


8-14-2017

# A Demonstration Project to Address Juvenile Drug Addiction

Mary Ellen Broaddus

*Bellarmino University*, broaddus\_m@msn.com

Follow this and additional works at: <http://scholarworks.bellarmino.edu/tdc>

 Part of the [Mental and Social Health Commons](#), [Psychiatric and Mental Health Nursing Commons](#), and the [Public Health and Community Nursing Commons](#)

---

## Recommended Citation

Broaddus, Mary Ellen, "A Demonstration Project to Address Juvenile Drug Addiction" (2017). *Graduate Theses, Dissertations, and Capstones*. 45.

<http://scholarworks.bellarmino.edu/tdc/45>

This Capstone is brought to you for free and open access by the Graduate Research at ScholarWorks@Bellarmino. It has been accepted for inclusion in Graduate Theses, Dissertations, and Capstones by an authorized administrator of ScholarWorks@Bellarmino. For more information, please contact [jstemmer@bellarmino.edu](mailto:jstemmer@bellarmino.edu), [kpeers@bellarmino.edu](mailto:kpeers@bellarmino.edu).

A Demonstration Project to Address Juvenile Drug Addiction

Mary Ellen Broaddus

Bellarmino University

### **Background and Significance**

The rise in adolescent drug use and addiction is becoming a worldwide phenomenon. An eleven year study of youth in European countries found drug use widespread and increasing (Molinaro, Sicilian, & Curzio, 2011). Gopiram and Kishore (2014) found that 59% of adolescents in India use at least one illegal substance regularly and 83% of users consider it an important way of life. In 2013 there were over 2.8 million new users of illicit drugs, over half of whom were under 18 years of age (“Drug Facts: Nationwide Trends”, 2015). The youth in Kentucky face particular risks. Kentucky has the third highest drug overdose mortality rate in the nation, with the number of deaths having quadrupled since 2000 (CDC, 2013). Methamphetamine use for Kentucky teens is 12.7% as opposed to a national average of 9.1% (“Drug Facts: Nationwide Trends”, 2015). Kentucky officials responded to 339 active methamphetamine labs in 2015. While this figure represents a decline from the previous year, the seizure of a type of meth imported from Mexico increased 176% from 2014 (“Depression in Kentucky”, 2016). Several eastern counties are considered target markets for heroin and methamphetamine distribution.

Drug addiction results from drug use becoming a primary stimulus that drives behavior regardless of any negative consequences that follow. Adolescents are at unique risk because biochemical distinctions in their brains, when compared with adults, prompt more risk-taking behaviors (Gallager, 2014). Health risks are considerable and include hypertension, stroke, convulsions and seizures, and liver disease such as cirrhosis and hepatitis. In 2013 there was a 364% increase in new hepatitis cases in Kentucky and Virginia (“Substance Abuse in Children and Teens”, 2015).

There are considerable repercussions for society, in addition to the loss of the potential contributions of this young generation to society. Repercussions include criminal behavior and resulting incarceration. Approximately 60% of individuals arrested for most types of crime test positive for illicit drugs at the time of arrest with the majority of adolescents in protective custody being there in large part due to substance abuse (Chassin, 2008).

Juvenile substance abuse is recognized as a significant problem for public health and safety. Juvenile justice systems are the leading source of referral among adolescents entering treatment for substance use problems and over one half of the youth in the juvenile justice system have drug related problems (McCollister, French, Sheidow, Hennebler, & Boykins, 2007). Since adult treatment drug courts have shown promise in lowering the rates of relapse and recidivism there have been increasing calls to create and evaluate juvenile treatment options (Sullivan, Blair, Latessa, & Sullivan, 2014).

Juvenile treatment drug courts have received considerable public support to reduce the cycle of relapse and recidivism with a judicially monitored system. In spite of national expansion, there have been a limited number of studies on evaluation of services and outcomes. In reviewing research related to juvenile drug court practices, Wormer and Carey (2012) found the effectiveness of holistic care encouraging. In the cases where drug courts offered mental health treatment there was an 80% reduction in recidivism. This is clearly a better option for both the adolescent and costs to society, which can range from \$30,000 a year for foster care and \$70,000 for detention (Shannon, 2012).

Adolescent drug use and addiction is a state and national epidemic and requires further investigation into treatment and prevention of relapse. Drug courts alone are ineffective, with 60-80% of youth dropping out prematurely and returning to their previous lifestyle (Henggeler et al.,

2006). This compares with a recidivism rate of 16% when treatment has been included. Collaboration is needed between mental health experts and court officials that begins at sentencing and continues through treatment and follow-up.

### **Purpose**

This study was a demonstration project of collaboration between the juvenile justice system and mental health experts in a drug treatment facility. The project coordinator, an experienced psychiatric nurse, was a member of the judicial officers/mental health team. She worked closely with this team for those juveniles who were mandated into a drug treatment program as opposed to incarceration. This collaboration was with the Juvenile Division of Judicial Drug Court in Madison County, Kentucky and the Ridge, a 110 bed psychiatric hospital in Lexington, Kentucky. In addition she worked with staff at the Ridge to make program modifications needed for these adolescents and determine program outcomes. She also provided follow-up for a 3 month period to track specific outcomes such as employment, school attendance, drug use, and any criminal activity.

### **Literature Review**

#### **International Crisis**

The rise in use of alcohol and illegal substances globally is staggering. Gopiram and Kishore (2014) consider substance abuse as a major international health problem. In their study of youth in India, they found that 59.1% of adolescents age 15-18 used at least one illegal substance regularly, with 68 % reporting regular social setting usage. Even more alarming is the finding that 83.1% of the users never thought of quitting the habit and felt it had become an important way of life.

The European School Survey Project on Alcohol and Other Drugs, initiated in 1995, is a collaborative effort of individual research teams in more than 40 European countries to track usage among 15-16 year olds with the goal of monitoring trends within as well as between countries (Molinaro, Siciliano, & Curzio, 2011). This study tracks changes in the adolescent population in use of various drugs, and in attitudes and beliefs that may help explain changes in use. This provides useful information for assessing which new drugs or substances may be gaining favor, and in which subgroup or area. Drug usage among adolescents is found to be widespread and increasing in all countries. This information has important implications for public awareness, health of the countries, and the treatment of adolescents. This survey is similar to the national Youth Risk Behavior Survey conducted annually by the Centers for Disease Control (2016).

### **Impact on Kentucky**

Kentucky youth are at significantly greater risk compared to youth nationwide for lifetime use for episodic heavy drinking, marijuana use, cocaine and inhalant use ("Substance Abuse in Children and Teens," 2010). The 2016 Youth Risk Behavior Survey reports that Kentucky high school students are significantly more likely to have used heroin than other students in the United States. The prevalence of lifetime methamphetamine use in Kentucky ranks higher than elsewhere in the United States. The state ranks in the top 10 in the percentage of youth who drank alcohol before age 13.

A goal of Healthy Kentuckians 2010, developed by the Kentucky Cabinet for Public Health, was to increase abstinence from substances while reducing experimentation, use and abuse, especially among youth. Of the 51 Healthy Kentuckians 2010 objectives, only 6 have been met, while the majority show little progress or the progress could not be tracked. Kentucky

youth have a higher prevalence in almost all measures as compared to youth in other states in the United States (Hughes, Sathe, & Spagnola, 2009).

The National Survey of Substance Abuse Treatment Services report that the majority of children receiving help were receiving a mix of mental health and substance abuse treatment services (Substance Abuse and Mental Health Services Administration, 2010). Misuse of prescription pain relievers has been cited as a growing public health problem with Kentucky being one of the 15 sub-state regions with the highest rates of nonmedical use of pain relievers (Kentucky Department for Public Health Title V Fact Sheet, 2010).

The term target market has been coined for the counties of eastern Kentucky with the increase in heroin and methamphetamine usage. The use of methamphetamine for Kentucky teens is 12.7% compared to the national average of 9.1% (“Kentucky Crisis”, 2017). Nationwide, meth labs rose 76% while seizures in Kentucky exceeded this overall trend, increasing 138% (“Substance Abuse in Children and Teens”, 2015). State officials responded to 580 active meth labs in 2014, a number that tripled over the previous three year period (“Kentucky Crisis”, 2017). Limited competition in remote areas of rural Kentucky makes the communities immensely popular and profitable for trafficking organizations from metropolitan areas. Several eastern Kentucky counties lead the nation in grams of narcotic medications distributed on a per capita basis.

### **Madison County Addiction Problems**

With the recent attention to what law enforcement is calling the ‘Detroit Connection’ for drugs, Madison County has experienced an increase in drug usage and overdose deaths. Madison County now ranks 7th in incidence of overdose deaths in the state with 26.3 per 100,000 (Healthy Americans, 2013). Local law enforcement officials struggle daily with issues

of over crowded jails, much of which can be attributed to the revolving door of arrests of those battling addiction. The significant increase in the use of naloxone for overdose patients resulted in county budget revisions for local EMT responders. The usage of heroin, methamphetamine and other illegal substances has pushed Kentucky to the ranking of third nationally (“Drug Abuse 2013 Data”, 2013). This, in addition to local problems, has forced Madison County to investigate how best to combat these troubling issues.

### **Effectiveness of Juvenile Drug Courts**

Incorporating components of mental health treatments into existing services of juvenile drug courts have been promising as reported by Sheidow, Jayawaaardhana, Bradford, and Henggeler (2012). These authors reviewed six juvenile drug courts in which therapists were trained to deliver contingency management in combination with family engagement strategies or to continue their usual services. Participants included 104 juvenile offenders with an average age of 15.4 years. Eighty-six percent met criteria for at least one substance use disorder and co-occurring psychiatric diagnoses. Participants in the program with mental health treatment had fewer positive urine drug screens, property offenses, and further legal involvement. However, the group receiving usual treatment had a marginally significant increase in drug use.

Carey (2006) reviewed nine California drug courts and found them to be an effective approach for treating drug addicted offenders. The youth in drug courts in conjunction with other treatment had better school retention and graduation rates. The majority of sites reviewed reported a graduation rate higher than 50% with two sites reporting rates greater than 63%. Recidivism, defined as any arrest for misdemeanor or felony charges, was 12% lower for drug court participants. Those individuals not in a program were more than twice as likely to be rearrested than drug court graduates.



## **Nature of Addiction**

**Pathophysiology.** Drug addiction is a chronic relapsing disease in which drug administration becomes the primary stimulus that drives behavior regardless of the adverse consequences that may ensue. As drug use becomes more compulsive, the motivation for natural rewards that normally drive behavior decreases. The discontinuation of drug use is associated with somatic signs of withdrawal, dysphoria, anxiety, and anhedonia. These consequences of drug use contribute to the maintenance of drug use and to the reinstatement of compulsive drug use that occurs during the early phases of abstinence (Shippenberg, 2007).

Brain abnormalities resulting from the use of heroin, oxycodone, and other morphine-derived drugs are underlying causes of opioid dependence. The abnormalities that produce addiction are wide ranging, complex, and long lasting. They may involve an interaction of environmental effects including stress, the social context of the initial opiate use, and a genetic predisposition in the form of brain pathways that were abnormal before the first dose of opioid was taken. Such abnormalities can produce craving that leads to relapse months after the individual is no longer opioid dependent (Kosten & George, 2012).

Marijuana is the most commonly used illicit substance among adolescents. Adolescence is a period of continued neurodevelopment, including frontal lobe myelination. Due to this continuing neurodevelopment, adolescence may be a time period of increased risk of marijuana induced neurocognitive deficits. Tapert (2007) found that adolescent drug users, relative to nonusers, showed subtle brain abnormalities in processing efforts during tested tasks.

**Adolescent cognition and special needs.** Cognitively, teenagers think differently than adults. Actual biochemical distinctions exist between the adolescent and adult brain, which prompt teenagers to take more risks than adults. Adolescent treatment service must be

educationally appropriate, focused on the concerns of the participating youth, and address their health issues (Gallagher, 2014).

Youth entering juvenile drug courts present a wide range of complex needs and problems, many of which are not readily apparent at the time of program entry. According to Cooper (2009), assessments of participants in drug court programs must be ongoing in order to identify the range of substance abuse, physical and mental health status, family functioning and support, and personal needs of each juvenile at the time of program entry and those that emerge during the course of program participation. Even the most comprehensive initial assessment must be continually updated.

Many participants present with problems that must be dealt with in a collaborative manner (Henggeler et al., 2012). A significant number have been physically or emotionally abused, been prescribed medications, have below level literacy skills and academic achievement, and have immediate family that are involved with drug programs as well.

**Health risks.** Use of alcohol and illicit drugs increase the risk of hypertension, stroke, and heart disease. Heavy alcohol use increases risk for cirrhosis and other liver disorders which can result in hepatitis viruses. Use of cocaine and comparable drugs can produce cardiac irregularities, heart failure, convulsions, and seizures. Mental health issues often predate substance use as co-occurring disorders (Stein & Homan, 2012). Conduct disorder, attention-deficit hyperactivity disorder, and depression are the most common disorders. Kentucky youth have a high prevalence of having at least one major depressive episode (National Institute of Mental Health, 2016). An analysis of the epidemiologic evidence reveals that there are 72 conditions requiring hospitalization that are wholly or partially attributable to substance abuse (Healthy People, 2010).

In terms of other related illnesses President Barack Obama declared hepatitis a silent epidemic in the United States in a speech delivered on July 13, 2013 (“Drug Overdose Deaths in the United States”, 2013). This event was part of a World Hepatitis Day brought about to determine how to proceed in battling this debilitating disease. Kentucky is one of three states nationwide facing a crisis of newly diagnosed cases of hepatitis C, recently being ranked number one in the nation in newly diagnosed cases of hepatitis C infection (“Kentucky Leads the Nation in Hepatitis C”, 2017). Four counties in Kentucky report nine times the national rate of hepatitis C infections, with cases up 80% since 2010 (“Kentucky Crisis,” 2017). The Center for Disease Control and Prevention documented a 364% increase in new hepatitis cases in Kentucky and Virginia in 2013 (Centers for Disease Control and Prevention, 2013). Between 75-85% will develop chronic liver disease costing millions of dollars in needed medical assistance. Most patients with chronic hepatitis C infection have not been diagnosed due to few symptoms of illness until years after initial infection (Kentucky Cabinet for Health and Family Services, 2014).

Recent CDC national rankings of vulnerability for the rapid spread of both hepatitis C and HIV found that of the top 220 counties listed, 54 of them are in Kentucky with Wolfe county ranking number one, followed by Breathitt, Perry, and Clay counties (Geospatial Research, 2015). These counties are all within the service region of Ridge Behavioral Health.

### **Individual and Societal Consequences**

According to the National Survey on Drug Use and Health (2015), an estimated 22.5 million United States residents, age 12 to 18, meet the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association 2013) diagnostic criteria for substance abuse or dependency. This number is equivalent to 9.0% of the United States population

(Substance Abuse and Mental Health Services Administration, 2010). Studies show the highest rate of substance abuse or dependence was with marijuana, pain relievers, cocaine and heroin (Substance Abuse and Mental Health Services Administration, 2010).

The United States incarcerates more people per capita than 26 of the largest European nations. One out of 100 United States citizens is now confined to jail or prison. Eighty percent of offenders abuse drugs or alcohol and nearly 50% of those offenders are clinically addicted. Sending adolescents to a prison setting has little effect on drug abuse. Sixty to 80% of drug abusers commit a new crime, typically a drug driven crime after release from prison and approximately 95% return to drug abuse after incarceration (Bhati, Roman, & Chalfin, 2008).

### **Juvenile Drug Court**

A juvenile drug court is a docket within a juvenile court in which selected cases are referred for handling by a designated judge. The judge both leads and works as a member of a team that comprises representatives from treatment, juvenile justice, social services, school, vocational training programs, law enforcement, and the defense (Bureau of Justice Assistance, 2003). Juvenile drug court is a unique approach that builds community partnerships. Broad goals of juvenile drug court are to provide immediate intervention, treatment, and structure. Specific aims include improving the adolescent's level of functioning in their environment, attainment of skills needed to lead a productive life, acceptance of accountability, and strengthening family structures.

In addition to helping the adolescent, court mandated treatment of substance abuse has the potential for significant cost savings, with average savings ranging from \$4,000 to more than \$12,000 per client (McCollister et al., 2007). These cost savings are due, in part, to reductions in prison costs, revolving door arrests, trials, and victimization (National Association of Drug Court

Professionals, 2013). If drug courts were expanded to include inpatient treatment for arrestees who are at risk for drug or alcohol abuse or dependence it is estimated to save \$3.35 for every \$1.00 invested, totaling an additional \$32.3 billion annually in savings. If drug courts were expanded to inpatient treatment for those at risk for drug dependency alone, it is estimated to save \$4.13 for every \$1.00 invested totaling an additional \$1.65 billion annually (Karberg & James, 2005). The estimation of differential costs in terms of criminal behavior versus other economic outcomes such as education achievement and health services utilization could illustrate the need for a more comprehensive approach in addressing the issues of adolescent addiction. Long term benefits from comprehensive holistic care would more fully assess the net benefit of needed programs (McCollister et al., 2007).

The option of drug court without providing treatment and holding offenders accountable for their performance in treatment is ineffective (National Institute of Justice, 2009). Unless treated and supervised, 60 to 80% of adolescents drop out of drug court prematurely and return to their previous lifestyle. In a nationally representative study of more than 2,000 graduates from over 90 drug courts, the average recidivism rate was 16% in the first year if a treatment was implemented. This compares to a recidivism rate on conventional probation, in which 46% commit a new offense and over 60% commit a probation violation (Karberg & James, 2005).

Several investigators (Belenko & Logan, 2003; Hills, Shufelt, & Cocozza, 2009) have suggested that the effectiveness of Juvenile Drug Courts has been limited by the lack of caregiver involvement in the treatment process and by the failure to integrate evidence based substance abuse treatments. Adolescent substance abuse treatment literature (Waldron & Turner, 2008) has long established the importance of caregiver involvement and more intensive treatment.

The integration of evidence based adolescent substance abuse treatment into juvenile drug court has shown promising outcomes in the adolescent substance abuse studies (Stanger & Budney, 2010). Evidence -based treatment such as Multi-Systemic therapy, Family Therapy, and Strategic Family Therapy have shown to be beneficial. By providing an established partnership between the judicial system and inpatient provision of evidence based treatment, adolescents would have continuity of care and guidance from both systems.

### **Theoretical Model**

The Tidal Model of Care, developed by Dr. Phil Barker, is a recovery model based on a set of essential values known as the 10 commitments that guide the provision of care. Dr. Barker trained as a painter and sculptor prior to becoming a psychiatric nurse in the early 1970s. His development of the Tidal Model came out of his own personal development and professional research efforts.

Barker was influenced by Peplau (Barker, 2008) and her work in defining an interpersonal paradigm for the study and practice of nursing. The emphasis on nursing as a relational science was further enhanced by theories generated by a number of studies for psychiatric and mental health nursing, as well as empowerment studies, conducted during the 1990s (Barker & Buchanan, 2010).

The Tidal Model has two basic assumptions that underlie its formation and use. First, change is the only constant. Because of this, nurses need to recognize that clients are always changing and so are their environments. The second assumption is that people are their stories, no more and no less. There is the belief that a client telling his/her own story has within this some of the answers to the problem.

The caregiver is viewed as a connection to the recovery process through developing a close relationship with the individual experiencing the problem. The provider must believe that recovery is possible, change is inevitable, and ultimately people know what is best for them. This Model holds that the person is the teacher, and caregivers are the helpers to facilitate their recovery.

## **Methods and Procedures**

### **Design**

This study was a demonstration project of collaboration between the juvenile justice system and mental health experts in a drug treatment facility. The Project Coordinator, an experienced psychiatric nurse, was a member of the judicial officers/mental health team serving as a liaison between the court and the treatment facility for adolescents court mandated into treatment. These adolescents were followed through the 45 day treatment program and 90 days post treatment.

Juveniles entering the justice system are assigned a court designated worker, a social worker, and a judicial assistant. Juveniles who agreed to enter the program were expected to follow judicial expectations with the goal of attaining a drug free life and a successful return to an educational plan. For this project, the Project Coordinator was able to participate in weekly meetings with the judicial team serving as a mental health advocate for the juvenile. This involved initial court hearings as well as weekly follow-up court hearing for 12 weeks once the adolescent was discharged from the treatment facility.

The Project Coordinator also worked with staff at the treatment facility to refine the existing treatment program to meet the unique needs of this population. The goal was to provide a more holistic and individualized approach. The resulting changes included adding new

treatment programs, specifically Contingency Management and Multi-Systemic Therapy, health screening for HIV and any needed treatment, a comprehensive health education program, GED program, and exploration of potential job opportunities. The program was extended an additional 10 days to a total of 45 in order to include the additional components and to provide a better chance of success for participants than the previous 35 days permitted. Additional staffing for this program included the equivalent of two RNs, one social worker, and part-time clerical support.

The Project Coordinator also worked with staff to develop program outcomes in order to determine success of the program and make any on-going needed changes. The Project Coordinator assumed responsibility for daily monitoring of each participant's participation in program activities, coordination of health testing and treatment, arranging for community speakers and resources, procuring participant surveys, and collecting post-discharge data through the court system and the education system.

### **Setting**

Ridge Behavioral Health is a 110 bed psychiatric hospital located in Lexington, Kentucky. The facility offers mental health and substance abuse treatment to patients ranging in age from 5 to 95. Ridge Behavioral Health has 18 beds dedicated to an adolescent recovery program of either 28 or 35 day duration. For this project, the program was increased to 45 days.

This project was a collaboration between Ridge Behavioral Health and the Juvenile Division.



## **Participants**

Participants included adolescents 13 to 17 years of age ( $M = 15.2$ ;  $SD = 1.2$ ) mandated by the Juvenile Drug Court to be admitted to the treatment program in lieu of incarceration. A total of 30 participants, 22 males and 8 females were included in the study.

## **Treatment Programs**

Contingency Management and Multi-Systemic Therapy were added therapies for this program. In addition, new techniques were added to the existing Cognitive Behavioral Therapy program.

**Contingency Management.** Contingency Management is based on the behavioral principle that if a behavior is reinforced or rewarded, it is more likely to occur in the future. It was included in the program since it has been found to significantly reduce drug use in experimental studies with adolescents (Stanger, Budney, Kamon, & Thostensen, 2009). Contingency management was used daily throughout the program. Participants were expected to follow a regimen of daily scheduled activities planned for age appropriate interaction. Individual records were maintained to monitor participants' attendance and completion of all daily activities. Participants were rewarded for attendance, positive interaction, respect shown for peers and appropriate time spent on daily activities. Rewards included free time for hospital activities, movie passes, attending guest speaker events, and field trips.

**Multi-Systemic Therapy.** Multi-Systemic Therapy is an intensive family treatment program in which therapists are on-call seven days a week. The number of hours allotted for family engagement opportunities was increased with the addition of staff for this project. Each participant, if in the custody of parents, was given the opportunity to meet with family and therapist two times a week more often if requested. Each parent or guardian was given direct

access to assigned therapists seven days a week for information, questions, or concerns. This access was not previously available at Ridge Behavioral Health. Guardians and state appointed case workers were allowed access to information seven days a week. Previously, this access was only available through attendance at family sessions.

Participants also had increased access to therapy. If they wished to speak with therapists at a time not on the program schedule they were able to put in a request and that request was granted within a 4 hour time span between the hours of 7AM and 11PM. Previously, participants were required to wait until the next time the therapist was on duty. Scheduled therapy sessions for each individual were monitored for attendance and adherence to program expectations.

**Cognitive Behavioral Therapy.** Cognitive Behavioral Therapy focuses on the development of personal coping strategies to address current problems and change unhealthy behavior patterns. Modern forms of Cognitive Behavioral Therapy include a number of diverse but related techniques such as relaxation therapy. Waldron and Kaminer (2004) found consistent empirical evidence that group and individual Cognitive Behavioral Therapy are associated with significant and clinically meaningful reductions in adolescent substance use. There were typically 16 sequential sessions, lasting approximately an hour, provided by a therapist trained in Cognitive Behavioral Therapy. Homework was assigned with each session.

**Adjunct Therapies.** Music and art therapy sessions were added to the program for these participants.

## **Education**

Those still enrolled in high school were able to continue educational classes by utilizing an onsite partnership with the local school district. These offerings were coordinated with the guidance counselor from the student's specific district or school. The goal was to provide a

smooth transition to their previous school upon discharge from the program.

In addition, for this program a partnering with the county schools was established to offer GED classes and provide information on how participants could complete a GED within their community after leaving the program. Community resources were reviewed and educational speakers provided. Field Trips, job shadowing, and vocational training opportunities were also made available throughout the program.

### **Health Screening, Treatment, and Health Education**

As participants entered the program a complete physical and an array of lab tests were provided by an internist. This included screening for hepatitis, sexually transmitted diseases, and drug usage. Treatment was initiated for those testing positive for hepatitis or sexually transmitted disease. Screening and treatment for hepatitis were newly added components.

Each participant was interviewed and evaluated by a psychiatrist to determine mental health needs. A dentist examined participants for dental health issues and any needed dental work. A dietician worked with each participant to evaluate their diet, BMI, and overall nutritional status. The opportunity to meet with a dietician was also newly added to this program.

Classes designed for adolescent level of understanding included health information on sexually transmitted diseases, hepatitis C, birth control, effects of drug use on the body, and strategies to remain drug-free. Classes were offered six days a week, focusing on a specific issue each session. The goal of these education sessions was to increase participants' awareness of the importance of prevention and the increased likelihood of staying drug free by being both physically and emotionally healthy.

**Participant Program Evaluation at Discharge**

A survey (Appendix A) was developed specifically for this program and distributed to participants at the end of their treatment stay to determine perceptions of program effectiveness and specific components deemed most and least helpful. Categories included perceptions of helpfulness of the overall program, effectiveness of individual and group therapy, guidance in pursuing educational endeavors, and help in remaining drug free.

A second survey (Appendix B) was completed by participants 90 days after discharge to determine participant perception of program effectiveness in their ability to remain substance free and continue efforts toward school, GED or work goals. Participant perceptions of helpfulness of various program components, care received at Ridge Behavioral Health, pursuit of educational goals, and level of confidence in remaining drug free were sought.

**Assessment Post-Discharge**

During the 90 day post treatment period weekly court ordered drug testing was monitored along with any criminal behavior. School attendance and GED participation was monitored on a weekly basis.

**Ethical Considerations**

The project was approved by Bellarmine University Institutional Review Board, Louisville, Kentucky. In addition, permission was received by Ridge Behavioral Health. To protect anonymity of the participants, evaluation data was recorded using code numbers and reported only in aggregate form. Information was stored in a secure location within Nursing Administration offices at Ridge Behavioral Health.

## Results

### Drug Use

Participants were screened for usage of marijuana, cocaine, heroin, benzodiazepines, and methamphetamines during the initial assessment (see Table 1). All participants tested positive for at least one drug. Twenty three participants (75.9%) tested positive for more than one drug. A high percentage of participants used marijuana (93%) and benzodiazepines (67.7%). Many participants reported the belief that marijuana is not a drug and presents no health issues.

Table 1

*Results of Drug Testing On Entry Into Program (n=30)*

<b>Drug</b>	<b>Marijuana</b>	<b>Cocaine</b>	<b>Heroin</b>	<b>Benzodiazepine</b>	<b>Methamphetamine</b>
<b>n</b>	29 (93%)	4 (4%)	7 (22%)	21 (67.7%)	4 (12%)

*Note:* Twenty three participants tested positive for more than one drug.

### Sexually Transmitted Disease

During the initial assessment, participants were screened for the sexually transmitted diseases syphilis, human papilloma virus (HPV), chlamydia, herpes, and gonorrhea. Slightly more than half the sample (57%), tested positive for at least one disease. Table 2 displays the results of those participants testing positive. Five participants (17%) tested positive for two diseases, and three (10%) tested positive for three diseases.

Table 2

*Participants Testing Positive for Sexually Transmitted Diseases on Entry into Program (n=17)*

<b>Disease</b>	<b>Syphilis</b>	<b>HPV</b>	<b>Chlamydia</b>	<b>Herpes</b>	<b>Gonorrhea</b>
<b>n</b>	2 (12%)	4 (24%)	11 (65%)	8 (47%)	3 (18%)

*Note:* Eight participants tested positive for more than one disease.

## **Hepatitis C**

Seven (23%) of the participants were positive for hepatitis C. These participants were treated and follow up instructions were given over the course of hospitalization.

## **Dental**

Dental examinations revealed 16 (53%) participants needing additional care ranging from cavities to reconstruction. This service was provided within one week of entering the program.

A follow up plan for needed services was given to each participant.

## **Treatment Programs**

**Contingency Management.** The hospital provided needed funding necessary to incorporate Contingency Management Therapy into the program. Participants who attended group sessions multiple times each week received rewards for each time they were engaged and contributed appropriately. These rewards were in the form of vouchers that could be exchanged for retail goods or privileges such as movie night out, field trips, and free time. Contingency Management was a positive incentive with all but two participants earning enough vouchers to attend movie nights and at least one field trip. All participants were able to accrue enough vouchers to earn free time and retail goods.

**Multi-Systemic Therapy.** Therapy for family sessions occurred two times a week for eighteen families resulting in 216 appointments. However, 23 of these appointments resulted in the family failing to be present. Eight participants in state custody who had pending home placements were also allowed family sessions to work toward a smooth transition into the home. The remaining four participants did not have family sessions, but state assigned case workers were offered phone conferencing as requested. The total number of 108 phone calls were

received from family and guardians requesting information or simply to check on the participant's progress.

**Cognitive Behavioral Therapy.** Cognitive Behavioral Therapy focuses on retraining negative thoughts. Participants participated in an average of 16 sessions.

**Adjunct Therapies.** These sessions were widely attended, with 22 out of 30 (73%) attending music sessions and 21 out of 30 (70%) attending art sessions.

### **Education**

Twenty-one participants who had been enrolled in public school but were considered truant worked on the education portion of the program with a plan developed to return to a local public school. Contact was made with the guidance office of their school and plans made to return to school if classes offered in the hospital setting were attended. All 21 of these participants attended the school program 5 days a week. The remaining 9 participants worked to develop a GED plan and were given course work and guidance on how to prepare to take the GED exam.

### **Program Evaluation at Discharge**

Results of the program evaluation completed by participants at the time of discharge are displayed in Table 3. Participant responses were overwhelmingly positive, with means ranging between 1.3 and 2.7 (indicating 'strongly agree' and 'agree' responses) on a 7 point scale. Forming relationships with peers and having group therapy sessions with peers were given the most positive scores, followed by availability of the Project Coordinator. These ratings of support and relationship were reflected in their open-ended responses, with 87% of participants identifying 'support of peers' as the most important aspect of the program and 'having special attention from individual people' identified by 63%. Support was also found in 'pet therapy', the

most frequently reported aspect, identified by 90% of participants. They perceived pet therapy as calming and felt cared about by the therapy animals.

Table 3

*Program Evaluation at Discharge (n=29)*

Item	M	SD
My experience at Ridge was helpful to me	2.1	1.05
Helpfulness of:		
a. Individual counseling sessions	2.5	1.11
b. Group therapy with peers	1.5	.63
c. Guidance on how to stay drug free	2.0	.85
d. Guidance on how to continue my education	1.8	.87
e. Availability of Project Coordinator	1.6	.89
f. Forming relationships with peers	1.3	.37
Program helped me understand how to improve my overall health	1.8	.82
Program helped me identify ways to continue my education/job training	1.6	.63
I have a better understanding of what I need to do to stay drug free	1.8	.75
I am confident in my ability to stay off drugs	1.9	.93
Program helped me identify my own strengths and challenges in staying drug free	1.9	.82
Program helped me recognize triggers and events I need to avoid	2.7	.87

Practical concerns of education/job training were ranked next in priority and identified by 53% of participants in open-ended responses. Improving one's health was similarly ranked in importance. Along with this, 'dental care' was identified as an important topic in the health education program by 67% of respondents, as was 'body image' by 60%, and 'getting well' by 46.7%. Personal trainers and a cosmetic dentist discussed popular topics. Many participants expressed they had lost hope in the ability to be in physical shape or be confident in smiling due



to damaged teeth caused by drug use. Vocational trainers and Celebrate Recovery were events that 25 out of 30 participants (83%) reported as beneficial.

Participants rated themselves as confident in their ability to stay drug free and understanding what was needed to accomplish this, including identifying their own strengths and weaknesses. Many expressed that this experience was the first time they felt proper attention was given to understanding addiction and getting better.

Although still in the 'agree' and 'strongly agree' range of responses, the lowest scores were given to individual counseling sessions and recognizing triggers and events to avoid. Open-ended responses revealed nutrition assessment and nutrition education perceived as the least helpful aspects of the program by 60% of the respondents.

Participants recognized their biggest challenges in staying drug-free would be returning to their friends (reported by 73.3%), their home (53.3%), and school (43.3%). Their plan at the time of discharge to deal with these challenges was to develop new friends (reported by 76.7%), attend Narcotics Anonymous meetings (43.3%), and working (30%).

### **Assessments Post-Discharge**

**Drug status.** Results of post-discharge assessments are displayed in Table 4. The average weekly percentage of participants who tested drug-free was 80.4%. Nine participants (30%) remained drug free during the entire 90 day monitoring period and 11 (36.7%) tested positive only for marijuana. The highest percent of participants reporting drug free occurred during week one (90.3%) and the lowest occurred during week 4 (58.1%), which was also the only week that fell below 71%. Marijuana was the most frequently reported drug.

Table 4

*Post-Discharge Weekly Assessments of Drug Status and School Attendance or GED Work*

Week	% Drug Free (n=30)	% Public School (n=21)	% GED (n=9)	% School or GED (n=30)
1	90.3	90.1	77.8	83.9
2	87.1	90.1	88.9	87.1
3	<b>77.4</b>	66.7	88.9	71.0
4	58.1	71.4	77.8	71.0
5	87.1	95.2	77.8	87.1
6	80.6	76.2	77.8	74.2
7	77.4	76.2	66.7	71.0
8	87.1	90.1	66.7	80.7
9	87.1	81.0	66.7	74.2
10	77.4	95.2	44.4	77.4
11	71.0	81.0	77.8	77.4
12	83.9	90.1	77.8	83.9
<b>Total Means</b>	80.4	83.6	70.6	78.2

**Education.** Education status was monitored as reported by the public school system or GED coordinators on a weekly basis (see Table 6). There were 21 students (70%) in the public school program. Public school guidance counselors reported three of these students as truant as defined by being truant 3 or more times. Weekly average school attendance was 83.6%, with week 5 reporting the highest attendance (95.2%), and week 4 the lowest (71.4%).

Nine participants were enrolled in the GED program. Weekly average participation was 70.6%, with a high of 88.9% participation in weeks 2 and 3, and a low of 44.4% in week 10. At

the end of the 12-week period one participant had finished the program and two had dropped out. Six participants were still actively engaged in the program.

**Criminal behavior.** Criminal behavior was monitored by the court system during the 12 week post discharge period. Of the 30 participants who completed the program, 5 (16.1%) had a record of reoffending. Arrests included shop lifting, possession of a controlled substance, and possession with intent to distribute.

### **Program Evaluation 90 Days Post Discharge**

Participants continued to view their treatment experience as helpful 90 days following discharge (see Table 5) with a mean of 5.0 on a 7-point scale (indicating ‘agree’, ‘strongly agree’). The highest mean (5.4) was reported for availability of the Project Coordinator, which was also identified in the open-ended responses by 56.7% of respondents. Participants continued to report the value of having friendships with other participants in the program who had the same problems (identified by 60% of respondents). School or GED preparation during their treatment was viewed as one of the most important components of the program by 60% of respondents.

Participants were slightly less positive about their ability to remain substance-free, reporting a mean of 4.3 (‘agree’). Twelve weeks following their treatment, participants continued to acknowledge the challenges of being with friends (43.3% of respondents) and their family who used drugs (16.7%). Also reported at this time was a lack of money (reported by 26.7%) which previously had been available to them by selling drugs. Efforts they had made to remain drug-free included continuing their education (reported by 60%), making new friends (30%), and attending Alcoholics Anonymous (20%) or Narcotics Anonymous (16.7%).

Table 5

*Program Evaluation 90 Days Post Discharge*

Item	M	SD
My experience at Ridge has helped me remain substance-free	5.0	1.25
Having the Project Coordinator available during treatment and at court hearings has been helpful	5.4	1.41
I am confident I can stay substance-free	4.3	1.67

### Discussion

This project demonstrates initial positive outcomes of a partnership between the Juvenile Justice system and a mental health treatment program for juveniles facing incarceration for drug-related offenses. In spite of national expansion of juvenile drug courts, there have been limited studies evaluating services and outcomes. Drug courts without the option of treatment have been found to be essentially ineffective, whereas those with inclusion of treatment have shown significant results in reducing recidivism. Researchers have suggested the incorporation of caregiver involvement in the treatment process and evidence based substance abuse therapies as important to increasing the effectiveness of juvenile drug treatment programs. The treatment program in this study was specifically designed as a holistic approach incorporating successful adolescent substance abuse therapies.

### Program Outcomes

Previous year statistics for Madison County juvenile drug court indicate 33% of the adolescents completed the program, and 32.5% of these graduates committed subsequent criminal offenses over the 12 month follow up. These numbers are similar to those reported nationally when treatment is not included (Henggeler et al., 2006). In contrast, all 30 of the

adolescents in the present study completed the program and the 12 week follow-up. Criminal behavior during the 12 week follow-up period was 16.1%, similar to that reported by (Hennegler et al., 2006) when treatment is included along with court monitoring. However, the time period for follow-up in the present study was only 3 months, not the full year as in the reported studies. Further follow-up will need to be done to determine if this recidivism rate remains at this level for longer than the 3 months in this study.

Initial results of drug testing were positive with an overall drug-free average of 80.4%. Nine adolescents (30%) remained drug-free for the entire 12 week follow-up and an additional 11 (36.7%) tested positive only for marijuana. The use of marijuana was not surprising, since most of these adolescents did not view marijuana as a drug and did not believe any health risks were associated with its use.

Close collaboration with the school system during treatment and follow-up allowed guidance, support, and accountability for students to remain in an education program. Those in public school had the highest average attendance (83%) over the twelve week period and 21 students were still enrolled at the end of the 12 weeks. The addition of the GED program proved successful for the remaining students, with a 78.2% average participation.

The addition of hepatitis screening proved valuable in finding 7 participants (23%) already positive for this disease. None of these adolescents were aware they had the disease. This was an important finding which resulted in early treatment for the disease.

### **Program Changes**

The addition of evidence based therapies reported to be effective in adolescent substance abuse programs were successful additions to the existing program. Contingency Management capitalized on the desire of these adolescents to be part of their peer group. The requirement of

earning vouchers promoted positive engagement and participation on a daily basis. The increased staffing made it possible to implement Multi-Systemic Therapy resulting in increased support, guidance, and accessibility to parents, guardians, case workers, and participants. The addition of music and art sessions increased the opportunities for positive expression of feelings and dealing with stress.

The additional 10 days in the program afforded participants time to acclimate to the unit and focus on treatment. This additional time was also used to provide speakers with expertise in 19 different areas, such as vocational training, job opportunities, sobriety planning, and body image. As would be expected of this age group, topics related to body image, such as personal training and cosmetic dentistry, were the most popular. These events were useful in focusing attention on their future in terms of occupation and ways to improve their appearance, health, and self-esteem. Pet therapy was particularly well received, providing the opportunity to both give and receive affection from these animals.

### **Participant Program Evaluation**

Program evaluations from the participants at discharge were overwhelmingly positive in all areas. Particularly important was the peer support they received from others going through the same difficult experiences. Evaluations remained positive 12 weeks following discharge, even with reversal of the anchors from the evaluation at discharge. Particularly important to these participants was the continued presence of the Project Coordinator, from the initial court assessment, throughout the program, and for 12 consecutive weeks following discharge.

### **Judicial Partnership**

The judicial partnership resulted in new understandings for both the judicial court and the treatment team. The Project Coordinator was able to gain a unique perspective on the nature and

scope of the problem. Madison County alone had 2102 participants in their juvenile drug program last year. The sheer numbers of young people and the resulting emotional and financial impact of this epidemic are overwhelming. Following participants for 12 weeks after discharge provided insight into the challenges adolescents face as they return to familiar environments that encouraged drug behavior.

Members of the judicial court welcomed the opportunity to offer treatment as an alternative to incarceration and appreciated the holistic approach. They were surprised at some of the health findings, particularly the number of hepatitis cases in this small sample alone. In recognition of the need to address drug addiction more holistically, the Madison County Judge Executive recently announced plans to provide similar services for the adult program, addressing health and dental needs, education pursuits, and job training.

Weekly group discussions and meetings provided a comprehensive and coordinated approach for the team. Issues of job training, return to school, and education planning had previously been difficult and time-consuming to address on an individual basis. The ability of the team to have weekly reports concerning program compliance and health testing was a positive change for members of this team. State appointed case workers reported that the structure of the program and accessibility to staff facilitated follow-up planning for physical and emotional health treatment.

### **Family and Guardian Perceptions**

Parents and guardians appreciated being involved more directly in the adolescent's care, both in terms of continuity of care and the consistent engagement in care. They particularly appreciated that hepatitis testing was done and treatment initiated. They recognized the value of

the program's holistic approach that addressed the adolescent's physical, emotional, and social well-being.

### **Ridge Behavioral Health**

The treatment facility used this project as an opportunity to develop a program uniquely designed for juveniles facing incarceration for drug-related criminal behavior. The program's primary goal was to implement a holistic treatment approach. This involved new evidence based therapies, additional staffing, and designation of a Project Coordinator. Resources were sought from the community for education coordination and accountability, as well as broad topics important for post discharge such as sobriety support, job training, and health resources.

The development of participant program evaluations was needed and allowed evaluation of the new program components and comparison with similar programs. Previously, drug relapse, criminal recidivism, and educational pursuits following discharge were unknown. The twelve week follow-up is initially encouraging and is in line with outcomes reported for similar programs that have incorporated treatment into the juvenile court system. This supports continuation of the current program and on-going evaluation.

### **Strengths**

Successful patient interventions require coordination of services across the continuum of care. Similarly, a major strength of this project was the coordination of care and services for these adolescents from sentencing, through treatment, and for 12 weeks post discharge. The position of a Project Coordinator was essential to the success of the program to facilitate program changes, coordinate external resources with the court and schools, and track outcomes. The importance of this position was recognized by the adolescents, who rated the Project Coordinator as the most important aspect of the program.



An additional strength was the incorporation of the Project Coordinator as part of the judicial team. This was important not only for the coordination involved, but also for the understandings shared from the judicial and the treatment sides about the needs and challenges of this group. This process and sharing of outcomes resulted in planning for future changes in the Madison County adult program.

The willingness of Ridge Behavioral Health to participate in this project and add new programs and staff helped make the project possible and ultimately successful. With the collection of outcomes, there was demonstration of effective treatment for this population and opportunities for growth in hospital services. The decision to add hepatitis screening was particularly significant, resulting in the detection of seven cases in individuals previously unaware they had the disease. For these individuals, treatment was initiated and the eventual development of chronic liver disease avoided. This demonstration of need was convincing for this screening and treatment to be continued.

### **Limitations**

A major limitation is the small sample size. As a demonstration project, the intent was to examine the effectiveness of a judicial-mental health partnership. The small pilot group was used to evaluate outcomes and the potential viability of continuing the partnership. Although initial outcomes are encouraging, larger sample sizes and longer term follow-up are needed.

### **Recommendations**

Judicial-mental health partnerships are needed to address the growing epidemic of adolescent drug addiction and associated criminal activity. The designation of a Project Coordinator is an essential component for success of this partnership. Treatment facilities need to carefully examine programs and incorporate best practices for adolescents. A holistic approach is

needed to address the wide range of complex needs and problems these adolescents present. Identification and careful tracking of important outcomes are needed to demonstrate effectiveness to the courts, treatment facilities, and patients and families.

Specific recommendations include entering participants in cohort groups which would improve delivery of services, and tracking of progress and outcomes. This would also facilitate formation and continuation of peer relationships and support. Another recommendation is to schedule family sessions on specific days due to the emotional toll these situations can have for adolescents. It is often difficult to redirect adolescents toward positive engagement in the program following these events. Having a set schedule for these sessions would provide a more therapeutic environment.

### **Summary**

Juvenile drug use, and its frequent association with criminal behavior, is a growing world-wide phenomenon. This problem is acutely felt in some of the rural areas of Kentucky. The program presented in this study demonstrates initial success in joining partnerships with the judicial system, treatment professionals, and community, schools, and families. Of particular importance was the value of a coordinating individual across the continuum of court sentencing, treatment, and follow-up. Holistic treatment approaches are needed to address the multiple issues facing these adolescents, including their health, emotional and social well-being, and returning to school, family, and friends. Planning for a different future requires identification of skills and education needed, strategies to rebuild self-esteem and body image, and connection with community support groups to maintain sobriety.

The magnitude of juvenile drug use requires continued effort to develop and refine programs that support these adolescents and their families. The joining of professional expertise

from a variety of sources will be needed to protect our communities and to give these young individuals a chance for a different life.

## References

- American Psychiatric Association (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Association Publishing.
- Barker, P., & Buchannan P. (2010). The Tidal Model of Mental Health Recovery and Reclamation: Application in Acute Care Settings. *Issues in Mental Health Nursing, 31*,
- Barker, P. (2008). Hildegard Peplau: The Mother of Psychiatric Nursing. *Journal of Psychiatric and Mental Health Nursing, 6*, 171-180, DOI;10.3109/01612840903276696
- Belenko, S., & Logan, T. (2003). Delivering more effective treatments to adolescents. *Journal of Substance Abuse Treatment, 25*, 189-231.
- Bhati, A., Roman, J., & Chalfin, A. (2008). To treat or not to treat: Evidence on the prospects of expanding treatment to drug involved offenders. *The Urban Institute. Washington, D.C.*,
- Bureau of Justice Assistance, (2003). *Juvenile Drug Courts: Strategies in Practice*, U.S. Department of Justice. [www.ncjrs.gov](http://www.ncjrs.gov)
- Carey, S. (2006). California Drug Courts: Outcomes, costs and promising practices. *Journal of Psychoactive Drugs. SARC Supplement 3*, 345-356.
- CDC Hepatitis, 2013. Center for Disease Control and Prevention, National Alliance of State and Territorial Disease
- Center for Disease Control and Prevention, (2013). Trends in the prevalence of marijuana, cocaine, and other illegal drug use. <https://nccd.cdc.gov/youthonline/app/results>.
- Chassin, L. (2008). Juvenile justice and substance use. *Future of Children, 18*, 165-183.
- Cooper, C. (2009). Adolescent drug users: The Justice System is missing an important opportunity. *Family Court Review 47*, 239-252.
- “Depression in Kentucky” (2016). National Institute of Mental Health. [Nimh.nih.gov](http://Nimh.nih.gov)

Drug Abuse 2013 Data (2013). Safe Kentucky, [www.safekentucky.org/reports/57-kentucky-drug-abuse-injury-reports](http://www.safekentucky.org/reports/57-kentucky-drug-abuse-injury-reports)

Drug Facts: Nationwide Trends. National Institute on Drug Abuse, (2015). Advancing Addiction Science. <https://drugabuse.gov/publications/drugfacts/nationwide-trends>.

Drug Overdose Deaths in the United States (2013). Retrieved from <https://www.cdc.gov/nchs/products/databriefs/db273.htm>

Gallagher, J. (2014). Predicting criminal recidivism following Drug Court: Implications for Drug Court practice and policy. *Journal of Addictions, 35*.  
<http://dx.doi.org/DOI:10:1002/j.2161-1874.2013.0001.x>

Geospatial Research, Analysis, and Services Program (GRASP), (2015), Division of toxicology and human health sciences, ATSDR

Gopiram, P., & Kishore, M. (2014). Psychosocial attributes of substance abuse among adolescents and young adults. *Indian Journal of Psychological Medicine, 36* (1) 58-61.

Healthy Americans (2013). Trust for Healthy Americans. <http://www.healthyamericans.org>

Healthy Kentuckians (2010). [chfs.ky.gov](http://chfs.ky.gov)

Healthy People. (2010). Retrieved

<http://www.healthypeople.gov/document/HTML/Volume2/26Substance>

Henggeler, S. W., McCart, M.R., Cunningham, P.B. & Chapman, J.E. (2012). Enhancing the effectiveness of juvenile drug courts by integrating evidence-based practices. *Journal of Consulting and Clinical Psychology, 80*, 264-275.

Henggeler, S. (2011). Efficacy studies to large scale transport; The development and validation of multi systemic therapy programs. *Annual Review of Clinical Psychology, 7*, 367-381.  
<http://dx.doi.org/doi:10:1146/annurev-climpsy-032210-104615>

- Henggeler, S.W., Halliday-Boykins, C.A., Cunningham, P.B., Randall, J., Shapiro, S.B., & Chapman, J.E. (2006). Juvenile drug court: Enhancing outcomes by integrating evidence-based treatments. *Journal of Consulting and Clinical Psychology, 74*(1), Feb 2006, 42-54. <http://dx.doi.org/10.1037/0022-006X.74.1.42>
- Hughes, A., Sathe, N., & Spagnola, K. (2009). State Estimates of Substance Use from the 2006-2007. *National Surveys on Drug Use and Health* (Office of Applied Studies, Substance Abuse and Mental Health Services Administration, NSDUH Series H-35, JJS Publication No. SMA 09-4362. Rockville, MD.
- Karberg, J.C., & James, D.J. (2005). Substance dependence, abuse and treatment of jail inmates, 2002. Bureau of Justice Statistics, U.S. Department of Justice.
- Kentucky Cabinet for Health and Family Services (2014), Kentucky Public Health, [www.ky.gov](http://www.ky.gov).
- Kentucky Crisis (2017). Retrieved from <http://chfs.ky.gov/dph/diseases>
- Kentucky leads the Nation in Hepatitis C (2017). [www.kentucky.com/news/state/article151550027.html](http://www.kentucky.com/news/state/article151550027.html)
- Kosten, T., & George, T. (2012). The neurobiology of opioid dependence: Implications for treatment. *Scientific Practice Perspective, 1*(1), 13-20. Retrieved from <http://dx.doi.org/>
- McCollister, K., French, M., Sheidow, A., Henggeler, S., & Boykins, (2007), Estimating the differential costs of criminal activity for Juvenile Drug Court participants: Challenges and recommendations. *Journal of Behavioral Health Services & Research*. National Council for Community Behavioral Healthcare.
- Molinaro, S., Siciliano, V., & Curzio, O. (2011). PLOS ONE. *Institute of Clinical Psychology, 6*. Retrieved from [www.plosone.org](http://www.plosone.org)
- National Association of Drug Court Professionals, (2013), DNADCP, <http://www.nadcp.org>

National Survey on Drug Use and Health (2015). <http://nsduhweb.rti.org>

National Institute of Justice, (2009), <http://ojp.gov>

“Depression in Kentucky” (2016). [Nimh.nih.gov](http://nimh.nih.gov)

Shannon, C. (2012). Effective Strategies in Juvenile Drug Court. Retrieved from [www.NPC Research.com](http://www.NPCResearch.com).

Sheidow, A.J., Jayawaardhana, J., Bradford, W.D., Henggeler, S.W., & Shapiro, S.B. (2012). Money matters: Cost effectiveness of Juvenile Drug Court with and without evidence-based treatments. *Journal of Child and Adolescent Substance Abuse*, 21 (1), 69-90.  
doi:10.1080/1067828X.2012.63670).

Shippenberg, T. (2007). Dynorphin and the pathophysiology of drug addiction. *Pharmacology & Therapeutics*, 116(2), 306-32

Stanger, C., Budney, A., Kamon, J.L., & Thostensen, J. (2009). A randomized trial of contingency management for adolescent marijuana abuse and dependence. *Drug and Alcohol Dependence*, 105(3), 240-247.

Stein, D.M., & Homan, K. (2012). Predicting success and failure in juvenile drug treatment court; A meta-analytic review. *Journal of Substance Abuse Treatment*, 44 (2), 159-168

Substance Abuse and Mental Health Services Administration, 2010. Results from the national survey on drug use and health; Volume I, Summary of National Findings, Rockville, MD: Office of Applied Studies, NSDUH Series H-38A, HHS Publication.

“Substance Abuse in Children and Teens” (2015). Center for Disease Control and Prevention [nesh/data-visualization/Kentucky Public Health](http://nesh/data-visualization/KentuckyPublicHealth)

Sullivan, C., Blair, L., Latessa, E., & Sullivan, C. (2014). Juvenile Drug Courts and Recidivism: Results from a Multisite Outcome Study. *Justice Quarterly*, 33(2), 291-318

Tapert, S. (2007). Functional MRI of inhibitory processing in adolescent marijuana users.

*Psychopharmacology*, 173-183

Waldron, H., & Kaminer, Y. (2004) On the learning curve: The evidence supporting cognitive

behavioral therapies for adolescent substance abuse addiction, *Addiction*, 99, 93-105.

Waldron, H., & Turner, C. (2008). Evidence-based psychosocial treatments for adolescent

substance abuse. *Journal of Clinical Child and Adolescent Psychology*, 37, 238-261.

Wormer, V. & Carey, S.M. (2015), NADCP Annual Conference, <http://www.nadcp.org>

Youth Risk Behavior Survey (2016). [www.cdc.gov/2016](http://www.cdc.gov/2016)



Appendix A

**Program Evaluation**

Please circle the response that best reflects your opinion about the following questions. Provide rationale/examples for your responses.

a. The experience at Ridge Behavioral Health has been helpful to me:

Strongly agree		Agree		Disagree		Strongly disagree	
0	1	2	3	4	5	6	7

The most helpful part of my experience was:

The least helpful part of my experience was:

b. Rate the following in terms of how helpful they were to you.

Individual counseling sessions:

Very helpful		Somewhat helpful		Not very helpful		Not at all helpful	
0	1	2	3	4	5	6	7

Group therapy with peers:

Very helpful		Somewhat helpful		Not very helpful		Not at all helpful	
0	1	2	3	4	5	6	7

Guidance on how to stay drug-free:

Very helpful		Somewhat helpful		Not very helpful		Not at all helpful	
0	1	2	3	4	5	6	7

Guidance on how to continue my education:

Very helpful		Somewhat helpful		Not very helpful		Not at all helpful	
0	1	2	3	4	5	6	7

Having Ms. Broaddus available during court hearings and at the Ridge:

Very helpful	Somewhat helpful	Not very helpful	Not at all helpful
0      1      2      3	4      5      6      7		

Forming relationships with my peers:

Very helpful	Somewhat helpful	Not very helpful	Not at all helpful
0      1      2      3	4      5      6      7		

c. The program helped me understand how to improve my overall health:

Strongly agree	Agree	Disagree	Strongly disagree
0      1      2      3	4      5      6      7		

The most helpful topics were:

The least helpful topics were:

d. The program helped me identify ways to continue my education (or GED) and find job training programs.

Strongly agree	Agree	Disagree	Strongly disagree
0      1      2      3	4      5      6      7		

e. I have a better understanding of what I need to do to stay off drugs.

Strongly agree	Agree	Disagree	Strongly disagree
0      1      2      3	4      5      6      7		

f. I am confident in my ability to stay off drugs.

Strongly agree	Agree	Disagree	Strongly disagree
0      1      2      3	4      5      6      7		

- g. The program helped me identify my own strengths and challenges in staying free of drugs.

Strongly agree      Agree      Disagree      Strongly disagree  
0      1      2      3      4      5      6      7

- h. The program helped me recognize the triggers and events I need to avoid.

Strongly agree      Agree      Disagree      Strongly disagree

- i. The biggest challenge I will face in staying drug-free is:

- j. I plan to deal with this challenge by:

**Other Comments:**

Appendix B

**90 Days Post-Treatment Survey**

Please circle the response that best reflects your opinion about the following questions. Provide rationale/examples for your responses.

1. I have remained substance-free since my discharge from the Ridge.

Yes\_\_\_\_\_ No\_\_\_\_\_

2. My biggest challenge in trying to stay substance-free has been:

3. My experience at the Ridge has helped me in my efforts to remain substance-free.

Strongly Disagree	Disagree	Agree	Strongly Agree				
0	1	2	3	4	5	6	7

4. The most helpful part of my experience at the Ridge was:

5. I have made the following changes in my life in my efforts to stay substance-free:

6. I am currently in school or working on my GED.

Yes\_\_\_\_\_ No\_\_\_\_\_

Strongly Disagree	Disagree	Agree	Strongly Agree				
0	1	2	3	4	5	6	7

\* Describe how you are completing your education or plans you have to do so

7. Having Ms. Broaddus available during my treatment and during my court sessions has been helpful.

Strongly Disagree	Disagree	Agree	Strongly Agree				
0	1	2	3	4	5	6	7

8. I am confident I can stay substance-free.

Strongly Disagree	Disagree	Agree	Strongly Agree				
0	1	2	3	4	5	6	7

\*Why/Why not?