School Youth Outcomes of AOD Treatment

Youth Alcohol and/or Drug Treatment
Educational Outcomes Study
Technical Attachment

YOUNG MIND

Troubled Teenager

4.54b | December 2005

This Technical Attachment contains preliminary analysis from first phase of the Youth Treatment Educational Outcomes Study, a match of high school performance records provided by the state Office of Superintendent of Public Instruction with treatment records provided by the state Department of Social and Health Services.

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TECHNICAL ATTACHMENTS

Attachment I

**CHARACTERISTICS OF THE STUDY POPULATION
AND OF THE TREATMENT EPISODES**

Table 1: Characteristics of the Study Population in the Preliminary Analyses
(n = 3,850)

Characteristic	Freq.	Percent
Gender		
Female	1240	32
Male	2610	68
Race		
White	2652	69
Hispanic	408	11
Black	311	8
Asian	86	2
Native American	280	7
Other	99	3
Age by Year		
14 Year Olds	83	2
15 Year Olds	963	25
16 Year Olds	1571	41
17 Year Olds	957	25
18 Year Olds	276	7
Mean Age	16.6 years	
Living Arrangement		
Parents	2778	72
Other Family	396	10
Foster/Group Home	354	10
Other	322	8
Mental Health Status		
Received Services in Past	657	17
Psych Eval Indicates need for Treatment	596	15
Receiving Services	370	10
Takes Psych Medication	310	8
Long Term Mental Disability	371	10
Unduplicated Total (youth with any mental health status: need or service)	*1146*	*30*
Primary Drug		
Marijuana	2515	65
Alcohol	985	26
Hard Drugs	332	9
DK and Other	18	0
Arrests 12 Months Before Treatment		
Violent Crime	509	13
Property	122	3
Drug	83	2
Other	84	2
Unduplicated Total (youth arrested for any crime)	*685*	*18*
Criminal Justice Involvement at Time of Treatment Admission		
Awaiting Trial	481	13
Awaiting Sentencing	538	14
On Probation	1822	47
Unduplicated Total (youth with any involvement)	*2431*	*63*
In School 12 Months Before Treatment		
Not in School at All	943	25
Enrolled 1-9 Months	1,442	37
Enrolled 10 Months	1,465	38
Cumulative Grade Point Average (School Year Before Treatment Year)		
0 – 0.9 (F)	715	42
1 – 1.9 (D)	557	32
2 – 2.9 (C)	344	20
3 or higher (B+)	111	6

Table 2: Characteristics of the Treatment Episode
For the Study Population in the Preliminary Analyses
Characteristics are of the First Treatment Episode, if More than One, between 7/1999 and 6/2001
(n = 3,850)

Characteristic	Freq.	Percent
Completed TX Episode	1,541	40
TX Episode Length greater than 90 Days	1,941	50
TX Episode Type		
Inpatient Only	540	14
Outpatient Only	3,090	80
Mixed (Inpatient and Outpatient)	220	6
Readmission to Another TX Episode in 12 Months Follow-up		
None	3,099	80
One Readmission	658	17
Two or More Readmissions	103	3

Table 3: Characteristics of the Treatment Episode
Length of Stay in Treatment
Characteristics are of the First Treatment Episode, if More than One, between 7/1999 and 6/2001
(n = 3,850)

Treatment Duration	Freq.	Percent
Less than /or equal to 30 days	572	15
31-60 days	782	20
60-90 days	576	15
90-120 days	540	14
120-150 days	404	11
151-180 days	331	9
Exit exactly 181 days	475	12
182-200 days	43	1
More than 200 days	127	3
Total	**3,850**	**100**

Table 4: Characteristics of Youth by Completion Status: Completers, Non Completers and 'Others'

Note: 'Others' Were Excluded from the Study Population in the Preliminary Analyses (4,875-1,025=3,850)

Characteristic	Study Population (n= 3,850)	Completers (n= 1,541)	Non Completers (n= 2,309)	'Others' (n= 1,025)
Gender				
Female	32	33	32	28
Male	68	67	68	72
Race				
White	69	73	66	66
Hispanic	11	10	11	11
Black	8	7	9	9
Asian	2	2	3	2
Native American	7	6	8	9
Other	3	2	3	3
Age by Year				
14 Year Olds	2	2	2	2
15 Year Olds	25	24	26	28
16 Year Olds	41	42	40	40
17 Year Olds	25	25	25	24
18 Year Olds	7	7	7	6
Mean Age	16.6 years	16.6 years	16.6 years	16.5 years
Living Arrangement				
Parents	72	75	70	68
Other Family	10	9	11	10
Foster/Group Home	10	10	9	11
Other	8	6	10	11
Mental Health Status				
Received Services in Past	17	16	18	22
Psych Eval Indicates need for Tx	15	15	16	18
Receiving Services	10	10	9	14
Takes Psych Medication	8	9	7	12
Long Term Mental Disability	10	10	9	15
Unduplicated Total (youth with any status)	*30*	*30*	*30*	*37*
Primary Drug				
Marijuana	65	62	67	62
Alcohol	26	28	24	26
Hard Drugs	9	8	9	11
DK and Other	0	2	0	1
Arrest 12 Months Before Treatment				
Violent Crime	13	13	14	19
Property	3	3	3	4
Drug	2	2	2	2
Other	2	2	2	2
Unduplicated Total (youth with any arrest)	*18*	*17*	*18*	*24*
Criminal Justice Involvement at Time of Treatment Admission				
Awaiting Trial	13	16	13	19
Awaiting Sentencing	14	12	13	21
On Probation	47	45	49	55
Unduplicated Total (youth with any involvement)	*63*	*64*	*63*	*75*
In School 12 Months Before Treatment				
Not in School at All	25	26	24	28
Enrolled 1-9 Months	37	35	39	39
Enrolled 10 Months	38	39	37	33
Cumulative Grade Point Average (School Year Before Treatment Year)				
0 – 0.9 (F)	42	37	44	47
1 – 1.9 (D)	32	34	31	27
2 – 2.9 (C)	20	22	19	22
3 or higher (B+)	6	7	6	4

Table 5: Characteristics of the Treatment Episode by Completion Status: For Treatment Completers, Non Completers and 'Others'
Characteristics of the First Treatment Episode, if more than one, between 7/1999 and 6/2001

Note: 'Others' Were Excluded from the Study Population in the Preliminary Analyses (4,875-1025=3,850)

Characteristic	Study Population (n= 3,850)	Completers (n= 1,541)	Non Completers (n= 2,309)	'Others' (n= 1,025)
Completed Index TX Episode	40	100	n.a.	n.a.
TX Episode Length Greater than 90 Days	50	56	47	62
Tx Episode Type				
Inpatient Only	14	19	9	8
Outpatient Only	80	75	84	87
Mixed (Inpatient and Outpatient)	6	6	6	5
Readmission to another Tx Episode in 12 Month Follow-up				
None	80	81	79	78
One Readmission	17	17	18	18
Two or More Readmissions	3	2	3	4

Table 6: Characteristics of the Treatment Episode by Completion Status: For Treatment Completers and Non Completers
Length of Stay in Treatment
Characteristics of the First Treatment Episode, if more than one, between 7/1999 and 6/2001
(n = 3,850)

Treatment Duration	Study Population	Percent Completers	Percent Non Completers
Less than /or equal to 30 days	572	12	17
31-60 days	782	22	19
60-90 days	576	12	17
90-120 days	540	13	15
120-150 days	404	11	10
151-180 days	331	10	8
Exit exactly 181 days	475	15	10
182-200 days	43	2	1
More than 200 days	127	3	3
Total	**3,850**	**100**	**100**

Table 7: Characteristics of Youth by Length of Stay:
For Youth Staying in Treatment 90 or More Days or Less Than 90 Days

Characteristic	Study Population (n= 3,850)	Staying in Tx 90 + Days (n= 1,941)	Staying in Tx LT 90 Days (n= 1,909)
Gender			
Female	32	31	34
Male	68	69	66
Race			
White	69	70	67
Hispanic	11	11	10
Black	8	8	9
Asian	2	3	2
Native American	7	6	9
Other	3	2	3
Age by Year			
14 Year Olds	2	2	1
15 Year Olds	25	26	24
16 Year Olds	41	41	41
17 Year Olds	25	24	26
18 Year Olds	7	7	8
Mean Age	16.6 years	16.6	16.7
Living Arrangement			
Parents	72	73	72
Other Family	10	10	10
Foster/Group Home	10	10	9
Other	8	7	9
Mental Health Status			
Received Services in Past	17	17	17
Psych Eval Indicates need for Tx	15	15	16
Receiving Services	10	10	9
Takes Psych Medication	8	8	8
Long Term Mental Disability	10	10	9
Unduplicated Total (youth with any status)	*30*	*29*	*30*
Primary Drug			
Marijuana	65	67	64
Alcohol	26	28	24
Hard Drugs	9	5	12
DK and Other	0	0	0
Arrest 12 Months Before Treatment	*18*	*17*	*18*
Violent Crime	13	14	13
Property	3	3	4
Drug	2	2	3
Other	2	1	3
Unduplicated Total (youth with any arrest)	*63*	*63*	*63*
Criminal Justice Involvement at Time of Treatment Admission			
Awaiting Trial	13	13	12
Awaiting Sentencing	14	15	13
On Probation	47	46	48
Unduplicated Total (youth with any involvement)			
In School 12 Months Before Treatment			
Not in School at All	25	22	27
Enrolled 1-9 Months	37	36	39
Enrolled 10 Months	38	42	34
Cumulative Grade Point Average (School Year Before Treatment Year)			
0 – 0.9 (F)	42	41	42
1 – 1.9 (D)	32	34	30
2 – 2.9 (C)	20	19	21
3 or higher (B+)	6	6	7

Table 8: Characteristics of the Treatment Episode by Length of Stay:
For Youth Staying in Treatment 90 or More Days or Less Than 90 Days
Characteristics of the First Treatment Episode, if more than one, between 7/1999 and 6/2001

Characteristic	Study Population (n= 3,850)	Staying in Tx 90 + Days (n= 1,941)	Staying in Tx LT 90 Days (n= 1,909)
Completed TX Episode	40	44	36
TX Episode Length Greater than 90 Days	50	100	0
Tx Episode Type			
Inpatient Only	14	1	27
Outpatient Only	80	90	70
Mixed (Inpatient and Outpatient)	6	9	3
Readmission to another Tx Episode in 12 Month Follow-up			
None	80	82	79
One Readmission	17	16	18
Two or More Readmissions	3	2	3

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Table 9: Characteristics of the Study Population for Youth With/Without High School Records: For Those with Records and For Those Age 15-16 with No Records (July 1998-June 2002)

Characteristics	Youth Study Population (n = 3, 850)	
	With High School Records Before, During or After Tx (in 1998-02) (n= 3,406)	**15-16 Year Old With No High School Records (in 1998-02) (n= 444)**
Gender		
Female	33	25
Male	67	75
Race		
White	69	69
Hispanic	11	9
Black	8	9
Asian	2	3
Native American	7	8
Other	3	2
Age by Year		
14 Year Olds	2	0
15 Year Olds	22	45
16 Year Olds	39	55
17 Year Olds	28	0
18 Year Olds	8	0
Mean Age	16.6 years	16.1 years
Living Arrangement		
Parents	72	77
Other Family	10	9
Foster/Group Home	10	6
Other	8	8
Mental Health Status		
Received Services in Past	17	14
Psych Eval Indicates need for Tx	16	13
Receiving Services	10	7
Takes Psych Medication	8	5
Long Term Mental Disability	10	7
Unduplicated Total (youth with any mental health status)	*31*	*24*
Primary Drug		
Marijuana	65	69
Alcohol	26	23
Hard Drugs	9	6
Other	0	2
Arrests 12 Months Before Treatment		
Violent Crime Arrests	13	14
Property Arrests	3	1
Drug Arrests	2	1
Other Arrests	2	1
Unduplicated Total (youth with any type of arrest)	*18*	*15*
Criminal Justice Involvement at Time of Treatment Admission		
Awaiting Trial	14	13
Awaiting Sentencing	13	11
On Probation	47	49
Unduplicated Total (youth with any involvement)	*63*	*64*
In School 12 Months Before Treatment		
Not in School at All	15	n.a.
Enrolled 1-9 Months	37	n.a.
Enrolled 10 Months	48	n.a.

**Table 10: Characteristics of the Treatment Episode for Youth With/Without HS Records:
For Those With Records and For Those Age 15-16 With No Records (July 1998-June 2002)
Characteristics of the First Treatment Episode, if more than one, between 7/1999 and 6/2001**

Characteristic	Youth Study Population (n = 3,850)	
	With High School Records Before, During or After Tx (in 1998-02) (n= 3,406)	**15-16 Year Old With No High School Records (in 1998-02) (n= 444)**
Completed Index TX Episode	40	41
TX Episode Length Greater than 90 days	51	45
TX Episode Type		
Inpatient Only	13	20
Outpatient Only	81	78
Mixed (IP and OP)	6	2
Readmission to Another TX Episode in 12 Months Follow-up		
None	80	85
One Readmission	17	14
Two or More Readmissions	3	1

Attachment II

**DESCRIPTION OF OVERALL SCHOOL OUTCOMES
FOR ALL TREATED YOUTH**

Figure 1
School Enrollment Outcomes by Treatment Completion:
Differences In Proportion of Youth Back in School and Enrolled All Year
After Treatment
Between Completers and Non Completers

Study Population
(n = 3,850)

Completed
40%
n = 1,541

Not Completed
60%
n = 2,309

School Enrollment
During Year
After Treatment

Back in School
61%
n = 939

Back in School
55%
n = 1,274

Enrolled
All Year
48%
n = 454

Enrolled
All Year
37%
n = 467
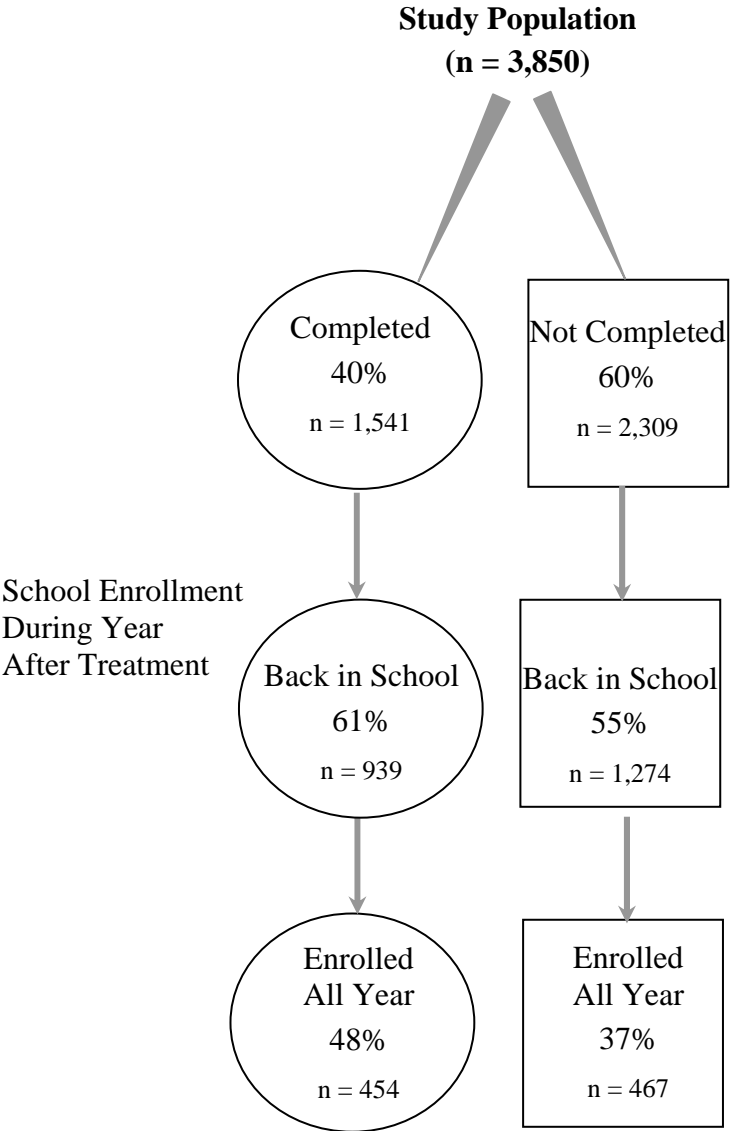
Figure 2
School Enrollment Outcomes by Length of Stay in Treatment:
Differences In Proportion of Youth Back in School and Enrolled All Year
After Treatment
Between Youth Staying in Treatment 90 or More Days and Less Than 90 Days

Figure 2
Study Population

(n = 3,850)

90+ days
50%

n = 1,941

LT 90 days
50%

n = 1,909

School Enrollment
During Year
After Treatment

Back in School
60%

n = 1,159

Back in School
55%

n = 1,054

Enrolled
All Year
45%

n = 524

Enrolled
All Year
38%

n = 397

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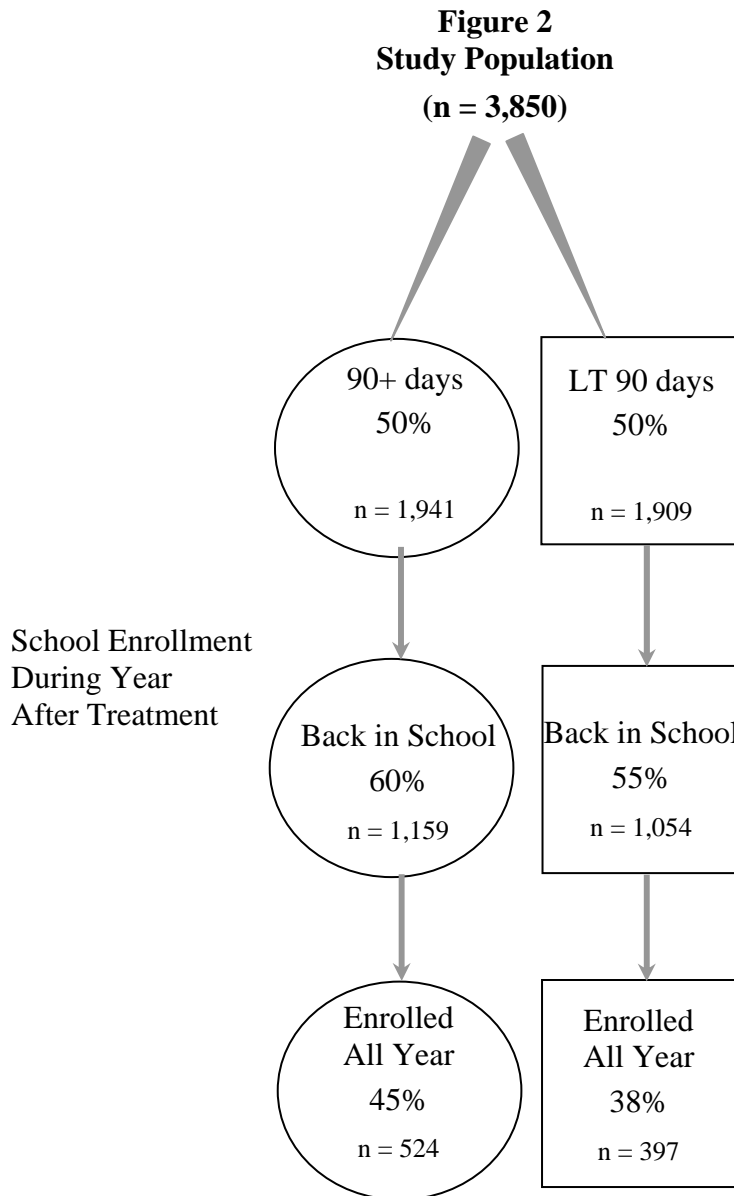
Figure 3

School Enrollment Outcomes after Treatment By Both Completion and Length of Stay:
Differences between Four Groups –Completers Staying 90+ Days, Completers Staying LT 90 Days,
Non-Completers Staying 90+Days and Non-Completers Staying LT 90 Days

Study Population
(n = 3,850)

Completed 40 % — n = 1,541

Not Completed 60% — n = 2,309

90+ days 55% — n = 853

LT 90 days 45% — n = 688

90+ days 47% — n = 1,088

LT 90 days 53% — n = 1,221

School Enrollment During Year After Treatment

Enrolled In School for One or More Months

Back in School 63% — n = 537

Back in School 58% — n = 402

Back in School 57% — n = 622

Back in School 53% — n = 652

Enrolled for Full School Year Among Those in School

Enrolled All Year 52% — n = 279

Enrolled All Year 44% — n = 175

Enrolled All Year 39% — n = 245

Enrolled All Year 34% — n = 222

Figure 4
Summary Tables of School Enrollment Outcomes by Completion and Length of Stay

Percent Enrolled
One or More Months
During Year After Treatment

Treatment Completion

		Yes	No	**Total**
Days Stayed in Treatment:	90+	63% n = 853	57% n = 1,088	60% n = 1,941
	LT 90	58% n = 688	53% n = 1,221	55% n = 1,909
Total		61% n = 1,541	55% n = 2,309	57% n = 3,850

5%

6%

Percent Enrolled the
Full Year After Treatment
(Among Those in School)

Treatment Completion

		Yes	No	**Total**
Days Stayed in Treatment:	90+	52% n = 537	39% n = 622	45% 1,159
	LT 90	44% n = 402	34% n = 652	38% 1,058
Total		48% n = 939	37% n = 1,274	42% n = 2,213

7%

11%

Figure 5

Grade Point Average by Treatment Completion:
Proportion of Youth Getting F, D, C, B+ Cumulative High School GPAs
At the end of the School Year that Started after the End of Treatment

Youth Enrolled the School Year
After the Treatment Year
n = 2,092

Completed
41 %

n = 868

Not Completed
59%

n = 1,224

GPA After
Treatment

F   30%   n = 280

D   30%   n = 260

C   29%   n = 253

B+ 11% n = 95

GPA After
Treatment

F   40%   n = 494

D   30%   n = 365

C   25%   n = 299

B+ 5%   n = 66
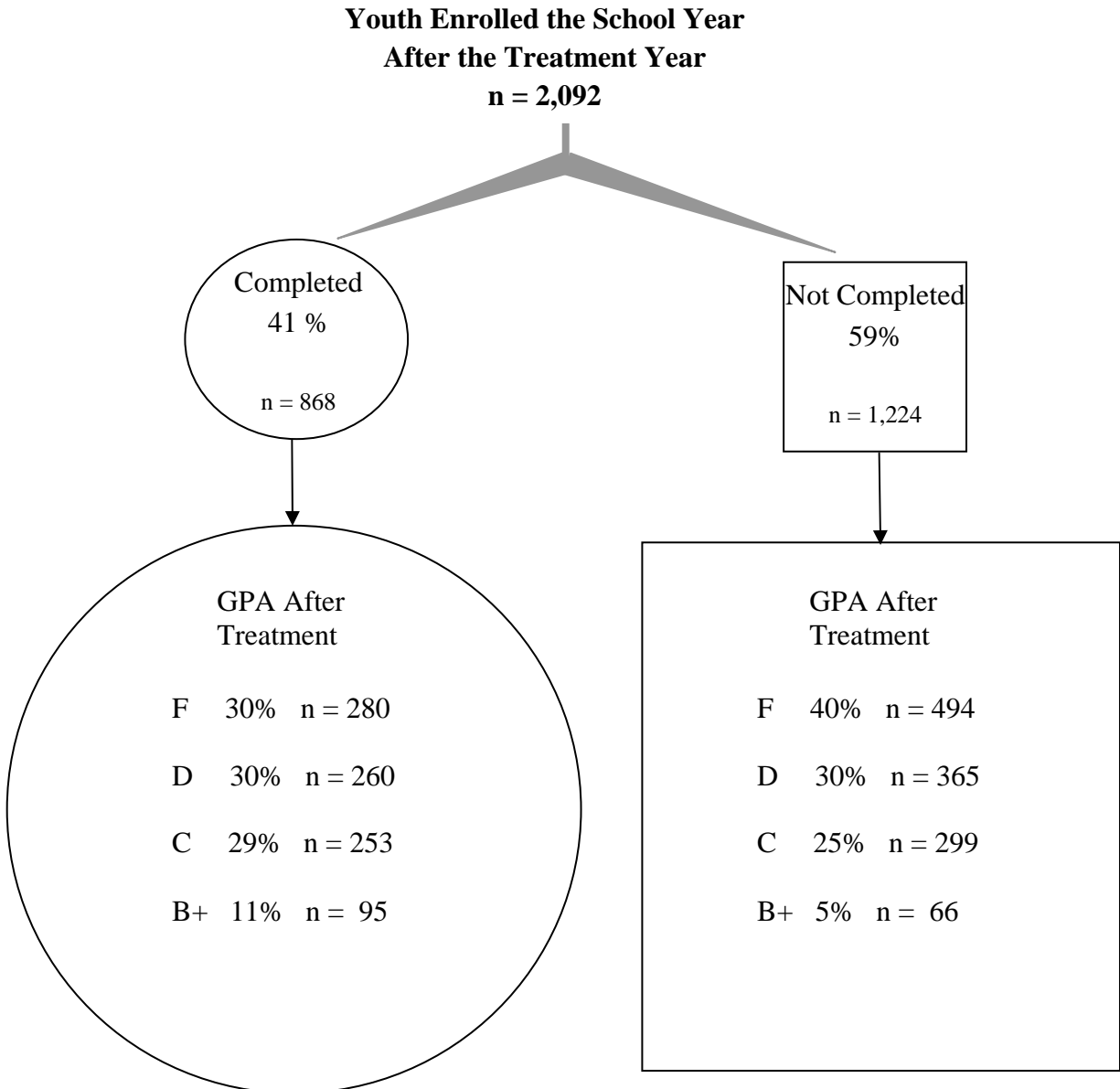
Figure 6

GPA Improvement, Pre-post Treatment, by Treatment Completion:
Proportion Whose GPA Changed by .5 Points From the End of the School Year
before Treatment to the End of the School Year after Treatment

**Youth Enrolled in School the Year Before
And also Enrolled the Whole Year After Treatment
n =535**

Completed
50 %

n = 266

Not Completed
50 %

n =269

GPA Change
After Treatment

Better   38 %

Same   42 %

Worse   20 %

GPA Change
After Treatment

Better   29 %

Same   50 %

Worse   21 %

RDA
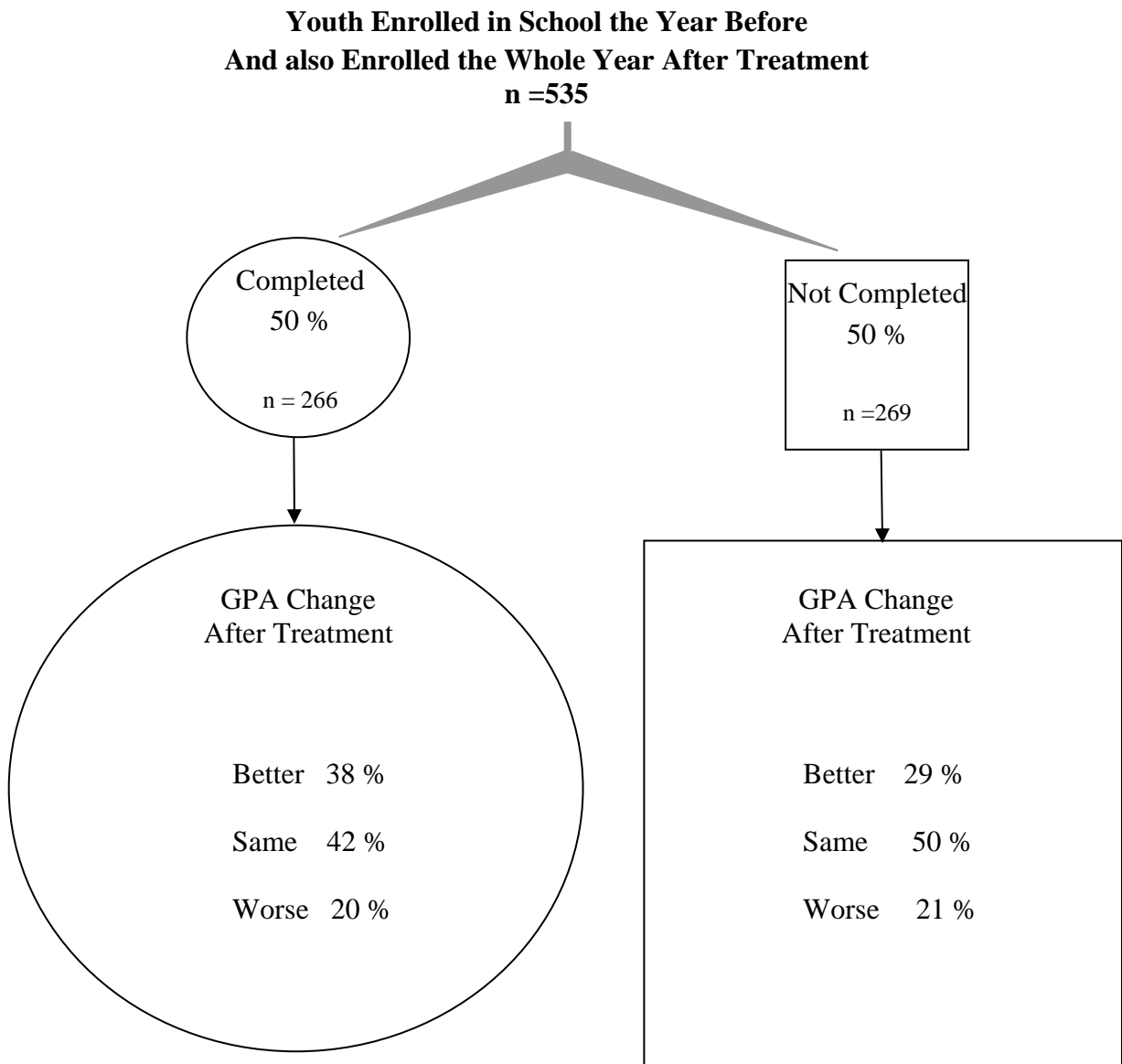
Figure 7

Statistical Significance of School Outcomes by Completion and Length of Stay in Treatment:
Back in School, Enrolled All Year and Cumulative HS GPA After Treatment

% Differences | Percentages | Statistical Significance

Scale: 1　5　10　15　20

Back in School: Any School Enrollment (one or more months, the year after treatment) (n = 3,850)

	% Difference	Percentages	Statistical Significance
Treatment Completers (vs. Non Completers)	5.7	(60.9 vs. 55.2)	$\chi^2 = 12.54$ p < .001
90+ Days of Treatment (vs. Less than 90 Days)	4.5	(59.7 vs. 55.2)	$\chi^2 = 7.97$ p < .005
Treatment Completers with 90+ Days (vs. Non Completers < 90 Days)*	9.7	(63.0 vs. 53.4)	

Enrolled All Year (10 months, the year after treatment) Among Those in School   (n = 2,213)

	% Difference	Percentages	Statistical Significance
Treatment Completers (vs. Non Completers)	11.7	(48.4 vs. 36.7)	$\chi^2 = 30.42$ p < .001
90+ Days of Treatment (vs. Less than 90 Days)	7.5	(45.2 vs. 37.7)	$\chi^2 = 12.93$ p < .001
Treatment Completers with 90+ Days (vs. Non Completers < 90 Days)*	18.0	(52.0 vs. 34.0)	

Cumulative HS GPA of C and Above Among Those in School (the school year that started after treatment) (n = 2,092)

	% Difference	Percentages	Statistical Significance
Treatment Completers (vs. Non Completers)	10.0	(40.1 vs. 30.1)	$\chi^2 = 22.68$ p < .001
90+ Days of Treatment (vs. Less than 90 Days)	0	(34.1 vs. 34.1)	n.s.

Improvement in HS GPA Pre-Post Treatment (of 0.5 points or more, for youth in school pre-treatment and all year post treatment) (n = 535)

	% Difference	Percentages	Statistical Significance
Treatment Completers (vs. Non Completers)	9.0	(38.3 vs. 29.3)	$\chi^2 = 4.81$ p < .05

*   Differences are among the "most" vs. "least" treated.

Attachment III

**DESCRIPTIONS OF SCHOOL OUTCOMES FOR THREE GROUPS OF YOUTH:
NOT IN SCHOOL PRE-TREATMENT,
IN SCHOOL 1-9 MONTHS PRE-TREATMENT,
AND IN SCHOOL 10 MONTHS PRE-TREATMENT**

Figure 1
School Enrollment Outcomes of Treatment by School Experiences Before Treatment:
Flow Charts of Completion and Length of Stay for Youth Never, Intermittently or Always Enrolled the Year Before Treatment

Figure 2
School Enrollment Outcomes of Treatment by School Experiences Before Treatment:
Completion and Length of Stay Outcomes for Youth Never, Intermittently or Always Enrolled the Year Before Treatment

Study Population
(n = 3,850)

Youth
Not In School
Pre-Treatment
25%
(n = 943)

Youth
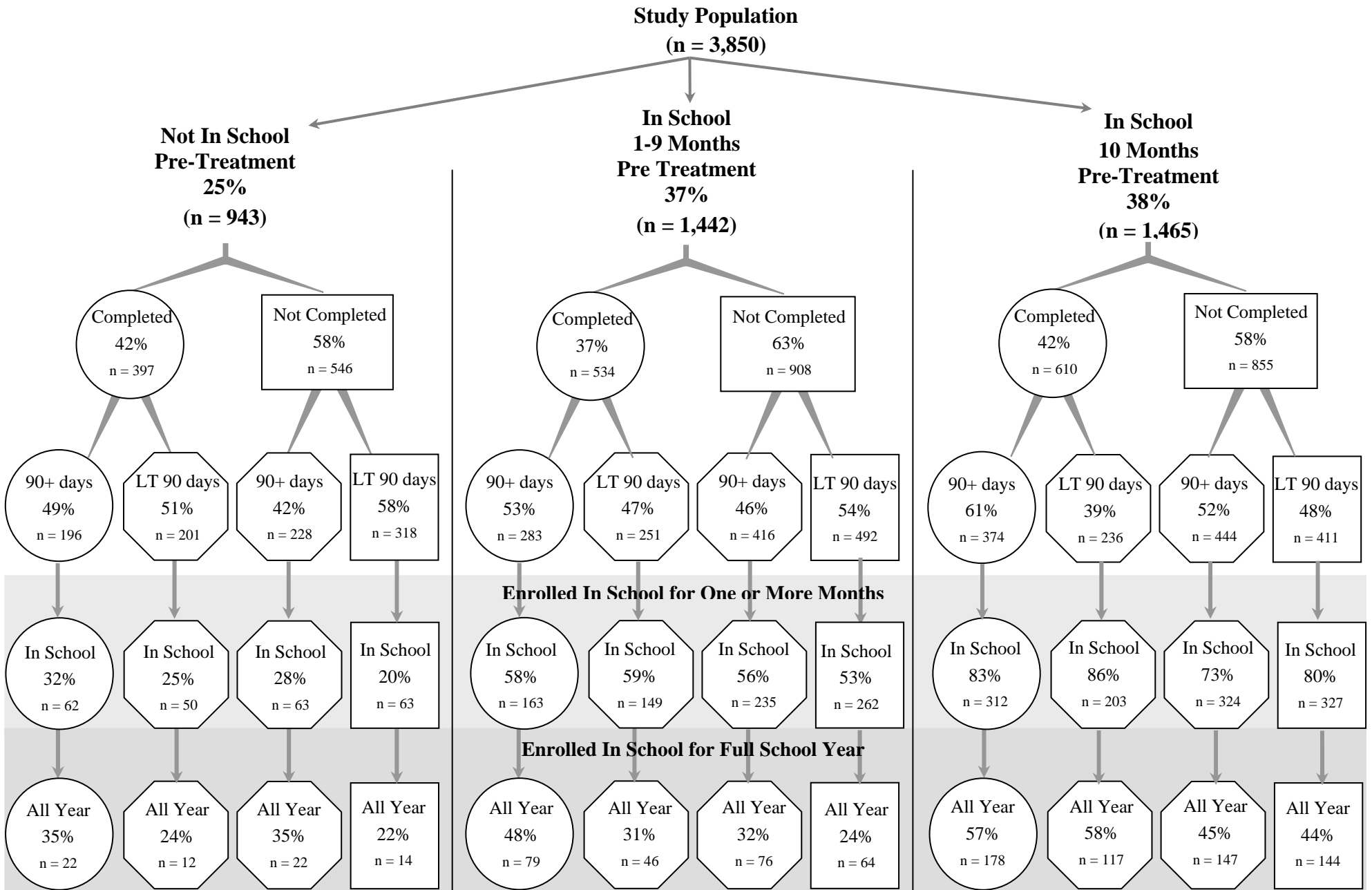**In School 1-9 Months**
Pre-Treatment
37%
(n = 1,442)

Youth
In School Full School Year
Pre-Treatment
38%
(n = 1,465)

Percent In School
(One or More Months)

Treatment Completion

Days Stayed in Treatment:		Yes	No	Total	
90+		32% n = 196	28% n = 228	29% n = 424	7%
LT 90		25% n = 201	20% n = 318	22% n = 519	
Total		28% n = 397	23% n = 546	25% n = 943	

5%

Percent In School
(One or More Months)

Treatment Completion

Days Stayed in Treatment:		Yes	No	Total	
90+		58% n = 283	56% n = 416	57% n = 699	2%
LT 90		59% n = 251	53% n = 492	55% n = 743	
Total		58% n = 534	55% n = 908	56% n = 1,442	

3%

Percent In School
(One or More Months)

Treatment Completion

Days Stayed in Treatment:		Yes	No	Total	
90+		83% n = 374	73% n = 444	78% n = 818	-4%
LT 90		86% n = 236	80% n = 411	82% n = 647	
Total		84% n = 610	76% n = 855	80% n = 1,465	

8%

Percent In School
Full School Year
(Among Those in School)

Treatment Completion

Days Stayed in Treatment:		Yes	No	Total	
90+		35% n = 62	35% n = 63	35% n = 125	12%
LT 90		24% n = 50	22% n = 63	23% n = 113	
Total		30% n = 112	29% n = 126	29% n = 238	

1%

Percent In School
Full School Year
(Among Those in School)

Treatment Completion

Days Stayed in Treatment:		Yes	No	Total	
90+		48% n = 163	32% n = 235	39% n = 398	12%
LT 90		31% n = 149	24% n = 262	27% n = 411	
Total		40% n = 312	28% n = 497	33% n = 809	

12%

Percent In School
Full School Year
(Among Those in School)

Treatment Completion

Days Stayed in Treatment:		Yes	No	Total	
90+		57% n = 312	45% n = 324	51% n = 636	2%
LT 90		58% n = 203	44% n = 327	49% n = 530	
Total		57% n = 515	45% n = 651	50% n = 1,166	

12%

Figure 3

High School Cumulative Grade Point Average the Year after Treatment by School Experiences Before Treatment:
By Treatment Completion for Youth Never, Intermittently or Always in School the Year Before Treatment

In School Post-Treatment Year
(n = 2,092)

Youth Not In School Pre-Treatment 11% (n = 234)	Youth In School 1-9 Months Pre-Treatment 38% (n = 801)	Youth In School Full School Year Pre-Treatment 51% (n = 1,057)

Youth Not In School Pre-Treatment

HS Cum. GPA: The End of the School Year That Started After Treatment

Treatment Completion

	Yes	No
F	46%	55%
D	22%	19%
C	22%	18%
B	10%	8%
Total	100% n = 100	100% n = 134

Youth In School 1-9 Months Pre-Treatment

HS Cum. GPA: The End of the School Year That Started After Treatment

Treatment Completion

	Yes	No
F	39%	45%
D	26%	29%
C	24%	21%
B	11%	5%
Total	100% n = 309	100% n = 492

Youth In School Full School Year Pre-Treatment

HS Cum. GPA: The End of the School Year That Started After Treatment

Treatment Completion

	Yes	No
F	21%	33%
D	34%	33%
C	34%	29%
B	11%	5%
Total	100% n = 459	100% n = 598

Figure 4

Change in High School Cumulative Grade Point Average from Pre to Post Treatment by High School Experiences Before Treatment:

By Treatment Completion for Youth Intermittently or Always in School Before Treatment

Study Population
(n = 535)

Youth
Not In School
Pre-Treatment
0%
(n = 0)

Youth
In School 1-9 Months
Pre-Treatment
25%
(n = 136)

Youth
In School Full School Year
Pre-Treatment
75%
(n = 399)

Note:

No Pre-Treatment GPA

Pre-Post Change in GPA:
By 0.5 Points or more

Treatment Completion

	Yes	No
Better	48	41
Same	35	46
Worse	17	13
Total	100% n = 66	100% n = 70

Pre-Post Change in GPA:
By 0.5 Points or more

Treatment Completion

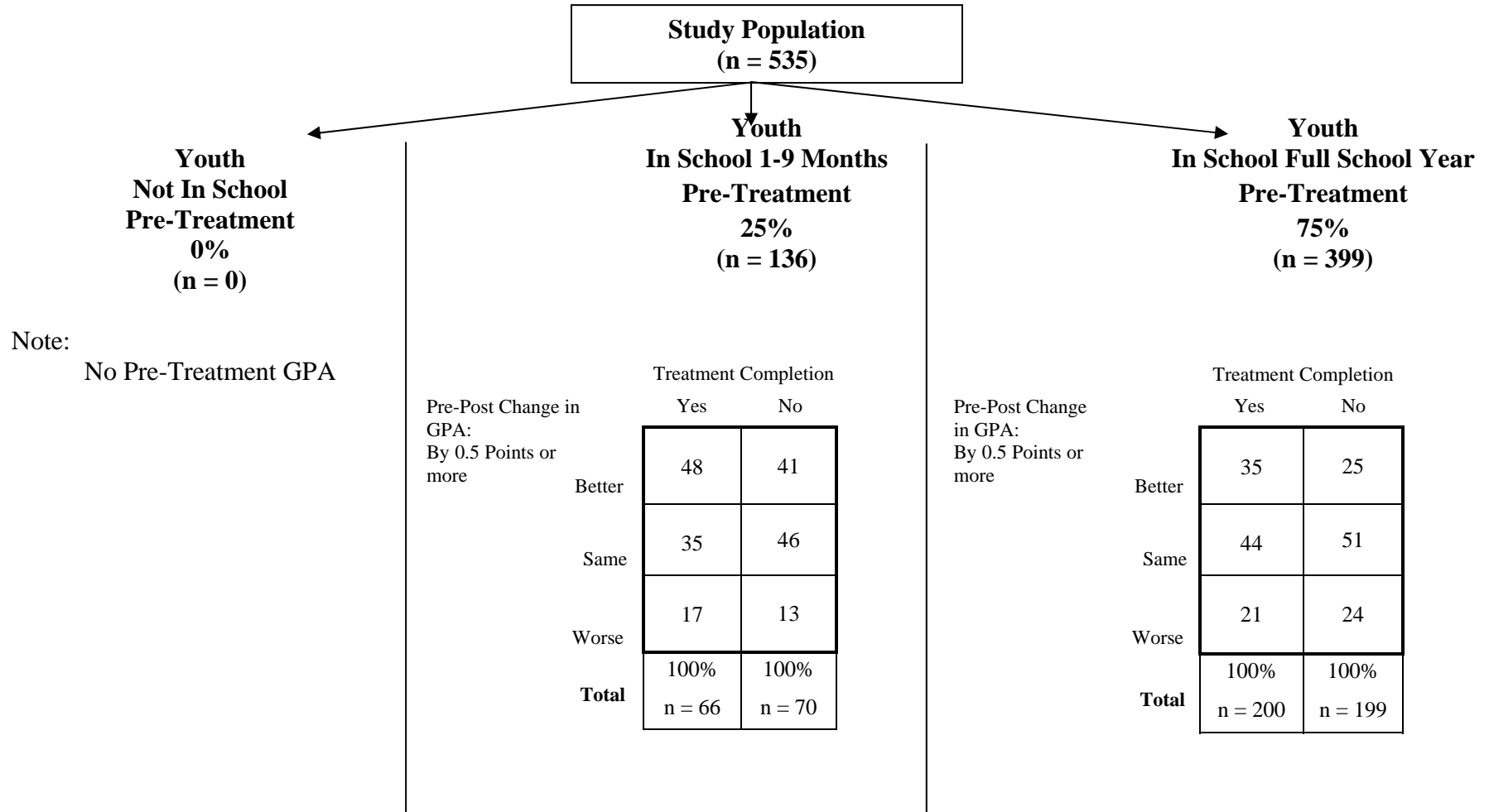|	Yes	No
Better	35	25
Same	44	51
Worse	21	24
Total	100% n = 200	100% n = 199

RDA

Figure 5
Post Treatment School Outcomes
Among Youth Not in School Pre-Treatment

	% Differences	% Comp. / 90+ Days versus Non Comp./<90 Days	Statistical Significance

Any School Enrollment (one or more months) (n =943)

Treatment Completers
(vs. Non Completers) — 5.1 — (28.2 vs. 23.1) — $\chi^2 = 3.21$, $p < .05$

90+ Days of Treatment
(vs. Less than 90 Days) — 7.7 — (29.5 vs. 21.8) — $\chi^2 = 7.35$, $p < .01$

Treatment Completers with 90+ Days
(vs. Non Completers < 90 Days)* — 11.8 — (31.6 vs. 19.8)

Enrolled All Year (10 months) Among Those in School (n = 238)

Treatment Completers
(vs. Non Completers) — 2.0 — (30.6 vs. 28.6) — $\chi^2 = .09$, n.s.

90+ Days of Treatment
(vs. Less than 90 Days) — 12.2 — (35.2 vs. 23.0) — $\chi^2 = 4.25$, $p < .025$

Treatment Completers with 90+ Days
(vs. Non Completers < 90 Days)* — 13.3 — (35.5 vs. 22.2)

Cumulative Grade Point Average of C and Above Among Those in School, One Year After Treatment Year (n = 234)

Treatment Completers
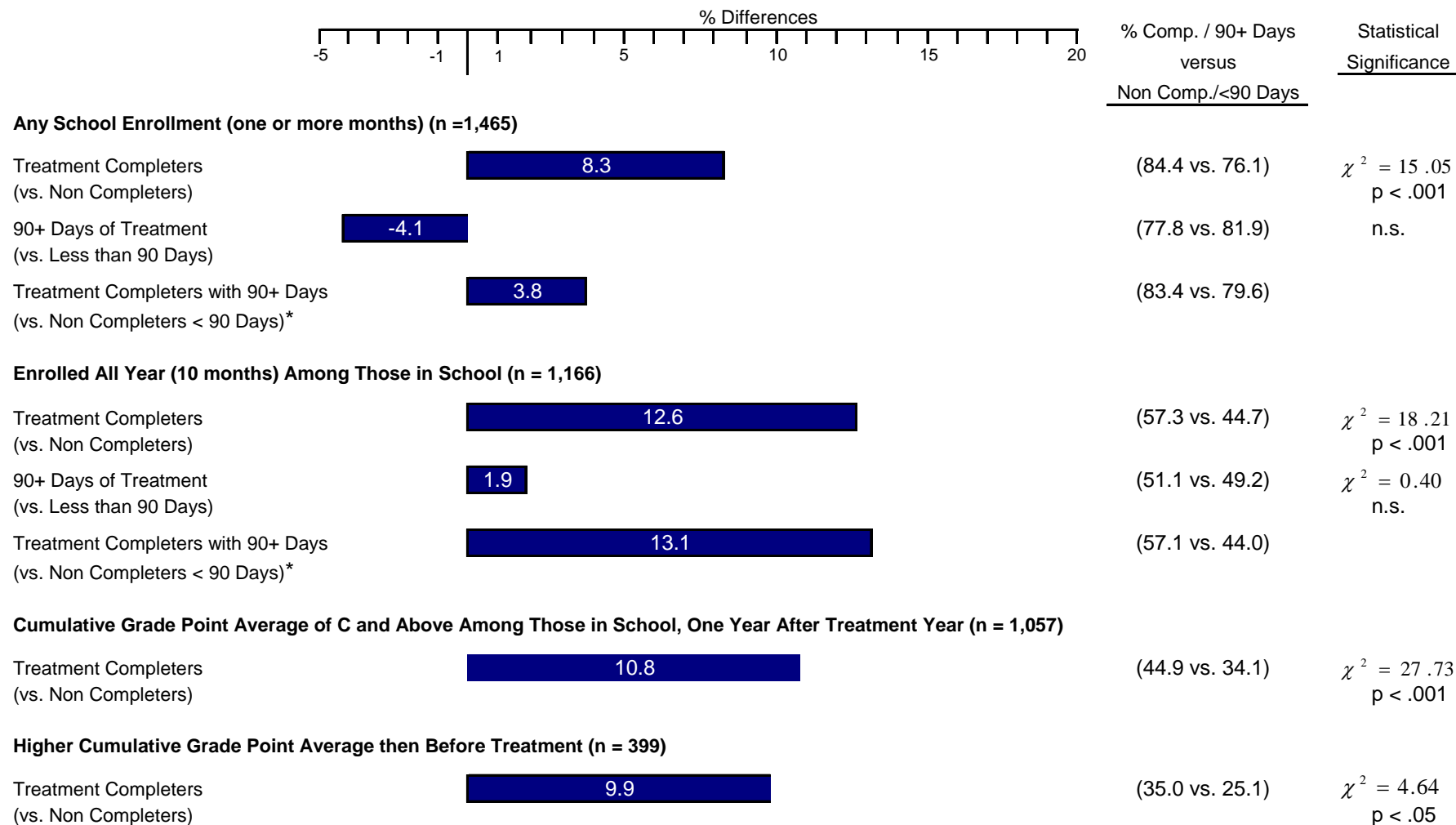(vs. Non Completers) — 5.9 — (32.0 vs. 25.1) — $\chi^2 = 1.96$, $p < .10$

* Differences are among the "most" vs. "least" treated.

Figure 6
Post Treatment School Outcomes
Among Youths in School 1-9 Months Pre-Treatment

	% Differences	% Comp. / 90+ Days versus Non Comp./<90 Days	Statistical Significance

Any School Enrollment (one or more months) (n =1,442)

Treatment Completers (vs. Non Completers)	3.7	(58.4 vs. 54.7)	$\chi^2 = 1.86$ $p < .10$
90+ Days of Treatment (vs. Less than 90 Days)	1.6	(55.9 vs. 55.3)	$\chi^2 = 0.39$ n.s.
Treatment Completers with 90+ Days (vs. Non Completers < 90 Days)*	4.3	(57.6 vs. 53.3)	

Enrolled All Year (10 months) Among Those in School (n = 809)

Treatment Completers (vs. Non Completers)	11.9	(40.1 vs. 28.2)	$\chi^2 = 12.31$ $p < .001$
90+ Days of Treatment (vs. Less than 90 Days)	12.2	(38.9 vs. 26.8)	$\chi^2 = 13.62$ $p < .001$
Treatment Completers with 90+ Days (vs. Non Completers < 90 Days)*	19.5	(48.5 vs. 29.0)	

Cumulative Grade Point Average of C and Above Among Those in School, One Year After Treatment Year (n = 801)

| Treatment Completers (vs. Non Completers) | 10.2 | (35.6 vs. 25.4) | $\chi^2 = 14.74$ $p < .005$ |

Higher Cumulative Grade Point Average then Before Treatment (n = 136)

| Treatment Completers (vs. Non Completers) | 7.1 | (48.5 vs. 41.4) | $\chi^2 = 1.85$ $p < .10$ |

* Differences are among the "most" vs. "least" treated.

Figure 7
Post Treatment School Outcomes
Among Youths in School 10 Months Pre-Treatment

	% Differences	% Comp. / 90+ Days versus Non Comp./<90 Days	Statistical Significance
Any School Enrollment (one or more months) (n =1,465)			
Treatment Completers (vs. Non Completers)	8.3	(84.4 vs. 76.1)	$\chi^2 = 15.05$ p < .001
90+ Days of Treatment (vs. Less than 90 Days)	-4.1	(77.8 vs. 81.9)	n.s.
Treatment Completers with 90+ Days (vs. Non Completers < 90 Days)*	3.8	(83.4 vs. 79.6)	
Enrolled All Year (10 months) Among Those in School (n = 1,166)			
Treatment Completers (vs. Non Completers)	12.6	(57.3 vs. 44.7)	$\chi^2 = 18.21$ p < .001
90+ Days of Treatment (vs. Less than 90 Days)	1.9	(51.1 vs. 49.2)	$\chi^2 = 0.40$ n.s.
Treatment Completers with 90+ Days (vs. Non Completers < 90 Days)*	13.1	(57.1 vs. 44.0)	
Cumulative Grade Point Average of C and Above Among Those in School, One Year After Treatment Year (n = 1,057)			
Treatment Completers (vs. Non Completers)	10.8	(44.9 vs. 34.1)	$\chi^2 = 27.73$ p < .001
Higher Cumulative Grade Point Average then Before Treatment (n = 399)			
Treatment Completers (vs. Non Completers)	9.9	(35.0 vs. 25.1)	$\chi^2 = 4.64$ p < .05

* Differences are among the "most" vs. "least" treated.

Figure 8
Summary of School Outcomes After Treatment
Controlling for Different Pre-Treatment Schooling

Pre-Treatment

Significance of Post-Treatment Differences Among:	Not in School Pre		Enrolled 1-9 Months Pre		Enrolled 10 Months Pre	
	Completers	90+ Days	Completers	90+ Days	Completers	90+ Days
Among Enrollment Post (1 - 10 Months)	Yes	Yes	No (p<.10)	No	Yes	No
Overall Difference of Completion +90 Days	11.8		4.3		3.8	
Enrolled All Year Post (10 Months)	No	Yes	Yes	Yes	Yes	No
Overall Difference of Completion +90 Days	13.3		19.5		13.1	
GPA C and Above Post	No (p<.10)	---	Yes	---	Yes	---
Treatment Completers Differences	5.9		10.2		10.8	
Higher GPA From Pre to Post	n.a.	---	No (p<.10)	---	Yes	---
Treatment Completers Differences			7.1		9.9	

Attachment IV

STATISTICAL MODELS TESTING FOR IMPACTS OF COMPLETION AND LENGTH OF STAY IN TREATMENT ON SCHOOL OUTCOMES

Table 1

Statistical Test for Interactive Effects on School Enrollment After Treatment
Between Completion, Length of Stay in Treatment, and Prior School Enrollment*
(n=3,850)

Main Effects	Effect Sizes		t Test	Significance Level	
	Unstandardized	Standardized			
Treatment Completion	.459	.054	2.18	.03	
90+ Days in Treatment	.409	.049	1.90	.05	
Prior School Enrollment	.365	.365	15.90	.00	
Interactive Effects					
Treatment Completion * 90+ Days**	-.024	-.002	-.095	.93	n.s.
Treatment Completion * Prior School Enrollment	.075	.070	2.58	.01	
90+ Days * Prior School Enrollment	-.063	-.064	-2.19	.03	
Overall Model	**Sum of Squares**	**df**	**F Test**	**Significance Level**	
Regression	15034	17	65.39	.00	
Total	66860	3849			
Adjusted R^2	.221				

* - Significance of interactions and effect sizes were estimated by a statistical analysis of covariance on number of months enrolled after treatment (0 through 10 months in a one year follow-up period).

Coefficients were obtained from a stepwise regression having 25 variables.

Six were variables in the above table involving combinations of three variables:
- Completion (0 = non-completed, 1 = completed).
- 90+ Days (0 = Less than 90 days, 1 = 90 days or more).
- Prior School Enrollment (0 through 10 months in a one year period before treatment).

Seventeen were variables controlling for differences in age, gender, race/ethnicity, living situation, criminal involvement, mental health status, and types of drugs used.

Two were variables indicating type of treatment:
- Youth who went to inpatient treatment had <u>poorer</u> school outcomes than those who had outpatient treatment.
- Youth who had a "continuum of care" (both inpatient and outpatient care) had <u>better</u> school outcomes (.668 coefficient, .03 significance level).

** - We also tested for three-way interactions, whether "Treatment Completion" and "90+ Days" interacted depending on youth's prior schooling experience. We still found <u>no significant interactions</u> between completion and length of stay in three separate regression analyses: for youth not enrolled the year before (.923 sign.), youth enrolled intermittently (0 - 9 months, .577 and youth enrolled all year (.462 sign.).

Table 2
Logistic Regression Results on Increases or Decreases in Likelihood of Any School Enrollment after Treatment*
For Youth Completing and/or Staying Longer in Treatment Compared to Non Completers Staying in Short Time
Among All Youth and Among Three Groups of Youth With Different School Experiences Before Treatment

Independent Variables	All Youth n = 3,850		Not Enrolled the Year Before n = 943		Intermittent Enrollment the Year Before n = 1,442		Enrolled all Year the Year Before n = 1,465	
	+/- Likelihood	Wald	+/- Likelihood	Wald	+/- Likelihood	Wald	+/- Likelihood	Wald
Treatment Variables								
Completed TX episode	+ 0.41	20	+0.37	4			+0.87	19
Tx Length of Stay 90 + days					+0.26	4	-0.27	5
Outpatient Only (Omitted category)	ref***		ref				ref	
Mixed Inpatient and Outpatient			+1.60	10				
Inpatient Only	-0.21	12	-0.64	4			-0.44	6
Youth Characteristics								
# Years Old (at end of Tx)**	-0.38	141	-0.24	13	-.053	129	-0.40	40
Female					-0.23	4		
Race/Ethncity:								
White (Omitted category)	ref		ref		ref			
Hispanic	+0.55	13	+0.72	6	+0.69	8		
Black	+0.67	13			+1.12	10		
Native American	+0.34	4						
Not English Speaker	-0.73	4						
Youth Experiences Before Tx								
# Months in School Before Tx**	+0.24	560	n.a.					
Criminally Involved (at Tx admin.)	-0.16	5			-0.35	11	n.a.	
Arrested the year before Tx								
Any Mental Health Service or Need							-0.39	12
Living Arrangement:								
Parents (omitted category)	ref		ref		ref			
Other Family								
Foster/Group Home			+1.53	16				
Other (independent/street)	-0.37	12			-0.43	7		
Primary Drug:								
Alcohol (omitted category)					ref			
Marijuana								
Hard drugs					-0.36	5		
Constant Parameter	8.2		3.13		12.9		9.8	
Nagelkerte R² square		0.267		0.078		0.178		0.083

* Likelihood estimates displayed are all statistically significant (at the .05 probability level). Missing estimates reflect those found to be non significant and omitted from the statistical model.

** Likelihood displayed is per unit increase in # of years of age and # of months enrolled in school the year before treatment.

*** 'ref.' is the reference group which serves as comparison (ie. youth using hard drugs are less likely to enroll in school compared to those using alcohol).
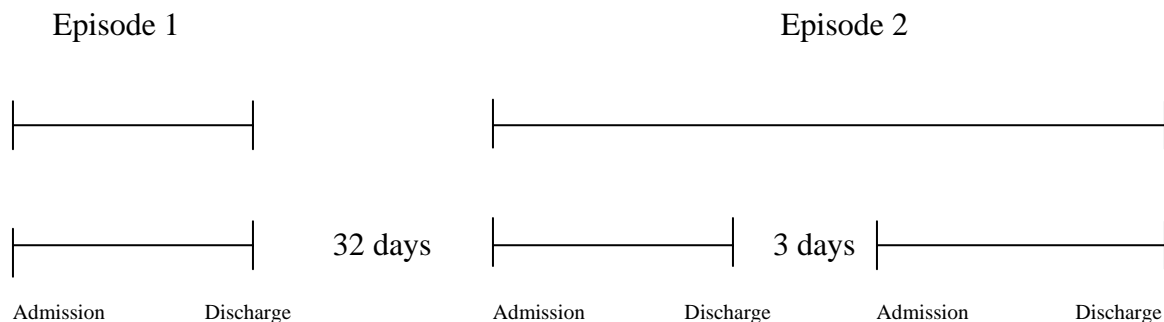
Table 3
Logistic Regression Results on Increases or Decreases in Likelihood of Any School Retention once Enrolled after Treatment*
For Yourth Completing and/or Staying Longer in Treatment Compared to Non Completers Staying in Short Time
Among All Youth and Among Three Groups of Youth With Different School Experiences Before Treatment

Independent Variables	All Youth n = 2,213		Not Enrolled the Year Before n = 238		Intermittent Enrollment the Year Before n = 809		Enrolled all Year the Year Before n = 1,165	
	+/- Likelihood	Wald	+/- Likelihood	Wald	+/- Likelihood	Wald	+/- Likelihood	Wald
Treatment Variables								
Completed TX episode	+ 0.74	34			+0.96	16	+0.85	24
Tx Length of Stay 90 + days	+ 0.23	4	+1.22	7	+0.72	10		
Outpatient Only	ref***				ref		ref	
Mixed Inpatient and Outpatient					-0.51	7		
Inpatient Only	-0.47	16			-0.55	5	-0.49	10
Youth Characteristics								
# Years Old (at end of Tx)**	-0.034	68			-0.45	38	-0.38	39
Female							-0.24	4
Race/Ethncity:								
White (Omitted category)			ref					
Hispanic			-0.60	4				
Black			-0.84	6				
Native American								
Not English Speaker								
Youth Experiences Before Tx								
# Months in School Before Tx**	+0.10	52	n.a.				n.a.	
Criminally Involved (at Tx admin.)	-0.40	30	-0.51	3	-0.31	5	-0.43	20
Arrested the year before Tx								
Any Mental Health Service or Need	-0.21	5					-0.24	4
Living Arrangement:								
Parents (omitted category)	ref				ref			
Other Family								
Foster/Group Home	-0.37	8			-0.57	9		
Other (independent/street)	-0.39	6						
Primary Drug:								
Alcohol (omitted category)								
Marijuana								
Hard drugs								
Constant Parameter	6.4		-0.6		8.8		8.0	
Nagelkerte R² square		0.141		0.128		0.150		0.106

* Likelihood estimates displayed are all statistically significant (at the .05 probability level). Missing estimates reflect those found to be non significant and omitted from the statistical model.

** Likelihood displayed is per unit increase in # of years of age and # of months enrolled in school the year before treatment.

*** 'ref.' is the reference group which serves as comparison (ie. youth using hard drugs are less likely to enroll in school compared to those using alcohol).

Attachment V

TREATMENT EPISODE DOCUMENTATION

Creating Treatment Episodes from TARGET

TARGET data contains a record for each admission to publicly-funded substance abuse treatment. Some patients had multiple admissions to treatment during the study period. Successive admissions could have been close together in time, or separated by several months. Rather than analyze the outcomes of single admissions to treatment, episodes were constructed from admission and discharge records to more accurately capture continuous care for substance abuse. The point of doing this was to ensure that evaluation of outcomes would not begin until continuous care was over. Without constructing episodes, it would be impossible to distinguish intervention periods from outcome periods.

Episodes were constructed as follows. For patients with a single admission to treatment in the study period, the episode began on the admission date and ended on the discharge date. In contrast, a minority of patients had multiple admissions in the study period. As shown in Figure 1, these multiple admissions were linked, and became a part of the same episode only if there was no more than a 30-day gap between discharge from one program or level of treatment and the new admission to another. If that gap exceeded 30 days, then multiple admissions would constitute multiple episodes.

Fig. 1: An Example of Treatment Episode Building

Episode 1   Episode 2

|—————————| |——————————————————————————|

|—————————| 32 days |—————————| 3 days |—————————|

Admission   Discharge   Admission   Discharge   Admission   Discharge

---

The example above shows a hypothetical treatment history for an individual, consisting of 3 admissions. The first episode for that individual is defined by a single admission and discharge. Since the second admission occurs 32 days after the first discharge, the first two admissions and discharges were not linked. Rather, a second episode was created. That second episode consists of 2 admissions and discharges, since only 3 days separated the second discharge from the third admission.

After treatment episodes were constructed, the last episode in the treatment year was selected to be the index episode. Employment outcomes were tracked after the end of this index episode. The creation of episodes was important, because they more accurately represent the total treatment for which effects (change in employment and income) were being measured.

Treatment *completion* was determined from discharge codes reported by provider facilities to the state substance abuse agencies. For patients with one admission in their index episode, the code corresponding to that single admission was used as the treatment completion indicator. For patients with multiple admissions in their index episode, the discharge code linked to the last discharge was used to determine completion.

Calculating Discharge Dates for DASA Treatment Admissions

Often, the construction of treatment episodes is complicated by a lack of valid discharge information. That can occur for a number of reasons, most notably missing discharge dates and unusually long lengths of stay in treatment. Correcting those problems is the most complicated part of constructing treatment episodes. Below is a summary of the rules that were used for calculating discharge dates.

We began with a table of program maximum days provided by DASA. That table shows the maximum lengths of stay for each modality.

Modality Code	Maximum Days
DD	30
DX	7
EC	90
GC	195
II	40
IO	180
LT	195
MO	240
MR	195
OP	180
RH	90
TH	90

We calculated the mean length of stay, by modality, for all admissions that had a length of stay (discharge - admission) that was within the program maximum above.

We found the last treatment activity record for each admission. The last activity record had a very specific meaning: it was defined as the latest activity record that was within 30 days of the preceding activity. This rule was created because at times a single activity record was found that was months after the preceding record. Only certain treatment activity types were considered when calculating the last activity date, and these included individual, group or cojoint treatment (types 1,2,3).

We now have four pieces of information for each admission:
1. the real discharge date, if entered
2. the last activity record, if available
3. the program maximum for the modality
4. the mean LOS for the modality

Determining the discharge date was different for inpatient treatment and outpatient treatment.

Inpatient:
- if the discharge date was missing, set it to the program maximum or the data cutoff date, whichever is less
- if the discharge date is beyond the program maximum, set it to the program maximum
- otherwise, use the original discharge date

Outpatient:
- if the discharge date was missing, <u>check the last activity date</u> (x)
  - o if it's between the mean LOS and the program max, set the discharge date to the last activity date
    ```
    |----------------|------x-------|-------------->
    Adm          Mean        Max
    ```
  - o if it's less than the mean length of stay, use the mean to set the discharge date
    ```
    |--------x-------|-------------|-------------->
    Adm         Mean        Max
    ```
  - o if it's greater than the program maximum use the program maximum to set the discharge date
    ```
    |----------------|-------------|------x------->
    Adm          Mean        Max
    ```
- if the discharge date is beyond the program maximum, <u>check the last activity date</u> (x)
  - o if it's between the mean LOS and the program max, set the discharge date to the last activity date
    ```
    |----------------|------x-------|----------|
    Adm          Mean        Max     Dis
    ```
  - o if it's less than the mean length of stay, use the mean to set the discharge date
    ```
    |-------x-------|--------------|----------|
    Adm         Mean        Max     Dis
    ```
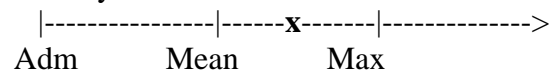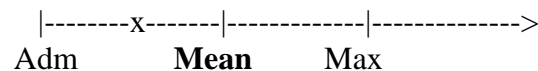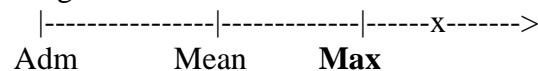
- o if it's greater than the program maximum use the program maximum to set the discharge date

```
|----------------|--------------|----x----|
     Adm           Mean       Max    Dis
```
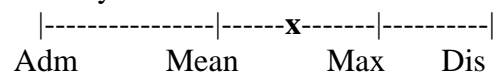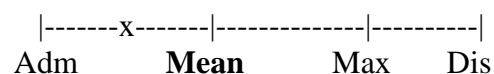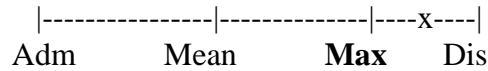
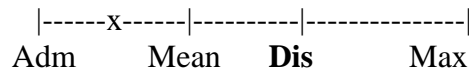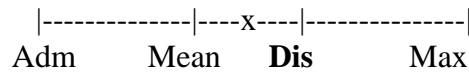- otherwise, still <u>check the last activity date</u> (x)
  - o if the last activity date is after the discharge date and the last activity is less than the program maximum, use the last activity date to set the discharge date

```
|--------------|----------|-------x------|
     Adm          Mean      Dis      Max
```
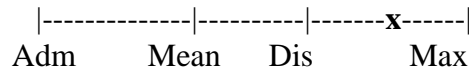
  - o if the last activity date is after the discharge date and the program maximum, use the program maximum to set the discharge date

```
|--------------|----------|----------|---------x
     Adm          Mean      Dis      Max
```

  - o otherwise, use the original discharge date

```
|--------------|----x----|---------------|
     Adm          Mean    Dis           Max
```

```
|------x------|----------|---------------|
     Adm          Mean    Dis           Max
```
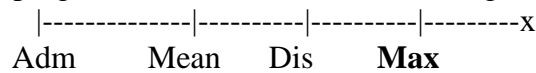
Correcting Overlapping and Embedded Treatment Spans

Once corrected lengths of stay were established, other anomalies in the admission records could be corrected. These anomalies included embedded and overlapping treatment spans.

Correcting Embedded Spans: Embedded spans occur when the admission and discharge dates occur within a larger span of treatment. For example, a client might have been admitted on 4/1/99 and discharged 7/1/99. However, they might also have been admitted on 5/1/99 and discharged on 6/1/99. This second set of dates is inside the range of dates of the first admission. Obviously, clients can't be in the two places at the same time, so we constructed decision rules to make sense of these situations. These rules were based on two assumptions: first, data regarding inpatient treatment is more reliable than that of outpatient, and second, for outpatient treatment, admission dates are more reliable than discharge dates. The following problems were evident, and solutions are given.

- **a.** An inpatient span inside another inpatient span: the 'inside' span was eliminated.
- **b.** An outpatient span inside an inpatient span: the outpatient (inside) span was eliminated.
- **c.** An inpatient span inside an outpatient span: this can happen when a client enters outpatient while waiting for an inpatient bed. We created 3 admissions from

these two, assuming that there was one span of outpatient treatment before inpatient, and one span after.

   d. An outpatient span inside another outpatient span: the 'inside' span was deleted.

Correcting Overlapping Spans: These occur when, for a single client, one admission date is before another discharge date. Again, this implies that the same client is being treated at two places simultaneously. Our corrections involved changing admission or discharge dates, depending on the situation.

   a. If an inpatient admission overlaps an inpatient discharge, then the overlapped discharge date was changed to equal the overlapping admission date.

   b. If an outpatient admission overlaps an outpatient discharge, then the overlapped discharge date was changed to equal the overlapping admission date.

   c. If an inpatient admission overlaps an outpatient discharge, then the outpatient discharge date was changed to equal the inpatient admission date.

   d. If an outpatient admission overlaps an inpatient discharge, then the outpatient admission date was changed to equal the inpatient discharge date.

Final Construction of Episodes

Once problems with discharge dates and embedded and overlapping spans were corrected, episodes were constructed and variables created to describe them. *Length of Stay* was defined by two variables. The first was created by subtracting the first admission date from the last discharge date, while the second also subtracted out the time between discharges and subsequent admissions, if there was any. *Episode types* were defined as being inpatient only, outpatient only and mixed episodes (both inpatient and outpatient).

Attachment VI

**DOCUMENTATION OF MATCHING RECORDS:
ALCOHOL AND SUBSTANCE ABUSE TREATMENT RECORDS TO
HIGH SCHOOL RECORDS**

Matching Youths' Records of Alcohol and Substance Abuse Treatment to High School Records

Confidentiality of Records

In order to study the relation between substance abuse treatment and school experiences, we had to match two sets of identified records. We had to uniquely attach records from different sources, treatment client records and high school student records, to the same identified individuals.

Records on public funded treatment are maintained, statewide, by the Division of Alcohol and Substance Abuse (DASA) of Washington's Department of Social and Health Services (DSHS). High school student records are reported annually, since 1998, to Washington's Office of the Superintendent of Public Instruction (OSPI).

In order to conduct this particular study, a third party was engaged to conduct this match and the subsequent analysis of the matched data. The third party was the Social and Economic Survey Research Center at Washington State University (SESRC/WSU). Only this party had access to the individually identified records. DSHS staff did not have access to particular students' confidential school information, nor did OSPI staff have access to DSHS personal client treatment information. Neither state agency disclosed personally identified data to the other. Only aggregate, grouped, statistical results were reported.

The Matching Process

Treatment Records

The Division of Research and Data Analysis (RDA/DSHS) contracted with researchers at Looking Glass Analytics to extract treatment records from DASA's management information system: TARGET. These researchers had ready access and up-to-date knowledge of TARGET since they had been developing and maintaining a web-based reporting system based on TARGET records. They extracted:

- One record for each treatment modality (different inpatient or outpatient ones);
- For youth, 18 years old or younger when treatment began;
- In the two year period from July 1999 through June 2001.

These treatment records, about 13,000, were sent to RDA/DSHS to match against a common DSHS database: the Client Service Database (CSDB). It contains information on the identities of all DSHS clients and the various public funded social and health services received by any given DSHS client since July 1998. The purpose was:

- To check on and gain extra information on client identifiers (Social Security Numbers, Dates of Birth, Last and First Names, and Addresses);
- To eliminate any "private pay" client (not considered a DSHS client); and

- To better 'unduplicate' clients –make sure different treatment records belonged to the same one person, not different persons.

RDA sent the unduplicated file, with checked identifiers, all linked to a common CSDB "link-ID," back to Looking Glass Analytics. Researchers at Looking Glass Analytics then constructed "treatment episodes" composed of one or more treatment modalities for the same individual. RDA in collaboration with such researchers had perfected, over the years, a standard systematic method to build such treatment episodes (see Appendix 4). Looking Glass Analytics then sent the resulting "DASA Treatment Episode" data file, containing 11,151 treatment episode records, to WSU/SESRC. WSU/SESRC had approved access to such information, for research purposes. They had a data sharing agreement and contract with DSHS/RDA (a signed Inter-Local Agreement).

High School Records

WSU/SESRC also had a long-standing data sharing agreement with OSPI and a contract with Krupski Consulting to construct and maintain a High School Graduate Follow-up database for OSPI. This database contained, together with many other post-graduate data, all available school records for all public high school students in the State of Washington for the four school years from September 1998 to June 2002.

We at Krupski Consulting had acquired knowledge of the student data in the OSPI High School database, as students moved from grade to grade, dropped out, transferred from district to district, obtained GEDs etc. We had also gained experience in matching other data to the high school student information: vocational course information, test scores, college data, employment, and military status. High School graduate follow-up studies have been conducted examining students' further educational and work experience. For this particular study, on school outcomes of treatment, our job was to match the DASA Treatment episode file to the High School file.

Matching

There were 11,151 treatment episode records in the DASA Treatment file we received. This file often contained more than one treatment record for any given youth. An individual youth could have more than one record if he/she had more than one episode of treatment in the period between July 1999 and June 2001.

The OSPI file contained all High School records, more than a million, statewide, by school district, for grades 9-12 for four consecutive years. Each student could appear more than once: once in each of the four different school years, if continuing high school and, also, more than once in a given year, if transferring across different school districts during the same school year

We matched treatment records with student records by the youths' last name, first name, date of birth, school district of residence and, whenever available, social security number.

Of the 11,151 DASA treatment records we matched 83.52% to OSPI High School records (9,313 / 11,151 = 83.52%). We are confident that these matches are of sufficient quality to regard these school and treatment records as belonging to the same person. Presently we regard the balance of 1,838 as having no records in the database: they have no recorded public high school experience.   The variable that represents this is: O_OspiDataMatched. A frequency distribution report of this variable is below:

Flag Indicating that OSPI data was successfully matched with DASA Tx Records				
O_OspiDataMatched	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	1838	16.48	1838	16.48
1	9313	83.52	11151	100.00

Note on the SAS FREQ Procedure:
DoBase.StudentClientSchoolTxRecords: O_OspiDataMatched

How to regard the 1,838 clients that we did not match to the OSPI students?

These un-matched 1,838 clients could be:

(a) A result of "bad" identifiers (misspelled names together with recording errors in date of births or social security numbers)

(b) Clients who were too young to be in high school,

(c) Clients who were high school age, but were not attending high school either before, during or after treatment, in the four year period we examined, from Sept. 1998 to June 2002 –probably drop-outs in the 7th or 8th grade;

(d) Clients who were in high school, but attending a private high school; or

(e) Clients in a public high school, but attending a school who had not reported their data consistently to OSPI – in a school district that should have been reporting, but did not report consistently throughout the four year from 1998 to 2002.

We are sure that there are very few, if any, students in the latter category –possibility (e). Only a few school districts did not report in the early years 1998-99, but reporting became much more complete in the later years: 2000-01. All school districts reported at least once during the four years. We have looked at students attending high school in districts that did not report for a year or more, which did occasionally happen. In the matched group of 9,332 there are no occurrences of a school they attended in one year not reporting the same student in the following year (as mandated for 'P210' reporting).

Further research however is needed to confirm this. Since we have addresses for most clients across the four years in question, we will be able to look at the school districts that clients resided in to confirm that none of these students were in districts that did not report.

Regarding the question of age –possibility (b), we examined how many treated youth were in fact younger than high school age. Below is a frequency distribution of unmatched clients divided by age categories at the start of treatment.

E_BeginAge	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Age at Start of Episode				
10 or less	40	2.18	40	2.18
11	10	0.54	50	2.72
12	43	2.34	93	5.06
13	158	8.60	251	13.66
14	224	12.19	475	25.84
15	317	17.25	792	43.09
16	398	21.65	1190	64.74
17	402	21.87	1592	86.62
18	246	13.38	1838	100.00

Note on the SAS FREQ Procedure:
DoBase.StudentClientSchoolTxRecords(where=(O_OspiDataMatched EQ 0)): E_BeginAge

- About 14% (n= 251) of the non-matched treatment records were for youth age 13 years old or younger when entering treatment, usually too young to be in high school.

The remaining 1,587 non-matched records could either belong to youth attending private schools (possibility 'd'), or be a result of bad identifiers (possibility 'a') or to youth who dropped out of school in the eighth grade or earlier (possibility 'c').

- Given that most of these high school age youth were 'poor' (about 60-70 percent enrolled in Medicaid funded health care services) it is unlikely that many of them were attending private schools.
- Only a small minority may be due to poor identifiers, since identifiers have been crosschecked and linked to other databases.
- It is more likely that these youth had probably dropped out early, in the 7th or 8th grade and did not attend high school at all in this time period.

Note on the 'Matched' and 'Non Matched' Youth who were Included in the Study Population

The design of the study called for including in the study population clients of sophomore and junior age when starting treatment in the two-year period from July 1999 through June 2001. This was to allow clients the potential of being enrolled in high school for at least one year AFTER treatment (either as a junior or senior) and being enrolled in high school at least one year BEFORE treatment (as a freshman or sophomore).

The initial study population of 4,875 youth included:

1. A large group of youth who were actually enrolled in school as sophomores or juniors in high school while in treatment (n= 2,997)
2. A smaller group of youth who were not in school during treatment, but were in high school either before or after treatment, and were potentially sophomores or juniors while in treatment (n= 1,284)
3. A group of 15 and 16 year old (usually the age of sophomores and juniors in high school) who were not matched with OSPI records and were considered likely to have dropped out early in the 7th or 8th grade and subsequently never attended high school (n= 594 unduplicated youth drawn from the treatment file of 715 episodes: 317 episode records of 15 year olds plus 398 episode records of 16 year olds, as reported in the table above).

From this initial study population of 4,875 we excluded those youth who we could not categorize as either 'completing treatment' or 'not completing treatment. That is, we excluded those with an 'other' completion code (n= 1,025). This left a final study population of 3,850 youth (4,875-1,025= 3,850).

- See Table 3 and 4 in Appendix 1 to see how the 'other' completion group compares to the completers and non-completers groups.
- See Tables 7 and 8, in Appendix 1 to see how the group of 15 and 16 year olds without high school records (those presumably dropping out in the 7th or 8th grade) compared with the youth with high school records.

Attachment VII

PROCESS USED TO ASSIGN DASA CLIENT TO
A SCHOOL DISTRICT BY MONTH

Process Used to Assign DASA Clients to a School District by Month

1) Roger Calhoun at Research and Data Analysis had access to the study population identifiers, from TARGET (without the matched school records data file which was kept confidential by WSU/SESRC). By matching with CSDB, he provided me with a list of all of the client's residences and their CSDB "Person_Link_Id". This address information included the start date and end date of the residence span, address, source system, residence type (home, mailing, removal, placement, or service), geo-coding quality, and coordinates assigned to that address if any. There were 198,063 of these residence spans.

2) The addresses were run through a cleaning process that fixes a few things that the geo-coder is known not to handle. It also fixed a few known problems that occurred when CSDB loaded some of the earlier OFM Eligibility data.

3) Those addresses were split into four groups.
    a) Those that had a point in CSDB already (135,894)
    b) Those that had no address information (35,083)
    c) Those that needed Geo-Coding (26,552)
    d) Those that were out of state (534)

4) Those that needed geo-coding were then re-run through the geo-coder. Since the purpose of this geo-coding is only to assign students to a school district, the accuracy requirements were set at their lowest settings. CSDB uses a fairly high accuracy requirement since the data is used for many different purposes. For this reason we were able to assign many more records to points than in the CSDB data. This resulted in 22,958 more addresses with points. Note that most of these were the result of PO BOX addresses being assigned to the center of their ZIP Code. In my opinion, this is adequate for school district in most cases, and it is definitely better than not assigning a district. The weighting step at the end of this process eliminates most of these addresses if any other address was available.

5) The remaining 3,594 were given a quick hand geo-coding, resulting in an additional 195 records, leaving a total of 3,399 records for which no point could be assigned.

6) All of the records that were assigned points were combined and put though an ArcInfo process to assign them to a school district based on their point location. Out of state addresses where given the district code 'OUTST' and un-geocoded addresses were given the code 'UNDET'.

7) Each address was then assigned a score based on the type of residence it represented.

<div align="center">

Removal =32

Placement = 32

Home = 8

Mailing = 4

Service = 1

</div>

the intent of this scoring scheme here was to make it difficult for the lower priority addresses to override the higher.

8) Each row was then split into separate records for each month it spanned. For example a residence span from Jan 2001 – March 2001 would become three records, one for each month. CSDB has the concept of an infinite end date that is used in some sources to indicate the last known address. The last address received from these sources will continue to have this end data indefinitely. In order that these addresses not be given undo weight, their score was reduced starting seven months after the beginning date of the residence span. The score was reduced by dividing it by the number of months beyond six months. So a residence span that started in January and had an infinite end date and a score of 8 would continue to have that score trough June. In July it would have the score of 8 / 1 so it would continue to keep its full score. In August it would get a score of 8/2, September 8/3, and so on indefinitely. The intent was to give it almost no weight after a year, and to let any other valid address over-ride it.

9) The scores were then summed by Person_Link_Id, Month, and School District.

10) All rows for the district code of 'UNDET' had 1 subtracted from their final score. This was to give known addresses preference in a tie.

11) The district with the highest score for a 'Person_Link_Id' in each month was kept. In the case of tying scores, one was selected randomly.

The resulting data has a record for every month for which CSDB had a residence span. If no record exists, CSDB had no residences for that client in that month. I chose to leave the 'UNDET' address in the data because it might be useful to know that the person was a client at that time, even if we didn't know their district. This might be useful to know that they should have shown up somewhere in the school data. The out of state data was maintained so that we would know that they shouldn't show up in the school data. Note that very few CSDB clients show up with out of state addresses. This is because they must receive a service from DSHS for CSDB to get an address. Very few clients retain eligibility out of state. One example however is Adoption Support. Note that due to the infinite end dates stored for some of the sources, this data has school districts assigned for time period in which the person may not have been an active client. They may have moved and not resume receiving service so that last address will continue on indefinitely. If it is determined important, we could re-process these data to drop these addresses after some arbitrary amount of time. For the original purposes of these data, it was not important or even preferable to do so.

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