

# **Examining the effects of resident- and program- characteristics on resident outcomes at discharge from licensed recovery residences in Massachusetts**

Jennifer Miles, PhD; Sharon Reif, PhD; Amy Mericle, PhD;  
Mary Brolin, PhD; Grant Ritter, PhD

Addiction Health Services Research Conference

Park City, UT

October 2019

# ACKNOWLEDGEMENTS

---

- **Funding:**
  - NIAAA T32 Training Grant
  - Heller School Doctoral Fellowships
  - The Heller Annual Fund
  
- **Massachusetts Department of Public Health Bureau of Substance Addiction Services (BSAS)**

# BACKGROUND

---

## Recovery Oriented Systems of Care

- Clinical and non-clinical recovery support services
- Build recovery capital (physical, human, social, cultural)

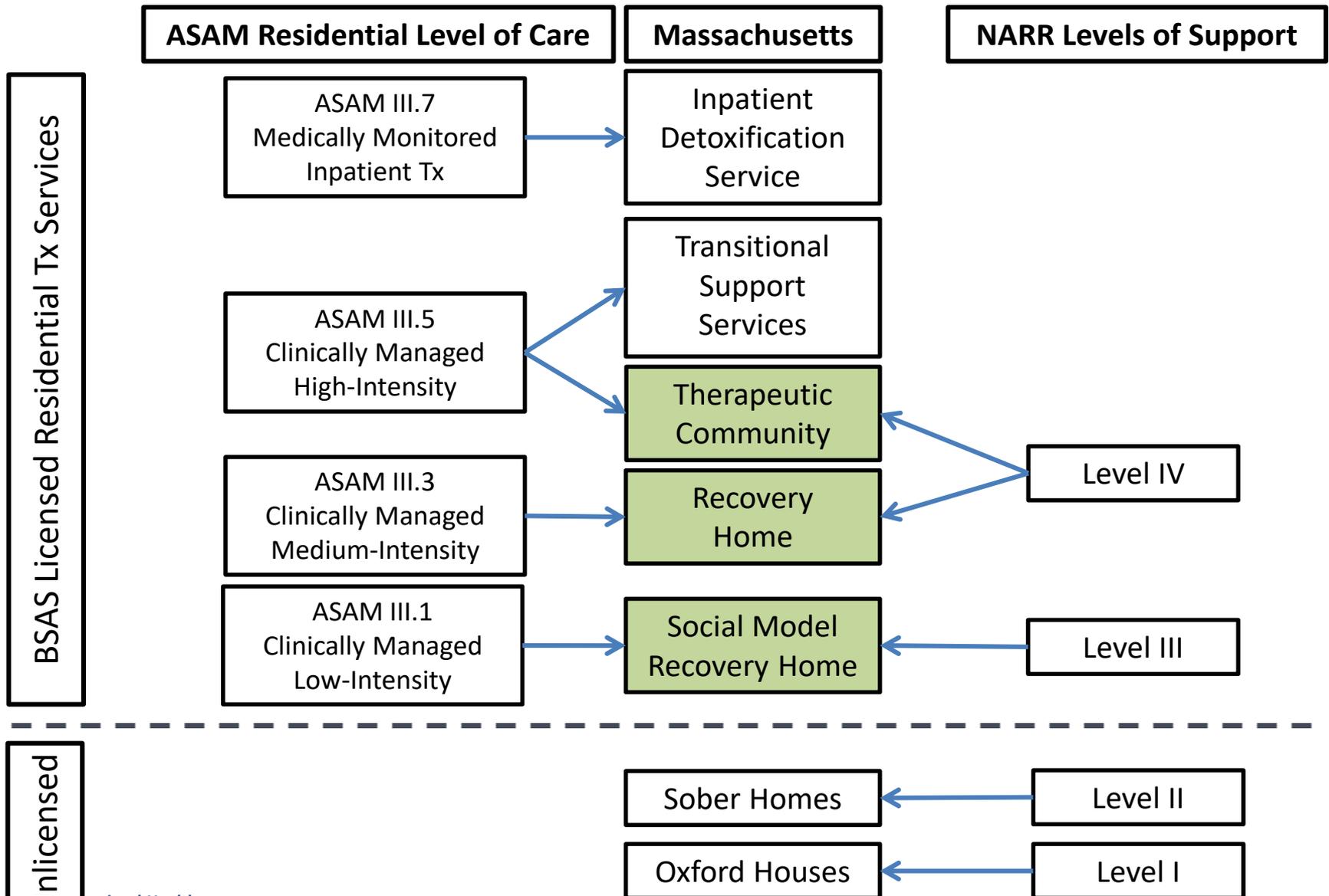
## U.S. Surgeon General's Report (2016)

*“a key research goal is to understand and evaluate the effectiveness of the emerging range of recovery support services”*

# RECOVERY RESIDENCE EVIDENCE BASE

- Studies adjusting for resident characteristics found:
  - Reduced substance use<sup>1-3,8</sup>
  - Reduced criminal justice involvement<sup>1,3,5</sup>
  - Improved mental health<sup>1,4</sup>
  - Increased employment<sup>1,3</sup>
  - Improved housing status<sup>4</sup>
  - Cost-effective<sup>6</sup>
- Recovery housing “*secret sauce*”
  - Emerging evidence that outcomes are better when<sup>7</sup>
    - Part of a larger/parent organization
    - Affiliated with treatment program
    - Abstinence requirement at intake (30 days)
- Gaps remain<sup>8</sup>
  - Survey tools
  - Rigorous study design
  - Data collection challenges

# RESEARCH SETTING: MASSACHUSETTS



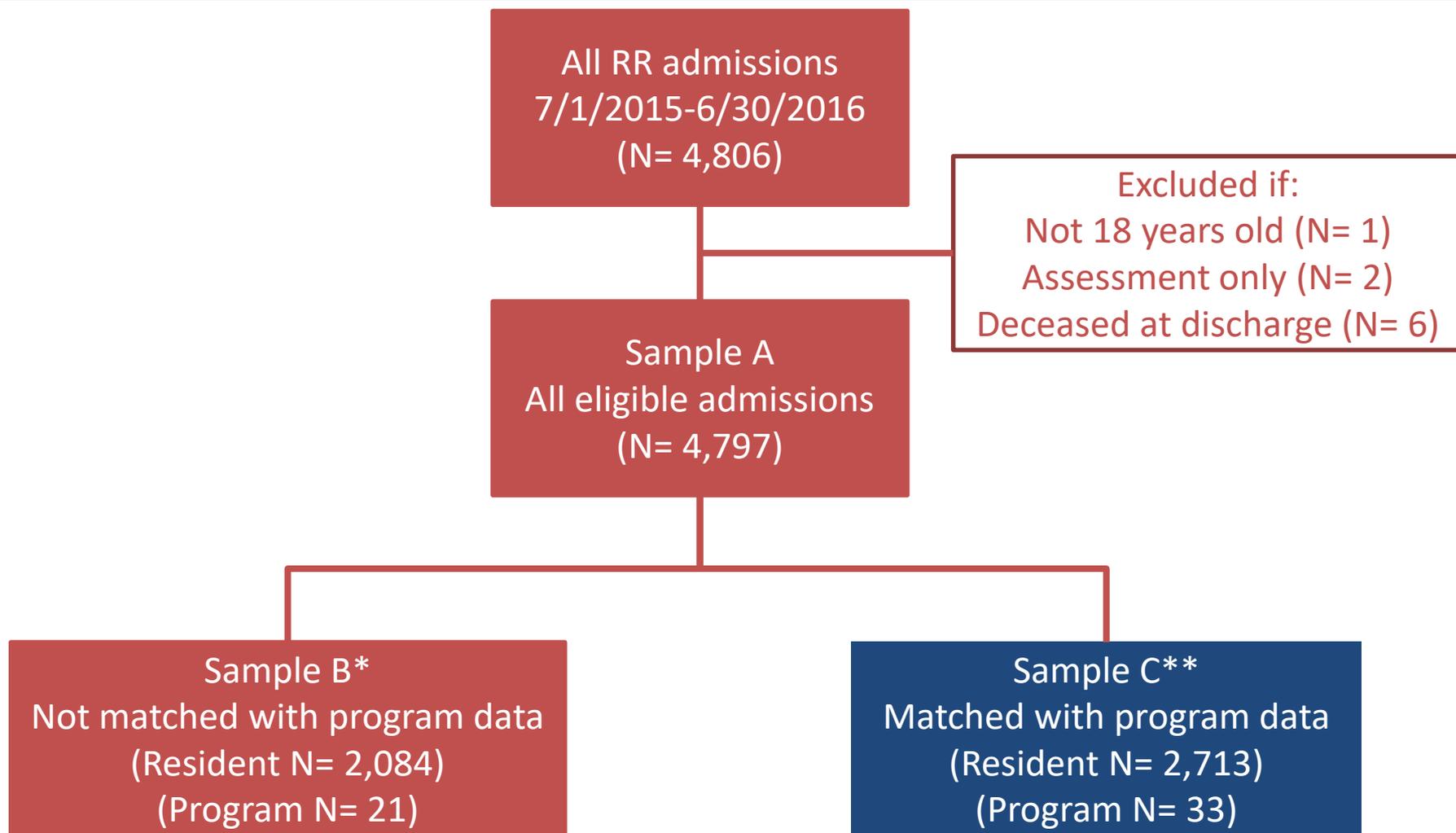
# DATA SOURCES

## BSAS Administrative Data (Residents)

## Program Survey Data (Programs)

- RR program random identifier 
- Admission forms
  - Service type
  - Demographic characteristics
  - Socioeconomic characteristics
  - Behavioral health disorder, tx history
- Discharge forms
  - Services received during stay
  - Discharge outcome measures
- Calculated by BSAS data analyst
  - Length of stay (in days)
- RR program random identifier
- Addiction Treatment Inventory-Modified
  - Program type, ownership, size, staffing, services
- Recovery House Processes Questionnaire
  - House meetings, 12-step principles, amenities
- Social Model Philosophy Scale
  - Overall scale score, sub-domains (physical location, staffing, authority, addressing AOD disorders, governance, community orientation)

# SAMPLE



\*Significant differences in AOD disorder severity between Sample B and Sample C; \*\*Final analytic sample  
Program Survey Response Rate: N= 36 (63%), 3 programs with no index admissions

# ANALYTIC APPROACH

- **Univariate and bivariate analyses**
  - Description of residences, data reduction
- **Regression analyses:**

Outcome	Type	Analytic Technique
Length of stay	Continuous	Multilevel linear regression
Completed	Dichotomous	Multilevel logistic regression
Employed at discharge	Dichotomous	Multilevel logistic regression
Stably housed at discharge	Dichotomous	Multilevel logistic regression

- **Model fit**
  - All models adjusted for individual-level characteristics
  - Organizational characteristics added in staged approach based on conceptual grouping, association in bivariate with outcome

# DESCRIPTION OF RESIDENT SAMPLE

## Demographics

- Race/ethnicity:
  - 81% White
  - 8% Multi-racial
  - 5% Black
  - 5% Latino
- Age (Mean, SD) 35 (10.2)
- Gender
  - 68% Male
  - 32% Female

## Recovery Capital

- Physical
  - Housed: 60%
  - Employed: 2%
  - Has income: 31%
- Human
  - ≥HS Diploma: 78%
- Social
  - Married: 6%

## AOD Severity & Treatment History

- Deck Severity Index (mean, SD)  
0.61 (0.15)
- Primary/secondary substance:
  - Opioids: 71%
  - Alcohol: 38%
  - Stimulants: 36%
  - Marijuana: 13%
- Prior residential treatment: 65%
- Prior mental health treatment: 73%
- Referral Source
  - AOD provider: 62%
  - CJ System: 28%

## Average LOS in days (mean, SD)

102.5 (82.6)

# PROGRAM ORGANIZATIONAL CHARACTERISTICS

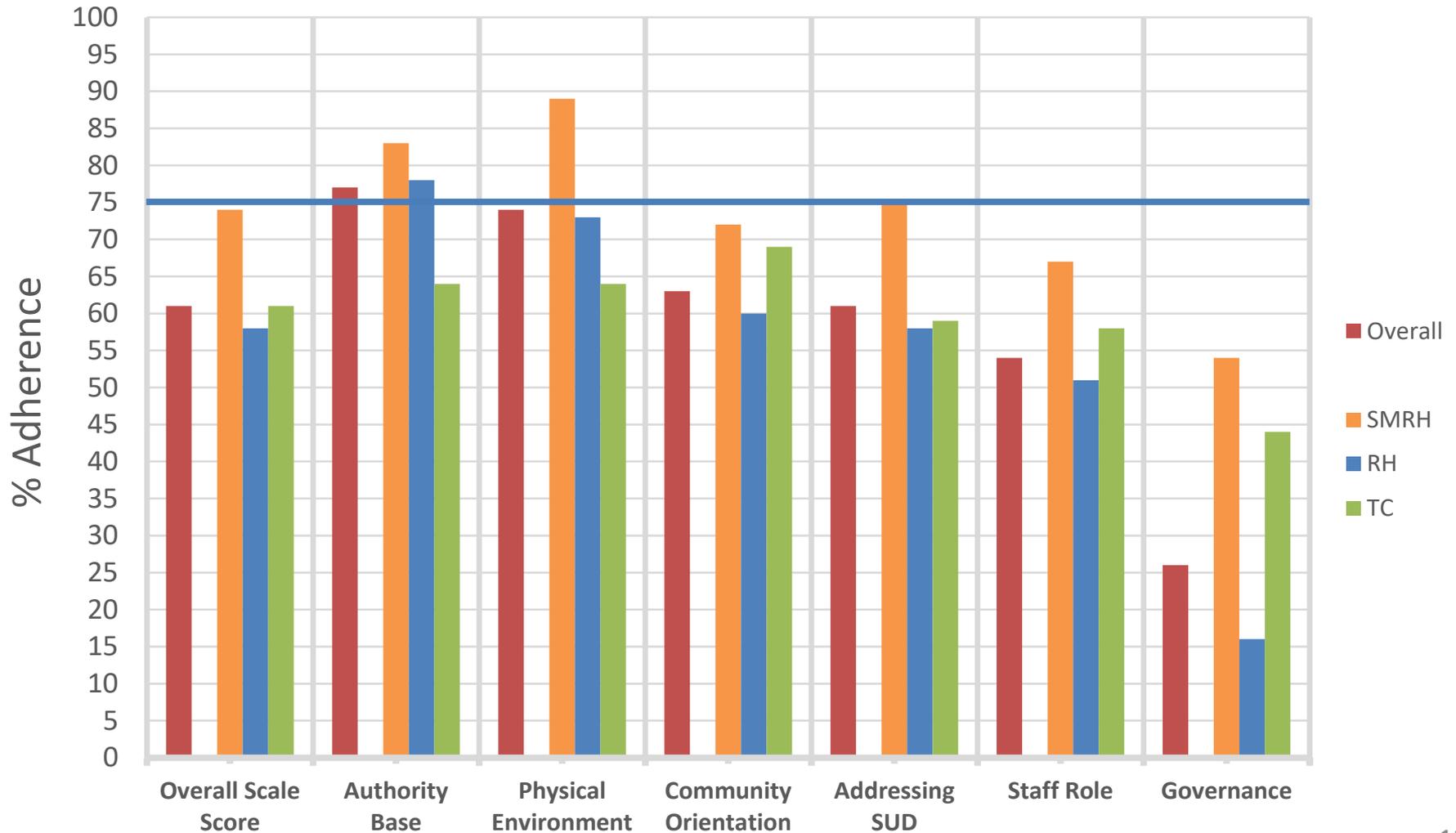
- Sample N = 33
- Program size: Average # of beds 28
- Parent organization: 61%
- Minimum abstinence requirement at intake:
  - Some requirement: 42%
  - No requirement: 58%
- Staffing
  - 2:1 ratio full-time to part-time staff
  - 1:2 ratio staff to clients
- Services
  - Average # of non-clinical services on-site: 10
  - Services offered on-site: 45%

# PROGRAM HOUSE PROCESSES

- Addressing relapse
  - Revised treatment/recovery plan = 75%
  - Referral to higher level of care = 69%
  - Discharge = 61%
  - Extra chores = 8%
- Extent 12-step principles applied
  - Very much / quite a bit = 78%
  - A little / somewhat = 22%
- Frequency of house meetings
  - Less than once a week = 8%
  - Once a week = 50%
  - More than once a week = 42%
- Residents eat family style: 75%

# PROGRAM SOCIAL MODEL PHILOSOPHY SCALE SCORES

## Overall, by Program Type



# RESULTS

	Length of Stay				Completed			
	Coef	95%	CI	P-value	aOR	95%	CI	P-value
<b>Organizational Features</b>								
Number of beds	0.4	-0.8	1.6	ns	1.0	1.0	1.1	ns
Part of parent organization	--	--	--	--	1.0	0.6	1.9	ns
Minimum abstinence requirement	--	--	--	--	0.8	0.4	1.4	ns
Number of non-clinical services on-site (e.g., employment, family, social)	-0.6	-2.4	1.3	ns	0.9	0.9	1.0	ns
% of services offered on-site (vs. referral)	-0.5	-1.4	0.5	ns	1.0	1.0	1.0	ns
Ratio of full-time to part-time staff	--	--	--	--	--	--	--	--
Staff:Client ratio	--	--	--	--	1.1	0.2	6.2	ns
<b>House Processes</b>								
12-step principles applied very much/quite a bit	-25.0	-51.1	1.1	ns	--	--	--	--
House meetings held (Ref: Once/week)								
< once/week	21.9	-16.5	60.3	ns	1.6	0.7	4.0	ns
> once/week	18.5	-4.1	41.1	ns	0.5	0.3	0.8	**
Residents eat family style	--	--	--	--	0.4	0.2	0.7	**
<b>Social Model Philosophy</b>								
Overall Scale Score	--	--	--	--	1.0	1.0	1.0	ns
Residents can leave without permission	--	--	--	--	2.8	1.3	5.7	**
Staff eat with residents	-2.0	-24.1	20.1	ns	0.9	0.4	1.8	ns
% of staff in recovery	--	--	--	--	--	--	--	--
Rules made and enforced by residents	30.3	8.6	51.9	**	--	--	--	--

Notes: All models adjusted for resident characteristics (demographics, socioeconomic, primary substance, tx history, severity); \*p< 0.05, \*\*p<0.01

# RESULTS

	Employed				Housed			
	aOR	95%	CI	P-value	aOR	95%	CI	P-value
<b>Organizational Features</b>								
Number of beds	1.0	0.9	1.0	ns	--	--	--	--
Part of parent organization	0.8	0.3	2.3	ns	1.9	1.2	3.2	*
Minimum abstinence requirement	1.8	0.7	5.2	ns	1.1	0.7	1.7	ns
Number of non-clinical services on-site (e.g., employment, family, social)	1.0	0.9	1.1	ns	--	--	--	--
% of services offered on-site (vs. referral)	1.0	1.0	1.0	ns	1.0	1.0	1.0	ns
Ratio of full-time to part-time staff	--	--	--	--	1.1	0.9	1.2	ns
Staff:Client ratio	--	--	--	--	--	--	--	--
<b>House Processes</b>								
12-step principles applied very much/quite a bit	0.9	0.3	2.3	ns	0.8	0.5	1.5	ns
House meetings held (Ref: Once/week)								
< once/week	3.3	0.8	13.6	ns	0.4	0.2	0.8	*
> once/week	0.2	0.1	0.5	***	1.8	1.1	2.8	*
Residents eat family style	1.2	0.5	2.9	ns	1.3	0.8	2.1	ns
<b>Social Model Philosophy</b>								
Overall Scale Score	--	--	--	--	--	--	--	--
Residents can leave without permission	1.8	0.6	5.2	ns	0.7	0.4	1.2	ns
Staff eat with residents	1.2	0.4	3.3	ns	1.5	0.8	2.8	ns
% of staff in recovery	11.1	1.5	82.4	*	0.5	0.2	1.6	ns
Rules made and enforced by residents	0.3	0.1	0.9	*	1.2	0.7	2.1	ns

Notes: All models adjusted for resident characteristics (demographics, socioeconomic, primary substance, tx history, severity); \*p< 0.05, \*\*p<0.01

# STRENGTHS AND LIMITATIONS

---

## Strengths

- Richness of resident-level data in MA
- Large sample of residents
- Program characteristics

## Limitations

- Sample bias
- Lack of control/comparison group
- Massachusetts is a unique and changing system
- Are we measuring all the important program characteristics, in the right way?

# DISCUSSION & POLICY IMPLICATIONS

- What happens in the house vs What the house looks like
  - Social dynamics between residents / peers
- Priority populations
  - Younger residents
  - Female residents
  - Residents with an OUD
- Medicaid reimbursement in Massachusetts could affect:
  - Resident length of stay
  - Shifting program orientation
- Increasing oversight by states and federal government
  - Census of recovery residences across type
  - Evidence-based best practices
  - Quality measures
  - Resident placement criteria

---

**THANK YOU!**

---

# **SUPPLEMENTAL SLIDES**

**\*\*\*INCLUDE SLIDE WITH SMPS ALPHAS**

---

# ANALYTIC APPROACH – AIM 3

Variable Name	Description	Method
<b><i>Dependent variables at discharge</i></b>		
Length of stay (in days)	Continuous	Multilevel linear regression
Stably housed	Yes= House/apartment No= institution, homeless	Multilevel logistic regression
Employed	Yes= employed full-time or part-time No= not employed, not in labor force	Multilevel logistic regression
Completed	Yes= Completed No= Unplanned discharge (left AMA, administrative discharge, relapse)	Multilevel logistic regression
<b><i>Dependent variables post-discharge</i></b>		
Any second enrollment	Yes= enrollment into any type of BSAS-licensed provider No= no subsequent enrollment in dataset	Logistic regression
Time (in days) to detox enrollment	Interval between index discharge, first detox enrollment; Origin point= index discharge, right censored at 365 days post-discharge	Survival analysis (Cox Proportional Hazards)

# RESULTS – AIM 2 Program Characteristics

Organizational Characteristics	Overall (N= 36)		By program type						P-Value
			SMRH (N= 6)		RH (N= 26)		TC (N= 4)		
	N	%	N	%	N	%	N	%	
<b>Region<sup>a</sup></b>									*
<b>Central</b>	4	11	3	50.0	1	3.9	0	0.0	
<b>Western</b>	8	22	3	50.0	5	19.2	0	0.0	
<b>Southeast</b>	6	17	0	0.0	4	15.4	2	50.0	
<b>Boston</b>	10	28	0	0.0	9	34.6	1	25.0	
<b>Metrowest</b>	3	8	0	0.0	3	11.5	0	0.0	
<b>Northeast</b>	5	14	0	0.0	4	15.4	1	25.0	
<b>Economically depressed<sup>a</sup></b>	12	33	1	8.3	10	83.3	1	8.3	ns
<b>Gender served<sup>a</sup></b>									ns
<b>Male only</b>	19	53	4	66.7	14	53.9	1	25.0	
<b>Female only</b>	10	28	1	16.7	7	26.9	2	50.0	
<b>Co-ed</b>	7	19	1	16.7	5	19.2	1	25.0	
<b>Average number of beds<sup>b</sup></b>	30.1	14.9	22.2	5.0	32.5	16.7	26.25	4.92	ns
<b>Part of parent organization<sup>a</sup></b>									ns
<b>Parent organization</b>	22	61	5	83.3	16	61.5	1	25.0	
<b>Independent/free standing</b>	14	39	1	16.7	10	38.5	3	75.0	
<b>Min. amount abstinence at intake<sup>a</sup></b>									ns
<b>Some requirement</b>	15	42	0	0.0	13	50.0	2	50.0	
<b>No requirement</b>	20	56	6	100.0	12	46.2	2	50.0	
<b>Staffing</b>	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
<b>Ratio of full-time to part-time staff<sup>b</sup></b>	2.1	1.9	1.7	1.2	2.2	2.0	2.4	2.1	ns
<b>Ratio of staff to residents<sup>b</sup></b>	0.5	0.2	0.5	0.1	0.5	0.2	0.5	0.1	ns
<b>Services and Supports</b>	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
<b>% offered on-site<sup>b</sup></b>	45.5	12.7	41.6	13.2	45.2	13.4	52.7	3.6	ns
<b># non-clinical services/supports<sup>b</sup></b>	9.5	5.7	9.5	5.1	9.4	5.7	10	8.0	ns

Notes: <sup>a</sup>Fisher's exact tests run to address cell sizes <5; <sup>b</sup>ANOVA tests for difference in variances; ns= not significant; \*p< 0.05, \*\*p<0.01, \*\*\*p<0.001

# RESULTS – AIM 2

## Program Characteristics

House Processes	Overall (N= 36)		By program type						P-value
			SMRH (N= 6)		RH (N= 26)		TC (N= 4)		
	N	%	N	%	N	%	N	%	
<b>There is a resident curfew<sup>a</sup></b>	36	100.0	6	100.0	26	100.0	4	100.0	ns
<b>Are there rules for residents who stay out overnight?<sup>a</sup></b>									ns
<b>Yes</b>	32	88.9	5	83.3	24	92.3	3	75.0	
<b>No</b>	1	2.8	1	16.7	0	0.0	0	0.0	
<b>N/A- not allowed</b>	3	8.3	0	0.0	2	7.7	1	25.0	ns
<b>Are there rules for residents who have overnight guests?<sup>a</sup></b>									ns
<b>Yes</b>	5	13.9	0	0.0	5	19.2	0	0.0	
<b>N/A- not allowed</b>	31	86.1	6	100.0	21	80.8	4	100.0	
<b>Consequences of substance use during stay<sup>a,b</sup></b>									
<b>Revised treatment/recovery plan</b>	27	75.0	5	83.3	20	76.9	2	50.0	ns
<b>Referral to higher level of care</b>	25	69.4	5	83.3	17	65.4	3	75.0	ns
<b>Discharge</b>	22	61.1	3	50.0	15	57.7	4	100.0	ns
<b>Extra chores</b>	3	8.3	0	0.0	2	7.7	1	25.0	ns
<b>Extent that 12-step principles applied<sup>a</sup></b>									ns
<b>Quite a bit / Very much</b>	28	77.8	4	66.67	21	80.8	3	75.0	
<b>A little / Somewhat</b>	7	19.4	2	33.33	4	15.4	1	25.0	
<b>Frequency of house meetings?<sup>a</sup></b>									*
<b>&lt; Once a week</b>	3	8.3	0	0.00	3	11.5	0	0.0	
<b>Once a week</b>	18	50.0	0	0.00	16	61.5	2	50.0	
<b>&gt; Once a week</b>	15	41.7	6	100.0	7	26.9	2	50.0	
<b>Residents eat family style<sup>a</sup></b>	27	75.0	4	66.7	21	80.8	2	50.0	ns

Notes: <sup>a</sup>Fisher's exact tests run to address cell sizes <5; <sup>b</sup>Respondents could select more than one option; ns= not significant; \*p< 0.05, \*\*p<0.01, \*\*\*p<0.001

# RESULTS – AIM 2

## Program Characteristics

Social Model Philosophy Scale		Overall (N = 36)		By Program Type						
				SMRH (N= 6)		RH (N= 26)		TC (N= 4)		P-value
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	
<b>Overall Scale Score (mean, SD)<sup>a</sup></b>		60.9	10.2	74.4	9.6	57.9	8.5	60.6	7.2	***
Scale Domains	Example Individual Items	N	%	N	%	N	%	N	%	
<b>Physical Setting</b>	Residents can leave during the day without permission <sup>b</sup>	22	61.1	5	83.3	14	53.9	3	75.0	ns
<b>Staff Role</b>	Staff eat with the residents <sup>b</sup>	24	66.7	5	83.3	17	65.4	2	50.0	ns
<b>Authority Base</b>	% of staff in recovery (Mean, SD) <sup>a</sup>	68.5	23.2	76.0	21.0	69.0	23.0	53.0	24.0	ns
<b>Addressing SUDs</b>	This is a recovery (vs. treatment) program <sup>b</sup>	16	44.4	5	83.3	10	38.5	1	25.0	ns
<b>Governance</b>	There are rules made and enforced by residents <sup>b</sup>	15	41.7	6	100	7	26.9	2	50.0	**
<b>Community Orientation</b>	Residents engage in community relations to promote goodwill <sup>b</sup>	29	80.6	6	100	19	73.1	4	100	ns

Notes: <sup>a</sup>ANOVA tests for difference in variances; <sup>b</sup>Fisher's exact tests run to address cell sizes <5; ns= not significant; \*p< 0.05, \*\*p<0.01, \*\*\*p<0.001

# RQ2: How do program characteristics affect outcomes?

	LOS	Housed	Employed	Completed	Any Second Enrollment	Days to Detox Enrollment
<b>Area where located</b>						
<b>Region (Ref: Boston)</b>						
Central		↑ *				
Western	↑ ***	↑ ***	↓ **			↑ *
Southeast				↑ *		
Metrowest						
Northeast	↑ **					
Surrounding neighborhood economically depressed						
<b>Organizational Characteristics</b>						
Number of beds				↑ +		
Part of parent organization		↑ *				
Some requirement for minimum abstinence at admission						
Number of non-clinical services on-site (e.g., employment, family, social)						↑ +
% of services offered directly on-site					↓ **	
Ratio of full-time to part-time staff						
Staff to Client ratio						

Notes: +p< 0.10, \*p< 0.05, \*\*p<0.01, \*\*\*p<0.001; ↑ = higher/more; ↓ = lower/less

# RESULTS – AIM 2 – DESCRIPTIVE

## Resident Characteristics

### Health Behaviors

### Use of Health Services

	Overall (N= 2,713)		By program type						P-value
			SMRH (N= 346)		RH (N= 2,112)		TC (N= 255)		
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
# of Services received during stay (range= 0 - 15) <sup>a,c</sup>	5.2	3.4	6.2	3.0	4.7	3.3	7.7	2.8	***
Length of stay (in days) <sup>b,c</sup> (range= 1 - 641)	102.48	82.61	117.0	97.3	99.9	78.8	95.9	87.6	**

Notes: <sup>a</sup>This variable only used as a covariate, types of services include legal aid, literacy, family planning, job placement, mental health services; <sup>b</sup>This variable used as a dependent variable and as a covariate in all other regression analyses; <sup>c</sup>ANOVA tests for difference in variances; \*\*p<0.01, \*\*\*p<0.001

# RESULTS – AIM 2 Program Characteristics

Organizational Characteristics	Overall (N= 36)		By program type						P-Value
	N	%	SMRH (N= 6)		RH (N= 26)		TC (N= 4)		
	N	%	N	%	N	%	N	%	
<b>Region<sup>a</sup></b>									ns
<b>Central</b>	4	11	3	50.0	1	3.9	0	0.0	
<b>Western</b>	8	22	3	50.0	5	19.2	0	0.0	
<b>Southeast</b>	6	17	0	0.0	4	15.4	2	50.0	
<b>Boston</b>	10	28	0	0.0	9	34.6	1	25.0	
<b>Metrowest</b>	3	8	0	0.0	3	11.5	0	0.0	
<b>Northeast</b>	5	14	0	0.0	4	15.4	1	25.0	
<b>Economically depressed<sup>a</sup></b>	12	33	1	8.3	10	83.3	1	8.3	ns
<b>Gender served<sup>a</sup></b>									ns
<b>Male only</b>	19	53	4	66.7	14	53.9	1	25.0	
<b>Female only</b>	10	28	1	16.7	7	26.9	2	50.0	
<b>Co-ed</b>	7	19	1	16.7	5	19.2	1	25.0	
<b>Average number of beds<sup>b</sup></b>	30.1	14.9	22.2	5.0	32.5	16.7	26.25	4.92	ns
<b>Part of parent organization<sup>a</sup></b>									ns
<b>Parent organization</b>	22	61	5	83.3	16	61.5	1	25.0	
<b>Independent/free standing</b>	14	39	1	16.7	10	38.5	3	75.0	
<b>Min. amount abstinence at intake<sup>a</sup></b>									ns
<b>Some requirement</b>	15	42	0	0.0	13	50.0	2	50.0	
<b>No requirement</b>	20	56	6	100.0	12	46.2	2	50.0	
<b>Staffing</b>	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
<b>Ratio of full-time to part-time staff<sup>b</sup></b>	2.1	1.9	1.7	1.2	2.2	2.0	2.4	2.1	ns
<b>Ratio of staff to residents<sup>b</sup></b>	0.5	0.2	0.5	0.1	0.5	0.2	0.5	0.1	ns
<b>Services and Supports</b>	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
<b>% offered on-site<sup>b</sup></b>	45.5	12.7	41.6	13.2	45.2	13.4	52.7	3.6	ns
<b># non-clinical services/supports<sup>b</sup></b>	9.5	5.7	9.5	5.1	9.4	5.7	10	8.0	ns

Notes: <sup>a</sup>Fisher's exact tests run to address cell sizes <5; <sup>b</sup>ANOVA tests for difference in variances; ns= not significant; \*p< 0.05, \*\*p<0.01, \*\*\*p<0.001

# RESULTS – AIM 2

## Program Characteristics

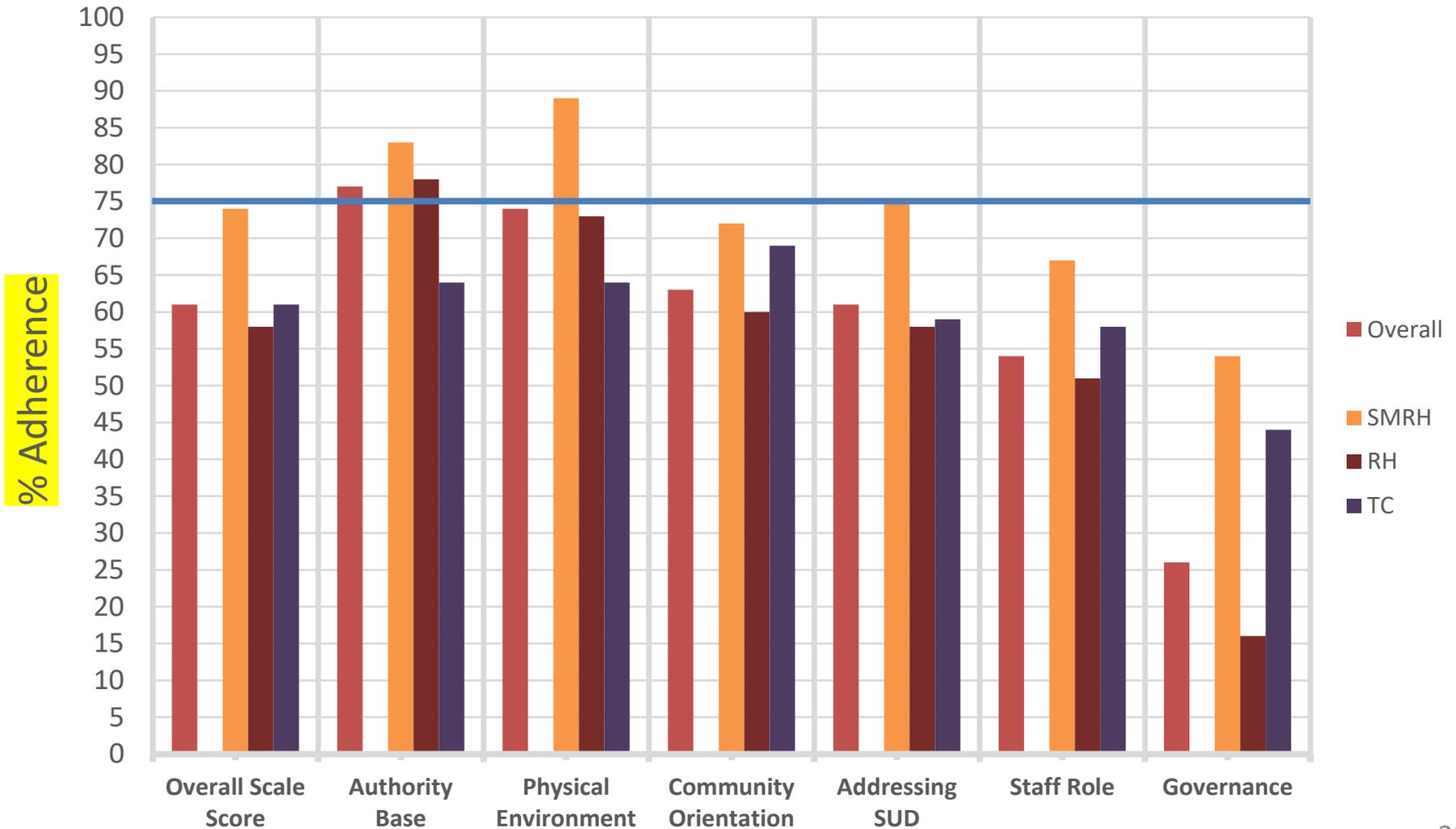
House Processes	Overall (N= 36)		By program type						P-value
			SMRH (N= 6)		RH (N= 26)		TC (N= 4)		
	N	%	N	%	N	%	N	%	
<b>There is a resident curfew<sup>a</sup></b>	36	100.0	6	100.0	26	100.0	4	100.0	ns
<b>Are there rules for residents who stay out overnight?<sup>a</sup></b>									ns
<b>Yes</b>	32	88.9	5	83.3	24	92.3	3	75.0	
<b>No</b>	1	2.8	1	16.7	0	0.0	0	0.0	
<b>N/A- not allowed</b>	3	8.3	0	0.0	2	7.7	1	25.0	ns
<b>Are there rules for residents who have overnight guests?<sup>a</sup></b>									ns
<b>Yes</b>	5	13.9	0	0.0	5	19.2	0	0.0	
<b>N/A- not allowed</b>	31	86.1	6	100.0	21	80.8	4	100.0	
<b>Consequences of substance use during stay<sup>a,b</sup></b>									
<b>Revised treatment/recovery plan</b>	27	75.0	5	83.3	20	76.9	2	50.0	ns
<b>Referral to higher level of care</b>	25	69.4	5	83.3	17	65.4	3	75.0	ns
<b>Discharge</b>	22	61.1	3	50.0	15	57.7	4	100.0	ns
<b>Extra chores</b>	3	8.3	0	0.0	2	7.7	1	25.0	ns
<b>Extent that 12-step principles applied<sup>a</sup></b>									ns
<b>Quite a bit / Very much</b>	28	77.8	4	66.67	21	80.8	3	75.0	
<b>A little / Somewhat</b>	7	19.4	2	33.33	4	15.4	1	25.0	
<b>Frequency of house meetings?<sup>a</sup></b>									ns
<b>&lt; Once a week</b>	3	8.3	0	0.00	3	11.5	0	0.0	
<b>Once a week</b>	18	50.0	0	0.00	16	61.5	2	50.0	
<b>&gt; Once a week</b>	15	41.7	6	100.0	7	26.9	2	50.0	
<b>Residents eat family style<sup>a</sup></b>	27	75.0	4	66.7	21	80.8	2	50.0	ns

Notes: <sup>a</sup>Fisher's exact tests run to address cell sizes <5; <sup>b</sup>Respondents could select more than one option; ns= not significant;

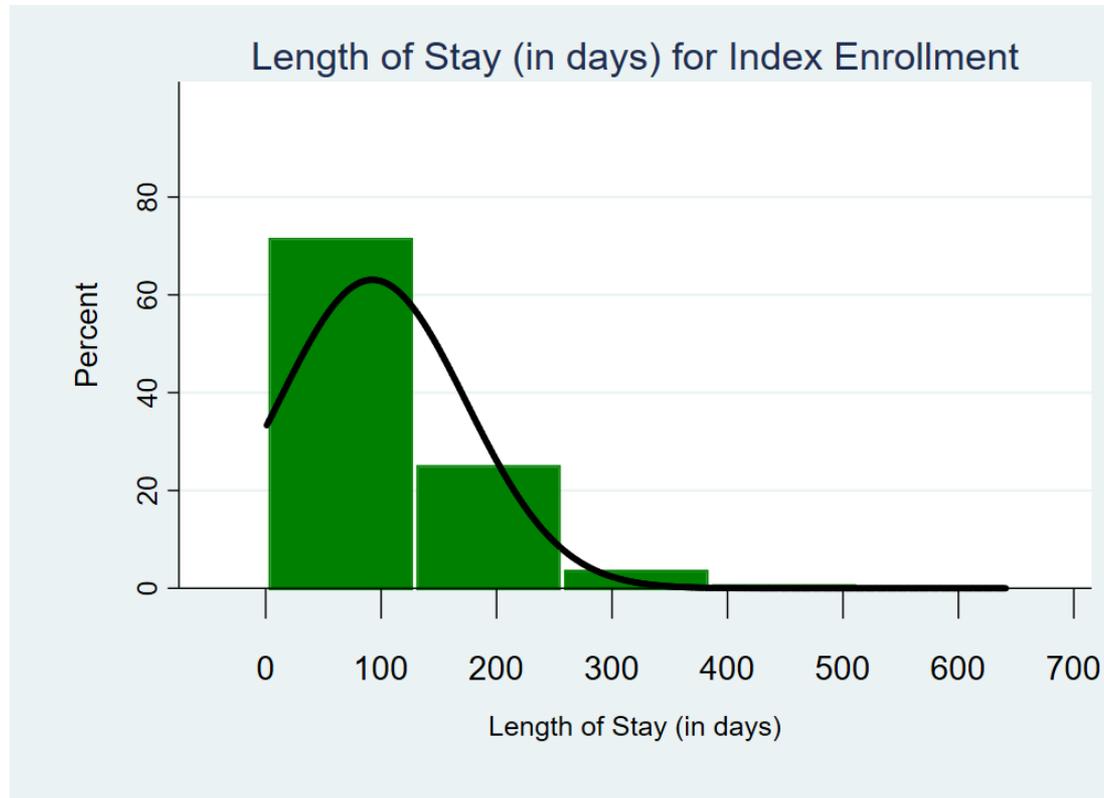
# RESULTS – AIM 2 – DESCRIPTIVE

## Program Characteristics

### Social Model Philosophy Scale



# Length of stay (in days) for index enrollment



Variable	n	Mean	S.D.	Quantiles				
				Min	25%	Median	75%	Max
dis_los1	2700	102.5	82.6	1.0	34.0	84.0	161.0	641.0

# References

1. Jason, L.A. and J.R. Ferrari (2010) Oxford House recovery homes: Characteristics and effectiveness. *Psychological Services*, **7**(2): p. 92-102.
2. Malivert, M., Fatséas, M., Denis, C., Langlois, E., & Auriacombe, M. (2012). Effectiveness of therapeutic communities: a systematic review. *European addiction research*, **18**(1), 1-11.
3. Polcin, D.L., et al. (2010). Sober Living Houses for alcohol and drug dependence: 18-month outcomes. *Journal of Substance Abuse Treatment*, **38**(4), p. 356-365.
4. Polcin, D.L., et al. (2017). Housing status, psychiatric distress, and substance use among sober living house residents. *Drug & Alcohol Dependence*, **171**: p. e167.
5. Jason, L.A., B.D. Olson, and R. Harvey. (2015). Evaluating alternative aftercare models for ex-offenders. *Journal of Drug Issues*, **45**(1): p. 53-68
6. LoSasso, A.T., et al. (2012). Benefits and costs associated with mutual-help community-based recovery homes. *Evaluation and Program Planning*, **35**(1): p. 47-53
7. Mericle, A. A., Mahoney, E., Korcha, R., Delucchi, K., & Polcin, D. L. (2019). Sober living house characteristics: A multilevel analyses of factors associated with improved outcomes. *Journal of Substance Abuse Treatment*, **98**, 28-38.
8. Reif, S., George, P., Braude, L., Dougherty, R. H., Daniels, A. S., Ghose, S. S., & Delphin-Rittmon, M. E. (2014). Recovery housing: Assessing the evidence. *Psychiatric Services*, **65**(3), 295-300.