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Alcoholism and Trauma: Detection and Referral to Treatment of the Alcoholic Patient

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ALCOHOLISM AND TRAUMA:
DETECTION AND REFERRAL TO TREATMENT OF THE ALCOHOLIC PATIENT

by Dean L. Roder

A Thesis Submitted to the Faculty of the Graduate School
of Loyola University of Chicago in Partial Fulfillment
of the Requirements for the Degree of

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VITA

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CHAPTER 1

INTRODUCTION

Estimates of the number of adult alcoholics in the United States range from ten to fifteen million persons (Maull, 1982; Moore, Bone, Geller, Mamon, Stokes, & Levine, 1989; Clifford & Soares, 1990); millions more are indirectly and adversely affected by a family member or friend's alcoholism. First defined as a primary disease by the American Medical Association in the 1950's, alcoholism is described by a predictable and progressive set of symptoms, including episodic loss of control over alcohol use, persistent desire or one or more unsuccessful attempts to cut down or control drinking, continued use of alcohol despite adverse social, physical, or psychological consequences, and impaired thinking or denial (American Psychiatric Association [APA], 1987).

Despite what is known about alcoholism, a large percentage of those with the disease do not receive treatment. Luca (1981) estimated that 85% of those with alcoholism are never diagnosed or treated for the illness. Without treatment, less than 10% of alcoholics achieve abstinence (Whitfield, Zador, & Fife, 1985). The

effectiveness of treatment for alcoholism is well documented. Baekeland (1976) reviewed the literature from 1953-1974 and found that effectiveness for inpatient alcoholism treatment ranged from 32% to 68%. More recently, Logan (1983) and Reyna, Hollis, and Hulsebus (1985) reported long-term abstinence rates of 70% and 64% following inpatient treatment.

Increased effectiveness in diagnosis and treatment for alcoholism holds promise of tremendous benefits for those suffering from alcoholism and for American society as a whole. Special research emphasis is being placed on early detection of alcoholism because of the improved prognosis for successful treatment when alcoholics are engaged in treatment early in the progression of the disease (Skinner & Holt, 1983).

A substantial body of research indicates a connection between alcohol use and various forms of traumatic injury. As numerous studies identified frequent high blood alcohol levels in injury patients, research emphasis began to shift to determination of whether alcoholism was present in alcohol-using trauma victims. Several researchers characterize alcoholism-related trauma as an opportunity for early detection and treatment of alcoholism at a point in the progression of the disease when treatment is most effective (Zuska, 1981; Skinner & Holt, 1983; Gentilello et al., 1988).

Purpose of This Study

This study will conduct a systematic review of the literature to examine the response of trauma care and emergency unit medical staff to alcoholism-related trauma. Research studying alcohol use and traumatic injury will be addressed, with attention to the magnitude and impact of alcohol-involved trauma. The role of alcohol in various forms of trauma and alcohol's impact on severity of injury will be studied. Methods and patterns of detection of alcohol use and methods of diagnosis of alcoholism will be examined. Patterns in detection and treatment or referral to treatment of alcoholic patients by trauma and emergency medical staff will be examined. Conclusions and recommendations will be made, with attention to blocks to diagnosis and treatment of alcoholism, recommendations for further research, and a model for management of alcoholism and trauma.

Methodology and Limitations of this Study

A literature search was conducted using the psychological, medical, and social science databases. Emphasis was placed on studies published within the past ten years; earlier studies were included to allow historical perspective. A computer search was conducted using key words and phrases such as alcohol, alcoholism, trauma, injury, accidents, emergency rooms, diagnosis of alcoholism,

and alcohol-related trauma. Psychological, medical, and social science abstracts were reviewed. Personal contacts were made with previous researchers. Every effort was made to conduct an exhaustive review of the literature. The study was limited to published material available in the English language.

Assumptions of this Study

In accordance with current research regarding alcoholism, this study will refer to alcoholism as a disease. It will be assumed that the reader has a basic understanding of the disease of alcoholism and its accompanying set of progressive symptoms. It will be further assumed that the reader has an understanding of the fundamental approaches to intervention and treatment of alcoholism.

Definition of Terms

Alcoholism or alcohol dependence is defined as consisting of at least three of the following symptoms persisting for at least one month or occurring repeatedly over a longer period of time: (1) use of alcohol in larger amounts or over a longer period of time than intended; (2) persistent desire or one or more attempts to reduce or control alcohol use; (3) spending substantial time in activities necessary for obtaining, using, or recovering

from the effects of alcohol; (4) frequent use of alcohol in physically hazardous conditions (e.g., driving when intoxicated) or frequent intoxication or withdrawal which interferes with responsibilities at work, school, or home; (5) giving up social, occupational, or recreational activities due to alcohol use; (6) continued alcohol use despite knowledge of persistent or recurrent social, psychological, or physical problems that are caused or exacerbated by alcohol use; (7) marked tolerance to alcohol; (8) characteristic withdrawal symptoms; or (9) use of alcohol to relieve or avoid withdrawal symptoms (APA, 1987).

Alcohol abuse is defined as consisting of either: (1) continued use of alcohol despite knowledge of persistent or recurrent social, occupational, or physical problems that are caused or exacerbated by alcohol; or (2) recurrent use of alcohol in physically hazardous situations; these symptoms must persist over a period of one month or have occurred repeatedly over a longer period of time (APA, 1987).

Alcoholism is considered a primary disease, meaning it does not result from an inadequate childhood, family structure, personality type, or underlying psychiatric disorder (Gentilello, et al., 1988). Alcoholism may also be referred to as addiction or substance abuse, although these terms are generally used to include addictive drugs other than alcohol. The majority of studies included in this

thesis focused specifically on alcohol and alcoholism.

The terms trauma and injury will be used interchangeably, and will be defined as by Waller (1987), Maull (1982), and the Committee on Trauma Research (1985) as tissue damage resulting either from the transfer to a person of one of five forms of physical energy (kinetic or mechanical, thermal, chemical, electrical, or radiation) or from sudden interruption of normal energy patterns necessary to maintain life processes. Injury or trauma may be either unintentional (accidental) or intentional (assaultive or suicidal).

Blood-alcohol concentration (BAC) measures in percentages the weight of the alcohol in a fixed volume of blood. In the United States, BAC for 10 parts of alcohol per 10,000 parts of blood is expressed as 0.10. In other countries, the equivalent would be expressed as 10 milligrams alcohol per 100 milliliters of blood (10mg/mL). Both systems record the same percentage of alcohol (Roizen, 1989). For purposes of this study, BAC will be consistently referred to using the measure common in the United States; when the original study refers to a different expression of measure, the value will be converted and expressed using the equivalent expression of measure common in the United States. A BAC of 0.10 or higher is legal evidence for intoxication in most states in the United States; a BAC of 0.05 to 0.09 is evidence of alcohol impairment. BAC of 0.08

is the standard for intoxication in most European countries.

Organization of this Study

This study will consist of four chapters. The introductory chapter provides an overview of the purpose and intent of the study. The second chapter will discuss previous research on alcohol use and its relation to trauma, including patterns relating to alcohol use and various forms of trauma, alcohol use and severity of injury, and a description of trauma as a symptom of alcoholism. The third chapter will examine methods and patterns of detection and treatment or referral to treatment of alcoholism among trauma patients. The final chapter will provide conclusions and recommendations for future research, including a model for management of alcoholism and trauma. The four chapters are entitled Introduction, Trauma and Alcohol Use, Alcoholism: Detection and Referral in Trauma Patients, and Conclusions and Recommendations.

CHAPTER 2

TRAUMA AND ALCOHOL USE

Magnitude and Impact

Approximately 100 million Americans drink alcohol and estimates of the number of adult alcoholics range from ten million to fifteen million (Maull, 1982; Baker, 1985; Moore et al., 1989; Clifford & Soares, 1990). Societal costs for treatment, lost life and productivity, property loss, incarceration, and crime related to alcoholism are estimated to be in excess of \$100 billion per year (Niven, 1984).

Lowenfels and Miller (1984) estimate that seventy million Americans are injured annually, resulting in health care costs of \$80 billion per year. 140,000 persons in this country die from trauma each year, and one in three persons suffers a nonfatal injury serious enough to require medical attention (Committee on Trauma Research, 1985). Baker (1987) estimates that each year trauma causes 150,000 deaths and 3.6 million hospital admissions; hospital admissions for injury average 7 1/2 days each. Trauma is the leading cause of death for Americans aged 1 - 44 and the fourth leading cause of death for the general population, trailing heart disease, stroke, and cancer (Baker, 1987; Roizen, 1989).

Roizen (1989) reports that the death rate due to trauma has consistently increased by one percent per year over the past decade, while deaths due to heart disease and stroke have fallen dramatically.

Those who die from injuries are generally younger than those who die from other causes. More adolescent deaths are attributable to trauma than to all other diseases combined (Mauill, 1982). Injury accounted for 31.9 percent of all years of potential life lost in 1986, meaning 3.5 million years of potential life lost. (Centers for Disease Control, 1988).

The carnage will continue throughout this decade: Budnick and Chaiken (1985) project that until the year 2000 trauma will cause more death than all other causes combined for Americans who were between 10 and 35 years of age in 1985. Whitfield, Zador, and Fife (1985) estimate that eight million Americans who were alive in 1980 will die from trauma, two million of those due to vehicular accidents.

Historical Connection between Alcohol Use and Trauma

The involvement of alcohol in trauma has been documented in scientific investigation for over 80 years. Roizen (1989) identified the first emergency room study of alcohol and casualties as being a 1915 study which found 40 percent of fatal accident victims in Boston to be under the influence of alcohol upon entry into the hospital. Zuska

(1981) cited an editorial written in 1904 which reported on the newly developing problem of fatality and severe injury due to "inebriates operating automobile wagons." This study reported that nineteen of twenty-five fatal accidents involved a driver who used spirits within one hour of the event.

Investigations of alcohol's role in trauma have been heavily concentrated in specific areas, particularly focusing on motor vehicle accidents and fatal trauma (Stephens, 1987). Anda, Williamson, and Remington (1988) found that persons who consume five or more drinks per occasion are twice as likely to die from injuries as persons who consume fewer than five drinks per occasion. Research attention to alcohol involvement in fatal motor vehicle accidents reflects public awareness of the scope of this aspect of the problem. It is estimated that alcohol is involved in half of motor vehicle fatalities (Chang & Astrachan, 1989) and that among unintentional injuries motor vehicle accidents are the leading cause of death and years of potential life lost (Centers for Disease Control, 1986). 23,630 persons were killed in alcohol-related motor vehicle accidents in 1987 alone (Centers for Disease Control, 1988); Chang and Astrachan (1988) report that the number of alcohol-related motor vehicle accident deaths from 1978-1988 was four times the total number of US deaths in the Vietnam War.

These statistics may be an under-representation of the number of alcohol-related motor vehicle accidents. Maull, Kinning, and Hickman (1984) reviewed driving and hospital records for 56 drivers injured seriously enough to require hospitalization; all had BAC in excess of 0.15. In 82% of the cases, the police officer investigating the accident indicated suspicion of alcohol use. Ninety-eight percent of the injured drivers were deemed to have caused the accident. None of the 56 intoxicated drivers were convicted of driving under the influence of alcohol. Sixty-six percent were either not charged or not convicted of any legal offense; convictions were obtained in 34% of cases, with charges including reckless driving, improper driver's license, no insurance, and eluding police. The authors concluded that injury seems to protect drinking drivers from enforcement of drunk driving laws. Colquitt, Fielding, and Cronan (1987) arrived at a similar conclusion after finding that of 59 intoxicated drivers (average BAC of 0.22) injured in automobile accidents, 25 had been arrested, 3 were arraigned, and none were prosecuted or convicted for driving under the influence of alcohol.

The Centers for Disease Control (1988) report a reduction in the proportion of fatal motor vehicle accidents that involved alcohol from 1982 - 1987, attributing the decrease to public awareness of the problem, enactment of more stringent laws concerning drinking and driving, and

increases in drinking ages in many states.

Considerably less research has been devoted to non-fatal trauma: Roizen (1989) reviewed the casualty literature and found 179 studies of alcohol use in traumatic events, and only 25 were concerned with non-fatal injuries. Waller (1976) states that less is known about the contribution of alcohol to nonfatal crashes than to fatal ones due to legal impediments and general resistance to testing of BAC for surviving drivers, who fear loss of insurance and seek to avoid liability for damages. Cherpitel (1989a) maintains that the role of alcohol in non-vehicular accidents is less studied because on-the-scene police investigations of alcohol involvement are less frequently completed than with vehicular accidents.

A shift in research focus from fatal trauma to non-fatal trauma is reflective of the development of societal and medical emphasis on injury prevention. Soderstrom and Cowley (1987) identify a 1966 document by the National Research Council as a significant contributor to the emergence of trauma centers and systemic attempts to implement accident and injury prevention measures. Baker (1987) calls injury the most preventable major health problem in the United States, and reports that the increasing recognition of the importance of injury prevention is evidenced by publication of textbooks on injury control and appropriation of state and federal funds

for injury reduction programs. The American College of Emergency Physicians (1984) states that "the behavioral and emotional components of injury constitute a major component in the total care of emergency patients."

Increasing research efforts on the involvement of alcohol and non-fatal trauma were also motivated by issues concerning medical management of casualty victims who used alcohol immediately prior to the traumatic event (Roizen, 1989). Immediate medical concerns include the risk of misdiagnosis of head injuries (Rutherford, 1977; Soderstrom, DuPriest, Benner, Maekawa, & Cowley, 1979), potential complications with anesthesia (Abeloos, Rolly, Timperman, & Watson, 1985), potential confusion regarding neurologic evaluation (Huth, Maier, Simonowitz, and Herman, 1983), and the impact of alcohol withdrawal on management of acute conditions (Edwards, 1985).

Detection of Alcohol Involvement in Trauma

Emergency room or trauma center studies have shown considerable variation in the percentage of injuries which are identified as alcohol-related. This variation is due to several factors, including differences in study methods, differing methods of detection of alcohol involvement, varying populations served by the hospital units involved, differing methods of inclusion of subjects in studies, and time lapses between occurrence of the injury and when care

was sought by the victim.

The most commonly used assessment of alcohol involvement in emergency room studies has been measure of blood alcohol concentration, indicative of the primary emphasis on management of immediate medical needs. Use of blood alcohol concentration upon admission to emergency and trauma departments allows a reliable indication of degree of intoxication at the time of admission. Simel and Feussner (1988) report that in their review alcohol intoxication was diagnosed by emergency room physicians in only 14%-68% of cases of patients with BAC ranging from 0.05-0.10 when the doctors relied on clinical signs such as smell of alcohol on the patient's breath. In Rutherford's (1977) study, there were errors in clinical diagnosis of alcohol intoxication among patients with both positive and negative blood alcohol concentrations when emergency room doctors relied on smell of alcohol, coordination, and slurred speech. Numerous studies indicate that blood and breath alcohol measures are consistently reliable indicators of blood alcohol concentration and can be used to rapidly assess BAC even when a patient is unable to cooperate (James, Dargon, & Day, 1984; Gibb, Yee, Johnston, Martin, & Nowak, 1984; Walsh & Macleod, 1983).

Several studies in the past two decades report the frequency of positive blood alcohol concentration in patients admitted to emergency and trauma units. Wechsler,

Kasey, Thum, and Demone (1969) conducted the first comprehensive study of alcohol involvement in injury patients by determining the BAC in all adult patients admitted to a Boston emergency room over a one year period. They found 22% of injury patients to have BAC of 0.50 or higher; 9% of non-injury patients had a positive BAC. Cherpitel (1989a) found similar results 20 years later in a probability sample of adult patients admitted to a San Francisco emergency room: 22.5% of injury patients had BAC of 0.05 or higher compared with 11.7% of non-injury patients. In a similar study using self-reports of alcohol use, Cherpitel (1989b) found that 35% of injury patients reported use of alcohol within six hours of their admission, compared with 18% of non-injury patients.

Roizen (1989) reviewed emergency room studies and found that 20%-37% of emergency room trauma cases involve alcohol use. Malansky (1974) found alcohol involvement in 32% of trauma cases at a Minnesota emergency department. James, Dargon, and Day (1984) found alcohol to be present in 27% of admissions to a US Army hospital emergency room over a one month time span; 60% of the positive cases were in excess of 0.10. Other studies report higher rates than found by Roizen. Thal, Boat, and Anderson (1985) found alcohol present in 64% of 615 consecutive trauma patients admitted to a Dallas hospital over a six month period, with 74% of the positive cases in excess of 0.10. Holt et al. (1980)

found that 40% of all patients admitted to the emergency room of a British hospital had positive blood alcohol readings; 32% of the patients had blood alcohol levels in excess of 0.80. Reyna, Hollis, and Hulsebus (1985) found BAC of 0.80 or higher in 41.6% of trauma patients among 4056 consecutive admissions to a community hospital emergency room.

Waller (1977) found that among those with alcohol present at the time of initial treatment of injury, 75% were in excess of the legal limit for intoxication. Colquitt, Fielding, and Cronan (1987) found that over half of trauma patients who were legally intoxicated when admitted to the hospital had blood alcohol levels at least two times the legal threshold. Most states in the United States identify legal intoxication as 0.10. To put this in a social perspective, a 150 pound male would have to drink five 12-ounce beers (or five 1-ounce shots of 80-proof liquor) in one hour to reach a 0.10 BAC or eight 12-ounce beers in one hour to reach a 0.20 BAC; more alcohol is required to reach these levels if the period of drinking is prolonged (Chang & Astrachan, 1988; Colquitt, Fielding, & Cronan, 1987). Presence of a high blood alcohol level at any time raises the possibility that alcohol abuse or alcoholism is present (Cowley, Conn, & Dunham, 1987).

Alcohol Use and Forms of Trauma

A substantial amount of previous research has identified patterns connecting alcohol use and various forms of trauma. Maull, Kinning, and Hickman (1984) state that "the association of alcohol abuse and all forms of trauma is clear and indisputable."

Predominant in this area are studies of alcohol involvement in motor vehicle accidents. Motor vehicle fatalities have been more rigorously investigated than injuries, despite the fact that motor vehicle accidents are responsible for some of the most severe injuries seen in emergency and trauma units (Roizen, 1989). Alcohol may be more frequently involved in fatal than non-fatal accidents; Simpson, Mayhew, and Warren (1982) found alcohol present in 46% of fatally injured drivers while Warren, Buhlman, Bourgeois, and Chattaway (1982) identified 28% of injured drivers to be positive for alcohol. Lowenfels and Miller (1984), in their review of the literature regarding alcohol use and forms of trauma, found consistent reports of BAC in excess of 0.10 in 40% - 50% of fatally injured drivers and in 25% - 35% of drivers injured seriously enough to require hospitalization. Soderstrom, DuPriest, Benner, Maekewa, and Cowley (1979) found positive BAC in 48.2% of 995 patients injured in motor vehicle accidents; 77% of the positive results exceeded 0.10 BAC. Huth, Maier, Simonowitz, and Herman (1983) studied 182 consecutive injured automobile

drivers and found 61% with BAC in excess of 0.10. Thal, Boat, and Anderson (1985) found BAC of 0.10 or greater in 50% of automobile accident patients.

The pattern of alcohol involvement in automobile accidents has been confirmed in studies of other vehicles. Luna, Maier, Sowder, Copass, and Oreskovich (1984) found alcohol involvement in 26% - 50% of motorcycle accidents throughout the United States. Hunter and Stutts (1979) found that 30% of victims of moped accidents had been drinking prior to the accident. Lowenfels and Miller (1984) and Maull (1982) report consistent findings that 16-20% of fatal light aircraft accidents to involve alcohol intoxication. Legarde and Hudson (1975) report that 50% of fatal farm machinery accidents involve alcohol.

Irwin, Patterson, and Rutherford (1983) used case-control studies and found that intoxicated pedestrians were 3 to 4 times more likely to be struck by an automobile than non-intoxicated pedestrians. Jehle and Cottingham (1988) report presence of alcohol in 30% of pedestrian accident victims, with 74% of the positive above 0.10. Roizen's (1989) review estimates that 14% of fatal pedestrian accidents involve an intoxicated driver and 24% involve an intoxicated pedestrian. Blomberg and Fell (1979) studied pedestrian victims of vehicle accidents and found alcohol levels of greater than 0.10 in 46% of fatalities and in 36% of those with non-fatal injuries.

While vehicle-related trauma has received the most attention in research, assaults may be another likely traumatic event to result from alcohol use (Roizen, 1989). Wechsler, Kasey, Thum, and Demone (1969) found 56.4% of those injured by assault to have a positive BAC. Cherpitel (1989a and 1989b) identified the cause of injury for trauma patients and found the largest proportion of positive BAC was for those injured in assaults; 44% of this group were positive compared with 22% of those injured in motor vehicle accidents. Yates, Hadfield, and Peters (1987a) found alcohol present in 60% of assault victims compared with 13% of positive findings for all emergency room admissions. Honkanen and Visuri (1976) found alcohol present in 69% of patients severely injured by assault and 37% alcohol presence in those injured in other ways. Thal, Boat, and Anderson (1985) found BAC of 0.10 or greater in 59.4% of gunshot wound patients, 76.6% of patients injured by stabbing, and 75.9% of patients injured by aggravated assault. Roizen (1989) speculates that assault may be under-reported due to patients' reluctance to report assault and to attribute their injury to falls or other causes.

Other forms of trauma have been less intensely researched. Lowenfels and Miller (1984) report alcohol involvement in 64% of fatal burn victims, 40% of fatal falls, 48% of frostbite cases, 50% of fatal adult drownings, and 20 % of completed suicides. Hawton, Fagg, Marsack, and

Wells (1982) found that 49% of men and 29% of women who attempted suicide had used alcohol prior to the event. Varadaraj and Mendonca (1987) report positive BAC in 41% of attempted suicide cases, with 29% in excess of 0.80. Voltsberger and Taylor (1984) reported that 51% of burn injury victims were drinking at the time of injury. Moessner's (1979) review found 36%-61% of burn injuries to involve alcohol use. Niven (1984) reports positive BAC in 70% of homicide victims, with 51% of homicide victims legally intoxicated at the time of their death. Maull, Kinning, and Hickman (1984) report involvement of alcohol by either the perpetrator or victim in 79% of homicide cases. Honkanen et al. (1983) found that 53% of patients injured in falls were intoxicated at the time of the injury. Buchanan (1988) found positive BAC in 30% of industrial accident victims.

Alcohol Use and Severity of Injury

Investigations of alcohol use and severity of injury have been inconsistent and contradictory. Further research is need to clarify this issue.

The National Institute on Alcohol Abuse and Alcoholism (1989) and Roizen (1989) identify a positive relationship between alcohol use and severity of injury, saying that given similar traumatic circumstances a drinker is more likely to be hurt seriously than a non-drinker. Maull's

(1982) review reports that injuries from alcohol-related vehicular accidents tend to cluster at the top of severity scales in terms of both personal injury and property damage. Two experimental studies controlled for blood alcohol level, type of injury, and severity of trauma and supported the positive relationship between alcohol involvement and severity of injury (Albin and Bunegin, 1986; Anderson, 1986). Jehle and Cottingham (1988) found the mean length of hospital stay for pedestrian accident victims to be significantly longer for patients who had consumed alcohol prior to the injury. Irwin, Patterson, and Rutherford (1983) found a positive association between alcohol intoxication and severity of injury for pedestrian victims injured by automobiles. McCuster, Cherubin, and Zimberg (1971) found the mean length of hospital stay for alcoholic injury patients to be two days longer than the length of stay for non-alcoholic injury patients, despite the large number of older patients with chronic conditions in the non-alcoholic group. Maull, Kinning, and Hickman (1984) report that a severely intoxicated drivers are likely to suffer more severe injuries. Honkanen and Visuri (1976) found a positive but insignificant correlation between alcohol intoxication and severity of injury among traffic accident patients. The Committee on Trauma Research (1985) states that drinking alcoholic beverages predisposes to more severe and extensive injury than would be experienced by non-

drinkers, given impact of the same severity.

The exact mechanisms of the alcohol-severity relationship are not known (NIAAA, 1989; Maull, 1982), but Roizen (1989) theorizes that in the case of vehicular accidents severity may increase with alcohol use due to an inverse relationship between alcohol and use of protective restraints such as seat belts and motorcycle helmets. Luna, Maier, Sowder, Copass, and Oreskovich (1984) found that the higher fatality and more severe injury for intoxicated motorcyclists was related to the decreased likelihood of intoxicated patients wearing helmets.

Other studies have found no relationship between alcohol involvement and severity of injury. Huth, Maier, Simonowitz, and Herman (1983) compared intoxicated and non-intoxicated injured automobile drivers and found no differences in patterns and severity of injuries, length of hospital stay, or long-term morbidity and mortality. Thal, Boat, and Anderson (1985) found no difference in severity of injury, length of hospitalization, or mortality when comparing alcohol-involved versus non-alcohol involved patients who experienced various forms of trauma. Ward, Flynn, Miller, and Blaisdell (1982) studied alcohol positive injury patients and found no difference in length of hospitalization or number of days in the intensive care unit, while finding a significantly higher mortality rate among the non-drinking injury patients. Honkanen and Visuri

(1976) found no correlation between alcohol intoxication and severity of injury for victims of industrial accidents, home accidents, recreational accidents, and assaults.

High Risk Conditions for Alcohol-involved Trauma

Numerous studies indicate a substantially larger percentage of alcohol involvement for patients who present for medical treatment of injuries during late evening and early morning hours. Holt et al. (1980) reported that the main circumstantial factor influencing alcohol involvement was time of attendance, with more patients attending late in the evening and on weekends affected by alcohol. Walsh and Macleod (1983) found that less than 10% of emergency room admissions during the day (injury and non-injury) had positive BAC, but 33.3% of patients attending from 9 pm to midnight and 62.6% of patients attending from midnight to 3 am had positive BAC. Yates, Hadfield, and Peters (1987a) found the proportion of positive BAC patients in an emergency room to range from 2.5% for patients admitted from 11 am to noon to 78% for patients admitted from 1 am to 2 am. James, Dargon, and Day (1984) found positive BAC for 51% of admissions from midnight to 8 am, 29% positive from 4 pm to midnight, and 10% from 8 am to 4 pm. Jehle and Cottingham (1988) found significant differences in time of day and day of week: 93% of alcohol-related pedestrian accidents occurred at night compared with 27.9% of

nonalcohol-related accidents; 64.4% of alcohol-related accidents occurred on a weekend compared with 40.6% of nonalcohol-related accidents. In Maull, Kinning, and Hickman's (1984) study of automobile accident injuries, 86% occurred between 6 pm to 6 am and 67% occurred on weekends.

Age and gender appear related to alcohol involvement in trauma. Huth, Maier, Simonowitz, and Herman (1983) found 80% of injured intoxicated drivers to be male and 61% to be less than 30 years of age. Maull, Kinning, and Hickman (1984) reported that 84% of intoxicated automobile injury patients were male. Alcohol-related pedestrian accident victims peak in the 25 to 34 age group (Jehle & Cottingham, 1988). Reyna, Hollis, and Hulsebus (1985) found that the 16 to 30 age group had almost twice as many alcohol-related trauma admissions as the older-than-30 age group. Abrams (1986) describes "ethanol trauma syndrome" patients as ranging in age from 18 to 39 (average age 29) and being male twelve times more than female.

Maull (1982) states that alcohol-impaired drivers are over-represented in single vehicle accidents, rear-end collisions, and head-on collisions. Lowenfels and Miller (1984) report positive BAC in 65% of single car fatalities and Maull, Kinning, and Hickman (1984) found 72% of intoxicated drivers were involved in single car accidents. Maull (1982) describes the "alcohol accident type" as involving a single vehicle crash that occurs between

midnight and 6am, saying that this type of accident has a 94% chance of being causally related to alcohol.

Trauma as a Symptom of Alcoholism

The prevalence of heavy alcohol use among injury patients suggests that a history of trauma may signal the presence of alcohol abuse or alcoholism. Trauma is increasingly being recognized as a symptom of alcoholism. Clark, McCarthy, and Robinson (1985) state "alcoholism can be suspected from a typical accident, just as syphilis can be suspected from a typical rash." Abrams (1986) considers trauma to be a significant sign of alcoholism; he describes "ethanol trauma syndrome" as a compilation of findings regarding the involvement of alcohol in trauma. More alcoholics die annually from trauma than from the long-term effects of alcohol use (Chang & Astrachan, 1989); twice as many alcoholics die of trauma than of cirrhosis (Reyna, Hollis, & Hulsebus, 1985).

Previous researchers report that approximately 85% of alcoholics remain undiagnosed, due in part to failure to diagnose the illness in its early stages (Reyna, Hollis, and Hulsebus, 1985; Gentilello et al., 1988). Early detection of alcoholism allows treatment to begin prior to development of severe symptoms of the disease, which leads to a better prognosis (Skinner & Holt, 1983). Evidence exists that emergency rooms and trauma centers may be a prime location

for the early detection of alcoholism and alcohol abuse. Ashley et al. (1981) examined the physical disease manifestations of 1000 inpatient alcoholics and found that 81.9% of males and 54.3% of females reported history of trauma. Furthermore, trauma tended to be the earliest physical manifestation of alcoholism, before peptic ulcer, pancreatitis, cirrhosis or other physical problems. Trauma occurred on average after less than 5 years of hazardous drinking. This corresponds with Maull's (1982) report that roadway trauma is an early feature of alcohol addiction, typically occurring within five years of the onset of problematic drinking.

Skinner, Holt, Schuller, Roy, and Israel (1984) compared matched samples of alcoholics and social drinkers and found that the alcoholics reported significantly more traumatic injuries than the social drinkers. The alcoholics total score on the five-question trauma scale averaged two points higher than the social drinkers, indicating that the trauma scale provides useful information for the detection of alcoholism. The trauma scale identified 7 of 10 alcoholic subjects, and the authors suggest using a trauma scale in combination with laboratory tests and BAC to increase accuracy in diagnosis of alcoholism.

In summary, the investigations reviewed in this chapter describe a long-standing connection between the use of alcohol and the occurrence of traumatic injury. While

particular research attention has been focused on the relationships among alcohol use, fatal trauma, and motor vehicle trauma, research also identifies significant incidence of alcohol use with other types of injury and with non-fatal trauma. Due to the known connection between alcohol use and injury, numerous researchers consider trauma to be a symptom of alcoholism. Alcohol-related trauma unquestionably exerts tremendous costs in financial, medical, societal, and personal terms. Effective management of alcohol-related trauma would benefit a medical system inundated with trauma patients, a society overwhelmed by incalculable costs of lost life and productivity, and a countless number of individuals and families suffering from undiagnosed and untreated alcoholism and the injuries that frequently result.

The following chapter will examine methods of detection of alcohol abuse and alcoholism in trauma care settings. Additionally, the following chapter will describe and analyze previous studies which examine patterns in diagnosis of alcoholism and treatment or referral to treatment of alcoholics among injury patients.

CHAPTER 3

ALCOHOLISM: DETECTION AND REFERRAL IN TRAUMA PATIENTS

Methods of Detection of Alcoholism in Trauma Patients

The previous chapter discussed the involvement of alcohol in traumatic injury, most frequently determined by use of blood or breath alcohol measurements. Presence of a positive blood alcohol measurement upon admission to a hospital is certainly not sufficient evidence to warrant diagnosis of alcoholism. However, positive BAC measurement when presenting for treatment of injury is ample reason to suspect alcoholism and to thoroughly assess for the disease.

Colquitt, Fielding, and Cronan (1987) report a bimodal distribution of BAC in patients injured in automobile accidents: one cluster was for negative BAC patients, while those with positive BAC clustered around BAC of 0.22. The authors concluded that the positive BAC patients "have not simply committed a minor social indiscretion but most often have a serious drinking problem." BAC of 0.20 at any time is considered evidence of alcohol abuse (Chang & Astrachan, 1988) and BAC of 0.30 at any time is considered diagnostic of alcoholism (Clark, McCarthy, & Robinson, 1985). Waller's (1976) review of those who used alcohol in traumatic events

concluded that approximately two-thirds of alcohol-involved injury patients are problem drinkers, and the remaining one-third are teen-age experimenters and young adult social drinkers who have not experienced problems associated with alcoholism. Approximately two-thirds of those arrested for alcohol-impaired driving meet diagnostic criteria for alcoholism (Maull, 1982).

Positive BAC upon admission for treatment of injury can be used to identify patients with a strong possibility for alcoholism, especially in cases when the BAC is well in excess of legal limits for intoxication. However, relying on BAC alone as a screening mechanism may miss many problematic drinkers. Yates, Hadfield, and Peters (1987b) conducted an alcohol-use history on all accident and emergency department patients and found that of those who reported drinking at least ten drinks per day on six or seven days per week, 64% had a zero BAC reading at the time of their admission. Cherpitel (1989a) interviewed emergency room patients and found that 44% of injury patients arrived at the emergency room six hours or more after the occurrence of their injury; all therefore had a negative BAC upon admission. Eight percent of this group reported that they had been drinking at the time of the traumatic event. Both studies conclude that many problem drinkers will escape detection in emergency room settings if BAC is used as the sole screening tool.

Numerous neuropsychiatric, gastrointestinal, hematologic, cardiac, and metabolic conditions that can be measured by laboratory testing have been used to identify alcoholism in medical patients; the most common is a test for elevation in the enzyme gamma-glutamyl transpeptidase [GGT] (Cohen, Kern, & Hassett, 1986). Use of these laboratory tests to detect alcoholism may be limited due to their tendency to detect only late-stage chronic alcoholics (Abrams, 1986; Lowenfels & Miller, 1984; Skinner & Holt, 1983). The National Institute on Alcohol Abuse and Alcoholism (1990) addresses this issue extensively and concludes that biochemical markers can provide useful information as a supplement to information gained through interviews or questionnaires; however, due to sensitivity and specificity issues "laboratory tests are not adequate when used alone to screen for alcohol problems."

Numerous screening instruments have been developed to identify alcoholism, with the most commonly used being the CAGE test (Mayfield, McLeod, & Hall, 1974; Ewing, 1984) and the Michigan Alcoholism Screening Test [MAST] (Selzer, 1971). The National Institute on Alcohol Abuse and Alcoholism (1990) compared several laboratory indicators of alcoholism and several questionnaires, including the CAGE, MAST, and two shortened forms of the MAST, and found that the self-report interviews had greater sensitivity and specificity than the laboratory tests. Bernadt, Mumford,

Taylor, Smith, and Murray (1982) compared the efficacy in detection of alcoholism of eight laboratory tests and three rapid interviews, the CAGE, Brief-MAST, and a structured interview developed by Reich. They found that the best of the laboratory tests, a measure of the enzyme gamma-glutamyl transpeptidase, identified 36% of the alcoholics in the study, while all three of the interviews correctly identified in excess of 90% of the alcoholics. Mayou and Hawton (1986) reviewed numerous comparison studies and recommended utilization of a combination of screening interview and laboratory tests in medical settings to identify alcoholics, citing the insensitivity of laboratory tests to early-stage alcoholism as problematic. Routine use of questionnaires such as the CAGE and MAST is highly recommended in light of their diagnostic accuracy relative to laboratory tests (Skinner & Holt, 1983).

Detection of Alcoholism in Trauma Patients

Maul, Kinning, and Hickman (1984) state "it is the authors' impression that there is a very low level of recognition and an even lower level of treatment of alcoholism in most trauma services in the United States today." Abrams (1986) concurs, stating that despite the unusual number of trauma patients identified as alcoholics in careful studies, this diagnosis is frequently not mentioned in the emergency room assessment, admission

history and physical, or discharge planning notes. Abrams states that alcoholism seems to be diagnosed appropriately in trauma settings only when obvious organ toxicity or previous history of treatment for alcoholism is present. The following section will examine studies that specifically identified the number of trauma patients who were diagnosed as alcoholic.

As previously discussed, many trauma patients have positive BAC upon admission for treatment of injuries and high BAC indicates persons at high risk for alcoholism. Frequency of obtaining BAC measurement for patients is one index of trauma staff's management of alcoholism. Soderstrom and Cowley (1987) surveyed United States trauma center directors and 55.2% report that their trauma centers routinely obtain BAC on admission for trauma patients.

Colquitt, Fielding, and Cronan (1987) reviewed the charts of 252 motor vehicle accident patients. BAC was obtained in 50.4% of cases. 66.1% of patients who had a BAC test done were above 0.10, with a median BAC of 0.22. Chang and Astrachan (1988, 1989) reviewed the medical charts for 346 adult trauma patients who were injured in motor vehicle accidents. 26 patients were eliminated from the study due to incomplete charts. BAC was obtained in 25% of cases while the patient was in the emergency room. Of those tested for BAC, 66.3% were positive. Eighty-nine percent of the positive BAC patients were in excess of 0.20. Fifty-three

of 320 motor vehicle accident patients (16.6%) were identified by the medical staff as having alcohol use as a factor in their injury. These figures are well below the 100% BAC testing for trauma patients as recommended by trauma texts, particularly for high-risk groups such as motor vehicle accident victims (Cowley, Conn, & Dunham, 1987).

Review of medical records and use of standardized tests are two methods of determining the number of alcoholics in trauma units. Studies which rely on review of medical records consistently identify fewer alcoholics than studies utilizing standardized tests. Amdur (1975) reviewed the records for 9933 emergency room visits at a Chicago hospital and identified 1.4% to be alcohol-related; any chart in which it was noted that the patient "had been drinking," "smelled of alcohol," or in some way implicated alcohol constituted an alcohol-related visit. Chang and Astrachan (1987) reviewed the medical charts of 379 consecutive trauma admissions in an urban teaching hospital. Eleven and four-tenths percent of patients were "explicitly suspected or identified as substance abusers" by the attending medical staff.

Implementation of standardized tests with trauma patients identifies a higher percentage of alcoholics than is detected by retrospective review of records. Rund, Summers, and Levin (1981) administered a psychiatric

structured interview to 200 trauma patients. Screening for alcoholism with this instrument consists of questions focusing primarily on medical disorders associated with late-stage chronic alcoholism (for example, presence of delirium tremens). Twenty percent of the patients were identified as alcoholic. Antti-Poika, Karaharju, Roine, and Salaspuro (1988) studied 449 injured males at a trauma center in Helsinki, Finland. Eleven patients refused to participate. Four-hundred thirty eight patients were interviewed using the MAST; 27.4% were identified as alcoholic. These studies did not include information regarding the number of these patients who were diagnosed as alcoholic by the medical staff. Brown and Harvey (1971) conducted an early review of the literature and found the representation of alcoholics in emergency room setting to range from 12.5% to 36.7%, when a variety of psychiatric screening instruments were used.

Further information regarding the relative diagnostic efficacy of standardized measures and physician's detection of alcoholism can be provided by studies which allow a direct comparison. Numerous studies exist in which standardized alcoholism screening measures were administered independent of the attending physician's diagnosis for trauma patients.

Soloman, Vanga, Morgan, and Joseph (1980) administered a structured interview to 508 emergency room patients in

1976 and 1977 to diagnose alcoholism, then reviewed medical records to ascertain physicians' diagnosis for the same patients. Eighteen percent of the sample (91 patients) were diagnosed as alcoholic by the structured interview. Review of the charts revealed that 44% of the alcoholic patients' charts contained some notation by the medical staff of alcohol-related problems. Attending physicians diagnosed as alcoholic 24% of those who were identified as alcoholic by the structured interview.

Silverman, Peed, Goldberg, Hamer, and Stockman (1985) utilized the Diagnostic Interview Schedule (DIS) to identify psychopathology in trauma patients. Fifty-eight patients were evaluated and 28.6% were identified as alcoholic. Examination of the medical records revealed no mention of alcoholism in 13 of 16 (81.3%) cases that were identified as alcoholic by the DIS. A chart was rated as positive for the medical team's recognition of alcoholism if it contained any mention of behavior or symptoms related to alcoholism, i.e. the comment "drinks a lot" qualified as a treatment team recognition of alcoholism. The three patients whose chart included reference to alcoholism developed withdrawal symptoms while hospitalized and were treated for delirium tremens.

Cohen, Kern, and Hassett (1986) reviewed medical charts and utilized a list of medical conditions that are highly correlated with chronic alcohol abuse to identify alcoholic

patients among 1355 patients at a New York emergency room.. One hundred and twenty-five alcoholics were identified (9.2% of the sample). In 85% of the cases, the admitting physician recognized alcoholism as a cause of the patient's medical condition. Seventy percent of the admitting nurses recognized the patient's alcoholism. Of the patients who completed treatment, 73.5% of the primary care physicians and 57.8% of the primary nurses recognized alcoholism in the chronic alcoholics in this study.

Heinemann, Keen, Donohue, and Schnoll (1988) administered the MAST to 103 head injury patients at a Chicago rehabilitation hospital. Forty-nine percent were identified by the MAST as alcoholic; review of medical records indicated that 4.9% of the patients were diagnosed as alcoholic by their attending physician.

A 1969-1970 study at the Massachusetts General Hospital asked emergency room physicians to assign 200 alcoholics to a research project. Blane, Overton, and Chafetz (1967) reviewed the medical records of the 3007 emergency room admissions that occurred from the beginning of the project to the time when the required 200 alcoholics had been assigned. They eliminated all cases that would have been eliminated from the project for demographic reasons, then reviewed the charts for evidence of any alcoholics that were "missed" by the physicians. In addition to the 200 alcoholics assigned to the original study, Blane, Overton,

and Chafetz found evidence in the medical records to support diagnosis of alcoholism for an additional 238 patients seen in the emergency ward during the time period of the original study. In addition, the researchers found that only 41.5% of the patients assigned to the original study received a formal diagnosis of alcoholism in their medical record. Of the "missed" alcoholics, 13% were formally diagnosed by the emergency room physician. The authors noted the lack of congruence between the physicians' "action diagnosis" and "formal diagnosis," and discussed the role of physicians' attitudes toward alcoholism in contributing to this discrepancy.

Moore et al. (1989) report on a thorough investigation of medical staff response to alcoholism at Johns Hopkins Hospital. Seventy-nine percent of new admissions to the hospital were screened for alcoholism with the CAGE and SMAST; follow-up physician and patient interviews were conducted for screen positive patients to determine the rate of identification of alcoholics by the attending physicians. The results are reported by department within the hospital. The prevalence of patients screening positive for alcoholism was as follows:

Psychiatry	30%
Medicine	24%
Neurology	19%
Obstetrics	12%
Gynecology	12%
General surgery	21%
Orthopedics	28%
Urology	14%

Ear, nose, throat	43%
Cardiac	24%
Neurosurgery	16%

Concordance of physician identification with screen-positive patients ranged from 65% for psychiatry, 35% for medicine, 27% for neurology, 27% for surgery, and 7% for gynecology. In all departments, the method of identification used by physicians was almost exclusively personal history-taking; none of the physicians used a screening instrument as their criteria for detecting alcoholism.

Using the MAST, Westermeyer, Doheny, and Stone (1978) identified 27 alcoholics among injury patients in a Minneapolis hospital. A review of the medical records revealed that none of the patients identified as alcoholic by the MAST had a primary diagnosis of alcoholism and 14.8% had a secondary diagnosis of alcoholism. Sixty-three percent had no mention of alcoholism or alcohol-related problems in the admission history, progress notes, problem list, or discharge diagnoses.

A similar pattern emerges in studies performed in other medical settings. Rodriguez and Cami (1988) used the Brief-MAST, CAGE, and MALT to detect alcoholism in a general hospital in Spain. A total of 37.5% of inpatients were identified as alcoholic by these instruments. Of those identified as alcoholic by the screening instruments, 38.7% were diagnosed as alcoholic by the corresponding medical team. Moore (1971) found that the MAST correctly

identified 90% of alcoholics in a general hospital in San Diego, while the attending physicians diagnosed alcoholism in 50% of cases. Moore and Malitz (1986) found that physicians in an ambulatory care clinic diagnosed as alcoholic 45% of their patients who had been identified as alcoholic by the CAGE. McCuster, Cherubin, and Zimberg (1971) found that medical staff of a general hospital diagnosed as alcoholic 55% on admission and 45% on discharge of the patients identified as alcoholic by a structured interview. In a family practice setting, residents diagnosed alcoholism in 48% of the cases that were screened as alcoholic with CAGE; in 75% of the cases where the resident diagnosed alcoholism, the patient had been previously diagnosed as alcoholic through the course of many visits to the same clinic (Woodall, 1988).

Referral and Treatment of Alcoholism in Trauma Patients

Review of existing research identified numerous studies which examine patterns of treatment and referral to treatment of alcoholics by emergency room and trauma care medical staff. Zuska (1981) states, "The crisis that brings the alcoholic to the surgeon is an opportunity for intervention in a progressive, often fatal disease. The surgeon has the respect and authority to recommend referral of the alcoholic to the appropriate treatment after the necessary emergency care is given." The following section

will examine the degree to which the crisis of alcoholism-related trauma is an opportunity that is successfully managed or is missed.

Westermeyer, Doheny, and Stone (1978) designed a study to assess medical practice regarding diagnosis, treatment, and referral of alcoholic patients in a university hospital. The authors sent a letter to attending staff physicians at the University of Minnesota Hospital's medical services requesting permission for the researchers to administer the MAST questionnaire to new patients admitted for treatment of injuries. In the event of a positive MAST score, a consultation request would be left for the doctor's signature; if authorized by the doctor, a consultation focused on alcohol abuse would be provided at no cost to the patient.

Five of the 25 physicians who were contacted refused to allow the project to take place with their patients. Of the five who refused, two stated that chemical dependency problems were already being addressed appropriately and no further services were needed, two feared that the MAST would inconvenience, alienate, or anger their alcoholic patients, and one believed that a staff member with a drinking problem would object to the study.

Three hundred patients were interviewed by the researchers; 27 (9%) had MAST scores indicating alcoholism. Review of the medical charts upon discharge indicated that

in all alcoholic cases the attending physician was informed of the positive result of the MAST and a request for alcoholism consultation was left for the physician's authorization. Despite efforts to facilitate alcoholism consultation by the researchers, only 9 (33%) consultations were authorized by the attending physicians.

The authors stated that "current medical practice among physicians and nurses lags far behind accepted medical practice for chemical dependency." The authors concluded that the majority of physicians and nurses at that facility did not take adequate drug and alcohol use histories, did not identify chemical dependency as a problem even when they knew dependency was present, and did not involve themselves in treatment or treatment recommendations even when the problem was identified.

Soloman, Vanga, Morgan, and Joseph (1980) conducted a study to determine first the prevalence of alcoholism or alcohol misuse in emergency room patients at a New York hospital and secondly to evaluate the effectiveness of emergency room physicians in identifying and referring these patients for treatment. The researchers randomly selected adult emergency room patients admitted between the hours of 9 am and 11 pm on weekdays. Patients were given a structured interview and were rated on the Alcohol Abuse Scale (AAS). The medical charts for all interviewed patients were reviewed for any mention of alcohol or related

terms, a diagnosis of alcoholism, or any intervention or referral for treatment of alcoholism.

A total of 508 patients were interviewed and 91 patients (17.9%) were identified by the AAS as alcoholic. As previously mentioned, 44% of the alcoholic patients' charts contained some notation about alcohol-related problems and 22% were diagnosed by their attending physician as alcoholic. Eleven of the alcoholic patients were referred by the emergency room medical staff for treatment of alcoholism. Therefore, 12.1% of the patients identified by the researchers as alcoholic were referred by the emergency room medical staff for treatment of alcoholism. The emergency room medical staff diagnosed alcoholism in 22% of the patients that were identified as alcoholic by the AAS; further, the medical staff referred for treatment of alcoholism in 50% of the patients who they diagnosed as alcoholic. Eighty-seven and nine tenths percent of the patients in this study identified as alcoholic by the AAS left the hospital with no referral for treatment of alcoholism. The authors conclude that the medical staff's failure to diagnose or refer to treatment many of the alcoholics they treat is a product of negative views of many physicians toward alcoholics, which stems from a lack of attention to alcoholism in medical education.

Silverman, Peed, Goldberg, Hamer, and Stockman (1985) conducted a study at a Virginia emergency room to

investigate the recognition of psychopathology in trauma patients by the medical team. The Diagnostic Interview Schedule was administered to trauma patients to detect any psychopathology, including alcoholism. The medical team was unaware that the study was being conducted.

Sixteen of the 56 patients (28.6%) included in the study were identified as alcoholic by the DIS. Review of the medical records after discharge indicated that a psychiatric consultation for alcoholism was ordered in three of the 16 (18.6%) cases of alcoholism; in each of these cases the alcoholic patients had developed withdrawal symptoms and were treated for delirium tremens. Eighty-one and three-tenths percent of the alcoholics identified by the researchers received no evaluation or referral for treatment of alcoholism by the medical team. In summary, the authors called for additional research to explore why psychopathology, particularly regarding alcoholism, goes undocumented in the trauma setting and to develop strategies to improve its recognition and management.

Cohen, Kern, and Hassett (1986) performed a study at a New York hospital emergency room to ascertain the extent of treatment patients received for alcoholism while simultaneously receiving care for a medical crisis and to determine the extent of aftercare recommendations for alcoholic patients upon discharge. All admissions to the department of medicine from the emergency room from July 1

to October 31, 1979, were studied; there were 1355 admissions. A medical consultant developed a list of medical conditions which are highly correlated with chronic alcohol abuse. The case was considered one of potential alcohol abuse when one or more of these diagnoses was indicated in the medical record.

One hundred and twenty-five patients (9.2%) were identified by the researchers as clearly meeting diagnostic criteria for alcoholism. Of the 125 alcoholic patients, 102 completed treatment; 8 died and 15 left the hospital against medical advice. As previously mentioned, the primary care physician recognized alcoholism in 75 of the 102 cases (73.5%). Sixteen of the 102 patients (15.7%) were referred to the hospital's department of alcoholism for consultation. Discharge planning notes indicate that 20 patients (19.6%) were referred for alcoholism-specific aftercare: 8 were referred to the hospital's in-house detoxification program and 12 were referred to Alcoholics Anonymous. Therefore, 82 of 102 (80.4%) chronic alcoholic patients were discharged from the hospital with no treatment or referral for treatment of alcoholism. The authors recommended "aggressive efforts to identify alcohol-induced medical problems and to encourage patients to seek alcoholism treatment to ensure that a larger number receive the services they need."

Colquitt, Fielding, and Cronan (1987) reviewed the

medical and legal consequences of patients admitted to the emergency room of a Connecticut hospital from 1981 to 1985, all of whom were injured while driving a motor vehicle. The sample consisted of 252 patients, of whom 127 had a determination of BAC and 125 had no determination of BAC while in the emergency room.

Eighty-four patients (33.3% of the total sample, 66.1% of those with BAC determination) had BAC in excess of 0.10, with a median BAC of 0.22. Based on the high BAC in these patients, the authors state that "it is clear that these patients have not simply committed a minor social indiscretion but most often have a serious drinking problem." Two patients, both of whom had previously been given a diagnosis of alcoholism, were referred for alcoholism counseling. Therefore, 82 of 84 patients (97.6%) who were legally intoxicated when admitted for treatment of injuries received while operating a motor vehicle were not evaluated or referred for treatment of alcoholism by the medical staff.

The authors state that patients who are admitted to the hospital for the treatment of alcohol-related injuries are those who are most likely to be helped by treatment and should be referred to psychiatrists and social workers for evaluation. However, "physicians seem reluctant to refer such patients to counseling or to formal alcoholism rehabilitation programs, despite clear evidence that many of

these patients should be classified as alcoholics."

Chang and Astrachan (1987) hypothesized that alcohol use is frequently an underlying and overlooked risk factor for injuries. The authors reviewed the charts of 379 consecutive trauma patients admitted to an urban teaching hospital. Charts were not reviewed if the patient was less than 16 or more than 70 years of age. Charts were abstracted for the following information: dates of hospitalization, date of birth, race, gender, marital status, address, nature of trauma, intervention, diagnosis, medications, history of substance abuse, laboratory findings of substance abuse, and history of psychiatric care.

Of the 379 patients included in the study, 43 (11.4%) were explicitly suspected or identified by the medical team as substance abusers. No referrals were made for substance abuse evaluation or treatment. Six patients were identified with psychiatric illness; only the three psychiatric patients who sustained self-inflicted lacerations were referred for psychiatric care.

The authors discussed the results of their work with emergency room physicians, who suggested that the number of alcohol-related trauma patients identified in their study was under-represented because "identification of these patients is not truly routine." The authors concluded that it would be invaluable to design a system of casefinding and referral for substance abuse problems in trauma care

settings, allowing modification of the role of substance abuse in injuries.

Chang and Astrachan (1988, 1989) reviewed the charts of 346 motor vehicle accident trauma patients at an urban teaching hospital, abstracting for the same information as in the 1987 study. Of the 346 patients, 320 had complete charts and were included in the study. Eighty of 320 patients (25%) had BAC determined while in the emergency room. Forty-nine of the 320 patients (15.3%) were identified as having BAC above 0.10. Of those patients tested, the range for BAC was 0 to 0.55; 33.8% had BAC of 0. Of the patients whose BAC was positive, 61.3% had BAC in excess of 0.10 and 57.5% had BAC in excess of 0.20. None of the patients in the sample were referred for substance abuse evaluation or treatment. One patient (with BAC 0.11) was referred for psychiatric consultation, principally due to a history of mental illness. Two patients (with BAC 0.25 and 0.37) were told at discharge not to drink and drive.

The authors concluded that despite the recognized behavioral and emotional components of injury, particularly the role of alcohol abuse and addiction, treatment in the emergency department was primarily directed to treatment of immediate medical needs and not to detection and treatment of chronic problems such as alcoholism. The authors suggested that if more vigorous attempts to evaluate, diagnose, and refer for treatment of alcoholism continue to

fail, legal changes may be required, such as mandating BAC testing for all motor vehicle accident patients.

Corten and Pelc (1986) randomly selected 12,965 medical files for patients admitted to two Brussels, Belgium emergency rooms in 1977 to examine the emergency services intervention with potentially alcoholic patients. The researchers reviewed the medical records and identified 535 cases (4% of total cases reviewed) where the medical staff identified intoxication upon admission. Of these cases, 36.5% were referred to a hospital psychiatrist for evaluation, 10% of whom were hospitalized for treatment of alcoholism. Sixty-three and one-half percent of the intoxicated patients were discharged from the hospital without a specialized evaluation or appointment for evaluation and without treatment for alcoholism. The authors state that the study pinpoints a lack of diagnosis or treatment of alcoholism in the emergency room.

A study conducted by Moore et al. (1989), while not specifically involving trauma patients, is of interest due to its examination of the response of various medical specialties to alcoholism among their patients. Seventy-nine percent of patients admitted to all clinical departments over a 15-month period were screened for alcoholism using the CAGE and SMAST questionnaires. For those patients who screened positive for alcoholism and whose primary physician diagnosed alcoholism, follow-up

information was attained from the patient and physician to determine what treatment was provided or recommended to the alcoholic patients.

The concordance rates by department for physician diagnosis of alcoholism with screen-positive patients in this study are reported in the previous chapter. Of the five departments for which follow-up information was obtained (medicine, psychiatry, surgery, gynecology, and neurology), 43.8% of the patients who were identified by the screening procedures as alcoholic were diagnosed as alcoholic by the attending physician. Of the patients who were accurately diagnosed as alcoholic by their physician, in 35.4% of the cases the physician consulted with an alcoholism counselor and/or the patient was referred for specific alcoholism treatment upon discharge. An additional 24.8% of the accurately diagnosed alcoholic patients were informed by their physician of the diagnosis of alcoholism or were told to stop drinking; these patients received no other interventions and were given no specific instructions regarding treatment for alcoholism. Therefore, 15.5% of the patients identified by the screening procedure as alcoholic received alcoholism consultation while at the hospital or were referred for alcoholism treatment upon discharge.

The psychiatry department, which most reliably diagnosed alcoholism, also most frequently treated alcoholism among their patients. Alcoholism treatment was

initiated in 55.3% of the psychiatry patients who were accurately diagnosed as alcoholic and in 31.8% of the total alcoholic patients seen in the department. The department of medicine initiated alcoholism treatment in 31.3% of the patients they diagnosed as alcoholic and in 14.7% of the total cases of alcoholism. The departments of surgery, gynecology, and neurology initiated alcoholism treatment in only 14.8% of the cases they diagnosed as alcoholic and in 4.4% of the total cases of alcoholism seen in their departments.

Moore et al. (1989) concluded that physicians are in a position to intervene in the disease process of alcoholism since alcoholism is present in approximately 25% of patients admitted to the hospital, however physicians often lack the skills to identify or initiate treatment in these patients. The authors suggested that physicians should learn to initiate alcoholism therapy during patients' hospitalization since this is likely to have a positive impact in motivation patients toward appropriate and effective treatment.

The first of two studies examining alcoholism intervention projects designed to respond to the problem of alcoholism in injury patients was conducted by Hemphill, Bennett, and Watkins (1984). The authors analyzed the Alcoholism Intervention Program (AIP) conducted at Parkland Memorial Hospital in Dallas, Texas throughout 1983. The AIP was a screening and referral program operated in the

emergency room and staffed with two alcoholism counselors and 30 volunteers from Alcoholics Anonymous.

Patients seen in the emergency room or admitted to the hospital with a possible alcohol problem were referred to the AIP counselor by the attending physician, nurse, or other hospital personnel who suspected an alcohol problem. The services of the AIP were made known through meetings with hospital administrators, information distributed in flyers and the hospital magazine, and the AIP counselors' daily rounds and regular communication with nursing staff, particularly in the emergency room. No specific criterion was established to substantiate a referral from hospital staff to the AIP counselor. The screening process by the AIP counselor consisted of an alcohol use history, assessment of problems associated with alcohol use, assessment of the family and community resources, and assessment of motivation to stop drinking. Patients were referred to the most appropriate alcoholism treatment facility in the community in accordance with the results of the screening process; patients were also oriented to Alcoholics Anonymous when appropriate. Systematic follow-up was done to determine the success of referral and outcome of rehabilitation.

A total of 1822 patients were referred to the Alcoholism Intervention Program; there was no indication of the total number of patients seen at the hospital during

this time frame. Four hundred and forty patients (24.1%) were referred to residential alcoholism programs; 387 patients (21.2%) were referred to Alcoholics Anonymous. No information was provided to specify the number of patients referred to the AIP who were diagnosed as alcoholic. Follow-up studies indicated that 67% of patients referred for inpatient treatment for alcoholism were admitted to a treatment center within one day of discharge from Parkland Memorial Hospital.

Further analysis of the Hemphill, Bennett, and Watkins study is limited due to failure to include several significant pieces of information, including the total number of patients seen at the hospital during the time frame of the study, the percentage of patients seen by the AIP counselors who were diagnosed as alcoholic, and the disposition of the 54.6% of patients referred to AIP for suspected alcohol problems who did not receive a referral for alcoholism treatment. Further, the AIP at Parkland Memorial Hospital operated from 7:30 am to 11 pm; previous research has suggested that a large percentage of alcohol-related injury patients present for treatment during early morning hours and therefore may have been missed in this study.

Gentilello et al. (1988) performed a prospective study on the use of a standard outpatient intervention technique to induce alcoholic trauma patients into accepting

alcoholism treatment. Performed at Hermann Hospital in Houston, Texas, the researchers determined alcoholism in trauma patients by performed a screening technique with family members of patients who had BAC of 0.10 or greater when admitted to the hospital.

When diagnosis of alcoholism was established and the patient's family agreed with the need for treatment, a counselor trained the family in a technique known as Social Network Intervention, which has been used in outpatient settings to coerce alcoholics into accepting treatment. Preparations to implement the intervention were made without the patient's awareness, including reserving a bed in an alcoholism treatment center. The intervention took place when each patient was ready for discharge from the hospital.

Nineteen patients admitted to the trauma unit during the course of the study had BAC of 0.10 or greater. The total number of patients admitted to the trauma unit during the period of the study was not included. Previous investigations at the hospital revealed BAC of 0.10 or higher in 50% of motor vehicle accident patients, 50% of auto-pedestrian accident patients, and 85% of stabbing victims. The screening procedure identified all nineteen BAC positive patients to be alcoholic. Seventeen families agreed to perform the intervention technique; two families declined, one due to lack of unanimous agreement that alcoholism was present and one family desired to seek

pastoral counseling. Seventeen Social Network Interventions were performed and all resulted in immediate transfer of the alcoholic patient into residential treatment for alcoholism.

Gentilello et al. hypothesized that trauma centers were uniquely situated to carry out intervention and initiate treatment among alcoholic patients because injuries that require hospitalization create a crisis that can be utilized to weaken the alcoholic's denial that he/she has an alcohol problem. The authors' hypothesis was supported by the results of their study, where 89.5% of the alcoholics identified were successfully initiated into alcoholism treatment upon discharge from the trauma unit.

A survey of trauma centers in the United States was conducted by Soderstrom and Cowley (1987) to ascertain the response of trauma care facilities to the problem of alcohol-related trauma. Surveys were sent to the medical director of trauma services at all 339 trauma centers in the United States; a response was elicited in 51.6% of cases after two mailings. The respondents indicated:

*65.8% indicated that alcohol consumption plays a role in more than half of their trauma cases.

*The mean response in assessing alcohol nationally as a factor in the causation of traumatic injury on a scale of 1 (insignificant) to 10 (highly significant) was 8.3.

*70.7% indicated that determination of BAC is valuable in management of their trauma patients.

*55.2% indicated that they routinely obtain BAC measurement on their trauma patients.

*Of the centers that report that they routinely obtain BAC, 88.5% estimated BAC determination on admission in at least 50% of their patients.

*Of the centers that report that they do not routinely obtain BAC measurement, 53.6% noted that BAC determination was not clinically important and 26.1% reported that legal restriction or fear of litigation prevented them from obtaining BAC measurement.

*29.1% indicated that the taking of patient history at their center did not routinely include questions concerning alcohol abuse.

*31.8% indicated that their trauma service employed an alcoholism counselor or clinicians with specific training in alcohol abuse.

*Of the centers that reportedly employ alcoholism counselors, 63.9% indicated that less than half of their patients with an alcohol problem were seen by their alcoholism counselor.

*Of the centers that reportedly employ alcoholism counselors, 71.4% reported that 30% or less of their patients with alcohol problems are enrolled in treatment programs.

The authors stated, "The presented data indicate that a significant opportunity to make an impact on the problem of alcohol as a major cause of trauma is ignored in most trauma centers."

While the studies reviewed in this chapter utilize differing methods to identify alcohol abuse and alcoholism among trauma patients and varying criteria for diagnosis and referral to treatment of alcoholic trauma patients, the information provided does lead to a number of conclusions. First, BAC tests for trauma patients are done far less frequently than the 100% level recommended by trauma and surgical texts, so many patients whose trauma is alcohol-

related are not identified by the attending medical staff. Several of the studies indicate that standardized alcoholism diagnosis instruments are substantially more effective at identifying alcoholic trauma patients than routine observation by medical staff. Additionally, despite the well-established association between alcohol abuse and trauma, most trauma facilities lack specific procedures or specially trained staff for management of alcohol abuse and alcoholism among trauma patients. Each of these factors contributes to a general pattern of inadequacy in accurately diagnosing alcoholism among patients who present for treatment of injuries. Lastly, the studies reviewed indicate that even those patients who are diagnosed as alcoholic by trauma medical staff are rarely treated or referred for treatment of alcoholism, resulting in a missed opportunity for intervention and treatment at a point in the disease process where alcoholism is most effectively treated.

CHAPTER 4

CONCLUSIONS AND RECOMMENDATIONS

Blocks to Detection and Referral

The previous chapter's review of research regarding management of alcoholism among trauma patients indicates a general pattern of inadequacy by medical staff in diagnosing and treating alcoholism. Clark (1981) states flatly, "Physicians fail to recognize alcoholism if patients do not attribute their suffering to drinking problems." Several authors examine factors that contribute to this problem.

One block to detection and referral of alcoholism in trauma settings is the medical staff's tendency to focus primarily on medical treatment of the presenting injury. Baker (1985) describes this as a problem with attempting to manage a chronic problem in an acute care setting. Blane, Overton, and Chafetz (1967) theorize that physicians' training prepares them to classify patients according to organic or body system disorders, so when faced with clear-cut medical symptomatology they are likely to make a purely medical diagnosis even when pathology such as alcoholism predominates. Galanter (1982) notes that physicians fail to diagnose alcoholism more frequently when their patients are

in less severe phases of alcoholism and when the presenting problems are less obvious sequelae such as accidental fractures. Reyna, Hollis, and Hulsebus (1985) cite in serious cases the desire of trauma care practitioners to rapidly correct the life-threatening conditions caused by the trauma and in cases of minor injury to immediately treat the injury and avoid prolonging the hospital stay. Makadon, Gerson, and Ryback (1984) speculate that since emergency unit providers have little responsibility for ongoing care and therefore have minimal incentive to develop thorough and consistent plans of management, staff do whatever is necessary to expeditiously move patients out of the emergency setting.

Rabinowitz (1983) considers physicians' attitudes about alcoholism to be the foremost obstacle to correct diagnosis and treatment of alcoholic patients in hospital systems, citing a survey of physicians which indicated a general perception of alcoholics as weak-willed, immature, and undependable patients who the physicians were pessimistic about treating. Clark (1981) and Galanter (1982) cite negative attitudes of medical staff toward alcoholic patients as a significant block to proper diagnosis and treatment. Fisher, Mason, Keeley, and Fisher (1975) found a progression in physicians' formation of negative attitudes about alcoholic patients: second-year medical students rated alcoholics as more negative on word pairs than first-year

medical students and residents and interns rated alcoholics more negatively than the second-year medical students. Baker (1985) reports national and international studies in which physicians rate alcohol abuse as the most negative of all patient characteristics. Woodall (1988) found that physicians rated their known alcoholic patients more negatively than their average patients on fourteen of fifteen word pairs, with the biggest differences showing the alcoholic patients rated as more sick, hopeless, and dangerous.

Negative attitudes toward alcoholic patients are also manifested in a persistent perception of alcoholism as a disease of the impoverished and isolated. Blane, Overton, and Chafetz (1967) found that physicians perceive alcoholism to occur primarily among "derelicts." Galanter (1982) states that physicians fail to diagnose alcoholism more frequently in patients of higher socioeconomic status than among poor patients. Moore et al. (1989) compared demographic characteristics for patients who were accurately diagnosed by their physicians as alcoholic with patients who screened positive for alcoholism but were not diagnosed as alcoholic by their doctors. They found that physicians were less likely to identify as alcoholic patients with higher incomes, higher education, medical insurance, and female patients. The physicians most reliably diagnosed as alcoholic patients who were young, male, non-white, and of

low socioeconomic status. The authors conclude that physicians may have a stereotypical image of alcoholism and that detection may be easier when patients fulfill that image.

Clark (1981) and Lewis and Gordon (1983) identify lack of competence as a third significant impediment to reliable diagnosis of alcoholism by physicians. Both state that doctors lack knowledge of the variety of symptoms generated by alcoholism, particularly in its earlier and more treatable stages, and are not aware of systematic and formalized approaches to diagnosis when symptoms are recognized. Niven (1984) reports that only 27% of physicians feel competent in treating alcoholic patients. Numerous authors cite physicians' frustration and hopelessness at working with alcoholics as resulting from their perceived lack of success in treating these patients, which in turn limits the physicians' effectiveness in treating these patients (Soloman, Vanga, Morgan, & Joseph, 1980; Clark, 1981; Lewis, & Gordon, 1983; Makadon, Gerson, & Ryback, 1984). The issue of physicians lack of competence with alcoholic patients will be further examined in the following section on medical education and alcoholism.

Even when physicians are certain of a case of alcoholism, they may fail to refer the patient for treatment because they are unaware that successful treatment is possible and that early intervention may be highly effective

(Lewis & Gordon, 1983). Soderstrom and Cowley (1987) found that most trauma centers do not employ alcoholism counselors and do not regularly refer alcoholics to treatment, attributing this in part to skepticism or lack of knowledge of the staff concerning the beneficial results that can be achieved in alcoholism treatment programs.

Pessimism surrounding the prognosis of alcoholism treatment may cause physicians to be reluctant to refer patients to treatment (Fisher, Mason, Keeley, & Fisher, 1975). Chang and Astrachan (1988) describe an attitude of defeatism about management of alcoholism in medical centers, where despite evidence that alcoholism treatment success rates can equal or exceed those for many medical problems, alcoholics are allowed to use medical centers as revolving doors with the complicity of the institutions. Soderstrom and Cowley (1987) report alcoholism treatment effectiveness ranges from 32% - 70% while only 8% of alcoholics achieve abstinence without treatment.

Clark (1981) theorizes that physicians may ignore signs of alcoholism or the need for chemical documentation in injury patients for fear of exposing the patient to legal prosecution. Chang and Astrachan (1988) state that when clinical data are admissible as evidence in court, conducting BAC tests and diagnosing alcoholism in trauma patients may expose patients or physicians to legal risk, especially when the patient's consent for testing was not

obtained. Of the trauma centers who reportedly do not routinely obtain BAC, 26% stated they did not obtain BAC due to fear of litigation (Soderstrom & Cowley, 1987).

Denial may be another block to efficient diagnosis and referral to treatment of alcoholic patients. Clark (1981) describes this as a communication problem. People with alcoholism frequently utilize hostile, angry, anxious, misleading, or untruthful communication styles, provoking caregivers into unhelpful and ineffective responses. Since denial is a recognized symptom of alcoholism, those attempting to influence an alcoholic to accept treatment must have an understanding of and an ability to address denial in alcoholics. Gentilello et al. (1988) state that alcoholics cannot be expected to control their denial without treatment any more than a diabetic should be expected to control his/her blood sugar without treatment. The authors state that medical professionals' frustration from failure to effectively address alcoholics' denial may contribute to the pervasive negative attitudes toward alcoholics.

Denial may not be limited to alcoholics. W. Clark (1981) states that difficulty in treating alcoholics arises from the unspoken agreement among physicians and alcoholic patients not to confront or accept the diagnosis, to ignore the need to specifically address appropriate alcoholism treatment, and to downplay the importance of abstinence from

alcohol. D. Clark (1985) asserts that physicians and other professionals who ignore the symptoms of alcoholism and fail to confront alcoholism are in effect enabling and reinforcing patients' denial. Maull (1982) describes injury as "a free ticket to absolution" for the intoxicated driver, saying that impaired drivers are rarely investigated by the legal system. Maull, Kinning, and Hickman (1984) found that in 56 cases of injured alcohol-impaired drivers where strong police suspicion of alcohol involvement existed at the scene, none were convicted of driving under the influence of alcohol. The authors conclude that injury serious enough to warrant hospitalization protects the intoxicated driver from appropriate punitive intervention, further stating that "neither the legal profession nor the medical profession have adequately addressed this problem of staggering proportions that impacts both professions." A comparable study by Colquitt, Fielding, and Cronan (1987) found that of 59 alcohol-impaired injured drivers, none were prosecuted or convicted for driving under the influence of alcohol, concluding that "injury appears to protect the drunk and injured driver from arrest and prosecution for driving under the influence of alcohol."

Medical Education and Staff Training

Lewis and Gordon (1983) state that formal education of physicians, nurses, and social workers is "noticeably

deficient regarding diagnosis and care of alcoholic patients." Physicians' lack of competence regarding alcoholism has been identified as one block to detection and treatment of alcoholic trauma patients. Inadequate attention to alcoholism in medical education may contribute to the general absence of medical proficiency in accurately diagnosing this major disease. Holden (1985) calls alcoholism "the neglected disease in medical education," attributing physicians' deficiency in early diagnosis and intervention with alcoholic patients primarily to lack of adequate education about the disease in medical school.

Chang and Astrachan (1987) report the amount of time devoted to teaching physicians about alcoholism and addiction averages approximately 1% of the total medical school curriculum. Malansky (1974) reports that there was not one hour of required clinical teaching regarding alcoholism at the University of Minnesota Medical School. More recently, Clement (1986) surveyed general practitioners regarding the number of hours of formal education they had received about alcoholism and related problems; 3% reported that they had between 41 and 80 hours of instruction, 17% had 10 to 40 hours, 53% had 1 to 10 hours, and 27% reported zero hours of alcoholism-specific education. Therefore, 97% of the physicians surveyed reportedly had received less than the equivalent of a one-week course regarding alcoholism, and over one quarter had no formal educational attention to

alcoholism. Phelps and Johnson (1990) found that 65% of physicians felt they were lacking in adequate education about alcoholism and that over 50% of family physicians reported zero to four hours of continuing education about alcoholism in the past four years. Holden (1985) reports that the Johns Hopkins Medical School offered two elective courses in the psychiatry department concerning alcoholism and no one had taken either course in the three previous years. Holden further reports that in a national survey of medical schools, less than 1% of curriculum time was devoted to alcoholism and 23% of the schools surveyed reported no elective courses on substance abuse or dependence.

Soloman, Vanga, Morgan, and Joseph (1980) state, "it is likely that changes in emergency room treatment of alcoholics will occur only when medical education improves physicians' knowledge of and attitudes toward alcohol misuse." Clement (1986) found a positive correlation between the amount of education physicians had received about alcoholism and the physicians' level of satisfaction in their work with alcoholic patients. With their finding of underdiagnosis of alcoholism by residents in a major academic medical center, Moore and Malitz (1986) suggest that increasing physicians' ability to diagnose alcoholism at its early stages is an important educational need. Clement (1986) states that the responsibility for improving the response of physicians to alcohol-related problems lies

not only with individual physicians but also with medical educators and service planners.

Model for Management of Alcoholism and Trauma

The second chapter of this study reports on the involvement of alcohol in traumatic events and the third chapter describes the response of trauma medical staff to alcohol-related trauma. Review of previous investigations indicates that while alcoholics and alcohol abusers frequently require medical treatment for injuries, most are not recognized by the medical staff and few receive any type of treatment or medical attention for their alcoholism. The traumatic event that brings an alcoholic to the emergency room or trauma center is an opportunity for early detection and treatment of a progressive and potentially fatal disease, but this opportunity is frequently missed.

Failure to capitalize on this opportunity for early detection and treatment of alcoholism leads to innumerable dire consequences for the alcoholic, his or her family, and for society as a whole. As alcoholism progresses, additional and increasingly severe alcohol-related familial, legal, financial, employment, and health problems occur and the prognosis for successful treatment continually decreases. The alarming regularity of trauma medicine's failure to capitalize on this opportunity for effective treatment of alcoholic patients calls for a systematic

approach to management of alcoholism in trauma care settings.

It is proposed by this author that counselors and other professionals with expertise in treatment of alcoholism take an active role in promoting solutions to the crisis of unrecognized and untreated alcoholism in trauma patients. While effecting change in medical training and education is unquestionably a protracted process, it is believed that more immediate results can be obtained by implementation of coordinated programmatic efforts between trauma care staff and counselors with training in alcoholism treatment.

Establishment of counselor-initiated programs to identify alcoholics among trauma patients offers potential benefits for both alcoholism counseling providers and trauma care practitioners. Numerous counseling agencies that provide alcoholism treatment are facing declining numbers of clients for both inpatient and outpatient services; implementation of counselor-initiated outreach efforts among trauma patients would be an effective means of casefinding and expansion of the scope of counseling services. Trauma facilities may respond positively to counselor-initiated alcoholism procedures because this method would allow management of a long-standing problem without need for specialized staff training and without creation of additional responsibilities for their staff.

Because of the pervasive involvement of alcohol in

injuries, numerous researchers assert that blood alcohol concentration should be determined for all injury patients (Skinner & Holt, 1983; Lewis & Gordon, 1983; Maull, Kinning, & Hickman, 1984; Lowenfels & Miller, 1984; Zindeman, Rutherford, & Ballinger, 1985; Soderstrom & Cowley, 1987; Chang & Astrachan, 1988; Cherpitel, 1989a; NIAAA, 1990). BAC measurement is valuable not only for management of medical needs but can also indicate those at risk for alcohol abuse or dependence. Breathalyzers can measure BAC quickly and accurately and should be routinely obtained along with other vital signs.

In addition to obtaining a measure of blood alcohol concentration at the time of treatment for trauma, all injury patients should be systematically assessed for alcoholism. Particular emphasis is placed by many researchers on the need to detect alcoholism at its early stages when the disease is more effectively treated. The systematic assessment should include detailed questioning regarding alcohol use patterns and characteristics (Niven, 1984; Abrams, 1986), laboratory tests to detect indicators of chronic alcohol abuse (Skinner & Holt, 1983; Lewis & Gordon, 1983; Niven, 1984; Abrams, 1986; Cohen, Kern, & Hassett, 1986; Mayou & Hawton, 1986), and use of standardized questionnaires as part of the normal medical history and physical (Bernadt et al., 1982; Skinner & Holt, 1983; Mayou & Hawton, 1986; NIAAA, 1990). Some recommend

questioning family members about the patient's alcohol use to identify those patients who may avoid disclosure to the medical staff (Niven, 1984; Abrams, 1986; Gentilello et al., 1988). Skinner et al. (1984) developed a trauma scale to detect patients at high risk for alcoholism; Abrams (1986) incorporated this scale into his standard evaluation for ethanol trauma syndrome patients. Several authors report that use of a combination of alcoholism assessment methods is superior to any one method used alone (Bernadt et al., 1982; Skinner & Holt, 1983; Mayou & Hawton, 1986; Cherpitel, 1988; NIAAA, 1990).

Abrams (1986) states that all medical personnel involved in treatment of trauma patients, including emergency medical technicians, paramedics, nurses, and doctors, must be educated to recognize symptoms of alcohol abuse and dependence. Training trauma staff in managing alcoholism is encouraged by other authors: Galanter (1982) suggests utilizing alcoholism specialists for education and modification of attitudes toward treatment of alcoholism; Cohen, Kern, and Hassett (1986) advise sensitizing trauma professionals to alcoholism detection and treatment by requiring alcoholism-specific rotations. Others propose that all trauma care facilities employ professionals specially skilled in management of alcoholism as the most efficient method of addressing the needs of alcoholic trauma patients (Skinner & Holt, 1983; Lowenfels & Miller, 1984;

Soderstrom & Cowley, 1987). Investigators of alcoholism and trauma consistently acknowledge the need for trauma staff capable of detecting and managing alcoholism due to the prevalence of alcoholism in trauma patients. Due to the lack of adequate medical education about alcoholism among current trauma practitioners, this author suggests that alcoholism counselors actively provide education and training for trauma staff as a supplement to counselor-initiated programs for management of alcoholism and trauma.

When alcoholism is diagnosed, the medical team should communicate clearly to the patient and family regarding the evidence that substantiated the diagnosis and should discuss treatment options (Abrams, 1986). Chick, Lloyd, and Crombie (1985) found that patients who received a single session from their attending medical staff to counsel the patients about alcoholism had significantly better long-term abstinence rates than patients whose alcoholism was not addressed by the medical staff. Skinner and Holt (1983) and Abrams (1986) suggest periodic follow-up contacts with these patients to monitor alcohol use and to encourage abstinence and treatment.

The pervasiveness of alcoholism in trauma patients and the impractical nature of treating this chronic disease in an acute care setting necessitate that trauma care facilities act as effective referral agents when alcoholism is diagnosed in their patients. Trauma centers should work

in coordination with alcoholism treatment providers to expedite referral of alcoholic patients to appropriate levels of care (Lewis & Gordon, 1983; Hemphill, Bennett, & Watkins, 1984; Cohen, Kern, & Hassett, 1986; Soderstrom & Cowley, 1987; Gentilello et al., 1988). Abrams (1986) and others further suggest coordination with community organizations such as Alcoholics Anonymous and Al-Anon to promote treatment for alcoholic trauma patients. This author recommends that trauma facilities clearly identify alcoholism treatment resources in their communities, that mechanisms are established to facilitate utilization of these resources for alcoholic trauma patients, that all levels of trauma care staff are aware of procedures for executing referrals, and that trauma administrators monitor the effectiveness of their staff in activating referrals when medically appropriate.

Denial is a symptom of alcoholism and alcoholic patients are frequently resistant to accepting a diagnosis of alcoholism or recommendations for treatment for this disease. Many researchers see alcohol-related trauma as a unique opportunity to break through an alcoholic's denial and to initiate effective treatment (Zuska, 1981; Soderstrom & Cowley, 1987; Gentilello et al., 1988). West (1974) states that 95% of alcoholics who enter treatment do so by way of some acute physical or psychosocial crisis. Gentilello et al. (1988) provide evidence that a standard

outpatient technique to break denial can be effectively used in trauma care settings to initiate treatment in patients whose injury alone was not sufficient to overcome their resistance to alcoholism treatment. The author advises counselors with training in intervention techniques to initiate coordination with trauma practitioners for use of this method in trauma patients. It is clear that effectively managed trauma care settings have "enormous potential for identification, intervention, and referral" of alcoholic patients (Lewis & Gordon, 1983).

Efforts can also be made outside of the hospital to address the problem of alcohol-related trauma. Two studies discussed previously report that injury appears to protect intoxicated drivers from prosecution (Maul, Kinning, & Hickman, 1984; Colquitt, Fielding, & Cronan, 1987). It has been reported that legal prosecution for driving under the influence of liquor promotes alcoholic perpetrators to seek alcoholism treatment and leads to decreased recidivism (Waller, 1987). Maul (1982) suggests that many drunk drivers are never convicted because police power to investigate accidents thoroughly is limited by laws preventing the legal system from obtaining pertinent medical information such as BAC. Maul, Kinning, and Hickman (1984) recommend legislation allowing medical personnel to take blood samples when requested by a law enforcement official, even without the patient's consent, and allowing BAC

determinations as admissible evidence to be changes that would aid in dealing with the recidivist drinking driver. Colquitt, Fielding, and Cronan (1987) recommend that in order to encourage physicians to refer injured intoxicated drivers to treatment, injury to intoxicated drivers should be made a reportable offense and BAC results should be made available to the courts. Lowenfels and Miller (1984) advocate raising or retaining minimum legal drinking age at 21 due to the disproportionately large number of accidents involving young drinking drivers.

Recommendations for Future Research

The role of non-alcoholic substance abuse and trauma has been inadequately studied. Skolnick (1990) states that while alcohol has been shown to play a significant causal role in up to 60% of trauma, "there are few data to show how much the use of marijuana, cocaine, amphetamines, and other illicit drugs add to the toll." Lieberman and Baker (1985) found non-alcoholic substance abuse to be significantly less reliably diagnosed than alcoholism in an emergency room setting, and non-alcoholic substance abuse was the least reliably diagnosed of all psychiatric conditions in their study. Thal, Boat, and Anderson (1985) tested trauma patients for a variety of substances, finding 58.9% to be positive for alcohol and no other drugs, 5.5% positive for alcohol and another drug, and 3.3% positive for a drug and

no alcohol; however the method used in this study did not detect marijuana or cocaine. Soderstrom, Triffilis, and Shankar (1988) found 35% of trauma patients marijuana-positive and 34% alcohol-positive. Lindenbaum, Carroll, Daskal, and Kapusnick (1989) studied the role of alcohol and illicit drugs in trauma victims. They found 35.5% positive for alcohol and 74.5% positive for illicit drugs, including 54.4% positive for cocaine. In violent crime related trauma cases, 6.2% were positive for alcohol and 80.3% were positive for illicit drugs. The authors of this study, echoing Skolnick (1990) and Soderstrom, Triffilis, and Shankar (1988), recommend screening all trauma patients for alcohol and drug use.

The Committee on Trauma Research (1985) outlines numerous recommendations for research and management of trauma. They recommend establishment of a center for injury control within the federal government, preferably within the Centers for Disease Control of Health and Human Resources. The Committee believes that the center would facilitate coordination of efforts to focus on injury reduction and injury research, as well as promote funding for injury control and research in proportion with that for cancer, heart disease, and other major health problems. The Committee further recommends creation of effective injury surveillance systems for gathering and integrating information, specifically including first a consistent and

accurate system for use by hospitals to code injury causes and secondly more refined data collection regarding specific types and causes of trauma to aid in developing effective preventative interventions.

Further research is needed to monitor and track trauma centers' response to alcohol-related trauma. Soderstrom and Cowley's (1987) survey of trauma centers reports rates of BAC testing and involvement of alcoholism specialists that are far below recommended levels. The magnitude of the problem demands implementation of alcoholism management protocols in all trauma centers and emergency rooms. Follow up studies would be useful in examining whether repeated trauma is reduced in facilities that effectively manage and treat alcoholism as well as in monitoring the treatment outcome for alcoholic trauma patients linked with alcoholism treatment.

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The final copies have been examined by the director of the thesis and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the thesis is now given final approval by the committee with reference to content and form.

This thesis is therefore accepted in partial fulfillment of the requirements for the degree of Master of Arts.

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