

AN EVALUATION OF AN
INDUSTRIAL ALCOHOLIC REHABILITATION
PROGRAM

EVALUATION OF AN INDUSTRIAL ALCOHOLIC
REHABILITATION PROGRAM

By

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ABSTRACT

This thesis is a report of the evaluation of an industrial alcoholic rehabilitation program. The evaluation covered the years 1970 - 1974 inclusive and all those referred to the program were included in the sample.

Since employed problem drinkers are identified by deteriorating job performance, the variables selected for investigation were directly related to job performance. Absenteeism in four categories and visits to the industrial medical clinic were compared for three years; the year before referral, the year of treatment and the year after referral. Number of accidents sustained, both occupational and non-occupational and number of suspensions incurred were compared for the year before referral and the year after referral.

Information was collected on age, marital status, number of years employed in the industry and diagnosis of one or more selected alcohol-related conditions. Data were collected on the number of appointments scheduled and kept to determine compliance and its' relationship to outcome.

Those who refused to enter the program are described by mean age and mean number of years worked in the industry. Those who dropped out of the program before completing one full year post-referral are described by mean age, marital status, number of dependents, mean number of years worked in the industry and the mean number of months between referral and drop-out.

The evaluation demonstrated that the program has a 78.8% success rate. The data obtained led to the formulation of hypotheses suitable for testing in future controlled trials.

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AN EVALUATION OF AN INDUSTRIAL ALCOHOLIC REHABILITATION PROGRAM

1. INTRODUCTION

It has been estimated that 3% - 6% of employees in industry have an alcohol problem. (26) Dunn and Bradstreet calculate that alcoholism costs American industry \$7.5 billion per year. (3) In Ontario, industrial accidents, many of which involve the abuse of alcohol (the exact number is not known), cost \$261 million in compensation benefits in 1974. This averages out to \$33.18 per year for every man, woman and child in the province. (25) Add the costs of loss of trained, skilled employees, loss of productivity, costs of absenteeism and sick benefits and it becomes apparent that industry has a lot at stake. These economic factors together with humanistic reasons, have prompted many industries to initiate alcohol rehabilitation programs. However, many of these programs have been implemented haphazardly without sufficient evidence of effectiveness in terms of expected success rates. Evaluation of existing IARP are necessary if we are to have factual information on which to base the development of new programs or the re-organization of any currently in operation.

1.2 Reasons for Descriptive Evaluation

Review of available literature and discussions with individuals active in the field of industrial alcoholism indicated that data which is available is not adequate for formulating realistic hypotheses regarding either the efficiency or efficacy of IARP. This ruled out an analytic study and indicated the need for a descriptive one. Sackett et al (22) defined a compound descriptive study as: "An investigation carried out in

order to provide relative statements (comparing individuals at different times, places, socio-economic strata or with different signs and symptoms) about a characteristic of interest." They further indicated the uses of compound descriptive studies as follows: (22)

USES: incidence, prevalence, distribution, clinical description and course (before - after) drug surveillance and monitoring.

HYPOTHESES FORMING - only

HYPOTHESES TESTING - never

Therefore, a descriptive retrolective study was considered appropriate for this evaluation. Specifically a descriptive study could:

- (1) Provide descriptive characteristics of candidates to the program which would aid in future selection of appropriate control groups for trials of therapy.
- (2) Determine the characteristics of workers who accept the program and those who refuse it and/or terminate their employment.
- (3) Establish success rates by examining several variables related to job performance before and after referral to the program.
- (4) Provide background data for formulating hypotheses related to the efficiency and efficacy of IARP.

1.3 Description of the Remainder of this Thesis

This thesis describes in detail the evaluation of an IARP under the following headings:

2. Review of the literature on industrial alcoholism and evaluation of industrial alcoholic rehabilitation programs.
3. Methodologic design utilized in the evaluation.
4. Results of data analysis.

5. Discussion.

6. Conclusion.

2. REVIEW OF THE LITERATURE ON INDUSTRIAL ALCOHOLISM AND EVALUATION
OF INDUSTRIAL ALCOHOLIC REHABILITATION PROGRAMS

2.a. Review of the Literature: Industrial Alcoholism

2.a.1 Alcoholism in Canada

The full impact of alcoholism and/or problem drinking in Canadian society is unknown. However, available data reveal that it ranks with cancer and coronary heart disease as a major health problem. (1) Data for a few alcohol-related problems are listed below:

- (1) 1965 - 1973; Statistics Canada reported a 101% increase in the number of cirrhosis deaths.
- (2) 1961 - 1970; Statistics Canada reported that alcohol was involved in 35% of all homicides.
- (3) 1969 - 1972; the total number of motor vehicle convictions involving alcohol increased 93%.
- (4) 1972; 17% of the first admissions to psychiatric wards and institutions were for alcoholism or alcoholic psychoses. (6)

The estimated annual cost of alcoholism to Canadians is \$1 billion.

Absenteeism and sloppy work	\$250,000,000
Health and Welfare costs	375,200,000
Motor Vehicle Accidents	<u>357,500,000</u>
TOTAL	\$982,700,000 (2)

This does not include alcohol-related costs to the Criminal Justice System, fire and accidents other than motor vehicles.

2.a.2 Definitions of alcoholism and problem drinking

The terms "alcoholism" and "alcoholic" rarely have the same connotation for any two individuals. The numerous published definitions do little to lessen the confusion. Two more frequently cited are:

"Alcoholics are those excessive drinkers whose dependence upon alcohol has attained such a degree that it causes a noticeable mental disturbance or an interference with their physical and mental health, their interpersonal relations, and their smooth social and economic functioning." WHO, 1952. (33)

This definition fails to distinguish between addictive and non-addictive drinking.

Edwards (1973) made this distinction:

"Alcoholism may be taken to imply any type of drinking which is giving rise to social, physical or mental impairment, and the label does not necessarily presume a state of psychological or physical dependence on alcohol." (5)

Neither of the above definitions describes problem drinking in a manner relevant to its meaning in IARP. The industry whose program's evaluation is described in this thesis defines problem drinking as any usage of alcohol which habitually interferes with the employee's job, his work performance and/or his relationships with supervisors and co-workers. This definition is implied whenever the terms "problem drinking" or "alcoholism" are used in this thesis.

2.a.3 Problem drinkers in Industry

There is a paucity of Canadian data on problem drinking in industry. The estimate that 3% - 6% of employees in industry have an alcohol problem is based on American data, but the figures probably also reflect the Canadian situation. (26)

It is suspected that problem drinkers miss more time from work and are involved in more accidents than those without this problem. One study found that problem drinkers average a loss of 22 days per year and have frequent occupational and non-occupational accidents. (12) Incidentally, the average of 22 lost working days is excessively low as compared to the averages found in this evaluation. (Table 12)

Von Wiegand, one of the most active researchers in this field, demonstrated that industry sustains alcohol related costs in numerous ways:

- (1) Loss of skilled manpower; if problem drinking continues without intervention, the alcohol-related problems become so great that the employee is either fired or quits and his skills are lost to industry.
- (2) Recruiting and training costs - Suitable personnel must be hired and trained to replace the departing problem drinkers.
- (3) On and off the job accidents - The problem drinker sustains a lot of accidents which result in loss of work time, costs of compensation, part-time employees and/or overtime.
- (4) Absenteeism - Loss of work days for several reasons.
- (5) Spoiled materials - Nervousness, unsteady hands, poor judgment etc., all affect the quality of work done by the problem drinker.

- (6) Erratic performance - His absenteeism, accident rates and behavior when he is at work contribute to unreliable work performance.
- (7) Medical and disability payments - Because of the amount of minor illness suffered and the accidents incurred by these employees, these costs to industry are substantial.
- (8) Sick leave pay - This cost is related to items 3, 4 and 7 of the above. (29)

Thus, the problem drinker seriously affects the efficiency of his employer, and from an economic point of view it is in industry's interest to initiate or facilitate programs aimed at preventing and treating this problem.

2.a.4 Characteristics of the Employed Problem Drinker

The employee who has crossed the line that separates the social drinker from the problem drinker (i.e., has lost control of his drinking) may evidence subtle changes in work behavior which may be noted by supervisors and industrial medical staff. For example, signs of developing alcoholism described by Watterson (31) may be exhibited by employees with an alcohol problem. These are:

- (1) Leaving his post at work for brief periods.
- (2) Increased absenteeism with unusual excuses.
- (3) Repeated late arrival at work.
- (4) An increase in minor illnesses.
- (5) Increased nervousness.
- (6) Lowered work productivity and poorer quality of work.
- (7) Hangovers at work.
- (8) Increased irritability.

- (9) Jitteriness and hand tremors.
- (10) Red or bleary eyes.
- (11) Avoiding bosses and/or work mates.

Tuttle (27) agrees with these early signs and adds another; the display of erratic judgment. Both Tuttle (27) and Parades (19) discuss the detrimental effects of an increase in sympathy for the alcoholic and his problem. They elaborate that when employees have had good work records, bosses and work-mates tend to overlook or rationalize alcohol-related lapses. This may reinforce these employees' own rationalizations at a time that may be best for intervention. Unwarranted sympathy may in fact promote drinking in some alcoholics.

It is estimated that the problem drinker has 3-1/2 times as many accidents both on and off the job as the average non-drinking industrial population. (17) The same author describes the over 40 year old drinker as having fewer occupational accidents than the problem drinker under 40 years, for which he suggests some reasons: During the 15 - 20 years it took him to reach that stage, the worker developed a "protective mechanism" against sustaining occupational accidents and became "alcohol-wise" (ie., knows when his consumption of alcohol has given him side-effects that make work hazardous, so he stays away); the older employee probably has safer, more routine jobs, is overcautious and has learned to cover-up mistakes and has rates of absenteeism that protect him from making errors. However, his off-the-job accident rate equals that of the under 40 years problem drinker.

The employed problem drinker has other behavioral patterns that differ from those of his work-mates. These discernible patterns permit

alert supervisors to identify developing problems in the work place that may be related to alcohol abuse. Mueller (16) describes very early signs of problem drinking of four types.

TYPE I: Appears early and frequently thereafter.

- Leaving post temporarily
- Absenteeism: half-day or day
- Unusual excuses for absences
- Mood changes after work
- Red or bleary eyes

TYPE II: Appears later but frequently thereafter.

- Less even, more spasmodic work pace
- Lower quantity of work
- Hangover on job

TYPE III: Appears fairly early, infrequently thereafter.

- Loud talking
- Drinking at lunch time
- Longer lunch periods
- Hand tremors

TYPE IV: Appears late and infrequently thereafter.

- Drinking during working hours
- Avoiding boss or associates
- Flushed face
- Increase in real minor illnesses

These patterns may allow management and industrial health professionals to define criteria to identify problem drinking with greater accuracy in industry than in society in general. Problem drinking exists when:

- (1) The efficiency and dependability of the employee is reduced because of such drinking.
- (2) Such drinking is not an isolated experience but more or less repeats itself.
- (3) Such drinking interferes with the employee's health and personal relations with fellow employees. (12)

The most encouraging prognostic factor of the employed problem drinker is that, unlike his unemployed counterpart, he may be more motivated to rehabilitation when his problem is identified sufficiently early and has a much more intact social support system. Manes (12) states that two more apparent reasons for his acceptance are:

- (1) He still has a job and is usually still with his family.
- (2) He has just gone over the line from a heavy social drinker to a problem drinker.

Von Wiegand (30) however, states that treatment can start only when alcohol gives more pain than pleasure, and that most employees will accept treatment ONLY when the consequences of NOT accepting treatment are more intolerable than accepting treatment. The threat of job loss may be the "intolerable consequence" of not accepting treatment that motivates many employed problem drinkers to accept treatment. Von Wiegand states that this encourages an atmosphere of optimism to prevail in IARP.

2.b.1 Review of the Literature: Evaluation of IARP

The declining force of the Puritan Ethic in the U.S.A., over the last ten years is reflected in the public's changing attitudes toward treatment of alcoholics. Linsky (11) in a 1968 survey revealed that the lay public preferred medical and psychiatric help for the alcoholic to

will power, religious help and legal controls. There were also indications of a strong trend towards belief in public responsibility for treatment of alcoholism and optimism concerning treatment outcome.

However as previously described, Tuttle (27) and Parades (19) discuss the effects of the increase in sympathy for the alcoholic and his problem and the detrimental effects of this negation of the personal responsibility of the problem drinker to accept and cooperate with the treatment process.

2.b.2 Problems in Getting Alcoholic Employees to Treatment

Von Wiegand (30) states that the employee with a drinking problem differs from the employee with poor eyesight, diabetes etc., in that he does not want to be treated and will accept treatment only when the consequences of not accepting treatment are more intolerable than accepting treatment. In an earlier publication, Von Wiegand (28) had listed four major obstacles in the "goal of maximum reduction."

- (1) The difficulty of early detection.
- (2) Society's stereotype of the alcoholic as a skid-row derelict.
- (3) The powerful nature of the addiction.
- (4) The victim's guilt feelings, remorse and hopelessness, which prevent his seeking treatment.

Norris (18) labels the social obstacles that interfere with constructive action early enough as a 'conspiracy of silence.' The most important parts of this conspiracy are:

- (1) The stigma of the word alcoholism - skid-row derelict.
- (2) The resentment, shown by a member of our social group who drinks too much when anything is mentioned about his drinking.

- (3) The apparently sincere promises made after an episode of over indulgence with its associated troubles, followed by an improvement then a relapse into old patterns.
- (4) Anyone who mentions the unwise use of alcohol is a "kill-joy" or a moralist.

An additional difficulty in getting the employed problem drinker into treatment is an ethical one. An industry may suspect that an employee is drinking too much off the job and that he is having social and familial problems related to this abuse of alcohol; however, until alcohol abuse exhibits itself in his work performance, industry cannot intervene. Intervention in the off work habits by his employer is construed by most workers and their unions as an 'invasion of privacy.'

2.b.3 Rationale for IARP

Von Wiegand (29) in an address to the National Council of Alcoholism made this statement "...one of the most fruitful efforts we can make is to enlist the support and cooperation of industry; mobilize the resources of industry to accomplish early detection and motivation to treatment of its own employees."

He added further that industry not only contains the largest single group of alcoholics who can be effectively reached by mass method, but may also provide the most effective tool to motivate the alcoholic to accept treatment: the alcoholic worker accepts the treatment necessary to improve his job performance or his employment is terminated.

The IARP is also the most effective way of treating alcoholics in large numbers rather than on a one to one basis as is the case in community programs. That is, industry, through its organizational

structure, can monitor the daily post-referral behavior of large numbers of employees whereas the community clinic must assign one counsellor to the follow-up of each client. One counsellor can effectively handle a few clients at a time and not on a daily basis. This is of vital importance when one considers the few people and small amounts of money available to do the job.

Another reason for enthusiasm is the high success rate claimed by established IARP. Mueller (16) and Von Wiegand (14) both report that IARP have 50% - 80% success rates, based on evaluation of post-referral work performance. Whereas only 30% - 40% respond in other programs.

2.b.4 Philosophy, Policies, Attitudes of IARP

It has been noted previously (30) that an employee with a drinking problem will evidence a deteriorating pattern of job performance and that his desire to hold his job is a very effective motivational tool. An industry, with a successful program, takes the position that:

- (1) Alcoholism is a disease which requires treatment.
- (2) Every effort should be made to rehabilitate the alcoholic employee.
- (3) Early recognition of the problem drinker is a function of management.
- (4) If rehabilitation fails because of the employee's lack of cooperation, services should be terminated by resignation or dismissal. (12)

Different industries have developed programs appropriate to their situation vis-a-vis the community, personnel, attitudes and relationships within their company. However, there are similarities among them and Norris (18) describes four elements common to most programs. These are a company policy; an informed and understanding supervisory group which recognizes early symptoms and signs and uses the authority implicitly in

the employment situation to motivate acceptance of therapy; treatment resources in the plant or community or both; sincere interest on the part of all concerned recognizing the ambivalence most of us have to alcohol and the alcoholic.

Many IARP's stress controlled drinking as their goal rather than abstinence. Sobel (24) among others, states that problem drinkers who had therapy in programs which emphasized abstinence did not do any better than those in programs which emphasized controlled drinking. However, Parades (20) states that alcoholic drinking is repetitive, compulsive and chronic and that it requires a sustained supply of liquor, is repeated for long periods of time, is practiced over the objections of others and involves great effort and expense. These behaviors are incorporated in the sub-culture of deviant drinkers so that a successful program with controlled drinking as an objective should include methods of re-acculturation. These can be started during the active treatment period and incorporated into the follow-up sessions which should also involve husband or wife. However, one of the major deficiencies of alcoholism programs is the lack of evidence that treatment of any kind alters the natural history of the disease. (13) I found no reports of carefully controlled therapeutic experiments in this field.

2.b.5 Role of Supervisor in IARP

Von Wiegand (28) stresses that the success of secondary prevention is directly related to the time elapsing between the onset of problem drinking and the time it is detected. The supervisor therefore plays a crucial role in early recognition but his role extends beyond that. His functions include: (4)

- (1) The Recognition Process - job performance.
- (2) The Confrontation Process - employee faced with deteriorated work performance and work related behavioral problems.
- (3) The Referral Process - employee sent to medical personnel.
- (4) The Treatment Process - supports the psychological homeostasis of the employees and sees to it that there is no change in his job duties, responsibilities and work relationships.

The supervisor is the one most likely to observe the onset of the work related symptoms of problem drinking; this suggests that he may be the most important link in the identification process. Therefore, this level of management should be made cognizant of the behavioral patterns of employed problem drinkers and the signs and symptoms of a developing problem. This might expedite the earlier identification of these employees as well as assist the individual supervisor in recognizing his responsibilities towards these workers.

2.b.6 Prognostic Indicators

Another major deficiency in alcoholic rehabilitation programs is the lack of indicators for prognosis and/or acceptance of treatment for problem drinking. Ritson (21) defines four indicators for prognosis: faithfully used Antabuse [®] (drug which when taken causes a reaction to ingested alcohol); understood techniques to avoid drinking; discussed their drinking problem with others; evidenced capacity for anticipating future stress and seeking realistic solutions. Wilkinson et al (34) found that those who completed the program as a group, indicated more

adequate personal adjustment in marital status, job history and drinking patterns but could not differentiate between completor and drop-outs by level of intelligence, specific vocational interests or individual value systems. Goss et al (6) found that personality dimensions were not sufficient to predict completors and drop-outs.

Investigating compliance, Mayer et al (14) found a relationship between keeping initial appointments and length of time to admittance to residential program. Those being admitted within a few days tended to keep their appointments while those waiting longer periods to be admitted did not. There was no difference in compliance with respect to age, sex marital status, race, religion, occupational status, income or place of residence.

All of the above indicate again the need for controlled therapeutic trials to isolate the factors that determine acceptance, compliance and outcome. The identification of prognostic indicators would do much to alleviate the uncertainty and indecision which permeates most alcoholic rehabilitation programs. IARP co-ordinators are optimistic about the motivation of the employed problem drinker but they also experience refusals, drop-outs and failures so that neither is the desire to retain his employment a completely adequate indicator of prognosis.

2.b.7 Criteria for Evaluative Research in Alcohol Programs

The necessity of evaluating alcohol programs has been discussed previously and various research groups have worked on developing criteria and methods for their evaluation. Helnick et al (7) describes a method for monitoring and evaluating alcohol programs which is currently in use by Alaska State Health Department. The system utilizes a problem-solving

process consisting of four steps: (1) information gathering
 (2) assessment
 (3) treatment planning and,
 (4) treatment.

These four steps are translated into a minimum standard of care and incorporated into the evaluative methodology. The developers state that this method allows for standardization of data collection, provides information on alcoholism and related problems and facilitates monitoring of therapeutic planning.

Another group of researchers have composed a list of criteria for valid evaluative research in this field. (9)

- (1) To attribute change to a specific treatment one must show that the change would not have occurred with the treatment.
- (2) To study a behavior change, the behavior to be evaluated must be selected and defined and be relevant to the treatment program goals.
- (3) Reliable methods and instruments must be used to measure the changes.
- (4) Pre-and post-treatment measures must be taken.

If one considers the above, IARP have specific outcome criteria which must be evaluated:

- (1) Controlled drinking - since this is the goal of IARP, relapses are expected during the rehabilitation period because the participant may require time to learn the habits necessary to facilitate controlled drinking.
- (2) Absenteeism - evaluation of pre-and post-referral of lost work days and the cause. There should be a decrease in post-referral.

- (3) Accident rates evaluated pre-and post-referral should also indicate improvement after treatment.
- (4) Material breakage rates should be lower after treatment.
- (5) Supervisory evaluation of work performance.

The personnel in these programs are aware that evaluation of work performance does not reveal if the individual has overcome his dependency on alcohol or has only overcome one or more of the indicators of his dependency. (23) These criteria fit some of the requirements for a controlled analytic study but can be also utilized in a descriptive evaluation.

2.b.8 Description of IARP which was Evaluated

The industry whose program was evaluated is committed to a policy of rehabilitation for problem drinkers in their employ. Their policy is similar with that of other industries. (12,31,30) Total abstinence is not a primary aim; rather the goal is to assist the individual to control his drinking and to help him cope with his job, and family etc.

The employee is identified by his superior, personnel department or the industrial medical department by deteriorating job performance and/or behavioral patterns suggestive of alcohol abuse. He is assessed and if his problems are alcohol related, he is referred to the program; if he refuses he is told he may lose his job. If the employee accepts referral but his job performance does not improve, then he may still lose his job. Relapses during rehabilitation are common and a man may be referred to the program several times before he shows improvement. The industry believes that it is the employee's personal responsibility to accept the treatment, control his drinking problem or accept the conse-

quences of not doing so. The policy is enforced and an employee, who continues to exhibit work-related behavioral patterns resulting from alcohol abuse, will be fired or asked to resign.

The treatment begins with a 21-day intensive therapy period in a local hospital. Antabuse therapy is begun and the clients participate in individual and group sessions designed to assist them in gaining insight into their problem and to make realistic assessments of their familial and social environments. Facilities are available for the participation of wives or husbands and they are encouraged to become involved. Following discharge from the hospital, he is admitted to a 14-month follow-up which includes participation in the hospital's out-patient program and monitoring by the industrial medical staff. Initially Antabuse is administered daily by the industrial clinic staff, but after a demonstration of faithful adherence to the program, some of the participants are permitted to take the medication at home. This privilege is revoked at the first indication of a relapse. The employee's work performance is carefully monitored and the industrial clinic staff are prepared to offer encouragement and other support such as home visits if necessary.

The criteria for success are improved work performance and a change in the alcohol-related behavioral problems which were evident before referral.

The review of the literature confirms that the choice of variables to be measured pre-and post-referral to IARP was appropriate and specific for employed problem drinkers and their alcohol-related work patterns. A detailed description of the variables selected, the reasons for their selection and the methodology used in the evaluation, is contained in the following chapter.

3.

METHODOLOGY

3.a STUDY DESIGN

3.a.1 Variables Used for Evaluation

Since employed problem drinkers are identified by deteriorating job performance, the variables selected for investigation were directly related to job performance. These were:

- (1) Absenteeism as recorded in four categories; illness, suspension, without reason or compensable injury. These categories were taken from the industry's codes for absenteeism (Appendix B) and were selected as being the categories in which problem drinkers lose more work time than those not identified as problem drinkers.
- (2) Visits to the industrial medical clinic for three categories of conditions; medical, trauma, counselling for alcohol-related problems. This information describes clinic usage by this group and also reveals the number of minor accidents they sustain which would not result in an insurance or compensable claim. These two variables were assessed for three years; the year before referral, the year of referral and the year after.
- (3) Accident rates, both occupational and non-occupational, as determined by insurance claims and compensation code on absenteeism form.
- (4) Numbers of suspensions incurred. Variables 3 and 4 were evaluated for the year before referral and the year after.

Information was collected on age, marital status, number of years employed in the industry, number of dependents, recorded blood pressure and diagnosis of one or more selected alcohol-related conditions. The

conditions chosen were: Gastritis, Gastric Ulcer, Gastrectomy and any Hepatic disorder. Data were collected on the number of appointments scheduled and kept to determine compliance and its relationship to outcome.

3.a.2 Sample Selection

The sample included all those referred to the program during 1970 - 1974 inclusive. All first, second or third referrals were evaluated. Those who accepted, refused, dropped out or died were evaluated, however, there were only three deaths in the group and because of the risk of their identity being revealed, they will not be described as a separate group. All but one of the referrals were male.

3.a.3 Data Collection

The author designed the data collection forms used in this study (Appendix A). The records from which the data was obtained were:

- (1) Industrial medical records - all pertinent medical data, information on alcohol problems and demographic characteristics.
- (2) Personnel records - information on absenteeism, suspensions, demographic characteristics, length of employment in the industry and compensable injuries.
- (3) Accident claims - all employees have comprehensive accident insurance as a fringe benefit so all claims for non-occupational accidents are recorded.
- (4) Hospital records - numbers of appointments scheduled and number kept in follow-up period.

All information was confidential and the identity of the participants was completely protected. Following statistical ordering and analysis

of the data, all data collection forms were returned to the industrial medical department.

3.a.4 Biases identified

- (1) SAMPLING BIAS - with one exception, all the referrals were male but there may be plausible reasons for this. Problem drinking in employed females may not be as severe and/or may be more difficult to identify. This industry employs mostly males; 92% of the company's work force are male.
- (2) SLOPPY DATA BIAS - the evaluation of work performance required the review of various records. Information was frequently absent, illegible or inconsistently recorded. The records were cross-checked to ensure that major discrepancies were corrected.
- (3) IDENTIFICATION BIAS (15) - community alcohol programs generally have a clientele identified by the judicial system, doctors, social agencies, referred by employers and self-admissions. The majority of them have come into conflict with society because of their drinking problem. IARP overcame this bias because they identify those who would not consider themselves alcoholic and usually have not been labelled as such by another agency.

These three biases were considered to be the ones most likely to interfere with this research project. The sloppy data bias and the identification bias have been controlled for as described. Very little can be done to correct the sampling bias. Appendix A contains a complete description of the first two biases and the third is described in reference (15).

3.b Data Analysis

The evaluation was performed in accordance with descriptive methodology. According to Sackett et al (22), Holland (10) and Hill (8) the use of tests for significance were unsuitable and only descriptive statistics were appropriate.

Refusals and drop-outs (those who left the industry less than one year after referral) were described by age, marital status, number of dependents, number of years employed in the industry and length of time between referral and leaving.

Absenteeism in the four categories described were compared for the year before referral, the year of referral and the year after referral. The number of suspensions incurred, number of accidents sustained (occupational and non-occupational) and the number of 1, 2, 3, 4, or ≥ 5 day episodes of absenteeism were evaluated for the year before referral and year after. Comparison of these variables was performed in all those who remained in the industry for \geq one year post-referral. The three who died had completed one full year post-referral and are included in the group.

The number with a diagnosis of one or more of the four selected medical conditions by number and percent. This was described for the non-drop-outs and the drop-outs.

3.c Criteria for Success

The investigator decided that a participant would be considered as having had a successful outcome if he had demonstrated a decrease in total absenteeism, number of suspensions incurred and number of accidents sustained. Those participants showing no change in these variables were

described as "no change". This included those who were referred for alcohol-related behavioral problems other than increased absenteeism. Those participants who demonstrated an increase in any of the variables measured were ranked as having had a poor outcome even if the lost time was due to medical conditions and there was no evidence of alcohol abuse. Industry would evaluate these men as having a successful outcome. However, if deteriorated work performance is the criteria for identification and referral, then improved work performance must be the criteria of success.

4.

RESULTS

This chapter deals with the results of the data analysis as revealed in a number of tables. The tables will be described and discussed briefly to prepare the reader for more detailed discussion in the following chapters.

Tables 1 to 4 describe the numbers of referrals and characteristics of those referred to the program.

TABLE 1: Of the 137 referrals to the program, 100 were first time referrals, 19 were second time referrals and 6 were third time referrals. There is very little yearly variance from the mean age of 38.3 years. The mean number of years employed in the industry shows a gradual increase in 1971 and 1972 with a peak in 1973 and a decline in 1974. This suggests that in 1971 - 1973, more long-term employees were being identified than in previous years and supports the coordinator's statement that the supervisors became more willing to refer the longer-term employees and less willing to cover for them.

TABLE I: Numbers of men referred to IARP by year of referral, acceptance or refusal of IARP, mean age and mean number of years employed.

YEAR OF REFERRAL	NUMBER FIRST REFERRALS	NUMBER SECOND REFERRALS	NUMBER THIRD REFERRALS	NUMBER REFUSALS	MEAN AGE	MEAN NO. YEARS EMPLOYED	TOTAL REFERRED
1970	20	3	0	3	36.6	8.2	26
1971	15	3	0	3	39.6	10.7	21
1972	17	2	1	2	41.3	12.7	22
1973	16	7	1	2	41.3	14.3	26
1974	32	4	4	2	36.1	8.2	42
TOTALS	100	19	6	12	38.3	10.9	137

TABLE 2: The age specific referral data indicate that the majority of first time referrals were over 31 years of age. However, 33 or 29.5% of 112 first time referrals were under the age of 30. One supposition is that it requires a number of years of drinking before behavioral patterns related to alcohol abuse become evident. Then, the 29.5% represented here must have begun alcohol use at an early age and developed a pattern of usage conducive to the early development of problem drinking.

TABLE 2: Age specific first time referrals by year.

YEAR	AGE										TOTALS
	17-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	
1970	1	2	5	3	2	3	6	0	0	1	23
1971	0	0	4	2	5	3	2	0	2	0	18
1972	0	2	3	4	1	4	4	0	1	0	19
1973	0	1	3	2	3	3	3	1	2	0	18
1974	1	8	3	6	8	3	3	1	1	0	34
TOTAL	2	13	18	17	19	16	18	2	6	1	112

TABLE 3: The three marital status classes in the general industrial population are well represented in the referral group. It should be noted that these data were obtained from medical and personnel records and may not accurately depict current marital status and/or number of dependents since employees may not notify their employer of changes in marital status or of the birth of a new dependent. This table reveals that marital status is not associated with acceptance of the referral.

TABLE 3: Users and non-users* of IAPP by year of referral, marital status and number of dependents.

YEAR OF REFERRAL	CLASSIFICATION	NUMBER MARRIED	MEAN NUMBER DEPENDENTS	NUMBER SINGLE	NUMBER OTHER ₁	MEAN NUMBER DEPENDENTS	TOTAL
1970	User	14	1.5	4	5	1.5	23
	Non-User	0	0	1	2	2.0	3
1971	User	12	1.7	3	3	1.5	18
	Non-User	3	1.6	0	0	0	3
1972	User	15	2.2	2	3	2.0	20
	Non-User	1	0	1	0	0	2
1973	User	21	2.1	1	2	1.0	24
	Non-User	1	0	1	0	0	2
1974	User	27	1.7	7	6	2.0	40
	Non-User	1	0	1	0	0	2
TOTAL		95	1.9	21	21	1.6	137

Non-users* : includes refusals and drop-outs.

Other₁ : separated, divorced, widower.

TABLE 4: The third group labelled "other" is comprised of those who are separated, divorced or widowed, they were grouped together because of the small numbers in each category. The data suggest that this group may drop-out of the program more frequently (33.3%) but it takes them longer to do so. The single group are, as expected, younger, have been employed in the industry for less time and are quicker to leave. However, neither marital status nor number of years employed in the industry appears to be an indicator of either acceptance or remaining in the program. It was noted earlier that these data are not thought to be an accurate depiction of marital status so strong conclusions can not be drawn from this table.

TABLE 4: Referrals who accept the program and then drop-out or leave their employment, by mean age, mean number of years worked, mean period between referral and drop-out and by marital status.

MARITAL STATUS	NO.	%	MEAN AGE AT LEAVING	MEAN NO. YEARS AT DOFASCO	MEAN NO. MONTHS BETWEEN REFERRAL AND DEPARTURE	TOTAL DROP-OUTS AND NON-DROP-OUTS
Married	25	26.3	31.3	6.8	7.9	95
Single	6	28.6	24.7	1.7	4.2	21
Other	7	33.3	34.9	4.3	10.7	21
TOTALS	38	27.7	31.0	5.5	8.1	137

TABLE 5: The numbers who accept, refuse or drop-out of the IARP and the number remaining in the industry for at least one full year after referral. All of the refusals were first time referrals. Two second time referrals dropped out.

TABLE 5: Breakdown of the 137 referees to the program as to acceptance, refusal or drop-out.

NUMBER REFERRED	ACCEPTORS	REFUSAL	DROP-OUTS < 1 YEAR	REMAINING ≥ 1 YEAR POST-REFERRAL
137	125	12	21	104

TABLE 6: Important figures for IARP planners are the ones denoting the differences between on and off the job accidents before and after referral. The decrease in occupational accidents and increase of 3 in non-occupational accidents after referral supports the premise that evaluation of work performance may only demonstrate that the problem drinker has control of the manifestations of his drinking. Further research in this area is necessary.

TABLE 6: *Accidents incurred by those² referred to IARP by place of accident, before and after referral.

	BEFORE			AFTER			DIFFERENCE	
	WORK	NON- OCCUP.	TOTAL	WORK	NON- OCCUP.	TOTAL	WORK	NON- OCCUP.
Number	29	116	145	13	119	132	↓ 16	↑ 3
Mean	.3	1.1	1.4	.1	1.1	1.3		

* As indicated by Insurance Claims.

²N = 104. All those who remained in their employment for 1 full year after referral.

TABLE 7: Number of accidents by place of occurrence and age, before and after IARP.

AGE	BEFORE IARP			AFTER IARP			DIFFERENCE
	OCCUP.	NON-OCCUP.	TOTAL	OCCUP.	NON-OCCUP.	TOTAL	
17-20	0	1	1	0	0	0	-1
21-25	2	9	11	0	8	8	-3
26-30	4	10	14	4	11	15	+1
31-35	11	22	33	3	28	31	-2
36-40	2	28	30	1	22	23	-7
41-45	3	18	21	4	18	22	+1
46-50	5	20	25	1	19	20	-5
51-55	2	3	5	0	2	2	-3
56-60	0	5	5	0	11	11	+6
61-65	0	0	0	0	0	0	0
TOTAL	29	116	145	13	119	132	-13

Suspensions are the major method of discipline. Suspensions may be incurred for a number of reasons including: failure to report for work without reason; reporting for work under the influence of alcohol; drinking on the job; altercations with supervisors or fellow workmen. In table 8, the age specific rates of suspension before and after referral are presented. Before referral, 41 men incurred a mean 1.5 suspensions for a mean loss of 4.5 working days; in the year after referral, only 19 men received a mean 1.5 suspensions for a mean loss of 4.5 working days. 22 men improved in the areas likely to incur discipline but perhaps the "sympathy factor" discussed earlier is indicated here as well.

TABLE 8: Number of suspensions incurred by referees by age, before and after IARP.

AGE GROUP	TOTAL IN GROUP	TIME PERIODS	NUMBER RECEIVING SUSPENSION	MEAN NUMBER SUSPENSIONS	MEAN NUMBER DAYS LOST
17-20	2	Before	1	1.0	4.0
		After	0	0	0
21-25	11	Before	2	1.0	6.0
		After	2	1.0	1.5
26-30	17	Before	8	1.5	2.5
		After	1	1.0	3.0
31-35	15	Before	4	2.5	4.5
		After	1	1.0	3.0
36-40	18	Before	7	1.6	5.6
		After	6	1.7	2.8
41-45	17	Before	9	1.6	4.2
		After	4	2.0	5.0
46-50	17	Before	8	1.0	4.3
		After	4	1.3	9.8
51-55	2	Before	1	1.0	14.0
		After	0	0	0
56-60	4	Before	1	1.0	5.0
		After	1	1.0	2.0
61-65	1	Before	0	0	0
		After	0	0	0
TOTAL	104	Before	41	1.5	4.5
		After	19	1.5	4.9

The data in Table 9 were obtained from medical records and support other researchers' (31, 27, 19, 30, 28) claims that the problem drinker has higher than average incidence of minor illnesses.

The "trauma" category indicates the number of minor injuries neither compensable nor likely to cause loss of work days. The visits designated "alcohol related" indicate the expenditure of time and effort by the clinic staff for this group.

TABLE 9: Clinic usage by referrals¹ to IARP by year before referral, year of referral, year after referral.

YEAR EVALUATED	MEDICAL	TRAUMA	ALCOHOL RELATED	TOTAL	MEAN
Before Referral	104	44	39	187	1.5
Year of Treatment	130	52	207	389	3.2
Year after Referral	140	46	62	248	2.0
TOTAL	374	142	308	824	6.7

¹N = 104 all those who accepted program, including drop-outs.



A search of the medical literature provided the information that gastritis, gastric ulcer, gastrectomy and hepatic disorders are commonly related to excessive alcohol use. Table 10 demonstrates that 54% of the referrals had a diagnosis of one or more of these diseases.

TABLE 10: Distribution of four diseases frequently related to alcohol abuse¹.

MEDICAL CONDITION	DIAGNOSED	% WITH DIAGNOSIS
Gastritis	26	21.0
Gastric Ulcer	17	14.0
Gastrectomy	5	4.0
Hepatic Disease	18	15.0
TOTAL	66	54.0 ²

¹ Diagnosis of these diseases was obtained from medical records at the Industrial Medical Department.

² N = 125 drop-outs and non-drop-outs.

Employed problem drinkers' patterns of absenteeism have been documented by several researchers (Chapter 2). Tables 11, 12, and 13 illustrate the patterns exhibited by those referred to this program.

TABLE 11: Four codes were selected from the record exhibited in Appendix B as being directly related to the absenteeism of problem drinkers. The figures for the entire group show very little difference because the true differences are obscured by those whose medical conditions are deteriorating and/or those not responding positively to the program.

TABLE 11: Absenteeism¹ in days, by year before, year of referral and year after IARP.

YEAR REFERRED	TOTAL EVALUATED	TIME PERIOD		ILLNESS	SUSPENSION	WITHOUT REASON	COMPENSATION	TOTAL
		Before	Treatment Yr.					
1970	16	Before		98	3	10	0	111
		Treatment Yr.		192	6	12	4	214
		After		181	1	3	3	188
1971	15	Before		512	14	0	11	537
		Treatment Yr.		367	4	2	9	382
		After		378	6	4	0	388
1972	16	Before		259	20	4	2	285
		Treatment Yr.		406	23	6	5	440
		After		528	0	8	156	692
1973	21	Before		570	12	15	19	616
		Treatment Yr.		751	10	9	30	800
		After		911	10	4	0	925
1974	36	Before		1121	39	12	0	1172
		Treatment Yr.		646	23	20	136	825
		After		750	7	13	0	770
TOTAL	104	Before		2560	88	41	32	2721
		Treatment Yr.		2362	66	49	184	2661
		After		2748	24	32	159	2963

¹ Categories selected from personnel records (Appendix B) for their applicability to problem drinking:

- 1. Illness
- 4. Suspension
- 5. Without Reason
- 8. Compensation

TABLE 12: Indicates the number and percent who increase or decrease their days lost in the four designated categories. Every year there is improvement noted in most of the categories in a majority of the participants. Some of the categories which increase, ie., illness, may increase only by one or two days but shows a total decrease in all work days lost.

The problem drinker's pattern of absenteeism is distinctive in that he misses a lot of work time, generally in episodes of one or two days. Table 13 describes the group's episodes of absenteeism. The before and after totals indicate dramatic reductions in the number of all episodes of absenteeism. The pattern is similar for all five years evaluated reinforcing the importance of monitoring employees' absenteeism if early detection of problem drinkers is to be facilitated.

TABLE 13: Patterns of absenteeism by number of days in episodes of absenteeism, by year, before and after IARP.

YEAR	TIME PERIOD	ILLNESS					SUSPENSION					WITHOUT REASON					COMPENSATION					TOTALS										
		1	2	3	4	≥5	1	2	3	4	≥5	1	2	3	4	≥5	1	2	3	4	≥5	1	2	3	4	≥5						
1970	Before	55	15	9	4	14	4	0	0	0	1	14	4	0	0	0	0	0	0	0	0	0	0	0	0	0	73	19	9	4	15	B
	After	20	3	1	0	10	1	0	0	0	0	3	1	0	0	0	0	0	1	0	0	0	0	0	0	0	24	4	2	0	10	A
1971	Before	47	14	3	1	15	0	0	0	0	3	3	0	0	0	0	1	0	0	0	0	1	51	14	3	1	19	B				
	After	27	6	2	1	14	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	29	7	3	1	14	A				
1972	Before	50	21	6	1	25	3	3	2	1	3	10	0	0	0	0	0	0	0	0	0	1	63	24	8	2	29	B				
	After	14	6	3	1	2	0	0	0	0	0	3	0	0	0	1	0	0	0	0	0	1	17	6	3	1	4	A				
1973	Before	55	19	6	4	38	4	3	0	0	1	8	2	0	0	2	0	0	0	0	0	1	67	24	6	4	42	B				
	After	24	12	1	2	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24	12	1	2	17	A				
1974	Before	196	68	26	13	70	3	5	3	2	4	21	1	1	0	1	0	1	0	0	0	4	220	75	30	15	79	B				
	After	65	32	11	3	30	2	1	1	0	0	5	2	0	1	0	0	0	0	0	0	0	72	35	12	4	30	A				
TOTAL	Before	403	137	50	23	162	14	11	5	3	12	56	7	1	0	3	1	1	0	0	0	7	474	156	56	26	184	B				
	After	150	59	18	7	73	4	2	2	0	0	12	3	0	1	1	0	0	1	0	0	1	166	64	21	8	75	A				

TABLE 14: Number and percent of those who indicate overall improvement in work performance¹, those who demonstrate no change and those who indicate continued poor and/or deteriorated work performance.

TABLE 14: The success rate for the IARP for the period 1970 - 1974 inclusive is demonstrated in Table 14.

TOTAL EVALUATED	IMPROVEMENT		NO IMPROVEMENT		DECREASED PERFORMANCE*	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
104	82	78.8	9	8.7	13	12.5

* Decreased performance as evaluated by industrial criteria, however, for many absenteeism is generally due to depreciating medical conditions.

TABLE 15: Illustrates the compliance rate in three groups; improved, no change and deteriorated. Compliance was determined by the number of appointments scheduled and the number kept. No differences or relationships are noted but this may be an artifact. A poorly motivated participant may be given four appointments all of which he keeps, while one who is better motivated is given 80 appointments and keeps 75% of them.

TABLE 15: Mean, median and range of compliance rates for groups demonstrating improved job performance, no change or deteriorated performance, no change or deteriorated performance after IARP.

	IMPROVED	NO CHANGE	DETERIORATED
MEAN COMPLIANCE RATE	68	64	63.4
RANGE	24-100	22-97	18-100
MEDIAN	66.5	63.5	64.2

5.

DISCUSSION

The tables in Chapter 4 provide some characteristics of 137 referrals for the five-year period, 1970 - 1974. Twenty men were referred for the second time and 6 for a third. Unfortunately, there are no reports from other IARP on numbers requiring more than one referral, so comparisons cannot be made. The emphasis in IARP is on controlled drinking rather than on abstinence, so that this may be an indication of difficulties encountered in developing new social habits or in learning to control its manifestations.

Over five years studied, the referrals in each year are very similar in age, marital status or number of years worked in the company. The one exception is 1974 when more 21 - 25 year-olds were referred. Continued monitoring in future years will establish if this is a continuing trend and also if it is related to earlier drinking ages. Further research could establish if the development of these diseases are related to age when drinking began, length of time of alcohol use, or the time when alcohol use became uncontrolled.

Those who first accepted the program but later dropped out, were younger and had been in the industry a shorter time than those who remained with the program. Married, single, divorced, separated or widowed, all dropped out of the program at the same rate. Marital status was not indicative of perseverance with the program. There were variations in the length of time they remained in the program; the separated, divorced or widowed participants stayed slightly longer than those married or single.

The single group dropped out of the program faster than any of the others, which may reflect this group's lack of emphasis on job security. They also were younger and had been employed for a shorter period of time. The drop-outs, unlike the refusals, did exhibit an initial willingness to try the program, so an effort should be made to identify the reasons for their leaving.

The 12 refusals, all of whom were first referrals, belong to a group about which little is known; especially with regard to reasons for refusal and their ultimate fate. They may represent the minority of problem drinkers who progress to frank alcoholism.

Evaluation of the work performance of the 104 men who remained in their employment for one full year post-referral provided an informative picture of behavioral patterns before and after treatment.

The 16 referrals in 1970 missed an average of 20 working days before referral. This was in agreement with the average of 22 reported by one researcher. (12) However, in 1971, 15 referrals averaged 36 missed working days, the 16 referrals in 1972 averaged 18 missed days, 21 referrals averaged a 29 day loss in 1973 and the 36 men in 1974 averaged 33 lost days. In total, the 104 referrals averaged 27 lost working days per year before referral. This average also includes a group who are in control of their drinking but whose medical problems are extensive. They were therefore classified "no change" or "deteriorated performance" in outcome analysis.

The considerable loss of work days in the four categories selected (Table 12) coupled with the number of episodes of 1, 2 and 3 day absences,

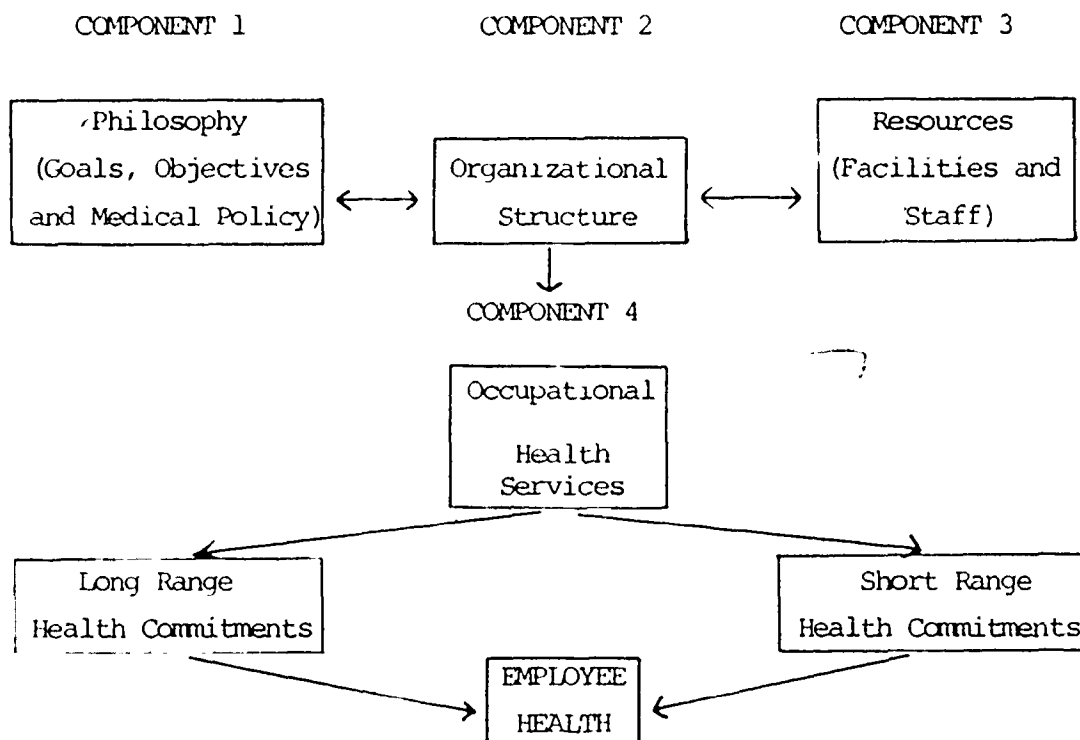
described the behavioral pattern of the employed problem drinker. These behavioral patterns include excessive absenteeism for minor illnesses and frequently in episodes of 1, 2 or 3 days, high occupational and non-occupational accident rates, the incurring of suspension for behavioral problems related to alcohol abuse and heavy usage of the industrial medical clinic for minor complaints. If management is alert to these patterns then early identification is possible.

Also impressive are the accidents sustained by this group and although post-referral occupational accidents show a substantial decrease, non-occupational accidents increased. This appears to support the premise that evaluation of work performance alone is not a sufficient indicator of success in an IARP. Occupational accidents are more frequent in the age group under 40 years (17), but all age groups experience a high incidence of non-occupational accidents. Also, 39% of the referrals incur suspensions and they appear in all age groups.

There is no relationship between compliance and successful outcome and the three groups; "improved", "no change", "deteriorated performance", exhibited the same range of compliance and had similar compliance rates. However, this may not be an accurate picture since the counsellors may schedule appointments in accordance with their assessment of the client's motivation. That is, one client with a poor outcome may have a 100% compliance rate for four appointments, while a client with a successful outcome may have a compliance rate of 75% for 80 appointments. An evaluation of this aspect should be incorporated in future studies, but it would require careful monitoring, detailed records and a uniform system of scheduling appointments.

The IARP which has been evaluated demonstrates that it is an effective viable program in terms of improving work performance. The 78% of referrals showing distinct overall improvement is superior to the 30% - 40% claimed by traditional clinics. It is reasonable to assume that there are substantial benefits to the community.

IARP are part of comprehensive occupational health programs and must be able to evaluate work performance so that early identification of alcohol related patterns is facilitated, have access to suitable treatment facilities and have the staff and other resources necessary to maintain adequate follow-up and monitoring of those who have been referred. Webb (32) had developed a model for an occupational health program which includes the necessary components. The model is displayed below with a listing of short and long range health commitments.



A Model Occupational Health Program: the four basic components and their relationship to the production of employee health.

Occupational Health Services by Type of Commitments to Employee Health.

LONG RANGE:

- Regular health evaluations
- Health counselling
- Health education program
- Special surveys for case findings
- Retiree health program
- Alcohol control program
- Rehabilitation program
- Liaison with personal family physicians
- Liaison with community health insurance program
- Advice to management about health insurance program

SHORT RANGE:

- Preplacement evaluations
- Preplacement laboratory procedures
- Personal protective devices as indicated by work environment
- Periodic occupational health evaluations
- Job transfer evaluations
- Job termination health evaluations
- Emergency treatment for non occupational illness or injury
- Evaluation of work performance for alcohol related patterns
- Regular inspection of premises for potential hazards
- Treatment for occupational illness or injury

IARP have some major advantages over traditional community clinics. Earlier identification of problem drinking frequently takes place even before the individual is aware of the direction his drinking is taking. Once identified and referred for treatment, his follow-up is facilitated by the occupational health clinic who have the means to evaluate his progress in regard to work performance. A more subtle advantage is psychological; the individual must personally accept the responsibility for accepting treatment and improving his work performance. He is offered the necessary help to obtain control of his drinking problem, but if his work behavioral patterns do not improve or continue to deteriorate because of drinking, he may lose his job. This puts the onus of responsibility on his own shoulders, and excuses, alibis etc., will not relieve the situation.

IARP also have disadvantages, the first one is related to the ethical question of whether or not industry has the right to interfere in an employee's off-the-job activities. This suggests that even if deterioration of work performance becomes evident, only after alcohol abuse has created chaotic social and economic problems, the employer - even if he knows about them - may offer limited counselling but may not be able to intervene. IARP may not be able to provide methods of re-aculturation so necessary if the problem drinker is to develop a new social pattern which will assist him in altering his drinking habits. Possibly the largest disadvantage of IARP is the reliance on evaluation of work performance as the determinant of successful outcome. An improvement in work performance may only reflect the employee's control of the manifestations of his alcohol usage and not his use of alcohol.

6.

SUMMARY AND CONCLUSIONS

The apparent success of IARP and the resources behind it were discussed in the previous chapter. The data in the IARP creates an interesting picture of the problem drinker. He may be found at any age, with any marital status, he has a high incidence of non-occupational accidents. He may display the kind of behavior which incurs suspensions and has a better than 50% chance of having a medical diagnosis of gastritis, gastric ulcer, gastrectomy or hepatic disorders. He averages 27 missed working days per year and most of his absenteeism will occur in episodes of 1, 2 or 3 days. 8.8% of the identified problem drinkers will refuse to participate in the program and another 27.7% will drop out of the program, 15.3% of them before one full year post-referral. 78.8% will have an overall successful outcome, 8.7% will exhibit no change and 12.5% will exhibit deterioration. The single referrals drop out of the program faster than the others, but not in greater numbers. Neither age, marital status or number of years worked in the industry are indicators of acceptance, compliance or outcome.

The results lead to some provocative questions to which answers must be found if successful treatment and/or preventive action is to be taken.

The referrals whose deteriorated pattern of absenteeism is related to chronic medical problems were identified too late for treatment to be of benefit. This indicates that some employees do manage to evade detection or are unidentified for long periods of time. The referral

patterns of individual supervisors should be reviewed in an effort to identify differences in the identification process. The 1.4% identified and referred over the five-year period is a very low figure if one recalls that a conservative estimate of the number of problem drinkers in industry ranges from 3% - 6%.

The outstanding question is - does the treatment program in itself achieve the goal and alter the pattern of disease progression, or would those achieving a successful outcome get the same result simply by being confronted with their work performance and threatened with loss of job if it does not improve?

Controlled trials are necessary if we are to achieve better understanding of the intricate nature of this condition. The results of this descriptive study have led the investigator to formulate these hypothesis:

- (1) H_0 : Referral and admission to an IARP is no more effective than confrontation and threat of job loss.
- (2) H_0 : Problem drinkers who exhibit post-treatment improvement in work performance do not exhibit concurrent improvement off the job.
- (3) H_0 : The drop-outs from IARP do not differ in sociological or psychological aspects from their persevering counterparts.
- (4) H_0 : Compliance with IARP is not influenced by the individual's health beliefs or self-perception, or by threat of job loss or impending economic insecurity.
- (5) H_0 : Supervisors who have been given intensive briefing on the nature and characteristics of employed problem drinkers and the importance of identification and referral, do not differ in referral

patterns from supervisors who have not been briefed in this subject.

While the evidence presented in this thesis may suggest tentatively whether these hypothesis should be accepted or rejected, determining their validity by controlled trial would enable successful intervention, prevention and educational programs to be implemented. This would result in considerable savings of time and the more efficient use of scarce personnel in this field.

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APPENDIX A

NAME _____

1. IDENTIFICATION NUMBER _____

2. DATE OF BIRTH _____ SEX _____

3. YEAR OF ORIGINAL EMPLOYMENT AT DOFASCO _____

4. CLASSIFICATION AT ORIGINAL HIRING _____

5. CLASSIFICATION AT DEC. 31 OF EACH YEAR _____

1969 _____

1970 _____

1971 _____

1972 _____

1973 _____

1974 _____

1975 _____

6. DISCIPLINARY MEASURES INCURRED

<u>YEAR</u>	<u>NO. OF EPISODES</u>	<u>SEVERITY (NO. OF DAYS)</u>	<u>TOTAL (a.b)</u>
1969	_____	_____	_____
1970	_____	_____	_____
1971	_____	_____	_____
1972	_____	_____	_____
1973	_____	_____	_____
1974	_____	_____	_____
1975	_____	_____	_____

7. SEPARATE SHEET

8. NO. OF CLAIMS FOR INSURANCE PER YEARS. (W=WORK RELATED, O=OUTSIDE OF WORK).

<u>YEAR</u>	<u>NO. OF CLAIMS</u>	<u>NO. OF W.</u>	<u>NO. OF O.</u>
1969	_____	_____	_____
1970	_____	_____	_____
1971	_____	_____	_____
1972	_____	_____	_____
1973	_____	_____	_____
1974	_____	_____	_____
1975	_____	_____	_____

9. DATE(S) OF ADMISSION(S) TO THE PROGRAM.

1ST 2ND 3RD 4TH

10. REASON FOR ADMISSION TO THE PROGRAM.

REFERRED VOLUNTEERED

11. NO. OF VISITS TO THE CLINIC PER YEAR AND REASONS.

<u>YEAR</u>	<u>NUMBER FOR MEDICAL REASONS</u>	<u>NO. FOR INJURIES</u>	<u>NUMBER FOR PROBLEM</u>	<u>TOTAL</u>
1969	_____	_____	_____	_____
1970	_____	_____	_____	_____
1971	_____	_____	_____	_____
1972	_____	_____	_____	_____
1973	_____	_____	_____	_____
1974	_____	_____	_____	_____
1975	_____	_____	_____	_____

12. NO. OF FOLLOW-UP APPOINTMENTS SCHEDULED AND NO. KEPT PER YEAR.

<u>YEAR</u>	<u>NO. SCHEDULED</u>	<u>NO. KEPT</u>	<u>%</u>
1969	_____	_____	_____
1970	_____	_____	_____
1971	_____	_____	_____
1972	_____	_____	_____
1973	_____	_____	_____
1974	_____	_____	_____
1975	_____	_____	_____

13. NO. OF RELAPSES (RETURN TO DRINKING) PER YEAR.

<u>YEAR</u>	<u>NO. OF RELAPSES</u>
1969	_____
1970	_____
1971	_____
1972	_____
1973	_____
1974	_____
1975	_____

14. THERAPEUTIC REGIME.

<u>YEAR</u>	<u>ANTABUSE</u>	<u>TEMPOSIL</u>	<u>OTHER & SPECIFY</u>	<u>% COMPLIANCE</u>
1969	_____	_____	_____	_____
1970	_____	_____	_____	_____
1971	_____	_____	_____	_____
1972	_____	_____	_____	_____
1973	_____	_____	_____	_____
1974	_____	_____	_____	_____
1975	_____	_____	_____	_____

15. P.P.P. SCORES.

<u>YEAR</u>	<u>SCORE</u>
1969	_____
1970	_____
1971	_____
1972	_____
1973	_____
1974	_____
1975	_____

16. PRESENCE OF DIAGNOSIS FOR THE SPECIFIED DISEASES.

<u>DISEASE</u>	<u>PRESENT</u>	<u>NOT PRESENT</u>	<u>NOT KNOWN</u>	<u>DATE OF DIAGNOSIS</u>
<u>GASTRITIS</u>	_____	_____	_____	_____
<u>ULCER</u>	_____	_____	_____	_____
<u>GASTRECTOMY</u>	_____	_____	_____	_____
<u>HEPATIC DIS.</u>	_____	_____	_____	_____

17. LABORATORY RESULTS.

<u>DATE</u>	<u>HIGHEST B/P</u>	<u>SGOT</u>	<u>SGPT</u>	<u>RESULTS OF HEP. ANTIGEN TESTS</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

18. INVOLVED IN HYPERTENSIVE STUDY WITH MUMC?

YES _____ NO _____

19. CLASSIFICATION AS TO RESULT OF A.R.P. BY CLINIC.

<u>GOOD</u>	<u>FAIR</u>	<u>POOR</u>	<u>COMMENTS IF ANY</u>
_____	_____	_____	_____
_____	_____	_____	_____

APPENDIX B

ABSENCE CODE

- 1. ILLNESS
- 2. INCARCERATED
- 3. PERMISSION
- 4. SUSPENSION
- 5. WITHOUT REASON
- 6. PERSONAL
- 7. JURY DUTY
- 8. COMPENSATION
- 9. LEAVE OF ABSENCE

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	TOTAL		
JAN. _____	L																																	
_____ A																																		
FEB _____	L																																	
_____ A																																		
MARCH _____	L																																	
_____ A																																		
APRIL _____	L																																	
_____ A																																		
MAY _____	L																																	
_____ A																																		
JUNE _____	L																																	
_____ A																																		
JULY _____	L																																	
_____ A																																		
AUGUST _____	L																																	
_____ A																																		
SEPT. _____	L																																	
_____ A																																		
OCT. _____	L																																	
_____ A																																		
NOV. _____	L																																	
_____ A																																		
DEC. _____	L																																	
_____ A																																		