Northpoint Recovery LLC substance use disorder treatment program: Outcomes assessment

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Executive summary

Northpoint Recovery engaged Milliman to complete an outcomes assessment for its substance use disorder treatment program, focusing on readmission rates, rates of engagement with outpatient follow-up therapy, and rates of compliant urinalysis results over a one-year period following discharge for patients who received detoxification and/or rehabilitation services at its inpatient facility in Boise, Idaho, from May 2015 through August 2018. Due to limitations of the data available for analysis, these results are reflective of the experience of patients that used Northpoint services for continued treatment after discharge. Results may differ for patients that used other healthcare providers instead. This analysis does not include a comparison of outcomes for Northpoint's programs to external benchmarks or any other organization.

Using service records and other data provided by Northpoint, we found that rates of readmission to Northpoint were 5% in the first 30 days post-discharge, and increased to 16% within one year following discharge. Every patient is referred to outpatient services at discharge from Northpoint, and we found that 21% of patients discharged from Northpoint participated in outpatient follow-up therapy at its Ashwood outpatient treatment facility for at least 30 days post-discharge. Finally, we found that, among those tested, rates of noncompliant urinalysis results fell from 38% of patients in the first 30 days post-discharge to 25% between 181 and 270 days post-discharge.

We identified several patient and admission characteristics that had meaningful impacts on program outcomes. Patients with longer lengths of stay at Northpoint Recovery with program completion (those with stays of at least 28 days) experienced better outcomes (lower readmission rates, higher rates of engagement with outpatient therapy, and higher rates of compliant urinalysis) than those with shorter stays or who left before the program was completed. Patients receiving both residential and detoxification treatment showed better outcomes than those admitted for just one type of treatment. Patients treated for multiple substances tended to have less successful outcomes than those treated for single substance use, and those who received naltrexone at the end of inpatient treatment showed better results than those who did not, particularly in shorter durations following discharge. Outcomes were similar across patient demographic characteristics, suggesting that, with a few exceptions, treatment was similarly effective for all patients, regardless of age, sex, or insurance coverage status.

Background

Milliman was engaged by Northpoint Recovery, LLC (Northpoint) to perform an outcomes assessment of its substance use disorder and co-occurring mental healthcare treatment program. Northpoint provides acute detoxification and inpatient rehabilitation services in a residential care setting delivering medical and clinical services. Northpoint has been in operation since 2015 and predominantly treats commercially insured and self-pay patients in the Pacific Northwest. In addition to inpatient services, Northpoint also provides a full range of outpatient services, including partial hospitalization, intensive outpatient therapy, and other professional services at its outpatient facilities, Ashwood Recovery.

This report is meant to provide an independent third-party evaluation of key results for Northpoint's programs, focusing on patient outcomes in the year immediately following discharge from Northpoint's inpatient facility. This analysis only includes

experience for patients that engaged with Northpoint's services following discharge. Due to this limitation, the outcomes presented in this report may not be directly comparable to those reported in other studies. This analysis does not include a comparison of outcomes for Northpoint's programs to external benchmarks or those reported by any other organization.

This outcomes assessment explores three key metrics: rates of readmission to Northpoint, patient engagement with outpatient follow-up therapy (determined by use of services at Northpoint's outpatient facility, Ashwood Recovery), and noncompliant urinalysis results from samples collected at Northpoint facilities.

Key findings

Northpoint provided Milliman with detailed claims data, extracts from its electronic medical records (EMR) systems, lab test results, and other types of information for use in this analysis. Data were provided for the time period of May 2015 through

August 2018. We found a total of 1,109 patient discharges over this time period, 796 of which we were able to follow for a full year post-discharge. This data set provided reasonable sample sizes for most metrics analyzed in this report. The appendices provide confidence intervals to give a sense of the statistical certainty for each result presented in this report.

Appendix A provides detailed sample characteristics for Northpoint patients, including the length of stay, type of admission, age, sex, participation in Northpoint's alumni program, insurance coverage status, substances used, patient use of naltrexone, and type of discharge. Appendix B provides the available follow-up time durations and number of patients with urinalysis results available for study at the same level of detail.

Readmission rate: Overall, we found that 5% of Northpoint patients were readmitted to Northpoint within 30 days following discharge, 8% were readmitted within 90 days, 11% were readmitted within 180 days, and 16% were readmitted within one year of discharge.

These results are shown in Figure 1.

**FIGURE 1:   OVERALL READMISSION RATES TO NORTHPOINT**
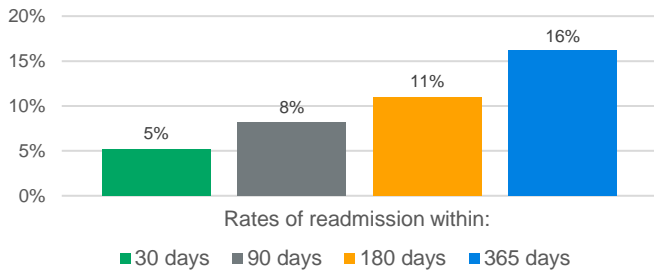
Engagement in outpatient treatment: We also found that 21% of Northpoint patients participated in outpatient follow-up therapy at Ashwood for at least 30 days post-discharge, 12% participated for at least 90 days, 7% for at least 180 days, 4% for at least 270 days, and 2% for at least 365 days post-discharge. These results are shown in Figure 2.

FIGURE 2:   OVERALL RATES OF PARTICIPATION IN ASHWOOD OUTPATIENT SERVICES
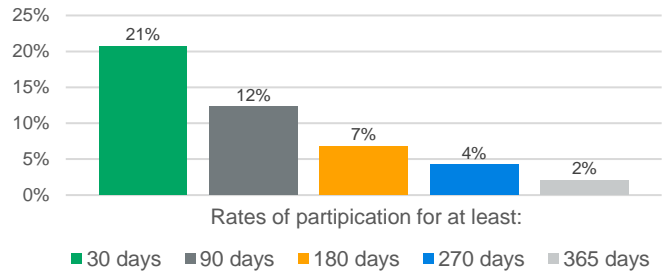
Compliant urinalysis: Among patients who completed urinalyses at Northpoint facilities, at least one noncompliant result was found for 38% of patients within 30 days post-discharge, for 31% of patients within 31 to 90 days, for 30% of patients within 91 to 180 days, for 25% of patients within 181 to 270 days, and for 41% of patients within one year post-discharge. These results are shown in Figure 3.

FIGURE 3:   OVERALL RATES OF NONCOMPLIANT URINALYSIS
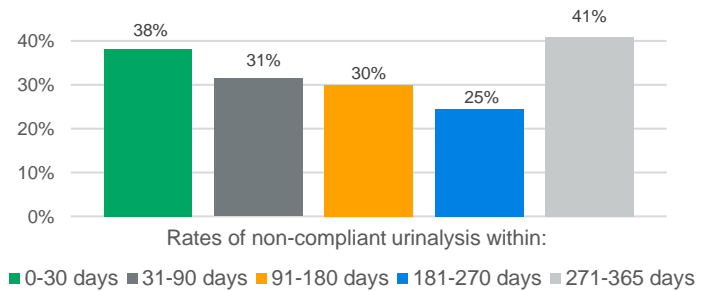
For each of these outcomes, results varied in important ways for patients with different characteristics or engaging with care differently. In the sections below, results are broken out by different patient and admission characteristics, including length of stay, alumni participation, patient use of naltrexone, patient demographics, and treatment characteristics. The outcomes measures in this report should be studied alongside the sample sizes presented in Appendix A. Strata with low sample sizes may show non-credible results and will have wider confidence intervals than those with larger sample sizes. Full details for each outcome, including corresponding confidence intervals and results by patient and admission characteristic, can be found in Appendices C, D, and E.

LENGTH OF STAY

First, we analyzed program outcomes by length of stay. Outcomes improved as patient length of stay at Northpoint increased. Compared to patients with the shortest stays (one to seven days),

patients with the longest stays (more than 28 days) were 80% less likely to be readmitted within 30 days, 52% less likely to be readmitted within a year, 56% less likely to have noncompliant urinalysis results within 30 days of discharge, and nearly 12 times as likely to continue outpatient follow-up therapy for at least 90 days post-discharge.

Figure 4 shows readmission rates within 30 days, 90 days, 180 days, and 365 days post-discharge, stratified by length of stay at Northpoint.
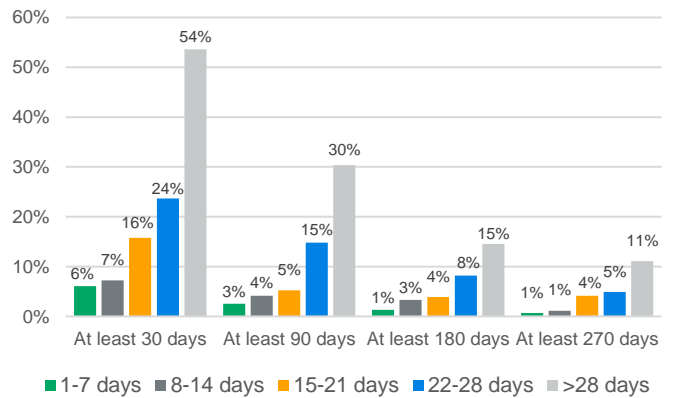
FIGURE 4:   READMISSION RATES TO NORTHPOINT BY AVERAGE LENGTH OF STAY
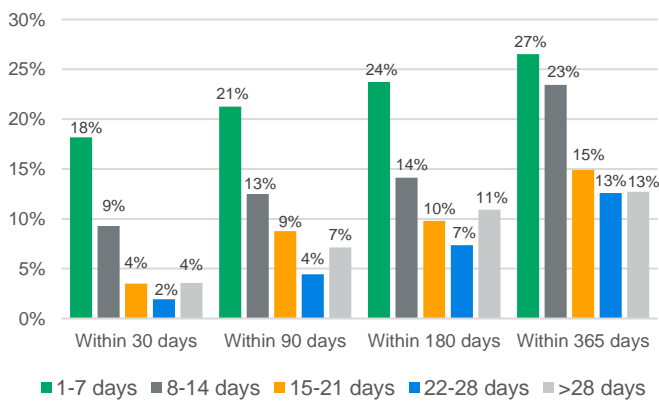
As shown in Figure 4, patients with longer stays at Northpoint were less likely to be readmitted compared to patients with shorter stays, with the lowest readmission rates occurring for patients discharged after 22 to 28 days at Northpoint. About two-thirds of patients discharged from Northpoint between May 2015 and August 2018 had stays in this range. Northpoint considers patients staying 28 days to have completed the treatment program.

Figure 5 shows rates of participation in Ashwood outpatient services following discharge from Northpoint, by length of stay at Northpoint.

FIGURE 5:   RATES OF PARTICIPATION IN ASHWOOD OUTPATIENT SERVICES POST-DISCHARGE BY LENGTH OF STAY AT NORTHPOINT

Patients with longer lengths of stay at Northpoint were more likely to engage with outpatient care compared to patients with shorter stays. Participation rates consistently increased for each increase in length of stay, with the highest participation rates occurring for patients who stayed more than 28 days at Northpoint.

Figure 6 presents rates of noncompliant urinalysis by length of stay at Northpoint.

FIGURE 6:   RATES OF NONCOMPLIANT URINALYSIS RESULTS BY AVERAGE LENGTH OF STAY
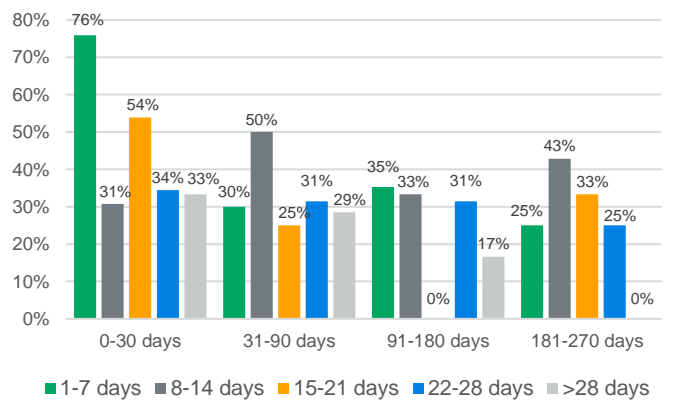
Patients with longer stays at Northpoint were less likely to have noncompliant urinalysis results compared to patients with shorter stays. Due to small urinalysis sample sizes, rates of noncompliant urinalysis appeared more erratic than the other outcomes measures, but in general, those with longer stays tended to have better results.

ALUMNI PARTICIPATION

Northpoint has an alumni Facebook group and app available for current and former patients. Outcomes for patients enrolled in these groups were mixed. Alumni participants had higher rates of

compliant urinalysis and higher rates of participation in Ashwood outpatient services than non-alumni participants; however, 30-day and 90-day readmission rates were similar between participants and nonparticipants, and participants tended to have higher 180-day and 365-day readmission rates (although sample sizes were much lower for these follow-up durations). At the time of this analysis, Northpoint had nearly 200 participants in its alumni program, representing 18% of all patients discharged between May 2015 and August 2018.

Figure 7 shows rates of readmission to Northpoint for alumni participants compared to nonparticipants.

FIGURE 7:   READMISSION RATES TO NORTHPOINT BY ALUMNI PARTICIPATION

Alumni participants had readmission rates that were similar to nonparticipants through 90 days following discharge, but afterwards showed higher readmission rates, which may be a reflection of their overall higher rates of engagement with Northpoint services. For this analysis, details about the specific nature or timing of alumni participation were not available, only whether or not participants had ever enrolled in any of the alumni programs. As such, patients could have been enrolled in the alumni program before or after readmission to Northpoint.

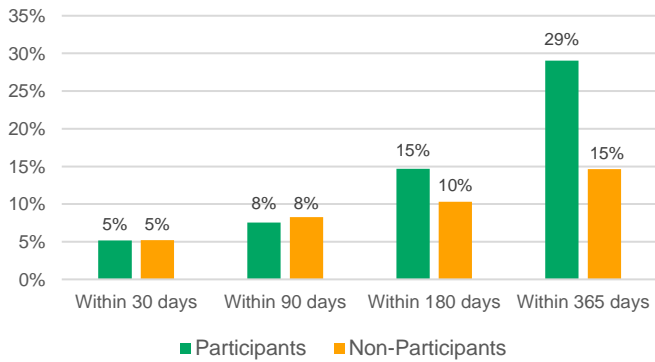Figure 8 displays rates of participation in Ashwood outpatient services post-discharge from Northpoint for alumni participants compared to nonparticipants.

FIGURE 8:   RATES OF PARTICIPATION IN ASHWOOD OUTPATIENT SERVICES POST-DISCHARGE BY ALUMNI PARTICIPATION
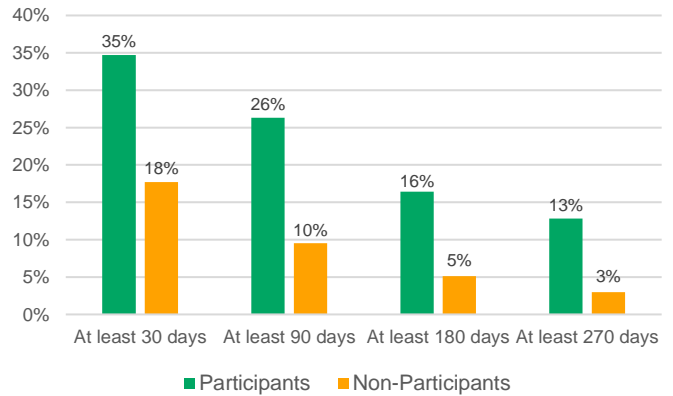
Alumni participants were at least twice as likely to engage in outpatient follow-up care as nonparticipants across each follow-up time interval. As noted above, alumni enrollment could have occurred before or after patient participation in outpatient services.

Figure 9 presents rates of noncompliant urinalysis for alumni participants compared to nonparticipants.

FIGURE 9:   RATES OF NONCOMPLIANT URINALYSIS BY ALUMNI PARTICIPATION
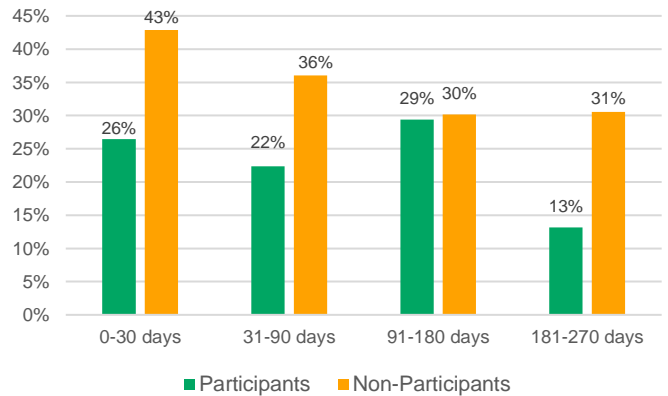
As shown above, alumni participants were more likely to have compliant urinalysis results than nonparticipants over every follow-up time interval.

PATIENT USE OF NALTREXONE

Naltrexone is a medication used primarily to assist with recovery from substance use disorders. As part of Northpoint's treatment program, patients may be administered naltrexone as a measure to help prevent relapse. About 200 patients (19%) discharged from May 2015 to August 2018 were administered naltrexone at the end of inpatient treatment. Patients who received naltrexone had lower

30-day, 60-day, and 180-day readmission rates, were less likely to have noncompliant urinalysis results, and were more likely to engage in outpatient follow-up care than those who did not.

Figure 10 shows readmission rates for patients who were administered naltrexone compared to those who were not.

FIGURE 10: READMISSION RATES TO NORTHPOINT BY PATIENT USE OF NALTREXONE

Patients who received naltrexone had much lower 30-day and 90-day readmission rates compared to those who did not. Differences in readmission rates were less pronounced at 180 days, and the 365-day readmission rate was higher for those who received naltrexone.

Figure 11 presents rates of participation in outpatient follow-up therapy for patients who were administered naltrexone compared to those who were not.

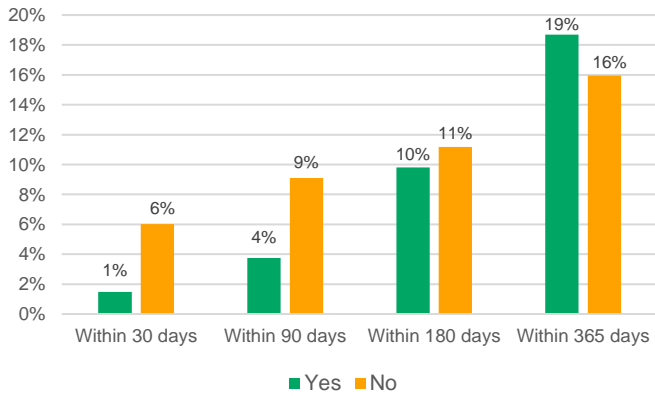**FIGURE 11: RATES OF PARTICIPATION IN ASHWOOD OUTPATIENT SERVICES POST-DISCHARGE BY PATIENT USE OF NALTREXONE**
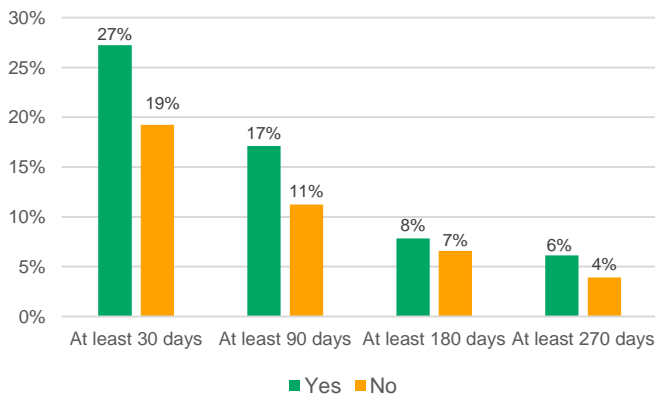
Patients who received naltrexone were more likely to engage in outpatient follow-up care across each follow-up time interval than those who did not.

Figure 12 presents rates of noncompliant urinalysis for patients who were administered naltrexone compared to those who were not.

FIGURE 12: RATES OF NONCOMPLIANT URINALYSIS BY PATIENT USE OF NALTREXONE
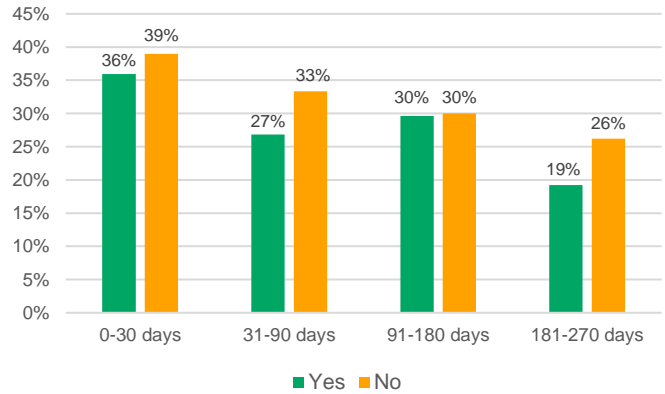
Patients who received naltrexone had higher rates of compliant urinalysis results across each follow-up time interval than those who did not.

PATIENT DEMOGRAPHIC CHARACTERISTICS

We also studied program outcomes for several different patient demographic characteristics, including age, sex, and insurance coverage status. For the most part, outcomes were similar across patient demographic characteristics, suggesting treatment was similarly effective for all patients, regardless of age, sex, or insurance coverage status.

The list below summarizes program outcomes by patient demographic characteristic. Detailed outcomes for each characteristic are provided in the appendices.

- Patients 18 to 24 years old had higher readmission rates than older age groups, but otherwise there were no clear trends or patterns across age groups, patient sex, or insurance coverage status.
- There were no clear differences in rates of noncompliant urinalysis by patient age, sex, or insurance coverage.
- Women and patients with insurance coverage were most likely to engage with outpatient follow-up care after discharge. There were no clear patterns in rates of outpatient participation by age.

TREATMENT CHARACTERISTICS

Finally, we analyzed program outcomes by treatment characteristic, including type of admit, primary substance treated, and presence of multiple substances.

Patients admitted to Northpoint for residential treatment or both detoxification and residential treatment experienced better outcomes than those admitted for detoxification only. Over half of patients admitted to Northpoint were admitted for both residential and detoxification treatment, 12% for detoxification only, and 13% for residential treatment only. Figures 13 through 15 provide a summary of outcomes by admit type.

FIGURE 13: READMISSION RATES TO NORTHPOINT BY TYPE OF ADMIT
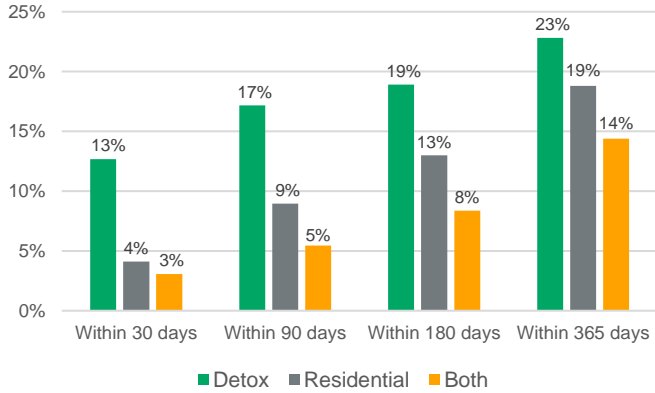
FIGURE 14: RATES OF PARTICIPATION IN ASHWOOD OUTPATIENT SERVICES POST-DISCHARGE BY TYPE OF ADMIT TO NORTHPOINT
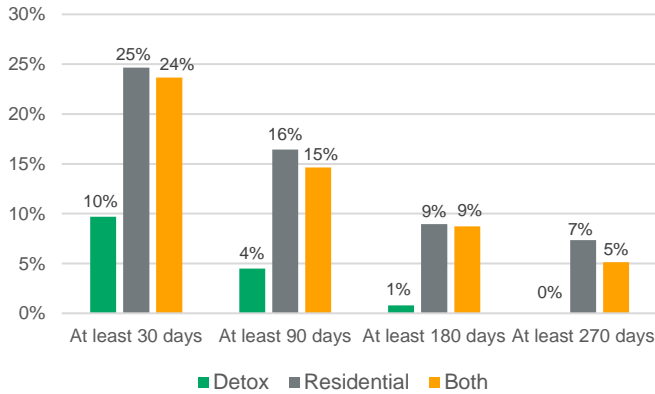
FIGURE 15: RATES OF NONCOMPLIANT URINALYSIS BY TYPE OF ADMIT TO NORTHPOINT
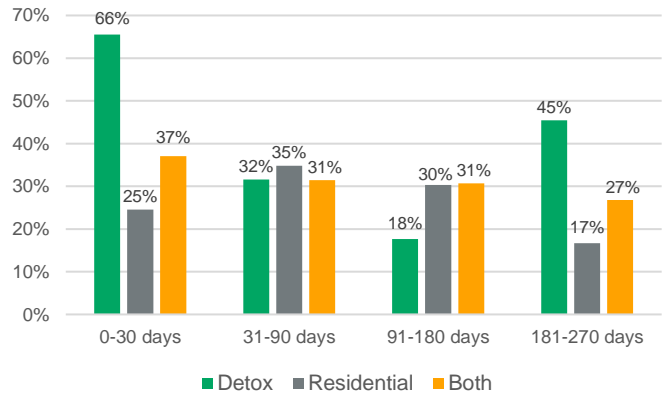
As shown in Figures 13 to 15, patients admitted for residential care or both detoxification and residential care generally had lower readmission rates, higher rates of participation in Ashwood outpatient services, and lower rates of noncompliant urinalysis results than those admitted for detoxification only.

The most commonly used substances identified for patients admitted to Northpoint between May 2015 and August 2018 were alcohol (51%), opioids (28%), and stimulants (13%). Readmission rates and rates of noncompliant urinalysis results were slightly higher for patients treated for opioid use disorder than for those treated for alcohol use disorder, but rates of participation in outpatient follow-up therapy at Ashwood were similar. Other primary substances identified in this analysis included cannabis, hallucinogens, inhalants, and sedatives. Due to smaller sample sizes for these substances, meaningful patterns were more difficult to discern. Detailed outcomes (including confidence intervals) for each substance can be found in the appendices.

Additionally, we analyzed outcomes separately for patients treated for multiple substances (poly substance users) compared to single substance users. Poly substance users experienced less successful outcomes than single substance users for each measure and timeframe analyzed. Nearly half of patients admitted to Northpoint were treated for multiple substances (46%) compared to slightly more patients treated for single substance use (53%). Figures 16 through 18 display program outcomes for poly substance users compared to single substance users.

FIGURE 16:   READMISSION RATES TO NORTHPOINT FOR POLY AND SINGLE SUBSTANCE USERS
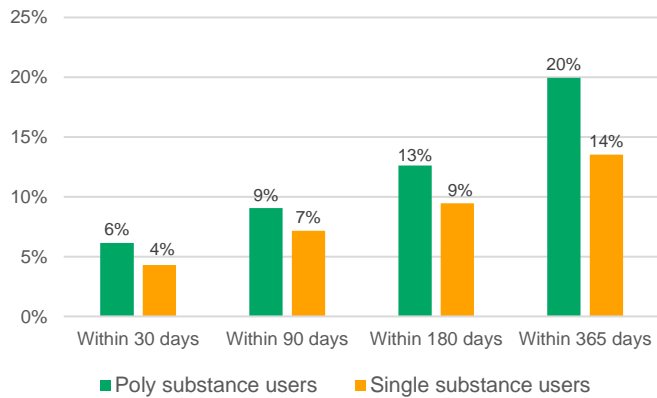
FIGURE 18:   RATES OF NONCOMPLIANT URINALYSIS FOR POLY AND SINGLE SUBSTANCE USERS
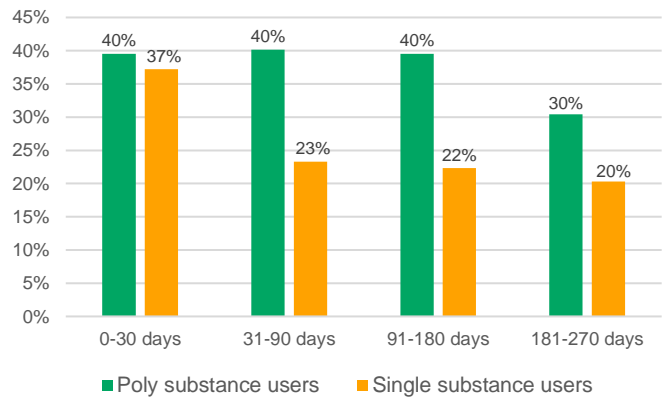
FIGURE 17:   RATES OF PARTICIPATION IN ASHWOOD OUTPATIENT SERVICES POST-DISCHARGE FOR POLY AND SINGLE SUBSTANCE USERS
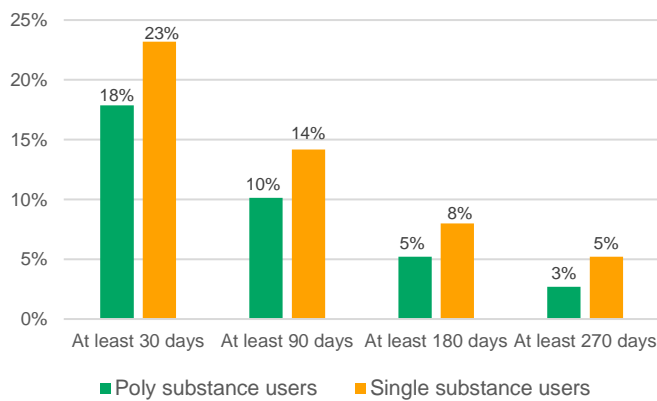
Readmission rates and rates of noncompliant urinalysis were slightly higher for poly substance users than single substance users within 30 days following discharge, with the difference growing as the time after discharge increased. Single substance users were also more likely to participate in Ashwood outpatient services across each follow-up time interval studied.

Methodology

This analysis relied on claims, electronic medical records (EMR), urinalysis results, patient demographic data, and other information provided by Northpoint Recovery. The methodology used to calculate each metric, as well as identification of patient and admission characteristics, is described below.

RATES OF READMISSION TO NORTHPOINT

This analysis relied on Northpoint's admissions report to identify patient admissions and Northpoint's EMR data to identify patient discharges. Discharges were included in these calculations if they had sufficient available follow-up time durations, calculated as the number of days between the Northpoint discharge date and the last date through which Northpoint or Ashwood service records were available.

Note that due to data limitations, this analysis only captures readmissions to Northpoint. Readmissions to other facilities are not included. Total readmissions rates (across all facilities) would likely be higher than those reported here. The readmission rates reported here should not be directly compared to total readmission rates reported in other studies.

Readmission rates are cumulative, with the timeframes studied increasing from 30-day readmission rates to 365-day readmission rates.

RATES OF PARTICIPATION IN ASHWOOD OUTPATIENT SERVICES

This analysis relied on Northpoint's admissions report to identify patient admissions to Ashwood Recovery, Northpoint's EMR data to identify patient discharges from Northpoint Recovery, and Ashwood's EMR data to identify patient discharges from Ashwood Recovery. Northpoint discharges were included in these calculations if they had sufficient available follow-up time durations, calculated as the number of days between the Northpoint discharge date and the last date through which Northpoint or Ashwood service records were available. Admissions to Ashwood Recovery were included if they occurred within 365 days following discharge from Northpoint Recovery.

Rates of participation in Ashwood outpatient services were calculated for each duration as the length of time between admission to and discharge from Ashwood Recovery, as determined by admit and discharge dates provided in Ashwood's EMR data. Participation rates are not mutually exclusive; for example, a patient who participated in Ashwood outpatient services for at least 365 days also appears in the calculations for earlier durations (at least 30 days, 90 days, 180 days, and 270 days).

RATES OF NONCOMPLIANT URINALYSES

This analysis relied on reports from Northpoint's urinalysis lab test provider to calculate rates of noncompliant urinalyses. Additionally, Northpoint provided a list of substances considered noncompliant with its treatment program to calculate this measure.

Some patients had both compliant and noncompliant lab results, but for this report we counted patients as noncompliant if they had at least one positive test result for urine samples collected at Northpoint Recovery or Ashwood Recovery during the specified follow-up time interval. Patients were only considered compliant if *all* of their test results within the specified follow-up time interval were compliant. This analysis only includes patients who had at least one lab test (positive or negative) at any Northpoint facility (including Northpoint Recovery, Ashwood Recovery, Ashwood Boise, Ashwood Nampa, and The Evergreen at Northpoint) within the specified follow-up time intervals included in this analysis.

Note that due to data limitations, this analysis only captures urinalysis results completed at Northpoint facilities. Urinalysis and other drug screening tests could have been completed at other facilities as well.

The rates of noncompliant urinalyses reported here are specific to the time periods reported (i.e., 0-30 days, 31-90 days, etc.) and non-overlapping, with the number of patients eligible for inclusion in this metric decreasing as duration post-discharge increased.

PATIENT AND ADMISSION CHARACTERISTICS

This analysis examined program outcomes for several different patient and admission characteristics. Length of stay, type of admission, age, sex, participation in Northpoint's alumni program, and insurance coverage status were identified using fields provided in Northpoint's claims and EMR data.

Additionally, Northpoint provided a record of patients who were administered naltrexone, including an identifier that mapped to the provided EMR data. The naltrexone administration date typically occurred around the date of discharge from Northpoint, and 94% of patients who were administered naltrexone received their initial treatment within one day before or after discharge.

Northpoint's EMR data included a field describing patient discharge type. Patients were identified as graduated from the program if their discharge types were listed as "completed," "completed episode of care (substance free for at least 30 days)," or "referred outside of agency – episode of care completed," or if they stayed for at least 28 days at Northpoint. Patients were identified as leaving voluntarily from the program if their discharge types were listed as "eloped," "left voluntarily before completing treatment (against medical, clinical or staff advice),"

or "against medical advice." Patients were identified as leaving involuntarily from the program if their discharge types were listed as "left involuntarily before completing treatment," "non-compliant with agency's rules," or "administrative discharge (initiated by the agency)." Patients were identified as referred out of the program when their discharge type was listed as "referred outside of agency – episode of care not completed." Admission records without a listed type of discharge and length of stay fewer than 28 days were unable to be classified and are listed in the appendices as "unknown."

A patient's primary substance used was identified according to the first substance use diagnosis code listed in the EMR data. ICD-9 diagnosis codes between 303 and 305 and ICD-10 diagnosis codes between F10 and F19 were used to identify substance use. Patients with more than one substance use diagnosis code on their admission records were identified as poly substance users, and those with only one substance use code were identified as single substance users.

Caveats and Limitations

All observational studies are at risk of confounding, meaning that the relationship between a presumed predictor and an outcome could actually be driven by a third factor. For example, lower readmission rates for patients with longer lengths of stay could partially be driven by exhaustion of benefits. Typical approaches for addressing confounding include stratification of the results by potential confounders, matching intervention and control subjects on potential confounders, or statistical adjustment for differences in potential confounders. The results provided in this report are stratified for various subgroups, although sample sizes for some subgroups are low. Statistical adjustment and matching approaches were outside of the scope of this analysis; however, confidence intervals are included to provide a sense of statistical certainty for each result.

We relied on data provided by Northpoint Recovery in September 2018 for this analysis. We reviewed the data for reasonability but have not audited or verified this information. If the underlying data or information are inaccurate or incomplete, the results of our analysis may likewise be inaccurate or incomplete. Future results may vary from the historical outcomes presented in this report. This work was completed under the Consulting Services Agreement between Northpoint Recovery and Milliman dated May 4, 2018.

Milliman does not endorse or recommend any particular treatment program or strategy. These results are meant to provide an independent evaluation of Northpoint's outcomes, and do not constitute an endorsement of its services. Patients in need of substance use disorder treatment services should seek appropriate clinical advice. Milliman does not intend to benefit or create a legal duty to any third-party recipient of this work.

The authors would like to thank Steve Melek and Robert Schmidt for their helpful input and peer review of this material.

Appendices

APPENDIX A: SAMPLE CHARACTERISTICS

The table below provides sample characteristics for Northpoint patients discharged from May 2015 to August 2018. This table provides the total number of discharges from Northpoint Recovery broken out by length of stay, type of admit, age, sex, alumni participation, insurance coverage status, primary substance used, use of multiple substances, use of naltrexone, and type of discharge.

The first column shows total discharges overall, followed by columns that stratify the number of discharges by whether or not the patient ever had any readmissions or noncompliant urinalysis results, or whether they were admitted to Ashwood Recovery for outpatient follow-up within a year following discharge. Discharges that occurred less than a year from the latest available date in the data are counted in the "insufficient follow-up" columns for the readmission and engagement with intensive outpatient therapy measures. Similarly, discharges without any urinalysis tests within a year of discharge are included in the "not tested" columns for the noncompliant urinalysis measure.

The p-values shown below were calculated using chi-square tests to compare the distribution of admission characteristics across columns. These values are a measure of whether or not the characteristics are meaningfully different across the yes, no, and insufficient follow-up columns for each measure. Characteristics with a p-value less than 0.05 are considered to have differences that are statistically significant. This test indicates the degree of confidence that patient or treatment characteristics differ significantly by outcome, and is not a measure of whether or not outcomes differed significantly by characteristic. That is better assessed by reviewing the outcomes in appendices C, D, and E.

	OVERALL		ANY READMISSION TO NORTHPOINT WITHIN ONE YEAR POST-DISCHARGE							ANY NONCOMPLIANT URINALYSIS WITHIN ONE YEAR POST-DISCHARGE							ANY ASHWOOD FOLLOWUP WITHIN ONE YEAR POST-DISCHARGE						
			YES		NO		INSUFF. FOLLOW-UP		P-VALUE[1]	YES		NO		NOT TESTED		P-VALUE[1]	YES		NO		INSUFF. FOLLOW-UP		P-VALUE[1]
CHARACTERISTICS	N	%	N	%	N	%	N	%		N	%	N	%	N	%		N	%	N	%	N	%	
All Discharges	1,109		135		696		278			245		185		679			367		528		214		
Length of Stay																							
1-7 days	166	15.0	39	28.9	108	15.5	19	6.8	<0.001	32	13.1	11	5.9	123	18.1	<0.001	13	3.5	124	23.5	29	13.6	<0.001
8-14 days	98	8.8	19	14.1	62	8.9	17	6.1		13	5.3	9	4.9	76	11.2		9	2.5	70	13.3	19	8.9	
15-21 days	57	5.1	7	5.2	40	5.7	10	3.6		11	4.5	6	3.2	40	5.9		15	4.1	33	6.3	9	4.2	
22-28 days	732	66.0	63	46.7	438	62.9	231	83.1		173	70.6	143	77.3	416	61.3		297	80.9	278	52.7	157	73.4	
>28 days	56	5.0	7	5.2	48	6.9	1	0.4		16	6.5	16	8.6	24	3.5		33	9.0	23	4.4	0	0.0	
Type of Admit																							
Detox	135	12.2	26	19.3	88	12.6	21	7.6	0.015	26	10.6	11	5.9	98	14.4	0.002	22	6.0	88	16.7	25	11.7	<0.001
Residential	146	13.2	19	14.1	82	11.8	45	16.2		28	11.4	36	19.5	82	12.1		60	16.3	55	10.4	31	14.5	
Both	620	55.9	67	49.6	399	57.3	154	55.4		153	62.4	104	56.2	363	53.5		228	62.1	281	53.2	111	51.9	
Unknown[2]	208	18.8	23	17.0	127	18.2	58	20.9		38	15.5	34	18.4	136	20.0		57	15.5	104	19.7	47	22.0	
Age																							
18-24	331	29.8	59	43.7	194	27.9	78	28.1	0.165	99	40.4	54	29.2	178	26.2	0.002	124	33.8	151	28.6	56	26.2	0.209
25-29	150	13.5	17	12.6	95	13.6	38	13.7		34	13.9	32	17.3	84	12.4		55	15.0	72	13.6	23	10.7	
30-34	131	11.8	15	11.1	85	12.2	31	11.2		25	10.2	27	14.6	79	11.6		44	12.0	64	12.1	23	10.7	
35-39	116	10.5	7	5.2	85	12.2	24	8.6		25	10.2	16	8.6	75	11.0		38	10.4	59	11.2	19	8.9	
40-44	95	8.6	9	6.7	61	8.8	25	9.0		19	7.8	8	4.3	68	10.0		25	6.8	46	8.7	24	11.2	
45-49	87	7.8	9	6.7	50	7.2	28	10.1		15	6.1	21	11.4	51	7.5		33	9.0	34	6.4	20	9.3	
50-54	86	7.8	8	5.9	57	8.2	21	7.6		9	3.7	14	7.6	63	9.3		18	4.9	47	8.9	21	9.8	

CHARACTERISTICS	OVERALL		ANY READMISSION TO NORTHPOINT WITHIN ONE YEAR POST-DISCHARGE								ANY NONCOMPLIANT URINALYSIS WITHIN ONE YEAR POST-DISCHARGE								ANY ASHWOOD FOLLOWUP WITHIN ONE YEAR POST-DISCHARGE							
			YES		NO		INSUFF. FOLLOW-UP		P-VALUE[1]		YES		NO		NOT TESTED		P-VALUE[1]		YES		NO		INSUFF. FOLLOW-UP		P-VALUE[1]
	N	%	N	%	N	%	N	%			N	%	N	%	N	%			N	%	N	%	N	%	
55-59	68	6.1	8	5.9	39	5.6	21	7.6			11	4.5	8	4.3	49	7.2			15	4.1	35	6.6	18	8.4	
60-64	34	3.1	3	2.2	22	3.2	9	3.2			6	2.4	4	2.2	24	3.5			11	3.0	15	2.8	8	3.7	
65+	11	1.0	0	0.0	8	1.1	3	1.1			2	0.8	1	0.5	8	1.2			4	1.1	5	0.9	2	0.9	
Sex																									
Female	406	36.6	52	38.5	260	37.4	94	33.8	0.518		96	39.2	70	37.8	240	35.3	0.525		150	40.9	186	35.2	70	32.7	0.095
Male	703	63.4	83	61.5	436	62.6	184	66.2			149	60.8	115	62.2	439	64.7			217	59.1	342	64.8	144	67.3	
Alumni Participation																									
Yes	195	17.6	27	20.0	66	9.5	102	36.7	<0.001		54	22.0	62	33.5	79	11.6	<0.001		100	27.2	38	7.2	57	26.6	<0.001
No	914	82.4	108	80.0	630	90.5	176	63.3			191	78.0	123	66.5	600	88.4			267	72.8	490	92.8	157	73.4	
Insurance Coverage																									
Yes	979	88.3	123	91.1	617	88.6	239	86.0	0.277		228	93.1	160	86.5	591	87.0	0.030		328	89.4	466	88.3	185	86.4	0.572
No	130	11.7	12	8.9	79	11.4	39	14.0			17	6.9	25	13.5	88	13.0			39	10.6	62	11.7	29	13.6	
Primary Substance																									
Alcohol	570	51.4	59	43.7	354	50.9	157	56.5	0.075		108	44.1	102	55.1	360	53.0	0.111		188	51.2	257	48.7	125	58.4	0.013
Cannabis	27	2.4	6	4.4	11	1.6	10	3.6			6	2.4	2	1.1	19	2.8			7	1.9	13	2.5	7	3.3	
Cocaine	14	1.3	2	1.5	6	0.9	6	2.2			2	0.8	0	0.0	12	1.8			2	0.5	7	1.3	5	2.3	
Hallucinogen	2	0.2	0	0.0	2	0.3	0	0.0			0	0.0	0	0.0	2	0.3			0	0.0	2	0.4	0	0.0	
Inhalant	2	0.2	1	0.7	1	0.1	0	0.0			1	0.4	1	0.5	0	0.0			2	0.5	0	0.0	0	0.0	
Opioid	306	27.6	39	28.9	198	28.4	69	24.8			74	30.2	51	27.6	181	26.7			101	27.5	153	29.0	52	24.3	
Other Stimulant	145	13.1	19	14.1	97	13.9	29	10.4			45	18.4	23	12.4	77	11.3			58	15.8	72	13.6	15	7.0	
Sedative	33	3.0	7	5.2	19	2.7	7	2.5			8	3.3	5	2.7	20	2.9			7	1.9	16	3.0	10	4.7	
N/A[3]	10	0.9	2	1.5	8	1.1	0	0.0			1	0.4	1	0.5	8	1.2			2	0.5	8	1.5	0	0.0	
Multiple Substances																									
Poly	510	46.0	68	50.4	273	39.2	169	60.8	<0.001		122	49.8	78	42.2	310	45.7	0.406		165	45.0	218	41.3	127	59.3	<0.001
Single	589	53.1	65	48.1	415	59.6	109	39.2			122	49.8	106	57.3	361	53.2			200	54.5	302	57.2	87	40.7	
N/A[3]	10	0.9	2	1.5	8	1.1	0	0.0			1	0.4	1	0.5	8	1.2			2	0.5	8	1.5	0	0.0	
Patient Use of Naltrexone																									
Yes	208	18.8	17	12.6	74	10.6	117	42.1	<0.001		56	22.9	47	25.4	105	15.5	0.002		93	25.3	47	8.9	68	31.8	<0.001
No	901	81.2	118	87.4	622	89.4	161	57.9			189	77.1	138	74.6	574	84.5			274	74.7	481	91.1	146	68.2	
Type of Discharge																									
Graduated	740	66.7	68	50.4	447	64.2	225	80.9	<0.001		181	73.9	152	82.2	407	59.9	<0.001		314	85.6	274	51.9	152	71.0	<0.001
Left, patient decision	107	9.6	17	12.6	61	8.8	29	10.4			13	5.3	4	2.2	90	13.3			1	0.3	73	13.8	33	15.4	
Left, involuntary	40	3.6	3	2.2	20	2.9	17	6.1			5	2.0	5	2.7	30	4.4			7	1.9	20	3.8	13	6.1	
Referred out – care not completed	32	2.9	14	10.4	13	1.9	5	1.8			8	3.3	6	3.2	18	2.7			3	0.8	15	2.8	14	6.5	
Unknown[4]	190	17.1	33	24.4	155	22.3	2	0.7			38	15.5	18	9.7	134	19.7			42	11.4	146	27.7	2	0.9	

[1] P-values from chi-square tests comparing distribution of characteristics across strata.

[2] Unknown admit types represent missing information in the claims data or admissions not identified as detox or residential.

[3] N/A indicates there was no substance diagnosis associated with the admission.

[4] Unknown discharge types represent blanks in the data.

APPENDIX B: AVAILABLE FOLLOW-UP TIME DURATIONS AND URINALYSES

The table below shows the number of patient discharges included for each metric. For the readmission and Ashwood participation rate metrics, the number of patient discharges included is based on the amount of follow-up time post-discharge available in the data.[1] The amount of follow-up time available is determined by comparing the date of discharge to the last date through which data were available for study. For example, because data were provided through August 2018, a patient discharged in February 2018 could be followed for at least 180 days to assess outcomes, and that person's discharge would be counted in the ≥ 30, ≥ 90, and ≥ 180 columns in the table below, but not in the ≥ 270 or ≥ 365 columns. For the noncompliant urinalysis rate metric, the number of patient discharges included is based on whether or not the patient completed any urinalyses within the specified timeframes post-discharge. Patients are not counted in any column if they never had any urinalysis tests after discharge from Northpoint, and are counted once for each time window in which they completed at least one urinalysis.

The outcomes measures in this report should be studied alongside the sample sizes presented in Appendix A. Strata with low sample sizes may show non-credible results and will have larger confidence interval ranges than those with larger sample sizes.

CHARACTERISTICS	OVERALL N	DAYS OF FOLLOW-UP TIME AVAILABLE POST-DISCHARGE[1]					COMPLETED A URINALYSIS WITHIN X DAYS POST-DISCHARGE				
		≥ 30	≥ 90	≥ 180	≥ 270	≥ 365	0-30	31-90	91-80	181-270	271-365
Total Discharges	1,109	1,096	1,041	959	879	796	361	280	184	110	71
Length of Stay											
1-7 days	166	164	158	150	142	136	29	20	17	12	7
8-14 days	98	97	96	91	87	77	13	8	6	7	4
15-21 days	57	57	57	51	48	47	13	8	3	3	3
22-28 days	732	722	674	612	548	482	276	216	140	80	50
>28 days	56	56	56	55	54	54	30	28	18	8	7
Type of Admit											
Detox	135	134	134	124	115	107	29	19	17	11	3
Residential	146	146	134	123	109	93	53	46	33	18	11
Both	620	617	588	550	506	455	216	175	114	71	50
Unknown[2]	208	199	185	162	149	141	63	40	20	10	7
Age											
18-24	331	325	311	284	258	236	131	90	56	29	18
25-29	150	150	143	135	124	110	54	42	28	18	8
30-34	131	130	122	111	102	96	47	43	29	16	12
35-39	116	114	109	105	97	91	35	27	18	15	13
40-44	95	94	89	84	78	67	22	18	11	11	6
45-49	87	86	79	71	63	57	29	24	15	6	5
50-54	86	85	81	77	71	62	16	12	9	6	5
55-59	68	68	65	54	49	44	14	14	11	4	1
60-64	34	33	31	28	28	25	10	7	4	2	2
65+	11	11	11	10	9	8	3	3	3	3	1
Sex											
Female	406	399	382	353	328	298	143	112	69	42	26
Male	703	697	659	606	551	498	218	168	115	68	45
Alumni Participation											
Yes	195	193	171	140	109	78	102	94	68	38	22
No	914	903	870	819	770	718	259	186	116	72	49
Insurance Coverage											
Yes	979	970	926	858	790	710	322	253	171	104	69
No	130	126	115	101	89	86	39	27	13	6	2
Primary Substance											
Alcohol	570	561	524	479	436	396	173	140	94	54	34
Cannabis	27	27	25	21	20	17	6	5	4	2	4
Cocaine	14	14	13	13	11	7	2	2	2	1	0
Hallucinogen	2	2	2	2	2	2	0	0	0	0	0
Inhalant	2	2	2	2	2	1	1	1	2	2	0
Opioid	306	303	293	270	251	229	106	75	51	32	20

CHARACTERISTICS	OVERALL N	DAYS OF FOLLOW-UP TIME AVAILABLE POST-DISCHARGE[1]					COMPLETED A URINALYSIS WITHIN X DAYS POST-DISCHARGE				
		≥ 30	≥ 90	≥ 180	≥ 270	≥ 365	0-30	31-90	91-80	181-270	271-365
Other Stimulant	145	144	139	133	123	111	62	47	26	15	11
Sedative	33	33	33	29	24	23	10	8	5	4	2
N/A[3]	10	10	10	10	10	10	1	2	0	0	0
Multiple Substances											
Poly	510	504	474	423	370	320	172	132	81	46	26
Single	589	582	557	526	499	466	188	146	103	64	45
N/A[3]	10	10	10	10	10	10	1	2	0	0	0
Patient Use of Naltrexone											
Yes	208	202	187	153	114	80	89	82	54	26	12
No	901	894	854	806	765	716	272	198	130	84	59
Type of Discharge											
Graduated	740	730	685	622	559	494	294	239	154	86	55
Left, patient decision	107	106	102	95	83	73	10	5	1	1	3
Left, involuntary	40	40	37	28	27	23	9	9	5	3	1
Referred out – care not completed	32	30	29	26	22	18	10	5	6	6	3
Unknown[4]	190	190	188	188	188	188	38	22	18	14	9

[1] Available follow-up time durations are calculated as the number of days between the Northpoint discharge date and the last date through which Northpoint or Ashwood service records were available.

[2] Unknown admit types represent missing information in the claims data or admissions not identified as detox or residential.

[3] N/A indicates there was no substance diagnosis associated with the admission.

[4] Unknown discharge types represent blanks in the data.

APPENDIX C: RATES OF READMISSION TO NORTHPOINT

The table below shows readmission rates to Northpoint's program post-discharge from detoxification or residential treatment. Confidence intervals (calculated using the Wilson method) are provided to give a sense of the statistical certainty for each result, and are largely a function of the sample sizes available for each metric.

CHARACTERISTICS	WITHIN 30 DAYS RATE (%)	95% CI	WITHIN 90 DAYS RATE (%)	95% CI	WITHIN 180 DAYS RATE (%)	95% CI	WITHIN 365 DAYS RATE (%)	95% CI
All Discharges	5	(4-7)	8	(7-10)	11	(9-13)	16	(14-19)
Length of Stay								
1-7 days	18	(13-25)	21	(16-28)	24	(18-31)	27	(20-34)
8-14 days	9	(5-17)	13	(7-21)	14	(8-23)	23	(16-34)
15-21 days	4	(1-12)	9	(4-19)	10	(4-21)	15	(7-28)
22-28 days	2	(1-3)	4	(3-6)	7	(6-10)	13	(10-16)
>28 days	4	(1-12)	7	(3-17)	11	(5-22)	13	(6-24)
Type of Admit								
Detox	13	(8-19)	17	(12-24)	19	(13-27)	23	(16-31)
Residential	4	(2-9)	9	(5-15)	13	(8-20)	19	(12-28)
Both	3	(2-5)	5	(4-8)	8	(6-11)	14	(11-18)
Unknown[1]	7	(5-12)	10	(6-15)	12	(8-18)	15	(10-22)
Age								
18-24	7	(5-10)	12	(9-16)	17	(13-21)	23	(19-29)
25-29	3	(1-7)	5	(2-10)	8	(5-14)	15	(10-23)
30-34	5	(2-10)	8	(5-14)	10	(6-17)	15	(9-23)
35-39	3	(1-7)	6	(3-11)	6	(3-12)	8	(4-15)
40-44	5	(2-12)	7	(3-14)	7	(3-15)	13	(7-23)
45-49	7	(3-14)	8	(4-16)	11	(6-21)	15	(8-27)
50-54	6	(3-13)	7	(3-15)	9	(4-17)	12	(6-22)
55-59	3	(1-10)	6	(2-15)	11	(5-22)	17	(9-30)
60-64	9	(3-24)	10	(3-25)	11	(4-27)	12	(4-30)
65+	0	(0-26)	0	(0-26)	0	(0-28)	0	(0-32)
Sex								
Female	4	(3-7)	8	(6-12)	12	(9-15)	17	(13-21)
Male	6	(4-8)	8	(6-10)	11	(8-13)	16	(13-19)
Alumni Participation								
Yes	5	(3-9)	8	(4-13)	15	(10-21)	29	(21-39)
No	5	(4-7)	8	(7-10)	10	(8-13)	15	(12-17)
Insurance Coverage								
Yes	5	(4-6)	8	(6-10)	11	(9-13)	17	(14-19)
No	7	(4-13)	9	(5-15)	11	(6-18)	13	(8-22)
Primary Substance								
Alcohol	4	(3-6)	7	(5-10)	10	(8-13)	14	(11-18)
Cannabis	4	(1-18)	8	(2-25)	14	(5-35)	35	(17-59)
Cocaine	7	(1-31)	8	(1-33)	15	(4-42)	25	(7-59)
Hallucinogen	0	(0-66)	0	(0-66)	0	(0-66)	0	(0-66)
Inhalant	0	(0-66)	0	(0-66)	0	(0-66)	50	(9-91)
Opioid	5	(3-8)	8	(5-12)	11	(8-15)	16	(12-22)
Other Stimulant	6	(3-11)	10	(6-16)	11	(7-18)	16	(11-24)
Sedative	12	(5-27)	18	(9-34)	20	(10-37)	27	(14-46)
N/A[2]	10	(2-40)	20	(6-51)	20	(6-51)	20	(6-51)
Multiple Substances								
Poly	6	(4-9)	9	(7-12)	13	(10-16)	20	(16-25)
Single	4	(3-6)	7	(5-10)	9	(7-12)	14	(11-17)
N/A[2]	10	(2-40)	20	(6-51)	20	(6-51)	20	(6-51)
Patient Use of Naltrexone								
Yes	1	(1-4)	4	(2-8)	10	(6-16)	19	(12-28)
No	6	(5-8)	9	(7-11)	11	(9-14)	16	(13-19)
Type of Discharge								
Graduated	2	(1-4)	5	(4-7)	8	(6-10)	13	(11-16)
Left, patient decision	7	(3-13)	12	(7-19)	13	(8-21)	22	(14-32)
Left, involuntary	5	(1-17)	8	(3-21)	11	(4-27)	13	(5-32)
Referred out – care not completed	45	(29-62)	45	(29-62)	48	(31-66)	52	(34-69)
Unknown[3]	9	(6-14)	11	(7-16)	14	(10-19)	18	(13-24)

[1] Unknown admit types represent missing information in the claims data or admissions not identified as detox or residential.
[2] N/A indicates there was no substance diagnosis associated with the admission.
[3] Unknown discharge types represent blanks in the data.

APPENDIX D: RATES OF PARTICIPATION IN ASHWOOD OUTPATIENT SERVICES

The table below shows rates of continued outpatient follow-up in Northpoint's outpatient facility, Ashwood, following discharge from Northpoint.

CHARACTERISTICS	AT LEAST 30 DAYS RATE (%)	95% CI	AT LEAST 90 DAYS RATE (%)	95% CI	AT LEAST 180 DAYS RATE (%)	95% CI	AT LEAST 270 DAYS RATE (%)	95% CI	AT LEAST 365 DAYS RATE (%)	95% CI
All Discharges	21	(18-23)	12	(10-14)	7	(5-9)	4	(3-6)	2	(1-3)
Length of Stay										
1-7 days	6	(3-11)	3	(1-6)	1	(0-5)	1	(0-4)	1	(0-4)
8-14 days	7	(4-14)	4	(2-10)	3	(1-9)	1	(0-6)	0	(0-5)
15-21 days	16	(9-27)	5	(2-14)	4	(1-13)	4	(1-14)	2	(0-11)
22-28 days	24	(21-27)	15	(12-18)	8	(6-11)	5	(3-7)	3	(2-5)
>28 days	54	(41-66)	30	(20-43)	15	(8-26)	11	(5-22)	0	(0-7)
Type of Admit										
Detox	10	(6-16)	4	(2-9)	1	(0-4)	0	(0-3)	0	(0-3)
Residential	25	(18-32)	16	(11-24)	9	(5-15)	7	(4-14)	4	(2-11)
Both	24	(20-27)	15	(12-18)	9	(7-11)	5	(4-7)	2	(1-4)
Unknown[1]	16	(12-22)	8	(5-12)	3	(1-7)	2	(1-6)	1	(0-4)
Age										
18-24	22	(18-27)	10	(7-14)	4	(2-7)	2	(1-4)	0	(0-2)
25-29	21	(16-29)	15	(10-22)	7	(4-12)	3	(1-8)	2	(1-6)
30-34	25	(18-33)	17	(12-25)	12	(7-19)	8	(4-15)	4	(2-10)
35-39	23	(16-31)	15	(9-23)	11	(7-19)	9	(5-17)	5	(2-12)
40-44	18	(12-27)	10	(5-18)	7	(3-15)	5	(2-12)	1	(0-8)
45-49	21	(14-31)	13	(7-22)	3	(1-10)	2	(0-8)	2	(0-9)
50-54	12	(7-20)	7	(3-15)	5	(2-13)	4	(1-12)	3	(1-11)
55-59	15	(8-25)	9	(4-19)	4	(1-13)	0	(0-7)	0	(0-8)
60-64	24	(13-41)	13	(5-29)	11	(4-27)	7	(2-23)	0	(0-13)
65+	18	(5-48)	18	(5-48)	20	(6-51)	22	(6-55)	0	(0-32)
Sex										
Female	24	(20-28)	14	(11-18)	8	(5-11)	5	(3-8)	3	(1-5)
Male	19	(16-22)	11	(9-14)	6	(5-8)	4	(2-6)	2	(1-3)
Alumni Participation										
Yes	35	(28-42)	26	(20-33)	16	(11-23)	13	(8-20)	10	(5-19)
No	18	(15-20)	10	(8-12)	5	(4-7)	3	(2-4)	1	(1-2)
Insurance Coverage										
Yes	21	(19-24)	13	(11-15)	7	(6-9)	4	(3-6)	2	(1-3)
No	17	(11-24)	8	(4-14)	4	(2-10)	2	(1-8)	1	(0-6)
Primary Substance										
Alcohol	21	(18-25)	13	(10-16)	8	(6-10)	5	(3-7)	2	(1-4)
Cannabis	15	(6-32)	16	(6-35)	0	(0-15)	0	(0-16)	0	(0-18)
Cocaine	7	(1-31)	8	(1-33)	0	(0-23)	0	(0-26)	0	(0-35)
Hallucinogen	0	(0-66)	0	(0-66)	0	(0-66)	0	(0-66)	0	(0-66)
Inhalant	50	(9-91)	50	(9-91)	0	(0-66)	0	(0-66)	0	(0-79)
Opioid	21	(17-26)	13	(9-17)	7	(4-10)	4	(2-8)	3	(1-6)
Other Stimulant	22	(16-30)	10	(6-16)	5	(3-10)	2	(1-7)	0	(0-3)
Sedative	15	(7-31)	9	(3-24)	7	(2-22)	4	(1-20)	0	(0-14)
N/A[2]	20	(6-51)	10	(2-40)	10	(2-40)	10	(2-40)	0	(0-28)
Multiple Substances										
Poly	18	(15-21)	10	(8-13)	5	(3-8)	3	(1-5)	2	(1-4)
Single	23	(20-27)	14	(12-17)	8	(6-11)	5	(4-8)	2	(1-4)
N/A[2]	20	(6-51)	10	(2-40)	10	(2-40)	10	(2-40)	0	(0-28)
Patient Use of Naltrexone										
Yes	27	(22-34)	17	(12-23)	8	(5-13)	6	(3-12)	6	(3-14)
No	19	(17-22)	11	(9-14)	7	(5-9)	4	(3-6)	2	(1-3)
Type of Discharge										
Graduated	26	(23-30)	16	(14-19)	9	(7-11)	6	(4-8)	3	(2-4)
Left, patient decision	1	(0-5)	0	(0-4)	0	(0-4)	0	(0-4)	0	(0-5)
Left, involuntary	13	(5-26)	8	(3-21)	7	(2-23)	4	(1-18)	4	(1-21)
Referred out – care not completed	7	(2-21)	7	(2-22)	4	(1-19)	0	(0-15)	0	(0-18)
Unknown[3]	14	(10-20)	6	(3-10)	4	(2-7)	2	(1-5)	1	(0-4)

[1] Unknown admit types represent missing information in the claims data or admissions not identified as detox or residential.

[2] N/A indicates there was no substance diagnosis associated with the admission.

[3] Unknown discharge types represent blanks in the data.

APPENDIX E: RATES OF NONCOMPLIANT URINALYSES

The table below shows rates of noncompliant results in urine tests for substance use following discharge from Northpoint's program.

CHARACTERISTICS	0-30 DAYS RATE (%)	0-30 DAYS 95% CI	31-90 DAYS RATE (%)	31-90 DAYS 95% CI	91-180 DAYS RATE (%)	91-180 DAYS 95% CI	181-270 DAYS RATE (%)	181-270 DAYS 95% CI	271-365 DAYS RATE (%)	271-365 DAYS 95% CI
All Discharges	38	(33-43)	31	(26-37)	30	(24-37)	25	(17-33)	41	(30-52)
Length of Stay										
1-7 days	76	(58-88)	30	(15-52)	35	(17-59)	25	(9-53)	43	(16-75)
8-14 days	31	(13-58)	50	(22-78)	33	(10-70)	43	(16-75)	75	(30-95)
15-21 days	54	(29-77)	25	(7-59)	0	(0-56)	33	(6-79)	67	(21-94)
22-28 days	34	(29-40)	31	(26-38)	31	(24-40)	25	(17-35)	34	(22-48)
>28 days	33	(19-51)	29	(15-47)	17	(6-39)	0	(0-32)	57	(25-84)
Type of Admit										
Detox	66	(47-80)	32	(15-54)	18	(6-41)	45	(21-72)	33	(6-79)
Residential	25	(15-38)	35	(23-49)	30	(17-47)	17	(6-39)	27	(10-57)
Both	37	(31-44)	31	(25-39)	31	(23-40)	27	(18-38)	44	(31-58)
Unknown[1]	41	(30-54)	28	(16-43)	35	(18-57)	0	(0-28)	43	(16-75)
Age										
18-24	44	(35-52)	46	(36-56)	39	(28-52)	41	(26-59)	50	(29-71)
25-29	33	(22-47)	24	(13-39)	25	(13-43)	28	(12-51)	38	(14-69)
30-34	26	(15-40)	33	(20-47)	28	(15-46)	6	(1-28)	33	(14-61)
35-39	31	(19-48)	26	(13-45)	39	(20-61)	20	(7-45)	46	(23-71)
40-44	59	(39-77)	33	(16-56)	18	(5-48)	18	(5-48)	33	(10-70)
45-49	31	(17-49)	8	(2-26)	20	(7-45)	17	(3-56)	60	(23-88)
50-54	38	(18-61)	25	(9-53)	0	(0-30)	17	(3-56)	0	(0-43)
55-59	36	(16-61)	36	(16-61)	36	(15-65)	0	(0-49)	100	(21-100)
60-64	60	(31-83)	0	(0-35)	25	(5-70)	50	(9-91)	50	(9-91)
65+	33	(6-79)	0	(0-56)	33	(6-79)	33	(6-79)	0	(0-79)
Sex										
Female	42	(34-50)	30	(23-39)	29	(20-41)	33	(21-48)	31	(17-50)
Male	36	(30-42)	32	(26-40)	30	(23-39)	19	(12-30)	47	(33-61)
Alumni Participation										
Yes	26	(19-36)	22	(15-32)	29	(20-41)	13	(6-27)	32	(16-53)
No	43	(37-49)	36	(29-43)	30	(23-39)	31	(21-42)	45	(32-59)
Insurance Coverage										
Yes	39	(33-44)	32	(27-38)	30	(23-37)	26	(18-35)	41	(30-52)
No	36	(23-52)	22	(11-41)	31	(13-58)	0	(0-39)	50	(9-91)
Primary Substance										
Alcohol	37	(30-44)	21	(15-29)	26	(18-35)	15	(8-27)	44	(29-61)
Cannabis	67	(30-90)	20	(4-62)	25	(5-70)	50	(9-91)	75	(30-95)
Cocaine	0	(0-66)	100	(34-100)	100	(34-100)	100	(21-100)		
Hallucinogen										
Inhalant	0	(0-79)	0	(0-79)	0	(0-66)	50	(9-91)		
Opioid	41	(32-50)	35	(25-46)	31	(20-45)	34	(20-52)	25	(11-47)
Other Stimulant	39	(28-51)	49	(35-63)	42	(26-61)	27	(11-52)	55	(28-79)
Sedative	30	(11-60)	63	(31-86)	20	(4-62)	25	(5-70)	0	(0-66)
N/A[2]	0	(0-79)	50	(9-91)						
Multiple Substances										
Poly	40	(33-47)	40	(32-49)	40	(30-50)	30	(19-45)	50	(32-68)
Single	37	(31-44)	23	(17-31)	22	(15-31)	20	(12-32)	36	(23-50)
N/A[2]	0	(0-79)	50	(9-91)						
Patient Use of Naltrexone										
Yes	36	(27-46)	27	(18-37)	30	(19-43)	19	(9-38)	33	(14-61)
No	39	(33-45)	33	(27-40)	30	(23-38)	26	(18-36)	42	(31-55)
Type of Discharge										
Graduated	35	(29-40)	31	(26-38)	29	(22-36)	23	(16-33)	35	(23-48)
Left, patient decision	80	(49-94)	60	(23-88)	100	(21-100)	100	(21-100)	67	(21-94)
Left, involuntary	33	(12-65)	33	(12-65)	0	(0-43)	0	(0-56)	100	(21-100)
Referred out – care not completed	60	(31-83)	20	(4-62)	17	(3-56)	0	(0-39)	33	(6-79)
Unknown[3]	50	(35-65)	27	(13-48)	50	(29-71)	43	(21-67)	67	(35-88)

[1] Unknown admit types represent missing information in the claims data or admissions not identified as detox or residential.
[2] N/A indicates there was no substance diagnosis associated with the admission.
[3] Unknown discharge types represent blanks in the data.