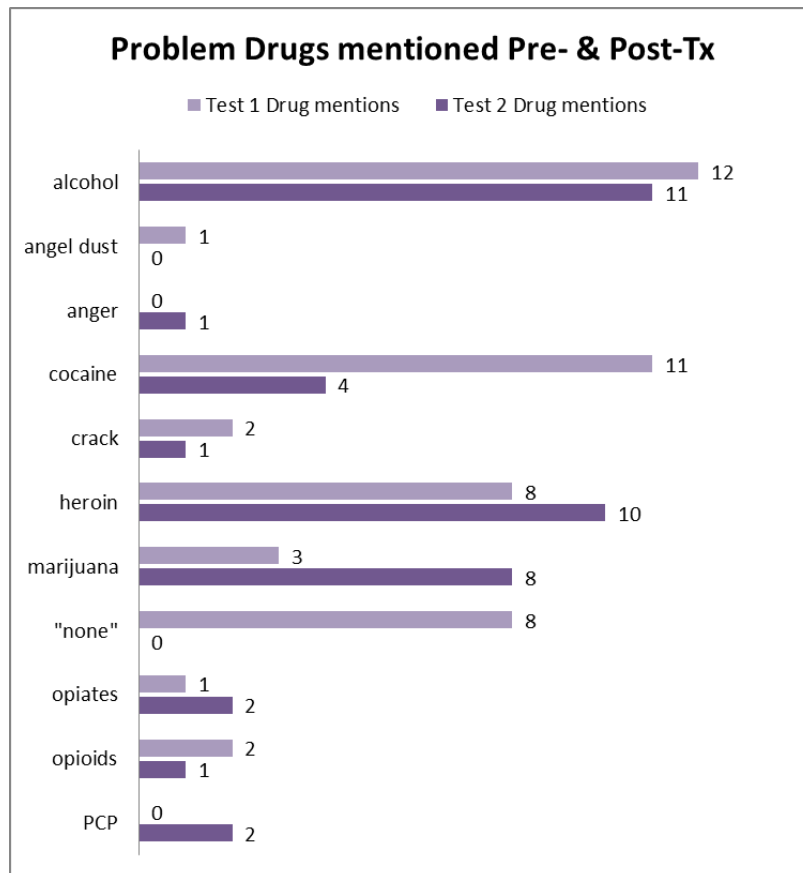
1. Problem Drug Pre-Tx

	Persons	*%*
alcohol	10	23.8
alcohol, cocaine	2	4.8
angel dust	1	2.4
cocaine	7	16.7
cocaine, heroin	1	2.4
cocaine, opiates	1	2.4
crack	1	2.4
crack, heroin	1	2.4
heroin	5	11.9
heroin, percocet	1	2.4
marijuana	3	7.1
none	8	19.0
opioids	1	2.4
Total	42	100.0

2. Problem Drug Post-Tx

	Persons	*%*
alcohol	9	21.4
alcohol, PCP	1	2.4
anger	1	2.4
cocaine	6	14.3
cocaine, alcohol	1	2.4
cocaine, heroin	2	2.4
cocaine, opiates	1	2.4
crack	1	2.4
heroin	9	21.4
marijuana	8	19.0
opiates	1	2.4
PCP	1	2.4
percs	1	2.4
Total	42	100.0

Problematic Drugs Most Commonly Named by Program Graduates

(Listed by Drug mentioned before & after treatment)

Problem Drug Pre-Tx & Post-Tx	Test 1	Test 2
alcohol	12	11
angel dust	1	0
anger	0	1
cocaine	11	4
crack	2	1
heroin	8	10
marijuana	3	8
"none"	8	0
opiates	1	2
opioids	2	1
PCP	0	2
Total	48	40

Problem Drugs mentioned Pre- & Post-Tx

Drug Problem Recognition

At the beginning of treatment, ten men (18.5%) answered "none" as most problematic while after treatment zero (0) graduates said in answer to the question which drug caused them most problems "none." Problem recognition grew among program graduates. Zero persons at the post-test replied "None" in response to the question which drug caused you most problems (10 at pre-test). Moreover, more people noted problematic PCP use (from 1 to 3 men), marijuana (from 3 to 8 men), and anger as an endogenous neurochemical addiction (from 0 to 1 men).

STAGES OF CHANGE

Treatment standards call for attention to the degree to which persons in treatment consider change to be important for them, possible for them (confidence), and something they consider themselves ready for. Motivational Interviewing techniques have shown efficacy in increasing these factors. A commonly used and repeatedly validated instrument for measuring attitudes towards behavioral change, Readiness Rulers come from a treatment approach called Motivational Interviewing (Miller & Rollnick, 2013). Motivational Interviewing is based on the Stages of Change transtheorectical model of human behavior change (Prochaska & DiClemente, 1994). In this cohort, there were differences in importance, confidence, and readiness to change between the mean scores for those who completed and those who did not. Specifically, those who did not report the importance, confidence, or readiness to change on day one were less likely to complete treatment; for those who started with low readiness scores, score gains were greatest.

READINESS RULERS on Pre-test among Non-completers & Graduates
(N=54)

On Day One of Treatment, Attitudes towards Change			
	Importance of Change	Confidence to Change	Ready to Change
Non-Completers	6.8	6.8	6.9
Graduates	7.7	7.3	7.6

READINESS RULERS on Pre-test & Post-Test among Graduates
(N=42)

Among treatment graduates, shifts in pro-recovery attitudes appeared, as shown, for the Importance, Confidence, and Readiness questions. There were many who started out at 9 or 10 but dropped. The most dynamic attitude factor was Confidence toward change, where 5 men initially "Very" confident (8, 9, or 10) became less so (4 or more points down), possibly a more realistic view of their challenges. Meanwhile, on the same question, the 10 men who started out "Not at all" or "Somewhat" (1,2,or 3) confident about change scored on average 4 or more points more confident by graduation day.

Pre-/Post-Treatment, Attitudes towards Change			
	Importance of Change	Confidence to Change	Ready to Change
Pre-Test Readiness	7.7	7.3	7.6
Post-Test Readiness	8.0	7.5	9.0

2. What SUD knowledge did they learn during the program?

How many participants demonstrated SUD knowledge gain?

% Correct Responses by Participant

Average participant test scores rose from 74.4% correct answers to 89% among the 42 graduates, a 14.6-point increase among the graduates as a whole in accurate knowledge about SUD.

On the multiple choice test of 25 SUD-related knowledge items, the majority of participants demonstrated increase in knowledge. Individual pre-tests ranged 16% to 100% correct, while post-tests ranged 64% to 100% correct. Bracketing the 6 out of 42 graduates with very high pre-tests (missed zero or one question); a majority 91.66% (33 of 36) increased their scores on the post-test.

COMPARISON OF MEAN SCORES

SUD Knowledge Pre- & Post-Tests
(25-question Multiple Choice Test. N = 42)

89% correct after treatment

74.4% correct on day one
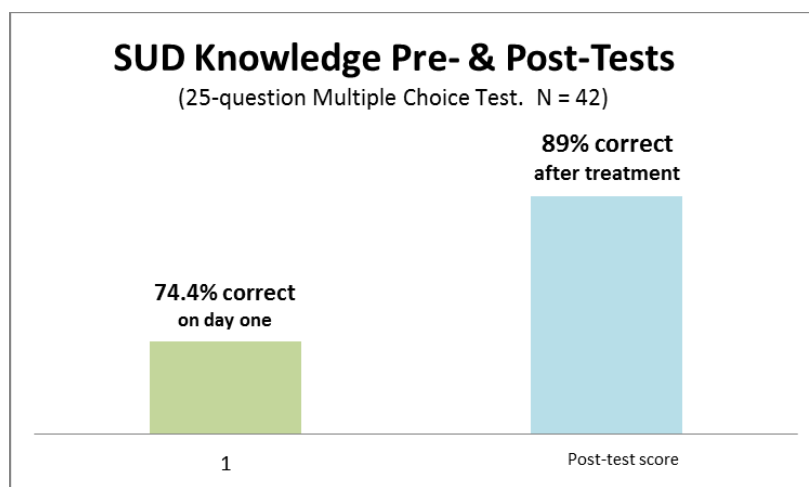
1   Post-test score

What did participants learn   Post-test Score

% Correct Responses by Question

Percentage of correct answers rose on the Post-tests for all 25 Questions, meaning that knowledge of 100% of the topic areas improved. See next page for details by question.

Greatest knowledge gain appeared on item 16, a question on the *definition of fatherhood*. On that item, 64.3% answered correctly before treatment and 92.9% answered correctly after treatment, a 28.6-point increase. There were large (20 points or greater) knowledge gains on questions about *toxic shame* (5), *self-esteem* (18), *homeostasis* (21), and the *ripple effect* (22). Single-digit gains occurred on questions on the *definition of addiction* (3), *symptoms of SUD* (11), *Recovery* (12), *AISS* (19), and *spirituality* (20); those items also started with higher pre-test scores. A validity question arose on the *hepatitis* question (1) because pre- and post- scores were both low; also, several high-scoring participants answered correctly on test 1 and wrong on test 2, possibly due to a word choice error making the question misleading.

Researchers also compared knowledge gain per pre- and post-tests before and after the curriculum revision which occurred in 2021. There was not a measurable difference in the two groups' scores. Prior to curriculum revision, pre-test 72.9% and post-test 87.5% (correct answers), a 14.6-point increase, was measured. After the curriculum revision, knowledge gains were similar, at 76% pre-test and 90.7% post-test, a 14.7-point increase.

25 SUD-related Knowledge Questions

Question #	% Correct Pre-	% Correct Pre-	Increase	Topic
1	28.6	38.1	9.5	Hepatitis
2	81.0	90.5	9.5	Grief
3	64.3	69.0	4.8	Addiction
*4	81.0	95.2	14.3	Insanity
*5	61.9	83.3	21.4	Toxic shame
6	73.8	85.7	11.9	Co-occurring
*7	71.4	85.7	14.3	Psychopharmacology
*8	73.8	90.5	16.7	Man
*9	69.0	88.1	19.0	Denial
*10	76.2	90.5	14.3	Anger
11	78.6	83.3	4.8	Sx of addiction
12	85.7	90.5	4.8	Recovery
*13	83.3	100.0	16.7	12 steps
*14	90.5	100.0	9.5	HIV / AIDS
*15	83.3	100.0	16.7	Healthy relationships
*16	64.3	92.9	28.6	Definition of fatherhood
17	78.6	85.7	7.1	Sx of relapse
*18	69.0	92.9	23.8	Low self-esteem
19	83.3	90.5	7.1	AISS
20	83.3	88.1	4.8	Definition of spirituality
*21	64.3	85.7	21.4	Homeostasis
*22	71.4	97.6	26.2	Ripple effect
23	88.1	97.6	9.5	Definition of victim
*24	73.8	88.1	14.3	Intimate partner abuse
*25	83.3	97.6	14.3	Societal effects of drugs

* = statistically significant increase; i.e., not an increase that would occur by chance

What highlights emerged in analysis of the data?

- **INCREASED PROBLEM DRUG RECOGNITION OCCURRED**
  On day one, when asked which drug caused most problems in their life, ten men (18.5%) answered "*none*" (despite all participants meeting criteria for SUD). This response at treatment outset indicates *"pre-contemplative."* After treatment zero (0) graduates gave that reply, more often identifying marijuana or another drug as problematic in their lives. In this way, the problem recognition moved to 100% by graduation day.

- **ATTITUDE SHIFTS OCCURRED**
  78.8% of the 33 participants with low readiness scores on pre-test reported improved readiness for change at post-test. Nine participants rated their own readiness as 10-point (highest on a scale of 10) on the pre-test. Among the attitude changers (26 men), a 5.4-point increase occurred.

- **100% EFFECTIVE CONTENT DELIVERY**
  25 of 25 questions had higher post-test scores than pre-test scores. Of these, 15 score increases were statistically significant, meaning the increases would not have happened by chance.

- **STRONG MAJORITY LEARNED SUD KNOWLEDGE**
  91.66% of graduates who missed more than one question on the pre-test demonstrated knowledge gain though higher scores on post-tests.

- **SIGNIFICANT KNOWLEDGE GAIN OCCURRED.**
  Overall post-test scores on average increased by 14.6 points, from 74.4% to 89% correct answers, a statistically significant increase.

What program recommendations are suggested by the evidence?

1. *Continue excellent delivery of content*, as the outstanding knowledge gain for a strong majority of program graduates and all topic areas were measured by the pre- / post-testing.

2. *Continue use of Motivational Interviewing skills,* as the increases in Importance, Confidence, and Readiness indicate progress overall. In particular:

   a. Consider specific strategies to address the needs of participants with 9 or 10 pre-test scores, as their answers may reflect shame-based or narcissistic over-inflation of their readiness. Those scores tended to go down on post-test, which could actually indicate treatment gains.

   b. Consider specific strategies to address the needs of participants with 1, 2 or 3 pre-test scores, as this treatment cohort showed dramatic progress among graduates but also higher non-completion rates.

3. *Consider re-wording and aligning* to class content the Hepatitis question (#1), since both pre- and post-test scores were low (28.6% and 38.1%), with several overall high scorers getting the question right the first time and wrong the second time, indicating a validity problem.

4. *In future*, provide the Research Team with customer satisfaction-type data. The treatment team does gather this feedback, but it was not available for analysis in this report.