

# Drug Abuse among Hispanics

## *A Brief Evidence-Based Guide for Providers*



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### INTRODUCTION

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The purpose of this guide is to provide user-friendly information on what is known about:

- The prevalence of drug use among Hispanics
- The effects of drugs of use on the brain, especially on adolescent brain development
- Drug use prevention for Hispanic adolescents
- Treatment of Hispanics with drug abuse problems

These topics were selected after providers serving Hispanic clients were consulted on what they considered informational gaps in the area of drug abuse services and Hispanics. In response to their needs, this guide provides a sampling of empirically supported practices under each topic and offers guidance to counselors and other providers serving Hispanic clients on where to obtain more in-depth and comprehensive information. The last section of this guide contains important resources that readers can consult to obtain more information on specific topics.

### The Prevalence of Drug Use among Hispanics

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Although there is no simple way to describe the patterns of drug use among Hispanics, certain patterns have been identified:

- Drug use rates among Hispanics 12-17 years old are similar to rates among non-Hispanic White counterparts (1).
- Findings from the 2005 Monitoring the Future study reveal that 12<sup>th</sup> grade Hispanic students reported the highest rate of use for some drugs: crack, heroin, heroin with and without a needle, ice, and Rohypnol. Hispanic 8<sup>th</sup> grade students' use came out highest compared to blacks and whites on nearly all classes of drugs (amphetamines being the major exception) (2).

- The higher rates of illicit drug use among younger Hispanic students is a serious public health problem because younger age of initiation has been associated with greater risk of serious drug abuse related problems and addiction (3).
- Older Hispanics report lower drug use rates than older non-Hispanic Whites (1).
- Drug use is higher among Hispanic males than Hispanic females. The differences are greater between older men and older women, and less so between younger men and women (3).
- U.S.-born Hispanics report higher rates of drug use, abuse, and dependence than Hispanics born outside the U.S. (3).

### Effects of Drugs of Use on the Brain and on Adolescent Brain Development

*Keith A. Trujillo, Ph.D., and Patricia Molina, M.D., Ph.D.*

#### How does the brain react to addictive drugs?

Addictive drugs commonly produce two effects that contribute to their ability to lead to addiction: pleasure and plasticity. Pleasure refers to the rewarding effects of drugs of abuse; and plasticity refers to the ability of addictive drugs to produce changes in the brain following long-term use (4).

A specific brain circuit, sometimes called the reward circuit, is responsible for drug reinforcement.<sup>1</sup> Although 'pleasure' is a necessary property of addictive drugs, it is not sufficient to produce addiction. Compulsive drug seeking, the hallmark of addiction, arises not simply from the pleasurable effects of drugs, but from the ability of drugs to produce changes in the brain and behavior as a result of repeated use. These changes—collectively referred to as “drug-induced plasticity”—include tolerance,<sup>2</sup> sensitization<sup>3</sup> and physical dependence<sup>4</sup> (5).

Just as memories can last a lifetime, changes in the brain that contribute to drug desire may last a lifetime. Research is being conducted to determine the mechanisms involved in drug-induced plasticity, as well as the brain changes responsible for compulsive drug-seeking (4,5).

#### How are genes and addiction related?

Not all individuals who experiment with drugs will develop an addiction. Development of drug addiction is a result of the interaction of the environment, the genetic makeup of the individual and the response of the brain to the drug (6,7). Genetic factors can account for a considerable amount of the vulnerability to addiction:

- Genes can influence the likelihood that an individual will participate in risky behavior, experiment with drugs or seek novel experiences.
- Genes contribute to the personality of the individual, specifically how the person will respond to environmental

<sup>1</sup> Brain areas that are key in this circuit are the ventral tegmental area (VTA), the nucleus accumbens (NAcc) and the prefrontal cortex (Pfc). This circuit allows individuals to experience normal sensory pleasures. However, drugs of abuse bypass sensory systems and directly stimulate the circuit, thereby producing pleasurable feelings. Drugs do this by stimulating specific neurotransmitter systems in the reward circuit. Neurotransmitters are used as messengers between neurons in different parts of the brain to convey information, form memories and orchestrate reactions to our environment, including those of pleasure and reward.

<sup>2</sup> Tolerance is a decrease in an effect of a drug as a result of long-term use; users will increase drug intake if tolerance occurs to the desired effects of a drug.

<sup>3</sup> Sensitization is the opposite of tolerance: an increase in an effect of a drug following long-term use. Sensitization has been linked to the development of drug craving in addiction.

<sup>4</sup> Physical dependence is an adaptive physiological change in which further drugs are necessary to avoid unpleasant withdrawal symptoms.

factors and to the social and peer pressures that encourage experimentation with substances of abuse.

- ▶ Genes can determine how the individual responds to a specific drug by affecting neurotransmitter receptors that recognize and respond to a drug, or enzymes that are involved in removing a drug from the body.
- ▶ Certain genes can contribute to the development of addiction. Some of them are specifically linked to increased vulnerability to a given class of drugs (opioids or cocaine), while others appear to be generalized to several addictive behaviors (6,7).

It is important to remember that genes on their own do not determine whether or not someone will become addicted to drugs. Rather, they can create a vulnerability to drug addiction that under the right environmental conditions (such as experience of trauma or great exposure to drugs) may increase the chances of developing an addiction disorder. Addiction will occur if an individual with a mix of risky genes encounters risky environmental circumstances. From a clinical perspective, science is a long way from being able to diagnose risk for addiction based on genetic screening.

### Is drug use related to brain damage?

Research does show that chronic use of some drugs can lead to gross structural changes, including brain shrinkage and other irregularities. For example, imaging studies have shown that long-term use of methamphetamine can decrease gray matter in certain regions of the brain, such as the ones involved in learning (8).

Changes in the brain produced by drugs of abuse can affect brain function, including cognition, learning and memory:

- ▶ Heavy use of marijuana may impair attention and the brain's capacity of organizing complex behavior.
- ▶ Chronic methamphetamine users have been found to be more easily distracted and less efficient at focusing attention on complex tasks.
- ▶ Chronic cocaine users have shown impaired attention, learning, memory, reaction time and cognitive flexibility.
- ▶ Persons addicted to heroin have exhibited impaired impulse control.

It is important to note that several of these changes are partially reversible with abstinence, particularly during the early period of sobriety or abstinence. However, they may not totally disappear following discontinuation of drug use. The brain is very resilient, and in the cases in which damage does occur, the brain shows a remarkable ability to overcome deficits. Although brain cells do not regenerate, repair and re-growth do occur, and even when they do not, the brain can develop new ways (or connections) to get things done and compensate for some of the defects that persist as a result of chronic drug abuse.

### What is the impact of drugs on adolescent brain development?

The earlier an individual begins using drugs, the more likely it is that problem use and addiction will develop. However, until recently most of the research on the neurobiology of drug abuse and addiction focused on adults, with little attention given to adolescents. Since adolescence is a critical time at which people begin experimenting with drugs, it is important to understand the adolescent brain, and to ascertain whether or not it differs

from the adult brain in ways that influence drug taking and/or the consequences of drug use (9,10,11).

- ▶ The brain continues to develop through adolescence and into young adulthood. The brain matures in a back-to-front direction, beginning with areas involved in motor function and ending with regions involved in rational decision-making, impulse control and planning, making the prefrontal cortex one of the last areas to develop. This may help to explain why adolescents often make decisions based on immediate concerns, with less consideration given to long-term consequences. In other words, the adolescent brain is predisposed to risky behavior (9,10).

There are other factors that may influence risk for addiction in adolescence: the type of drug used, the individual's genetic makeup, the underlying behavioral predisposing factors, and the environmental stressors and pressures surrounding the individual. All of these factors interact to determine who will become addicted to a given drug. However, two of the most important factors in the development of addictive disorders are the amount or quantity of drug consumed and the inherent biological vulnerability to addiction of the individual.

### Drug Use Preventive Interventions for Hispanic Adolescents

*Barbara López, Ph.D., Hilda Pantín, Ph.D., and Felipe González Castro, Ph.D.*

The goals of drug abuse prevention are to modify risk and protective factors that increase or decrease the probability of youth drug use. These risk and protective factors are grouped into two categories: intrapersonal/individual factors (e.g., social cognitive attitudes, beliefs, and intentions regarding drug use) and contextual factors (e.g., family, school, and peers). *Intrapersonal factors* that have been identified as protective for drug use are drug resistance skills, personal self-management, and general social skills, which have been shown to protect Hispanic adolescents from drug use (12,13,14). Among the *contextual factors*, the family context has been found to be the most important factor in the development of adolescent drug use (15). Family factors such as family support for the adolescent, parent-adolescent communication (16), parent-adolescent connectedness (17,18), and parental monitoring of adolescent activities (19,20) are powerful protective factors against drug use. In addition to the family context, the school context is an area of concern for Hispanic adolescents because their high rate of school drop-out (21) places them at greater risk for drug use (22,23). Finally, affiliation with deviant peers and peer drug use are considered to be the most proximal correlates of adolescent drug use (24).

### What are some efficacious preventive interventions for Hispanic adolescents?

Five preventive interventions have focused on promoting protective intrapersonal and/or contextual factors. They have been found to be efficacious in preventing drug use and increasing protective factors (e.g., academic achievement and parental involvement) in Hispanics adolescents. The interventions are Life Skills Training (LST), Say Yes First, *Familias Unidas*,

Keepin' It REAL, and *Nuestras Familias: Andando Entre Culturas*.

- Life Skills Training is a child-centered, school-based preventive intervention. Among child-centered interventions, LST (25) is one of the most extensively researched and frequently used drug use prevention program for middle school students (26). It uses cognitive behavioral techniques to increase protective intrapersonal factors such as drug resistance skills, personal self-management, and general social skills, which have been shown to protect Hispanic adolescents from drug use (27,28,29,30).
- Say Yes First (30) is also a child-centered, school-based preventive intervention. It focuses on promoting individual (e.g., reducing antisocial behavior) and contextual protective factors (e.g., increasing academic achievement and adolescent involvement in prosocial activities) to reduce drug use. The Say Yes First intervention incorporates academic tutoring, enrichment programs (e.g., after-school activities), case management, and referral to community services. It has been used with youth in 4th to 8th grades.
- *Familias Unidas* (31,32) addresses contextual risk and protective factors through a parent-centered intervention for immigrant Hispanic adolescents and their families. In light of the importance of the family context, *Familias Unidas* focuses on the family as the primary agent of change. Clinicians work closely with the family through parent-centered groups and family visits to implement long-lasting changes in family functioning (e.g., increases in parental investment, parent-adolescent communication, parental monitoring of peers). Although the primary focus of *Familias Unidas* is on family functioning, the important role of school and peers is also addressed in the intervention. *Familias Unidas* attempts to increase bonding to school by linking parents with the school system. It also attempts to increase parental monitoring of peers by linking parents of adolescent peers to create supervisory networks.
- Keepin' It REAL (33) is a culturally-grounded prevention intervention curriculum developed at Arizona State University. It has been effective in preventing the initial use of alcohol and tobacco (gateway substances to use other drugs), and in improving social norms and resistance strategies. The Mexican American and Multicultural versions of this program have exhibited better efficacy on several targeted outcomes than the combined African-American-EuroAmerican version (34,35).
- *Nuestras Familias: Andando Entre Culturas* (35) is a 12-session parent training prevention intervention based on Social Interaction Learning Theory (36) and Eco-developmental Theory (37), with an added emphasis on the effects of the acculturation process on Latino families. *Nuestras Familias* has been efficacious in improving general and overall parenting, parenting skills and encouragement, as well as three youth outcomes, (i.e., aggression, externalizing, and youth-reported likelihood of drug use).

### **What are other effective strategies to prevent adolescent drug use?**

Parental involvement in the adolescent's life and parental monitoring of peer activities have all been found to be effective

strategies to prevent drug use in adolescents (38,39). Parental involvement and monitoring can often go hand in hand. In the planning and supervising of activities (e.g., slumber parties, sporting events, and barbecues) parents increase their involvement with their adolescent and become acquainted with their adolescent's peers as well as the parents of their adolescent's peers. Creating links between parents develops natural parent support networks that can serve as resources for parents to help supervise their adolescents.

### **What are some clinical strategies to address prevention issues?**

Preventive interventions have used a variety of clinical strategies, including engagement and group cohesion. Encouraging engagement into the intervention is an important and often difficult aspect of the preventive intervention. Engagement is especially difficult in preventive interventions because many times adolescents are not currently experiencing problematic behavior and families may not see prevention of future problems as a priority. In engaging families, group leaders focus on establishing trust with parents, adolescents, and other family members. This is accomplished by assuring consistent availability, commitment, and support. For engaging Hispanic immigrant families it may be necessary to go the extra mile and conduct home visits to meet the family in their own environment (40). Once trust is established, discussion of the potential benefits of participation in the intervention as well as potential perceived barriers to participation can begin. A discussion of these two issues is necessary because although the possible benefits of the intervention may be attractive to families, family hopelessness and parental disinvestment may present obstacles to participation.

Group cohesion is also important because it can help parents to remain engaged in the intervention, provide social support for parents, and facilitate the acquisition of parenting skills. One way to promote group cohesion is through the use of participatory learning to deliver intervention components. In participatory learning, group leaders are viewed as collaborators rather than as experts by parents. Group leaders facilitate the acquisition of skills through active parent participation.

### **Treatment of Hispanics with Drug Abuse Problems**

*Daniel Santisteban, Ph.D.*

Hispanics use fewer health care services; are less likely than non-Hispanic Whites to have entered the health system for any type of care; and have the highest rate of uninsured individuals in the U.S. In the light of these findings, this section provides information on research-supported practices and treatments, and how these can be helpful in the engagement, assessment, and treatment of Hispanics with drug abuse problems.

### **Why do we insist on having practices and treatments that have been tested in research?**

One of the major benefits of evidence-based practices in drug abuse treatment is the greater degree of confidence that the intervention is likely to have a substantial impact on drug abuse and related symptoms. Research also sheds light on the specific circumstances in which an intervention can work well or poorly.

When treatments are “manualized,” they help to specify the most important strategies and interventions from a package of interventions, and help prepare the counselor for challenges to implementation and to fidelity. Fidelity, sometimes called adherence, is important because it ensures that the most important components of a treatment are offered to the client in the way that is most effective.

When treating Hispanics who may have important clinical issues (such as acculturation and immigration-related stressors) that are not given a lot of attention in the treatment manual there may be extra challenges to achieve fidelity. Adaptations may be necessary in order to make the treatment more relevant to clients. These are the types of challenges and questions that continue to be the focus of the research and treatment communities concerned with the treatment of Hispanics.

### **What do we know about strategies that work to engage Hispanic clients into treatment?**

There are many factors that keep clients away from the treatments they need. Sometimes they may have had past treatment failures or other negative experiences with treatment. Other times issues will emerge during treatment that may be embarrassing to discuss and can carry stigma. Some examples of such issues are sexual or physical abuse, the addictions of other family members, criminal behavior, and marital infidelity. When working with Hispanic clients, there may be other unique barriers, such as language barriers, feelings of being intimidated by/or being discriminated against by large service systems and institutions, issues of legal residency documentation, and a lack of familiarity with the goals and methods of treatment. Several strategies appear to be helpful:

- ◆ It has been found that when Mexican Americans were offered treatment within an ethnicity-specific program, they were 11 times more likely to return for a second session, than when they were offered services in a mainstream program not tailored to Mexican Americans and their surroundings (41).
- ◆ Clinical and research work focused on bringing reluctant Hispanic family members into family therapy for treatment of a drug abusing adolescent has found that specialized engagement interventions (42) specifically designed to address the reasons for reluctance (e.g., handling a family secret) can lead to substantially better engagement of the adolescents and family members (43,44).
- ◆ Motivational Interviewing (45) can be helpful in increasing motivation to seek treatment, in increasing retention in services, and in reducing drug abuse (46).

The success of engagement interventions such as those outlined above suggests that the low utilization rates by Hispanics can be substantially improved by adopting engagement strategies that are tailored to the cultural, clinical, and family characteristics of Hispanic clients.

### **What are some of the assessment tools of drug abuse problems that are recommended to be used with Hispanics?**

- ◆ Addiction Severity Index (ASI) is a 200-item multidimensional clinical interview used to measure drug and alcohol abuse and related domains, including medical status, employment and support, legal status, family/social status, and psychiatric

status. The ASI (47) is useful because it can provide a score of the degree of addiction severity upon entering a program, which can be used to make treatment placement decisions and/or to assess change in severity of symptoms over time and with treatment. It is available in Spanish and has been widely used with Hispanics. Much work has also been accomplished under a NIDA-SAMHSA-initiative on Addiction Technology Transfer Centers (ATTC) to develop specific strategies and procedures for efficiently utilizing ASI data in treatment planning.

- ◆ Drinkers Inventory of Consequences is a 50-item questionnaire that measures the adverse consequences of drinking along major dimensions, including interpersonal, physical, social, impulsive, and intrapersonal domains (48). The instrument is available in Spanish and has been used considerably with Hispanic populations. Briefer versions of the instrument are also available.

### **What do we know about treatment for adolescent drug abuse?**

Adolescents find themselves in a very unique developmental stage in which family, peers and identity formation play major roles in their lives. Not surprisingly, some of the treatments that have proven to work well in the treatment of drug abuse in adolescents are family-based. The family is the naturally occurring unit that continues to have extraordinary influence on the course or trajectory of the adolescent’s development. While some argue that family influence is diminished during adolescence because of the development of autonomy, others disagree because they contend that the health and flexibility of the family help determine the extent to which healthy or unhealthy autonomy takes place. There are common treatment components found in successful family therapy programs such as Brief Strategic Family Therapy (49), Functional Family Therapy (50), Multidimensional Family Therapy (51), and Multisystemic Family Therapy (52). Important treatment components in family therapy typically include:

- ◆ Improvement of family relationships (e.g., attachment and cohesion/conflict)
- ◆ Improving parental skills (e.g., parenting training and monitoring strategies)
- ◆ Intervening in the adolescent’s ecology (e.g., school and peer systems)
- ◆ In some cases, individual work helps the youth progress through important developmental challenges.

While some treatments that are not family-based, such as Cognitive Behavioral Therapy, have been found to be effective with adolescent drug abuse (53), the evidence to date appears to lean heavily toward empirically supported family-based approaches (54). Unfortunately, among empirically supported treatments, there has not been sufficient discussion regarding the specific ways in which factors that shape the Hispanic experience in the United States such as acculturation and immigration stress, ethnic identity issues, and traditional family structures should be addressed in treatment. All of these factors can make it more challenging for Hispanic families to work effectively as a unit in support of healthy adolescent development. In selecting treatment approaches to utilize with Hispanics, it is reasonable to ask whether a given treatment approach is capable of addressing these types of stressors prominent in the lives of Hispanics (55).

A recent issue of the journal *Drug and Alcohol Dependence* contains two papers on Hispanic adolescents (56,57).

### **What are some of the assessment tools of drug abuse problems that are recommended to be used with Hispanic adolescents?**

- ▶ The Comprehensive Addiction Severity Index for Adolescents (CASI-A)(58) is a 45 to 90-minute semi-structured clinical interview for adolescents. The CASI-A assesses risk factors, symptoms, and consequences of adolescent alcohol/drug use. Areas of functioning assessed include: education status, alcohol/drug use, family relationships, peer relationships, legal status, psychiatric distress, and use of free time. The CASI-A is considered a clinical assessment tool that can be used to guide treatment planning and to evaluate treatment outcome.
- ▶ The Personal Experiences Inventory (59) is designed to provide clinicians with a standardized tool to assist in the identification, referral and treatment of problems commonly associated with adolescent alcohol and substance abuse. The full PEI is a 276-item self-report instrument that can be used with youth ages 12-18 and takes 45-60 minutes to complete. Its scales include substance use problem severity and frequency, personal risk factors, environmental risk factors, school problems, family problems, and psychiatric disorders.

### **What do we know about treatments for drug abuse in adults?**

There are a variety of treatments found to be efficacious with drug abuse among Hispanic adults. For example, Motivational Interviewing and Motivational Enhancement Therapy have a strong body of evidence showing that they can improve engagement into addiction services, adherence to treatment and, in some cases, have a direct impact on drug abuse (46). Contingency Management, or the strategic use of incentives to shape healthy behavior (e.g., abstinence, goal achievement), has been found to be effective when integrated into many different types of treatment programs (60,61,62). This approach is fairly straightforward in terms of implementation— not requiring intensive training and supervision. Behavioral Couples Therapy is a family-based intervention that has been widely tested with substance abusing adults and is showing very impressive effects on a number of important dimensions (e.g., domestic violence, drug abuse, and medication compliance) (63). This approach has the added value of working with the naturally occurring context and natural support system of the primary client. Cognitive Behavioral Therapy (CBT) has also been widely tested and found to be effective in the treatment of adult drug abuse. Manuals are available for CBT (64); several of the other treatment modalities presented in this section are available as part of the National Institute on Drug Abuse's set of treatment manuals. In addition to research on the impact of these interventions, there has also been a growth of research on the training of counselors in these methods.

### **What are the effects of use of medications for drug abuse and co-occurring problems?**

Several medications are commonly used in the treatment of addiction. Methadone, used in the treatment of heroin addiction, is an opiate agonist that occupies and turns on opiate receptors. Naltrexone, used to treat both alcohol and opioid addiction, works as an antagonist to block the effects of drugs of addiction. Buprenorphine is a very popular and relatively new (FDA-approved in 2002) medication used primarily for opiate detoxification. Buprenorphine works as a partial agonist—occupying and activating the opiate receptors—but is less likely to be abused because its effect does not continue to increase in proportion to large quantities consumed.

It is also important to consider that in the treatment of addiction, co-occurring psychiatric disorders such as depression, post-traumatic stress disorder, anxiety and, in children, attention deficit disorder are frequently prominent. When used wisely, medications for such disorders can greatly facilitate the treatment of addictions.

In the use of any medication, adherence is a major challenge. When working with Hispanics, it is very important to explore the client's attitudes and beliefs (such as "I should be able to handle the depression without medication") regarding medication (65). It is also very important to encourage the client to ask questions and seek additional information on such issues as medication side effects. Hispanic clients, usually respectful of authority figures such as psychiatrists, psychologists and nurses, may hesitate to ask questions and thus may not fully understand the reasons for taking a specific medication and the commonplace need to recalibrate or substitute a poorly performing medication.

### **What are some of the current gaps in drug research among Hispanics?**

- ▶ There is limited scientific evidence regarding the efficacy and effectiveness of drug abuse prevention interventions as applied specifically with Hispanic populations.
- ▶ Existing studies fall short of identifying underlying personal and situational factors that drive attitudes toward safer sex practice and lead to risky behavior.
- ▶ Family-based treatment, the only proven approach for treatment of drug abuse among Hispanic youth has not been tested in community-based agencies.
- ▶ There is not one single randomized study of treatment efficacy among Hispanic women or girls.
- ▶ Less than a handful of studies have evaluated ethnic differences in treatment response to pharmacotherapy for substance abuse.
- ▶ Scientifically proven treatments need to be tested in real life settings where Hispanics are served in order to assess if, in fact, these approaches can be applied in community-based service agencies.

## Bibliography

- (1) Substance Abuse and Mental Health Services Administration. (2006). *Results from the 2005 National Survey on Drug Use and Health: National Findings*. (Office of Applied Studies, NSDUH Series H-30, DHHS Publication No. SMA 06-4194). Rockville, MD.
- (2) Johnston, L. D., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (2006). *Monitoring the Future national results on adolescent drug use: Overview of key findings, 2005*. (NIH Publication No. 06-5882). Bethesda, MD: National Institute on Drug Abuse.
- (3) Amaro, H. & Cortés, D.E. (2003). *National Strategic Plan on Hispanic Drug Abuse Research: From the molecule to the community*. Funded by The Robert Wood Johnson Foundation.
- (4) Trujillo, K.A. (2002). The neurobiology of opiate tolerance, dependence and sensitization: mechanisms of NMDA receptor-dependent synaptic plasticity. *Neurotoxicity Research*, 4(4), 373-391.
- (5) Nestler, E.J. (2005). Is there a common molecular pathway for addiction? *Natural Neuroscience*, 8(11), 1445-1449.
- (6) Kreek, M.J., Nielsen, D.A., Butelman, E.R., & LaForge, K.S. (2005). Genetic influences on impulsivity, risk taking, stress responsivity and vulnerability to drug abuse and addiction. *Natural Neuroscience*, 8(11), 1450-1457.
- (7) Trujillo, K.A., Castañeda, E., Martínez, D. and González, G. (2006). Biological research on drug abuse and addiction in Hispanics: Current status and future directions. *Drug and Alcohol Dependence*, 84(S), S17-S28.
- (8) Thompson, P.M., Hayashi, K.M., Simon, S.L., Geaga, J.A., Hong, M.S., Sui, Y., Lee, J.Y., Toga, A.W., Ling, W. and London, E.D. (2004) Structural abnormalities in the brains of human subjects who use methamphetamine. *Journal of Neuroscience*, 24(26), 6028-6036.
- (9) Chamber, R.A., Taylor, J.R., & Potenza, M.N. (2003). Developmental neurocircuitry of motivation in adolescence: A critical period of addiction vulnerability. *American Journal of Psychiatry*, 160, 1041-1052.
- (10) Spear, L.P. (2000). The adolescent brain and age-related behavioral manifestations. *Neuroscience and Biobehavioral Reviews*, 24(4), 417-463.
- (11) Waylen, R., & Wolke, D. (2004). Sex 'n' drugs 'n' rock 'n' roll: The meaning and social consequences of pubertal timing. *European Journal of Endocrinology*, 151, U151-U159.
- (12) Barkin, S.L., Smith, K.S., & DuRant, R.H. (2002). Social skills and attitudes associated with substance use behaviors among young adolescents. *Journal of Adolescent Health*, 30, 448-454.
- (13) Sutherland, I., & Shepherd, J. P. (2002). Adolescents' beliefs about future substance use: A comparison of current users and non-users of cigarettes, alcohol and illicit drugs. *Journal of Adolescence*, 25(2), 169-181.
- (14) Hadjicostandi, J., & Cheurprakobkit S. (2002). Drugs and substances: Views from a Latino community. *American Journal of Drug and Alcohol Abuse*, 28, 693-710.
- (15) Dishion, T.J., & McMahon, R.J. (1998). Parental monitoring and the prevention of problem behavior: A conceptual and empirical reformulation. *Clinical Child and Family Psychology Review*, 1, 61-75.
- (16) Brody, G.H., & Ge, X. (2001). Linking parenting processes and self-regulation to psychological functioning and alcohol use during early adolescence. *Journal of Family Psychology*, 15, 82-94.
- (17) Miller, B. (2002). Family influences on adolescent sexual and contraceptive behavior. *Journal of Sex Research*, 39, 22-26.
- (18) Van den Bree, M.B.M., & Pickworth, W.B. (2005). Risk factors predicting changes in marijuana involvement in teenagers. *Archives of General Psychiatry*, 62, 311-319.
- (19) Getz, J.G., & Bray, J.H. (2005). Predicting heavy alcohol use among adolescents. *American Journal of Orthopsychiatry*, 75, 102-116.
- (20) Huebner, A.J., & Howell, L.W. (2003). Examining the relationship between adolescent sexual risk-taking and perceptions of monitoring, communication, and parenting skills. *Journal of Adolescent Health*, 33, 71-78.
- (21) American Council on Education (2002). Investing in People, Developing All of America's Talent on Campus and in the Workplace. *Business Higher Education Forum*. [http://www.acenet.edu/bookstore/pdf/investing\\_in\\_people.pdf](http://www.acenet.edu/bookstore/pdf/investing_in_people.pdf)
- (22) Ellickson, P., Bui, K., Bell, R., & McGuigan, K.A. (1998). Does early drug use increase the risk of dropping out of high school? *Journal of Drug Issues*, 28, 357-380.
- (23) Guagliardo, M.F., Huang, Z., Hicks, J., & D'Angelo, L. (1998). Increased drug use among old-for-grade and dropout urban adolescents. *American Journal of Preventive Medicine*, 15, 42-48.
- (24) Dishion, T.J., & Kavanagh, K. (2000). A multilevel approach to family-centered prevention in schools: Process and outcome. *Addictive Behaviors*, 25, 899-911.
- (25) Botvin, G.J., Schinke, S.P., Epstein, J.A., Diaz, T., & Botvin, E.M. (1995). Effectiveness of culturally focused and generic skills training approaches to alcohol and drug abuse prevention among minority adolescents: Two-year follow-up results. *Psychology of Addictive Behaviors*, 9, 183-194.
- (26) Botvin, G.J., & Griffin, K.W. (2004). Life Skills Training: Empirical findings and future directions. *The Journal of Primary Prevention*, 25, 211-232.
- (27) Botvin, G.J., Dusenbury, L., Baker, E., James-Ortiz, S., & Kerner, J.A. (1989). Skills training approach to smoking prevention among Hispanic youth. *Journal of Behavioral Medicine* 12(3), 279-296.

- (28) Botvin, G.J., Dusenbury, L., Baker, E., James-Ortiz, S., Botvin, E.M., et al. (1992). Smoking prevention among urban minority youth: Assessing effects on outcome and mediating variables. *Health Psychology* 11(5), 290-299.
- (29) Griffin, K.W., Botvin, G.J., Nichols, T.R., & Doyle, M.M. (2003). Effectiveness of a universal drug abuse prevention approach for youth at high risk for substance use initiation. *Preventive Medicine: An International Journal Devoted to Practice and Theory*, 36, 1-7.
- (30) Zavela, K.J., Battistich, V., Gosselink, C.A., & Dean, B.J. (2004). Say Yes First: Follow up of a five-year rural drug prevention program. *Journal of Drug-Education*, 34, 73-88.
- (31) Pantín, H., Coatsworth, J.D., Feaster, D.J., Newman, F.L., Briones, E., Prado, G., et al. (2003). Familias Unidas: The efficacy of an intervention to promote parental investment in Hispanic immigrant families. *Prevention Science*, 4, 189-201.
- (32) Pantín, H., Prado, G., Briones, E., Feaster, D.J., Huang, S., & Lopez, B., et al. (2006). An empirical test of three interventions to prevent substance use and HIV in Hispanic adolescents: A randomized controlled trial. Unpublished manuscript.
- (33) Kulis, S., Marsiglia, F.F., Elek, E., Dustman, P.A., Wagstaff, D.A., & Hecht, M.L. (2005). Mexican/Mexican American adolescents and Keepin' It REAL: An evidence based substance use prevention program. *Children & Schools*, 27, 133-145.
- (34) Marsiglia, F.F., Kulis, S., Wagstaff, D.A., Elek, E., & Dran, D. (2005). Acculturation status and substance use prevention with Mexican and Mexican American youth. *Journal of Social Work Practice in the Addictions*, 5, 85-111.
- (35) Martínez, C.R., & Eddy, J.M. (2005). Effects of culturally adapted parent management training on Latino youth behavioral health outcomes. *Journal of Consulting Clinical and Psychology*, 73 (5), 841-851.
- (36) Reid, J.B., Patterson, G.R., Snyder, J. (2002). *Antisocial Behavior in Children and Adolescents: A Developmental Analysis and Model for Intervention*. Washington, DC: American Psychological Association.
- (37) Szapocznik, J., & Coatsworth, J.D. (1999). An ecodevelopmental framework for organizing the influences on drug abuse: A developmental model of risk and protection. In M. Glantz & C. Hartel (Eds.), *Drug abuse: Origins & Interventions* (pp. 331-366). Washington, DC: American Psychological Association.
- (38) Coatsworth, J.D., Pantín, H., McBride, C., Briones, E., Kurtines, W., & Szapocznik, J. (2002). Ecodevelopmental correlates of behavior problems in young Hispanic females. *Applied Development Science*, 6(3), 126-143.
- (39) Eggert, L., & Kumpfer, K.L. (1997). *Drug Abuse and Prevention for At-Risk Individuals*. NIDA: Rockville, Maryland.
- (40) Liddle, H.A. (1995). Conceptual and clinical dimensions of multidimensional, multisystems engagement strategy in family-based adolescent treatment. *Psychotherapy: Theory, Research, Practice, Training*, 32, 39-58.
- (41) Takeuchi, D.T., Sue, S., & Yeh, M. (1998). Return rates and outcomes from ethnicity-specific mental health programs in Los Angeles. In P.B. Organista, K.M. Chun, & G. Marin (Eds.), *Readings in Ethnic Psychology* (pp.324-334). New York: Routledge.
- (42) Santisteban, D.A. & Szapocznik, J. (1994). Bridging theory research and practice to more successfully engage substance abusing youth and their families into therapy. *Journal of Child and Adolescent Substance Abuse*, 32(2), 9-24.
- (43) Santisteban, D.A., Szapocznik, J., Pérez-Vidal, A., Kurtines, W.M., Murray, E.J., & LaPerriere, A. (1996). Efficacy of intervention for engaging youth and families into treatment and some variables that may contribute to differential effectiveness. *Journal of Family Psychology*, 10, 35-44.
- (44) Szapocznik, J., Pérez-Vidal, A., Brickman, A., Foote, F.H., Santisteban, D.A., Hervis, O.E., & Kurtines, W.M. (1988). Engaging adolescent drug abusers and their families in treatment: A strategic structural systems approach. *Journal of Consulting and Clinical Psychology*, 56, 552-557.
- (45) Miller, W.R., & Rollnick, S. (1991). *Motivational Interviewing: Preparing People to Change Addictive Behavior*. New York: The Guilford Press.
- (46) Hettema, J., Steele, J., & Miller, W.R. (2005). Motivational Interviewing. *Annual Review of Clinical Psychology*, 1, 91-111.
- (47) McLellan, A.T., Kushner, H., Metzger, D., Peters, R., Smith, I., Grissom, G., Petnat, H., & Argeriou, M. (1992). The fifth edition of the Addiction Severity Index. *Journal of Substance Abuse Treatment*, 9(3), 199-213.
- (48) Miller, W.R., Tonigan, J.S., & Longabaugh, R. (1995). *The Drinker Inventory of Consequences (DrInC): An Instrument for Assessing Adverse Consequences of Alcohol Abuse*. Project MATCH Monograph Series, Vol. 4. DHHS Publication No. 95-3911. Rockville, MD: National Institute on Alcohol Abuse and Alcoholism.
- (49) Szapocznik, J., Hervis, O., & Schwartz, S. (2003). *Brief Strategic Family Therapy for Adolescent Drug Abuse* (NIDA Treatment Manuals series). Rockville, M.D.: National Institute in Drug Abuse.
- (50) Alexander, J.F., Robbins, M.S., & Sexton, T.L. (2000). Family-based interventions with older, high-risk youth: From promise to proof to practice. *Journal of Primary Prevention*, 21, 185-205.
- (51) Liddle, H.A. (2003). *Troubled Teens: Multidimensional Family Therapy*. New York: Norton.
- (52) Henggeler, S.W., Pickrel, S.G., & Brondino, M.J. (1999). Multisystemic treatment of substance-abusing and dependent delinquents: Outcomes, treatment fidelity, and transportability. *Mental Health Services Research*, 1, 171-184.

- (53) Waldron, H.B., & Kaminer, Y. (2004). On the learning curve: The emerging evidence supporting cognitive-behavioral therapies for adolescent substance abuse. *Addiction*, 99, 93-105.
- (54) Shadish, W.R., Montgomery, P.W., Wilson, M.R., Bright, I., Okwumabua, T. (1993). Effects of family and marital psychotherapies: A meta-analysis. *Journal of Consulting & Clinical Psychology*, 61, 992-1002.
- (55) Santisteban, D.A., Mena, M.P., & Suárez-Morales, L. (2006). Using treatment development methods to enhance the family-based treatment of Hispanic adolescents. In H. Liddle & C.L. Rowe (Eds.), *Adolescent Substance Abuse* (pp. 449-470). New York: Cambridge University Press.
- (56) Szapocznik, J. Lopez, B., Prado, Schwartz, S.J., & Pantín, H. (2006). Outpatient drug abuse treatment for Hispanic adolescents. *Drug Abuse and Dependence*, 84S, S54-S63.
- (57) Prado, G., et al. (2006). The prevention of HIV transmission in Hispanic adolescents. *Drug Abuse and Dependence*, 84S, S43-S53.
- (58) Meyers, K. (1991). *Comprehensive Addiction Severity Index-Adolescents*. Unpublished manuscript. (Available from K. Meyers, Ph.D., Center for Studies on Addiction, University of Pennsylvania VA Medical Center, Philadelphia, Pennsylvania 19104).
- (59) Winters, K.C., & Henly, G.A. (1989). *Personal Experience Inventory test and manual*. Los Angeles: Western Psychological Services.
- (60) Griffith, J., Rowan-Szal, G.A., Roark, R., & Simpson, D.D. (2000). Contingency management in outpatient methadone treatment: A meta-analysis. *Drug and Alcohol Dependence*, 58, 55-66.
- (61) Higgins, S.T., Wong, C.J., Badger, G.J., Ogden, D.E., & Dantona, R.L. (2000). Contingent reinforcement increases cocaine abstinence during outpatient treatment and 1 year of follow-up. *Journal of Consulting and Clinical Psychology*, 68(8), 64-72.
- (62) Stitzer, M.L., Iguchi, M.Y., & Felch, L.J. (1992). Contingent take-home incentive: Effects of drug use of methadone maintenance patients. *Journal of Consulting and Clinical Psychology*, 60(6), 927-934.
- (63) Fals-Stewart, W., O'Farrell, T.J., & Birchler, G.R. (2004). Behavioral Couples Therapy for substance abuse. *Science and Practice Perspectives*, 2, 30-41.
- (64) Carroll, K.M. (1998). *A Cognitive-Behavioral Approach: Treating Cocaine Addiction*. Maryland: National Institute of Health.
- (65) Bastiaens, L. (1995). Compliance with pharmacotherapy in adolescents: Effects of patients' and parents' knowledge and attitudes toward treatment. *Journal of Child and Adolescent Psychopharmacology*, 5(1), 39-48.

## Resources

We encourage you to consult the resources listed below for up-to-date information on scientifically-based findings that are relevant to the clients you serve.

### General

(Information on each of the topics may be found in these sources.)  
 NIDA Science and Practice Perspectives (a journal from the National Institute on Drug Abuse):  
<http://www.nida.nih.gov/Perspectives/index.html>  
 NIDA Notes (a newsletter from the National Institute on Drug Abuse): [http://www.drugabuse.gov/NIDA\\_Notes/NNIndex.html](http://www.drugabuse.gov/NIDA_Notes/NNIndex.html)  
 NIDA Research Reports (scientific information on specific drugs of abuse):  
<http://www.drugabuse.gov/ResearchReports/ResearchIndex.html>  
 NIDA for Teens: The Science Behind Drug Abuse (information directed specifically to young people): <http://teens.drugabuse.gov/>  
 Amaro, H., and Iguchi, M.Y. (Eds.) (2006). *Scientific opportunities in Hispanic Drug Abuse Research Drug and Dependence, Supp.1*, S1-S102.

### Epidemiology of Drug Abuse Among Hispanics

National Survey on Drug Use & Health at  
<http://oas.samhsa.gov/nhsda.htm>

### Drugs, the Brain and Addiction

NIDA InfoFacts: Science-Based Facts on Drug Abuse and Addiction: <http://www.nida.nih.gov/Infofacts/Infofaxindex.html>  
 Understanding Drug Abuse and Addiction: What Science Says (a PowerPoint slide teaching packet for practitioners, teachers and neuroscientists).  
<http://www.nida.nih.gov/pubs/teaching/Teaching3/Teaching.html>  
 Meyer, J.S., & Quenzer, L.F. (2005). *Psychopharmacology: Drugs, the Brain and Behavior*. Sunderland, MA: Sinauer Associates.  
 Brain Briefings, Society for Neuroscience:  
<http://web.sfn.org/content/Publications/BrainBriefings/index.html>

### Genes and Addiction

Kreek, M.J., Bart, G., Lilly, C., Laforge, K.S., & Nielsen, D.A. (2005). Pharmacogenetics and human molecular genetics of opiate and cocaine addictions and their treatments. *Pharmacological Reviews*, 57, 1-26. Available online at:  
<http://pharmrev.aspetjournals.org/cgi/content/full/57/1/1>

### Drugs and the Adolescent Brain

Gogtay, N., Giedd, J.N., Lusk, L., Hayashi, K.M., Greenstein, D., Vaituzis, A.C., Nugent, T.F., Herman, D.H., Clasen, L.S., Toga, A.W., Rapoport, J.L., & Thompson, P.M. (2004). Dynamic mapping of human cortical development during childhood through early adulthood. *Proceedings of the National Academy of Sciences*, 101, 8174-8179. Movies accompanying this article may be viewed at:  
<http://www.pnas.org/cgi/content/full/0402680101/DC1>  
 White, A.M. Substance Abuse and the Adolescent Brain: An Overview with a Focus on Alcohol.  
<http://www.duke.edu/~amwhite/Adolescence/Adolescent%20webpage%20paper%200504.pdf>

## Drug Use Preventive Interventions for Hispanic Adolescents

For more information on the Keepin' it REAL intervention, visit <http://keepinitreal.asu.edu/>.

## Treatment of Hispanics with Drug Abuse Problems

The National Institute on Drug Abuse website (NIDA.NIH.Gov) has helpful information including the NIDA Clinical toolbox that has links to actual treatment manuals and relevant publications.

The Substance Abuse and Mental Health Service administration website (SAMHSA.gov) provides access to helpful information including "Treatment Improvements Protocols (TIPS)" that are comprehensive and focus on specific assessment and treatment topics (e.g., pregnant and substance abusing women, older adults, HIV, family therapy, adolescent treatment) and other similar resources.

Websites for the network of Addiction Technology Transfer Centers (ATTC) provide valuable information on treatment and practice issues: [www.nattc.org/blending](http://www.nattc.org/blending) initiative.

The website at SAMHSA.gov has links to medication-assisted treatment that are helpful in gaining more information on the use of medications for substance abuse treatment.

## Curricula for Treatment of Women in Recovery

Educational curricula for women in recovery developed by the *Boston Consortium of Services for Families in Recovery*:

- ◆ Women's Leadership Training Institute
- ◆ Economic Success in Recovery
- ◆ Pathways to Family Reunification and Recovery
- ◆ Spirituality and Recovery  
(All these titles are available in English and Spanish.)
- ◆ Interdisciplinary Resource Team: Strategy for Integrated Substance Abuse Treatment (in English)

For more information, please contact:

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The original source of information used for this brochure was **Amaro, H. & Cortés, D.E. (2003). *National Strategic Plan on Hispanic Drug Abuse Research: From the Molecule to the Community*. Boston: Northeastern University.**

For more information about the strategic plan or the National Hispanic Science Network on Drug Abuse, please go to [www.hispanicsscience.org](http://www.hispanicsscience.org) or contact: **Hortensia Amaro, Ph.D.**, Director, Institute on Urban Health Research, Bouvé College of Health Sciences, Northeastern University, [h.amaro@neu.edu](mailto:h.amaro@neu.edu) or go to [www.iuhr.neu.edu](http://www.iuhr.neu.edu).

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