

**PRESCRIPTION AND USE OF PSYCHOTROPIC MEDICATIONS IN
UTAH DIVISION OF JUVENILE JUSTICE SECURE CARE FACILITIES**

A RESEARCH REPORT PRODUCED FOR THE STATE OF UTAH DIVISION OF JUVENILE JUSTICE
SERVICES AND THE UTAH COMMISSION ON CRIMINAL AND JUVENILE JUSTICE

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I EXECUTIVE SUMMARY

Problem Statement

Recent national studies report that the numbers of youth with mental disorders who become engaged with the juvenile justice system are increasing, and subsequently the prevalence of mental health disorders for youth in custody is on the rise [1-26]. Several published estimates place the ratio of youth in custody with mental disorders requiring treatment at 60-75% [1, 2, 4, 13, 15, 16, 22, 23, 27]. Recent research has also found that 63% of youth involved with Utah Juvenile Justice Services (JJS) experience considerable mental distress or have clinically significant emotional, behavioral or mental disorders [28].

This situation is recognized at the national level as highly problematic, with the Department of Health and Human Services, the Department of Justice and US Congress calling for federal investigation of the availability and adequacy of mental health treatment in juvenile correctional facilities [2, 9, 13, 19, 29]. Chief among national, state and local concerns is the use of psychotropic medications in juvenile justice facilities [30-33]. Much of the controversy centers on two related issues in the psychopharmacological treatment of youth: 1) Given that clinical studies are not routinely conducted to test the safety and efficacy of psychotropic medications with children and youth, all prescription for this population is considered to be "off label"; 2) Prescriptive practice and assessment of outcomes related to psychopharmacology is subsequently not standardized, and may often not be systematically tracked or measured. Questions about overmedication, including dosage levels, polypharmacy and chemical restraint are major concerns in juvenile justice systems across the US [31, 32].

In 2006, the Director of the Utah Division of Juvenile Justice identified the need for research regarding the system-wide use of psychotropic medications in JJS facilities, particularly as patterns of prescription and use change as youth transition between the variety of community and JJS settings. This identified need seemed to derive, at least in part, to a persistent public and institutional perception that youth in the juvenile justice system might be

subject to overmedication with psychotropic drugs, or that youth who did not need to engage in psychopharmacological treatment were nonetheless medicated with psychotropic drugs.

Further, psychotropic medications represent a large expense for JJS.

In June-August 2007, in partnership with the Utah Division of Juvenile Justice Services (JJS), our research team completed data collection and preliminary analysis for a study of patterns of psychotropic medication prescription and use in Utah's secure care facilities. It was collaboratively decided, based on input from JJS administrators and staff, that while a longitudinal study tracking medication prescription and use as youth transition between community and JJS settings would be ideal, that our study would begin in the 6 JJS Secure Care facilities, where youth in custody are housed for longer periods of time than other correctional settings.

It is important to note that the question of whether all the "right kids" and none of the "wrong kids" in JJS Secure Care are taking psychotropic medications is not a research question, as it represents a clinical judgment arrived at through assessment, diagnosis and close tracking of psychopharmacologic intervention. As clinicians, we recognize this process and the fact that our role is not to second guess the clinical decisions made by our peers. Therefore, we were clear that our research would describe and quantify patterns of prescription and use, as well as those qualitative factors that contribute to medication practices, but would not answer the question as originally posed. Rather, we frame the data collection, analysis and results within a "best practices" approach precisely because as noted above, there are no published standards of care for psychopharmacological treatment of children and adolescents.

Study Aims

The purpose of this study was to systematically and empirically describe and explore the prescription and use of psychotropic medications in the mental health treatment of youth in all six JJS Secure Care facilities in Utah. The specific short-term aims of this study are twofold:

1. To quantify and describe the use of psychotropic medication in and across the six facilities including demographic, diagnostic and clinical characteristics of youth engaged in psychopharmacological treatment, common patterns of multiple medication prescription, duration of treatment, and patterns of initiation and discontinuation.
2. To explore providers' and staffs' practices, attitudes and beliefs related to psychopharmacological treatment, and to describe how providers and staff in these facilities make decisions about pharmacological treatment including screening procedures, assessment of when medication is necessary, assessment of whether medications are working, informal rules and standards for best practice and opportunities and challenges to provision of care in this setting.

Major Findings

A. Findings from Review and Analyses of Chart Data

Based on the review and analyses of data collected in Secure Care facilities June 2007- August 2007, we did not find evidence of overmedication or questionable psychopharmacological treatment in general, including excessively high dosages, excessive or unjustified polypharmacy, or chemical restraint. Our findings therefore do not support claims that youth in secure care who are prescribed psychotropic medications are overmedicated or otherwise inappropriately medicated.

In each case where youth were prescribed psychotropic medication, chart data indicated evidence of current symptoms and behaviors based on staff reports and clinical assessments, or showed diagnostic and treatment histories consistent with psychopharmacological treatment. Most youth in the sample were continued on a medication they had been prescribed in another setting.

These findings raise another important point: In our study design, we only reviewed data related to youth who were prescribed psychotropic medications during the study period. We

therefore did not review charts for youth who were not prescribed psychotropic meds, or took medications only for sleep problems. There may be youth who would have benefited from psycho-pharmacological treatment who was not currently being treated which, if true, points to issues regarding screening and communication of relevant information from front-line staff to providers. If anything, we appear to be at risk of missing “false negatives”.

Low to Appropriate Dosages

We reviewed the dosages of each medication as compared with prescribing practices of qualified and experienced providers working with similar populations in community and residential treatment settings. Dosage levels were considered both in terms of single medications, as well as the appropriateness of levels when these meds are used in combination with other classes of medications (for example, combining a mood stabilizer and an antipsychotic). Overall dosages were assessed as being low to moderate in relation to the range of dosages that reviewers expected to find in other settings. In no case was any dosage of any med assessed to be higher than the range typically recognized as standard care in other settings.

A focused review of ADD/ADHD medications also found dosages to be low compared with ranges one might find in other settings. We believe that this is associated with the adjunctive use of atypical antipsychotics (i.e. Seroquel) to manage residual symptoms not alleviated by lower dosages of stimulant and non-stimulant ADD/ADHD medications. Further, the dosage ranges of the antipsychotic medications (mainly Seroquel) prescribed adjunctively with ADD/ADHD meds in this sample were much lower than dosage levels associated with either the treatment of psychotic symptoms or anger or agitation.

Polypharmacy, or Combination Therapy in Treatment of Youth

Polypharmacy or combination therapy is now the rule rather than the exception in the psychopharmacological treatment of youth [10, 34]. Our findings showed that 62% of the youth prescribed psychotropic medications at the time of our study were taking more than one

medication concomitantly, while 38% were taking only 1 medication. All but 1 youth who were prescribed multiple meds were taking 2 or 3 medications concomitantly. This is compared with findings from community studies in which many youth who are treated with combination therapy are prescribed multiple medications, often more than 3 [34, 35]. This indicates that the prevalence and degree of polypharmacy or combination therapy in the secure care sample is less than in other practice settings.

No Evidence of Chemical Restraint

Chemical restraint is defined in medical, scientific, and ethics literature as the use of medications to control or restrict behavior through sedation, restraint or incapacitation for the purpose of discipline or convenience when it is not standard treatment for a person's underlying medical or psychiatric condition. Data gathered during records review did not indicate practices consistent with chemical restraint, based on several observations. First, dosages of those medications most associated with sedation or behavioral restraint (i.e. typical and atypical antipsychotics, benzodiazepines) are low—lower than would be necessary under normal circumstances to induce moderate or heavy sedation. Second, very few sedative-hypnotic medications or other medications with primary sedating effects are prescribed in this sample. Third, the relatively low dosage levels for all types of meds, including atypical antipsychotics such as Seroquel prescribed concomitantly with other medications, do not seem to support the idea that they are used for sedation or restraint.

Patterns of Prescription and Use

Many youth were prescribed medications that they had been taking prior to secure care admit. The most frequently prescribed *class* of medications was antidepressants, with 65% of the sample prescribed and SSRI or atypical antidepressant. Wellbutrin (bupropion) an atypical antidepressant) was the second most frequently prescribed specific medication. The second most frequently prescribed *class* of medications was atypical antipsychotics, found in 56% of the sample. Seroquel (quetiapine) was the single most frequently prescribed specific medication,

and was most often used as an adjunctive medication in combination therapy for the treatment of residual ADD/ADHD symptoms, including continued agitation and sleep problems.

B. Findings from Interview Data

We conducted 25 interviews with providers, nurses, therapists and counselors working in all 6 Secure Care facilities. This resulted in a very rich qualitative data set that provides important context for this study, and helped guide our analyses and interpretations of chart review findings. Our analysis of these data were framed within a “best practices” approach aimed at identifying those general themes and ideas that emerged most frequently and notably in our interviews, and thus seem to be important contributors to both formal and informal rules and practices regarding psychotropic medication treatment.

In every facility everyday practices were informed by culture and context as much as scientific evidence or external referents such as policies or formal standards. In the absence of formal or universal standards, ideas about what constitutes best practices are generated within each setting based on anecdotal evidence, personal experience, and trial and error. In effect, people develop standards through an inductive process then transmit those standards within the cultural context of each facility and the larger system. So there are standards operating, and in many cases these protect against risk or harm, but these may vary from facility to facility, unit to unit, or provider to provider.

The majority of counselors, nursing staff and therapists we interviewed expressed a belief that there are more youth with more serious mental health problems in secure care now than in the past, a perception that is supported by a number of publications on the increased prevalence of mental health disorders in juvenile justice populations [1-26]. Many staff feel ill-equipped to deal with a population that they see as qualitatively different from the at-risk or delinquent youth they prefer to work with. At the same time, staff also express a lingering skepticism about the legitimacy or reality of mental illness symptoms in youth, believing that many youth are “behavioral” and not “real mental health kids” and may be manipulating staff

and providers to procure medications they don't need and won't use once released. Holding both beliefs at the same time creates a situation in which many staff are regularly deciding to which group a youth belongs, sometimes based on subjective or partial understandings of mental health disorders and standard treatments. This makes all practices surrounding psychotropic medication prescription, administration and monitoring much less systematic and objective than the ideal.

Although our study did not find evidence of inappropriate psychotropic medication prescription or use, there were several areas in which more formal or systematic procedures could reduce risks associated with psychopharmacological treatment, and improve communication, medication administration, monitoring, records-keeping and practices. Each secure care facility has developed at least one "best practice" related to psychotropic medications, and it would be beneficial to identify, define and formalize these standards as a resource to be shared across facilities. Such a process would lead to the articulation of clear standards and expectations for all involved in the process of prescribing, administering, monitoring and recording psychotropic medications, and should include providers, nursing staff, therapists and counselors.

Recommendations

Although the study did not find evidence of inappropriate psychotropic medication prescription or use, there were several areas in which more formal or systematic procedures could reduce risks associated with psychopharmacological treatment, and improve communication, medication administration, monitoring, records-keeping and practices. Each secure care facility has developed at least one "best practice" related to psychotropic medications, and it would be beneficial to identify, define and formalize these standards as a resource to be shared across facilities. Such a process would lead to the articulation of clear standards and expectations for all involved in the process of prescribing, administering,

monitoring and recording psychotropic medications, and should include providers, nursing staff, therapists and counselors.

Additionally, a number of federal organizations have published best practices standards on mental health treatment and juvenile justice populations. In 2001, the Office of Juvenile Justice and Delinquency Prevention (OJJDP), a division of the US Department of Justice, charged the National Center for Mental Health and Juvenile Justice, in collaboration with the Council of Juvenile Correctional Administrators (CJCA), to develop a model to address the increasing mental health treatment needs of the juvenile justice population. The result was the evidence-based model Blueprint for Change: A Comprehensive Model for the Identification and Treatment of Youth with Mental Health Needs in Contact with the Juvenile Justice System (a PDF of this document, and an executive summary, can be found at:

<http://www.ncmhjj.com/Blueprint/default.shtml>). This document addresses more general issues related to mental health treatment and juvenile justice, and also outlines standards related to screening and assessment and provides evidence in support of medication treatment.

In 2004, the American Academy of Child and Adolescent Psychiatry published Practice Parameters for the Assessment and Treatment of Youth in Juvenile Detention and Correctional Facilities, a set of guidelines on best practices for the diagnosis, evaluation, treatment and management of youth in correctional custody. This includes a set of 14 recommendations with information relevant to administrators, providers and staff. These recommendations could be reviewed and adapted with the intent of assessing how Utah JJS practices currently meet these goals, and areas where practices could be developed and improved. A summary of this document is available through the National Guideline Clearinghouse at:

http://www.guideline.gov/summary/summary.aspx?ss=15&doc_id=6508&nbr=4077#s23. Finally, a 2004 publication *Use of Psychotropic Medications with Incarcerated Youth; Standards for Health Services in Juvenile and Confinement Facilities* is available through the National Commission on Correctional Health Care.

II. Introduction to Problem

A. Mental Health Disorders in Youth Offenders

The U.S. correctional system is becoming the de facto public mental health system of the 21st century [36-38]. The adult correctional system is currently responsible for more than 10 times the number of persons with mental illness receiving treatment in state psychiatric hospitals [39, 40]. The increasing prevalence of such youth in juvenile justice systems throughout the U.S. is also well documented [9, 13, 15, 19, 22, 29, 41]. As mirrored in the adult system, the juvenile justice system also seems to be emerging as a critical site for mental and behavioral health intervention [2, 42].

Recent research indicates that a significant number of youth who come in contact with US juvenile justice systems suffer from mental disorders that place them at risk for self harm, impulsive and dangerous behaviors and increasing decompensation related to escalating symptoms and untreated psychiatric disorders [10, 16, 21, 43, 44]. One notable estimate from the ODJJP places the number of U.S. youth arrested in 2003 who have serious mental health issues at around 444,000 [8, 22]. Youth in juvenile justice services are also highly likely to have mental and emotional disorders exacerbated by co-occurring substance use [15, 22, 28]. Moreover, poor mental health status and marked emotional or behavioral dysfunction is described as a major risk factor for poor juvenile justice outcomes [2, 4, 10, 17, 22, 27, 45, 46]

B. National Concerns about Medication Treatment

This situation is recognized at the national level as highly problematic, with the Department of Health and Human Services, the Department of Justice and US Congress calling for federal investigation of the availability and adequacy of mental health treatment in juvenile correctional facilities [2, 9, 13, 19, 29]. Chief among national, state and local concerns is the use of psychotropic medications in juvenile justice facilities [30-33]. This has also emerged as a controversial topic in political and clinical circles, driven in part by a notable lack of empirical data related to psychopharmacologic practice with youth [26, 31, 34] and lack of consistent

treatment and outcome measures [4, 32]. Major concerns center on two related issues in the psychopharmacological treatment of youth: 1) Given that clinical studies are not routinely conducted to test the safety and efficacy of psychotropic medications with children and youth, all prescription for this population is considered to be “off label”; 2) Prescriptive practice and assessment of outcomes related to psychopharmacology is subsequently not standardized, and is often not measured. In effect, there is no formal standard for “best practice” for psychopharmacological treatment of youth in general, and especially for those youth treated within juvenile systems and secure facilities.

Along with describing increased prevalence and the impact of mental health on juvenile delinquency and criminal behavior, the literature also identifies a need for research that informs how systems respond to the challenges presented by these youth, including how individual and system factors interact to predict positive or negative outcomes [2, 4, 29, 36, 38, 47] .

Systematically tracking mental health factors, treatment factors including medication use, and the interaction of mental health and justice outcomes over time would represent a tremendous contribution to the field. As noted above, very little research or published information exists describing or quantifying the use of psychotropic medications to treat youth in juvenile justice systems across the nation, and Utah State is no exception.

C. Mental Disorders and Youth in Utah Juvenile Justice Services

In 2002, 144,000 youth who were adjudicated in delinquency cases were ordered into residential placement juvenile justice facilities, a 44% increase from 1985 [8]. Daily, roughly 190 children and adolescents are incarcerated in six Utah Juvenile Justice Service (JJS) Secure Care facilities, similar in purpose and practice to adult prisons. Many youth who come in contact with US juvenile justice systems suffer from mental disorders that place them at risk for self harm, impulsive and dangerous behaviors and increasing decompensation related to escalating symptomatology and untreated psychiatric disorders [10, 23, 43, 44, 48]. Recent research has also found that 63% of youth involved with Utah Juvenile Justice Services (JJS) experience

considerable mental distress or have clinically significant emotional, behavioral or mental disorders [28]. While most of these youth will receive mental health treatment through community-based centers, a significant minority will be incarcerated in facilities where there may be a lack of consistency in assessment, treatment and outcome evaluation [2, 13, 17, 19, 22, 25, 27, 28, 49] and a lack of continuity of treatment for youth transitioning between secure and community settings [12, 24, 26, 47, 50, 51].

The results reported here reflect similar concerns regarding a perceived increase in the numbers of youth with mental disorders entering into secure care facilities specifically. Numerous staff, including counselors, nurses, and therapists, described what they perceived as an increase in the number of youth with severe mental, emotional and behavioral disorders penetrating into the system in recent years. These youth were described as qualitatively different from those historically served through JJS programming, requiring significantly different and more intensive forms of intervention, treatment and programming, another aspect noted in scientific literature in the field [4, 9, 16, 29, 41, 46, 52].

While Utah JJS, like many juvenile justice systems, provides mental health services for all youth in custody, these services may not be adequate for the daily or long-term management of a growing population with moderate to severe dysfunction [22]. Assessing adequacy would entail the development of a number of targeted outcome measures related to mental health factors for youth in custody, requiring the input of both child and adolescent mental health specialists and juvenile justice specialists.

D. Identified Need for Research

In 2006, the Director of the Utah Division of Juvenile Justice identified the need for research regarding the system-wide use of psychotropic medications in JJS facilities, particularly as patterns of prescription and use change as youth transition between the variety of community and JJS settings. This identified need seemed to derive, at least in part, to a persistent public and institutional perception that youth in the juvenile justice system might be

subject to overmedication with psychotropic drugs, or that youth who did not need to engage in psychopharmacological treatment were nonetheless medicated with psychotropic drugs. A collateral concern was the issue of chemical restraint, or the practice of using moderately to highly sedating dosages of medication to manage difficult behaviors and render youth as “easy keepers”, instead of using physical restraint or intervention techniques that might be more apparent. Although as this report details we did not find evidence of any of these practices in this study, these perceptions and beliefs seem to persist despite the available evidence. Additionally, the cost of psychotropic medication represents a sizable expenditure for JJS, as it does across the US for countless consumers and correctional and community-based mental health treatment programs.

It is important to note, given this context, that our research team identified 2 major considerations that had to be addressed from the outset:

- 1) The question of whether all the “right kids” and none of the “wrong kids” in JJS Secure Care are taking psychotropic medications is not a research question, as it represents a clinical judgment arrived at through assessment, diagnosis and close tracking of psychopharmacologic intervention. As clinicians, we recognize this process and the fact that our role is not to second guess the clinical decisions made by our peers. Therefore, we were clear that our research would describe and quantify patterns of prescription and use, as well as those qualitative factors that contribute to medication practices, but would not answer the question as originally posed.
- 2) We frame the data collection, analysis and results within a “best practices” approach precisely because as noted above, there are no published standards of care for psychopharmacological treatment of children and adolescents. This is likely a contributing factor to a sense of unease regarding psychotropic treatment your youth. This does not mean that prescribing practices are not thoughtful and systematic as practiced by responsible, trained providers. Nevertheless, it is widely recognized that

psychotropic treatment is as much an art as a science [30], as the evidence base for practice with youth is still often provider-bound and anecdotal. Further, unlike private practice, within a setting such as Secure Care a number of stakeholders are involved in the process of medication treatment from financial and practical perspectives. Not all these players have the same level knowledge about psychopharmacology, specific psychotropic medications, or symptoms of mental health disorders.

Therefore, in June-August 2007, in partnership with the Utah Division of Juvenile Justice Services (JJS), our research team completed data collection and preliminary analysis for a study of patterns of psychotropic medication prescription and use in Utah's secure care facilities. It was collaboratively decided, based on input from JJS administrators and staff, that while a longitudinal study tracking medication prescription and use as youth transition between community and JJS settings would be ideal, that our study would begin in the 6 JJS Secure Care facilities, where youth in custody are housed for longer periods of time than other correctional settings. Secure Care represents the furthest extent that a youth in custody can penetrate into the correctional system, and therefore can be thought of as prison confinement. We reasoned that beginning in Secure Care facilities would allow us to develop a plan for study in a relatively stable environment where practices, beliefs, and rationales for psychopharmacological treatment would be operating in a daily context.

In our preliminary analyses of these data, several factors emerged as significant: 1) The prevalence of a significant minority of youth in Secure Care representing moderate to extreme mental, behavioral and emotional disorders; 2) Reported issues in continuity of care regarding psychotropic medication treatment, particularly when youth in custody transition to less restrictive placements or return to the community. Given the absence of evidence of overmedication or chemical restraint, these issues emerged as serious concerns, and were noted as having critical implications for juvenile justice outcomes such as recidivism, escalating behaviors, violence, and successful maintenance of community placements.

III. Study Aims, Design, Methods

A. Study Aims

This preliminary study is designed to systematically and empirically describe and explore the prescription and use of psychotropic medications in the mental health treatment of youth in all six JJS Secure Care facilities in Utah. The specific short-term aims of this study are twofold:

3. To quantify and describe the use of psychotropic medication in and across the six facilities including demographic, diagnostic and clinical characteristics of youth engaged in psychopharmacological treatment, common patterns of multiple medication prescription, duration of treatment, and patterns of initiation and discontinuation.
4. To explore provider and clinical staffs' practices, attitudes and beliefs related to psychopharmacological treatment, including opportunities and barriers for optimal treatment, and to describe how providers and staff in these facilities make decisions about pharmacological treatment including screening procedures, assessment of when medication is necessary, assessment of whether medications are working, and informal rules and standards for best practice and challenges to provision of care in this setting.

B. Study Design

This is a descriptive and exploratory study in which we used a multiple method design approach to generate both quantitative and qualitative data. These data include secondary JJS data gathered through retrospective reviews of medical and JJS records and primary semi-structured interview data from providers and staff.

C. Methods and Procedures

1. Human Subjects Approval for Study

This study was approved by both the University of Utah Internal Review Board for the Protection of Human Subjects (IRB) and the Utah Department of Human Services IRB. This

study did not involve any contact with the youth residing in any of the secure care facilities at this time of our visits.

2. Sampling

A. Site selection

We conducted the study in the 6 JJS Secure Care Facilities: Decker Lake Youth Center, Farmington Bay Youth Center Mill Creek Youth Center, Slate Canyon Youth Center, South West Utah Youth Center, and Wasatch Youth Center. Secure facilities are long-term locked confinement facilities for serious and habitually delinquent youths, similar to adult prisons. Delinquent youth are not sentenced for a specific length of time but their stay is based on the guidelines established by the Youth Parole Authority.

B. Chart Reviews

The research team made a series of site visits. During each site visit, a list of youth currently prescribed psychotropic medications was generated by nursing staff through review of the Medication Administration Records (MARs). Medical, behavioral and traveling charts for all youth who were prescribed psychotropic meds at the time of the site visit were reviewed. Only charts for youth who were prescribed psychotropic meds for mental health reasons were included in the sample: youth who were taking a psychotropic med only for sleep (i.e. trazodone, doxepin) were not included.

C. Interview participants

We also conducted semi-structured research interviews with prescribing providers, nursing staff responsible for administering and recording medication use and clinical response, and Youth Counselors who directly provide and monitor mental health care in each facility. This was a purposive sample, with participants solicited based on their involvement in prescribing, administering, or monitoring psychopharmacology and related outcomes. A total of 25 staff interviews were conducted with counselors, therapists, nurses and providers.

3. Data Collection

A. Collection of chart data

Prior to the study, our team met twice each with JJS Administrators and nursing staff to discuss what variables of interest should be the focus of investigation. Study variables and interview domains have been generated based on this input. Table 1 below outlines the chart data on the following variables were collected: 1) Demographic data on youth in the secure facilities as of the site visit date; 2) Length of time in the facility; 3) Medical records data related to DSM-IV psychiatric diagnoses, 4) Psychiatric screening, assessment and evaluation data; 5) Prescribed psychotropic medications including PRN (as needed); 7) Medication related charting; 8) Staff notes regarding medication administration, outcomes tracking and use of PRNs.

Table 1 Data Collected from JJS Charts

Variables	Description	Data Source
Demographics	DOB, Gender, Ethnic Category, Religion, City & County of Origin	Traveling Chart
Time in Secure Care Facility	Number of days since admission to facility	Traveling Chart
DSM-IV Diagnoses	Any diagnoses made by qualified clinician on Axes I-V	Review of Medical Records
Psychiatric Assessment Data	Problem list, chief complaint, target symptoms	Review of Medical Records
Regular Psychotropic Meds	Name of med(s), dosage since admission	MAR
PRN Meds	Name of med(s), dosage, frequency of use	MAR
Med Status	Pattern of use of regular meds (sporadic, discontinuous or steady)	MAR
Rx Initiate or D/C	Initiation of new med or discontinuation of med during stay	MAR
Med Tracking	Specific techniques used for tracking effect of meds	Review of Medical Records on Site
Nursing Notes	Notes made by RNs and LPNs related to med administration and assessment of response (Text field:	Review of Medical Records

	Will be recoded into categorical and dichotomous variables off site)	and Staff Logs
Staff Notes	Notes made by RNs and LPNs related to med administration and assessment of response (Text field: Recoded into categorical and dichotomous variables off site)	Review of Staff Logs

At present, no centralized database links medical records across these facilities, the format of the data is not standardized across the six facilities and the organization of record keeping varies by facility. During each site visit, the team worked in a private office to enter data from charts directly into password-protected files on study laptops to enter data directly into password-protected Access files. Each chart was identified by a randomly generated study id number, and once all study data was linked by case, data were de-identified.

C. Collection of interview data.

Semi-structured in-depth interviews with staff were conducted in each secure care facility. The focus of these semi-structured interviews were practices, attitudes and beliefs related to the prescription and use of psychotropic medications in JJS secure facilities.

Appendix A provides the topics and questions used to guide the interviews. Informed consent processes were followed, and every participant signed a consent form. Interviews were held in private offices, medical offices or unoccupied spaces in each facility. Each interview took about one hour and was audio recorded with participant permission. In addition, team members took field notes during each site visit.

4. Analyses

Chart data were used to generate descriptive statistics, and to explore relationship among variable through correlation analysis. Difference among youth, based on demographic or clinical characteristics, were explored using t-tests and chi-square tests. Significant correlations and interactions among variables were further explored using the Chi-Square Automatic Interaction Detection Analysis (CHAID Analysis, SPSS Answer Tree Program 3.1), which

constructs a model that best predicts a particular outcome measure (in this case, antipsychotic and antidepressant medication use) using a set of selected interactive predictor variables.

Interviews were coded using inductive coding techniques, as informed by constant comparative analysis among interviews and field notes of team members. Principles of thematic analysis were applied to identify patterns of relation among thematically identified variables. While chart and interview data were analyzed independently for this preliminary report, each data set informed and enriched the interpretation of the other because of the overlap of relations and patterns noted in both data sets.

IV. Major Study Findings from Chart Data

A. Demographic and Offense-related Data for Youth in Secure Care

Please note that these findings describe those youth who were residing in Secure Care June 2008- August 2008 who were also prescribed psychotropic medications for mental health disorders. These results do not generalize to all youth in secure care.

Racial and Ethnic Categories

Sixty one youth (81%) were identified as white, 2 as African American (3%), 2 as Pacific Islander (3%), 2 as Native American (3%) and 1 as “Other” (1%). Six youth were identified as being of mixed ethnicity, with 2 youth identified as White and African American (3%), 1 as White and Asian (1%), 1 as White and Native American (1%), 1 as Asian and pacific Islander (1%) and 1 as White, Asian and Pacific Islander (1%). 23% of the youth were identified as Hispanic (N = 17). Data related to race and ethnicity were missing for one case.

Gender

Youth in secure care who were also prescribed psychotropic medications at the time of the study were overwhelmingly male, 92% (N = 69) compared with 8% female.

Age at Admission to Secure Care

Age at admit to secure care ranged from 13-18, with the average, median age at admit being 16. The most frequent age of admit was 16 and 17 years of age, with 25% of youth being admitted at age 16 and 17. Only 1% of youth were admitted at age 13, 7% at age 14, 24% at age 15, and 17% at age 18.

Average Number of Days in Secure Care

The average number of days from admit to the date when we reviewed their records June 2007-August 2007, or the time they had been in the facility up to the study date, was 279 days, with a range of time from 19 days to 914 days (roughly 2.5 years in secure care).

Table 2 Descriptors of Sample (N = 75)

Racial Category	80% White, 3% African American, Pacific Islander, Native American, 7% Multiple Racial Categories
Hispanic	23% Hispanic
Gender	92% Male, 8% Female
Age at Admit	13-18, 16 average
Number of Days in Facility	19-914 days, 279 average

Percent of Youth on Psychotropic Meds: Total and by Facility

Between June and August 2008, the average daily number of youth in secure care was 189, ranging from 10 youth in Southwest Youth Center in Cedar City to 79 youth in Mill Creek Youth Center. Based on this average, 39.7% of the youth in secure care at the time of the study were prescribed psychotropic meds. It stands to reason that Mill Creek Youth Center, as the largest facility, had the most number of youth from the sample. However, relative to size both Wasatch Youth Center and South West Youth Center had the greatest percentage of youth prescribed psychotropic meds, with 61% and 60%, respectively. Table 3 presents data on the proportion of youth on psychotropic meds by facility.

Table 3 Number and Proportion of Youth Taking Psych Meds

Secure Care Facility	Average Number of Youth in Facility	Number of Youth Prescribed Psychotropic Meds	Percentage of Youth from Total Sample on Psychotropic Meds	Percentage of Youth in Facility on Psychotropic Meds
Mill Creek	79	28	37%	35%

Wasatch Youth Center	33	20	27%	61%
Decker Lake	38	10	13%	26%
Farmington Bay	14	6	8%	43%
South West	10	6	8%	60%
Slate Canyon	16	5	7%	31%

Alcohol and Drug Use, Violent or Sexual Offense

Sixty-eight percent of the youth (N = 51) had a recorded history of both alcohol and drug use, while 5% (N = 4) had a history of use of alcohol alone, and 5% (N = 4) a history of drug use alone. Twenty percent had no recorded history of alcohol or drug use in their charts.

Forty three percent of the youth (N = 32) were identified as sex offenders (defined as history of conviction for sex crimes including sexual battery, sexual assault, sexual abuse of child, sodomy, attempted rape and rape); 57% had no history of sexual offenses in their records.

Among the conditions sex offense, alcohol and/or drug and violent offense history as recorded in charts, sex offense history was the factor most significantly associated with length of time in secure care ($p = 0.005$, $F=8.3676$, $df=1,73$). Youth with positive sex offense histories spent an average of 375 days in secure care, whereas youth with no indication of sex offenses spent an average of 207 days. For youth with no apparent sex offense histories, a history of violent offense was moderately associated with longer time served ($p = 0.073$, $F=3855$, $df=1,41$) and youth with histories of violent offenses had spent an average of 278 days in secure care, compared with 145 days for youth without histories of violent offense. A positive history of alcohol and/or drug use was not significantly associated with time served.

Interestingly, 20% (N = 15) of the youth had *no reported use* of either alcohol or drugs in their chart, and the majority of these were youth with sex offense histories (N = 12, or 80% of those youth with no recorded history of alcohol or drug use in their charts). Of those youth with recorded histories of alcohol and drug use, 66% (N = 33) were not serving time for a sex offense, while 35% (N = 18) were identified sex offenders. In fact, substance use and sexual offense histories were negatively correlated ($p = 0.011$).

Forty three percent of the youth who were prescribed psychotropic medications were positive for a history of violent offenses, including fighting, simple and aggravated assault, assault with a deadly weapon, and animal cruelty (N = 32). Fifty seven percent of the youth (N = 43) did not have a recorded history of violent offenses, and less than half of these (47%, N = 20) had a sex offense history instead. Therefore, 23 youth or 31% of the sample were serving time for mainly property and drug related crimes.

Table 4 Description of Sample by History of Substance Use and Offense Category

History/Offense Type	Percentage of Sample
Alcohol and/or Drug History	68% Alcohol and Drugs (N = 51) 5% Alcohol only (N = 4) 5% Drugs only (n = 4) 20% No History Recorded ¹
Violent Offense	43% (N = 32)
Sexual Offense ²	43% (N = 32)
Property or Drug Related	31% (N = 23)

¹80% of this group had history of sex offense

² Significantly associated with longer time served: 375 days vs. 207 days

B. Psychiatric Screening and Diagnosis

Psychiatric Screening

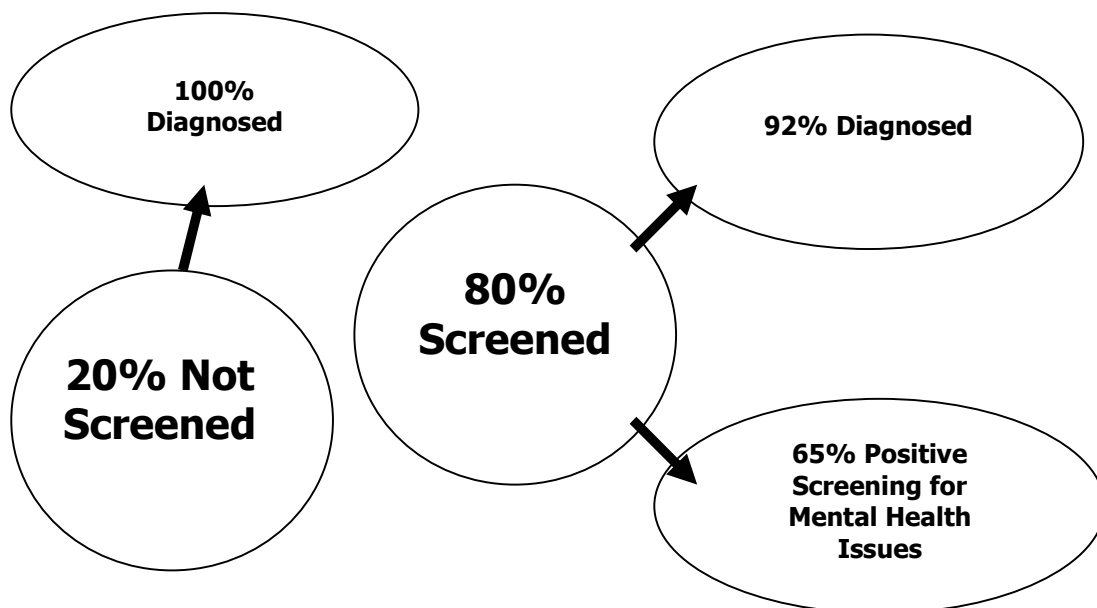
Eighty percent of the youth (N = 60) were formally screened for mental health concerns after admission to secure care. A few cases were screened prior to admission, as part of an

earlier psychiatric assessment and evaluation process, or in relation to their admission to custody in other settings. Generally, the screening process consisted of a few questions related to current and past mental health concerns and treatment as part of initial assessment data gathered by a nurse or counselor after admit.

Of those who were screened, 65% (N = 49) were positive for mental health issues requiring follow-up. Ninety two percent of screened youth were also diagnosed with a psychiatric disorder. Only 6 youth who were screened did not have a subsequent diagnosis recorded in their charts by secure care providers after admission. All youth who *were not* screened went on to be diagnosed with a mental disorder by a psychiatrist, psychologist or psychiatric APRN and all were eventually prescribed psychotropic meds.

The number of days between admission to secure care and mental health screening range from 0 to 390 days. Of those youth who were screened after secure care admission, the majority (73%) was screened within the first week of entering secure care, and 86% were screened within the first month. There were three cases where the chart indicated no formal mental health screening until after 300 days in secure care.

Figure 1 Mental Health Screening and Follow Up



Diagnoses

Ninety three percent of youth prescribed psychotropic medications (N = 70) had a diagnosis by a qualified psychiatric clinician recorded in their charts either prior to or after admit or both, while 5 youth had no recorded diagnosis (data was missing for 1 case). Therefore, all but 5 of the youth were prescribed a psychotropic medication based on an identified psychiatric diagnosis.

Just over half of the youth were diagnosed by a secure care provider after admit. Of those 52% who did receive diagnoses after admission, 6 cases had diagnoses prior to coming into secure care but were given new diagnoses by secure care psychiatric providers while being seen after admission. In 40% of cases (N = 30) youth received at least 1 psychiatric diagnosis prior to admission, and had no recorded diagnoses after admission to secure care. Most of those who didn't receive a new diagnosis post admission had sex offense histories, and had undergone extensive clinical evaluations required by the courts which also included DSM-IV Axis I-V diagnoses.

Table 5 and figure 2 both show the psychiatric diagnoses most frequently assigned to the youth receiving psychotropic medications. In many cases, only a comparatively small group received the same exact diagnosis, as DSM-IV Axis I and II diagnoses within the same category can vary by codes related to severity of illness, course of illness (single episode, recurrent, chronic) or other modifiers. Therefore, the counts for individual diagnoses are grouped by diagnostic category.

Table 5 Psychiatric Diagnoses in Order of Frequency for Youth

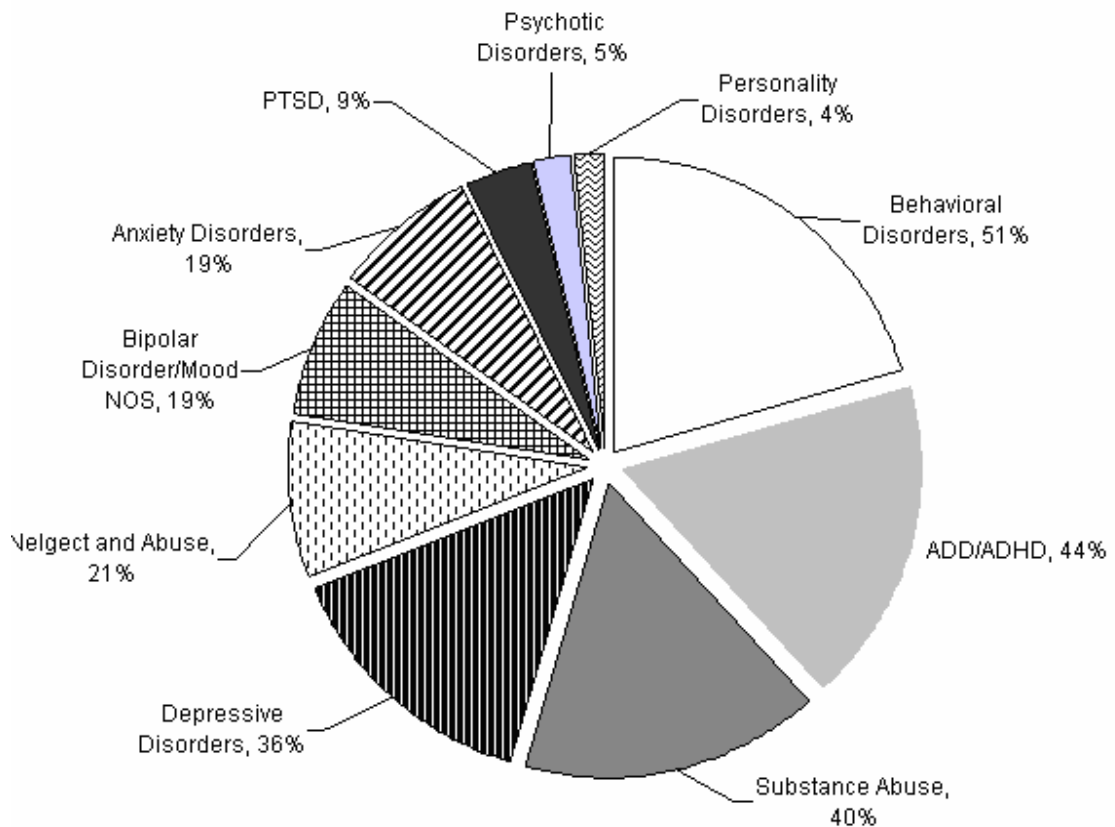
Diagnostic Category	DSM IV Diagnoses Included*	Frequency of Diagnosis	Percent of Youth with Diagnosis**
Substance Abuse or Dependence Disorders	Alcohol, drug and polysubstance abuse, dependence	44	40%
Disruptive Disorders	Conduct disorder, oppositional defiant disorder, intermittent explosive disorder, impulse control disorder	43	50.7%
Attention Deficit/Hyperactivity Disorders	ADD/ADHD combined type, hyperactive-impulsive type, inattentive type, ADHD NOS	34	44%
Depressive Disorders	Major depression, depressive disorder NOS, dysthymia	31	36%
Bipolar Disorders and Mood Disorder NOS	Bipolar I and II, Bipolar NOS, Mood Disorder NOS	18	18.7%
History of Neglect, Physical or Sexual Abuse	999.50 Coding related to child as victim of neglect or abuse	16	21.3%
Anxiety Disorders	Generalized anxiety, situational anxiety, anxiety NOS, phobias, panic disorder	14	18.7%
Posttraumatic Stress Disorder	Posttraumatic stress disorder	9	9.3%
Psychotic Disorders	Schizoaffective disorder, psychotic disorder NOS	4	5.3%
Personality Disorders	Borderline personality disorder, antisocial personality disorder, personality disorder NOS	3	4%

*This represents those diagnoses present in the reviewed charts

**The percent reflect the percent of youth who have at least one recorded diagnosis in the corresponding category in their chart; frequency may therefore be greater than percent.

By far, the most frequently assigned diagnoses were substance abuse and dependence and diagnoses related to Disruptive disorder. Attention Deficit/ Hyperactivity Disorder diagnoses were the third most frequent, followed by mood disorders with depression being the most common diagnosis related to mood. Of youth who had Axis I psychiatric diagnoses recorded in their charts, the vast majority (77%) had at least 3 diagnoses, either current or by history.

Figure 2 Percentages of Youth with Diagnoses in Each Category



The picture presented here bears further clarification regarding the frequency and nature of diagnoses that are commonly assigned to youth with mental health disorders in general, and this population in particular. These data do not seem to capture the sizable minority of youth

who are characterized in staff interview data and in narrative chart notes as “real mental health kids”, or those youth who exhibit more severely irrational behaviors and psychotic symptoms such as auditory or visual hallucinations, thought disorders, extreme paranoia and delusional thinking or grossly disorganized behavior. When looking past the diagnosis to the chart notes, and reading these in the context of the overall clinical presentation evidenced in each chart, 13% (N = 10) charts indicated more extreme symptoms or behaviors associated with psychotic disorders. In adults with mental illness, psychotic symptoms are often associated with the bipolar or schizophrenia spectrum disorders. However, while children and youth may also experience psychotic symptoms, they are infrequently diagnosed with a primary psychotic disorder such as schizophrenia or psychosis NOS. In this sample, psychotic symptoms are associated with diagnoses of bipolar disorder, posttraumatic stress disorder and schizoaffective disorder.

C. Patterns of Medication Prescription and Use

Types of medication

Fifty six percent of the cases (N = 42) were prescribed antipsychotics; 65.3% (N = 49) were taking antidepressants; 28% (N = 21) were taking mood stabilizers; 36% (N = 27) were prescribed medications for ADD/ADHD; 7% (N = 5) were taking anti-anxiety meds, and 24% (N = 18) were prescribed a medication to address sleep issues. Use of sleep medications alone did not meet inclusion criteria for this study. Therefore, in all cases a sleep medication was prescribed in addition to at least one other type of psychotropic medication as above.

Appendix B presents a list of all psychotropic medications that were prescribed to youth during their current stay in secure care, in order or frequency. We did not record all medications that each youth had taken in the past, but only those that were ordered during their most recent secure care incarceration. This includes new medications that were initiated after their admission, as well as the continuation of medications they were receiving in the community

immediately prior to admission. In both cases, meds were ordered by psychiatric providers after their most current admission date.

The most commonly prescribed type of psychotropic medications were antidepressants, followed by antipsychotics, ADD/ADHD medications then mood stabilizers. Of those youth who prescribed a medication to treat ADD/ADHD symptoms (N = 27), 41% (N = 11) were prescribed a non-stimulant medication such as Strattera; 33% (N = 9) were prescribed a stimulant medication such as Adderall, Ritalin or Focalin, and 26% (N = 7) were prescribed both typed subsequently during their stay.

Table 6 Frequency of Use by Type of Medication

Med Type	Percent of Sample
Antidepressants	65% (N = 49)
Antipsychotics	56% (N = 42)
ADD/ADHD	36% (N = 27)
• Stimulant	14% (N = 11)
• Non Stimulant	13% (N = 9)
• Both (subsequently)	9% (N = 7)
Mood Stabilizers	28% (N = 21)
Sleep*	24% (N = 18)
Anti-anxiety	7% (N = 5)

*Youth only taking psychotropic medications for sleep were not included

By far, the most frequently prescribed individual medication is Seroquel (quetapine), an antipsychotic: this represents 29 of the 75 youth receiving psychotropic medications (39%) and the 42 youth on antipsychotics (68%). The next most frequently prescribed meds are formulations of Wellbutrin, an antidepressant (23%) and Strattera, a non-stimulant ADD/ADHD

medication (21%). Table 7 presents the 10 most frequently prescribed psychotropic medications, in order of frequency.

Table 7 Most Frequently Prescribed Psychotropic Medications

Medication	Type	Frequency	Percent Taking Med
Seroquel (quetiapine)	atypical antipsychotic	27	39%
Wellbutrin (bupropion)	atypical antidepressant	17	23%
Strattera (atomoxetine)	nonstimulant ADHD med	16	21%
Abilify (aripiprazole)	atypical antipsychotic	14	19%
Trazodone	sedative, antianxiety med	13	17%
Lexapro (escitalopram)	SSRI antidepressant	12	16%
Adderall	stimulant ADHD med	11	15%
Zoloft (sertraline)	SSRI antidepressant	10	13%
Lamictal (lamotrigine)*	mood stabilizer	10	13%
Celexa (citalopram)	SSRI antidepressant	9	12%

*An anticonvulsant used for mood stabilization in bipolar disorder

Dosages

Appendix B also includes dosage ranges for each of the medications listed. The dosage ranges prescribed in this sample were reviewed by 3 independent psychiatric APRNs with prescriptive authority, who also practice with juvenile populations. Each independently concluded that the dosages in this sample were well within standard ranges found in community psychiatric practice with children and youth. Further, the APRNs concluded that the dosages found in the study were quite conservative as compared with dosages routinely found in community practice with adolescents. This suggests that in secure care, psychotropic medications are generally prescribed in lower dosages than may be commonly used in residential practice, but certainly within levels expected or deemed reasonable in community psychiatric treatment. However, this finding could be further investigated and verified with a

larger number of reviewers practicing in a variety of settings serving adolescents with comparable mental health and behavioral needs.

Patterns of Initiation, Use and Discontinuation

The majority of youth (N = 52, 69%) had at least one medication continued from treatment prior to secure care admit—that is, providers re-ordered meds that youth had been on before entering the facility. Sixty seven percent of youth (N = 50) had a new medication started after admit, and 44% (N = 33) had a medication discontinued during their stay.

Nearly all cases (92% or N = 69) exhibited a steady and regular pattern of medication use. In only 6 cases was pattern of use judged to be discontinuous (more off than on, relatively longer periods between prescriptions, refusing medications on a regular basis).

Seventy five percent of youth (N = 56) were prescribed 2 or more types of medications over the course of their current stay in secure care; 25% (N = 19) were prescribed three or more types; in only 1 case were 4 or more types of meds prescribed during the current stay. As above, psychotropic medications are categorized into 6 types for this study, based on the condition and/or symptoms they are intended to treat: antipsychotics, antidepressants, mood stabilizers, ADD/ADHD meds, antianxiety meds and meds for sleep.

Forty six youth (62%) were prescribed multiple meds concurrently, usually of differing types. In most cases, the rationale for multiple med use indicated continued symptoms that were not alleviated by the use of one med type alone—for example, increased agitation, mood instability or sleep disturbance as secondary symptoms for a youth diagnosed with mood disorder. This means that of those youth who were taking multiple meds at the same time, all except 1 were taking 2-3 meds (Table 8). This is comparable, and even lower, than the average number of concurrent multiple medications reportedly found in the adolescent community psychiatric practice [10, 30, 34, 35].

Thirty seven youth (49%) were prescribed different medications in succession. In most of these cases, switches were made between different medications of the same type and often occurred after dosage adjustments failed to alleviate symptoms, as indicated in provider notes.

In fact, 50 youth (67%) had a medication dosage adjustment, either up or down, recorded in their charts. Forty two (56%) had dosages raised, while 15 (20%) had dosages lowered and 10 (13%) had medication dosages both raised and lowered over the course of treatment. Table 8 shows the range of number of total changes (up and down) made in each case was 0-7; most youth in the sample had their medications adjusted one time.

Table 8 Patterns of Multiple Med Use during Current Secure Care Stay

Patterns of Use	Number of Youth	Percentage of Youth
2 or more types of meds	N=56	76%
3 or more types of meds	N=19	25%
4 or more types of meds	N=1	<1%
Multiple meds concurrently	N=46	62%
Multiple meds consecutively	N=37	49%

Table 9 Dosage Adjustments

Type of Change	Number of Youth	% of Sample
Medication Initiated During Stay	50	67%
Medication Continued from Before Admit	52	69%
Medication Discontinued During Stay	33	44%
Dosage Raised	42	56%
Dosage Lowered	15	20%
Both	10	13%

Associations among Diagnoses and Categories of Prescribed Medications

One way to explore which medications are being given for what clinical reasons is to explore significant relationships between diagnostic and psychotropic medication categories. Table 8 provides all significant correlations ($p < 0.05$) found among diagnoses and types of meds. A positive correlation means that youth that are positive for one category are also positive for the other category to a systematic degree beyond mere chance. Those associations that are underlined in Table 9 are expected associations. For example, one would expect that ADD/ADHD medications be positively associated with a diagnosis of ADD/ADHD, that a diagnosis of bipolar disorder or mood disorder would be related with the use of mood stabilizer medications, and that depression would be significantly associated with antidepressant use.

The other correlations in the table were less expected. Two notable examples are the highly significant relationship between antipsychotics and both ADD/ADHD diagnosis ($p = .002$) and a history of physical or sexual abuse or neglect ($p < 0.001$). These associations are explored in more depth in Section D below.

Only 1 negative association between diagnosis and types of med was significant: youth who are diagnosed with ADD/ADHD were not likely to be prescribed mood stabilizers.

Table 10 Correlations among Med Types and Diagnoses

Med Type	Diagnoses	Direction of Relationship	Significance
<u>ADD/ADHD</u>	<u>ADD/ADHD</u>	<u>positive</u>	<u><.001</u>
ADD/ADHD	Disruptive	positive	=.038
ADD/ADHD	Substance	positive	=.04
<u>Mood Stabilizer</u>	<u>Bipolar/Mood</u>	<u>positive</u>	<u>=.007</u>
Mood Stabilizer	Abuse History	positive	=.027
Mood Stabilizer	ADD/ADHD	negative	=.006
<u>Antidepressant</u>	<u>Depressive</u>	<u>positive</u>	<u>=.028</u>
Antipsychotics	ADD/ADHD	positive	=.002
Antipsychotics	Abuse History	positive	<.001

We also developed correlation matrices for medication types, to explore what types of meds are being prescribed in combination or succession. Only two correlations between different med types were significant, and both were negative (being positive for one type of med was related with being negative for the other):

- Prescription of antipsychotics was significant and negatively associated with antidepressant use ($p = 0.007$). In other words, youth who were prescribed antipsychotics were significantly less likely to also be prescribed antidepressants, and vice versa.

- ADD/ADHD medication was also significantly negatively associated with antidepressant use ($p = 0.019$).

PRN Medication Prescription and Use.

The abbreviation PRN is derived from the Latin phrase *pro re nata*, roughly meaning “as the situation demands”. This is a medical term that refers to a treatment, such as medication, that is prescribed but not routinely scheduled, and therefore given only when needed. Need is assessed based on a set of criteria determined ahead of time by the provider and standard practice. It is not uncommon for PRN psychotropic medications to be written as standing orders in inpatient settings, where symptoms may flare up and require emergent management. There is debate in the current psychiatric literature as to whether PRN orders are associated with overmedication or chemical restraint [53]. However, the low dosage levels and prevalence of PRN medications in this sample make this scenario unlikely.

Only 6 youth (8% of the sample) were prescribed PRN medications in Secure Care at the time of our study. Our interviews indicated that the prescription and use of PRN psychotropic meds is not regular practice in these facilities. In each case, a rationale for the PRN, as well as guidelines for administration, were outlined in the charts by providers. Reasons for prescribing these PRNs included agitation, anxiety, sleep walking, and sleep, as well as the continuation of treatment initiated in the community. Specific PRN medications ordered included Ativan (lorazepam), Seroquel (quetiapine) and trazodone. Most of the youth prescribed a PRN medication took it on a sporadic ($N = 3$) or regular ($N = 3$), but not daily, basis.

D. Exploring Antipsychotic and Antidepressant Prescription and Use

Again, antidepressants and antipsychotics were the first and second most frequently prescribed class of medications (65% and 56% of sample, respectively) and Seroquel (quetiapine) and Wellbutrin (bupropion) the first and second most frequently prescribed individual medications (39% and 23%, respectively). Therefore, we decided to further explore patterns related to the prescription and use of these 2 classes of medication.

Predictors of Antipsychotic Prescription and Use

In our sample, antipsychotics are almost as significantly associated with an ADD/ADHD diagnosis as ADD/ADHD medications. This raised some interesting questions about how these meds are being used in this sample in the secure care setting. In the treatment of adults, atypical antipsychotics are frequently used in the treatment of adult schizophrenia spectrum disorders and bipolar spectrum disorders, as well as other psychotic disorders. Only 5% of youth in our sample had a recorded history of psychotic disorder, while 19% had a diagnosis of bipolar disorder or mood disorder NOS and 13% had recorded indicators of more serious psychotic symptoms. Further, we found other correlations with antipsychotic medication that suggested further exploration. We found antipsychotics to be the class of meds most associated with the following:

- Prescription of multiple meds in succession ($p < .001$)
- Prescription of multiple meds concurrently ($p < .001$)
- Initiation of med after admit ($p = .049$)
- Discontinuation of med after admit ($p = .009$)

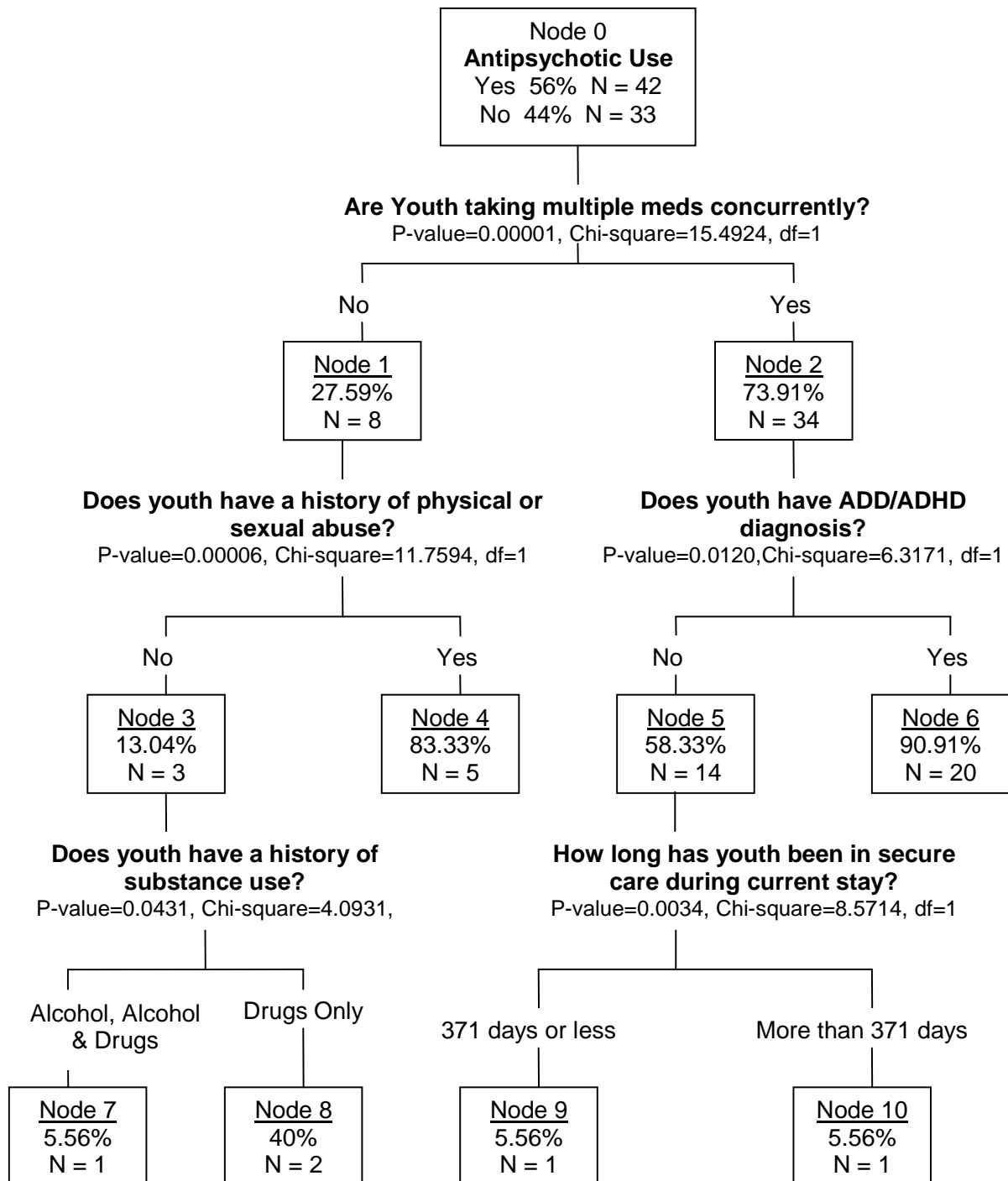
We used a Chi square Automatic Interaction Detection (CHAID) method of analysis to explore which variables were most predictive of antipsychotic use, as a categorical predictor variable, in our sample of 75 secure care youth. CHAID analysis uses a statistical program that partitions a sample in a stepwise fashion into mutually exclusive groups, based on a single categorical or ordinal outcome variable and multiple categorical or ordinal predictors [54]. At each step of analysis, the program seeks the most significant predictor of the outcome variable and partitions the group into 2 or more subgroups based on this predictor. In this way, the program constructs the most parsimonious predictive model based on which variables best predict (contribute most significantly) to the outcome, and in what order. We instructed the

program to stop identifying significant predictors when the sample would be split into groups of less than 5 youth, or when the model stopped detecting significant interactions.

In our analysis, antipsychotic use (no, yes) was the outcome variable and the following variables were predictors: race; Hispanic ethnicity; age at admit; time in facility; alcohol and/or drug history; sex offense history; violent offense history; categories of diagnosis; whether the youth had 1-2 or 3 or more diagnoses; categories of meds used in current stay; multiple medication use concurrently and consecutively; prescription initiated, continued or discontinued during current stay; and whether their chart indicated a history of psychotic symptoms.

Figure 3 presents the results of our CHAID analysis. Node 0 is our outcome variable, whether or not youth were prescribed antipsychotics. The other nodes, numbered 1-8, provide information about the most significant predictors of antipsychotic use for this sample. An explanation of each node and predictor is provided in bullet points below the figure. As the model progresses, the numbers of youth represented in each category are quite small given the small sample size.

Figure 3 Significant Predictors of Antipsychotic Use for Youth in Secure Care



Node 0: 56% of youth in secure care are prescribed an antipsychotic medication (N = 42)

- The most significant predictor of whether or not youth are prescribed antipsychotics is whether or not they are taking multiple meds at the same time ($p < 0.001$).

Node 1: 28% of youth who *are not* prescribed more than 1 med at the same time are prescribed an antipsychotic (N = 8)

Node 2: 74% of youth who *are* prescribed more than 1 med at the same time are prescribed an antipsychotic (N = 34)

- For those youth who *are not* taking multiple meds concurrently, the second most significant predictor of antipsychotic use is whether a youth has a history of physical or sexual abuse (as victim) ($p < 0.001$).

Node 3: 13% of youth who *do not* have a history of abuse and *do not* take multiple meds are prescribed an antipsychotic (N = 3)

Node 4: 83% of youth who *do* have a history of abuse and *do not* take multiple meds are prescribed an antipsychotic (N = 5)

- For those youth who *are* taking more than one med at the same time, the second most significant predictor of antipsychotic prescription is whether the youth has a diagnosis of ADD/ADHD ($p < 0.05$).

Node 5: 58% of youth who *do not* have an ADD/ADHD diagnosis and *do* take more than one med at the same time are prescribed an antipsychotic (N=14)

Node 6: 91% of youth who *do* have an ADD/ADHD diagnosis and *do* take more than one med at the same time are prescribed an antipsychotic (N = 20)

- For those youth who *do not* have a history of abuse and are *not* taking more than one med at the same time, the third most significant predictor of antipsychotic use is alcohol or drug history ($p < 0.05$).

Node 7: 6% of youth with a history of alcohol use or both alcohol and drug use, who also *do not* have a history of abuse and are *not* taking more than one med concurrently, are prescribed an antipsychotic (N = 1).

Node 8: 40% of youth with a history of drug use only, who also *do not* have a history of abuse and are *not* taking more than one med concurrently, are prescribed an antipsychotic (N = 2).

- Finally, for youth who *did not* have an ADD/ADHD diagnosis and *were* taking more than one med at the same time, the third most significant predictor of antipsychotic use was the length of time the youth had served in secure care during the current admission ($p < 0.05$).

Node 9: 6% of those youth who had been in secure care *less than 372* days, who also *did not* have an ADD/ADHD diagnosis and *were* taking multiple meds concurrently, were prescribed an antipsychotic (N = 1)

Node 10: 6% of those youth who had been in secure care *more than 372* days, who also *did not* have an ADD/ADHD diagnosis and *were* taking multiple meds concurrently, were prescribed an antipsychotic (N = 1)

Summary and Discussion of Analysis of Predictors of Antipsychotic Use

The CHAID analysis described here highlights the relation between ADD/ADHD diagnosis and antipsychotic use that emerged in our analyses of correlation, as well as our reviews of chart notes and individual case files. Among our most striking findings is the fact that multiple meds used concurrently and an ADD/ADHD diagnosis are the two most predictive factors related to antipsychotic use, and that these two factors seem to interact for a comparatively large subgroup in our sample. Given this, we can attempt to interpret these statistical findings into clinically practical statements: A number of youth with ADD/ADHD diagnoses are being treated with adjunctive antipsychotic pharmacotherapy, in addition to ADD/ADHD medications. While the positive correlation of antipsychotic medications and

ADD/ADHD diagnoses is very significant ($p= 0.002$), the positive correlation of ADD/ADHD meds and antipsychotics is not quite significant at a 0.05 level ($p=0.061$), but the Pearson value of .216 still demonstrates a relationship. This may be due to the fact that only 19 youth were prescribed both ADD/ADHD and antipsychotic meds, 45% of all youth taking an antipsychotic. The differences between the actual counts and expected counts in each cell also suggest a positive (although not quite statistically significant) relationship between the use of antipsychotics and ADD/ADHD meds.

Table 11 Crosstabulation for Antipsychotic and ADD/ADHD Medications

			ADD/ADHD meds		Total
			No	Yes	
Antipsychotic Meds	No	Count	25	8	33
		Expected Count	21.1	11.9	33.0
	Yes	Count	23	19	42
		Expected Count	26.9	15.1	42.0
Total		Count	48	27	75
		Expected Count	48	27	75

One theory that might explain this relationship is that the use of non-stimulation ADD/ADHD medications instead of stimulant meds. Clinical literature suggests that while non-stimulant medication can be effective in the treatment of ADD and ADHD symptoms and have less negative side effects for youth, these formulations may not be as effective as conventional stimulant meds in preventing or reducing ADD and ADHD symptoms [55]. Therefore, clinicians will often augment non-stimulant psychopharmacological treatment of ADD and ADHD with another class of medications, such as low doses of antipsychotics, to achieve “better coverage” or “take the edge off”. To see if this was the case in our sample, we coded ADD/ADHD medication into 3 categories: non-stimulant, stimulant and both (meaning that youth were prescribed ADD/ADHD meds of each type successively).

Based on the above theory, we would expect higher counts of youth also taking antipsychotic meds in the “non-stimulant” category. Instead, we found slightly lower than expected counts in this category, along with slightly higher than expected counts in the “stimulant” and “both” categories. Further, more youth than expected were prescribed a non-stimulant ADD/ADHD med and no antipsychotic. Table 11 presents the cross-tabulation calculations for antipsychotic use by type of ADD/ADHD med. Chi square tests of differences between these groups were not statistically significant (P-value=0.355, Chi-square=2.074, df=2). These findings do not seem to confirm the idea that antipsychotic medications are being used as adjunctive therapy primarily for youth taking non-stimulant medications.

Table 12 Crosstabulation for Antipsychotic and Type of ADD/ADHD Medications

			Type of ADD/ADHD Med			Total
			Non Stimulant	Stimulant	Both	
Antipsychotic Meds	No	Count	4	3	1	8
		Expected Count	2.7	3.0	2.4	8.0
	Yes	Count	5	7	7	19
		Expected Count	6.3	7.0	5.6	19
Total	Count	9	10	8	27	
	Expected Count	9.0	10.0	8	27	

Another possible explanation for the relationship between antipsychotic use, concurrent medication use and ADD/ADHD diagnosis could be that the dosage levels of all ADD/ADHD medications are generally and consistently lower than dosage levels commonly seen in community practice. This could mean that dosage levels of all types of ADD/ADHD meds are lower than needed to achieve adequate coverage with monotherapy, so antipsychotics are added adjunctively. As above, a systematic review of all psychotropic medication dosages and ADD/ADHD meds in particular showed that dosages were comparatively low to moderate, with

most being notably lower than commonly seen in community practice. Clinical studies of the effectiveness of ADD/ADHD medications have indicated the importance of adequate dosing to control symptoms of ADD/ADHD, and have linked shorter-term control with more positive longer-term outcomes [55]. Several studies have also found that non-stimulant medications may work best for youth that are stimulant-naïve, or who have not first been treated with a stimulant ADD/ADHD medication. For those youth who have, non-stimulant medications may not be as effective [55].

While we did not have consistent information about the dosage levels of ADD/ADHD meds for youth prior to entering custody, what we could track with some confidence were data actually recorded in the charts. A close review of records for medication prescription and dosage levels, as well as dates and timing related to initiation, med changes and discontinuation provides some additional information. In most cases where youth are prescribed an antipsychotic and an ADD/ADHD med, the antipsychotic was continued from admit—that is, the youth was prescribed the medication in the community or in another facility, and the provider continued the medication during the current secure care stay. However, it is unknown whether these medications were continued at the same dosage levels as previous prescriptions, as that data was not included in the charts we reviewed.

For youth who were switched between types of ADD/ADHD medication (and therefore were coded as “both”), most were switched from a non-stimulant medication to a stimulant medication, and dosage of the adjunctive antipsychotic (usually continued on admit) was raised in response to continued or worsening symptoms such as agitation, irritability, anger, impulsivity and poor behavioral control. Two of the youth who were prescribed a non-stimulant ADD/ADHD medication had an antipsychotic added after admission, also in response to continued or worsening symptoms or behavioral dyscontrol; the rest had antipsychotics prescribed as a continuation of a previous prescription.

In summary, we believe that antipsychotics are being used as adjunctive treatment for youth diagnosed with ADD/ADHD in addition to regular stimulant or non-stimulant ADD/ADHD medications, to achieve therapeutic effects that are not achieved with lower doses of these medications alone. Moreover, Seroquel in particular may also be used to address sleep issues in addition to the above, and so is a reasonable choice for youth with continued irritable or “edgy” symptoms as well as difficulties sleeping. While this is not necessarily a standard of practice in community treatment, it does indicate responsiveness to the problem of ongoing symptoms.

A best practices approach would perhaps entail actively pushing ADD/ADHD medication dosages to higher levels to achieve symptom control with monotherapy. However, there are at least 2 issues that complicate this line of action. First, many of the youth receiving mental health treatment in secure care represent a complex set of psychiatric, emotional and behavioral problems. This complexity necessitates a certain degree of finesse in prescribing practice, which may include combining approaches and medications to tailor an effective plan of care.

Second, our interviews with staff indicated negative perceptions and skepticism regarding both the ADD/ADHD diagnosis and psychopharmacological treatment of this disorder. Staff and providers are especially aware of the perceived associations among stimulant medications and drug abuse, the idea of “rewarding” bad behavior with substances that are seen as inducing pleasure, and a cultural belief that such medications are a “crutch” for youth who should learn to control their behaviors without “drugs” (which, for a number of staff, include the category of psychotropic medications). Given this climate, providers may be reluctant to push dosages of ADD/ADHD medications, especially stimulants, to levels commonly seen in community practice. Staff attitudes regarding ADD/ADHD and psychotropic meds also influence the amount, quality, and character of feedback to providers regarding a youth’s symptoms, behaviors and the effectiveness of the plan of care, and thus also influence this situation.

Predictors of Antidepressant Prescription and Use

We used CHAID analysis to investigate what variable predicted antidepressant prescription and use, the most frequently prescribed class of medications in secure care. We used the same predictor variables listed on page 29, with antidepressant use as a binary outcome (yes, no). Figure 4 presents the results of this analysis, and predictors at each level are explained here.

Node 0: 65% of youth in secure care are prescribed an antidepressant medication (N =49)

- The most significant predictor of whether or not youth are prescribed an antidepressant is the racial category by which they are identified ($p = 0.0001$).

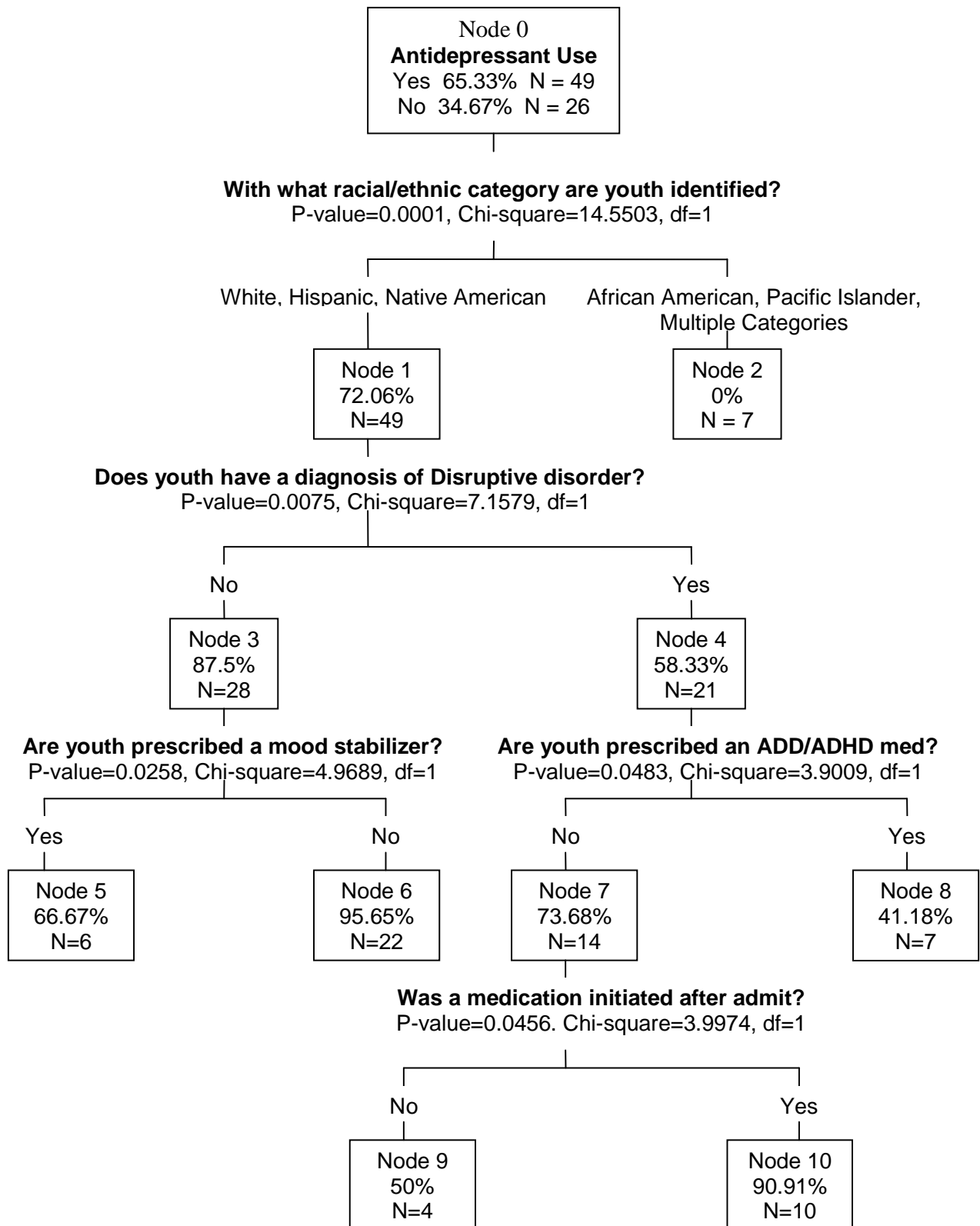
Node 1: 72% of youth who are prescribed an antipsychotic are identified as White, Native American or Hispanic (see discussion of how we coded for Hispanic ethnicity below).

Node 2: None of the youth (0%) who were identified as African American, Pacific Islander, or as identified with multiple racial categories were prescribed an antidepressant (N = 7).

- For those youth who were identified as White, Hispanic or Native American, the most significant predictor of antidepressant use is whether a youth has a diagnosis of a Disruptive disorder ($p < 0.05$).

Node 3: 88% of White, Native American or Hispanic youth who *do not* have a diagnosis of Disruptive disorder are prescribed an antidepressant (N =28)

Figure 4 Significant Predictors of Antidepressant Use for Youth in Secure Care



Node 4: 58% of White, Native American or Hispanic youth who *do* have diagnosis of Disruptive disorder are prescribed an antidepressant (N = 21)

- For those White, Native American or Hispanic youth who *do not have a diagnosis of Disruptive disorder*, the second most significant predictor of antidepressant prescription and use is whether the youth is also prescribed a mood stabilizer medication ($p < 0.05$).

Node 5: 67% of White, Native American or Hispanic youth who *do not have a diagnosis of Disruptive disorder* are prescribed a mood stabilizer (N = 6)

Node 6: 96% of White, Native American or Hispanic youth who *do not have a diagnosis of Disruptive disorder* are prescribed a mood stabilizer (N = 22)

- For those White, Native American or Hispanic youth who *do have a diagnosis of Disruptive disorder*, the second most significant predictor of antidepressant use is whether the youth is also prescribed an ADD/ADHD medication ($p < 0.05$).

Node 7: 74% of White, Native American or Hispanic youth *with a diagnosis of Disruptive disorder who are not taking an ADD/ADHD medication* are prescribed an antidepressant (N = 14).

Node 8: 41% of White, Native American or Hispanic youth *with a diagnosis of Disruptive disorder who are taking an ADD/ADHD medication* are prescribed an antidepressant (N = 7).

- Finally, for White, Native American or Hispanic youth with a diagnosis of Disruptive disorder who are not taking an ADD/ADHD medication, the third most significant predictor of antidepressant use was whether a med had been initiated after admit to secure care ($p < 0.05$).

Node 9: 50% of White, Native American or Hispanic youth diagnosed with disruptive disorder who *are not* taking ADD/ADHD medication and who *did not have a medication initiated after admit* use an antidepressant (N= 4).

Node 10: 91% of White, Native American or Hispanic youth diagnosed with Disruptive disorder who *are not* taking an ADD/ADHD medication and who *had a medication initiated after admit* were prescribed an antidepressant (N = 10).

Summary and Discussion of Analysis of Predictors of Antidepressant Use

The contribution of race to this model was initially surprising, but must be cautiously interpreted due to serious limitations in the size and variability of our sample, as well as alternative and plausible explanations for seeing this effect. In terms of the statistical analysis itself, the sample size is small and there are only 7 cases in Node 2 (2 African American youth, 2 Pacific Islander youth, and 3 youth who identified in multiple categories but were not also Hispanic). Reliably detecting the effects of racial or ethnic factors in a sample that is 80% Caucasian is difficult at best. As none of the youth identified as non-Hispanic, African American, Pacific Islander or multiple race were prescribed antidepressants, this is contributing to the high significance of this predictor and could simply be an artifact of the statistical analysis. Also, none of these youth were diagnosed with a depressive disorder and only 2 of them were diagnosed with a mood disorder, so one would not necessarily expect to see antidepressant use in this group, based solely on diagnosis.

Further, race (coded to include Hispanic as a racial category) was not correlated with either diagnosis or medication class. Interestingly, Hispanic ethnicity (when coded separately from race) was significantly inversely correlated with anti-anxiety medication use ($p < 0.0001$), meaning that Hispanic youth were not prescribed anti-anxiety meds. No other associations among racial categories or Hispanic ethnicity and medication class or diagnosis were found.

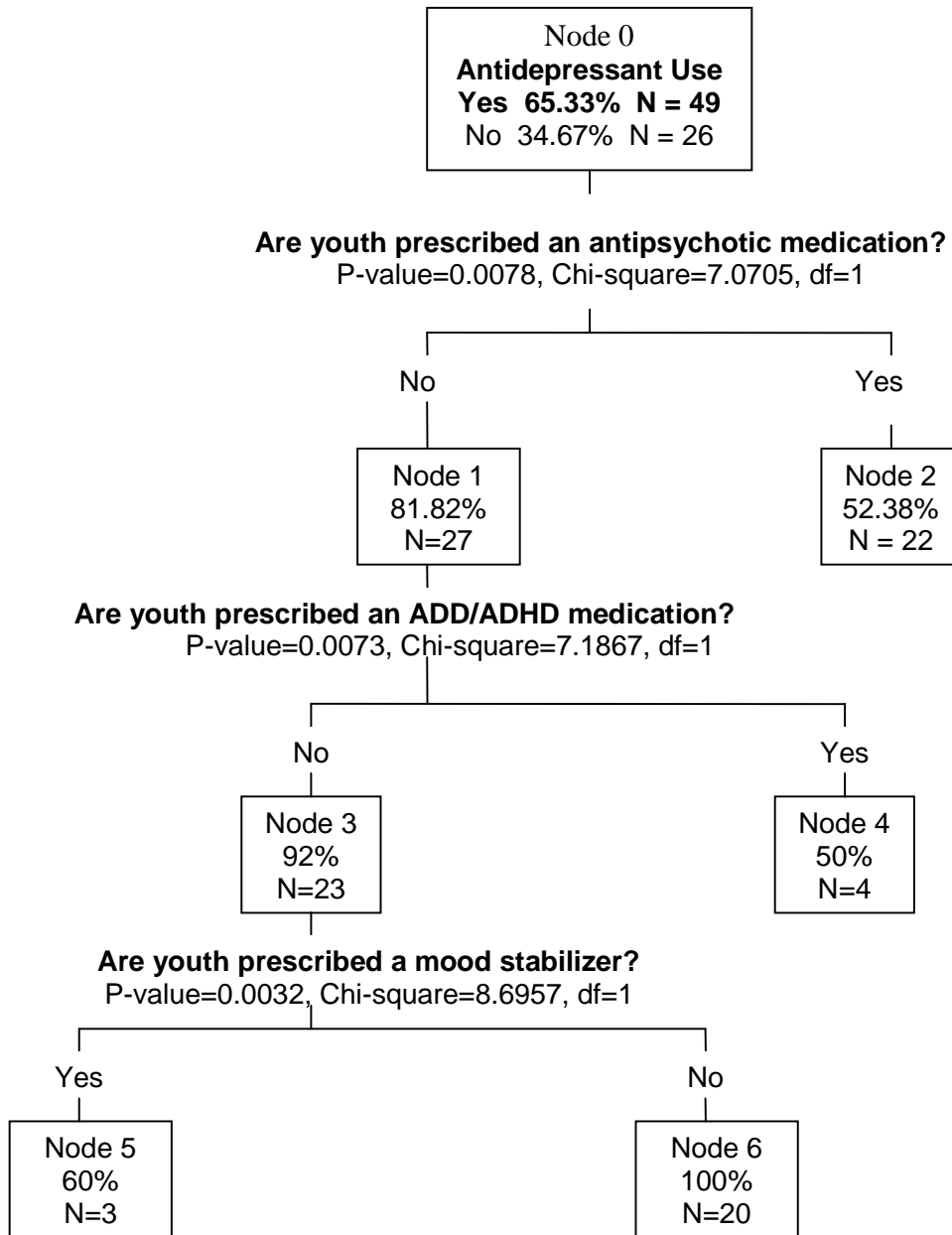
Our decision to code Hispanic ethnicity as a racial category, in order to capture its effect along with other racial categories, was based on feedback that hypothesized that Hispanic youth would be less likely than White youth or other racial categories to be prescribed antidepressants. This hypothesis seemed to be based on 2 generalized beliefs. First, presenting as depressed or requesting treatment for symptoms of depression may be a devalued or dis-

preferred behavior in Latino and Hispanic communities [56]. Therefore Hispanic youth would not be likely to present for treatment of depression. Second, there is the question of whether the same behaviors or complaints could be “read” as depression in one group (i.e. White youth) and as something else in another group (Hispanic, African American, and Pacific Islander) based on a context that includes the cultural biases of JJS staff and providers [57]. Both of these generalizations would require further exploration, with a larger and ideally more variable sample, as potential explanations for the effect seen in this analysis.

When we removed the race/ethnicity predictor variable from the model, the CHAID analysis produced a much different model in which the most significant predictor of antidepressant prescription and use was whether or not youth were also taking antipsychotics, followed by ADD/ADHD and mood stabilizer meds. This model, presented below, suggests a pattern of treatment based on a systematic process of differential diagnosis, in which youth are prescribed medications based on a process of ruling out potential alternative diagnoses and matching appropriate psychopharmacological treatment. For example, Node 6 indicates that 100% of youth who were *not* prescribed a mood stabilizer (regularly used in treatment of bipolar mood disorder) and who were also *not* prescribed an ADD/ADHD med or an antipsychotic were prescribed an antidepressant. Review of records for these 20 youth shows that these youth were indeed diagnosed with depressive disorders.

Beyond the ambiguous contribution of race, the other predictors of antidepressant use (Disruptive diagnosis, ADD/ADHD medication use, mood stabilizer medication use) seem much more directly and logically related to informal algorithms for treatment based on diagnosis and symptom management. The predictors related to antidepressant use and behavior disorders All three diagnostic clusters may entail difficult or challenging behaviors, but the pharmacological treatment (mood stabilizers, ADD/ADHD medications, antidepressants) is distinct.

Figure 5 Predictors of Antidepressant Use with Racial/Ethnic Variables Removed



V. Discussion of Descriptive and Exploratory Analysis of Chart Data

This study was conducted to address questions and concerns related to the prescription and use of psychotropic medications in the Utah Juvenile Justice system. We began with secure care because the conditions in these facilities, including length of stay and availability of detailed records, supported data collection and allowed us to develop and improve procedures that could

be used to describe and track medication use in other JJS settings and as youth transition between different settings.

As stated above, the question of whether all the “right kids” and none of the “wrong kids” in JJS Secure Care are taking psychotropic medications, and whether these medications are necessary to the treatment and management of these youth, are not research questions. Both questions represent clinical judgments that must be arrived at through assessment, diagnosis and close tracking of the effects psychopharmacologic intervention for specific youth over time. Again, we recognize the importance of this process and our role as researchers is not to confirm or disconfirm specific clinical decisions and activities but to describe and quantify patterns of prescription and use.

However, despite these constraints we can address the most significant concerns and perceptions regarding the “overmedication” of youth in secure care custody, based on empirical evidence from our chart reviews and data analyses. The issue of overmedication, or the notion that youth are receiving too much medication or inappropriate combinations of medication, can be broken down into three areas of concern: 1) Dosage levels; 2) Polypharmacy, or the use of multiple psychotropic medications at once; 3) Chemical restraint, or the use of psychotropic medications to control or restrict behavior.

In this section we discuss our study results in relation to each concern in turn, but begin by emphasizing that **based on the review and analyses of these data collected in Secure Care facilities June 2007-August 2007, we did not find evidence of any of these practices or of overmedication or inappropriate psychopharmacological treatment in general. Therefore, our findings do not support perceptions that youth in secure care who are prescribed psychotropic medications are overmedicated or otherwise inappropriately medicated.** This overall finding does raise an important point: In our study design, we only reviewed data related to youth who were prescribed psychotropic medications during the study period. We therefore did not review charts for youth who were not prescribed psychotropic

meds, or took medications only for sleep problems. This introduces the idea that there may be youth who would have benefited from psycho-pharmacological treatment who were not currently being treated which, if true, would in turn points to issues regarding screening and communication of relevant information from front-line staff to providers. If anything, we appear to be at risk of missing “false negatives”.

Low to Appropriate Dosages

We reviewed the dosages of each medication as compared with prescribing practices of qualified and experienced providers working with similar populations in community and residential treatment settings. Dosage levels were considered both in terms of single medications, as well as the appropriateness of levels when these meds are used in combination with other classes of medications (for example, combining a mood stabilizer and an antipsychotic). Overall dosages were assessed as being low to moderate in relation to the range of dosages that reviewers expected to find in other settings. In no case was any dosage of any med assessed to be higher than the range typically recognized as standard care in other settings.

A focused review of ADD/ADHD medications also found dosages to be low compared with ranges one might find in other settings. Further, the dosage ranges of the antipsychotic medications (mainly Seroquel) prescribed adjunctively with ADD/ADHD meds in this sample were much lower than dosage levels associated with either the treatment of psychotic symptoms or anger or agitation.

Polypharmacy, or Combination Therapy in Treatment of Youth

Polypharmacy is a negative term often used to describe the prescription of more than one medication in the management of illnesses, and insinuates that the patient is taking more medication than is really needed. The specificity of action in recently developed psychotropic medications such as atypical antipsychotics and antidepressants has led to “combination therapy”, in which different classes and types of meds are chosen and combined because this

approach is thought to provide more effective symptom reduction and relief than single medications alone [58]. Further, combination therapy may allow for fewer side effects or other adverse effects associated with psychotropic medications, as lower dosages of each medication may be used. Whatever the rationale, combination therapy is now the rule rather than the exception in the psychopharmacological treatment of youth [23]. It does remain controversial, as a lack of research into concomitant prescription and use translates into a lack of evidence-base to inform practice

Our findings showed that 62% of the youth prescribed psychotropic medications at the time of our study were taking more than one medication concomitantly, while 38% were taking only 1 medication. All but 1 youth who were prescribed multiple meds were taking 2 or 3 medications concomitantly. This is compared with findings from community studies in which many youth are treated with combination therapy with 2 or more medications [34]. This indicates that the prevalence and degree of polypharmacy/combination therapy in the secure care sample is comparable, or may even be less, than in other practice settings.

No Evidence of Chemical Restraint

Chemical restraint is defined in medical, scientific, and ethics literature as the use of medications to control or restrict behavior through sedation, restraint or incapacitation for the purpose of discipline or convenience when it is not standard treatment for a person's underlying medical or psychiatric condition. The concept of chemical restraint is contrasted with the therapeutic use of a psychopharmacologic agent, where the medication is used to address a specific behavior or symptom. Data gathered during records review did not indicate practices consistent with chemical restraint, based on several observations. First, dosages of those medications most associated with sedation or behavioral restraint (i.e. typical and atypical antipsychotics, benzodiazepines) are low—lower than would be necessary under normal circumstances to induce moderate or heavy sedation.

Second, very few sedative-hypnotic medications or other medications with primary sedating effects are prescribed in this sample. Only 1 youth was prescribed clonidine as an anxiolytic agent, and this was a continuation of treatment initiated prior to secure care admit. One youth was prescribed PRN Ativan (lorazepam) for agitation and anxiety, a continuation of treatment received prior to secure care admit. Thirteen youth, or 17% of the sample, were prescribed Trazodone for anxiety or sleep problems.

Third, we recognize that any psychotropic medication (save the stimulant meds) can, in large enough doses, produce sedating or restraining effects. The relatively low dosage levels for all types of meds, including atypical antipsychotics such as Seroquel prescribed concomitantly with other medications, do not seem to support the idea that they are used for sedation or restraint. **Appendix B** presents a list of the medications prescribed in secure care, including the dosage ranges found in this sample.

VI. Findings from Interview Data

In addition to chart reviews for youth prescribed psychotropic medications, we conducted 25 interviews with providers, nurses, therapists and counselors working in all 6 Secure Care facilities. This resulted in a very rich qualitative data set that provides important context for this study, and helped guide our analyses and interpretations of chart review findings. While we have performed the preliminary phases of thematic analysis with the interview data, we continue to analyze these data in greater depth, and will present the results of these further analyses in a separate report that focuses on how staff attitudes and beliefs regarding mental health disorders and psychotropic medications contribute to institutional and unit cultures and inform specific practices in ways that facilitate or challenge mental health treatment in Utah JJS Secure Care.

Here, we frame the results of our initial qualitative analyses of the interviews within a “best practices” approach aimed at identifying those general themes and ideas that emerged most frequently and notably in our interviews, and thus seem to be important contributors to both formal and informal rules and practices regarding psychotropic medication treatment. We do not anticipate that these findings will be surprising to administrators or staff working in Secure Care, but expect that they will resonate with already-known, but perhaps not fully articulated, ideas circulating in each facility.

A. “Real Mental Health Kids” vs. “Behavioral Kids”: Reading the Need for Intervention

Since we were primarily interested in practices related to psychotropic medication use in secure care, the topic of mental illness was a major focus in our interviews with staff, and central to much of the discussion about mental illness were ideas about what counts as “real” mental illness, and distinguishing between youth that are “really” sick and those that are described as merely “behavioral”. In this section we identify three themes that emerged as closely related to the topic of mental illness as it is understood by secure care staff.

What Counts as “Real” Mental Illness?

A certain degree of skepticism remains about mental illness in youth in custody, and many staff estimated that most youth on psychotropic medications were not “really” sick, meaning one of two things: that these youth were not very seriously mentally ill, or that they were manipulating staff and providers for secondary gains. These youth were described as “behavioral”, but not mentally ill. However, nearly all staff also identified a small subset of youth who were “really crazy” or seen as seriously mentally ill, and these staff would tell stories about the disruptiveness or irrationality of the behavior of these youth.

There were several critical determinations that seemed to go into marking the difference between “behavioral” and “real mental health kids”. First, the “real mental health kids” were not viewed as being motivated by personal gain or self interest. That is, their behaviors seemed to fly in the face of self-interest or rational goal-directed behavior, and they continued to “act out” or even escalate irrational behavior despite severe sanctions that limited their freedoms and privileges. Importantly, they were also seen as either oblivious to or unable to respond to positive or negative feedback from peers on the unit. In contrast, “behavioral” kids were seen as able to control their actions and reactions based on the situation and context, and whether such behavior was in a youth’s self-interest.

Second, “real mental health kids” were described as being on “buckets of meds” (despite out findings that no youth were receiving more than 4 psychotropic meds at any one time) yet the medications did not seem to alleviate the problematic behaviors. Interestingly, as we visited each facility we were told that we should have come a week or a month earlier, as the sickest youth on many medications had just been transferred out of the facility. “Behavioral” kids were described as being on only 1 or 2 medications and able to engage in goal-directed activity (most youth in the sample were on 1-2 meds). This was often interpreted as a question as to whether these “behavioral” youth really needed the medications, and not as the possibility that the medications might be helping the youth stay focused and goal-directed. Again, staff would

illustrate the difference by telling stories about particular youth to underscore the differences between “real mental health kids” and “behavioral” kids.

The youth serving time for sexual offenses represented an interesting modification of this schema. These youth were understood to be traumatized and damaged, perhaps permanently, in fundamental ways, and were also seen as being in need of treatment, including psychopharmacology. However, they were distinguished from “real mental health” kids because their own histories of abuse were seen as contributing to their situation, and provided a concrete reason for their odd behaviors and symptoms. The attribution of an external or environmental cause to irrational behaviors seemed to mark the difference between “SO kids” and “real mental health kids”, and the inscrutability and opaque nature of their situation.

“Dumped On” by Community and State Systems

So while there exists an amount of skepticism regarding whether youth taking psychotropic medications are “real mental health kids”, especially those youth being treated for depression, Disruptive disorders and ADD/ADHD, there was universal agreement among the staff we interviewed about the existence of a small but significant core of youth who were “real mental health kids”. There was also a perception among the majority of interviewees that more of these youth are entering secure care than before, and that the last 5-10 years has seen an influx of mentally ill youth into their facilities. This perception is supported by the national literature on the “criminalization” of mental illness, wherein adults and youth who would previously been treated in inpatient or outpatient state or community programs are now diverted into the criminal justice system [13, 20].

Staff had common theories about this perceived increase in numbers of mentally ill youth in secure care. Many attribute this to changes in practice in state hospitals and inpatient facilities in response to Joint Commission for Accreditation of Healthcare Organizations (JCAHO) 2001 revisions of standards for seclusion and restraint. These revisions were designed to decrease the use of seclusion and restraint in inpatient settings, and encourage

alternative methods of de-escalating and containing violent and dangerous behaviors. In the past, violent or severely disruptive behaviors would have been dealt with on inpatient units as part of the work of the therapeutic milieu, including use of seclusion or restraint when necessary. Secure care staff believed that these changes led to a situation in which, instead of dealing with violent behaviors in inpatient settings, that youth who prove difficult to manage in hospital and community settings are now being housed in secure care.

While this explanation is speculative, the national literature does discuss how there are inadequate numbers of urgent care and residential inpatient beds for youth with mental health disorders, as well as a lack of diversion programs aimed at identifying youth who require primarily psychiatric intervention, instead of correctional intervention [1, 3, 11, 12, 20, 22, 26, 29, 38, 44, 59].

Challenges Posed by “Real Mental Health Kids”

The majority of Youth Counselors we interviewed, as well as some nursing staff, described feeling ill-equipped to deal with youth with mental illnesses. Sometimes this was described as a lack of training and education related to psychiatric illness and intervention, and at times it was characterized as a mismatch between skills set, facility resources, institutional mission on the one hand, and the “back door mandate” of providing services to youth who are thought to belong somewhere else on the other. Several staff saw this as being “dumped on” by the failure of other state and community mental health programs, forcing secure care staff into the position of doing work they didn’t sign on to do—they took their positions because of an interest in working with at-risk and delinquent youth, and did not anticipate having to work with “mental health kids”.

Mentally ill youth were also seen as presenting serious challenges to maintaining security and integrity of the units. As several Counselors explained, it only takes 1-2 very ill youth to completely disrupt unit routines, which they saw as unfair to the non-mentally ill youth.

A number of staff described scenarios in which the progress of other youth in a unit, as well as unit cohesiveness, was compromised by the irrational behavior of a “real mental health kid”. Techniques like positive peer culture or a rewards system based on rational self-interest don’t work with youth who are too mentally ill to participate in a meaningful way, and staff feel at a loss as to how to deal with these disruptions when they occur. Staff also observed that they lack training specific to intervening with behavior stemming from symptoms of mental illness, but also point out a “catch-22” in which more training would make them more responsible for a subgroup of youth whom they don’t believe should be on the units in the first place.

B. Whose Responsibility Is It? Perceptions and Anxieties around Psychotropic Meds

Psychotropic medications, compared with other types of medications prescribed and administered in secure care, appear to produce more anxiety and unease. For example, Youth Counselors may feel more comfortable administering medications for diabetes, heart conditions or pain relief than psychotropic medications, despite the fact that other types of meds may present as much risk for serious adverse reactions or overdose. The idea of administering a psychoactive substance that works primarily on the brain, and therefore feels more intimately connected with personality, cognition and self-hood, seems to be a crucial point. There is also some suspicion that psychoactive medications may be rewarding,

One powerful cultural element associated with psychotropic medication practice in secure care is the notion of responsibility. In this context, responsibility is related to at least four issues. The first issue, the question of who is responsible for challenging behaviors, highlights how cultural beliefs operating in the unit and institution influence practices related to psychotropic medications as well as mental health treatment. The other issues point toward practical matters faced by secure care staff daily: 1) Who is responsible for “driving” psychotropic medication use? 2) Who should be responsible for administering and monitoring medication use? 3) Who is responsible if something bad happens related to psychotropic medications?

Who is Responsible for Challenging Behavior?

Again, the distinctions made between “real mental health kids” and “behavioral kids” underscore a fundamental cultural concern with accountability and responsibility: youth who are seen as engaged in rational and goal directed behaviors are understood to be responsible for their actions, while youth who seem irrational and unmotivated by self-interest, peer pressure or reward are regarded with much more puzzlement, misgiving and (ironically) distrust. This is because the meaning of their behavior cannot be immediately understood in the context of a particular situation or set of events. A few staff wondered if mentally ill youth could control themselves but chose not to, and whether the symptoms of mental illness were a set of learned behaviors or a protective mechanism to shield youth from having to deal with life head-on.

Another idea, introduced by a nursing staff and corroborated by other staff, is that psychotropic medications may interfere with a youth’s ability to be accountable for his or her behavior. This stems from a belief that psychotropic medication treatment is a kind of “crutch” for youth, in that that they come to rely on the mellowing, dampening effects of the medication instead of learning to deal with life directly. Therefore, the meds were thought to interfere with the youth’s ability to learn more cognitive behavioral techniques for self-control and management, either because they dulled cognition or were de-motivating. This was described by several people as the goal of teaching youth to “cowboy up” and take responsibility for their own internal and external environment. It seemed that mentally ill youth were cast as either unwilling or unable to engage in this learning process, because of their medication use. Presented with this idea, another nursing staff suggested that perhaps the medications allowed youth to achieve enough stability and clarity to be able to learn and benefit from cognitive behavioral interventions. Both positions may be found in the extensive literature on treatment of youth in custody cited in this report.

Who or What is Driving Prescribing Practices?

At least 3 “drivers” of medication practices were identified in our research interviews: 1) Providers; 2) Unit leaders; 3) Youth. Interviewees described how each of these contributed to psychotropic med practices within each secure care facility. While there were some differences among these elements in different facilities, what we outline here are the striking commonalities of the impact of these elements on practice. In each case, the effects of a much larger and more pervasive power—institutional and unit culture—are described as they shape everyday practices.

Providers. All of the providers we interviewed acknowledged the challenges of providing mental health treatment in the secure care setting, based on the culture of the units as well as the correctional culture of JJS. The skepticism regarding both etiology and effects of mental illness, coupled with cultural beliefs about accountability and responsibility outlined here, can lead to a climate in which mental health treatment is seen as secondary to correctional mandates, “con-coddling” or interfering with traditional approaches to working with this population based on the idea that youth are first and foremost juvenile delinquents. Providers recognize that the effectiveness of their prescribing practice depends, in large part, on the “buy in” of staff and youth, and has the potential to influence choices made about initiating medication or adjusting dosages. Moreover, a few providers also recognized that staff attitudes about medication use influence the amount and quality of information communicated by staff about the effects of medications for particular youth.

Most providers also identified some important opportunities that stemmed from institutional culture and facilitated treatment practices. The fact that youth are so closely supervised in this setting means that changes in behavior or symptoms related to psychotropic medications could conceivably be tracked more closely than in many other situations. The amount of data that counselors and therapists collect on each youth, based on direct observation, can be extremely informative to prescribers, as long as that data is systematic,

accurate and communicated effectively (and as providers avail themselves of these data).

Finally, because youth are in secure care for longer periods of time, this creates a relatively stable environment in which medication use can be safely monitored and adjusted, and staff can ensure that treatment plans are followed.

Unit leaders. In the largest facility with the most youth, and with the highest number of youth being treated with psychotropic medications, it was suggested that staff leaders within individual residential units may be driving medication practices by referring youth in their unit for mental health care and medication evaluation. The perception was that there was an exponential increase in the number of youth taking psychotropic medications after particular staff began working in the unit, and that these patterns were repeated in different units. This was described as staff being “med happy” and wanting a unit of “easy keepers”, which was thought to lower the overall workload because the meds mellowed the kids out.

We did not collect the unit-level data that would confirm or disconfirm these practices, but such data could easily be tracked. As reported above, we found no evidence of chemical restraint in this sample. Further, the process of medication initiation itself requires assessment from qualified providers based on input from youth and staff as well as clinical judgment as to whether psychotropic medication treatment is indicated. Again, the fact that this was interpreted as unnecessary medication, rather than identifying youth who needed treatment, points toward the influence of cultural attitudes regarding psychiatric medication treatment. A number of checkpoints are involved in this process. Systematic, thorough records-keeping on the part of staff and providers would help illuminate trends and reveal associations between units and medications.

Youth. There is, of course, a widely held belief that many youth attempt will manipulate providers in order to procure medications. This belief dovetails with the sense that psychotropic medications are rewarding, produce a “high” or desirable stimulation or sedating effects, and that many youth are “drug-seeking”. It is true that the majority of youth in secure care have

histories of substance abuse, and that youth may believe that psychiatric medications will make their time go faster or more interestingly. It is also true that psychotropic medications generally do not produce effects that are experienced as rewarding in the long-term. Side effects associated with antipsychotic or SSRI use, for example, are reportedly unpleasant and can be uncomfortable.

In one facility, staff frequently accompany youth into the appointment with the psychiatric provider. This was described as improving the quality of information given the provider, because the staff who were most familiar with the youth were able to confirm or elaborate what the youth reported, remind youth of particular points, and provide the perspective of someone observing the youth over time. However, it could also be the case that in some situations, this might prevent youth from sharing important information with providers. While it seems clear that this practice works well for some youth and providers. This is especially true when the written records and notes made by staff are not supplying meaningful data when they are not kept thoughtfully or regularly. Nonetheless, consideration should be given as to whether youth have the right to see a provider without staff present, and how this practice fits with federal and state recommendations regarding privacy of medical information.

Monitoring, Training and Education

A common theme raised by numerous Youth Counselors was that it was inappropriate for them to pass psychotropic medications because this was outside the scope of their training and education. Counting meds, administering (or helping youth self-administer) meds, and recording these activities was seen by many as an “add-on” or something that went above and beyond the normal scope of their responsibilities even as many staff had always done this as part of their work in secure care.

While staff across sites reported that a lack of training or inadequate training put them at risk, nursing staff in each facility described a process of training in which staff were educated on safe medication administration (i.e. the “5 rights” and administration procedures and techniques)

and provided information about specific psychotropic medications, dosage levels, intended effects and primary effects. The amount and quality of this information and training, and the thoroughness of training seemed to vary across facilities. In some facilities, staff reported not getting any information about specific meds or side effects, and having to find that information themselves on the Internet. Nursing staff in the same facilities reported providing that information both in training sessions and as data sheets that were available on each unit, filed in the med room.

Staff also reported not receiving or being aware of information related to the intended purpose of each prescribed psychotropic medication. When specifically questioned as to whether they knew what symptoms or behaviors a specific med was meant to change, and what this change should look like (how to know if or when it was happening), staff denied having this information, or did not believe this information was communicated on a regular basis. Awareness and understanding of this information is critical for front-line staff who are administering, monitoring and recording effects of medication intervention, and will in turn affect the quality of feedback about the regimen to providers. Even if this information is being provided, it is not perceived as being of sufficient amount or quality. This appears to touch on both communication and a records-keeping issues and could be addressed by adopting more systematic and formal practices such as more direct written and oral communication among providers, nursing staff and counselors.

It must be noted that there was considerable ambivalence among staff regarding additional training or education—some suggested that more training would just increase their responsibilities in this area and cement the fact that they are stuck passing medications, when they feel this is inappropriate in the first place. Any intervention aimed at improving the amount of psychiatric training and education for counselors would need to take this into account, in order to increase chances of critical buy-in from staff.

One nursing staff suggested that a background in psychiatric nursing was critical to working with youth in secure care, especially as more youth with more serious mental health issues enter into custody. This nurse felt that prior work experience and education specific to psychiatric and forensic practice was a crucial part of communicating more effectively with both providers and counselors when it came to explaining psychiatric symptoms and how psychotropic medications work to reduce these symptoms. Another nurse without prior experience in psychiatric care said that more education or practice in this area prior to working in secure care might increase the comfort level in dealing with youth with mental health disorders. There are numerous opportunities for continuing education in nursing practice, including sessions that are specifically geared toward forensic, psychiatric and psychotropic practices.

Risk and Liability

As mentioned above, psychotropic medications are perceived as riskier or more dangerous compared with other kinds of medications given for physical illnesses or disorders. This creates a sense of discomfort for counselors as well as nursing staff who are not specifically trained as psychiatric nurses.

While administering and recording medications is part of the daily routines for youth counselors, they are generally not comfortable with this arrangement and feel that these activities should not be part of their role as they lack the necessary education and training. It was suggested a number of times that nurses should be primarily responsible for medication administration and records keeping, as this is more within the traditional scope of practice for nursing staff. However, there is also recognition that this would be a very expensive staffing model to maintain.

Staff also expressed concerns about overmedication as well as medication errors. As above, concerns about overmedication persist, despite the fact that our study findings do not support these perceptions. Medication errors are seen as resulting from counselors being forced

to take up activities they are not qualified or trained to do: Even those counselors who said they did receive training from nurses about psychotropic medications and safe medication administration thought this training did not sufficiently equip them or reduce risk.

Numerous staff also expressed worry about who would be held responsible if a youth became ill or died related to psychotropic medication use or a medication error, and feel that they are put in a difficult position of responsibility, or more precisely liability, in case of an critical event. Lead staff also reported that some staff may be tempted to not report medication errors, either due to worry about their employment status and disciplinary action or because they don't understand the safety implications of errors, and therefore might be tempted to not report the errors. Despite this, lead staff also expressed a strong sense of responsibility in reporting medication errors and addressing incidents with staff directly.

The nursing literature related to medication errors concludes that almost all medication errors can be tracked back to system-level problems such as lack of training, inefficient storage and delivery systems, failure at multiple checkpoints including records keeping, or other conditions in the setting that interfere with safe administration. Therefore, medication errors must be addressed at multiple organizational rather than individual levels. Quality improvement methods also identify the usefulness of medication error "autopsies", a process wherein all points on a continuum of prescription and order to administration are assessed for how they contribute to or detract from medication safety and best practices.

C. Perceptions of Best Practices are Culture and Context-Dependent

Finally, in every facility everyday practices were informed by culture and context as much as scientific evidence or external referents such as policies or formal standards. Studies related to the delivery of mental health care in correctional settings argue that this is the rule, not the exception, as people draw on lay understandings and cultural values to inform daily routines and cope with real or perceived changes in the system. In the absence of formal or universal standards, ideas about what constitutes best practices are generated within each

setting based on anecdotal evidence, personal experience, and trial and error. In effect, people develop standards through an inductive process then transmit those standards within the cultural context of each facility and the larger system.

So there are standards operating, but these may vary from facility to facility, unit to unit, or provider to provider. Given this, the extent of agreement that emerges across facilities is striking, and only underscores those practices that are unique to each facility. In what follows, we discuss two areas where there seemed to be a notable degree of difference across facilities. These are also areas that are critical the safe and effective management of psychotropic treatment.

“Med Holidays” and Discontinuing Psychotropic Medications

Some providers and nursing staff described a practice of weaning youth off of psychotropic medications, to assess whether they really needed the meds to control their symptoms and behaviors. Two related reasons were given for this practice. First, it was theorized that youth did not take psychotropic medications in the community, and that they only requested meds when they came into custody to make their time easier. Again, we found that a majority of youth were continued on a psychotropic medication they had been receiving prior to secure care. Second, since it was believed that youth would not continue taking meds once released from secure care, taking them off their psychotropic medications before release was thought to support them in learning how to deal with life without medications, and to prepare them for situations in which they would either refuse to continue meds, or meds would not be available due to financial or access constraints.

The idea of “medication holidays”, intended to test whether need for medication continued without it, was popular over ten years ago, but more recent literature is mixed. Abruptly taking children and youth off of psychotropic medications can precipitate behaviors or events that put the youth at greater risk, and stopping medications without tapering can lead to uncomfortable or dangerous side effects in some instances. Studies on the neurochemistry and

epidemiology of mental health disorders in adults argue that failure to consistently and effectively control symptoms early on can lead to poorer prognosis and more severe course of illness in the long term.

ADD/ADHD medications are an exception to the conventional wisdom about medication holidays, as these meds have reported physiological effects that can interfere with various aspects of childhood development (growth, appetite and weight gain) [55, 60]. In these cases, temporary medication holidays might be indicated if they are very carefully planned and monitored. If it is indeed the psychotropic medication that is allowing youth to maintain a baseline functioning in which they can participate in programming and continue to develop cognitive and interpersonal skills, removing the medication may put these gains at risk, or precipitate unwanted consequences. Clearly, the line between stopping a medication for a clinically sound rationale and contributing to poor continuity of care is not clear, and must be defined and justified in every instance.

Of course, the decision to discontinue or reduce dosage of a medication is a clinical decision arrived at after thorough professional assessment, considered evaluation of relevant data, and discussion with a youth and their advocates. The process is ideally driven by sound clinical judgment and best evidence, not by subjective or generalized beliefs or reactions to negative aspects of the system including problems in continuity of care or other pressures.

Methods and Quality of Communication among Counselors and Providers

There was also considerable variability among the facilities in terms of how information about symptoms, medications and intended effects was communicated (or not) between counselors, nurses and providers. There are several points in the process where communication of information between staff and providers is crucial to ensuring safe and effective medication treatment: 1) mental health screening shortly after admit; 2) formal referral of youth based on history of diagnosis and medication treatment; 3) rationale and intended effects of medication initiation and changes (i.e. What is this new med, or this increase in a

med, supposed to do for a youth, and how will staff know if or when this effect is happening?); 4) ongoing assessment and monitoring of the actual effects of medications and dosages adjustments on specific target symptoms; 5) reporting of emergent and urgent needs including exacerbation of symptoms, new symptoms or problems and side effects; 6) consistent documentation of all medications given in the medication administration records (MARs, a legal document) on each unit, including rationale for meds not given, refused, or given outside the normal parameters of administration.

Several facilities have developed formalized methods of systematically documenting and communicating some of this information, and this could serve as a model for other facilities. No one facility seemed to have a formalized, complete system of documentation and communication for all of these aspects of care. In many cases, the documentation systems in place (i.e. monthly med logs in behavioral charts, MARS, chart notes) were incomplete and filled in with repetitive or superficial responses lacking detail or rationale.

VII. Best Practices for Psychotropic Medication Treatment in Secure Settings

Best practices are widely defined as techniques or methodologies that, through experience and research, have proven to reliably and safely lead to a desired result. A best practices approach in any field entails commitment to using the best knowledge and technology available to optimize chances of success.

Although our study did not find evidence of inappropriate psychotropic medication prescription or use, there were several areas in which more formal or systematic procedures could reduce risks associated with psychopharmacological treatment, and improve communication, medication administration, monitoring, records-keeping and practices. Each secure care facility has developed at least one “best practice” related to psychotropic medications, and it would be beneficial to identify, define and formalize these standards as a resource to be shared across facilities. Such a process would lead to the articulation of clear standards and expectations for all involved in the process of prescribing, administering, monitoring and recording psychotropic medications, and should include providers, nursing staff, therapists and counselors.

It is our understanding that JJS already has access to two technological resources that could improve communication, access to critical data and information, and tracking of assessment and treatment outcomes. The already extant CARE database could be a very useful resource in systematizing the assessment process, chart notes and medication records. Controlled access for essential personnel would provide access to key information essential to practice, and data for each case could be accessed in a variety of JJS settings, potentially improving continuity of care. The internet is another resource, something that may be overlooked because of its very ubiquity. Reliable, vetted sources about diagnoses, medication information and other aspects of care are readily available and could be more widely used to provide staff and youth with resources, such as med teaching sheets, in accessible language.

Additionally, a number of federal organizations have published best practices standards on mental health treatment and juvenile justice populations. In 2001, the Office of Juvenile Justice and Delinquency Prevention (OJJDP), a division of the US Department of Justice, charged the National Center for Mental Health and Juvenile Justice, in collaboration with the Council of Juvenile Correctional Administrators (CJCA), to develop a model to address the increasing mental health treatment needs of the juvenile justice population. The result was the evidence-based model Blueprint for Change: A Comprehensive Model for the Identification and Treatment of Youth with Mental Health Needs in Contact with the Juvenile Justice System (a PDF of this document, and an executive summary, can be found at:

<http://www.ncmhjj.com/Blueprint/default.shtml>). While this document addresses more general issues related to mental health treatment and juvenile justice, it also outlines standards related to screening and assessment and provides evidence in support of medication treatment.

In 2004, the American Academy of Child and Adolescent Psychiatry published Practice Parameters for the Assessment and Treatment of Youth in Juvenile Detention and Correctional Facilities, a set of guidelines on best practices for the diagnosis, evaluation, treatment and management of youth in correctional custody. This includes a set of 14 recommendations with information relevant to administrators, providers and staff. These recommendations could be reviewed and adapted with the intent of assessing how Utah JJS practices currently meet these goals, and areas where practices could be developed and improved. A summary of this document is available through the National Guideline Clearinghouse at:

http://www.guideline.gov/summary/summary.aspx?ss=15&doc_id=6508&nbr=4077#s23

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Appendix A: RESEARCH INTERVIEW DOMAINS OF INTEREST

Please note: The following represents a working list of domains of interest that will be pursued in research interviews with clinical providers and staff. Since this is a descriptive study and our approach to research interviewing is open-ended and semi-structured, we will not use an interview schedule or questionnaire. These domains will be used as a guide for research interviews. This list will be adapted and augmented as additional data is incorporated.

Clinical evaluation and management:

- Describe how youth are referred for psychiatric evaluation in this facility.
- What are the presenting problems seen in youth referred for evaluation?
- Describe how you determine which target symptoms are the focuses of treatment.
- Describe how you and staff assess and track target symptoms, response to medications and overall functioning.
- Describe how you make decisions about initiating or changing psychopharmacological treatment.
- Describe how you make decisions about prescribing adjunctive medications.

Practice guidelines and challenges:

- Describe what you think of as “best practices” for mental health and psychopharmacological treatment in this setting. These can be ideals or things that are happening now.
- Describe what you think are the most significant factors that affect prescribing and mental health treatment in this setting.
- What do you find are the biggest challenges to psychopharmacological practice in this population? In this setting?
- Describe your treatment philosophy (i.e. the theories, ideas, concepts, considerations or values drive your practice).
- What are the goals of psychopharmacological treatment in this population/setting?
- Describe what you believe JJS philosophy to be regarding mental health treatment in general and psychopharmacology in particular.
- Suppose you came in to work tomorrow and discovered that things had changed so that you found the best possible conditions for providing mental health treatment/care in this setting. Describe what this would look like? What would be different? The same?

**Appendix B Psychotropic Medications and Dosages for Youth in Secure Care
July-August 2007**

Medication: Brand Name (Generic Name)	Dosage Range
Abilify (aripiprazole)	5-30 mg
Adderall (amphetamine mixed salts)	10-60 mg
Adderall XR (amphetamine and dextroamphetamine)	10-60 mg
Catapres (clonidine)	0.15 mg
Celexa (citalopram)	10-60* mg
Concerta (methylphenidate)	18-72 mg
Cymbalta (duloxetine)	60-120* mg
Depakote (divalproex sodium)	500-1500* mg
DDVAP (desmopressin)	0.2-0.6 mg
Desyrel (trazodone)	50-100 mg
Focalin (dexmethylphenidate)	20 mg
Geodon (ziprasidone)	40-180* mg
Haldol (haloperidol)	0.5-2 mg
Lamictal (lamotrigine)	25-400 mg
Lexapro (escitalopram oxalate)	10-30 mg
Lithium	600-900 mg
Methylin (methylphenidate)	20 mg
Paxil (paroxetine)	20 mg
Prozac (fluoxetine)	20-40 mg
Remeron (mirtazapine)	15 mg
Risperdal (risperidone)	0.5-5* mg
Ritalin (methylphenidate)	20-80* mg
Ritalin LA (methylphenidate HCL)	40 mg
Rozerem (ramelteon)	8 mg
Seroquel (quetiapine)	25-800^ mg
Sonata (zaleplon)	10 mg
Strattera (atomoxetine HCL)	40-100 mg
Topamax (topiramate)	200 mg
Trileptal (oxcarbazepine)	150-1500* mg
Toporol (metoprolol succinate)	50-100 mg
Wellbutrin (bupropion)	100-300 mg
Wellbutrin XR (bupropion HCL)	150 mg
Zoloft (sertraline)	25-200 mg
Zyprexa zydis (olanzapine)	10 mg

* Higher number in range represents a starting dose after admit, dosage subsequently reduced during stay

^Most frequent dose = 100 mg; average dose = 160 mg