

12-2013

Pre-Employment Drug Screening: Cost and Benefits

Rena Sultany

University of Nevada, Las Vegas

Follow this and additional works at: <https://digitalscholarship.unlv.edu/thesesdissertations>



Part of the [Hospitality Administration and Management Commons](#), and the [Human Resources Management Commons](#)

Repository Citation

Sultany, Rena, "Pre-Employment Drug Screening: Cost and Benefits" (2013). *UNLV Theses, Dissertations, Professional Papers, and Capstones*. 2046.

<http://dx.doi.org/10.34917/5388367>

This Professional Paper is protected by copyright and/or related rights. It has been brought to you by Digital Scholarship@UNLV with permission from the rights-holder(s). You are free to use this Professional Paper in any way that is permitted by the copyright and related rights legislation that applies to your use. For other uses you need to obtain permission from the rights-holder(s) directly, unless additional rights are indicated by a Creative Commons license in the record and/or on the work itself.

This Professional Paper has been accepted for inclusion in UNLV Theses, Dissertations, Professional Papers, and Capstones by an authorized administrator of Digital Scholarship@UNLV. For more information, please contact digitalscholarship@unlv.edu.

Pre-Employment Drug Screening: Cost and Benefits

Rena Sultany
Graduate Student, MBA, MHA
University of Nevada, Las Vegas

Dr. Robert Woods, PhD.
Professor and Claudine Williams Distinguished Chair
University of Nevada-Las Vegas

William F. Harrah College of Hotel Administration
University of Nevada, Las Vegas

Part One

Introduction

This paper will answer the question of whether pre-employment drug testing of applicants is helpful or harmful to an organization as a whole. The following question will be explored in this paper: What are the benefits and costs associated with pre-employment drug-screening?

The target of this study will be the hospitality industry in Las Vegas. A recommendation to the industry will be made once a thorough literature review of past research on the topic is conducted. Drug testing is a common practice in hospitality companies in Las Vegas. It is costly to these companies to conduct such tests. It is anticipated that the results of the study will determine if this practice is worthwhile or is a waste of company resources.

Purpose

The purpose of this paper is to determine if pre-employment drug screening is beneficial to a food and beverage establishment.

Problem Statement

The problem that this paper will attempt to address is the possible waste of a company's resources in conducting pre-employment drug screening. After the cost and benefits of pre-employment drug screening are determined, the net benefit to the company can be determined, thus answering the question of whether this practice is beneficial or harmful to the foodservice industry. Foodservice establishments using testing could benefit from the conduction of a cost/benefit analysis and the communication of more information of the actual results of the testing (Kitterlin & Moll, 2012; Kitterlin & Moreo, 2012).

Justifications

The analysis of the topic of pre-employment drug screening is much needed, especially in the hospitality industry and especially in the city of Las Vegas. This practice seems to be commonplace within the hospitality and tourism industries, as most hotels, both on the strip and local, as well as other places in the United States, require that applicants submit to drug testing before they can be hired. Since this practice seems to be very common, its effectiveness deserves some attention. For instance, does it really do any good to screen applicants for drugs previously ingested? Do the benefits companies receive from this practice outweigh the costs of screening thousands of applicants yearly? These and other questions will be addressed throughout the course of this paper.

Constraints

There are several possible constraints associated with the type of research proposed in this paper. Possible setbacks include the difficulty in obtaining information about the financial costs associated with this practice. Also, many indirect costs associated with this practice may be unclear and hard to determine. Potential benefits may also be difficult to determine as it is hard to know exactly how an employee's on-the-job performance might have been affected by prior drug use. Finally, Las Vegas is entering a strange era as the legislature has passed a bill and the governor has signed into law the creation of marijuana dispensaries throughout the state that will serve not only locals but tourists, as well. Anyone with a medical marijuana card from any state will be allowed to purchase that drug while in Las Vegas. The law is to go into effect in January, 2014 once discussions about how to maintain quality standards to make all dispensaries equal is settled. The end product will include recommendations to the industry.

Part Two

Literature Review

The literature review will first investigate the costs associated with the practice of prescreening applicants for past drug use. The review of this literature will be summarized. Next, the benefits associated with this practice will be discussed. Finally, by examining the costs and benefits associated with the common practice of pre-employment drug screening, the paper will suggest whether or not this practice should be continued, done away with or modified in some way.

There is no shortage of research on the topic of drug testing. However, many of them have approached the subject as a whole. The main focus of this paper is different as it will be on pre-employment drug testing in the foodservice industry. The review of literature will cover many more aspects of this topic in order to set the appropriate background information. Before a summary of the research is conducted, a few terms need to be defined:

- *Pre-employment-* according to Merriam-Webster's online dictionary, it is the preparatory or prerequisite to employment
- *Illegal substance abuse-*the use of illegal substances, as stimulants, hallucinogens, marijuana/hashish, and opioids, as well as the misuse of prescription medications obtained illegally (Kitterlin & Moreo, 2012).
- *Drug-testing-*Workplace drug testing entails the process of testing an employee or prospective employee's hair, blood, urine, or saliva for traces of substances consumed in the recent past (Warren & Wray-Bliss, 2009).

Drug testing programs differ in what drugs are targeted, who is tested, sampling strategy, frequency of testing, extent to which those being tested are informed prior to testing, actual

testing method used, extent of feedback offered and the consequences of positive findings (Kitterlin & Moreo, 2012). Organizations wishing to use drug testing must address issues such as timing, testing of applicants versus testing of employees, testing only for drugs or testing for alcohol as well, the testing criteria, random testing, adulterants, process integrity, discipline and the selection of a testing lab (Birschel, 2002). This review of literature will give a brief summary of these factors associated with drug testing as well as a brief history of drug testing and the legal environment surrounding this practice.

US Drug History

The History of Drug Laws and The War on Drugs

The use of drug-testing first became common in the 1960's (Brewis, Sanderson, & Wray-Bliss, 2006). The practice became common during the Vietnam War as employers were worried about the drug use by males returning from the war because it was well-known that use was high among soldiers (Extejt, 2001). Safety concern was one of the major reasons for implementing workplace drug testing in the United States (Olbina, Hinze, & Arduengo, 2011). Other reasons cited for the implementation and increases in workplace drug testing include: the litigious business environment and an attempt for businesses to reduce risk in this environment, the rise of commercial drug testing organizations aggressively expanding their markets, and concerns about performance and productivity of drug using employees (Olbina et al., 2011; Stone & Bowden, 1989). Drug testing is just one of the elements of the US War on Drugs which has been a three decade long war that has cost the United States tens of billions of dollars per year with costs climbing (Woods, Johanson, & Sciarini, 2012). Anti-drug sentiment in America grew into a national cause in the mid 1980's with the Reagan Administrations general call for drug-free workplaces. President Reagan's Executive Order for a Drug-Free Federal Workplace was a

multi-part plan that consisted of issuing a policy against illegal drug use, identification of drug users, initiation of Employee Assistance Programs, and utilization of rehabilitation services. (Woods et al., 2012). In March of 1986, the President's Commission on Organized Crime advocated drug testing by all employers (Extejt, 2001). President Reagan's Executive Order 12564 required the institution of mandatory drug testing for all safety-sensitive, executive-level, and civil service federal employees and was later incorporated into the White House Drug Control Strategy directive issued by President Bush in 1989. The result was huge increases in the number of workplace drug tests performed (Woods et al., 2012).

The Drug Free Workplace Act of 1988 increased the development of workplace drug testing programs in companies nationwide (Brewis et al., 2006). The Drug Free Workplace Act of 1988 does not mandate a drug free work environment for all private employers but does require that federal contractors establish policies and procedures to prohibit drug abuse and make a good faith effort to sustain drug-free working environments (Woods et al., 2012). This act stipulates that federal contractors must publish company rules about drug possession and use of controlled substances, establish drug awareness programs, and administer appropriate discipline to employees convicted under drug statutes (Woods et al., 2012). Successive administrations since Reagan have continued his War on Drugs (Warren & Wray-Bliss, 2009).

Current Drug Testing Legal Environment

An employer's legal right to test applicants depends largely on whether the employer is in the public or private sector (Extejt, 2001). Workers in the private sector have far fewer rights than those in the public sector. (Extejt, 2001; Preer 1989). If a public sector employer has reasonable suspicion that an employee is using, then mandatory testing is permissible. Workers in the public sector are granted far more protections from the 4th Amendment of the Constitution

which protects against unreasonable search and seizure. Private sector employees and applicants have almost no protection (Extejt, 2001). Drug testing policies and practices are generally outside of the authority of collective bargaining agreements (Current, 2002). This means that labor unions do not have much say in whether or not a company drug tests its employees. In general, unless a test violates state law, litigation challenging the right to test has generally favored the employer (Comer, 1994). Both state and federal governments generally support the use of workplace drug testing (Birschel, 2002). The court however does recognize limited duties by employers to properly perform drug testing of employees. The court does stipulate, however, that these tests must not be administered in a negligent manner and that test results should not be improperly released (Cholakis & Bruce 2007).

Growing concern over marijuana use in the workplace as more states allow doctors to legally prescribe the drug as well as the states that have legalized the drug for recreational use have led to the most recent rise in the practice of workplace drug testing (“What Can You,” 2011).

Who Tests?

According to a study of the American Management Association (AMA), 88% of the nation’s largest companies conducted drug-testing in 1997 which was an increase from 21.5% in 1987. Of the companies that conduct drug-testing, 68% that tested did so for all positions within the company (Current, 2002). Also according to this study, 95% of employers do not hire those who test positive.

The US currently has the most widespread program of workforce drug testing in the world with an estimated 67-80% of US corporations engaging in some form of workplace drug testing (Warren & Wray-Bliss, 2009). Although drug testing occurs less frequently than when it

peaked in 1996 (81% of firms) it is still prevalent (Halbert & Ingulli, 2012). Drug testing by organizations is virtually hassle free, employers are free to conduct testing whenever and with whomever they choose (Current, 2002).

Company size is usually proportional to the likelihood of pre-employment drug-testing (Olbina et al., 2011). And differences exist with regards to organizations within the private sector and public sector. In the public sector, the United States Military is the largest user of pre-employment drug testing and accounted for one half of all the pre-employment drug tests conducted in 2001 (Extejt, 2001). Pre-employment drug tests are required as part of several federal government drug testing programs and regulations including the Department of Transportation (DOT), Federal Aviation, Federal Railroad Administration, and many others. Drug testing is also required by almost every state that offers worker's compensation premium discounts to employers conducting testing in accordance with state specific guidelines (Current, 2002).

In the private sector drug testing is also common with 25% of Fortune 500 and 29% of Fortune 35 companies implementing some form of drug-testing (Extejt, 2001). Drug testing has also moved from large companies to small companies as well. Out of fear that they were hiring more drug-users than larger corporations that implemented drug testing programs, smaller corporations made the move towards implementation of drug testing programs. Because large companies tested for drug use and smaller companies did not, the result was a disproportionate number of drug users in smaller companies than in larger companies. These smaller companies claimed to be experiencing more of the problems that were commonly associated with employing drug users (Current, 2002).

Drug testing and the sale of products designed to help employees fool drug tests are big business today and with all of the attempts to curtail the problem of society's drug abuse, drugs still remain cheap, easy to obtain, and with higher purity levels making it more difficult for employers to maintain a drug free workplace (Woods et al., 2012).

Types of Tests

Drug tests, regardless of type, do not measure the level of drugs in a person's system. Instead these tests measure the enzymes into which the drugs metabolize. Some drugs metabolize more quickly than others: cocaine-up to 3 days, marijuana-5 days to 3 weeks and certain individuals have higher metabolic rates than others resulting in varying detection windows for these tests (Extejt, 2001).

Urine analysis is the most commonly used drug-testing method. (Cholakis & Bruce, 2007; Extejt, 2001; Olbina et al, 2011). The most common urinalysis method used is the urinalysis kit EMIT (Enzyme Multiplied Immunoassay Test) which was the first mass screening test for marijuana (Extejt, 2001). This test has a manufacturer acknowledged 5% error rate. According to a study conducted by Northwestern University, these tests resulted in false positive rates closer to 25%. Although these tests have been relied upon by at least one court, they are largely disregarded due to their lack of proven validity (Extejt, 2001). Some problems associated with the use of urinalysis include the short detection window, the lack of ability to determine long-term or frequency of use, the fact that urine samples are easily adulterated and the fact that this method is time-consuming and expensive (Barnum & Gleason, 1994; Cholakis & Bruce, 2007; Olbina et al, 2011). These tests cannot detect recent use since it takes three to nine hours for the liver to metabolize the substance and the enzymes tested for to pass through the urine (Cholakis & Bruce 2007). Most companies model their drug testing programs after 20-

30 years old urine-based testing techniques because they are either not aware of newer and more effective technologies or they do not yet recognize the advantages of these newer technologies. Federal mandates still require the use of urine tests (Cholakis & Bruce 2007).

Hair analysis, the second most common type of drug-screening, provides a drug history over a longer period of time, is more sensitive to detecting drug use and can make the distinction between chronic and single use (Olbina et al., 2011). This method does not however provide information about recent drug use as it takes time for hair to grow making this method inappropriate for post-accident or for cause testing. This method is also more expensive but is easier to perform, less embarrassing, and the sample is less susceptible to adulteration (Olbina et al., 2011).

Saliva analysis eliminates some of the invasiveness and embarrassment associated with some of the other forms of testing. The subject is given a piece of paraffin to chew which stimulates saliva production. The saliva is then spit into a container and sent to a lab for testing (Extejt, 2001). Oral-fluid is an accurate specimen matrix for determining recent drug abuse (Cholakis & Bruce 2007). This method is more convenient and less susceptible to adulteration because collection is directly observed. Saliva analysis curbs evasive donor behavior since it is extremely difficult to cheat an oral fluid collection when someone is observing (“Positive Drug Tests”, 2013). There is currently no known method of intentionally beating the test by substituting or otherwise altering a specimen (Cholakis & Bruce 2007). It is also non-invasive, easy to perform, user friendly, and cost-effective. (Olbina et al., 2011). Results can usually be obtained in 5-15 minutes and costs approximately \$20, as opposed to \$35 for urinalysis (Cholakis & Bruce 2007). The main problems associated with this form of testing include the short detection window, which is usually a few minutes to a few days. This method would be

appropriate for post-accident and for cause testing (Olbina et al., 2011). Oral fluid-based testing of employees for drugs is specifically permitted by statutes in at least 27 states (Cholakis & Bruce 2007).

There are also other testing methods used less frequently than the three previously discussed methods. A few of these tests involve the use of blood and sweat specimens. Blood analysis is invasive, time-consuming and expensive and requires sophisticated lab equipment making it a method that is not used very frequently. Sweat testing is another method of drug testing used in rare circumstances. Although this method is non-invasive it has limited application and is mainly used in follow-up testing (Olbina et al., 2011).

Screening and Confirmatory Tests

Drug tests can further be separated into initial screening tests and confirmatory tests. Initial screening tests separate those samples needing further analysis (Extejt, 2001). The initial screening test is either a radio immunoassay or enzyme immunoassay test (Wells, Halperin, & Thun, 1988). Toxicologists recommend the use of confirmatory tests for all positive test samples due to the high false positive rate associated with initial screening tests. (Cranford, 1998; Extejt, 2001). Confirmatory tests are more sophisticated and expensive but constitute the best way to be sure applicant is a drug user and are the only way to use a positive test result as evidence against an employee (Extejt, 2001).

The most common forms of these tests include gas-layer and thin layer chromatography, mass spectrometry tests or a combination (GC/MS) (Extejt, 2001; Olbina et al., 2011). As with the initial screening tests, confirmatory tests do not typically measure intoxication or impairment. They search for traces of the body's metabolites of substances consumed beyond the period of time when the person could reasonably be considered intoxicated (MacDonald & Simpson,

2013). Confirmatory testing as well as a host of other safeguards are required by all labs certified by the National Institute on Drug Abuse (Cranford, 1998).

Accuracy and Effectiveness of Drug Tests

Regardless of testing method used, results of the tests can only indicate exposure to drugs. The tests cannot determine the intensity of exposure, the size of the dose, or when it was taken. These tests cannot distinguish between the occasional user and the hard-core user. They cannot measure employee's degree of impairment or level of job performance at the time of the test (Extejt, 2001). The majority of the problem with the accuracy of drug tests has more to do with the laboratories conducting tests and less to do with the tests themselves. According to a study conducted by the AMA, six of the most commonly screened for drugs (barbiturates, amphetamines, methadone, cocaine, codeine, morphine) have false positive rates ranging from 0-66% and false negative rates ranging from 0-100% (Extejt, 2001). The false positive rate of a drug test is the proportion of specimens without drugs in their system who test positive for drug use. This can be thought of as the most detrimental form of error that can result from a drug screening. Serious consequences of false accusations including stigmatization of the employee as a drug abuser and the loss of good employees as well as the possible loss of resources due to arbitration and lawsuits (Barnum & Gleason, 1994). This study does however miss marijuana, which is tested for by almost every employer. The results of another study using a Bayesian Analysis to assess the credibility of drug tests found that under common circumstances, drug test results have high false accusation rates (Barnum & Gleason, 1994)

Several factors influence the results of drug tests including the individual drugs being screened for, the test used, the proficiency of the lab performing the tests and the prevalence of use in the population being screened (Wells et al., 1988). Reasons for inaccuracy of drug tests

are that testing labs are generally unregulated and some over the counter medication as well as food and beverages will create false positive results. Evidence that routinely used medications such as decongestants and antihistamines among others can substantially alter the effects of drug screenings and creates false positives (Kitterlin & Moreo, 2012). It has also been claimed that some tests may be racially biased since African-Americans have higher concentration of the pigment melanin which produces an ion identical to that of THC the active ingredient in marijuana, thereby increasing this populations chances for false positive rates (Extejt, 2001). Testing labs, Ameritox Ltd. and Millenium Laboratories Inc., have even engaged in lawsuits against each other regarding such issues as their use of science, ethical questions, and business practices used to attract the business of doctors (Cenciros, 2012). Improvements in predictive value can come from the use of more accurate confirmatory tests, ensuring the proficiency of labs, and restricting mass screening to populations of high prevalence (Barnum & Gleason, 1994; Wells et al, 1988).

Drug tests are also poorly supported by credible evidence of their effectiveness in reducing drug taking among employees. They have also been criticized for their lack of consideration regarding their cost effectiveness compared to other interventions (Warren & Wray-Bliss, 2009). Numerous websites give advice and sell kits to help drug users pass any type of drug screening. Products to aid in the manipulation of drug tests are increasing in their availability and their effectiveness (Kitterlin & Moreo, 2012). SAMHSA has identified over 400 products marketed to beat drug tests. These products include dilution and cleansing products, adulteration additives and substitute urine products to beat urine tests, shampoos & spritzes to beat hair tests, mouthwashes and cleaners to beat saliva tests, and whole body cleansers to beat blood tests (Olbina et al, 2011). Cheating on drug tests has become such a problem that US

Representative Ed Whitfield (R-KY) and chair of Energy & Commerce Subcommittee on Oversight & Investigations and US Representative Eliot Engel (D-NY) introduced H.R. 4910, the National Drug Testing Integrity Act to prohibit products that defraud workplace drug testing. This act was not passed into law (Cholakis & Bruce 2007). As companies get more aggressive in their drug testing and enforcement, more products will be marketed to beat the tests. Labs develop tests to detect for these products and the products are changed by the manufacturer to avoid being tested.

When participants are informed in advance of a requirement to submit to a drug screening, the accuracy of these tests can be affected. It is easy for an employee or applicant to pass a one-time test. All they must do is abstain for a while and then continue use once the test has been completed. Urine tests have even been called liquid IQ tests because the tests are very easily beaten by abstaining for a period of time prior to the test (Current, 2002). Employees must simply abstain for a period of time, a drug holiday, prior to the test and then may continue their drug use after passing the test (Brewis et al, 2006; Olbina et al, 2011). Only those who are most severely addicted would not be able to abstain for the period of time required to enable a negative result on a drug screening (Current, 2002). One negative test cannot rule out substance abuse and one positive test can't diagnose addiction, abuse, intoxication, or impairment (Kitterlin & Moreo, 2012).

Probable Cause versus Mandatory Testing

Types of drug tests can also be separated according to probable cause versus mandatory (Preer, 1989). Mandatory testing generates the most legal debate. One side argues that it is necessary to attain a drug-free workplace while the other side argues that it is an unwarranted

and unauthorized intrusion into the private and personal lives of employees and that the employer has no right to pass judgment on matters outside of the workplace (Preer, 1989).

The most common type of mandatory drug testing is pre-employment drug testing, also the main type considered in subsequent parts of this paper (Choakis & Bruce, 2007; Current, 2002; Olbina et al, 2011). Other types of mandatory drug tests include pre-transfer, random, and blanket testing. Pre-transfer drug testing occurs when an employee transfers positions within a company and blanket testing occurs when all employees are tested at specific time intervals or at random times. Random tests usually consist of monthly tests administered to a certain percentage of employees (usually 10%) who are selected from the entire employee pool by some random means (Olbina et al., 2011). This type of testing is most common for those who work in safety critical jobs, working with machinery, operating motor vehicles or are responsible for the care of others (MacDonald & Simpson, 2013). This type of testing receives the most resistance from labor unions (Olbina et al., 2011). Random testing has been challenged for differential treatment resulting in requirements of employers to provide evidence that indicates the absence of discriminatory motive. This can be quite difficult (Preer, 1989). Many states discourage or restrict random testing (Davis & Hueller, 2006).

Testing for reasonable cause occurs when an employee that is under suspicion of using illicit substances is tested, has recently been involved in a work-place accident, or has returned from some type of substance abuse rehabilitation program (Olbina et al., 2011). This type of testing is only instituted in the face of an observable, safety, conduct, or performance problem (Cranford, 1998). Probable cause testing is carried out when management believes the person is or may be under the influence of a substance (MacDonald & Simpson, 2013). Possible indications of substance abuse include uncharacteristic behavior, obvious symptoms of

impairment, or a significantly diminished capacity to perform duties (Cranford, 1998). Employers have the right to test based on reasonable suspicion but they must have documentation supporting their suspicions (Davis & Hueller, 2006). Probable cause testing also includes testing after a workplace accident. If an employee has had any involvement in a workplace accident or incident that could have caused danger to the health or safety of the employee, other employees, or the general public they are subjected to drug test (MacDonald & Simpson, 2013). Positive tests may prevent employees from collecting workers compensation or unemployment benefits (Davis & Hueller, 2006).

Follow-up testing is administered at random times to employees who are rehired after being fired for testing positive for drug use in the past. These tests are conducted to ensure that the employee remains drug-free (Olbina et al, 2011). This type of testing is more cost-effective than some of the other types of testing. Return to work testing is often a stipulation for employees returning to work after participating in drug-treatment programs. If an employee fails to follow any of these procedures, employment is usually terminated (Davis & Huellar, 2006).

Prevalence of Drugs in the Foodservice Workplace

According to a US DHHS study conducted in 2009, 75% of all adult drug users were employed, resulting in 12.3 million drug-using workers (Cholakis & Bruce 2007). Although past research indicates that employed workers are less likely to use drugs and alcohol, studies on the food service industry indicate that 1 in 6 of the industry's total work force uses illicit drugs, making this industry the largest employer of drug using employees (Kitterlin & Moll, 2012; Kitterlin & Moreo, 2012). According to the results of another study, 16% of hospitality employees admitted they used illicit drugs which was the highest rate of any industry studied (Woods et al., 2012). According to a study conducted by the US Substance Abuse and Mental

Health Services Administration, food prep workers, waiters & waitresses, bartenders and other service occupation workers have a higher risk of engaging in substance use (Belhassen & Shani, 2012).

The prevalence of drug use in this industry can be attributed to several factors: the average age of the workforce (16-25 year olds have high general usage rates of illicit drugs), the late-night working hours, the greater availability of cash on hand, the speed and intensity of work demanded and low management surveillance (Kitterlin & Moll, 2012). Other reasons include: the demanding and high stress environment of the foodservice industry, the fact that substance abuse is linked to creative drive which is found frequently in the restaurant industry, and the fact that the industry attracts people with a high risk of substance abuse due to the tendency of this industry to offer people second chances (Kitterlin & Erdem, 2009).

The high prevalence of drug use in this industry can also be attributed to availability and normalization of use. The Availability Thesis postulates that sociocultural and/or physical availability of substances increases usage rates (Belhassen & Shani, 2012). The normalization of drug use can also be partially blamed for the prevalence of drug use in the foodservice industry as well as in the general population. Increased access to recreational drugs, tolerant attitudes towards sensible recreational use by nonusers, and a wider and growing accommodation of illegal drug use are some of the factors that have led to the normalization of drug use (Brewis et al., 2006).

Results of Tests

Quest Diagnostics in 2004 reported a 68% increase in positive tests for methamphetamines over a one year period (Davis & Hueller, 2006). According to Quest Diagnostics (2005) positive rates within the private sector have remained relatively stable for a

decade at 4.5% of those tested (Cholakakis & Bruce 2007). At the end of 2008, according to the department of Occupational Health and Human Services, 3.6% of applicants tested positive for drugs during pre-employment testing (Woods et al., 2012). Pre-employment drug testing was up in 2012 according to Quest Diagnostics and their Drug Testing Index and positive urine tests in the general workforce were up 5.7% in the first half of 2012 as compared to the first half of 2011 (“Positive Drug Tests,” 2013). The percentage of employees testing positive for prescription opiates has exploded 40% percent since 2005 (“What Can You,” 2011).

Attitudes towards Drug Testing

Job applicants’ attitudes towards drug testing may have important implications for job acceptance rates, retention rates, or effort levels once hired (Kitterlin & Erdem, 2009).

Organizational Justice Theory

Organizational justice theory says that drug testing programs perceived by employees to be unfair may result in actions of moral outrage and righteousness, efforts to change or beat the system, highly cohesive work groups that exhibit antagonistic behavior towards management and decreased job performance-employee attitudes of resentment and anger, behaviors to beat or change the policy, behaviors to deal with injustice, and lack of organizational citizenship behaviors (Kitterlin & Moll, 2012, 2013; Woods et al., 2012). Testing that is perceived by employees to be fair can result in increases in organizational commitment and trust in management, decreases in turnover intention, increased employee support and compliance with rules, policies, and the organization in general.

Perceived need for drug testing is the variable most used by employees in their personal assessment of the need for drug testing in an organization (Kitterlin & Moll, 2012, 2013; Woods et al., 2012). Fair drug testing programs that consider employees’ rights can be effective (Olbina

et al., 2011). The majority of persons agree to the need for testing in industries in which public or personal safety are at risk, large amounts of money are at risk or employees are highly dependent on one another to produce quality work (Kitterlin & Erdem, 2009).

Foodservice Employees Attitudes Towards Drug Testing

The majority of foodservice employees found drug testing to neither be beneficial or necessary in their industry when compared to the requirements of time, money, and personal access and privacy invasion (Kitterlin & Erdem, 2009). Many employees view the process of drug testing as biological surveillance that has little to do with actual intoxication of behavior at work and much more with constructing normalized and obedient subject positions (Brewis et al, 2006). Eight major themes emerged from Kitterlin & Moll's (2012) study: drug test results are not indicative of employee performance, there is no difference in restaurants that do or do not test, it is unnecessary in the foodservice industry, it is needed only for health, safety, and responsibility involved jobs, drug use is characteristic of the foodservice industry, testing doesn't eliminate drug use, drug use is only one variable in performance, and alcohol use has a greater impact on performance but isn't tested for.

Another similar study done by Kitterlin & Erdem, (2009) on the subject of employee perceptions resulted several major themes. Most employees felt that drug testing was unnecessary, outdated, irrelevant, and useless and that drug users are sometimes good employees. They also felt that restaurant work is not rocket science, there is no relationship between work performance and drug use, drug testing limits the labor pool, and drug use is ok as long as it's not done at work. Many employees viewed drug testing as a waste of time and money and suggested that there are alternative uses for the time and money that is spent on drug testing. These employees felt that drugs do not directly lead to poor performance or deviant

personalities and that character, company loyalty, and work ethic cannot be determined through the use of a pre-employment drug test (Kitterlin & Erdem, 2009). The results of this study indicate that most employees in the foodservice industry held similar beliefs and perceptions towards pre-employment drug testing in their industry. They feel that it is not necessary or beneficial. According to another study, many employees respond negatively to drug testing (Comer, 1994).

Many employees believe testing to be unfair because there are no such tests for alcohol, which is a much bigger problem in the workplace. According to the National Institute for Alcohol Abuse & Alcoholism, alcohol abuse costs the United States \$79 billion per year while drug abuse costs \$29 billion per year (Woods et al., 2012). Many restaurant employees also view this practice as unfair since many restaurant industry workers are part-time and do not receive health insurance benefits (Kitterlin & Moreo, 2012).

Management's Views

Many managers view drug-users as less-desirable employees and consider drug testing an important component of a safe working environment. On the other hand, many managers within the foodservice industry have the same feelings towards this practice that line-level employees do. According to the managers questioned in one study of employee perceptions of drug abuse in the foodservice industry, many said that they had good employees in the past who were known drug users and bad employees who did not use drugs. Many managers in this study also believed that you could not predict work performance on the basis of drug use (Kitterlin & Erdem, 2009).

Managers have also claimed that some employees perform below the norm in an unimpaired state while others perform above the norm in an impaired state (Cranford, 1998). The results of a study by Kitterlin & Moll (2013) indicated that there were no significant differences

in opinion between line-level employees and management with regards to drug-testing. In order for a company's policies and programs to be effective they must receive support from the top. Obviously the use of pre-employment drug screening does not receive the required support from the top.

Many respondents indicated that the use of a drug test would not eliminate the hiring of substance users, they would simply abstain from use until the test is completed or manipulate the sample in some way. Companies should consider random testing or testing only for accidents or workers compensation claims. This same study also found no difference between attitudinal responses in establishments with or without pre-employment drug screening. Those who feel negatively about the subject are still obtaining employment in establishments where testing is implemented (Kitterlin & Moll, 2013).

Arguments for Drug Testing

Drug users are often described as weak, vulnerable, lying, cheating, hedonistic and turning away from responsibility in the world (Brewis et al., 2006). They are also described as deviant or excessive, immature and irrational as well as immoral (Cavanaugh & Prasad, 1994; Cranford, 1998; Warren & Wray-Bliss, 2009). Drug use is also overwhelmingly regarded as representing disintegration, chaos and the antithesis of organizational rationality (Warren & Wray-Bliss, 2009). Drug testing is a way to exclude risky individuals and thereby manage the rise in costs and insurance premiums and employee injury lawsuits (Warren & Wray-Bliss, 2009). Supporters argue that by accepting the terms and conditions of employment, the employee has expressly agreed to the organization exercising the right to test them for drugs (MacDonald & Simpson, 2013).

Costs of Employee Drug Use

According to Cranford (1998) and Extejt (2001), illicit drug use by employees causes estimated annual losses of \$33-\$100 billion depending on the industry. According to the annual US Chamber of Commerce, drug abuse cost the United States \$200 billion in lost productivity in 2010 (Woods et al., 2012). The majority of these costs are said to result from absenteeism, employee turnover, crime and violence, on-the-job accidents, poor productivity, health insurance and medical costs, employee morale, decision making; workplace dealing, threats to public safety, and worksite security and theft (Brewis et al., 2006; Davis & Hueller, 2006; Extejt, 2001; Olbina et al., 2011). Other proponents for drug testing argue that it is a way of attacking the larger social problem of drug use which impacts the health care and criminal justice systems. Many argue that the workplace is an effective arena to combat this problem (Cranford, 1998). Still other proponents argue in favor of drug testing as an assurance to customers that businesses do not hire or employ drug users (Woods et al., 2012).

According to a study conducted by the United States Postal Service in 1987, increases in involuntary turnover, absenteeism, use of employee assistance programs, and disciplinary actions of employees classified as drug users when compared to employees classified as non-drug users were found (Current, 2002). The study concluded that drug users were more costly to the organization than were non-drug users. The USPS projected savings of \$52 million in 1989 and \$105 million in 1991 if it no longer employed drug users. The results of more recent studies seem to contradict these findings. Kitterlin & Moreo (2012) found no significant differences in absentee levels, turnover, or work-related accidents in properties with and without drug-testing policies. Other studies have found that accidents are more likely due to inadequate working conditions, sleep or health problems, high workloads and stress than impairment resulting from

drug use (Brewis et al, 2006). It is undoubtedly true that substance use does cost money to businesses, it is extremely difficult to pinpoint specific numbers to this problem.

Insurance and Workers Compensation Discounts

One of the biggest reason that this industry has grown is that employers are given discounts on workers compensation insurance rates. Employers that implement drug testing programs receive cost savings and incentive programs offered by medical and health insurance carriers; property, causality, and liability insurance carriers and workers compensation insurance carriers (Woods et al., 2012). Many states require insurance companies to provide workers compensation premium discounts to companies that implement drug-free workplace programs (Olbina et al., 2011). Under deals made with state governments anxious to appear focused on anti-drug policies, most states offer discounts on workers compensation and liability insurance of up to 7.5%. These cost savings may be ample justification for hospitality companies to implement or continue with their existing program (Woods et al., 2012). The workers compensation system does not however have a set of protocols for the testing of narcotics. According to Cenciros (2012) there is no guideline, no acceptable standard, no rationale for when and how and for what to test. Many proponents of drug testing see it as a means of providing a safe and productive work environment, promoting the safety of employees and the general public, identifying and giving support to those needing assistance and helping meet legal obligations for occupational safety laws (Kitterlin & Moreo, 2012). Proponents argue that intervention may cause young workers to see hospitality as a career instead of as temporary employment and stay on the job longer thereby decreasing the high level of turnover in the hospitality industry (Comer, 1994).

Arguments Against Drug Testing

When it comes to drug testing, there is a plethora of conflicting previous research. Some say that these tests may discourage potential applicants while others say that they may foster recruitment. Drug testing practices may impact an employee's attitudes towards their employer but doesn't seem to have effect on intentions to apply for job. Some researchers have said that they use of drug testing may increase employee turnover because unfavorable attitudes may cause employees to leave while others say that it may decrease employee turnover since it decreases the number of drug using employees who have high turnover rates (Kitterlin & Erdem, 2009).

The main criticisms of drug testing include: the invasion of privacy and violation of employee/applicants rights, the erroneous results, the lack of discrimination between habitual and occasional users, and the inability to indicate performance impairment (Stone & Bowden, 1989). These tests are also criticized because they involve collection of bodily fluids, may lead to loss of the most qualified candidates, employee morale problems, and poor labor-management relations (Stone & Bowden, 1989).

Critics of drug testing criticize the practice since as of today, research suggests that not all drug use diminishes performance and testing may fail to deter the most potentially harmful substance abuse (Comer, 1994). There is also currently no solid empirical evidence that links drug testing with improvements in productivity and safety (Comer, 1994). According to the results of a study performed by Kitterlin & Moreo (2012), the use of pre-employment drug testing does not significantly reduce rates of employee absenteeism, turnover, or accidents/injuries.

Drug testing that is not necessary or of obvious value to employees may reduce their loyalty and sense of commitment to the organization, may not save money and may cost the organization more than it saves, and policies that employees perceive as abusive will likely have the effect of reducing the number of qualified applicants for positions, thereby leaving companies with fewer and less qualified choices (Woods et al., 2012). Many critics view workplace drug-testing as a quick fix for the larger more serious problem of drug abuse even though it has been shown that this practice will only slightly decrease drug traffic if at all (Extejt, 2001). Organizations have endorsed drug testing for purposes more symbolic than practical. It is often used to create the impression that management is applying current scientific methods to control a perceived crisis (Comer, 1994). Drug testing is seen as a symbolic action of managing the so-called drug crisis in the workplace (Cavanaugh & Prasad, 1994). Drug testing in the workforce serves to restore the image of control and morality of the organization and give the perception of a scientific response to the problem of drug use in the workplace (Cavanaugh & Prasad, 1994).

Evidence linking drug use and workplace difficulties is much weaker than initial estimates (Woods et al., 2012). Drug tests don't distinguish between occasional and habitual users and critics of this practice ask how concerned we should be with employees' non-work-related behaviors. Testing doesn't necessarily measure impairment, abuse or intoxication, the presence of a banned substance doesn't mean cognitive impairment is present or performance is impacted (Kitterlin & Moreo, 2012). Critics of drug testing argue for the sensible recreational drug user who would be eliminated from the labor pool. This sensible recreational user makes rational, informed consumerist choices with regard to their drug consumption, doesn't use drugs that are likely to lead to addiction or erratic behavior, whose behavior on drugs is generally

socially benign and whose drug consumption choices are cognizant of the demands of studying or working (Warren & Wray-Bliss, 2009).

Private companies as well as federal agencies spend billions each year on drug testing. Federal agencies spend \$16 billion per year on drug testing while private businesses spend billions more (Woods et al., 2012). With tests costing anywhere from \$13-\$70 and an annual turnover rate of 83-119%, the foodservice industry incurs a great expense related to pre-employment drug testing (Kitterlin & Moreo, 2012). The high turnover rate in this industry makes drug testing financially irresponsible and the money spent on these drug tests could be spent in better ways, for example for employee benefits and/or development (Kitterlin & Erdem, 2009).

Many critics of the practice of drug testing claims that it violates an individual's rights to privacy (Kitterlin & Moreo, 2012). Testing violates an employee's right to privacy by attempting to regulate an employee's behavior in their own home, outside of the employers' legitimate sphere of control (Cranford, 1998). Drug testing has also been confronted with constitutional issues regarding unreasonable search and seizure and the rights against self-incrimination (Kitterlin & Moreo, 2012). This practice is also criticized due to the potential damage that an improperly administered test could do to a person's employment future (Extejt, 2001).

Conclusions of Literature Review

Although the results of the current review of research are often contradictory, there is obviously a need for a through look at the practice of pre-employment drug testing in the foodservice industry. It is clear that companies spend a lot of money on this practice in this industry. It is possible that this money could be best spent in other ways. Each company needs to perform its own cost/benefit analysis in order to determine if the practice of screening

applicants for drug use is necessary and beneficial. If the practice is determined to be beneficial, the company must then determine which among the many different available methods they should use in order to gain the most benefit out of the practice. The remainder of this paper will serve as a guide for companies to make these types of decisions.

Part Three

The purpose of this paper is to determine if pre-employment drug screening is beneficial to a food and beverage establishment. According to Kitterlin & Erdem (2009), evidence linking workplace drug use and workplace difficulties is much weaker than originally estimated and each institution would have to perform its own cost effectiveness analysis. Drug testing doesn't necessarily measure impairment, abuse, or intoxication. After reviewing all of the past research it seems clear that the effectiveness of drug-tests is not able to be proven and these tests often come with high error rates. The review of past research on the topic of drug testing and consideration of all of the conflicting information out there, several important questions come to mind:

- Does drug-testing even eliminate employee drug use?
- Does drug-testing measure impairment?
- Does drug-testing cost more than it saves?

The final portion of this paper will use data from a small boutique hotel in Fort Lauderdale, Florida in order to determine the actual measurable financial benefits associated with drug testing. The above questions will be further explored and some recommendations will be made to the industry of more effective ways of obtaining a more productive and committed work force. Of course this is an example of a specific property, but any company will be able to follow the template in order to determine if drug testing is an appropriate policy for them. There are many other alternatives to drug testing that may prove to be more effective and reduce the costs associated with these tests.

Cost/Benefit Analysis

The data for this analysis came from a small boutique hotel in Fort Lauderdale, Florida, but the company wishes to remain anonymous in this paper so will not be mentioned by name. This hotel has 142 employees and spends around \$4,000 a year on pre-employment drug screening of its employees. In the state of Florida, a 5% discount on workers compensation insurance premiums is given to employers who implement a drug-testing program. For this particular hotel, the discount amount works out to around \$5,000 resulting in a direct financial return on investment for this property of \$1,000. Although this company receives a \$1,000 net financial gain, this number doesn't include the indirect costs or the indirect benefits associated with drug-testing programs. Due to the inability to measure the indirect benefits and costs associated with the implementation of a drug-screening program, as well as the conflicting past research on the effectiveness of these programs, the remainder of this paper will offer some other alternatives that may result in greater benefits to the industry. Each company should take its own operations into account when considering whether or not to implement any sort of drug-testing program.

Alternatives to Drug Testing

So what should the foodservice industry do? Employers have the right to unimpaired productive workers and workers have the right to privacy and the right to do as they please during non-working hours. Before attempting to solve the problem, a step backwards needs to be taken. We must consider what the actual problems we are trying to solve with drug testing are. We must ask what results we desire from the use of drug testing. The best answer to this question is: to reduce the problems that are thought to be associated with drug use in the workplace. The main problems as cited in the previous past research include: decreased

productivity, increased turnover and absenteeism, and increased accidents. It is clear from the previously discussed past research that drug use is not the complete explanation for these workplace issues.

Impairment Testing

One possible way to both measure the degree of impairment of an employee as well as reduce the rate of accidents resulting from human error is through the use of impairment testing. There are computer simulations available that can test a user's level of impairment. Unlike drug-testing, due to detection window issues, impairment testing can test an employee's level of impairment in real-time. Results of these tests are also immediately available for use. The technology for these simulations was originally developed by NASA for use in testing astronauts (Halbert & Inguilli, 2012). These impairment testing simulators are basically video games that measure factors associated with impairment such as reaction time. The employee simply needs to take the test several times to establish a baseline and then when impairment is suspected, they take the test again and the results are compared to the baseline in order to determine if the employee is currently impaired.

This method is more effective at detecting the real issue of impairment due not only to its ability to detect impairment in real time and but also to detect impairment resulting for reasons other than drug use. Impairment can be caused by a number of other factors besides the use of substances. Some of these reasons include illness, sleep deprivation, and emotional preoccupation (Comer, 1994; Halbert & Inguilli, 2012). These impairment tests are also more cost effective as they only require the initial investment in software. These tests are also more effective when considering time issues. The tests only take a few minutes of an employee's time and do not require the employee to travel off property to complete testing.

Skill Testing

Similar to impairment tests are skill tests which are sometimes called performance tests. Skill tests are another way to measure employee productivity. Skill tests assess job relevant reaction time and coordination (Comer, 1994). These tests, like impairment tests previously discussed, can measure impairment in real-time with immediate results. Other advantages of skill tests over the commonly used urine-based drug tests are similar to those advantages of impairment testing and include the fact that they are less expensive, allow the collection of more information, are better received by employees, are less intrusive, and may detect drug use that urinalysis may have missed due to the detection window of this method.

Absenteeism and Turnover

These numbers have historically remained very high in this industry and it is common knowledge in the industry that these numbers are among the highest of any other industry. Drug-testing has also been historically high in this industry. Obviously the implementation of drug testing programs has not decreased these high rates in a substantial manner. More research is definitely needed in this area to draw any clear conclusions, but the majority of the previously cited research on this subject seems to indicate that companies with drug-testing programs do not see any decreases in employee absenteeism and turnover. It is recommended that the industry offer more room for individual career growth and offer rewards or incentives for attendance. These two things may prove to be more effective in reducing the amount of absenteeism and turnover present in the hospitality industry than current drug-screening programs have been.

Recommendations to Industry

If a company does decide to implement a drug-screening program, it must not be the only part of the company's drug-free work zone policy. According to the American Management Association, 2000:

“Drug-testing where utilized ought to be part of a comprehensive policy on workplace drug abuse that includes education, supervisory training and opportunities for counseling, and treatment...testing cannot and should not take place of good supervision and management practices.”

SAMHSA, a division of the department of health and human services advocates six components for a drug-free workplace program. These include a needs assessment, policy development, employee education, supervisor training, employee assistance programs, and drug-testing (Davis & Hueller, 2006). The fact that drug testing is last on SAMHSA's list and the only part of many hospitality companies drug-free work place program, it becomes obvious that the majority of these companies are missing out on more effective ways to decrease the problems associated with drug use in the workplace. According to Cranford (1998), toxicological testing should be accompanied by a full range of employee assistance interventions. This is not the common practice in the hospitality industry today. Most of the industry leaders simply require a pre-employment hair or urine drug screening and then never conduct any type of testing or intervention again.

Also according to Cranford (1998), testing should focus on a specifically targeted group of employees (safety critical positions) and all other testing should be for cause. When testing is used, it should not be announced ahead of time not allowing employees to purchase products to beat the tests, and employees who test positive should be permitted the opportunity to resolve

their abusive tendencies and return to work without penalty or stigma. This is basically the opposite of what occurs now. Testing is performed on those employees not involved in safety critical positions, employees are usually informed well before the test allowing for the use of adulterants or masking agents, and those who test positive for drug use are usually terminated without being offered any type of intervention or assistance.

According to Kitterlin & Erdem (2009), restaurant industry employers should base their hiring decisions on interviews and past work history, not on the use of pre-employment drug screening. As far as post-employment testing is concerned, examination of health and safety records, observations among supervisors should be used instead of drug screening to assess the extent of the problem (Exejt, 2001).

Drug Use Policy Template

A company's drug use policy should be developed in cooperation with medical, personnel, and legal staff. In employee's are unionized, labor reps should also be considered when developing a policy on drug use (Exejt, 2001). A company's drug use policy should be clear, applied consistently, and documentation should be complete (Preer, 1989). The policy should be explained to all employees and should specify who is to be tested, who will do the testing, and who will use/see the results, the actions if results are positive as well as the reasons for the testing policy (Exejt, 2001). According to Preer (1989), a clear policy is an effective way to acknowledge the problem and to communicate behavioral expectations to workers. When employees understand why drug testing is being conducted, they may perceive it to be fair resulting in greater work satisfaction and less dissonance. The policy should be written in a manner that is clear and understandable to all employees and applicants. The policy should also

be displayed in view of all employees to serve as a reminder of the company's views on the matter.

Employers must also take steps to ensure that their drug-testing policy is not used in a discriminatory manner against an employee and that no individual is unfairly targeted, as well as to ensure that the employee's privacy and dignity is respected at all times (MacDonald & Simpson, 2013). Companies should take the results of positive drug-tests seriously, however they should try to deal constructively and sympathetically with long-term drug dependency. Substance abuse and cessation programs can increase an employee's commitment to their company which may result in the employee staying on the job longer which could act to decrease the high turnover rate of this industry.

Implications

By taking a deeper look and conducting its own cost/benefits analysis, most companies within the hospitality industry could realize cost savings by changing their methods for dealing with substance abuse in the workplace. A company may also be able to increase its applicant pool as well as heighten the morale of its employees. The importance of happy employees in the hospitality industry has often been ignored. Employees that are happy with their employer are more productive and could result in a possible differentiation advantage for the company. The Service Profit Chain, which is illustrated in Figure 1, establishes a relationship between profitability, customer loyalty, and employee satisfaction, loyalty and productivity (Crawford & Hubbard, 2008).

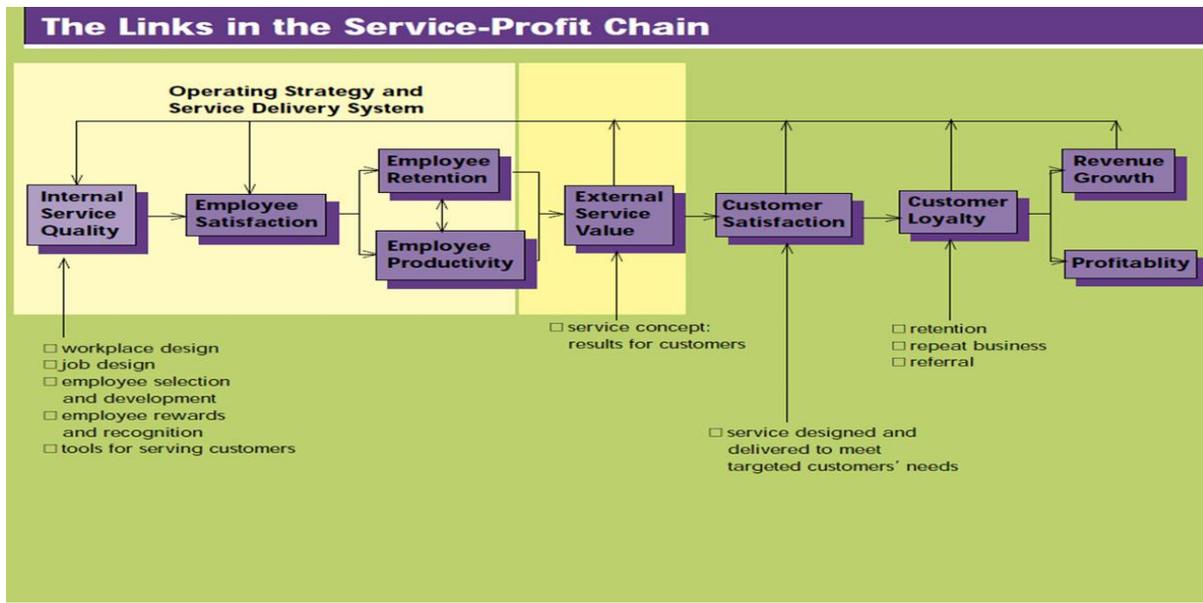


Figure 1: The Service Profit Chain

Low employee satisfaction can be disastrous to any organization leading to low employee productivity, low customer satisfaction, low customer loyalty and retention, and ultimately lower profits. If employee satisfaction is reduced when a company implements drug-testing programs, which previous research suggests that it is, the company’s bottom-line can be affected. Happy employees can be a huge advantage to any company within the hospitality industry, and unhappy employees can be a huge disadvantage to any company within the hospitality industry. In an industry where competition is high and differentiation advantages are hard to come by, the customer service improvements from satisfied employees have the potential to make a huge difference in the hospitality industry.

Further Study

Further study into the area of drug-testing and employee drug use is definitely needed. Especially today, with the ever changing marijuana laws and the country’s more lenient attitude towards the drug, further study into the effects of drug use in the work place should be conducted in today’s age of normalization of drug use and easing marijuana laws. Generational differences

should also be considered with further study of this topic. The work force is getting younger as the baby boomer generation is retiring and this has the possibility of having a major impact on perceptions of and reactions to the practice of workplace drug testing. Most importantly, further study needs to be conducted into the line between drug use and drug abuse as well as its impact on performance of employees. There currently is no definitive research in this area and it remains unclear the real effect that drug use has on the hospitality work force.

References

- Barnum, D. T., & Gleason, J. M. (1994). The credibility of drug tests: A multi-stage Bayesian analysis. *Industrial & Labor Relations Review*, 47(4), 610.
- Belhassen, Y., & Shani, A. (2012). Hotel workers' substance abuse. *International Journal of Hospitality Management*, 31, 1292-1302.
- Birschel, D. (2002). *Designing and implementing drug testing: Legal and practical issues (Part I)* International Society of Certified Employee Benefit Specialists.
- Brewis, J., Sanderson, C., & Wray-Bliss, E. (2006). The normalisation of 'excessive' workforce drug testing? *TAMARA: Journal of Critical Postmodern Organization Science*, 5(1), 39-53.
- Cavanaugh, J. M., & Prasad, P. (1994). Drug testing as symbolic managerial action: In response to "A case against workplace drug testing". *Organization Science*, 5(2), 267-271.
- Cenciros, R. (2012). Comp drug testing raises costs, questions. *Business Insurance*, 46(18), 01-01.
- Cholakis, P. N., & Bruce, R. (2007). Drug testing in the workplace. *Professional Safety*, 52(7), 31-36.
- Comer, D. R. (1994). A case against workplace drug testing. *Organization Science*, 5(2), 258-267.
- Cranford, M. (1998). Drug testing and the right to privacy: Arguing the ethics of workplace drug testing. *Journal of Business Ethics*, 17(16), 1805-1815.
- Crawford, A., & Hubbard, S. S. (2008). The impact of work-related goals on hospitality industry employee variables. *Tourism & Hospitality Research*, 8(2), 116-124. doi: 10.1057/thr.2008.11

- Current, W. (2002). Cut costs and increase safety with pre-employment drug testing. *Occupational Hazards*, 64(7), 55-57.
- Davis, E., & Hueller, S. (2006). Strengthening the case for workplace drug testing: The growing problem of methamphetamines. *SAM Advanced Management Journal* (07497075), 71(3), 4-10.
- Extejt, M. (2001). The use of pre-employment drug testing: pros and cons. *Sam Advanced Management Journal* 10-14, 47.
- Halbert, T., & Ingulli, E. (2012). *Law and ethics in the business environment*. Mason, OH: South-Western.
- Kitterlin, M., & Erdem, M. (2009). A qualitative assessment of employee attitudes towards pre-employment drug-testing in the full-service restaurant industry. *Consortium Journal of Hospitality & Tourism*, 14(1), 5-21.
- Kitterlin, M., & Moll, L. (2012). Qualitative responses to pre-employment drug testing in the foodservice industry. *FIU Hospitality Review*, 30(1), 35-52.
- Kitterlin, M., & Moll, L. (2013). Employee attitudes toward pre-employment drug testing in the full-service restaurant industry. *Journal of Foodservice Business Research*, 16(3), 313-326. doi:10.1080/15378020.2013.810528
- Kitterlin, M., & Moreo, P. J. (2012). Pre-employment drug-testing in the full-service restaurant industry and its relationship to employee work performance factors. *Journal of Human Resources in Hospitality & Tourism*, 11(1), 36-51. doi:10.1080/15332845.2012.621053
- MacDonald, L., & Simpson, S. (2013). A positive response to managing testing times. *Employer's Law*, 20-21.

- Olbina, S., Hinze, J., & Arduengo, C. (2011). Drug testing practices in the US construction industry in 2008. *Construction Management & Economics*, 29(10), 1043-1057.
doi:10.1080/01446193.2011.631553
- Positive drug tests up for job applicants. (2013). *Alcoholism & Drug Abuse Weekly*, 25(11), 6-7.
- Pre-employment. (n.d.). *Merriam-Webster.com*. Retrieved December 9, 2013, from
<http://www.merriam-webster.com/dictionary/pre->
- Preer Jr., R. M. (1989). The impact of drug testing. *Labor Law Journal*, 40(1), 50-57.
- Quest Diagnostics (n.d.). *Quest Diagnostics*. Retrieved December 9, 2013, from
<http://www.questdiagnostics.com/home.html>
- Stone, D. L., & Bowden, C. (1989). Effects of job applicant drug testing practices on reactions to drug testing. *Academy of Management*. 290-294. doi:10.5465/AMBPP.1989.4981076
- Warren, S., & Wray-Bliss, E. (2009). Workforce drug testing: A critique and reframing. *New Technology, Work & Employment*, 24(2), 163-176. doi:10.1111/j.1468-005X.2009.00226.x
- Wells, V., Halperin, W., & Thun, M. (1988). The estimated predictive value of screening for illicit drugs in the workplace. *American Journal of Public Health*, 78(7), 817-819.
- What can you learn from the drug raid at Boeing? (2011). *Security Director's Report*, 11(12), 1-15.
- Woods, R., Johanson, M., & Sciarini, M. (2012). *Managing hospitality human resources*. Lansing, MI: American Hotel & Lodging Institute.