5-1-2008

Air Crew Alcohol and Drug Policies: A Survey of FAR of Part 91 Corporate/Executive Flight Operations

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AIR CREW ALCOHOL AND DRUG POLICIES: A SURVEY OF FAR PART 91 CORPORATE/EXECUTIVE FLIGHT OPERATIONS

by

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A Thesis
Submitted to the Graduate Faculty

of the

University of North Dakota

in partial fulfillment of the requirements

for the degree of

Master of Science

Grand Forks, North Dakota
May
2008

This thesis, submitted by Johnené L. Vardiman in partial fulfillment of the requirements for the Degree of Master of Science from the University of North Dakota, has been read by the Faculty Advisory Committee under whom the work has been done and is hereby approved.

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This thesis meets the standards for appearance, conforms to the style and format requirements of the Graduate School of the University of North Dakota, and is hereby approved.

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Department Aviation

Degree Master of Science

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ACKNOWLEDGMENTS

I would like to acknowledge the work of Dr. Quay Snyder, AME, in the field of aviation medicine for championing the physical and mental health issues of aviators. Specifically, his advocacy of airmen battling issues of substance abuse and dependence has saved innumerable lives and careers. He continues to broaden the exposure and assistance of the Human Intervention Motivation Study (HIMS) to FAR Part 91 corporate/executive flight operations by tirelessly educating regulators, guiding aviation leaders and providing direct medical aid to aviators in need. I am honored to supplement his efforts through this study.

I would like to acknowledge the continuous support of Dr. Mike Clark, Statistical Consultant at the University of North Texas. He has served as a constant wealth of knowledge and support to the analysis of this research. His calm demeanor and quiet assurance in my ability and in this data has seen me through many confused hours. I am eternally grateful to his contribution.

The Graduate Committee for this research project is composed of Dr. Warren Jensen, Dr. Thomas Petros, Dr. Paul Lindseth and Professor Doug Marshall, J.D. I wish to extend my sincere thanks to this team for their guidance, recommendations and ultimately final approval of this work!

Finally, I am indebted to my dear friends and family who over the course of the last several months have shown exceptional patience when the only discussion topic has been a status report of this thesis. Thank you, I will soon return to the land of the living.

To The Corporate Pilot Who Suffers From Substance Abuse & Dependence

ABSTRACT

Safety is a critical issues facing aviation today. The health of the pilot and the policies related to pilot well-being greatly contribute to the safety practices of flight. The purpose of this research study was to assess the status quo of unmandated, written alcohol and drug policies of corporate/executive flight departments operating under Part 91 of the Federal Aviation Regulations (FARs). Researchers found 68% of these operators had written general alcohol/drug, 20% had rehabilitation and 15% had job retention/recovery policies in place. Statistical tests showed that for each pilot added to the flight operation the odds of having a general alcohol/drug policy in place increased by 1.4 times. A strong statistical connectivity was uncovered between how important the policy is perceived to be by the leader and whether or not written policies are in place.

Ultimately, this data supports that a need exists for further education of industry professionals of the resources available. The vast majority (94%) of leaders were unaware of resources or where to obtain them and nearly one-quarter reported having direct experience with these issues among the pilots in their flight operations. Furthermore, our research was an endeavor to aid those in our industry affected by substance abuse and dependence issues. Finally, this study upholds the aviation industry's goal of achieving increased safety by establishing industry best practices of instituting written alcohol and drug policies.

CHAPTER I

INTRODUCTION

In recent years, the post September 11th 2001 economy of the business aviation industry has experienced tremendous growth both in more efficient utilization of aircraft and expansion of new and existing flight operations. Industry exerts speculate this growth is driven by a combination of growing national economy, degraded convenience of commercial airline travel, and the increased emphasis on safety, security and efficiency to the business traveler. The ensuing decade projections show that business aviation will only continue to strengthen with a booming economic forecast. Richard Aboulafia of the Teal Group, an aerospace and defense industry consulting and analysis firm projects delivery of 12,000 business jets worth $173.2 billion in 2007 dollars through the next 10 years (2007-2016). Additionally, these projections do not include 424 corporate jetliners and regional jets worth an additional $12.3 billion (Burnside, 2007).

Furthermore, while experiencing industry segment expansion corporate/executive and business aircraft operators thus far have accumulated the best safety records of any segment of General Aviation. In fact, recently corporate/executive operators (a sub-population of business aviation) have compiled a safety record comparable to that of scheduled FAR Part 121 airlines, which historically has experienced the lowest rate of accidents in aviation. Corporate aviation (defined by safety analyst Robert E. Breiling Associates as all aircraft types flown for business by salaried crews) had its safest year in

2003 in terms of accident rates (accidents per 100,000 flight hours) and its safety record was better than the scheduled airlines in every year during the last decade (Gilbert, 2006).

However, corporate/executive (professionally flown) aviation continues to experience safety challenges. In the first nine months of 2005 business aviation aircraft where involved in 48 accidents, 13 which were responsible for 43 deaths (Business Aviation, 2005). Contrarily, in 2003, statistics show that one of the best corporate/executive (professionally flown) accident records ever – 0.028 accidents and 0.014 fatal accidents per 100,000 flight hours. Business aviation (non-professionally flown) compiled in 2003 its best record ever – 0.95 accidents per 100,000 flight hours (NBAA, 2004b). In personal communications with Robert E. Breiling Associates, FAR Part 91 Corporate/Executive flight operations which comprise more than 25,000 jets and turboprops experienced per 100,000 flight hours an overall accident rate of 0.14 and a 0.011 fatal accident rate in 2006. Although historically corporate/executive operations have compiled an accident rate comparable to the airlines, the business aviation community has seen a dramatic increase in media exposure of high profile accidents. The media in the United States is particularly fascinated with high net-worth individuals and celebrities which are serviced by business aviation. This coupled with continued fatal and non-fatal accidents and incidents, and increased negative media exposure regarding the safety of the business aviation community, it is important for the growing community of business aviation to examine the reasons for accidents and incidents.

For aviation as a whole, at the root of most accidents and incidents is the human factor. According to a study conducted by the General Accounting Office (GAO),

> While a broad range of factors contribute to general aviation accidents, the majority of them are associated with pilot error. According to our analysis of the National Transportation Safety Board's (NTSB) accident data, 80 percent of the fatal accidents and 72 percent of the nonfatal accidents that occurred between 1994 and 1998 involved pilot error. Previous studies have found that between 60 and 80 percent of general aviation accidents are associated with pilot error (GAO, 2001).

This statistic uses primary causal factors to determine human error but does not include human error that was a secondary or latent error casual factor. When this statistic is examined from the narrowed perspective inclusive of the latent error, the statistic of 80 percent of aircraft accidents attributed to human error is likely a conservatively low figure.

One issue within the human factors arena that is of particular concern is the use of drugs and alcohol among the pilot population. Great strides in national policy and education have been made by the FAA in the area of alcohol and drugs. In the last 40 years, general aviation accidents directly attributable to alcohol and drugs using have dropped significantly. According to Lacefield, fatal civilian aviation accidents for 1968-74 showed 19.5 percent of deceased pilots revealed a Blood Alcohol Content (BAC) level of 15mg% (Lacefield, 1975). In a later study, Ross and Ross reported a statistical review of the NTSB's accident reports involving alcohol. In that review, it was found that for the period 1975-1981, 10.5 percent of fatally injured general aviation pilots were conclusively alcohol positive (Ross, 1988). In the latest data received May 2007 in personal communications with the NTSB, four accidents in the last 10 years (1997-2006)

have involved reportable substances specific to the corporate/executive flight operations sector.

The corporate/executive segment of general aviation continues to prosper, while it experiences one of the lowest accident rates in the industry. Furthermore, the trend data of accidents and incidents show a decreasing reported toxicology as a casual factor. However, little is known about corporate/executive operators' internal company policies and programs regarding drugs and alcohol. Professor Christopher Cook of the University of Kent indicated in his 1997 survey of commercial aviation policies on alcohol and drugs says, "In the aviation environment, there certainly has not been a failure to form policy, nor has there been evidence that policies are ineffective. However, there does appear to have been a failure to subject such policies to scientific study," (Cook, 1997).

Even in the midst of positive economic trends and decreasing accidents, corporate flight operations and their pilots are not immune to substance abuse issues. According to Dr. Quay Snyder, statistically, drug and alcohol abuse affects the pilot population in the same proportion as other professional occupations – approximately 8-to 10 percent. The major concern however is that the majority of abusers are undiscovered and under reported.

Dr. Snyder in his article *FAA-Sanctioned Pilot Alcohol Abuse Programs in Business Aviation* points out that,

> Alcohol and other substances that affect the mind impair the ability to think clearly, react quickly, anticipate dynamic environments and handle complex tasks. Effective Crew Resource Management (CRM) activities are inhibited by the rigidity in decision-making and self-centered behavior of the alcoholic. Even the

pilot who is completely sober is plagued by decreased mental function and abilities months after the removal of alcohol. The compromised abilities are often so subtle as not to be noticed, but remain very significant in the complex, multi-tasking world of aviation (Snyder, 2004).

According to the FAA Civil Aeromedical Institute's *Alcohol and Flying*, approximately 12 percent of all pilots in fatal general aviation accidents over a seven year period had measurable amounts of alcohol in their blood at the time of their death. Potentially however, fatal accidents do occur as a result of pilots who have been impaired by the after effects of alcohol or drugs which can not be measured in the bloodstream post-mortem (Civil Aeromedical Institute, n.d.).

Problem

Many U.S. commercial carriers have voluntarily instituted written company policies and programs addressing drug and alcohol that also include rehabilitation and job recovery programs of aircrew members since the mid 1970's. Since that time there has been a steady increase in the use and success of these programs. However, in the business aviation sector of FAR Part 91 corporate/executive operations, there is little known about the quantity and quality of internal policies addressing alcohol and drugs, including those which may address the rehabilitation and job retention/recovery programs for pilots. There are notable differences in the cultural environments between the commercial and corporate/executive flying that may be attributing factors to this knowledge base. Some of these differences between these industry segments include market size, density and maturity; amount of regulatory oversight; required corporate/personnel privacy and security; limited access to and availability of this type of

flying; and the mission: revenue generating versus organizational support (business cost center). Additionally, although substance abuse is thought to not vary dependent upon profession or subpopulation, statistical information of reported frequency is available from commercial carriers which have these voluntary policies and programs. Little is known about the frequency of suspicion and addressing professional pilot substance abuse and dependency in FAR Part 91 corporate/executive operations. More data is required.

Research Questions and Hypothesis

For U.S. FAR Part 91 corporate/executive flight operations:

1) What is the prevalence of written alcohol/drug (general, rehabilitation and job retention/recovery) policies for pilots in place?
2) How important are having written alcohol/drug (general, rehabilitation and job retention/recovery) policies for pilots in place to leaders?
3) What is the prevalence of leaders' suspicion of and/or addressing alcohol/drug issues with pilots?
4) How familiar are leaders with the FAA's HIMS program?
5) How receptive are leaders to implementing an alcohol/drug policy that includes job retention/recovery and rehabilitation components?
6) What factors predict whether or not a flight operation has a written alcohol/drug (general, rehabilitation and job retention/recovery) policy for pilots in place?

This research study expects to find that through quantitative analysis that the existence of written alcohol/drug policies (general, rehabilitation and job

retention/recovery) is influenced by certain factors. More specifically, it is proposed that researchers will find that those flight operations that are larger in size, as defined by the number of pilots, will have written policies in place. Additionally, researchers speculate that leaders who report these policies as being of higher importance will be more likely to have these respective written policies in place. It is also proposed that those leaders who report having suspected and/or addressed an alcohol/drug issue with a pilot in their flight operation will be more likely to have written policies in place. Furthermore, it is hypothesized that leaders who are more familiar with the HIMS program and report a being receptive to implementing a policy for the rehabilitation and job retention/recovery of pilots are more likely to have these policies in place.

This research study expects to find common themes in the sample through qualitative analysis. In general researchers speculate that the leaders' discussions of their attitudes toward alcohol/drug policies are grounded in Zero Tolerance and the Moral Model of Addiction.

In reviewing alcohol/drug policies to be submitted, most prevalently researchers expect to see general alcohol/drug policies in the flight operation that are based upon a reiteration and expansion of FAA regulatory guidelines. It is anticipated that some policies will contain guidance on the use of substances and outline the consequences of use outside of these guidelines. Additionally, the Principal Investigator expects to see drug testing policies referenced, specifically in conjunction with an aircraft incidents or accidents. Overall, the study expects to find more comprehensive and robust policies to be found in larger flight operations.

Significance of Study

Evidence suggests that the prevalence of substance abuse among the professional pilot population as a whole is no greater than the general population (Snyder, 2003). However the potentially great costs (financial and human) of incidents and accidents, would suggest that it is imperative to evaluate and understand the scope of substance abuse within the professional pilot community flying in corporate/executive flight operations. Furthermore, the great costs suggest that it is important to create, maintain and improve effective policies which are designed to protect both employees and passengers alike. Without such policies that allow for self-disclosure to obtain help and retain/recover jobs, substance abuse and dependence are forced underground and in many cases go undetected thereby increasing risk and the potential for safety breeches.

To the researcher's knowledge no study addressing these issues has ever been conducted of the professional pilot community within FAR Part 91 corporate/executive operations. While we can generalize findings from other segments of aviation within the professional pilot community as a whole, such as commercial and military operations, it is important to recognize that the operating environment is different from other segments. Identifying this fact, it is possible that findings of this study may vary from the general population and of the professional pilot community at large.

CHAPTER II

REVIEW OF LITERATURE

The literature review will include four areas: (a) definitions of alcohol and drug abuse and dependence, the prevalence of this fact in the general population and aviation community and related aviation accident rates, (b) studies of the relationship of alcohol/drug related driving violations and aircraft accidents, (c) studies of related aviation alcohol/drug policies, (d) a review of the Human Intervention Motivation Study (HIMS) which addresses the issue of alcohol/drug policy and program for pilot rehabilitation and job recovery. Finally, conclusions are drawn about what is known and unknown regarding general alcohol and drug policies, rehabilitation policies and job retention/recovery policies within the corporate/executive aviation community.

Pilots - Alcohol/Drug Abuse and Dependence

Pilots who abuse or are dependent upon alcohol or other chemical substances face severe consequences including loss of medical certificates, pilot licenses, termination of employment, legal problems, grave medical conditions and death. Organizations which have corporate/executive flight operations are also potentially threatened by increased negative media exposure, loss of revenue, compromised safety, and potential aircraft incidents and accidents. Additionally, incidents and accidents can result in loss of assets, loss of life and leadership of professionals and high net worth executives and open the door to civil and criminal litigation. The culmination of each of these factors results in severe potential costs to the individual and organization.

The review of literature includes information about substance abuse and dependence. There is substantial information published about alcohol and drug abuse and dependence. Furthermore, a literature review was conducted of aviation specific information regarding substance abuse and dependence and subsequent programs for addressing these issues for pilots.

The Federal Aviation Administration (FAA) acknowledges the value of education, intervention, treatment and return to flying duties for pilots afflicted by this common, progressive, fatal, but treatable disease. The FAA has accepted the definition of substance abuse/dependence provided by the medical community and published by the Joint Committee of the National Council on Alcoholism and Drug Dependence and the American Society of Addiction Medicine as being,

> Alcoholism is a primary chronic disease with genetic, psychosocial, and environmental factors influencing its development and manifestations. The disease is often progressive and fatal. It is characterized by impaired control over drinking, preoccupation with the drug alcohol, use of alcohol despite adverse consequences, and distortions in thinking, mostly denial. Each of these symptoms may be continuous or periodic (Morse, 1992).

In, *The Disease Concept of Alcoholism*, Dr. Elvin Jellinek, describes alcoholics as individuals with tolerance, withdrawal symptoms, and either "loss of control" or "inability to abstain" from alcohol. He maintained that the alcoholic could not drink in moderation, and, with continued drinking, the disease was progressive and life-threatening. Jellinek also recognized that some features of the alcoholic disease where inability to abstain and loss of control were shaped by cultural factors.

Since Jellinek's book was published in 1960, numerous studies by behavioral and social scientists have supported his assertion that alcoholism is a disease. In fact, previous to his book's release, The American Medical Association supported the concept of alcoholism as a disease in 1957. The American Psychiatric Association, the American Hospital Association, the American Public Health Association, the National Association of Social Workers, the World Health Organization and the American College of Physicians have subsequently classified alcoholism as a disease. In the 1970s, researchers' conclusions led to the formulation of determining criteria for an "alcohol dependence syndrome" (Hobbs, 1998).

Alcoholism is widely recognized as a progressive, fatal disease process beyond the control of an individual, not a weakness in character. Alcoholism has specific causes, a predictable course and responds to treatment. Untreated, it causes premature death, reduced productivity and may compromise aviation safety. With proper treatment, most alcoholics will have full and sustained remission. The result is improved health, social relationships, job performance and enhanced aviation safety (Snyder, 2003).

The National Institute for Alcoholism Research has estimated that roughly 7 percent of people in the general population who drink or use drugs may become chemically dependent. Alcohol abuse and dependence affects approximately 5-8 percent of all pilots, similar to the proportions in other professional occupations such as law, medicine and ministry.

The disease does not discriminate among professions, socioeconomic classes, gender, age, education levels or other factors. Nationwide, approximately 13 percent of

those diagnosed with alcoholism are employed in professional/technical careers (Snyder, 2003).

The FAA defines a substance as, “alcohol; other sedatives and hypnotics; anxiolytics; opioids; central nervous system stimulants such as cocaine, amphetamines, and similarly acting sympathomimetics; hallucinogens; phencyclidines or similarly acting arycyclohexyamines; cannabis; inhalants; and other psychoactive drugs and chemicals” (14 CFR 67.107, 207, 307).

The FAA defines Substance Abuse as any event within the preceding two years:

(1) Use of a substance in a situation in which the use has been physically hazardous, if there has been at any other time and instance of a substance also in a situation in which that use was physically hazardous;

(2) A verified positive drug test result conducted under an anti-drug rule or internal program or the U.S. Department of Transportation or any other Administration within the Department of Transportation;

(3) Misuse of a substance that the Federal Air Surgeon, based on case history and appropriate, qualified medical judgment relating to the substance involved, finds –

(i) Makes the person unable to safely perform the duties or exercise the privileges of the airman certificate applied for or held; or

(ii) May reasonably be expected, for the maximum duration of the airman medical certificate applied for or held, to make the person unable to perform those duties or exercise those privileges” (14 CFR 67.107, 207 and 307).

The FAA defines Substance Dependence as a condition in which a person is dependent on a substance, other than tobacco or ordinary xanthine-containing beverages (e.g., caffeine) beverages as evidenced by:

(A) Increased Tolerance;

(B) Manifestation of withdrawal symptoms;

(C) Impaired control of use; or

(D) Continued use despite damage to physical health or impairment of social, personal, or occupational functioning" (14 CFR 67.107, 207 and 307).

The above definition is rather broad. Many circumstances that people may not associate with substance dependence would meet the FAA definition. Examples include:

a. Walking and driving with a blood alcohol content of 0.20 mg/dl (Increased tolerance);
b. Delirium Tremens (DTs'), fast heart rates and irritability (Manifestations of withdrawal symptoms);
c. Drinking more than 5 drinks at a time (binging) or having an "eye opener" (Impaired control)
d. Drinking despite liver test abnormalities, domestic abuse complaints associated with alcohol, divorce or use of sick leave due to hangovers or blackouts (Snyder, 2003).

The FAA Civil Aeromedical Institute (CAMI) reports in its publication *Alcohol and Flying*, approximately 12 percent of all pilots in fatal general aviation accidents over a seven year period had measurable levels of alcohol in their bloodstream at the time of their death.

General aviation has not compiled such an incident/accident-free record (as the airlines). Although the rate of alcohol-related accidents is very low, their results are almost always lethal. From 1996-2001 the National Transportation Safety Board (NTSB) reported that 33 aircraft accidents were determined to be alcohol-related. Approximate 70 percent of those accidents involved fatalities where in total thirty-six people died. Only two cases reported any occupant escaping unharmed (Ibold, 2002).

Aviation, Space and Environmental Medicine reported that approximately 7 percent of U.S. adults are alcoholics. From this statistic, in 1983 Cromwell concluded that, "Perhaps as many as 10 percent were either alcoholics or victims of problem drinking. The U.S. has about 750,000 licensed airmen. Over 60,000 of these are airline transport pilots, 200,000 are commercial pilots, and the remainders are private pilots. Statistically, this would produce a potential of 75,000 problem drinkers in U.S. airmen," (Cromwell, 1983).

According to the Civil Aeromedical Institute (CAMI), a division of the FAA, identifying pilots who have suffered the latent effects of alcohol and drugs but no trace amounts are found in the bloodstream are much more difficult to identify. Even after complete elimination of all of the alcohol in the body, there are undesirable effects-hangover-that can last 48 to 72 hours following the last drink. The hangover effect as produced by alcoholic beverages after the acute intoxication has worn off, and Blood Alcohol Content (BAC) has been restored to 0.00 may potentially be just as dangerous as the intoxication itself. A pilot with hangover effect symptoms such as headache, dizziness, dry mouth, stuffy nose, fatigue, upset stomach, irritability, impaired judgment,

and increased sensitivity to bright light would not be fit to fly. The hangover effect in a pilot would qualify as being "under the influence of alcohol" (FAA Civil Aeromedical Institute, n.d.).

The rate of alcohol elimination is essentially constant for an average, healthy person despite the total amount of alcohol consumed. The rate of elimination of pure alcohol is fairly constant, approximately 1/3 to 1/2 oz. of pure alcohol per hour. In layman's terms, the rate of elimination is the same whether a person consumes low to high amounts of alcohol. Thus, the more alcoholic beverages a person takes in, the increased amount of time it takes that person to eliminate it from his/her system. The brain, eyes, and inner ear are significantly affected by the alcohol in the body. Each of these body systems is critical to a pilot. Impaired reaction time, reasoning, judgment, and memory are some of the results of alcohol on the brain. The brain is limited in its ability to efficiently use oxygen as a result of alcohol in the body. In the air potentially hypoxic situations can be magnified due to simultaneous exposure to altitude, characterized by a decreased partial pressure of oxygen. Visual symptoms are impaired through eye muscle imbalance, leading to double vision and focusing difficulties. Vestibular or inner ear difficulties arise resulting in dizziness and decreased hearing perception. Compound the situation with normally occurring environmental factors such as sleep deprivation, fatigue, medication use, altitude hypoxia, or flying at night or in bad weather, the negative effects can be exponential (FAA Civil Aeromedical Institute, n.d.).

Study of Driving Convictions and Aircraft Accidents/Incidents

In a study conducted by Kathleen McFadden, a researcher at Northern Illinois University, she studied the driving and flying records of over 70,000 airline pilots over a seven-year period, 1986-1992. The results of her study which cross referenced the National Driver Register with the NTSB's aircraft incident/accident database were sobering.

Traffic tickets can be a frequent warning sign of substance abuse. Speeding and other moving violations may be associated with substance use even legally unintoxicated. McFadden attempted to identify a correlation between pilots who are caught driving under the influence and one's who have had an aircraft incident or accident.

Her results showed that those pilots who had received a Driving While Intoxicated (DWI) or Driving Under the Influence (DUI) violation were more likely to have had an aircraft incident or accident. The findings showed that out of 70,164 pilots there were 68,792 that had no DWI/DUI convictions. However, 1,281 pilots had one DWI/DUI conviction and 91 had 2 or more DWI/DUI convictions. In total from 1986-1992 there were 259 aircraft incident/accidents which represents 0.37 percent of the total airline pilot population and 246 aircraft incident/accidents for those pilots who did not have any DWI/DUI violations. Unfortunately though, for those pilots who did receive a DWI/DUI violation the results showed that there were 11 aircraft accidents (0.86 percent) for those who had one violation and 2 aircraft accidents (2.20 percent) for those pilots who had two or more DWI/DUI convictions. These results show a history one DWI/DUI conviction was associated with double the risk of a pilot-error accident. Two or more convictions more than quadrupled the risk -- this despite the fact that no pilot tested

positive for alcohol during any post-accident investigation during the study period. The good news is that 98 percent of the airline pilot population had no convictions of a DWI/DUI.

However, of particular interest is in the 13 cases in which a pilot had both a DWI/DUI conviction and a pilot-error accident, the DWI/DUI preceded the airplane crash 10 times. Recognizably, these numbers are small and some may view them as insignificant. The researcher however used a generous statistical threshold for significance because of the public-safety aspect involved.

Although the FAA now systematically queries the National Driver Register each time an airman applies for a medical certificate. The results of this study raise an important question as to whether a DWI/DUI conviction should be causation to administer a substance abuse/dependence assessment. Additionally, because of the variance time to exercise the privileges of Class 1, 2 and 3 medical certificates, airmen are screened inconsistently.

McFadden's study also showed there was no evidence to support the concept that random alcohol testing is a preventative measure. Random testing may have acted as some form of deterrent for other pilots (McFadden, 1998).

In 2002, a follow-up study was conducted by Professor McFadden to assess the success of the FAA's program that was instituted to deal with pilots convicted of DWI/DUI's. Prior to 1990, the FAA did not take any action against pilots with DWI/DUI convictions unless they did not disclose them on their application for a medical certificate. The new FAA program cross-references the National Driver Register with those pilots applying for a new medical certificate. If a pilot receives two or more

DWI/DUI convictions within a three year period, s/he can have his/her pilot's license revoked.

The follow-up research studied a five-year period prior to the new rules (1986-1990) and five years after the new rules took effect (1993-1997). The results showed that from 1986-1990; 1,478 pilots (0.97 percent) were convicted of a DWI/DUI. From 1993-1997; 2,593 pilots (1.62 percent) were convicted of a DWI/DUI. Disturbingly, McFadden found 29 airline pilots with four DWI/DUI convictions, six with five convictions and three with six. During the period in which the new FAA screening was instituted, as the convictions of DWI/DUI's rose in airline pilots, nationwide in the general population during that same period DWI/DUI convictions dropped by 20 percent. She noted that her finding showed 463 pilots that had multiple convictions during the 10 year study period, most of which evaded FAA penalties. The percentage of pilots with more than one DWI/DUI also increased, going from 0.08 percent to 0.13 percent.

The researcher concluded the FAA's reporting requirements and sanctions against pilots with DWI/DUI convictions was ineffective as a deterrent and that it has not reduced the probability of pilots receiving an initial DWI/DUI violation or subsequent convictions. Unfortunately, the proportion of the pilots receiving DWI/DUI convictions has actually increased during the five-year period studies in which the FAA's new screening program was in place.

McFadden cites that the FAA's program would be more effective if action were taken the first time a pilot received a DUI. Again this evidence supports the concept that pilot's should be evaluated for a substance abuse/dependence problem upon receiving a DWI/DUI conviction. This process may save lives and careers (King, 2002).

Study of Airline Alcohol/Drug Policies

In a 1994-1995 study of air carrier alcohol and drug policies conducted by Christopher Cook of the Kent Institute of Medicine and Health Science Department at the University of Kent in Canterbury, UK 194 airlines were invited to participate. Ninety-two carriers responded to the survey (24 UK and 68 other countries) equating to an overall response rate of 47 percent. Surveys were addressed to the Senior Occupational Physician however many respondents were from Chief Pilots and company executives. Six yes/no format questions were presented as to whether the airline had a company policy regarding:

1) Alcohol consumption by aircrew prior to flight.
2) Illicit drug use by aircrew.
3) Use of prescribed and 'over the counter' medication by aircrew.
4) Screening of aircrew for alcohol/drug misuse.
5) Prevention of alcohol/drug misuse among aircrew.
6) Management of alcohol misuse in aircrew.

The results of question one showed that 76 (82.6 percent) have a company policy on alcohol, 12 (13.0 percent) have no company policy but revert to their respective aviation authority policy, and finally 4 (4.4 percent) have no policy. Question 2 showed the following results: 62 (67.4 percent) have a company policy, 10 (10.9 percent) rely on the aviation authority's policy and 20 (21.7 percent) have no policy. In question three airlines responded that 70 (76.1 percent) have a company policy, 7 (7.6 percent) hold the aviation authority's policy, and 15 (16.3 percent) have no policy. Question 4's screening policy revealed that 18 (19.3 percent) had a company

policy, 6 (6.6 percent) held the aviation authority's policy, and 67 (72.8 percent) had no screening policy. Prevention policies in place at these airlines showed that 27 (30.0 percent) had a company policy, 4 (4.3) relied on the aviation authority policy, and 59 (64.1 percent) had no policy for screening. Finally, airlines showed that in the management of alcohol misuse by aircrew 26 (29.5 percent) had a policy, 7 (8.0 percent) reverted to the aviation authority, and 55 (59.8 percent) had no policy. To summarize the majority of responding airlines surveyed have company policies covering the use of alcohol, illicit and prescribed/over the counter drugs by aircrew. However, only a minority of airlines have a company policy that address screening, prevention, and management of alcohol and drug issues.

In this study, the author concludes that in many cases the question regarding prevention policies were likely unclear and misunderstood. Mr. Cook even speculates that the respondents failed to understand the distinction between policies of prevention of drug and alcohol abuse/dependence and reactive policies.

This survey included a request to responding airlines to provide a copy of written alcohol/drug policies. This allowed the researchers to further qualitatively analyze the dichotomous variables in the questions provided.

The results of this study show that almost all airlines have some type of alcohol/drug policy for pilots. The author concludes that this reflects a perception that these policies are necessary and important relevant to the serious safety risk involved. Alternatively, few airlines have taken more than general measures to screen, prevent and manage alcohol/drug problems in pilots. As the author acknowledges, this survey failed to appropriately define or clarify the difference to the survey respondents. This

information is subsequently supported by the qualitative information submitted in the few written policies submitted.

Mr. Cook speculates how the policies described in the study might be applied in other areas of aviation that have a higher documented incidence of alcohol/drug related incidents and accidents. This study forms a basis for further investigation of alcohol/drug policies in other parts of aviation given improvement in clarification of the survey questions (Cook, 1997).

Pilots in Recovery

"The FAA supports programs that lead the alcoholic aviator to recovery. This recovery program encourages the airman to self-identify, promotes rehabilitation, and ultimately, advances aviation safety" (Borrillo, 2003).

In the 1970s, the Human Intervention Motivation Study (HIMS) grew out of a grant from the National Institute for Alcohol Abuse and Alcoholism. This program which is a cooperative, mutually supportive program between the FAA, Pilot Union and airline allows pilots to seek treatment and rehabilitation that leads to medical certification. An analysis of the program found that with proper treatment the airline pilot rehabilitation rate was successful (92-95%) and cost effective, a Return On Investment (ROI) of $9 for every $1 spent (Borrillo, 2003). Per the HIMS website, www.himsprogram.com over 3500 pilots that have participated in the program are flying today after loss of their medical certificate (Martinez, 2003).

In 2002, 879 1st class, 218 2nd class, and 318 3rd class special issuance medical certificates were issued to substance-dependent pilots, of which 1,415 were for alcoholism, and 79 for illicit drug dependence. Over a three year period, pilots

participating in the HIMS program showed a 10 percent relapse rate according to the Aviation Medicine Advisory Service (Borillo, 2003).

According to Dr. Quay Snyder of Virtual Flight Surgeons there are three choices for companies in addressing recognition, treatment and assistance for alcohol and drug abuse/dependence of its pilots. First, a company can choose to do nothing, essentially ignoring the fact that there may potentially be an issue that arises. In these cases, pilots are at the mercy of corporate policy and FAA regulations. Secondly, an organization may adopt a policy of *Zero Tolerance* which subjects pilots to termination who are discovered even if they seek help. This approach further serves to fuel the disease being hidden, going undiscovered and unreported. Finally, the final strategy is one of a proactive approach. This approach involves compassionate concern and constructive confrontation. The proactive approach does not tolerate behaviors contrary to company or regulatory policies, such as consistently showing up for flights late or under the influence of substances. However, behavioral aspects are treated as separate issues from recognition, treatment and assistance of the disease.

Critical factors in the success of a proactive approach are:

1) Commitment of confidentiality to the employee seeking assistance
2) Non-punitive approach for the employee seeking help
3) Clearly defined, well publicized procedures for seeking help and obtaining treatment that include the consequences of choices given to the employee
4) Adequate medical coverage/insurance
5) Sick leave policy that allows use of this time for treatment
6) Short-term/Long-term disability policy for use during recovery period

7) Cooperation and coordination of insurance/Employee Assistance Program (EAP)
8) Treatment at a credible facility that use professionals in all phases of treatment and extended aftercare programs – all which must be acceptable to the FAA
9) Peer/Fellow pilot monitor active in all aspects of the recovery program (required by the FAA) (Snyder, 2003).

One such proactive approach program is the Human Intervention Motivation Study (HIMS) jointly administered by the FAA, the Airline Pilots Association (ALPA) or the Allied Pilots Association (APA), and respective airline management. The HIMS program allows an avenue for pilots seeking treatment and rehabilitation that leads to early FAA medical certification under special issuance. The HIMS program includes the following elements:

Written Structure

1) A written policy including a mission statement that defines the goals of the program
2) Written company policies clearly stated
3) Clear written guidance describing procedures for each participant in the program to follow

Treatment Continuum

1) Identification of a potential problem
2) Intervention for a specific individual
3) Assessment of whether a problem truly exists by impartial, trained professionals

4) Treatment, including aftercare
5) Continuous monitoring

Medical Certification

1) Careful review of all aspects of treatment continuum
2) Review of monitoring program by company, peers, and medical professionals
3) Certification is not permanent, but is subject to periodic review and documentation of continued sobriety and commitment to a 12-step program.

Education

1) Training for specific groups involved in the program such as – EAP staff, supervisory/management staff, Directors of Aviation/Operations, Chief Pilots, professional standards personnel, peer monitors, entire pilot group and their families.
2) Promotion of the program to reinforce procedures for seeking help.

Evaluation

Finally, regular evaluation of the proactive approach program is necessary for consistent improvement (Snyder, 2003).

Conclusions

The HIMS program is currently being modified for individual corporate aviation organizations by Virtual Flight Surgeons (VFS). Virtual Flight Surgeons is a private practice team of Aviation Medical Examiners (AME's) providing FAA medical certification expertise. Anecdotally, these programs and other policy formation are being created as result of specific alcohol/drug related incidents that have occurred with crew members. Presently, the current status of alcohol and drug policies is unknown in FAR

Part 91 corporate/executive flight departments. Subsequently, there is not an accurate gauge of the potential impact of a HIMS type program for corporate aviation organizations, both in terms of whole numbers of policies but in terms of numbers of pilots assisted.

Further analysis of the status quo is required by studying the types of alcohol/drug policies are currently in place within Part 91 corporate/executive flight operations. Additionally, data are required to understand the prevalence of alcohol and drug related suspicion and incidents that flight department leaders may be facing. Finally, it is vital to the success of a HIMS-type program to assess the corporate aviation leader's familiarity with the program and receptiveness towards the implementation of such policies. This study proposes a plan to address these questions.

In the future, the implementation of a HIMS-type program in corporate aviation operations should be monitored for the degree of qualitative and quantitative success, and the magnitude of its impact on pilots, their organizations and families.

CHAPTER III

METHODS AND PROCEDURES

Study Design

In order to specifically address the research questions posed in this research proposal, the study consisted of a combination of quantitative and qualitative research in a casual-comparative, quasi-experimental design using quasi-replication methodology. This study used Cook's 1994-1995 study that surveyed air crew alcohol and drug policies among international, commercial airlines as a guiding material to create this study. In personal communications with Mr. Cook in May of 2007, the original survey instrument used in his study was no long available and determined to be unrecoverable. Therefore, this study developed survey questions based loosely upon Mr. Cook's final data, conclusions, and recommendations.

Quantitative information was gathered through a series of finite questions. Qualitative information was collected through a series of open-ended questions designed to gather a deeper understanding of answers submitted in the quantitative portion. Additionally, subjects were asked to submit copies copy of written company alcohol and drug policies for further qualitative analysis. In using an instrument that synthesized quantitative and qualitative data it was hoped that the richest information could be obtained about the industry's status quo of written company alcohol/drug policies. This study sought to gain an understanding of the prevalence of suspicion and the rate of addressing substance abuse/dependence issues in flight operations. Additionally, this

study wished to gain insight about leader's familiarity with the FAA's program to return pilots to duty after a substance issue and the level of receptiveness to the addition of policies for the rehabilitation and job recovery of pilots. Finally, through analysis it is hoped that conclusions can be drawn about the relationship of those corporate/executive flight operations which have alcohol/drug policies and those that do not.

Instrument

The survey instrument included the collection of demographic information, six groupings of questions and one request for submission. The demographic data collected were: Number of Pilots, Number of Aircraft, and Types of Aircraft (noting multiples of same aircraft type). The first three groupings of questions attempted to identify the prevalence of three types of written (general, rehabilitation, job retention/recovery) alcohol/drug policies within FAR Part 91 corporate/executive operations. These three groupings of questions each included: a) Dichotomous, Yes/No question regarding the status quo of written drug/alcohol policies, b) Likert-scale type question asking the decision maker to rank between 1-5 how important having the policies were, and c) Free form area asking the participant to discuss why these policies were or were not important. The fourth and fifth grouping of questions sought to identify the if participants had ever suspected substance issues with air crew members and whether or not they had ever had to address substance issues with pilots. These questions asked the participant to answer one dichotomous, Yes/No question for each. The sixth grouping of questions sought to identify the familiarity with the HIMS program and the receptiveness of implementing an alcohol/drug policy that included rehabilitation and job retention/recovery into the participants' flight operation. The participant was asked the following: a) Likert-scale

type question asking the leader to rank between 1-5 the level of familiarity with the HIMS program, b) One Ranking, Yes/Maybe/No question to identify whether or not the participants' company/department would consider implementation of pilot rehabilitation and job retention/recovery policy, c) Free form area asking the participant to discuss why they would or would not consider such a policy. Finally, the last question of the survey asked the participant if they are willing to be contacted by the Principle Investigator who would arrange to obtain copies of written alcohol/drug policies for further qualitative analysis. This section additionally notes protection of any information submitted and that it is treated a confidential. See Appendix A for a sample of the survey created.

Instrument Reliability and Validity

In order to insure validity of the survey instrument, a panel of five industry and educational experts were selected to review the content of the questionnaire. The team of educational and industry experts were drawn from the John D. Odegard School for Aerospace Sciences at the University of North Dakota and Virtual Flight Surgeons. The experts that provided several rigorous reviews of and final approval for the content validity of the instrument were: Warren Jensen, M.D.; Paul Lindseth, PhD; Thomas Petros, PhD; Doug Marshall, J.D.; and Quay Snyder, M.D.

Sample

For the purposes of this study, the population was limited to those FAR Part 91 Corporate/Executive Operators represented as members of the National Business Aviation Association (NBAA). NBAA is the primary organization representing business aviation operators that include corporate/executive flight operations in addition to other entities such as FAR Part 135 Charter Operators and FAR Part 91 Subpart K Fractional

Operations. The NBAA has the most comprehensive and mission-categorized membership of corporate/executive operations of any representative organization. According to NBAA, the organization represents approximately 60 percent of all corporate/executive flight departments operating today (NBAA, 2005).

The disparity of represented operators and aircraft is due to many corporate/executive flight departments operating single aircraft and opting not to join the NBAA membership. Although representative membership fluctuates, in whole numbers NBAA estimates that the organization represents approximately 4,600 FAR Part 91 corporate/executive operators (NBAA, 2005).

The NBAA 2006 Membership Directory was used to select convenience sample of participant invitees based upon published email addresses of corporate flight department leaders. A total of 1,641 email addresses were compiled by hand from a hardcopy version of the membership directory to create the convenience sample.

Due to statistical power concerns researchers would have liked to have achieved a large response rate. However, researchers are confident that the response rate achieved fell within the appropriate range. Using logistic regression an appropriate sample size also fell within the acceptable range.

Protection of Human Subjects

The research proposal was reviewed by the human subjects committee of the Institutional Review Board (IRB) at the University of North Dakota. The IRB granted Exempt/Expedited Review of the project on September 14, 2007. The research project proposal to the IRB included a copy of informed consent for participants. The first page of the survey instrument contained the informed consent page. Potential participants

were informed of the size, scope, length, cost and benefits of the survey and were given the option of discontinuing the survey at any time. Respondents were informed of the risk of their involvement and how to where help could be sought if they experienced difficulty with the subject matter. Participants were also given information about privacy of the information submitted and how data would be coded. Finally, contact information for the Principal Investigator, graduate committee and IRB were given. In order to precede to the survey questions, participants were required to select the option *I Accept*. Alternatively, prospective participants were given the option of selecting the option *I Decline*.

Raw data is to be stored for a minimum of three years after data analysis is complete. This meets the sufficient time frame required by federal, state, and local regulations, sponsor requirements, and organizational policies and procedures.
The Principal Investigator established an account with Survey Monkey for the duration of the study which guaranteed privacy and security through an encryption process. The Survey Monkey account could only be accessed by private account name and password. The raw data was downloaded to the Principal Investigator's private computer and will be retained securely by the PI for the required time period.

Data Collection

The survey invitation was emailed to the selected sample of 1,641 flight department leaders via SurveyMonkey.com. The invitation provided a direct web link to the secure third-party vendor website, Survey Monkey which specializes in online survey administration. Using an online survey company provided numerous advantages such as the speed and ease of distribution of the survey, constant monitoring of response rates,

automation of reminder messages and the ability to securely store raw data.

The email invitation gave a brief explanation of the purpose of the survey and contact information for the Principle Investigator. Participants were asked in the invitation to complete the survey within 15 days. Follow up reminder emails requesting participation occurred seven days and two days prior to the deadline date. See Appendix B for a sample of the email invitation.

The survey was launched on October 15, 2007. Data collection lasted for through the 31st of October 2007. In the initial mailing, some email invitations were undeliverable; 293 email addresses were determined to be invalid or were filtered through a spam blocker to decline the message. A reminder message was sent to those who had not yet responded to the survey on October 24th. The reminder email was distributed to 1,213 people of those 33 messages were undeliverable or were declined. Finally, on October 31st a final reminder message was sent to 1,101 people, no messages were undeliverable. By capturing the amount of returned email invitations and tracking when invitations were responded to, it was calculated that 1, 298 people received the invitation(s) in their email inbox. Thus the sample population for this survey was 1,298 people. From the invitation, invitees were given the choice of opting out of the survey; 31 people exercised this option. Two-hundred and fifty-five (255) flight department leaders responded to the survey by following the web link to begin the survey. Two of these people contacted the Principle Investigator to indicate that due to security features enabled on their computers they could not follow the web link provided in the email invitation. An alternate link option was provided that allowed them to cut and paste the link into their web browser provided to these people to complete the survey. Of the 255

people who began the survey, 6 people declined the informed consent, leaving 249 potential participants.

The scope of this survey was limited to FAR Part 91 Corporate Flight Operations. Measures were taken to limit the email invitation to those operating exclusively under FAR Part 91 prior to the mailing. However, to ensure that respondents did in fact operate under Part 91 rules only, the first question of the survey asked participants to indicated what FAR regulatory Part(s) the operated under. Of the 249 people responding to this question, 221 participants were determined to qualify to continue the survey. The participants that did not qualify either operated under multiple regulatory rules, an alternate regulatory Part or did not answer, thus eliminating these people from continuing the survey.

Data Analysis

Following the closure of the survey, raw data was exported from the online survey administrator, Survey Monkey. The download function from Survey Monkey allowed for quantitative data to be coded in numerical form for those questions that were categorical. Both quantitative and qualitative raw data was exported and downloaded into a Microsoft Excel spreadsheet. The Principal Investigator was then easily able to manipulate the data by sorting to extract quantitative from the qualitative data, while still maintaining the integrity of the entire raw data set. Quantitative data was then cut and pasted into the data view of the Statistical Package for the Social Sciences (SPSS). In SPSS, the raw data for Likert scales and categorical were then coded in the variable view.

In an effort to gather the richest information possible about the subject area a synthesis of descriptive and inferential quantitative statistics were used. Additionally,

qualitative data was analyzed in order to identify common themes.

The independent variables chosen included: 1) demographic information collected: number of pilots, number of aircraft and type(s) of aircraft, 2) reported importance rating of these written alcohol/drug policies (general, rehabilitation and job retention/recovery) 3) participants' reported suspicion of alcohol/drug issues in air crew members and reported events of actually addressing alcohol/drug issues, 4) familiarity with the FAA's HIMS program, and 5) and receptiveness of instituting drug/alcohol rehabilitation and job recovery policies for pilots. Dependent variables included the existence of written alcohol/drug policies (general, rehabilitation and job retention/recovery).

Quantitative data gathered were first analyzed using descriptive statistics. Raw numerical data and percentages were calculated for categorical data. Frequency distributions, means, modes, medians, standard deviations, variances, skewness, standard errors of skewness, ranges, minimums, maximums and sums were also calculated and analyzed for continuous data. Inferential statistics were used to calculate correlations and regression using non-parametric statistical tests. Statistical tests of the data were administered through SPSS.

Correlations were calculated to identify relationships between the existence of alcohol/drug policies (general, rehabilitation and job retention/recovery) and demographic information of flight department size, importance rating of the respective policies (general, rehabilitation and job retention/recovery), suspicion of and actual addressing of alcohol/drug issues with pilots, familiarity with the HIMS program and receptiveness to instituting a policy inclusive of rehabilitation and job retention/recovery.

The Point Biserial coefficient (r_{pb}) statistic was used to calculate the correlation between the dependent variables of policy existence (general, rehabilitation and job retention/recovery) and the independent variables: number of pilots, importance rating of the respective policy, familiarity level with the HIMS program and receptiveness. This statistical test was chosen due to the dichotomous, categorical nature of the dependent variable of either having a policy or not.

The Phi coefficient (Φ) statistic was used to calculate the correlation between the dependent variables of policy existence (general, rehabilitation and job retention/recovery) and the independent variables: existence of suspicion and actual addressing of alcohol/drug issues with pilots. This statistic was chosen due to the dichotomous, categorical nature of both the dependent and independent variables.

Logistic regression statistical analyses were performed for each data set to assess the relationship between the predictors (size, importance levels, suspicion and/or addressing of an alcohol/drug issue with a pilot, familiarity level with the HIMS program and receptiveness to implementing a policy that includes rehabilitation and job retention/recovery) and the outcomes of having a (general alcohol/drug, rehabilitation and job retention/recovery) policy or not. This regression test was chosen due to the dichotomous, categorical nature of the dependent variables of policy (general alcohol/drug, rehabilitation and job retention/recovery) existence.

Qualitative data gathered through free form questions supporting quantitative data were evaluated for common themes, unique perspectives and divergent content. This data was then evaluated within the context of quantitative answers given by respondents, thereby giving a robust depth to answers given in the survey. Qualitative data gathered

from submissions of written alcohol/drug policies currently in place in flight operations were evaluated for common themes, unique content, and reported accordingly.

CHAPTER IV

FINDINGS

Quantitative Analysis

Descriptive Statistics

This research study was designed to gain insight about the status quo of alcohol/drug (general, rehabilitation and job retention/recovery) policies for FAR Part 91 corporate/executive flight operations. Overall, researchers sought to determine the distribution of the answers to each of the questions posed in the study using descriptive statistics.

The initial phase of the survey involved the collection of demographic information. Survey participants were asked how many pilots were employed by their flight department, 216 people answered this question, and 5 people omitted the question. The total number of pilots employed by these companies was 1,219 with an average flight department size of 5.64 (or 6) pilots per flight department. Participants were then asked the total number of aircraft operated by their flight departments. 214 people answered this question, 7 people omitted the question. The total number of aircraft operated by these companies was 473 with an average of 2.21 (or 2) aircraft per flight operation. In a freeform answer, participants were then asked to identify which types of aircraft that their flight department operated. 209 people answered the question with 12 people opting to not list the specific aircraft equipment. In reviewing the data

collected, there were seven respondents that began the survey answering the first two demographic questions, but no more. These responses were removed from the dataset.

In the General Alcohol/Drug Policy section, participants were asked if their flight operation had a written alcohol/drug policy in place for pilots. Two-hundred and nine (209) people answered this question and 12 omitted the question. Of the respondents, 142 (67.9%) indicated that they did have a written policy in place and 67 (32.1%) indicated that they did not have a written policy in place in their flight operation. See Table 1 for the frequency distribution of written alcohol/drug policies. When further asking the participants opinion of how important it was for Business Aviation flight operations to have written alcohol/drug policies in place for pilots, 209 people answered this question with 12 skipping the question. The distribution of results from those answering showed 7 (3.3%) indicated it was not important, 16 (7.7%) said it was of minor importance, 35 (16.7%) noted they were neutral on the subject, 53 (25.4%) said it was important and 98 (46.9%) said it was very important to have written policies. See Table 2 for the frequency distribution of the importance rating for general alcohol/drug policies. From this question, participants were asked to indicate why a written policy was important or not; 150 participants wrote freeform answers to this question, 59 people declined the freeform answer.

Table 1 Frequency Distribution of Written General Alcohol/Drug Policies

D/A Policy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	67	31.6	32.1	32.1
	Yes	142	67.0	67.9	100.0
	Total	209	98.6	100.0	
Missing	999 (Missing)	3	1.4		
Total		212	100.0		

Table 2 Frequency Distribution of Importance Levels of General Alcohol/Drug Policies

Importance of D/A Policy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Important	7	3.3	3.3	3.3
	Minorly Important	16	7.5	7.7	11.0
	Neutral	35	16.5	16.7	27.8
	Important	53	25.0	25.4	53.1
	Very Important	98	46.2	46.9	100.0
	Total	209	98.6	100.0	
Missing	999	3	1.4		
Total		212	100.0		

In the rehabilitation section of the survey, participants were asked if their flight operation had a written alcohol/drug policy that specifically addressed the rehabilitation of pilots who have alcohol or drug issues. Two-hundred and six (206) people answered this question with 12 skipping the question. Participants indicated that 41 (19.9%) do have a written policy regarding rehabilitation and 165 (80.1%) do not. See Table 3 for the frequency distribution of written rehabilitation policies. When asked how important it is for Business Aviation flight operations to have written alcohol/drug policies that specifically address the rehabilitation of pilot who have alcohol or drug issues, 206 participants rated their opinion, while 15 people omitted the question. Participant ratings ranged from 26 (12.6%) indicating it was Not Important, to 24 (11.7%) indicating this being Minorly Important, to 81 (39.3%) noting a Neutral position, to 42 (20.4%) saying it was Important and 33 (16.0%) rating this as Very Important. See Table 4 for the frequency distribution of the importance rating for rehabilitation policies. From this question, participants were asked to indicate why a written rehabilitation policy was important or not; 126 participants wrote freeform answers to this question, 80 declined the freeform answer.

Table 3 Frequency Distribution of Written Rehabilitation Policies

Rehab Policy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	165	77.8	80.1	80.1
	Yes	41	19.3	19.9	100.0
	Total	206	97.2	100.0	
Missing	999	6	2.8		
Total		212	100.0		

Table 4 Frequency Distribution of Importance Levels of Rehabilitation Policies

Importance of Rehab Policy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Important	26	12.3	12.6	12.6
	Minorly Important	24	11.3	11.7	24.3
	Neutral	81	38.2	39.3	63.6
	Important	42	19.8	20.4	84.0
	Very Important	33	15.6	16.0	100.0
	Total	206	97.2	100.0	
Missing	999	6	2.8		
Total		212	100.0		

In the job retention/recovery section, participants were first asked if their flight department had a written policy that specifically addressed the job retention/recovery of pilots who have alcohol or drug issues. Two-hundred and two (202) participants answered the question and 19 omitted the question. Of those who answered, 32 (15.8%) people said that their flight operation had a written policy addressing job recovery or retention and 170 (84.2%) indicated that they did not such a written policy. See Table 5 for the frequency distribution of written job retention/recovery policies. Participants were then asked to rate (in their opinion) the importance of having written policies on job recovery/retention for pilots who have had alcohol or drug issues. Two-hundred and two (202) participants rated the importance levels and 19 people omitted the question. Rating ranged from 27 (13.4%) noting that this was Not Important, 20 (9.9%) said this was

Minorly Important, 85 (42.1%) rating themselves as having a Neutral position, 42 (20.8%) said the issue was Important and 28 (13.9%) showed this area as being Very Important. See Table 6 for the frequency distribution of the importance rating for general alcohol/drug policies. From this question, participants were then asked to indicate why or why not in a freeform answer, of which 102 people made written commentary about their rating.

Table 5 Frequency Distribution of Written Job Retention/Recovery Policies

Job Retention/Recovery Policy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	172	81.1	85.1	85.1
	Yes	30	14.2	14.9	100.0
	Total	202	95.3	100.0	
Missing	999	10	4.7		
Total		212	100.0		

Table 6 Frequency Distribution of Importance Levels of Job Retention/Recovery Policies

Importance of Job Retention/Recovery Policy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Important	27	12.7	13.4	13.4
	Minorly Important	20	9.4	9.9	23.3
	Neutral	85	40.1	42.1	65.3
	Important	42	19.8	20.8	86.1
	Very Important	28	13.2	13.9	100.0
	Total	202	95.3	100.0	
Missing	999	10	4.7		
Total		212	100.0		

In the Alcohol/Drug Issues section participants were asked first if they had ever been suspicious that a pilot in their flight operation might have some kind of alcohol or drug issue. Two-hundred and three (203) people answered the question of which 50 (24.6%) indicated Yes they did have suspicions and 153 (75.4%) said No they had never

suspected any pilot of having an alcohol or drug issue. Eighteen (18) people omitted the question. See Table 7 for the frequency distribution of suspecting an alcohol/drug issue with pilots. In the second portion of this section, participants were asked if they had ever had to address an alcohol or drug issue with a pilot in their flight operation. 203 people answered this question, of which 47 (23.2%) said Yes they have had to address an alcohol or drug issue with a pilot in their flight operation and 156 (76.8%) said they had never had to address this issue. Eighteen (18) people omitted the question. See Table 8 for the frequency distribution of actually addressing an alcohol/drug issue with pilots.

Table 7 Frequency Distribution of Suspicion of Alcohol/Drug Issues

Suspect D/A Problem

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	153	72.2	75.4	75.4
	Yes	50	23.6	24.6	100.0
	Total	203	95.8	100.0	
Missing	999	9	4.2		
Total		212	100.0		

Table 8 Frequency Distribution of Addressing Alcohol/Drug Issues

Actual Addressing D/A Problem

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	156	73.6	76.8	76.8
	Yes	47	22.2	23.2	100.0
	Total	203	95.8	100.0	
Missing	999	9	4.2		
Total		212	100.0		

In the Incorporation of Written Alcohol/Drug Policies section, participants where asked to rate their familiarity with the voluntary FAA program, the Human Intervention Motivation Study (HIMS) to return pilots diagnosed with alcohol and drug issues to flying with the cooperation of the employer. Two-hundred and two (202) people rated

their familiarity with the HIMS program and 19 omitted the question. The distribution of familiarity ratings ranged from those who were Unfamiliar (Never heard of the HIMS program), 132 (65.3%); to those who were Somewhat Familiar (Heard of the HIMS program, but did not know where to obtain details), 57 (28.3%); to those Familiar (Have obtained HIMS program details and know where to obtain additional information), 10 (5.0%); to those Very Familiar (Have used the HIMS program as guidance in developing their own departmental alcohol & drug policy), 2 (1.0%); and those who were Extremely Familiar (Implemented a HIMS program in their flight department), 1 (0.5%). See Table 9 for the frequency distribution of familiarity level with the HIMS program. In the second half of this section, participants where asked if their flight department would consider a written alcohol/drug policy for the rehabilitation and job retention/recovery of pilots if a proven, successful template was provided. Two-hundred and two (202) people answered the question of which 51 (25.2%) indicated that Yes they would, 97 (48.0%) indicated Maybe and 54 (26.7%) said No. Nineteen (19) people omitted the question. See Table 10 for the frequency distribution of receptiveness to implementation of a rehabilitation and job retention/recovery policy. Upon completion of this question, participants were asked to give a freeform notation of why or why not, 92 people responded.

Descriptive statistics were calculated to further describe continuous data. See Table 11 for the illustration of the descriptive statistics of the data collected.

Table 9 Frequency Distribution of Levels of Familiarity with the HIMS Program

How Familiar w/ HIMS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Unfamiliar	132	62.3	65.3	65.3
	Somewhat Familiar	57	26.9	28.2	93.6
	Familiar	10	4.7	5.0	98.5
	Very Familiar	2	.9	1.0	99.5
	Extremely Familiar	1	.5	.5	100.0
	Total	202	95.3	100.0	
Missing	999	10	4.7		
Total		212	100.0		

Table 10 Frequency Distribution of Receptiveness of Implementing an Alcohol/Drug Policy that Includes Rehabiliation and Job Retention/Recovery

How Receptive to Policy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	54	25.5	26.7	26.7
	Maybe	97	45.8	48.0	74.8
	Yes	51	24.1	25.2	100.0
	Total	202	95.3	100.0	
Missing	999	10	4.7		
Total		212	100.0		

Table 11 Descriptive Statistics of Continuous Data

Statistics

		# Pilots	# Aircraft	Importance of D/A Policy	Importance of Rehab Policy	Importance of Job Retention/ Recovery Policy	How Familiar w/ HIMS	How Receptive to Policy
N	Valid	212	210	209	206	202	202	202
	Missing	0	2	3	6	10	10	10
Mean		5.63	2.19	4.05	3.16	3.12	1.43	.99
Std. Error of Mean		.379	.116	.077	.084	.083	.048	.051
Median		3.00	2.00	4.00	3.00	3.00	1.00	1.00
Mode		2	1	5	3	3	1	1
Std. Deviation		5.519	1.678	1.117	1.204	1.178	.682	.723
Variance		30.461	2.815	1.248	1.449	1.389	.465	.522
Skewness		2.191	1.905	-1.014	-.184	-.214	1.868	.022
Std. Error of Skewness		.167	.168	.168	.169	.171	.171	.171
Kurtosis		5.185	4.402	.161	-.634	-.517	4.545	-1.072
Std. Error of Kurtosis		.333	.334	.335	.337	.341	.341	.341
Range		32	10	4	4	4	4	2
Minimum		1	1	1	1	1	1	0
Maximum		33	11	5	5	5	5	2
Sum		1194	460	846	650	630	289	199

In the final section, Optional Written Policy Submission, participants were asked if they were willing to be confidentially contacted by the Principal Investigator to arrange a convenient way to submit a copy of their written flight operations alcohol/drug policy. One-hundred and ninety-seven (197) people answered the question and 24 people omitted the question. One-hundred and sixty (160) (81.2%) people declined to be contacted and 37 (18.8%) people indicated their willingness to be contacted by the PI and to submit a copy of their policies regarding alcohol and drugs. For those participants agreeing to be contacted, the survey routed them to a page where they could fill in contact information for a follow up to the survey.

Inferential Statistics

In structuring the survey instrument, demographic information about the size of corporate flight operations was collected. However, the Principal Investigator had to assess which variables accurately defined flight department size in terms of this research study. Was size the number of pilots, the number of aircraft, aircraft types or a complex combination? In the free form area in which participants could report their aircraft type(s) and number of each aircraft, there was a wide variability in how each person reported or coded the types of aircraft in their flight operation. Additionally, there currently is no universally accepted practice of coding to identify the size of an aircraft by its type certification. This variability in interpretation became increasingly complicated when there were different aircraft types within a flight operation, which was very commonly reported. Because of this reason, aircraft types were determined to be a less optimal choice in identifying flight department size.

Upon reviewing the raw demographic data of number of pilots and number of aircraft, there was an assumption that there would be a fairly high correlation between these two factors, i.e., it takes more pilots to fly more airplanes. While this assumption is not entirely linear, it proved to be fairly accurate with Pearson's product-moment correlation value of $r(210) = 0.854$, $p = 0.05$. Ultimately it was determined that for this particular study size would be determined by the number of pilots rather than the number of aircraft. Valid arguments can be made that leaders regard size as also being a function of the number of aircraft, size of equipment, or even mission of the operation. However, this decision to use the number of pilots in the flight operation as a measure of size was made because this research is centered on the challenges of human factor, rather than of the aircraft.

Hypothesized Findings

It was hypothesized that an increase in the factors of: size (number of pilots), importance level of written general alcohol/drug policies, suspicion of and/or actually addressing an alcohol/drug issue with a pilot, familiarity level with the HIMS program and receptiveness to implementing a policy that included rehabilitation and job retention/recovery would effect the odds of having a written alcohol/drug policy in place. Appropriate statistical tests were calculated to test this hypothesis.

The Point-Biserial (r_{pb}) and Phi (Φ) correlations (two-tailed design) for general alcohol/drug policy and the independent variables were calculated and are reported as follows:

- Number of Pilots, $r_{pb}(209) = 0.343^*$, $p = 0.05$
- Importance of a Written Alcohol/Drug Policy, $r_{pb}(207) = 0.699^*$, $p = 0.05$

- Suspicion of an Alcohol/Drug Issue, $\Phi(200) = 0.173^*$, $p = 0.01$
- Actually Addressing an Alcohol/Drug, $\Phi(200) = 0.102$, $p = 0.05$
- Familiarity Level with the HIMS Program, $r_{pb}(200) = 0.082$, $p = 0.05$
- Receptiveness to Rehabilitation and Job Retention/Recovery Policy, $r_{pb}(200) = 0.010$, $p = 0.05$

These calculations revealed significance at the $\alpha = 0.05$ level for the three independent variables of number of pilots, importance of having a written alcohol/drug policy and suspicion of an alcohol/drug issue with a pilot. However, for the variables of actually addressing an alcohol/drug issue with a pilot, familiarity level with the HIMS program and receptivity to implementing a rehabilitation and job retention/recovery policy there was not a significant correlation, therefore we fail to reject the null hypothesis of no effect in these cases.

A logistic regression was performed for these variables. The results showed that only the number of pilots, $p = 0.004$ and the level of importance of having this respective policy, $p = 0.000$ were of significance. For these variables we reject the null hypothesis that no effect occurred. Having suspicion of an alcohol/drug issue with a pilot did not produce a level significance in the regression analysis, thus we fail to reject the null hypothesis of no effect with this variable.

Effect size was also calculated for those variables significantly contributing to having a written general alcohol/drug policy in place. For every pilot added to the flight operation the odds of having a written alcohol/drug policy in place increases by 1.4 times. This finding shows significant contribution of size to whether or not a flight operation has a written alcohol/drug policy in place. Additionally, for those leaders that increase the

level of importance (of having a written general alcohol/drug policy) by one unit, the odds of having a written policy in place increase over six fold. This finding shows a powerful contribution of the effect of importance to whether or not a flight operation has a policy in place or not. See Table 12 for the classification table and Table 13 for a synthesis of the regression analysis of general alcohol/drug policies.

Table 12 Classification for the Prevalence of General Alcohol/Drug Policies

Classification Table[a]

Observed			Predicted		
			D/A Policy		Percentage Correct
			No	Yes	
Step 1	D/A Policy	No	46	17	73.0
		Yes	9	127	93.4
	Overall Percentage				86.9

a. The cut value is .500

Table 13 Regression Analysis for General Alcohol/Drug Policies

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Pilots	.306	.106	8.386	1	.004	1.358
	ImpDAPolicy	1.856	.284	42.823	1	.000	6.401
	SuspectProb(1)	-.351	.972	.131	1	.718	.704
	AddressProb(1)	.230	.968	.056	1	.812	1.258
	FamHIMS	-.135	.329	.169	1	.681	.874
	RecToPolicy	-.274	.334	.672	1	.412	.760
	Constant	-7.034	1.392	25.525	1	.000	.001

a. Variable(s) entered on step 1: Pilots, ImpDAPolicy, SuspectProb, AddressProb, FamHIMS, RecToPolicy.

It was hypothesized that an increase in the factors of: size (number of pilots), importance level of written rehabilitation policies, suspicion of and/or actually addressing an alcohol/drug issue with a pilot, familiarity level with the HIMS program and receptiveness to implementing a policy that included rehabilitation and job retention/recovery would effect the odds of having a rehabilitation policy in place. Appropriate statistical tests were calculated to test this hypothesis.

The Point-Biserial (r_{pb}) and Phi (Φ) correlations between written rehabilitation policy and the independent variables were calculated and are reported as follows:

- Size (Number of Pilots), $r_{pb}(206) = 0.224^*$, $p = 0.05$
- Importance of Having a Written Rehabilitation Policy, $r_{pb}(204) = 0.542^*$, $p = 0.05$
- Suspicion of an Alcohol/Drug Issue, $\Phi(202) = 0.224^*$, $p = 0.05$
- Actually Addressing an Alcohol/Drug Issue, $\Phi(202) = 0.188^*$, $p = 0.05$
- Familiarity Level with the HIMS Program, $r_{pb}(201) = 0.131$, $p = 0.05$
- Receptiveness to Rehabilitation and Job Retention/Recovery Policy, $r_{pb}(201) = -0.008$, $p = 0.05$

These calculations revealed significance at the $\alpha = 0.05$ level for the four independent variables of number of pilots, importance of having a rehabilitation policy, suspicion of and actually addressing an alcohol/drug issue with a pilot. However, for the variables of familiarity level with the HIMS program and receptivity to implementing a rehabilitation and job recovery/retention policy there was not a significant correlation, therefore we fail to reject the null hypothesis of no effect in these cases.

A logistic regression was performed for these variables. The results showed that only the level of importance of having this respective policy, $p = 0.000$ was of significance. For this variable we reject the null hypothesis of no effect. The number of pilots, suspicion of and actually addressing an alcohol/drug issue with a pilot did not produce a level significance in the regression analysis, thus we fail to reject the null hypothesis of no effect with these variables.

Effect size was also calculated for the importance rating of having a rehabilitation policy significantly contributing to having a written rehabilitation policy in place. For

those leaders that increase the level of importance (of having a written rehabilitation policy) by one unit, the odds of having a written policy in place increases nearly seven fold. This finding shows a powerful contribution of the effect of importance to whether or not a flight operation has this type of policy in place or not. See Table 14 for the classification table and Table 15 for a synthesis of the regression analysis for rehabilitation polices.

Table 14 Classification for the Prevalence of Rehabilitation Policies

Classification Table[a]

Observed			Predicted		
			Rehab Policy		Percentage Correct
			No	Yes	
Step 1	Rehab Policy	No	150	10	93.8
		Yes	15	25	62.5
	Overall Percentage				87.5

a. The cut value is .500

Table 15 Regression Analysis for Rehabilitation Policies

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Pilots	.035	.037	.857	1	.355	1.035
	SuspectProb(1)	.115	.680	.029	1	.865	1.122
	AddressProb(1)	-.887	.695	1.629	1	.202	.412
	FamHIMS	.032	.305	.011	1	.916	1.033
	RecToPolicy	-.125	.339	.135	1	.713	.883
	ImpRHBPolicy	1.903	.312	37.133	1	.000	6.707
	Constant	-8.126	1.403	33.553	1	.000	.000

a. Variable(s) entered on step 1: Pilots, SuspectProb, AddressProb, FamHIMS, RecToPolicy, ImpRHBPolicy.

It was hypothesized that an increase in the factors of: size (number of pilots), importance level of written job retention/recovery policies, suspicion of and/or actually addressing an alcohol/drug issue with a pilot, familiarity level with the HIMS program and receptiveness to implementing a policy that included rehabilitation and job

retention/recovery would effect the odds of having a written job retention/recovery policy in place. Appropriate statistical tests were calculated to test this hypothesis.

The Point-Biserial (r_{pb}) and Phi (Φ) correlations between written rehabilitation policy and the independent variables were calculated and are reported as follows:

- Number of Pilots, $r_{pb}(202) = 0.207^*$, $p = 0.05$
- Importance of Having a Written Job Retention/Recovery Policy, $r_{pb}(201) = 0.505^*$, $p = 0.05$
- Suspicion of an Alcohol/Drug Issue, $\Phi(202) = 0.115$, $p = 0.05$
- Actually Addressing an Alcohol/Drug Issue, $\Phi(202) = 0.067$, $p = 0.05$
- Familiarity Level with the HIMS Program, $r_{pb}(201) = 0.082$, $p = 0.05$
- Receptiveness to Rehabilitation and Job Retention/Recovery Policy, $r_{pb}(201) = -0.021$, $p = 0.05$

These calculations revealed significance at the $\alpha = 0.05$ level for the two independent variables of number of pilots and importance of having a job retention/recovery policy. However, for the variables of suspicion of and actually addressing an alcohol/drug issue with a pilot, familiarity level with the HIMS program and receptivity to implementing a rehabilitation and job recovery/retention policy there was not a significant correlation, therefore we fail to reject the null hypothesis in these cases.

A logistic regression was performed for these significant variables. The results showed that only the level of importance of having this respective policy, $p = 0.000$ was of significance. For this variable we reject the null hypothesis. The number of pilots did

not produce a level significance in the regression analysis, thus we fail to reject the null hypothesis with this variables.

Effect size was also calculated for the importance rating of having a job retention/recovery policy significantly contributing to having a written job retention/recovery policy in place. For those leaders that increase the level of importance (of having a written rehabilitation policy) by one unit, the odds of having a written policy in place increases nine fold. This finding shows a powerful contribution of the effect of importance to whether or not a flight operation has this type of policy in place or not. See Table 16 for the classification table and Table 17 for a synthesis of the regression analysis for job retention/recovery policies.

Table 16 Classification for the Prevalence of Job Retention/Recovery Policies

Classification Table[a]

Observed			Predicted		
			Job Retention/Recovery Policy		Percentage Correct
			No	Yes	
Step 1	Job Retention/Recovery Policy	No	162	8	95.3
		Yes	12	18	60.0
	Overall Percentage				90.0

a. The cut value is .500

Table 17 Regression Analysis for Job Retention/Recovery Policies

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Pilots	.062	.039	2.457	1	.117	1.063
	SuspectProb(1)	-.135	.779	.030	1	.863	.874
	AddressProb(1)	-.181	.795	.052	1	.820	.834
	FamHIMS	.005	.377	.000	1	.989	1.005
	RecToPolicy	-.737	.407	3.284	1	.070	.478
	ImpJobRetPolicy	2.215	.384	33.300	1	.000	9.160
	Constant	-9.591	1.680	32.592	1	.000	.000

a. Variable(s) entered on step 1: Pilots, SuspectProb, AddressProb, FamHIMS, RecToPolicy, ImpJobRetPolicy.

Non-hypothesized Findings

In running the statistical correlations for hypothesized data, the PI entered all variables. The following data derived from these test represents significant, but non-hypothesized findings. This information could formulate the basis for future research.

The number of pilots in the flight operation was found to be statistically significant when correlated with the following:

- Importance of having a written alcohol/drug policy, r(209) = 0.317, $p = 0.05$
- Importance of having a written rehabilitation policy, $r(206) = 0.209$, p = 0.05
- Importance level of written job retention/recovery policy, $r(202) = 0.172$, $p = 0.01$
- Having suspected a pilot of having an alcohol/drug issue, $r_{pb}(203) = 0.227$, $p = 0.05$
- Having to address an alcohol/drug issue with a pilot in the flight operation, $r_{pb}(203) = 0.244$, $p = 0.05$
- Familiarity level with the HIMS program, $r(202) = 0.229$, $p = 0.05$

Having a written alcohol/drug policy in place was found to be statistically significant when correlated with the following:

- Having a written rehabilitation policy, $\Phi(203) = 0.311$, $p = 0.05$
- Importance level of having a written rehabilitation policy, $r_{pb}(203) = 0.250$, $p = 0.05$
- Having a written job retention/recovery policy, $\Phi(199) = 0.257$, $p = 0.05$
- Importance level of written job retention/recovery policy, $r_{pb}(199) = 0.222$, $p = 0.05$

The importance level of having a written alcohol/drug policy in place was found to be statistically significant when correlated with the following:

- Having a written rehabilitation policy, $r_{pb}(204) = 0.286$, $p = 0.05$
- Importance level of having a written rehabilitation policy, $r(204) = 0.403$, $p = 0.05$
- Having a written job retention/recovery policy, $r_{pb}(200) = 0.191$, $p = 0.05$
- Importance level of having a written job retention/recovery policy, $r(200) = 0.367$, $p = 0.05$
- Having suspected a pilot of having an alcohol/drug issue, $r_{pb}(201) = 0.210$, $p = 0.05$
- Having addressed an alcohol/drug issue with a pilot in the flight operation, $r_{pb}(201) = 0.143$, $p = 0.01$

Having a written rehabilitation policy in place at the flight operation was found to be statistically significant when correlated with the following:

- Having a written job retention/recovery policy, $\Phi(202) = 0.655$, $p = 0.05$
- Importance level of having a written job retention/recovery policy, $r_{pb}(201) = 0.444$, $p = 0.05$

The importance level of having a written rehabilitation policy in place was found to be statistically significant when correlated with the following:

- Having a written job retention/recovery policy in place, $r_{pb}(201) = 0.443$, $p = 0.05$
- Importance level of having a written job retention/recovery policy, $r(201) = 0.842$, $p = 0.05$

- Having suspected a pilot of having an alcohol/drug issue, $r_{pb}(202) = 0.219$, $p = 0.05$
- Familiarity level with HIMS program, $r(201) = 0.200$, $p = 0.05$

The importance level of having a written job retention/recovery policy was found to be statistically significant when correlated with:

- Having suspected a pilot of having an alcohol/drug issue, $r_{pb}(202) = 0.186$, $p = 0.05$
- Familiarity with the HIMS program, $r(201) = 0.197$, $p = 0.05$

Having suspected a pilot in the operation of having an alcohol/drug issue was found to be statistically significant when correlated with:

- Having to address an alcohol/drug issue with a pilot in the flight operation, $\Phi(203) = 0.716$, $p = 0.05$
- Familiarity with the HIMS program, $r_{pb}(202) = 0.193$, $p = 0.05$

Having to address an alcohol/drug issue with a pilot in the flight operation was found to be statistically significant when correlated with the Familiarity level of the HIMS program, $r_{pb}(202) = 0.168$, $p = 0.01$.

One statistical correlation observed was particularly large. The correlation for the suspicion of and actually addressing an alcohol/drug issue with a pilot was shown to be $\Phi(203) = 0.716$, $p = 0.05$. The Principal Investigator was interested to understand the relationship of these two variables. The Pearson's chi-square test was performed for suspicion and addressing alcohol/drug issues. The results revealed a value of $\chi^2(1, N = 203) = 104.133$, $p = 0.05$. The value of χ^2 is exceeds the critical value of 3.84 for 1 df at

the $\alpha = 0.05$ level, thus it has been concluded that these variables are not independent of one another. The results are shown in Tables 18-21 as follows:

Table 18 Crosstabulation for Suspicion *Addressing Alcohol/Drug Issues

Suspect D/A Problem * Actual Addressing D/A Problem Crosstabulation

			Actual Addressing D/A Problem		
			No	Yes	Total
Suspect D/A Problem	No	Count	144	9	153
		% within Suspect D/A Problem	94.1%	5.9%	100.0%
		% within Actual Addressing D/A Problem	92.3%	19.1%	75.4%
		% of Total	70.9%	4.4%	75.4%
	Yes	Count	12	38	50
		% within Suspect D/A Problem	24.0%	76.0%	100.0%
		% within Actual Addressing D/A Problem	7.7%	80.9%	24.6%
		% of Total	5.9%	18.7%	24.6%
Total		Count	156	47	203
		% within Suspect D/A Problem	76.8%	23.2%	100.0%
		% within Actual Addressing D/A Problem	100.0%	100.0%	100.0%
		% of Total	76.8%	23.2%	100.0%

Table 19 Chi-Square Tests for Suspicion * Addressing Alcohol/Drug Issues

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	104.133[b]	1	.000		
Continuity Correction[a]	100.230	1	.000		
Likelihood Ratio	96.127	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	103.620	1	.000		
N of Valid Cases	203				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 11. 58.

Table 20 Measures of Association for Suspicion * Addressing Alcohol/Drug Issues

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Phi	.716			.000
	Cramer's V	.716			.000
Interval by Interval	Pearson's R	.716	.058	14.550	.000[c]
Ordinal by Ordinal	Spearman Correlation	.716	.058	14.550	.000[c]
N of Valid Cases		203			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

Table 21 Risk Estimates for Suspicion * Addressing Alcohol/Drug Issues

Risk Estimate

	Value	95% Confidence Interval	
		Lower	Upper
Odds Ratio for Suspect D/A Problem (No / Yes)	50.667	19.886	129.093
For cohort Actual Addressing D/A Problem = No	3.922	2.391	6.432
For cohort Actual Addressing D/A Problem = Yes	.077	.040	.149
N of Valid Cases	203		

Qualitative Findings

Free Form Discussion

The study expected to find a high prevalence of common attitudes regarding the existence and importance of alcohol/drug (general, rehabilitation and job retention/recovery) policies. These attitudes included two main areas: Zero Tolerance and the Moral Model of Addiction.

In the qualitative portion of the survey, respondents were given the opportunity to expound upon their quantitative answers. Four sections of the survey asked the participants to answer in a free form format the question: *Why or Why Not*?

In the first three sections, the why or why not question followed a finite question that asked the flight department leader to rate the level of importance of having a certain type of policy in place. First, the participants were asked to rate how important it is for corporate flight operations to have a written Alcohol and Drug policy, and then they were asked to respond to the question: *Why or Why Not?* Eighty (80) people gave free form responses to this first question. A great majority of people felt that having a written alcohol and drug policy in place was either important or very important in order to establish clear cut guidelines, crewmember expectations, define the consequences of certain behavior to eliminate subjectivity, misunderstanding and reduce risk. Among those that felt it was important or very important to have a written policy there was variability in the content of those policies including some who cited having flexible guidelines on consumption, zero tolerance, a reiteration of the Federal Aviation Regulations (FARs) and reliance upon the organization's corporate policy. Many felt that this type of policy was important for creating a culture of safe operations (for employees and passengers), protection against litigation, fairness to employees and a protocol for encountering difficult situations. FARs were cited by a few participants as containing the minimum standard of operation and that flight operations had to establish a higher standard in a written form. A few people felt that written alcohol and drug policies served as deterrents to bad behavior. Several respondents felt that alcohol and drug policies were critical for larger corporate flight operations but were unnecessary for small flight operations.

Alternatively, the minority of respondents felt that written policies were either unimportant, minorly important or were positioned neutrally on the subject. Counter to

the majority, many respondents felt that the FARs had established the guideline on the issue of alcohol and drugs, so no additional written policy was required. However, like those that felt that written policies were important they too felt as though size of the flight operation was a factor in determining whether or not an alcohol and drug policy was warranted. Many leaders went on to indicate that their particular operation was in fact small enough that should an issue occur, they would be aware immediately, as they also act as full-time flight crew members. Some participants specified that a written policy was not needed in the flight operation as they had never encountered any issue with alcohol or drugs. A handful of these people went on to say that issues with alcohol and drugs very rarely exist in the business aviation sector and that this community should not have to write policies for the lowest common denominator. Participants also noted their hiring practices, screening processes and sound judgment in place allowed them to only hire people who did not have any issues with alcohol or drugs, therefore eliminating the need for a written policy. Some participants indicated they did not have written policies in place regarding alcohol and drugs because it would impose more regulation, additional paperwork and further legal constraints. Finally, some leaders indicated that their operation did not have a written flight operations policy for alcohol and drugs because the format was either, verbal, memo style, or deference to their organization's corporate policy which in many cases exceeded that of the FARs.

Next, participants were asked to rate how important it is for corporate flight operations to have a written alcohol/drug policy that addressed rehabilitation for those flight crew members who had identified as having an issue, and then they were asked to respond to the question: *Why or Why Not?* Seventy-nine (79) people gave free form

responses to this qualitative question. Overwhelmingly the respondents to this question, regardless of how they rated the importance of having a written rehabilitation policy, gave answers that indicated significant influence from the parent corporation. Some had a written departmental policy that reiterated the parent corporation's policy while others relied solely upon the corporate policy. Still others indicated that if a policy were to be put in place, that policy must be reflective of the corporation's philosophy about rehabilitation of its employees. These people expressed concern regarding discrimination and equity of treatment for all employees of the organization, regardless of job duty. For those who discussed the corporation's policy, there was variability in importance ratings and indication of "having" a written policy in place. A few respondents even noted they were unsure if the question referred to departmental or corporate policy. However, there is an indication from this qualitative information that even those who have a zero tolerance policy or general operating philosophy are influenced heavily by the parent organization. In several cases, respondents indicated that having a written policy is not only dependent upon the organization but by the perception of safety from the passengers. In most cases the passengers of corporate flight operations are executive officers of the organization or key stakeholders in the company - the very people who set the tone for the entire business.

For those who indicated that a written rehabilitation policy was in place and the rating was important or very important, these people cited that having a rehabilitation policy would produce a better outcome for both the individual and organization. Many felt that such a policy clarified the position of the organization or department, whether it was a policy of zero tolerance, comprehensive rehabilitation or rehabilitation under

specific circumstances or conditions. For some, a policy allows people to more easily come forward with an issue knowing that they would be helped and that this ultimately reduced risk and improved safety in the flight operation. A few leaders indicated that any addiction should be treated as a medical issue, congruent with the disease model of addiction.

Again, the size of the flight operation seemed to be an important factor for these leaders. Regardless of how leaders rated the importance of having a written rehabilitation policy, many felt that having a written rehabilitation policy was a function of size. In general, people felt that small organizations did not need to have a written rehabilitation policy, but larger flight operations did need such a policy.

For those who rated having a written rehabilitation policy as being minorly important or unimportant, some felt that decision making flexibility and capability resided in intentionally operating without having a rehabilitation policy, so as to allow each case to be treated individually. But other respondents indicated that they did not have a policy because it was not the organization's responsibility to provide this type of assistance. Most expanded their statements to note that the organization could not afford the cost of rehabilitation, noting the liability, financial exposure and numerous costs of doing so. These costs, particularly for the smaller organization come from direct from the rehabilitation itself and absence of the crewmember, but also in terms of indirect costs such as employee morale and passenger's perception of safety.

Comments of a few leaders reflected a sentiment about crewmembers that experience problems with alcohol and drugs compromise safety and therefore are undeserving of rehabilitation. Rehabilitation for crewmembers is no panacea for the

flight department; leaders cited poor success rates for rehabilitation, failure to address underlying behavioral issues and the potential for these crewmembers to attend rehab only for the purpose of getting their jobs back, not to really change. However, a few participants were open to the idea of helping employees to receive rehabilitation but they also said the careers of these people would be impacted by such a decision. Some felt that the obligation of the organization ended at rehabilitation, others felt that under certain perimeters a person could return to a non-flying duty. Finally, a couple of participants indicated that a rehabilitation policy was unnecessary because business aviation very rarely has a crewmember with an alcohol or drugs issue.

In the third series of questions, participants were asked to rate how important it is for corporate flight operations to have a written alcohol/drug policy that addressed job retention/recovery for those flight crew members who had identified as having an issue, and then they were asked to respond to the question: *Why or Why Not?* Seventy (70) people gave free form responses to this qualitative question. The vast majority of respondents reiterated their comments about rehabilitation, indicating that most leaders did not distinguish a significant difference between rehabilitation and job recovery. The commentary followed similar content, with parent corporate policy being cited as the topic most often discussed. Again, regardless of how the participant had rated the importance of having a written policy, the corporate policy was important. Secondarily, many people cited a zero tolerance policy which included termination of an employee that presented with an alcohol or drug issue, independent of importance rating that spanned the range of the scale.

For those who indicated having a written job retention/recovery policy in place was important, commentary suggested that many felt that a policy clarified the position of the organization, set the standards of practice and consequences of behavior. Some also felt that a job retention policy reduced the fear of admitting a problem, therefore reducing risk to safety. Others noted that having a job retention policy was the right thing to do and that alcoholism was a disease, like other medical concerns. However, while some may have rated the importance of such a policy as high there was still an opinion that for small operations this type of policy was not needed or not practical, but critical for larger flight operations.

For those who noted a neutrally rated importance of have a written job retention/recovery policy, several indicated that having such a policy would have to be dictated by the corporation and/or their passengers. Some indicated that job retention/recovery must be accompanied with limitations and stipulations. Limitations and stipulations included specific amounts of sobriety time or proof of success, only one return to work opportunity, latitude to reapply for job when a medical certificate was obtained and return to a non-flying duty.

Many participants that indicated a written job retention/recovery policy was minorly important or unimportant felt having such a policy would limit the decision making in their operation and would infringe upon the leader's ability to treat each case individually. Some noted that hiring practices superseded the need to have a job retention/recovery policy because this practice eliminated the chance of even hiring a person with alcohol/drug issues. Finally, a few people noted that especially in small operations with limited resources the cost was too high to "hold a spot" for the recovering

pilot when there were so many well-qualified pilots available without alcohol or drug issues.

Participants were asked whether their flight operation would consider instituting a written alcohol/drug policy for the rehabilitation and job retention/recovery of pilots if a proven, successful template was provided. This yes/no/maybe question was then followed with an opportunity to answer the free form question: *Why or Why Not?* Ninety-four (94) survey participants discussed their position on this subject. For those that answered with yes or maybe indicated that they would consider such a policy with reasons similar to previous written statements. Corporate policy position on the subject of alcohol and drugs, rehabilitation and job retention/recovery heavily influenced the dialogue expressed. Some felt that having a proven and successful template available was a good resource, but others felt that corporate policy met their present needs in this area. However, participants also felt that that their corporate policy did not cover all the needs of airmen. Many went on to say that any policy would have to compliment their organization's current directive, must gain approval at the corporate level and would need to contain non-discriminatory and equitable practices. One participant agreed that such a policy would codify their corporate policy. Some participants expressed the desire for such a policy template in order to obtain needed guidance to initiate such protocol, improvement in current policies, establish good business practices that were driven by sound data driven academic research. Many leaders articulated a desire to help people and to have a structure for keeping good employees in the flight operation if possible.

Of course some leaders were more skeptical in their commentary, but still indicated they would be willing to investigate the option. Some still thought their

operation was too small but that if an issue ever arose, they would want to know where to seek assistance. Others questioned how having such a policy would affect the morale of other employees and the integrity of their operation. Some felt that each case would need to be considered individually, and that since rehabilitation did not guarantee success, more stringent monitoring would need to be in place.

Finally, there were those respondents who indicated they would not consider such a policy because the risk was simply too high. Many noted that a policy was already in place, corporate or otherwise. Zero tolerance for most flight department leaders was cited either in official policy form or general unwritten practice. For some, hurdles to the approval of such a policy with the corporate Legal, Human Resources, Executive and passenger level was too great to consider. Leaders again expressed hiring practices that eliminated the need for such a written policy and the desire to retain the right to treat each situation on a case by case basis. Others felt it was unnecessary to consider such a policy because their organization did not have a problem with alcohol or drugs, it was not the corporation's responsibility and rehabilitation does not work. But again, many cited issues with limited resources as a function of their flight operation's size. One such participant summed this up with the simple response: *Life experience. Little Resources.*

Written Policy Submissions

Upon reviewing the content of written policies of FAR Part 91 flight operations, researchers primarily expected to see policies that were a reiteration and expansion of FAA regulatory guidelines. Some policies, it was expected would contain guidance on the use of substances and outline the consequences of this use outside of these guidelines. It was speculated that contained within these policies there would be references to drug

testing programs, particularly in conjunction with aircraft incidents and accidents. Finally, the PI anticipated finding larger flight operations that had more robust and comprehensive policies in comparison to their smaller counterparts.

Twenty-three (23) corporate flight operations submitted copies of alcohol and drug policies. Some leaders submitted flight department policies, but four leaders included or only presented the organizational policy. In reviewing the content of the policies, there was considerable variability in the scope of items addressed in these policies. For example, two operations submitted a copy of their organizations extensive drug testing policy for all company employees, whereas other flight operations submitted policies that contained two short paragraphs addressing the use of substances by flight personnel. However, regardless of content many of these policies had.

The wording and structure of many of the policies submitted were extremely similar. The most commonly occurring characteristics of these policies referenced compliance of FAR 91.17. Many reiterated the language of this regulation, but expanded the time frame of abstinence of alcohol before performing flight duties from 8 hours to 12 hours, while some expanded to 10 hours. Many policies also mentioned that crew members should not be under the influence of alcohol or any psychoactive substance while performing aviation duties. More specifically, some policies included a time frame (e.g., 8 hours) after being under the influence of any substance. Some operations noted that airmen were to not exceed a BAC level of 0.04 by weight. A few policies included the duty of pilots, to deny carriage of persons who are intoxicated or under the influence of drugs.

Various policies broadened the terms of their flight operation's policies to include a limitation on the consumption of alcohol in the hours proceeding the abstinence period. In general, these types of policies were worded as such: Moderate consumption or no excessive consumption of alcoholic beverages in 6-24 hours prior to the abstinence period prior to duty or standby. One notable policy directly addressed "under the influence" in discussing the elimination of alcohol from the body and its residual effects, noting that for some effects could last as long as 72 hours. A couple of policies noted a specific time of day (0800-1700) that alcohol could not be consumed during standby duty. Alternatively, others illustrated no consumption while on duty or standby duty. Still others noted a policy that specified no consumption of alcohol on non-flying days when away from home base, or on a Remain Overnight (RON) during normal business hours.

A few departments included policies that noted their organization indicated alcohol was not to be consumed on company property or while in uniform. Some went further in saying that abuse of alcohol to the extent that affects good judgment or reflects negatively on what a professional flight crew member should be is grounds for termination. A selection of flight departments had policies that required crew members to remove themselves from duty if they thought their performance would be affected as a result of alcohol use.

Similarly, Over the Counter (OTC) and prescribed drugs were referenced in many policies. In particular, several policies noted the unintended yet detrimental effect of OTC drugs on flight performance. These policies left the determination of fitness for duty to the crew member taking the medication. In those cases where the crew member

was unsure of the effects of medication on flight performance, the airman was to consult his/her private physician or Aviation Medical Examiner (AME). The policies specified that a private physician must be informed of job duty and specifically asked how medications will affect flight performance. In some cases, the policy required that all medications, prescription or non-prescription must be approved by an AME. In other cases, the policy required that all prescription and OTC medications be reported to the Director of Aviation or Chief Pilot. In singular cases, policies documented that OTC drugs could not be used while on duty or could be used under certain conditions. These conditions included the use of non-drowsy OTC varieties provided they were not masking underlying problems that interfere with flight duties or use not to exceed a specific time (12-24 hours) prior to duty. One policy detailed the consequence of habitual use of OTC medication was grounds for relief from flight duties and another indicated that reporting for duty under the influence of OTC drugs was grounds for termination. Finally, one policy referenced the intentional misuse of prescription drugs was grounds for termination.

While the scope of this study did not include use of tobacco products, a handful of policies referenced the use of this substance. Three flight operations policies stated that smoking was prohibited on board company aircraft and on company premises, except in designated areas. Some even detailed that smoking was not allow with in a certain distance (e.g., 300 feet) of an airplane. One policy mentioned that the use of tobacco products by crew members was highly discouraged. Future studies could examine the inclusion of tobacco products in substance policies.

Several flight departments submitted policies that recorded an overall commitment to a drug free workplace. In these cases this message came directly from the organizational policy, rather than a departmental level policy. Substantially fewer flight departments had policies that separately addressed illicit drugs or controlled substances. Some of these policies included a disclaimer reiterating that it was unlawful to use, manufacture, distribute, dispense, sell or possess illegal drugs. Others stated that on board aircraft there was to be no carriage of narcotics, illicit drugs, marijuana, depressants or stimulant substances according to federal and state statues. Most policies simply stated that use or possession of illegal drugs was grounds for termination. One policy declared that suspicion of use in connection to flight duties would result in drug testing.

Drug testing programs and policies while they are beyond the scope of this particular study must be mentioned because of their interrelationship with drug and alcohol policies. Two flight operations submitted testing programs as the sole policy upon which the department and/or company relied. However other leaders submitted flight operations and company policies that referenced testing, some of which detailed when and under which circumstances testing would be conducted. The most frequently occurring types of testing referenced were reasonable suspicion, pre-employment, post accident/incident and random selection for those in safety sensitive positions. Additional circumstances referenced for which crew members could be tested were in accordance with the FAA drug testing program or at the request of the FAA Administrator, at the request of law enforcement, for any reason deemed necessary, substance related arrests, arrests for motor vehicle violations and in conjunction with scheduled FAA medical

exams. Many policies indicated that positive tests would result in termination. Finally, two additional terms under which crew members could be subject to testing included in conjunction with a documented recovery program and return to work from substance abuse treatment.

The vast majority of the policies submitted for review had no reference to recovery programs and return to work. However, one company wide policy did indicate a voluntary disclosure program under which disciplinary action would not be taken for first time participants. Non-paid leave of 14 days was granted, testing would occur after this time with return to work. In this program the participant is required to submit to 3 years of random testing, should a positive test be revealed the employee is terminated. One departmental policy referenced the company's assistance program however the assistance program details were not given.

As a final component to alcohol and drug policies, a limited number of flight department policies required reporting procedures to the Director of Aviation or Chief Pilot. These reports included warnings, alleged or actual violations of the FARs. A couple of policies specified reporting to aviation leader the occurrence of any infraction that might jeopardize an airman's license or medical certificate, such as a Driving Under the Influence (DUI) or Driving While Intoxicated (DWI). No further mention was made of the procedure beyond reporting.

CHAPTER V

CONCLUSIONS

Review

The purpose of this research study was to gather information regarding the current nature of flight departmental alcohol and drug policies within the corporate/executive aviation community that operate under Part 91 of the Federal Aviation Regulations (FARs). The design of this study was structured in order to gain insight about the magnitude and content of general alcohol and drug, rehabiliation and job retention and reovery policies, attitudes held, experience with and familiarity with particular resources for alcohol/drug issues and finally receptiveness to implementing policy. Researchers attempted to uncover factors that may drive flight departments to write and put these policies in place, as they are not mandidated.

The literature available indicates that the prevalence of alcohol and drug abuse and dependence among airmen is equivalent to that of the general population which is reported to be 5-8 percent. The disease does not discriminate among professions, socioeconomic classes, gender, age, education levels or other factors (Snyder, 2003). The FAA acknowledges the value of education, intervention, treatment and return to flying duties for pilots afflicted by this common, progressive, fatal, but treatable disease. The FAA has accepted the definition of substance abuse/dependence provided by the medical community (Morse, 1992). Aviation leaders and airmen facing alcohol and drug issues in the flight operation have access to resources through the Human Intervention

Motivation Study (HIMS) program, a jointly administered program between the FAA, management and medical representatives for the intervention, rehabilitation and job retention/recovery of those airmen facing substance issues.

The prevalence, content of alcohol/drug policies, as well as the attitudes of managers of international, commercial air carriers was studied in 1997 by Christopher Cook (Cook, 1997). This study followed his line of research to explore the attitudes and policies of corporate/executive flight operations, analyzing questionnaire data and submitted policies.

Our current study found that 68 percent of corporate/executive operators had written, general alcohol/drug policies, 20 percent had rehabilitation and 15 percent had job retention/recovery policies in place. Overall, leaders of these operations reported general alcohol/drug policies were important or very important at a rate 72 percent. However, importance ratings for rehabilitation and job retention/recovery policies reported were normal distributed across the five point scale, with the highest concentrations of ratings being neutral. Statistical tests found that the importance of the respective types of policies reported by leaders was a key factor in determining whether or not these types of policies were in place. For of each incremental increase in the importance rating of the respective policy the odds of having that policy in place increased by six times for general alcohol/drug, seven times for rehabilitation and nine times for job retention/recovery. Flight department size was speculated by researchers and frequently discussed by leaders as a primary factor in determining the importance of and the existence of these policies in the operation. The study found the size of the flight department, in terms of the number of pilots was a moderate factor determining whether

or not the general alcohol/drug policy was in place. Statistical tests revealed that for each pilot added to the flight operation the odds of having a general alcohol/drug policy in place increased by 1.4 times. An important finding revealed that many leaders had direct experience of suspecting and addressing alcohol/drug issues with pilots. The research found that 24 percent of flight department leader's have suspected alcohol/drug issues with pilots and 22 percent have actually addressed these issues. However, researchers found that these leaders had little familiarity with the resource available to them to deal with alcohol/drug issues through the HIMS program. The study found that the bulk, 94 percent of leaders were unfamiliar or somewhat familiar with this program. Finally, leaders were asked to indicate their receptivity to implementing an alcohol/drug policy from a proven template that included rehabilitation and job retention/recovery. Researchers found the data to be normally distributed across the three point scale, with the concentration (48 percent) reported as maybe. The study uncovered in qualitative analysis of written alcohol/drug policies submitted by these flight operations that the majority included short narratives reiterating FAA regulatory policy, with minor hourly adjustments. Survey responses in the free form discussion area primarily reflected support of zero tolerance policies, but that any written policies in place must be reflective of their parent organizations directives and philosophy surrounding the issue of alcohol/drugs.

The rationale behind researching alcohol and drug policies within corporate/executive flight operations was to create a factual basis for identifying the scale of the status quo, the potential need for these policies and baseline guidance material for the creation of further research in this community of aviation. Ultimately, this data

supports an endeavor to promote the education of industry professionals and flight operations affected by substance abuse and dependence issues. Futhermore, this research study supports the business aviation industry's goal of achieving increased safety through industry best practices.

Conclusions of Research Questions and Hypothesis

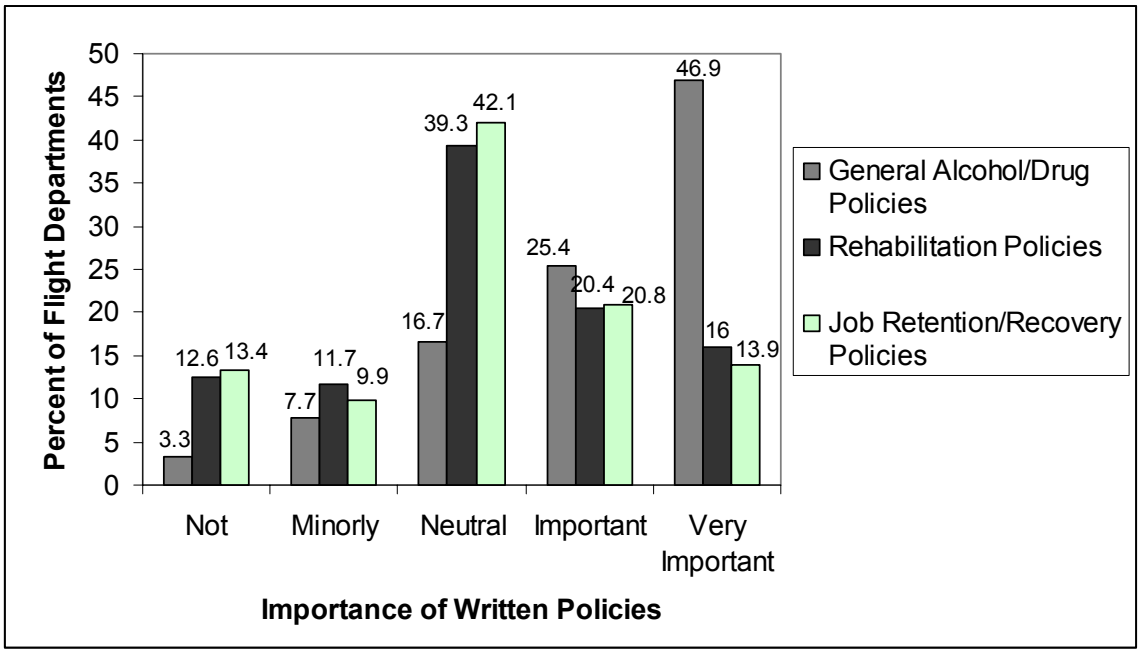
The size of the flight operation for the purposes of this research study was determined to be the number of pilots. There are several statistics that are meaningful for the number of pilots reported. First, the range of the number of pilots was between 1 and 33, with a (M = 5.63, SD = 5.519) or 6 pilots per operation. The outlier of the flight department reporting 33 pilots has a skewing effect on the mean. For this reason, the statistics Mo = 2 and Mdn = 3 have been selected as more meaningful representations of the number of pilots within corporate/executive flight operations. Interestingly, the number of aircraft reported while it too experienced an outlier of 11 aircraft from one operation the mean was not impacted as dramatically. A range of 1-11 aircraft were reported a (M = 2.19, SD = 1.678) or 2 aircraft per operation. The Mo = 1 and the Mdn = 2 were reported for the number of aircraft per operation. Both the number of pilots and number of aircraft were positively skewed, indicating that bulk of corporate/executive flight operations are relatively small in composition.

The study posed the research question: What is the prevalence of written alcohol/drug (general, rehabilitation and job retention/recovery) policies for pilots in place? Overwhelmingly, flight departments reported that they did have general alcohol/drug policies in place in their operations. In fact, 68 percent of corporate/executive flight operations have these types of policies. Alternatively, the

balance shifts when discussing rehabilitation and job retention/recovery policies. Leader's reported that 20 percent have rehabilitation policies and 15 percent have job retention/recovery policies in place.

The research study posed the research question: How important are having written alcohol/drug (general, rehabilitation and job retention/recovery) policies for pilots in place to leaders? Figure 1 represents the distribution of percentages among flight operations' reported level of importance of each of the policies.

Figure 1 Distribution of Importance Level Percentages for Type of Alcohol/Drug Policies (General, Rehabilitation and Job Retention/Recovery)



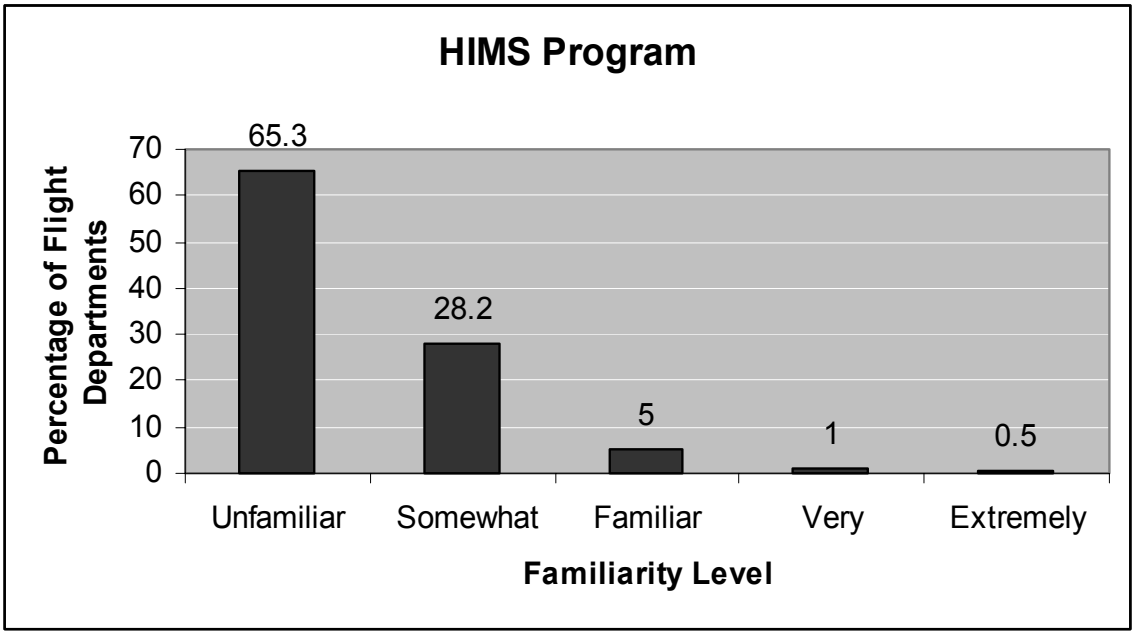
As the chart indicates, the distribution of importance levels for general alcohol/drug policies is negatively skewed. The data reported shows that the majority of flight department leaders feel that these policies are either Important or Very Important; totaling 72 percent. Alternatively, the distribution of data for both rehabilitation and job

retention/recovery programs appears to be more evenly distributed among the levels of importance, with a concentration in the Neutral category.

The study posed the research question: What is the prevalence of leaders' suspicion of and/or addressing alcohol/drug issues with pilots? The descriptive data of these two factors shows that one-quarter of the sample or 24 percent of leaders have suspected and over one-fifth of the sample or 22 percent have actually had to address an alcohol/drug issue with a pilot in their flight operation. The prevalence of these findings was unanticipated by researchers and as a result it was determined that data should be examined further through statistical analysis. The Pearson's chi-square test was performed for suspicion and addressing alcohol/drug issues to uncover the nature of the relationship between these two variables. The results revealed a value of $\chi^2(1, N = 203) = 104.133$, $p = 0.05$, which exceeds the critical value of 3.84 for 1 df at the $p = 0.05$ level, thus it has been concluded that these variables are not independent of one another. Meaningful data was obtained from the contingency tables of the chi-square test. What researchers revealed was that 71 percent of leaders had no experience with suspecting and addressing alcohol/drug issues with pilots, whereas 19 percent did experience with both of these issues. However, some leaders (6 percent) had suspected but did not address alcohol/drug issues and still other leaders (4 percent) had not suspected an alcohol/drug issue with a pilot, but did have to address this issue.

The study posed the research question: How familiar are leaders with the HIMS program? Figure 2 shows the distribution of percentages for the familiarity levels among flight operations.

Figure 2 Distribution of HIMS Program Familiarity Level Percentages



As can be seen in Figure 2, the distribution of familiarity levels is positively skewed. In this case the vast majority or 94 percent of leaders were Unfamiliar and Somewhat Familiar with the HIMS program. The category Unfamiliar was further defined in the survey as being, "never heard of the HIMS program" and Somewhat Familiar as being, "heard of the HIMS program, but don't know where to obtain program information". Flight department leaders clearly need additional information about the details of HIMS and where to access program information, should they need to access this resource.

The study posed the research question: How receptive are leaders to implementing an alcohol/drug policy that includes job retention/recovery and rehabilitation components? The data obtained regarding the receptiveness to this type of policy was normally distributed with 27 percent of flight department leader's indicating

they would not, 48 percent indicating they might and 25 percent indicating they would consider such a policy if a proven template was provided.

Finally, the study posed the hypothesized research question: What factors predict whether or not a flight operation has a written alcohol/drug (general, rehabilitation and job retention/recovery) policy for pilots in place? Researchers hypothesized that an increase in the factors of: size (number of pilots), importance level of written general alcohol/drug policies, suspicion of and/or actually addressing an alcohol/drug issue with a pilot, familiarity level with the HIMS program and receptiveness to implementing a policy that included rehabilitation and job retention/recovery would effect the odds of having a written alcohol/drug policy in place. The results of the statistical tests revealed that most influential factors involved in determining whether or not a flight operation would have a certain type of policy in place or not was the flight department leader's rated importance level of the respective policy. In fact for of each incremental increase in the importance rating (5 point Likert scale) of the respective policy the odds of having that policy in place increased by six times for general alcohol/drug, seven times for rehabilitation and nine times for job retention/recovery. Flight department size was speculated by researchers and frequently discussed by leaders as a primary factor in determining the importance of and the existence of these policies in the operation. The study found that only for general alcohol/drug policies was size a moderate factor contributing to whether or not the policy was in place. Statistical tests revealed that for each pilot added to the flight operation the odds of having a general alcohol/drug policy in place increased by 1.4 times. All other factors were not shown to contribute in a statistically significant fashion to whether a written policy of any type was in place or

not. It was interesting to find these results because researchers believed that the implementation of written policy could be driven by having direct experience with an employee who had or might have an issue with alcohol/drugs. Additionally, investigators thought that for those who were more familiar with the HIMS program would also be more likely to have a policy in place. What was found is that because the vast majority of had little knowledge of the HIMS program, not enough raw numbers were seen to produce an effect in this area. However, researchers reviewed the existence of policies of those leaders that reported a familiarity level in the median to high range of the 5 point scale. It was found that 15 respondents rated their familiarity level in this (3-5) range. Of these 15 leaders, 4 reported having all three written policies (general alcohol/drug, rehabilitation and job retention/recovery), 2 reported having two of the written policies (general and rehabilitation), 6 reported having only written general alcohol/drug policy and 1 indicated that the flight operation had no written policies in place for alcohol/drugs.

Researchers further predicted that the level of receptiveness to implementing a policy that included rehabilitation and job retention/recovery would affect the odds of having a written alcohol/drug policy in place. The statistical tests failed to uncover a relationship between these two variables.

Researchers anticipated uncovering qualitative information from respondents that supported Zero Tolerance policies and a reiteration of FAR regulations. These two attributes were discussed most frequently by leaders in the free form section of the survey. Written alcohol/drug policies submitted tangibly supported the existence of policies that contained a reiteration or simple expansion of the FAA guidance regarding alcohol and drugs. The majority of respondents discussed the importance of having

written general alcohol/drug policies in place. According to these leaders, for crew members policies function to establish clear guidelines; set expectations; indicate consequences of behavior; eliminate subjectivity, misunderstanding and reduce risk. However, upon review of the written policies submitted, these policies did not contain information that supported the reasons given by leaders for policies to be in place. There appears to be a disparity between the reported goals of policy and the content of policies currently in place to achieve these goals.

However, some operations do have written policies in place that discuss the conditions under which use of substances is approved and unapproved, including standby duty. But from the wording of these policies, there is little continuity between organizations regarding what is defined as standby duty and duty time in this sector. Likely, the culture of each flight operation has a clear definition of these terms, but a broad industry analysis is challenging when basic terms do not have a singular meaning and those terms are not explicitly defined or contained in the policy. More information is required regarding cultural definitions of the terms duty, standby duty and the context of each flight departments' operations.

It has been established throughout the qualitative findings that there is great variability in the content of policies regarding substance use, misuse, abuse and dependence policies and testing procedures. More importantly we have gained insight that there is also a great disparity in the understanding of what each of these components (use, misuse, abuse, dependence and testing) mean. Terms are used interchangeably adding to the confusion for leaders.

A selection of flight departments had policies that required crew members to remove themselves from duty if they thought their performance would be affected as a result of alcohol use. It is interesting to note that these particular policies did not indicate any consequences, positive or negative of self-removal from flight duty.

Qualitative discussion information gathered throughout the survey from leader's suggested that having written policies in place was a function of the size of the flight operation. The statistical analyses performed support this perspective for general alcohol/drug policies. For each pilot added to the operation, the odds of having a written general alcohol/drug policy in place increases six times. However, the study failed to measure of significant effect of the size of the operation to written policies for rehabilitation and job retention/recovery of pilots. In fact, both the prevalence of these types of policies, discussion, and analysis of written documents suggest that these two sectors of policy are deferred to the parent corporation. Deferring policy guidance to the parent corporation was an important topic discussed by leaders in the discussion section. Frequently, flight department managers stated that should written alcohol/drug policies be amended or instituted that they must be reflective of the corporation's current directives, operating philosophy in this area for the equity of employee treatment. In this way, statements are reflective of functional corporate officers.

Limitations of Study

This study was limited by accessibility to the entire population of FAR Part 91 corporate/executive flight operations. The most representative subpopulation of these operators was identified as being members of NBAA. This organization represents approximately 60 percent of this population. The study was further limited by available

email addresses for flight department leaders located in the 2006 NBAA Membership Directory. As a result, the results and finding of this study may not be attributable to the entire population of FAR Part 91 corporate/executive flight operations.

Survey questions were carefully structured and were analyzed for content validity by experts. The survey instrument included three dichotomous yes/no questions regarding the existence of written (general, rehabilitation and job retention/recovery) alcohol/drug policies. These questions were structured in such a way as to give the survey participant the flexibility to answer affirmatively that the flight department had some form written alcohol and drug policy, when a policy existed at corporate level. In the free form area, participants indicated that this flexibility gave way to an unanticipated variability in interpretation. For some respondents, the understanding of these questions was that the flight department must have its own separate, written policies apart from the organization. Thus, some participants answered yes and some answered no to having such policies when the parent company had a policy that covered employees in the flight operation. This also created a trickle down effect in the variability of importance ratings (of having such a policy). Some indicated that having a policy was unimportant because the parent already covered them, whereas others indicated it was very important because corporate policy dictated it.

Recommendations

This research was a quasi-replicative study based upon the 1997 work of Christopher Cook. In his findings, Cook concluded that many of the questions regarding preventative policies were unclear and misunderstood because participants failed to understand the differences between proactive and reactive alcohol and drug policies.

While this study took great measures to use his results in structuring the survey instrument, researchers still have much room for improvement to clarify the intent of questions. Additional research should take into consideration distinguishing between corporate policy and departmental policy in the survey instrument. The survey used could be clarified by expanding the answer options to include the corporate policy, departmental policy, and both. Future studies could request that both the flight operations and corporate policies be submitted for a qualitative analysis.

There was speculation by researchers that a relatively high correlation would be seen between participants that had suspected a pilot of having an alcohol or drug issue and actually addressing that issue. As predicted there was a high correlation, but not 100 percent. There were those leaders who did suspect but then did not address the substance issue for some reason. Additional research could extend this line of questioning to identify qualitatively the reasons behind why a leader did not intervene, when they had suspicion. Perhaps there is a relationship to these reasons and the existence of guidance, policy and philosophy. There were those leaders too that did not suspect but did have to address an alcohol or drug issue. Additional research could also extend the line of questioning to identify qualitatively the context in which a leader might have to address an alcohol or drug issue with a crew member without warning. Research could potentially uncover how leaders handled these situations, with what type of assistance, what the outcomes were and what might be done differently in the future to mitigate the exposure to risk.

Participants were asked to indicate whether or not they had ever had suspicion that a pilot in their operation had an issue with alcohol or drugs this was asked as a

simple yes or no question. The sensitivity of this question did not account for those flight department leaders that potentially may have encountered more than one pilot with an issue with alcohol or drugs. When answering yes to this question leaders could have had multiple pilots that they suspected of having an alcohol or drug issue. This question did not account for rate of suspicion. The structure of question insensitivity also extends to the question asked of participants who answered yes to the question regarding having actually addressed an alcohol or drug issue with pilots in their flight operation. It is recommended that future research take into account that flight department leaders may have encountered more than one crew member with a substance issue. Future surveys should ask leaders to identify how many different people they have suspected and also how many different people they have addressed. Collecting the rate with which leaders have experienced these issues is very important.

Two participants referenced having had experience extending help to a pilot that had an alcohol or drug issue. These two leaders indicated that the help that was extended was a failure and that this experience had influenced their opinions and policy guidance about alcohol and drugs. But what constitutes failure? If the policy was designed to give a person an opportunity to take advantage of rehabilitation and job retention/recovery, maintain safety by reducing risk to the flight operations and protect assets but yet the person did not meet the criteria, the policy did not fail. Likely the person did not fail either. Recovery and readiness for change is not black and white as we once thought, rather it is more likened to a continuum. Yes, it is true that the people referenced by these leaders did not meet the flight operation or corporation's criteria, but the opportunity could have been enough to start this person on the journey of recovery and

even been the seed that would save this person's life. What is the role of the policy? The role of the policy can be punitive, it can be risk mitigation, it can be guidance of how to handle such events, and it can even be a structure for saving lives. The motivation for creating such a policy varies from flight operation to flight operation and is heavily influence by corporate policy and philosophy in this area. It is entirely possible that the policy did not fail either, safeguarding people and assets from harm. However, there exists and opportunity to explore the details of these anecdotal stories so that we have a better understanding of how policies did or did not accomplish the goal. Additionally, there exists an opportunity for researchers to explore longitudinally the progress or degradation of airmen that have referred to help offered by the employer. Furthermore researchers could explore the components, scope and quality of help provided or available to airmen.

In the qualitative data, some participants reference reliance upon their Employee Assistance Programs (EAP). Future studies could structure questions to allow participants to indicate if their organization or flight operation provided access to an EAP program encompassing of alcohol and drug issues. This information could provide additional robustness in what resources corporate flight operations have at their disposal. This information could also identify the size or type of organization that extends this benefit to its employees and those who do not. Anecdotal evidence suggests that many EAP programs are unaware of the FAA requirements that need to be met for pilots to return to service. As a result, numerous additional internal and external resources are required for airmen. This lack of knowledge extends to many flight department leaders unaware of the FAA's requirements to return an airman to duty through a Special

Issuance Medical Certificate. Data collected from the question posed in this survey asking participants to rate their familiarity with the HIMS program gives us a glimpse into this issue. Alternatively, flight department leaders could be relatively unfamiliar with the resources available through the company's EAP program. Additional research could investigate flight department leader's understanding of the resources available to them inside their own organizations.

Although this study did not gain access to many parent company policies to which many flight departments defer, enough information was gathered to know that more research must be conducted. It is speculated that the organization may grant flight crewmembers unbiased access to assistant programs. However, most EAP representatives and company personnel including the flight department leader are unaware of the FAA's medical requirements for returning someone to duty. Again this is an opportunity for aviation leaders to learn how they may help both the employee and the organization by educating upwards. In order for the process to work, it must include additional information gathering and sharing from flight operations, the company and potentially the organization's EAP. The process must be a collaborative establishment of policies that aid the airman while adhering to the cultural standards of the parent organization.

In verbal conversations with some of the survey participants, leaders indicated that they had written an alcohol and drug policy for their flight operation as a result of seeking International Standard for Business Aircraft Operations (IS-BAO) certification. Obtaining IS-BAO certification reflects the highest level of standardized safety practices and policies created by the International Business Aviation Council (IBAC).

Implementation of an alcohol and drug policy has become a recommend practice by some IS-BAO consultants, but is not required to obtain IS-BAO certification. The wording of the written alcohol/drug policies were so similar that it is suspected a template form may have been used. This wording could have been recommended by IS-BAO consultants. Further research is needed to determine how the language of these policies was obtained. Future research could analyze the scope and robustness of the recommended alcohol and drug policy. It further gives an opportunity to review the IS-BAO process and where substance policies fall with regard to making inclusion a required process for certification. The standard practice of some IS-BAO consultants to recommend inclusion of a substance policy within flight operations manuals uncovers the fact that this study did not ask participants to identify what requirement or event prompted the implementation of a particular alcohol and drug policy. This study did not ask participants to indicate when a policy was initiated, if the policy had been amended or updated. The scope of this study did not collect information about whether the policy was implemented by the leader, if it was inherited from a previous leader or boss and if the policy was voluntarily initiated or mandated. These questions could be posed in a future study.

Individual leaders each come to the table with biases and prior experiences inside and out of the workplace that shape attitudes, opinions and behavior both in how people are treated and in the actions or inactions that leaders take to develop policies that seem applicable or important for a particular environment. The resources and scope of this research project did not address (both external policy influencing factors and internal policy influencing factors) all the life experiences that influence attitudes and ultimately

policy (motivators). Future research could probe leaders regarding experiences external to the work environment that influenced 1) Having a policy (of any level) and 2) Importance ratings of having a policy (of any level). Next leaders could be asked they created or initiated the implementation of a policy or if it was inherited. Finally, researchers could inquire about the driving factor for policy formation (corporate influence, IS-BAO certification, internal and external personal experiences, existence of an alcohol/drug issue within flight operations, or having a policy in another operation/environment).

Final Discussion

In the process of coordinating the receipt of written policies, several flight department leaders indicated that their operational policies were currently lean and had room for improvement. Others indicated that written policies were intentionally left vague, so as to allow for the leader to exercise judgment based on individual circumstances. Leaders indicated in the discussion section of the survey that they would be able to detect substance abuse/dependencies issues among pilots either in the hiring process or with their employees. The reality is that these issues can be incredibly hard to detect even to the trained professional. Written policies that allow for non-punitive self-disclosure to get help and retain or recover jobs, bring substance abuse and dependence issues into the open thereby reducing risk and improving safety of flight operations.

For many leaders, the issue of whether or not to have an alcohol and drug policy in addition to its content, boils down to one of leader control. If one prefers, this can be recharacterized as freedom of choice vs. responsibility of the lives of others (both your crews and passengers). Many people responding to this survey indicated that they

wanted to retain their "right" to treat each situation on an individual basis. There is a sense through these statements that these people wish to maintain the freedom of choice and control in their flight operation to make moral judgments about the extenuating circumstances surrounding a particular person or issue. Many have a belief system that is grounded in the Moral Model of addiction, which is that there is some sort of deficit or corruption in the person who is afflicted. Retaining the "right" to judge the situation is guise for judgment of person, taking into account all of the "bad" things addicts and abusers do while under the influence (i.e., *nobody is going to come in hear and tell me how to run MY operation, because I know best*.)

From a humanistic perspective, treating people affected by alcohol and drugs on a case by case basis is admirable on its face; however there is a question as to the therapeutic nature and motivation for doing so by the leader who wants to retain freedom of judgment and views policy as a threat. Some challenge this perspective and say that incorporating a policy is not relinquishing control of the leader's flight operation, nor does it limit freedom of choice. Instead it is argued that a responsibility exists to treat those a leader is responsible for with equally distributed fairness, not potential discriminatory influences. It is also argued leaders have the responsibility to provide guidance for those in charge in the event of the leader's absence regarding what to do to protect themselves, passengers and the assets of the organization.

Employees that present with alcohol and drug issues regularly make poor decisions and can exhibit reprehensible behavior. While the medical community officially recognizes substance abuse and dependency within the context of the disease model, it is often supremely challenging to separate the behavior of addiction from the

actual disease. These two components are separate, however intertwined they may be. When faced with an emotionally charged situation that evoke strong feelings, it is difficult not be swayed by these emotions. Having a policy in place may help mitigate the influence of emotionally charged decision making and gives guidance. Just as having an emergency checklist is critical to proper decision making when an aircraft has an engine failure, having a robust alcohol and drug policy in place is important for decision making for the safety of a flight operations personnel. Furthermore, this analogy can be used in the argument against creating a substance policy because of size or because the operation has not encountered such an issue. While many flight operations never experience an engine-out situation, as responsible leader's and pilots we could rarely consider flying without an emergency checklist because the flight operation is too small or because an engine-out had never occurred. Such is the case when considering risk mitigation for people and assets in critical decision making on the ground through the construction of substance policies.

The cultural stigmatization and challenges that come with substance abuse and dependence parallel those of mental illness and in some cases can be dually occurring, or co-morbid. Kay Redfield Jamison in her memoir, An Unquiet Mind discusses her struggle with bipolar disorder as a practicing Psychologist. An analogous message for the airmen who is struggling with substance abuse or dependence can be drawn. She writes,

> "The privilege to practice is exactly that, a privilege; it is not a right. The real dangers, of course, come about from those clinicians (or, indeed from those politicians, pilots, businessmen, or other individuals

> responsible for the welfare of others) who – because of the stigma or the fear of suspension of their privileges or expulsion from medical school, graduate school, or residency-are hesitant to seek out psychiatric treatment. Left untreated, or unsupervised, many become ill, endangering not only their own lives but the lives of others; often, in an attempt to medicate their own moods, many doctors will also become alcoholics or drug abusers" (Redfield Jamison, 1995).

The lack of judgment both by the affected airmen and the leaders of flight operations is pervasive in a work environment culturally steeped in intolerance. As a result of this intolerance, the industry lacks policy guidance. But ultimately we are not really talking about the freedom to control one's flight operation, to exercise individually tailored judgment, retaining airmen privileges or even careers - we are talking about saving lives. Policies give us the guidance to follow a checklist of action that protects the people who have lost the ability to protect themselves. Policies give us the guidance to protect our passengers, our assets and finally ourselves insulating us from potential litigious action. At the end of the day, as a leader isn't that what we are charged with doing-leading to protect? Because we are leaders, it is not about what I feel personally or what we want personally, but what is best for all involved.

> Jamison goes on to write, "Hospitals and professional organizations need to acknowledge the extent to which untreated doctors, nurses, and psychologists present risks to the patients they treat. But they also need to encourage effective and compassionate treatment and work out guidelines for safeguards and intelligent, nonpaternalistic supervision. Untreated

mood disorders result in risks not only to patients, but to the doctors themselves. Far too many doctors - many of them excellent physicians - commit suicide each year" (Redfield Jamison, 1995).

Her message can easily be rewritten for the aviation industry regarding substance abuse/dependence. Flight Operations and professional aviation organizations need to acknowledge the extent to which untreated aviators, mechanics, and air traffic controllers present risks to the people they transport. Untreated substance abuse and dependence produce resulting risks not only to passengers and assets, but to the afflicted professional themselves. Far too many airmen are encouraged to hide their battle with substances and are penalized when seeking help which may lead eventually to death.

Ultimately as clinicians, practitioners, researchers and leaders in the aviation community we are trying to identify those flight operations lead by those who are ready and require guidance in creating and changing alcohol and drug policies. There are those too who are experiencing ambivalence to change and even those who are do not yet recognize that change may be necessary (may be at risk for having an issue in their flight operation but do not have any policy or a policy that does not fully support their needs). Through this examination of the current state of corporate aviation's alcohol and drug policies we have gotten closer to gauging those flight operations that may fall into these categories. We also have a plethora of opportunities for further research to learn more and increase education in the area of alcohol and drug policies, resources and attitudes. Combined we have the chance to help an entire aviation community affected by the growing presence of alcohol and drugs.

APPENDICES

APPENDIX A

SURVEY INSTRUMENT

Corporate/Executive Flight Operations Alcohol/Drug Policy Survey

1. Informed Consent

You have been selected to participate in a research study about air crew alcohol and drug policies for FAR Part 91 flight operations. The purpose of this study is gain insight into the nature of air crew alcohol and drug policies among FAR Part 91 flight operations, their prevalence and factors influencing policy composition.

Over 400 leaders will be invited to take part in this study through the University of North Dakota (UND). This survey consists of 16 questions and your participation is estimated to last approximately 10 minutes. During the survey, participants are free to skip any questions that you would prefer not to answer. Upon completion of the survey, participants will be given opportunity to contribute additional information about policies for further analysis in support of this study.

There may be some risk from being in this study. You may experience frustration that is often experienced when completing surveys. Some questions may be of a sensitive nature, and you may therefore become upset as a result. However, such risks are not viewed as being in excess of "minimal risk". If however, you become upset by questions, you may stop at any time or choose not to answer a question. If you would like to talk to someone about your feelings about this study, you are encouraged to contact UND Research Development and Compliance office at 701-777-4279.

You will not have any costs associated with participating in this study. UND and the research team are receiving no payments from other agencies, organizations, or companies to conduct this research study. You may not benefit personally from being in this study. However, we hope that in the future other people might benefit from this study because the survey results will provide definitive data about the best practices of FAR Part 91 flight operations' policies and provide guidance to those who may want to incorporate new policies.

The records of this study will be kept private to the extent permitted by law. In any report about this study that might be published, you will not be identified. Your study record may be reviewed Government agencies, the UND Research developments and Compliance office, and the UND Institutional Review Board.

Data will be coded into a group format so as not to allow identification of data with an individual. Any information that is obtained in this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. Confidentiality will be maintained by means of deidentifion of the data. Raw data can only be accessed by the research team in password protected documents. Privacy and security of data is guaranteed by SSL encryption through Survey Monkey. If we write a report or article about this study, we will describe the study results in a summarized manner so that you cannot be identified.

Your participation is voluntary. You may choose not to participate or you may discontinue your participation at any time without penalty or loss of benefits to which you are otherwise entitled. Your decision whether or not to participate will not affect your current or future relations with UND.

The researchers conducting this study are:
Johnené Vardiman, Graduate Researcher
Warren Jensen, MD; UND Faculty, Aerospace Sciences
Paul Lindseth, PhD; UND Faculty, Aerospace Sciences
Tom Petros, PhD; UND Faculty, Psychology

You may ask any questions you have by emailing us at johnene.vardiman@und.nodak.edu. If you later have questions, concerns, or complaints about the research please contact Johnené Vardiman @ (940)-565-5048.

If you have questions regarding your rights as a research subject, or if you have any concerns or complaints about the research, you may contact the University of North Dakota Institutional Review Board at (701) 777-4279. Please call this number if you cannot reach research staff, or you wish to talk with someone else.

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1. By clicking the ACCEPT key, this indicates that this research study has been explained to you, that your questions have been answered, and that you agree to take part in this study. You will receive a copy of this form in email format.

- ◯ I ACCEPT
- ◯ I DECLINE

2. Operations: FAR Part

2. This flight department conducts operations under which FAR Part (please choose one answer):

- ◯ FAR Part 91 Only
- ◯ FAR Part 135 Only
- ◯ Both FAR Part 91 & Part 135
- ◯ None of the Above

3. Thank You for Your Time

Thank you for your willingness to participate in this study. However, at this time this study has been limited to assessing FAR Part 91 flight operations only. According to your response, your flight operation falls outside of those parameters.

In the future, we hope to expand this study to flight operations operating under additional FAR Parts. We hope that you will again agree to participate at that time. Thank you again for your time.

4. Flight Department Composition

3. How many pilots does your flight department employ?

Total # Pilots

4. What is the total number of aircraft operated by your flight department?

Total # Aircraft

5. What aircraft types does your flight department operate?
[Please list aircraft types and indicate multiples of the same type if applicable.]

5. General Alcohol/Drug Policies

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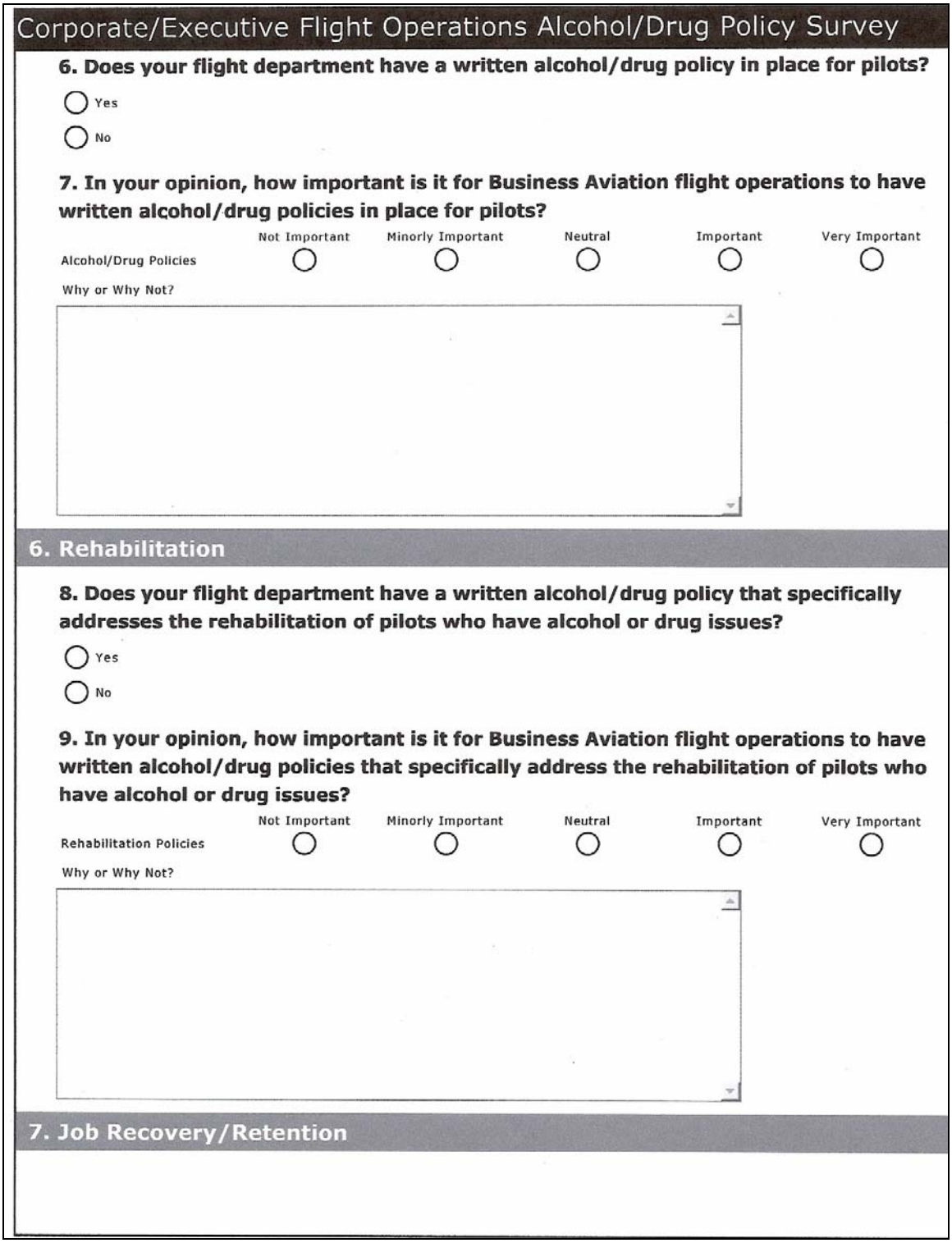

Corporate/Executive Flight Operations Alcohol/Drug Policy Survey

6. Does your flight department have a written alcohol/drug policy in place for pilots?

- ◯ Yes
- ◯ No

7. In your opinion, how important is it for Business Aviation flight operations to have written alcohol/drug policies in place for pilots?

	Not Important	Minorly Important	Neutral	Important	Very Important
Alcohol/Drug Policies	◯	◯	◯	◯	◯

Why or Why Not?

6. Rehabilitation

8. Does your flight department have a written alcohol/drug policy that specifically addresses the rehabilitation of pilots who have alcohol or drug issues?

- ◯ Yes
- ◯ No

9. In your opinion, how important is it for Business Aviation flight operations to have written alcohol/drug policies that specifically address the rehabilitation of pilots who have alcohol or drug issues?

	Not Important	Minorly Important	Neutral	Important	Very Important
Rehabilitation Policies	◯	◯	◯	◯	◯

Why or Why Not?

7. Job Recovery/Retention

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10. Does your flight department have a written policy that specifically addresses the job recovery/retention of pilots who have alcohol or drug issues?

- ◯ Yes
- ◯ No

11. In your opinion, how important is it for Business Aviation flight operations to have written policies that specifically address the job recovery/retention of pilots who have alcohol or drug issues?

	Not Important	Minorly Important	Neutral	Important	Very Important
Job Recovery/Retention Policy	◯	◯	◯	◯	◯

Why or Why Not?

8. Alcohol/Drug Issues

12. Have you ever been suspicious that a pilot in your flight operation might have some kind of alcohol or drug issue?

- ◯ Yes
- ◯ No

13. Have you ever had to address an alcohol or drug issue with a pilot in your flight operation?

- ◯ Yes
- ◯ No

9. Incorporation of Written Alcohol/Drug Policies

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14. How familiar are you with the voluntary FAA program, the Human Intervention Motivation Study (HIMS) to return pilots diagnosed with alcohol and drug issues to flying with the cooperation of the employer?

- ◯ (1) Unfamiliar (Never heard of the HIMS program)
- ◯ (2) Somewhat Familiar (Heard of the HIMS program, but don't know where to obtain program details)
- ◯ (3) Familiar (Have obtained HIMS program details and know where to obtain additional information)
- ◯ (4) Very Familiar (Have used the HIMS program as guidance in developing our own departmental alcohol & drug policy)
- ◯ (5) Extremely Familiar (Implemented a HIMS program in this flight department)

15. Would your flight department consider instituting a written alcohol/drug policy for the rehabilitation and job recovery/retention of pilots if a proven, successful template was provided?

- ◯ Yes
- ◯ No
- ◯ Maybe

Why or Why Not?

10. Optional Written Policy Submission

Your expertise is needed to learn the most we can about the depth and scope of existing alcohol/drug policies of Corporate/Executive flight operations. As a result, the research team is seeking voluntary submissions of written alcohol/drug policies from flight departments participating in this study.

** All information will be deidentified and kept strictly confidential. **

16. Are you willing to be confidentially contacted by the Principal Investigator to arrange a convenient way to submit a copy of your flight operations alcohol/drug policy?

- ◯ Yes
- ◯ No, Thank You

11. Confidential Contact Information

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17. If you are willing to be confidentially contacted, please complete the following contact information (optional).

Name:
Company:
Address:
Address 2:
City/Town:
State/Province:
ZIP/Postal Code:
Country:

18. Contact Phone Number (optional):

19. Email Address (optional):

12. Thank You

Thank you for participating in this research study. The information that you have provided is critical to understanding the composition of alcohol/drug policies in Corporate/Executive Aviation. Your time and effort is greatly appreciated.

Data will be coded into a group format so as not to allow identification of data with an individual.

The cumulative results and analysis of this study will be available at www.aero.und.edu by February 2008.

13. Study Contact Information

Contact Information:

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University of North Dakota
wjensen@aero.und.edu
701-777-3284 office

APPENDIX B

SURVEY EMAIL INVITATION

Dear Flight Department Leader,

As a graduate student working on my master's degree in Aviation at the John D. Odegard School of Aerospace Sciences at the University of North Dakota, I am seeking your industry expertise through a survey for my thesis work. This survey has been specifically designed for your operational environment - Business Aviation.

Your time is extremely valuable. This short survey has been limited to 16 questions, taking only approximately 10 minutes to complete. Cookies must be enabled on your computer to take the survey. Please note, your participation and the answers given will remain entirely confidential.

Your opinion and expertise matter. The purpose of this study is to gain insight into the nature of air-crew alcohol and drug policies among FAR Part 91 flight operations, specifically their prevalence and factors influencing policy composition. Your contribution will provide insight and guidance about voluntary, internal policy development as well as industry best practices in this particular area. This is your chance to voice your opinion and share your expertise regarding what the needs of the industry are regarding departmental air-crew alcohol and drug policies.

Your participation is greatly appreciated. Your invitation to participate in this study will be valid from October 15-31, 2007. Please click on the following link to complete your survey now: https://www.surveymonkey.com/s.aspx (Corporate Aviation Alcohol/Drug Policy Survey).

Thank you for your contribution. Should you have any questions about the survey or encounter any difficulties in completing the survey, please feel free to contact me.

Sincerely,

Johnené Vardiman, Graduate Researcher
John D. Odegard School of Aerospace Sciences
University of North Dakota
johnene.vardiman@und.nodak.edu
(940) 565-5048

Please note: If you do not wish to receive further emails from us, please click https://www.surveymonkey.com/optout.aspx (here), and you will be automatically removed from our mailing list.

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