

**Alcohol and Other Drug Abuse
Prevention Services Needs Assessment:**
County-Level Social Indicator Study

June 1997
Revised August 1997

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County-Level Social Indicator Study

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INTRODUCTION

The New York State (NYS) Office of Alcoholism and Substance Abuse Services (OASAS) prevention system is grounded in the belief that alcohol and other drug (AOD) abuse is preventable and that prevention is the most cost-effective element in the continuum of alcohol and substance abuse services. The goals of OASAS prevention strategies are to:

- ◆ prevent any substance use among all ages and of alcohol use by individuals under 21;
- ◆ delay the age of first use as long as possible, with particular emphasis on gateway drugs;
- ◆ prevent the abuse of one drug from leading to the use of a variety of other drugs;
- ◆ prevent further deterioration through early identification and intervention;
- ◆ understand and integrate relapse prevention as both a treatment and prevention strategy; and
- ◆ recognize the prevention process as relevant throughout the life cycle and not solely applicable to youth.

Practitioner experience and research studies have shown that to accomplish AOD abuse prevention goals, a range of strategies at varying intensity levels must be provided within a coordinated, long-term, sustainable community service network. The development of a comprehensive continuum of community-level and targeted prevention services must be informed by knowledge of a community's AOD abuse risk and protective factors. Research and practitioner experience have also documented that AOD abuse is inter-related, in a very basic way, to a host of other social problems and health compromising behaviors. Gaining a greater understanding of the interaction between these social problems, such as poverty, violence, family dysfunction, school failure, delinquency, adolescent pregnancy, etc., and the development of AOD abuse will help improve our knowledge of the community context within which families seek to raise drug free children, and in which our AOD abuse prevention strategies operate. Taking some first steps in this direction, the OASAS, with funding from the Center for Substance Abuse Prevention (CSAP) (Contract No. 277-94-1025), conducted a study to develop and test a new county-level AOD risk indicator needs assessment system.

Developing the means to make reasonably accurate and stable predictions of future behavior has been the social sciences' quest for El Dorado, but improving on existing predictive models is an essential concern for AOD prevention policy makers. Modest enhancements in our ability to predict who is at greater risk for developing AOD abuse or where populations with a higher prevalence of AOD use are located would greatly assist planners in their task of applying scarce resources to areas with the greatest need. Improved problem assessment and subsequent reallocation of resources would improve the efficiency of prevention services, while potentially helping to guide program development. In the past, risk methodologies have been applied to compute probabilities for AOD use/abuse for individuals in populations (odds-ratios) based on scores generated from multiple risk factor indices. To transfer and analyze these empirically tested risk factors from the individual to a higher level (ie., county) a new ecological risk methodology is required.

The methodology developed for this study and detailed below is a social indicator-based approach that uses available archival data on social problems and functioning at a county level to estimate relative levels of need for AOD abuse prevention services. Based on substance abuse prevention theories and etiological research regarding the predictive ability and operational locus of risk factors (i.e., community vs. individual), risk indices were constructed and tested. Risk factors which have shown empirical and/or theoretical relationships to the age of onset of AOD use, frequency and quantity of use, and negative consequences of use and abuse were used to guide the selection and organization of county-level social indicators within the risk constructs and indices described later in this document. However, a general discussion of needs assessment, indicators and social ecology is presented first in order to acquaint the reader with the basic concepts and premises that drove the methodology of this study.

NEEDS ASSESSMENT

Needs assessments attempt to improve the distribution of scarce social resources by determining to what extent and for whom a proposed program or policy is needed. The federal government, many local governments and private funding agencies have seen the necessity of putting resources "where they're needed" and often stipulate that a needs assessment be conducted in order to receive funding. Needs assessments provide "a rational approach . . . based on carefully collected, analyzed, and interpreted information, rather than on uninformed opinion, prejudice, or historical practice." (p. 25, Bloom, Goldsmith & Lin, 1988).

The most widely used needs assessment methods either utilize surveys (i.e., self-reported drug use), or archival social indicator data (Miller, 1991; United Way of America, 1982; Warheit, 1988). Although surveys and other direct methods of problem level assessment are seen as preferable to less direct methods, they are generally time consuming and expensive, and surveys can be prone to self-report biases including social desirability of responding, memory weaknesses and differential reactions dependent upon item wording and question administration. Survey data may also "be too 'perception' oriented to be used for targeting programs in specific geographic areas." (p. 138, Bell, 1988). Although social indicator sources generally cannot provide individual-level data, this method is much less expensive than survey-based needs assessment and produces estimates that are potentially more objective (Bloom, Goldsmith & Lin, 1988; Hall & Royse, 1987). Social indicators have a tradition of providing a sound basis for needs assessment (Bell, 1984; Bell, Goldsmith, Lin, Hirtzel & Sobel, 1982; Ferriss, 1979; Goldsmith, Lin, Jackson, Manderscheid & Bell, 1988; Goldsmith, Lee & Rosen, 1982; Goodman & Haugland, 1994; Johnston, 1979; Kessler, 1988; Land & Felson, 1976; NIMH, 1977; Rossi & Gilmartin, 1980; Warheit, Buhl & Bell, 1978; Warheit, Vega & Buhl-Auth, 1983).

INDICATOR APPROACH AND SOCIAL ECOLOGY

Carlisle (1972) has defined a social indicator as "the operational definition or part of the operational definition of any one of the concepts central to the generation of an information system descriptive of the social system" (p. 25). Carley (1981) described the utilization of social indicators suggesting

that "social indicators are part of an *information system* which is used by policy-makers to understand and evaluate those parts of the social system over which they exert some power" (p. 26). Land and Spilerman (1975), proposed that "social indicators are identified as components in a social system model (possibly including sociopsychological, economic, demographic, and ecological aspects) or some particular segment or process thereof" (p.17). In summary, social indicators may be defined as data compiled in an information system which, in toto, describe a given social system, or discrete processes within that system.

A related approach focuses upon the analysis of geographically defined social areas (NIMH, 1975). The use of social indicators for this purpose finds its roots in the efforts of sociologists at the University of Chicago during the early 1920's, who became engaged in studying the social ecology of the city. Their observation, that certain areas of Chicago were characterized by a relatively rapid succession of ethnic groups while maintaining the same high levels on certain community characteristics, such as crime rate, divorce rate, and other measures of dysfunction, led them to posit the existence of a phenomenon which they termed "social disorganization." Social disorganization was conceptualized as a breakdown of the institutions that would ordinarily serve to impose limits upon human behavior, and was hypothesized to result from the processes of industrialization and urbanization (Faris & Dunham, 1939; Shaw & McKay, 1942; Wirth, 1938). Cagle and Banks (1986) state that, "In this tradition, high rates of crime, suicide, overcrowding, mental illness and such are *symptomatic* of social pathology at the community level and indicate the need for a variety of services..." (p. 129).

Although, there have been many criticisms raised against the work in this area, the concept of a "social ecology" remains valuable in that it focuses our attention upon the coincidence of problems, including crime, mental illness, drug and alcohol abuse, that often occur within defined geographic areas. In his discussion of the logic in ecological analysis, Susser (1994, p. 825 emphasis added) states:

The prime justification for the ecological approach in epidemiology is to study health *in an environmental context*...[and] measures of individual attributes cannot account for these processes... Analytically, the ecological approach reduces to the technical if not simple matter of taking groups and not individuals as the unit of study... Each level acquires collective properties that are more than the sum of the properties of its individual members.

Many of the factors involved in placing people at risk for alcohol and drug abuse are nested within social systems that either form a social ecology at the community level, or are part of processes within larger social ecologies and therefore, may more appropriately be measured at the community level (Schwartz, 1994; Susser, 1994). Thus a social indicator approach which utilizes the concepts of a social ecology in the selection of appropriate indicators can maximize the predictive value of the collective properties of community-level information while taking advantage of a geographically-centered approach which has value for policy planners. The ecological perspective also has benefit for program staff in that "a careful ecological examination has the potential to prevent myopic analogies from producing narrowly conceived prevention efforts." (Reppucci, 1987, p. 18).

DIFFERENTIATING PREVENTION AND TREATMENT SERVICE NEEDS: ESTIMATING RISK VERSUS PREVALENCE

Social indicators have regularly been used to assess the need for mental health services (Ciarlo, Tweed, Shern, KirkPatrick, & Sachs-Ericsson, 1992; Hall & Royse, 1987; Holzer, Goldsmith, Jackson & Swanson, 1988; Kamis-Gould, Waizer, Stone, & Flores, 1982; Rosen & Goldsmith, 1981) and to determine the extent of mental health services utilization (Albanese, Wilson, Waizer & Kamis-Gould, 1985). They have also been used to assess the need for AOD abuse treatment (HSA of New York City, 1994; NIAAA, 1991; Simeone, Frank & Aryan, 1991). The use of social indicators to assess the need for treatment in these areas generally relies on the prediction of current prevalence of a problem (i.e., AOD abuse) based on rates of related social problems. In addition, the need for treatment services is influenced by the help-seeking behaviors of those possessing a treatable level of the problem (as well as those who seek assistance but who are not in need of treatment), and the estimated utilization of existing services (Goldsmith, Jackson & Hough, 1988; Tischler, Leaf & Holzer, 1988; Warheit, 1988). However, the need for prevention services is not dependent on either treatment demand or current prevalence rates. Treatment services are more homogenous, generally requiring an individual or group modality and an identified client, whereas prevention services can be delivered within multiple domains with or without any volitional behavior by the population targeted. Thus, prevention need cannot be estimated solely by the methods used to estimate treatment need.

Indicators of prevention need must focus on phenomena which precede the development of AOD abuse, rather than the outcomes of abuse (Felner and Aber, 1983). These indicators should also be able to differentiate different types of risk. As Zautra and Bachrach (1983), state:

The focus of prevention is on antecedent conditions that are thought to contribute to increased *risk*, and not on the problem itself. Individual vulnerabilities, chronic environmental strains and specific stressors, that some groups have and others do not, are targets for prevention action (p. 1, emphasis added).

Thus, any needs assessment conducted for prevention services should utilize a risk assessment approach (and when possible, include protective factors as well). The risk literature reviewed below goes beyond incidence and prevalence estimation and attempts to identify biological, psychological, cognitive, behavioral, social and cultural predictors of AOD problem development.

CONCEPTUAL FRAMEWORK

The risk constructs selected for this study are based on theoretical and etiological research conducted primarily at the individual level that have resulted in several complimentary explanatory models (Dembo, Williams, Fagan, & Schmeidler, 1994; Dembo, Williams, Wish, Dertke, Berry, Getreu, Washburn, & Schmeidler, 1988; Dryfoos, 1990; Hawkins, Catalano & Miller, 1992; Hawkins & Fitzgibbon, 1993; Kandel, Simcha-Fagan & Davies, 1986; Krohn, Akers, Radosevich & Lanza-Kaduce, 1982; Newcomb, Maddahian & Bentler, 1986; Newcomb & Felix-Ortiz, 1992; Scheier, Newcomb & Skager, 1994). The Social Development model, originated by Hawkins and Weis (1985) and further developed for AOD prevention practitioners (Hawkins, Catalano, & Miller 1992), synthesized social control and social learning theories to explain the formation of social bonds within the contexts of family, school and peer. This conceptual model hypothesizes that prosocial bonds will protect against the development of substance abuse and that risk factors operate by inhibiting the bonding processes during child and adolescent development. This model has been embraced by many in the prevention field because it identifies and organizes hypothetical causative factors that are amenable to change, and prescribes specific prevention strategies based on an integration of the risk factor and developmental stage approaches to AOD abuse etiology. Hawkins' etiological model has been used as a template for the present study due to its relevance to prevention programming. In the etiological research on AOD abuse, "causative risk factors" have been proposed based on their unique explanatory power within theoretical causal models of individual development. In the proposed ecological-level risk model, a given indicator (eg., population density) may act as a red flag warning of greater risk, but may not represent the direct causative agent (eg., greater AOD exposure).

A few of the risk constructs we tested differ from those in the template model, and some that we would wanted to test were not available in archival databases, but the NYS Ecological Risk model is conceptually consistent with the Social Development model (Table 1). Where there are differences between the NYS Ecological Risk model and the Social Development model, the relevant literature is reviewed below.

INDIVIDUAL-LEVEL RISK FACTOR REVIEW FOR SOCIAL INDICATOR SELECTION

The individual-level risk factor research that serves as the study foundation has been extensively and recently reviewed (Hawkins, Catalano & Miller, 1992; Kumpher and Turner, 1991; Newcomb and Bentler, 1989; Sadava, 1987; Swaim, 1991; Zucker & Noll, 1987) and will not be duplicated here. The risk factors that were not widely reviewed, or did not fit conceptually into existing risk constructs, but have plausible proxy indicators at the macro level, are described below. The research reviewed below used longitudinal, prospective and/or population based correlational methodologies. Retrospective studies of selected groups already experiencing specific problems (eg., drug treatment clients, incest victims, suicide attempters) were generally not included in this review, with one exception being studies of high risk youth currently targeted by prevention services.

Table 1: COMPARISON OF SOCIAL DEVELOPMENT MODEL AND NYS ECOLOGICAL RISK FRAMEWORK

Domain	Constructs	
	<i>Social Development Model</i> ¹	<i>NYS Ecological Risk Framework</i> ²
COMMUNITY	Laws and Norms AOD Availability Extreme Economic Deprivation Neighborhood Disorganization -	- AOD Availability/Exposure Poverty Exposure to Crime/Violence Urbanicity
FAMILY	Family Drug Behavior Family Management Practice Family Conflict Low Bonding to Family	- Family Dysfunction
SCHOOL	Academic Failure Low Commitment to School	Academic Failure Poor School Bonding
PEER	Peer Rejection in Elementary Grades Association with Drug Using Peers	- -
INDIVIDUAL	- Physiological Factors Early and Persistent Problem Behaviors Alienation and Rebelliousness Attitudes Favorable to Drug Use Early Onset of Use	Intrapersonal Problems - Problem Behavior - - -

¹ A Causal model based on empirical studies of individuals (Hawkins, Catalano, & Miller, 1992).

² An ecological framework of associated constructs based on empirical studies of individuals and communities.

Intrapersonal Factors

Additional individual-level risk factors that may have viable proxy measures available at the county level were identified in the longitudinal, prospective, observational research of Newcomb, Maddahian and Bentler (1986) Shedler and Block (1990); Vicary and Lerner (1983); Brook, Whiteman, Gordon, Nomura, & Brook (1986); and White, (1992) among others. This search led to the addition of an intrapersonal or mental health risk construct to the framework. In individual-level studies of youth, the evidence for a causal connection between psychological pathology and AOD abuse has been inconclusive (Oetting and Beauvais, 1987a; Hawkins, Catalano & Miller, 1992; Institute of Medicine, 1994, p158). Several circumstances have contributed to the inconsistent findings relating intrapersonal factors to AOD use or abuse. The most basic is the failure of studies to select a large enough sample to ensure that youth with an intrapsychic risk factor are adequately represented. Another possible cause is that risk factors associated with an individual's social development (lack of school bonding, peer modeling of AOD use, positive peer attitudes toward use) may have overshadowed intrapsychic factors in the research due to their greater temporal proximity to AOD abuse. While peer AOD use and peer AOD attitudes have been frequently reported as the strongest predictors of individual use, earlier personality, family and other ecological factors may best predict an individual's choice of a deviant (drug abusing) peer group or the likelihood of developing addictions or dependency in early adulthood (Oetting & Beauvais, 1987a, p137; Kumpfer & Turner, 1991; Bentler, 1992). Some intrapersonal factors may become significant predictors only in the presence of other risks or the absence of important protective factors. The moderating and interactive effects of intrapersonal factors such as self esteem and susceptibility to social influence have begun to be investigated with promising results (Stacy, Newcomb & Bentler, 1992), but require more study. A final reason for underestimating the influence of intrapersonal risk factors may be that the institutions responsible for reducing socially deviant behaviors (eg. child abuse, school dropout, delinquency, crime), respond to the offending problem behavior (generating archival records) without adequately assessing any pre-existing or coexisting mental health problems.

However, for some pathways to early AOD use and adolescent AOD abuse, it appears that mental health disorders in children play an indirect role (Newcomb & Bentler, 1989). Support for a mediational model, in which family and peer factors influenced personality factors, such as pathology (depression, obsessive-compulsive tendencies, anxiety) ego integration and impulsivity, which in turn predicted alcohol use over time was reported for a random sample of predominantly white, preadolescents in upstate New York (Brook & Brook, 1988). For adolescents, this study reported that personality and peer variables served as mediators of family factors in predicting alcohol use. Oetting and Beauvais's (1987b) peer cluster theory hypothesizes that a basic trait like

self-esteem is mediated by depression, anxiety and/or social rejection, however these traits lead to deviance and peer AOD associations only when mediated through anger.

Newcomb, Bentler and colleagues include personality and psychopathological factors in their risk assessment model, consistent with their belief that these factors may not predict normative use, but are important predictors of adolescent AOD abuse and possibly later dependence (Danish, Mash & Howard-Gallagher, 1992; Newcomb & Bentler, 1989). This view is consistent with other longitudinal research findings that larger deviations from normative developmental patterns (eg., more rapid initiation and heavier AOD use) are more likely to be reported in the presence of chronic stress and "emotion-focused avoidance coping" strategies (Labouvie, Pandina & Johnson, 1991). A study of New York City and suburban 10th graders in public schools, found that alcohol and tobacco use in the past year were significantly related concurrently to higher anxiety and depression scores respectively. (Walter, Vaughan & Cohall, 1991).

Bucholz (1990) reviewed the literature on the correlates of alcohol use in adolescence and found evidence that a depressed mood was positively correlated with the initiation of alcohol use. Moreover, one longitudinal study reported that the amount of alcohol consumed by adolescents was significantly and positively related to the degree of their depression (Kaplan, Landa, Weinhold and Shenker, 1984). While several studies have focused on depression and alcohol abuse, evidence has also been reported linking depression, hopelessness, suicidal ideation and suicide attempts to marijuana and other illicit drug use (Kaplan et al., 1984; Luxenberg, Higgins, Christenson & Rainey, 1994; Neighbors, Kempton & Forehand 1992). The most frequent reason (74%) cited by a group of high risk adolescents for using alcohol and other drugs was to reduce feelings of sadness and depression (Farrow & French, 1986). Several longitudinal studies have consistently found that for individuals who were depressed and using AODs, the depression preceded the AOD use (Brook, Whiteman, Gordon, Nomura & Brook, 1986; Deykin, Levy, & Wells 1987; Kandel & Yamaguchi, 1985; Paton, Kessler & Kandel 1977; Kaplan et al., 1984). Joshi and Scott (1988) reviewed the death rate trend for adolescents and attributed its rise to adolescent depression and AOD use. In population studies, young adults who had suffered from a major depression or an anxiety disorder were twice as likely to experience subsequent drug abuse or dependence (Christie, Burke Jr., Regier, Rae, Boyd & Locke, 1988). In addition, females appeared more likely to report affective disorders as antecedent or correlated with AOD abuse (Boyd, 1993). These studies suggest that for some adolescents, AOD abuse may be a form of self-medication or an avoidant coping response for depression. The research literature also provides some evidence that early and successful treatment for adolescent depression can result in the prevention of subsequent AOD abuse problems (Silverman, 1989; Workman and Beer, 1989). Emotional lability (Block, Block and Keyes, 1988), sustained aggressiveness from childhood through early adolescence and male shyness plus

aggressiveness (Kellam, Brown, & Fleming, 1983; Loeber, 1990; Brook, Whiteman, Cohen & Tanaka, 1991), hyperactivity and attention deficit disorder (Swaim, 1991) and antisocial personality disorder (Robins and Pryzbeck 1985; Luxenberg et al., 1994) were also significant predictors or correlates of AOD abuse.

Family Dysfunction: Child Abuse and Neglect/Family Dissolution

While no longitudinal studies of child abuse/neglect as a risk factor for adolescent AOD abuse were found, family conflict, parental rejection and poor family management practices have been previously reviewed as predictive factors, as has parental AOD abuse. At least one population-based study has shown a relationship between parental AOD disorders and child abuse/neglect. After controlling for demographics, SES, antisocial personality disorder, depression, social support and household size, parental AOD abuse significantly predicted both child abuse and child neglect (Kelleher & Chaffin, 1994). Compared to matched controls, parents with an AOD disorder were 5.1 times more likely to report physically abusing their child and 9.2 times more likely to be neglectful. Forty percent of parents with an AOD disorder reported child abuse and 56% reported child neglect. Among parents receiving child welfare services, the rate of AOD abuse is much higher than the general population. A 1990 study of the NYS child welfare caseload found that among parents who were "indicated" for child abuse and neglect and had their children placed in foster care, 85% were assessed as having a drug abuse and/or alcoholism problem (NYS Dept. of Social Services, 1992). Over three-quarters (79%) of parents receiving state services to prevent family dissolution had AOD problems. Based on these reports, county rates of indicated child abuse and neglect, foster care placement and caseloads for services to prevent family dissolution will serve as direct risk indicators for early AOD use and as indirect markers for parental AOD abuse.

Integrating Problem Behavior and Developmental Theories

The work of many researchers, notably Kandel and Yamaguchi (1985), Brook, Brook, Gordon, Whiteman and Cohen (1990), White (1992) and most recently, the Center on Addiction and Substance Abuse at Columbia University (1994), has advanced our knowledge of the influences of *developmental stages* on the interactions between risk factors, gateway AOD use and AOD abuse. This research continues to further the integration of risk and stage theories implicit in Hawkins' model. Problem behavior theory (Jessor & Jessor, 1977) posits that during adolescent transition to adulthood, antisocial and dysfunctional behavior can be predictive of AOD abuse. Associations between a specific problem behavior and AOD abuse have been shown to be unstable over time (White, 1992) due to interactions between personality, developmental changes in capabilities and changes in environmental stressors/supports. However, a positive relationship between a cluster of

problem behaviors and AOD abuse appears constant for a large subgroup of adolescents. Problem behaviors such as juvenile delinquency, truancy and school failure often lead to a response by society and subsequently generate public records which can be used to measure their prevalence.

A developmental stage specific, ecological risk assessment system was designed by Re, Noble and Howard (1990) to combine risk indicator and developmental stage (age cohort) data on subpopulations in a promising approach to county-level prevention needs assessment. Their system made it possible to compare relative risks between age cohorts within a county as well as between all counties. Refinement of this type of combined model will make needs assessments more useful to planners and providers by helping to identify who has the greatest need and why they are at higher risk. Further research is needed to determine which combinations of factors over time result in the highest risk and how protective factors operate to ameliorate these risks for some individuals. However, for an ecological risk assessment of county populations, it is sufficient to identify where and for whom groups of risk indicators cluster, indicating higher probability of AOD use/abuse related problems.

MACRO-LEVEL RISK FACTOR RESEARCH REVIEW FOR SOCIAL INDICATOR SELECTION

Macro indicators of risk were chosen based upon three criteria: 1) macro-level predictors of individuals' AOD use and abuse cited in the last section were automatically included in the first round of data reduction and analysis; 2) macro indicators that have been shown to predict AOD use/abuse prevalence based on survey research or indirect social consequence indicators (i.e., AOD-related mortality, DWI) at a higher ecological level were included; 3) macro indicators that were plausible proxy indicators for individual risk factors were identified when risk constructs were inadequately represented using the first two selection criteria. For example, if there was evidence that teenage girls who become pregnant are more likely to be using alcohol, smoking cigarettes and using other drugs, then the teen pregnancy rate was deemed a plausible indicator of AOD use prevalence. When AOD abuse was reported as a causal element in a relationship, such as with suicide (Downey, 1991; Marzuk & Mann, 1988), the relationship could be used to justify selection of plausible indicators (i.e., attempted suicide rates), based on close temporal proximity of the two related behaviors. It is understood that risk factors found to be predictive at the individual level of analysis may not be predictive at the county level (see Feinleib & Leaverton, 1984, for a discussion of relevant fallacies of inference). The degree to which these indicators are predictive at the higher ecological level of analysis must be empirically tested, such as in this study.

Crime

New evidence describing the relationship between criminal behavior and AOD use has been reported by Harrison and Gfroerer (1992). Alcohol, marijuana and cocaine use were significantly related to criminal behavior, even after controlling for the influence of age, race, income, education and the marital status of respondents to the 1991 National Household Survey on Drug Abuse (SAMHSA, 1993). Cocaine use was the strongest correlate of crime in large urban areas, but was still the third most important factor outside major cities. Marijuana use was the most important correlate of being booked for a property crime for 18-49 year olds. A positive correlation was also found between number of substances used and crime rates.

Alcohol Use

In his review of the prevention of alcohol problems, Moskowitz (1989) found that legal sanctions for under age drinking and for drunk driving reduced alcohol consumption. He also found that an increase in alcohol taxes reduced consumption. In a study comparing alcohol sales, cirrhosis deaths, and alcohol-related arrests for the 67 counties of Pennsylvania, Donnelly (1978) found that all three were predicted from various social rank, urbanization, race-ethnicity, household composition/family structure, and housing indicators. In fact, 67% of the variance in cirrhosis deaths across counties could be predicted from the percentage of foreign born population, the percentage of husband and wife households and the percentage of families with children under 18. Further, Gliksman and Rush (1986) found that an urban conditions factor (made up of urbanicity and economic indicators) and unemployment significantly predicted per capita consumption in Ontario's counties, covaried with availability, and were correlated with alcohol-related mortality and morbidity. The authors conclude that these latter relationships may be mediated by consumption and availability. More recently, physical availability of alcohol (per capita outlet density) was shown to be directly related to consumption of wine and spirits within the U.S. using a state level of analysis, but was not significantly related with other types of analyses (Gruenewald, Ponicki and Holder, 1993). The results showing income to be positively related to alcohol sales were less equivocal in this study, while other variables (including tourism and religious norms) were either not significantly related or were less stable than outlet density. Finally, in a multivariate time-series analysis of consumption in the entire U.S., Treno, Parker and Holder (1993) found that the nation's total sales of all alcoholic beverages per capita could be predicted by marital instability and women's labor force participation rates (both negative relationship), age of men (as a ratio men aged 20-29 to men aged 40-44), and routine lifestyle activities (time spent outside of the home), but family income and price played a minor role in their model.

Although, as is cited in the preceding paragraph, studies have found significant correlates to AOD use at this higher level of analysis, certain variables have had less than positive results. For example, Fitzgerald and Mulford (1992) found that an increase in the availability of wine and spirits (as measured by an increase in outlets following privatization) was not associated with single-vehicle night-time fatalities (which they consider a reliable proxy measure of fatalities related to drinking), nor was it associated with cirrhosis deaths in Iowa. However, the first of these is based on an assumption about the relationship between a proxy variable and a direct alcohol specific variable, while the latter is an end state variable that should not show immediate changes, but should show change, gradually, into the future (see Skog, 1980 for a discussion of the temporality of cirrhosis mortality relationships).

Narcotic use

In their study of heroin use, Flaherty, Kotranski and Fox (1983) found significant relationships of heroin use (heroin related death rates and aggregated self reported use from interview responses) with socioeconomic independence, family status, assimilation/ethnicity and drug treatment admissions at the census tract level in Philadelphia. Nurco, Shaffer and Cisin (1984) conducted a social indicator analysis at the census tract level in Baltimore that found high correlations of narcotic and non-narcotic drug arrests with the percent of the population unmarried, percent non-white, number of people receiving AFDC, number receiving general public assistance, number receiving food stamps, number of other arrests, number of illegitimate births, number of homicides, number of cases of venereal disease reported and the number of dwellings averaging more than one person per room. However, the results of this study must be viewed with caution, as no consideration was given to the instability of the rates used (see Methodology). The conclusion of a single factor of social pathology (criminal arrest) as the "causal" agent for correlations is also unwarranted given the cross-sectional nature of the study and the failure to address other reasonable alternative hypotheses.

School Related Factors

Dent, Sussman and Flay (1993) conducted a study in Los Angeles county to determine school-level archival indicators that would predict variations in the school means of AOD use behavior. They found that school size (enrollment), ethnic composition, number of grades, size of sixth grade classes, AFDC status and academic performance formed a continuum along which schools' variations in drug use could be predicted. Larger, poorer, ethnically non-white, schools with students who did not perform well on standardized tests reported higher mean use cigarettes and alcohol, and lower mean use of marijuana and smokeless tobacco than students from smaller schools, who were

mainly white, less likely to be on AFDC and had higher test scores. These school-level social indicators were able to predict 97% of the variance in a composite AOD use measure (cigarettes, smokeless tobacco, alcohol, marijuana).

The next section of this document describes in detail the conceptual risk constructs and indices that were developed in accord with the research cited above.

RISK INDICES

Utilizing a social ecological systems model and the above reviewed empirical research on the etiology of AOD use and abuse, we chose and conceptually classified our social indicators of risk based upon operational domains, or loci of risk. Several researchers have utilized this approach of differentiating risk factors for AOD use and abuse (Bell, 1984, 1988; Dembo, Blount, Schmeidler, & Burgos, 1985). The use of a theoretically derived conceptual framework is required if the resulting system is to serve in an applied capacity successfully (Carley, 1981; Gruenewald, Treno, Taff and Klitzner, 1997). In building our framework we developed three conceptual indices of risk, within which we categorized each risk construct, based on the proximity of its theoretical relationship with the criterion variable (AOD abuse negative consequences) as defined by problem loci and risk intensity for AOD use or abuse. These three indices are:

1. the Community-based Risk Index (CRI);
2. the Youth Risk Index (YRI) ; and
3. the Youth Alcohol Consequences Index and Youth Drug Consequences Index.

COMMUNITY-BASED RISK INDEX (CRI)

In a recent critique of primary prevention in drug policy, Mason, Lusk and Gintzler (1992) discussed the over reliance on the individual as the problem locus, to the exclusion of more macro-level loci. They state, "Drug policy, then, sanctions changing individuals, but does nothing to alter the powerful circumstances that place people at risk of use" (p. 970). The previous discussion of social disorganization and social ecology clearly provides a foundation for the development of risk constructs based upon community-level dysfunction and distress. Several community-level factors were identified as predictive of problem behaviors in youth, including AOD abuse. These factors include: poverty; neighborhood conditions such as high population density, high crime rate, violence, and rapid change (Kobrin & Schuerman, 1981; as cited in Greenwood, 1992), perceived prevalence of substance use by others in the community, and alienation from the dominant values of society (Jessor & Jessor, 1978). In the recent review by Hawkins, Catalano and Miller (1992), four categories of risk factors for AOD abuse that define a social context were identified. These domains included: 1) laws and norms (i.e., consumption tax laws, laws restricting access to alcohol, laws making drugs illegal, and cultural norms promoting AOD use); 2) AOD availability; 3) extreme economic deprivation; and 4) neighborhood disorganization (i.e., population density, mobility, physical deterioration, low attachment, and high crime). Recent research is now providing better evidence that interventions designed to change community-level risk and protective factors are potentially the most effective in preventing or reducing AOD abuse (CSAP, 1996; Perry et al, 1996).

The Community Risk Index proposed for NYS's prevention needs assessment is based upon environmental and aggregated macro-level risk factors that potentially influence all individuals within a community. This index represents "an objective measure of the characteristics of the individual's environment...[that] in terms of assessing high risk areas to target intervention or prevention programs...will prove more useful" (Bell, 1988, p137). The risk constructs that conceptually fit this index are defined as measures of community-level risk for AOD use and abuse. Taken together they form an index of the relative level of risk operating on the entire population of a geographic area.

YOUTH RISK INDEX (YRI)

The second index was constructed from indicators that operate within more proximal loci for youth: the school; the family; and the individual. These indicators and constructs rely heavily on the theoretical and empirically tested risk factors from the individual level, etiological studies of youth and their family's psychosocial characteristics, knowledge and behavior that were reviewed above. Where the Community Risk Index was designed to measure social forces operating at the macro level that generally cannot be influenced by youth, the indicators and constructs selected for the Youth Risk Index were primarily county-level aggregates of archival indicators of youth and family characteristics, knowledge or behavior. These factors include family dysfunction, school achievement and bonding, delinquent behavior and intrapsychic problems.

It is understood that assessment of relationships for this set of influences is particularly vulnerable to possible cross-level problems of inference, or ecological fallacy (Feinleib & Leaverton, 1984). However, special care was used to maintain the integrity of analysis across the pertinent levels, and to interpret data within light of these vulnerabilities. Although we understand that prevention services are relevant throughout all stages of human development, given limited study resources, the youth focus of most existing prevention services and the greater cost-benefit ratios of preventing early use, this study focused on the AOD abuse risks and prevention service needs of youth under 21 years old.

YOUTH AOD CONSEQUENCES INDICES

The use of indirect indicators of the level of AOD abuse among young people was a fundamental component of the study design. The degree to which young people were involved in AOD related auto accidents, DWI/DUI arrests, other AOD related criminal arrests, were hospitalized due to AOD-related diagnoses, and were receiving treatment for or died from AOD-related causes were considered consequences of adolescent AOD abuse within a county. This set of AOD consequences indicators was used to create two Youth AOD Consequences Indices -- a Drug Consequences Index

and an Alcohol Consequences Index -- hypothesized to be strong predictors of future AOD abuse because: 1) youth are more likely to try alcohol or other drugs when more of their peers do; and 2) past behavior tends to be a strong predictor of future behavior.

The amount of peer or sibling AOD use cannot be differentiated from an individual's own use when data is aggregated to the county level. Therefore, although peer influences are among the best documented proximal risk factors, there were no archival indicators available at this ecological level of analysis. However, though we cannot separate these two types of influences with county indicator data, it becomes a moot point with respect to strict prediction since the combination of the two influences should make for a stronger predictor than either alone. Finally, there is some evidence (de Lint & Schmidt, 1971; Smart & Whitehead, 1972; Whitehead, 1976) that the proportion of heavy users in a population is related to the average level of consumption or proportion of total users in a population. A county with a relatively large number of multi-problem and heavy AOD users, who are experiencing negative AOD related consequences (and thus generating archival records), should also have relatively more high risk AOD users in the population who have not yet come to the attention of service providers.

The Youth AOD Consequences Indices had two functions in the study design. One was as an indirect measure of "current" youth AOD abuse and the other was as a criterion measure of "future" levels of youth AOD consequences. We used concurrent Youth AOD Consequences Indices, the CRI and the YRI, all with averaged 1989-91 standardized rates, as independent predictor variables. The Youth AOD Consequences Indices 1993-94 served as the dependent variables in a longitudinal analysis assessing the predictive validity of these Indices.

In a report by the U.S. Department of Health and Human Services' Institute of Medicine, a committee studying prevention research needs identified three types of preventive interventions: universal, selected, and indicated (Institute of Medicine, 1994). The risk indices developed by this study are consonant with the prevention intervention research agendas of New York State and the Institute of Medicine. A summary of each of the three risk indices, their definitions and populations of concern are listed in Table 2. Also listed for each Index in Table 2 are prevention strategies that may be particularly relevant for each type of risk.

Table 2: CONCEPTUAL RISK INDICES AND RELEVANT PREVENTION STRATEGIES

Community Risk Index (CRI)

The CRI was calculated using social indicators of community disorganization and of community AOD exposure. Community-level risks are believed to be present for all individuals living within the community, and counties with more or larger distressed communities are considered to be at higher risk. This index can help to estimate AOD abuse risks that can be addressed through community-wide primary prevention or systems targeted efforts, such as:

- Community Mobilization
- Media Campaigns
- School/Community Coordination
- Service Network Development
- Policy Development
- Other Impactor Training

Youth Risk Index (YRI)

The YRI is computed from risk indicators affecting youth whose family environments, behavior or psychosocial development place them at higher risk for AOD abuse. Services designed to reduce these individual-level risks include:

- Children of AODA Groups
- Resistance Skills Training
- Prevention Counseling
- Peer Delivered Activities
- Parent Skills Education
- Vocational Training

Youth AOD Consequences Index

The Youth AOD Consequences Index was developed because past levels of AOD abuse problems are useful in predicting future problem intensity and it includes peer and sibling use. The AOD Consequences were computed from indicators that represent direct consequences for youth (e.g., DWI, marijuana arrest; treatment admission) resulting from their use or abuse of alcohol or other drugs. This Risk Index may be useful estimating needs for:

- DUI/DWI Education
- Info./Referral Hot Lines
- Juvenile Offender Diversion AODA Groups
- Early Intervention Services

METHODOLOGY

SAMPLE

The study began using the geographically defined 62 counties of New York State. Very early on it became apparent that New York City (NYC) social indicator data was going to create analytical difficulties. The qualitative and quantitative differences between the five counties comprising NYC and "Upstate" New York counties are extensive enough to invalidate combining them in the same analysis. In addition, indicator data for NYC counties was often not available at the county level. Therefore, it was decided to remove New York City counties from this study. Many other states, conducting similar studies, have chosen to analyze their major urban city separate from the rest of the counties in their states (e.g. Illinois with Chicago). OASAS has been awarded a CSAT contract to conduct a NYC sub-county level indicator study to develop and test a need methodology for AOD treatment. It is anticipated that a similar analysis may be done for prevention services in the future pending adequate funding.

At the opposite end of the population distribution, two counties had populations that were too small to support population based analysis. A population base of 30,000 was recommended as adequate to maximize the stability of social indicator rates of rare events (personal communication with Nancy Dunton, NYS Department of Social Services, 1994). However, it is also important to maintain as many unique planning units (i.e., counties) as possible so that the descriptive information within the various risk constructs remains relevant to local planners and providers. Goodman and Lin (1981) suggest that for rates as rare as 2/1000 each of the geographic units under study should have a base population of at least 5401. However, some of the social indicators in this study have rates lower than this (i.e., homicides). Therefore, a fairly conservative criteria of 20,000 was set as the minimum county population base. Two counties had total populations less than 20,000 in the 1990 census. They were combined with an adjacent county that was most statistically similar (demographically), thus reducing the sample size to 55 counties. In making this determination, careful attention was paid to aggregating counties based upon the degree to which they form an homogenous social area with regard to variables relevant for the study (Goodman & Lin, 1981). A similarity analysis using Pearson correlations and a dissimilarity analysis using Euclidian distances were conducted between Hamilton County with a population of 5,279 (1990 Census) and its adjacent counties, and Schuyler County with a population of 18,662 (1990 Census) and the counties adjacent to it. Variables used for these analyses were: Race; ethnicity; age; median family income; percent idle teens (under 18 not in high school, not in the military and not in the labor force); percent without a high school diploma; percent with only a high school diploma; percent with B.S. degree; percent with graduate degree; and percent over age 15 who work in agriculture, forestry or fishing. The results of this analysis led to combining Hamilton County with Essex County (pop. 37,152) to its

northeast, and combining Schuyler County with Yates County (pop. 22,810) to its north. All subsequent data reduction analyses, validation analyses and Risk Indices computation used the combined county units. The non-standardized Risk Indicator rates and population characteristics presented in the County Risk Profiles are the 1994 individual county data.

DATA COLLECTION AND INCLUSION CRITERIA

Data were collected from the State agencies that were arbiters of the original data. All available information on data reliability and validity was collected and is being documented in a project data dictionary. Each agency contact person was asked about data collection, any systematic bias in data reporting by the primary data sources, whether the data are consistently reported on at least an annual basis, and for what geographic areas the data are reported.

The first data reduction decision was based upon annual availability at the county level. The second consideration for data inclusion was the reported reliability of the data. This was a subjective decision, and therefore, only the data which were reported as "very" biased (i.e., the source agencies do not use it for planning due to known biases) were discarded at this stage. When an indicator contained too many counties with rates of zero that indicator was dropped from further analysis. However, no conceptually important data element that was unique (there were no other data elements which were redundant with it) was discarded at this point.

As discussed earlier in this document, social indicators selected had been shown to be related to AOD problems in macro-level studies, or were thought to represent macro-level proxy indicators for variables found to be related to AOD abuse in individual-level studies. Thus, consideration was given to each indicator's fit into at least one of the conceptual risk constructs in our theoretical framework. The final set of indicators were then transformed into rates per 10,000 for further analysis using 1990 U.S. Census data for the 1989-91 indicators and 1994 population estimates for the 1993-94 indicators.

Temporal Stability

In order to feel confident that the Risk Constructs/Indices and AOD Consequences Indices were reliable, it was essential that the population based rates involved were sufficiently stable over time. To maximize stability, two to three year averages of rates were used in place of single year statistics when possible. This method has been used extensively for the purposes of rate stabilization (Rush, Gliksman & Brook, 1986).

DATA REDUCTION

Factor analyses were used to assist in fitting risk indicators into the theoretical, a priori Risk Constructs and Index groupings. The reduction of multiple indicators into sets of risk constructs, within a conceptual framework, results in better modeling of complex social functioning and reduces the amount of undue influence of single indicators (Carley, 1981). In order to analyze the underlying factor structure of the indicators and combine them into risk constructs, the indicator rates and percentages were standardized to create equivalent scales. Rated indicators were standardized by scoring each indicator as a coefficient proportional to the value of that variable for the "least needy" in the state (see O'Sullivan & Rassel, 1989). This method assigns the value of zero to the county with the lowest score of need on a given variable and the score of 100 to the county that displays the highest need on this variable. The values of the counties in between were determined by using the following formula:

$$x = \frac{(y - ya)}{(yb - ya)} * (100)$$

where:

x = standardized value to be created for each county
 y = value on a specific measure of need for each county
 ya = value of y indicating least need
 yb = value of y indicating the greatest need

Once standardized, the indicators were submitted to two principal components factor analyses, one with a forced number of factors based on the number of theoretical constructs, and secondly with data driven factors: chosen based upon eigen-values greater than one, a sufficient number of items loading on a factor with factor loadings greater than .40, and scree-plot estimation. The results of these two analyses were then compared and indicators were assigned to appropriate constructs. This comparing of theoretical constructs to data-driven constructs allowed us to assess the best fitting factor structure utilizing all available information.

INDEX CONSTRUCTION

The concurrent and longitudinal relationships between the resulting CRI and YRI Constructs and the Youth AOD Consequences Indices were assessed. Since the Youth Alcohol and Drug Consequences Indices proved to best be predicted by different sets of Risk Constructs, the third stage of the analyses used correlations and linear regressions to compute separate Risk Index Scores for the alcohol and drug criterion variables.

Separate stepwise regression equations predicting the 1993-94 Alcohol and Drug Consequences Indices were conducted and Risk Constructs that significantly predicted the dependent variable in regression analyses were grouped with Risk Constructs that were significantly correlated to the dependent variables both concurrently and longitudinally ($p < .01$). We decided to include both constructs that were related in the regression equation and those that showed a stable correlation with the dependent variables because the high degree of multi-collinearity between the risk constructs forced many constructs out of the regression equations that were related to the dependent variable. If we used only those constructs that had the highest degree of unique variation accounted for in the dependent variables (i.e., those that remain in the regression equation) then we would lose valuable information that could be useful to planners. Also, we did create risk index scores with only those constructs that were significant in the regression analyses, and the result was less variance accounted for in the dependent measures. Thus, it seemed prudent to include constructs significantly related to the dependent measures in both types of analyses.

Additive risk indices were computed from these groups of unweighted independent variables by reducing each predictor to a four-point scale using standard deviation cut points (-1,+1) and summing. One scoring approach used in risk methodologies is to weight scores based on factor coefficients from a multivariate analyses, or beta weights from the validation regression analysis. However, an equal-weighted scoring method as used here, may be preferred given that factor coefficients, or beta weights, may be unstable and no better for score development than a simple summation of standardized scores. An equal-weight system is also consistent with the individual-level research results that indicate that an equal-weight sum of risk factors for AOD use and abuse is as predictive as various weighted combinations (Bry & McKeon, 1982) for determining the risk level of individuals. Equal weighting also serves to minimize subjective decision making during the quantitative computation and increases it during the qualitative selection of indicators based on the conceptual framework. Therefore, we utilized an equal-weight summation method for deriving scores for the Risk Indices. When Risk Constructs are shown to have adequate reliability and stable relationships with the criterion variables over time, weighting of scores can be explored.

VALIDITY ANALYSES

We validated the CRI and YRI Alcohol and Drug scores by regressing the 1993-94 Alcohol and Drug Consequences Indices on their relevant 1989-91 Risk Indices. We also estimated the unique variance accounted for in the criteria by the Risk Indices when the 1989-91 Youth AOD Consequences Indices were entered in the analyses.

SPATIAL MAPPING

Once the Risk Indices and Youth AOD Consequences Indices were developed and validated, a series of maps were produced depicting the spatial distribution of these Indices, as well as relevant constructs. Another series of maps indicating the demographic characteristics of the geographic units was also constructed in order to allow for the overlay of these maps with the Risk and Consequences Construct maps. These maps will allow for spatial patterns to be detected visually. (For example, see Figures 1 and 2.)

BARRIERS AND SOLUTIONS

Administrative

Overall, access to other agencies' archival data was possible. However, the number of separate state agencies from which data is required increased coordination and data collection time. In addition, for some agencies the lag time for data availability is two years. Nothing could be done to shorten archival data collection lag time, so the research design incorporated a three year longitudinal prediction period to allow two years for data availability and one year for data analysis.

Another major barrier was the lack of data available from State agencies of risk indicators that the research literature found predictive. For example, there is a lack of county-level aggregate data on family functioning related to AOD abuse. County Child Protective Services investigators collect family risk assessment data on parental drug and alcohol problems but this data is not transmitted to the NYS Department of Social Services (DSS). A NYS DSS study indicated that as many as 80% of abused and/or neglected children in foster care came from families where the caregiver(s) had alcohol or drug problems in 1990 (NYS DSS, 1992). One solution to this type of barrier is greater coordination between State agencies regarding data needs and planned systems changes. This sort of data planning is gradually becoming more formalized (see Touchstones discussion in the *Dissemination of Information* section below).

Technical

Due to the relatively small sample size (55) we could not investigate interaction effects of the multiple independent variables or test hypothesized relationships (e.g., pathways of indirect influence of community risks and direct influence of youth risks on youth AOD consequences) using structural models. One solution to the problem of sample size was to reduce the number of variables by combining indicators into constructs and then into the three Risk Indices scores. This method also

had the added benefit of increasing the stability of the variables and reducing the potential for any given indicator to exert undue influence in the analysis. Another solution for future consideration would be to combine NYS county data with county-level data from other states. The viability of this type of study is currently being investigated by OASAS staff.

We were unable to synthetically estimate regional-level AOD use prevalence data from school surveys to the county level for use as criterion variables as originally planned due to inadequate sampling of counties and lack of a geographic identifier in the data made available to us. This meant we couldn't assess the objective indicators' ability to predict early use or "normative use" in the youth population, and had to employ archival criterion variables with noted deficiencies (see *Commentary on Statistical Properties of Indicators/Constructs* later in this section). Also, we did not have access to subjective indicators of risk, such as youth attitudes regarding AOD use, perceived peer attitudes regarding AOD use and parental AOD use and attitudes. By cooperating with other NYS agencies and fund raising, we hope to conduct a NYS county-level survey to provide this needed criterion and subjective risk information.

Barriers to data availability were not limited to surveys: NYS Office of Court Administration, Department Of Corrections, data on domestic violence, housing assistance applications, parental AOD data from Child Protective Services cases, hospital Emergency Room data and school truancy and other school conduct data were unavailable. Some of these missing data sets were under development during our study but others are not being collected. NYS Office of Court Administration data on sentencing outcomes and domestic violence have become available as of 1995. We are working with an interagency committee developing child and family focused goals and outcome measures chaired by the NYS Council on Children and Families. A possible byproduct of this process is increased awareness of the need to improve State data collection systems for evaluation and planning (see State Planning section below).

FINDINGS AND INTERPRETATIONS

DEVELOPMENT OF RISK CONSTRUCTS

Principal Components Factor Analyses

The final Risk Constructs derived from the principal components factor analyses are displayed in Tables 3-5 along with the component indicators and the alpha coefficients of internal consistency reliability for the construct. Most of the original conceptual constructs were maintained following this analysis, however, some of the original constructs broke down into smaller factors. These included the: Alcohol Exposure Construct, which became three constructs (Alcohol Accessibility, Adult Alcohol Health/Treatment, and Adult Probation - Alcohol); Exposure to Crime/Violence split into two constructs; Academic Failure/Poor School Bonding split into two separate constructs (Academic Failure and School Separation); and Youth Problem Behavior also became two constructs (Problem Behavior - Delinquency and Problem Behavior - Sexual). The importance of these data-driven multiple constructs became quite apparent when correlations and regressions were conducted for the separate Youth Alcohol Consequences and Youth Drug Consequences Indices. Most of the Risk Constructs were differentially related to the Alcohol vs. the Drug Consequences Indices, and the new Risk Constructs explained a higher proportion of variance in the criteria than when forced into single constructs. While these new constructs make the model more complex and less easily interpreted, the loss of information when forcing single factors, the differential relationships with the alcohol vs. other drugs dependent variables, and the greater explanatory power of the new set of constructs led us to accept them on a provisional basis.

The factor analyses with the Poverty indicators produced a single, clean factor with 71% of the variance accounted for and all indicators loading on the factor with factor loadings of .77 or higher. The Exposure to Violence and Crime indicators broke into two factors accounting for 75% of variance and when forced into one factor the Crime indicators were lost. When all Exposure to AOD indicators were submitted to factor analysis, four factors emerged with drug and alcohol indicators loading on all of the different factors. Attempts to reduce the number of factors to one or even two resulted in a loss of most of the variables. Therefore, it was decided that the alcohol indicators and the drug indicators would be submitted to separate factor analyses. We were able to force the Drug Exposure indicators into one factor with all items having factor loadings of .55 and higher. However, the Alcohol Exposure indicators broke down into three distinct factors and could not be reduced further. These three factors accounted for 69% of the variance and all items loaded on their respective factors at .58 or higher.

We next submitted the indicators from the Youth Risk Index to the same factor analytic methods. The Family Dysfunction indicators produced a single, clean factor that accounted for 60% of the variance with factor loadings of at least .68. The Academic Failure and Poor School Bonding indicators broke down into two factors that accounted for 60% of the variance with the items loading on their respective factors with loadings of .49 or higher. We were unable to force the two factors into one factor. Two factors, including delinquency and sexual behavior indicators resulted from the Problem Behavior Construct factor analysis and accounted for 60% of the variance. Each of the indicators loaded on their respective factors with factor loadings of .56 or higher. Although a youth violent arrest indicator cross loaded on the "sexual behavior" factor, we placed it within the "Delinquency" factor to maintain conceptual integrity. Placing this indicator did not appear to significantly affect the internal consistency of the new "Problem Behavior - Delinquency" construct.

Factor analyses testing the indicators for the Youth AOD Consequences Indices found two factors, an alcohol and a drug factor. These factors were not correlated with one another. Therefore, two constructs were created to be used as the AOD Consequences Indices, one for alcohol indicators and one for drug indicators.

Risk Construct Reliability

Although not all of the constructs had adequate internal consistency levels of at least .70, each construct was significantly related to at least one of the AOD Consequences Indices. Thus, the statistics describing the relationships for these particular constructs can be thought of as conservative estimates with the knowledge that more reliable measures should show stronger relationships with the criteria of interest. OASAS will attempt to acquire more indicators for those constructs in order to increase their reliability.

Risk Construct Score Computation

After the factor analytic results were evaluated, the standardized scores (using the standardization method outlined previously) for each indicator in a construct were summed and divided by the number of indicators in order to obtain an average Risk Construct score. Each Risk Construct has a possible range of 0-100, however, in practice the extreme scores would be rare due to averaging (in order to have a construct score of zero a county would have to have the lowest state rate on all indicators in that construct, conversely a score of 100 would indicate that the county was highest on all indicators).

Table 3: FINAL COMMUNITY RISK INDEX (CRI) CONSTRUCTS/INDICATORS 1989-91

Urbanicity ($\alpha = .72$)

County Percent Urban
County Population Density

Poverty ($\alpha = .95$)

Children under 18 Living in Poverty, per 10,000 youth 0-17 yrs old
Couple-headed Families in Poverty, Proportion
Male-headed Families in Poverty (No Female Present), Proportion
Female-headed Families in Poverty, (No Male Present) Proportion
AFDC Applications, per 10,000 pop.
Food Stamp Applications, per 10,000 pop.
Medicaid Applications, per 10,000 pop.
Unemployment Rate
Median Family Income (Reverse Standardized)

Violence ($\alpha = .66$)

Deaths: Homicides and Injury-Intent Unknown, per 10,000 pop
Hospital Discharge Diagnoses of Injury-Intentional/Intent Unknown, per 10,000 pop.
Violent Crime Arrests, per 10,000 pop.

Crime ($\alpha = .68$)

Property Crime Arrests, per 10,000 pop.
Arrests for Other Crimes (Not AOD, Property or Violent), per 10,000 pop.

Alcohol Accessibility ($\alpha = .85$)

Arrest DUI Alcohol, per 10,000 Adults
Persons Intoxicated and Involved in an Accident, per 10,000 Adults
Off-Premise Retail Beer Outlets, per 10,000 pop.
Off-Premise Retail Liquor Outlets, per 10,000 pop.
On-Premise All Outlets, per 10,000 pop.

Alcohol Related Health & Treatment ($\alpha = .47$)

Discharge Diagnoses, Alcohol-related or Cirrhosis, per 10,000 Adults
Deaths, Alcohol-related or Cirrhosis, per 10,000 Adults
Treatment, Alcohol Primary Substance per 10,000 Adult

Alcohol Related Probation Population ($\alpha = .85$)

Evidence of Alcohol Use at Offense (Probation), 10,000 Adults
Alcohol Court Mandates (Probation), 10,000 Adults

Drug Exposure (Adult) ($\alpha = .80$)

Drug Arrests for Use, Possession or Sales, per 10,000 Adults
Arrests DUI Drug, per 10,000 Adults
Hospital Discharge Diagnoses, Drug-related, per 10,000 Adults
Treatment, Any Drugs Primary/Secondary Substance per 10,000 Adults
Drug Use at Offense (Probation), per 10,000 Adults
Drug-related Court Mandates (Probation), per 10,000 Adults
Mental Health AOD Indications, per 10,000 Adults

Table 4: **FINAL YOUTH RISK INDEX (YRI) CONSTRUCTS/INDICATORS 1989-91**

Intrapersonal Problems ($\alpha = .65$)

Emotionally Disturbed Students (SED), per 10,000 youth 5-20 yrs old
Sum of OMH Diagnoses Thought to be Related to AOD Abuse, youth 0-20 yrs old

Family Dysfunction ($\alpha = .83$)

Foster Care - Children In Care, per 10,000 youth 0-17 yrs
Preventive Services Openings, per 10,000 youth 0-17 yrs
Indicated Child Abuse/Maltreatment Reports, per 10,000 youth 0-17 yrs
Total Child Abuse/Maltreatment Reports Received, per 10,000 youth 0-17
Dissolutions of Marriage per 10,000 marriages

Academic Failure ($\alpha = .71$)

% 5th Grade Students Scoring Below Statewide Reference Point-Writing
% 6th Grade Students Scoring Below Statewide Reference Point-Math
% 6th Grader Scoring Students Below Statewide Reference Point-Reading
% Average Daily School District Absenteeism

School Separation ($\alpha = .57$)

High School Student Dropout % of Enrollment
% Students Not Graduating with Regents Diploma
% Students Not Attending College

Problem Behavior - Delinquency ($\alpha = .69$)

Youth Arrested for Violent Crimes, per 10,000 youth 10-20
Youth Arrested for Property Crimes, per 10,000 youth 10-20
Youth Arrested for Other Crimes, per 10,000 youth 10-20
Youth in Residential DFY care, per 10,000 youth 7-20 yrs old
Persons in Need of Supervision- Total Served, per 10,000 youth 7-15 yrs old

Problem Behavior - Sexual ($\alpha = .72$)

Teen Pregnancy, per 10,000 girls 10-19 yrs
Abortions to Teens, per 10,000 girls 10-19 yrs
Hospital Diagnoses of Sexually Transmitted Diseases, per 10,000 youth 10-20 yrs

Table 5: FINAL YOUTH AOD CONSEQUENCES INDICES AND COMPONENT INDICATORS

Youth Alcohol Consequences Index ($\alpha = .78$)

Alcohol *Arrests* for DWI, per 10,000 16-20 yr olds
Youth Under the Influence of Alcohol Involved in a vehicular *Accident* per 10,000 0-20 yr olds
Probation Population with Evidence of *Alcohol Use* at Offense, per 10,000 16-20 yr olds
Probation Population with Alcohol-related *Court Mandate*, per 10,000 16-20 yr olds

Youth Drug Consequences Index ($\alpha = .56$)

Arrests for Drug Use/Possession/Sales/DUI, per 10,000 10-20 yr olds
Hospital Discharge with Drug-related Diagnoses, per 10,000 10-20 yr olds
OASAS *Treatment* cases, Drug Only, per 10,000 12-20 yr olds
Probation Population with Evidence of *Drug Use at Offense*, per 10,000 16-20 yr olds
Probation Population with *Drug-related Court Mandate*, per 10,000 16-20 yr olds

RELATIONSHIPS OF RISK CONSTRUCTS WITH YOUTH AOD CONSEQUENCES INDICES

In order to assess the relationship of each the Risk Constructs to the Youth AOD Consequences Indices, we first calculated Pearson's correlation coefficients between the various Risk Constructs and the concurrent (1989-91) and longitudinal (1993-94) Youth Alcohol and Drug Consequences Indices. The next step was to regress the Future Youth Alcohol and Drug Consequences on the hypothesized CRI Risk Constructs and YRI Risk Constructs in four separate regression analyses.

Correlations

Results of the concurrent and longitudinal correlations between the Risk Construct scores and Youth Consequence Indices can be seen in Table 6. Risk Constructs were differentially related to the Youth Alcohol Consequences Index and the Drug Consequences Index. Specifically, the Poverty, Crime, Alcohol Accessibility, Alcohol - Adult Probation Population, School Separation and Problem Behavior - Delinquency constructs were significantly ($p < .01$) and positively related to the Youth Alcohol Consequences Index at both points in time. The Urbanicity construct was significantly and negatively related to the Youth Alcohol Consequences Index at both points in time. The Problem Behavior-Sexual construct was significantly and negatively related to the Youth Alcohol Consequences Index concurrently, but the relationship was not significant longitudinally. The Violence and Drug Exposure constructs were positively related concurrently but not longitudinally to Youth Alcohol Consequences. The Family Dysfunction Construct was not significantly related concurrently, but was longitudinally related to the 1993-94 Youth Alcohol Consequences Index.

The Violence, Crime, Alcohol - Adult Health & Treatment, Drug Exposure - Adult, and Academic Failure, Problem Behavior - Delinquency, and Intrapersonal Problems constructs were significantly and positively related to the Youth Drug Consequences Index at both points in time. The Family

Dysfunction approached significance and the Problem Behavior - Sexual construct was significantly related longitudinally. The Alcohol - Adult Probation Population construct was related concurrently but not longitudinally. (See Appendix A for correlations between all risk constructs).

Table 6: CORRELATIONS OF RISK CONSTRUCTS AND YOUTH AOD CONSEQUENCES INDICES

RISK CONSTRUCTS 1989-91	ALCOHOL CONSEQUENCES		DRUG CONSEQUENCES	
	1989-91	1993-94	1989-91	1993-94
<u>COMMUNITY RISK INDEX</u>				
Urbanicity (M=23.44; SD=20.60)	-.640**	-.574**	.076	.146
Poverty (M=53.52; SD=19.62)	.511**	.592**	-.186	-.196
Violence (M=31.36; SD=16.72)	-.336*	-.256	.407**	.501**
Crime (M=45.75; SD=17.15)	.458**	.445**	.430**	.390**
Alcohol Accessibility (M=29.80; SD=15.64)	.680**	.653**	.126	-.017
Alcohol Health & Treatment (M=33.65; SD=14.85)	-.002	.100	.381**	.454**
Alcohol Probation Population (M=52.64; SD=21.70)	.755**	.676**	.396**	.268*
Drug Exposure - Adult (M=24.22; SD=14.91)	-.267*	-.250	.656**	.674**
<u>YOUTH RISK INDEX</u>				
Family Dysfunction (M=36.13; SD=15.60)	.236	.358**	.154	.307*
Academic Failure (M=42.66; SD=17.19)	-.033	.021	.585**	.552**
School Separation (M=52.50; SD=16.06)	.518**	.629**	.250	.130
Problem Behavior - Delinquent (M=37.84; SD=13.36)	.300*	.336*	.585**	.582**
Problem Behavior - Sexual (M=35.15; SD=16.15)	-.368**	-.315*	.298*	.431**
Intrapersonal Problems (M=29.45; SD=17.35)	-.165	-.098	.387**	.449**

* = p < .05; ** = p < .01

Regression Analyses

The results of the stepwise regression analyses (Table 7) confirmed that the CRI constructs of Poverty, Alcohol Accessibility and Alcohol-Adult Probation Population significantly predicted the Youth Alcohol Consequences Index ($R^2=.65$). Alcohol Consequences were also significantly predicted ($R^2=.52$) by the YRI constructs of Family Dysfunction, School Separation and negatively by Problem Behavior-Sex. The CRI Risk Constructs of Alcohol-Adult Probation Population and Drug Exposure-Adult significantly predicted the Youth Drug Consequences Index ($R^2=.55$). Drug Consequences were also significantly predicted ($R^2 = .51$) by the YRI Risk Constructs of Academic Failure, Problem Behavior - Delinquency and Intrapersonal Problems.

Table 7: REGRESSIONS OF CRI AND YRI CONSTRUCTS WITH 1993-94 AOD CONSEQUENCES

	Youth Alcohol Consequences	Youth Drug Consequences
<i>Community Risk Index</i>	R² = .65***	R² = .55
Urbanicity	ns	ns
Poverty	.234*	ns
Violence	ns	ns
Crime	ns	ns
Alcohol Accessibility	.373***	ns
Alcohol - Adult Health & Treatment	ns	ns
Alcohol - Adult Probation Population	.401***	.311**
Drug Exposure - Adult	ns	.693***
<i>Youth Risk Index</i>	R² = .52	R² = .51
Family Dysfunction	.292**	ns
Academic Failure	ns	.294*
School Separation	.525***	ns
Problem Behavior - Delinquency	ns	.393***
Problem Behavior - Sex	-.275**	ns
Intrapersonal Problems	ns	.274*

* = p < .05; ** = p < .01; *** = p < .001, ns = not significant

DEVELOPMENT OF RISK INDICES

The information gained through the previously described analyses was used to select the Risk Constructs for each Risk Index. The correlation and regression analyses showed that although all the Risk Constructs were related to at least one of the Youth AOD Consequences Indices, the Alcohol Consequences Index and the Drug Consequences Index were best predicted by different sets of Risk Constructs. Therefore, we calculated a CRI Risk Index Score and a YRI Risk Index Score for Youth Alcohol and Youth Drug Consequences separately, utilizing only those Risk Constructs that had shown either a significant (p<.01) zero-order correlation, or had a significant (p<.01) beta weight in the longitudinal regression analyses. We also decided to include Risk Constructs that were related at the .05 level of significance or higher both concurrently and longitudinally. The Risk Constructs that were used to create the 1989-91 Community and Youth Risk Indices for Alcohol and Drug are shown in Table 8.

Table 8: CRI AND YRI CONSTRUCTS SELECTED FOR PREDICTION OF AOD CONSEQUENCES

	1993-94 ALCOHOL CONSEQUENCES	1993-94 DRUG CONSEQUENCES
1989-91 CRI	Urbanicity (Reversed) Poverty Crime Alcohol Accessibility Adult Probation - Alcohol	Violence Crime Drug Exposure - Adult Adult Health/Treatment - Alcohol Adult Probation - Alcohol
1989-91 YRI	Family Dysfunction School Separation Problem Behavior - Delinquency Problem Behavior - Sexual (Reversed)	Intrapersonal Academic Failure Problem Behavior - Delinquency Problem Behavior - Sexual

The relevant Risk Constructs scores were transformed into z-scores, then categorized on a four point scale using z-score cut-points with -1.000 or less scored as zero, -.999 to -.0001 scored as one, .000 to .999 scored as two, and 1.000 and higher scored as three. Risk Constructs that showed negative relationships with the criteria were reverse scored. Risk Scores were then summed to create four separate Risk Index Scores: CRI Alcohol; CRI Drug; YRI Alcohol; and YRI Drug.

VALIDATION OF RISK INDICES

In order to determine the predictive abilities of the 1989-91 Risk and 1993-94 AOD Consequences Indices a series of correlation and regression analyses were run against the 1993-94 Youth AOD Consequences. We also measured the unique variance accounted for in the criteria utilizing each Index. In this manner we were able to understand the degree to which the Risk Indices provide unique information beyond that explained by knowing the current level of AOD Consequences in the counties. As shown in Table 9, none of the Alcohol-specified Risk Indices were correlated with the Drug Consequences at either point in time, nor were the Drug-specified Risk Indices correlated with the Alcohol Consequences Index. Also of note is that the Alcohol Consequences Index was not related to the Drug Consequences Index and vice versa at either time point.

Table 9: CORRELATIONS OF RISK INDICES WITH YOUTH AOD CONSEQUENCES INDICES

<u>1989-91 Risk Indices</u>	1989-91 Youth AOD Consequences	
	<u>Alcohol</u>	<u>Drug</u>
CRI - Alcohol	.76***	.08 ns
YRI - Alcohol	.55***	.26 ns
CRI-Drug	.04 ns	.78***
YRI-Drug	-.10 ns	.67***

<u>1989-91 Risk Indices</u>	1993-94 Youth AOD Consequences	
	<u>Alcohol</u>	<u>Drug</u>
CRI - Alcohol	.76***	-.02 ns
YRI - Alcohol	.69***	.26 ns
Alcohol Consequences	.88***	.10 ns
CRI-Drug	.08 ns	.81***
YRI-Drug	-.02 ns	.72***
Drug Consequences	.23 ns	.79***

*** = $p < .001$, ns = Not Significant, $p > .05$

Regression analyses were conducted using the 1989-91 CRI and YRI Indices to predict the 1993-94 Youth Alcohol Consequences Index and Drug Consequences Index. Two other regression analyses were run that included the Current Consequences Indices with the CRI and the YRI. Including only the Risk Indices accounted for 62% of the variance in the 1993-94 Alcohol Consequences Index and 65% of the variance in the 1993-94 Drug Consequences Index (Table 10). When the Current Consequences Indices were included in the analysis the model accounted for 84% of the variance in Youth Alcohol Consequences and 72% of the variance in Youth Drug Consequences. Also of note in Table 10 are the R^2 change statistics used to assess the amount of unique variance accounted for in the dependent variable by the Indices included in the analysis. Apparently the CRI accounts for a higher percentage of the variance in the dependent variables when 1989-91 Consequences are not included in the analysis, although the YRI still contributes a significant amount of prediction. However, when the 1989-91 Consequences are included in the analysis, this pattern only holds true for the 1993-94 Drug Consequences. When predicting the future Alcohol Consequences, the YRI accounts for more of the variance than the CRI, which is nonsignificant in the equation. In the analyses including 1989-91 Consequences as predictors, the Risk Indices (entered as a block) account for a significant amount of unique variance, above that accounted for by the 1989-91 Consequences. Finally, in the case of the 1993-94 Drug Consequences, the Risk Indices account for more unique variance than does the 1989-91 Drug Consequences.

Table 10: REGRESSIONS PREDICTING 1993-94 YOUTH AOD CONSEQUENCES FROM 1989-91 RISK INDICES AND 1989-91 YOUTH AOD CONSEQUENCES INDICES

Dependent: 1993-94 *Youth Alcohol Consequences*

$R^2 = .622$ ***

<u>Source (1989-91 Index)</u>	<u>Beta</u>	<u>R² Change</u>
CRI-Alcohol	.535 ***	.142 ***
YRI-Alcohol	.313 *	.049*

Dependent: 1993-94 *Youth Drug Consequences*

$R^2 = .650$ ***

<u>Source (1989-91 Index)</u>	<u>Beta</u>	<u>R² Change</u>
CRI-Drug	.540 ***	.125 ***
YRI-Drug	.319 *	.046 *

With 1989-91 Youth AOD Consequences Entered:

Dependent: 1993-94 *Youth Alcohol Consequences*

$R^2 = .836$ ***

<u>Source (1989-91 Index)</u>	<u>Beta</u>	<u>R² Change</u>
Youth Alcohol Consequences	.758 ***	.215 ***
CRI-Alcohol	-.079 ns	.066 *** ‡
YRI-Alcohol	.334 ***	

Dependent: 1993-94 *Youth Drug Consequences*

$R^2 = .723$ ***

<u>Source (1989-91 Index)</u>	<u>Beta</u>	<u>R² Change</u>
Youth Drug Consequences	.419 **	.073 ***
CRI-Drug	.309 **	.098 *** ‡
YRI-Drug	.210 ns	

* = $p < .05$; ** = $p < .01$; *** = $p < .001$ ns = Not Significant, $p > .05$

‡ The CRI and YRI were entered as a block in this test.

DISTRIBUTIONS BY REGIONS/SUBPOPULATIONS

Alcohol Problem Risk: County Distributions

The distribution varied by urbanicity with more rural counties having higher risk of negative youth consequences due to alcohol use. Three regions of the state appeared to have clusters of high youth risk and higher Youth AOD Consequences of alcohol use: the Northeastern Region (especially the more rural Adirondack counties); the Mid-Hudson Region (especially the more rural Catskill Mountains counties); and a few counties in the far Western Region. The counties adjacent to New York City had the lowest Alcohol Risk Indices scores. Figure 1 displays the NYS distribution of the three Alcohol Risk Indices by county.

Drug Problem Risk: County Distributions

Figure 2 displays the NYS distribution of the three Drug Risk Indices by county. The Mid-Hudson region had a cluster of higher risk counties for all three Risk Indices. Upstate counties with larger cities were generally higher on Community and Youth Risk. Counties with larger cities were also higher on the Drug Consequences Index, with the exception of Erie county, which contains the city of Buffalo. In the Western and Finger Lakes Regions, border counties with Canada and other states) tended to have higher risk and youth consequences than non-border counties. This pattern was most evident in the Finger Lakes Region where all six border counties were higher than average on Youth Drug Consequences. Lewis, Madison, Otsego and Saratoga counties in the Central and Northeastern Regions had low scores on all three Indices.

ISSUES AND CAVEATS

All needs assessment methods have their strengths and limitations, and indirect methods such as the social indicator approach bring with them specific application issues. The most important issues and caveats to keep in mind when applying these findings are listed below.

The county-level results reported here must not be applied to individual-level functioning. This means that factors related at the county level, such as family dysfunction and negative youth alcohol consequences, may not be related at the individual level (a teenager from a dysfunctional family is not necessarily going to drive while intoxicated). Conversely, while levels of youth Alcohol versus Other Drug Consequences appear to operate independently at the county level, we know that heavy alcohol consumption is related to greater use of other drugs at the individual level.

Cultural norms and societal responses to AOD use (e.g., social control policies) vary by substance used and geographic region. As OASAS continues the consolidation of alcohol and drug services systems, county prevention planners should consider how local cultural norms and public/private service practices may be affecting levels of AOD arrests, Court intervention with AOD involved youth, AOD treatment levels or hospital admissions for AOD abuse. This local knowledge may help to explain why different Risk Constructs predicted youth alcohol vs. other drug consequences, or

why levels of youth alcohol vs. drug consequences appeared to operate independently at the county level.

Indicator data are produced by public service or social control agencies and are affected by resource fluctuations, local data reporting practices and service delivery structures and practices. For example, increased reporting of DWI could be due to more resources allocated to highway patrols, to more frequent county "roadblock sweeps", or to truly higher rates of drinking and driving. Local service issues should be weighed during interpretation.

Many, but not all of these indicators represent the most deviant sub-groups in the population (i.e., official action due to the most deviant behaviors). Local individual level services data is needed to determine the size of the multi-problem youth population involved with multiple service systems versus youth with only one or minor service involvement. These multi-problem youth are more likely to be heavy users of AOD's and account for a disproportionate share of public and private service costs. The research literature provides some evidence that a larger multi-problem sub-population indicates a larger high risk sub-population, however, reducing risk among the larger population may not necessarily reduce the number of more deviant multi-problem youth. Counties will need to assess how their resources are currently allocated between adolescent treatment, early intervention, selected and indicated prevention services (for highest risk/AOD using youth) and universal prevention services for the general population.

There is a great deal of local statistical variation that is not reflected in county-level data. The social ecology and social indicator approaches adopted for this study assume, at a minimum, that prevention need can be meaningfully aggregated to the county level. The limitation with this assumption is that while the county is the established ecological unit for most government prevention planning and program development, is not the only ecological/geographical unit in which risk factors operate. From a theoretical perspective, an individual's "risk" can be understood as the interaction between individual attributes and family context, friends, neighborhood, peers, school, culture and any other important levels of societal interface. For purposes of assessing risk for this study, county-level social indicators are not direct parameters, instead they represent aggregated proxy measures of those smaller social units within a county. This aggregation must be kept in mind, especially when local planners have evidence of very high and very low risk neighborhoods, schools, communities, etc. within the county.

Cultural/institutional forces such as immigration and migration, the density of the tourism industry, prisons, colleges, or AOD treatment facilities within a county may affect results in a given county and should be taken into consideration. Refined needs assessments within counties could help investigate these local effects.

This validation study used direct social indicators of AOD-related behaviors or consequences to validate our social indicator Risk Indices. The results are very promising, however, a rigorous cross-validation employing county-level AOD use/abuse prevalence data from a youth population survey is highly recommended. County level AOD use prevalence data from surveys is also needed for estimating the size of the at-risk, AOD using and AOD abusing populations for needs assessment.

Other States are using county-level surveys and/or synthetic estimates from survey data to help validate their risk indicator models (e.g., Washington, Oregon, Kansas, Minnesota, Florida) and we will benefit from their findings. Unfortunately, these states are not comparable to New York in terms of cultural and geographic characteristics, nor do any of them have as large an AOD abuse prevention and treatment service system.

CURRENT IMPACT AND PLANNED STATE APPLICATION OF THE DATA

PROGRAM PLANNING

At the State Level

OASAS Planners also used the information gained through this project to develop a prevention needs classification system using the Risk Indices scores. The classification system includes the three separate Risk Indices for alcohol and for other drugs as well as the predicted score for youth AOD consequences derived from the longitudinal regression analyses. The counties are ranked on each of these dimensions and the standard deviation of each was used as a cut point to identify those counties at highest and lowest relative risk for graphical presentation (see bar charts in Appendix B). A geographical information system (GIS) was used to produce county-level maps of New York to better display the geographic pattern of risk categories. In the near future, OASAS hopes to disseminate the maps and risk data using its internet web page.

The prevention needs classification system and County Risk Profiles (Appendix B) provide quantitative relative risk ranking for state planners along with qualitative information on the specific AOD abuse risk constructs operating in each county. Taken together, the three Risk Indices successfully predicted county levels of Youth AOD Consequences over a three year period, better than a model using only current levels Youth AOD Consequences for prediction. However, until the risk classification system is replicated and tested against different measures of youth AOD use and abuse, the best application of the study will be providing descriptive risk information and guidance for local needs assessment and planning through the County Risk Profiles and related technical assistance discussed below.

The County Risk Profiles were developed and used by OASAS Prevention staff during the 1996-97 Local Planning Process on an as-needed basis to evaluate modifications in State mandated County Prevention Plans to ensure that new initiatives address domains of highest county AOD abuse risk. For example, if a county proposed shifting a large percentage of resources to youth DWI prevention programming, OASAS staff would consult that county's Risk Profile data to assess whether youth driving while intoxicated and related risk scores were at high levels compared to Regional and Statewide rates. They would also assess whether youth DWI was one of the county's highest risk priorities compared to other risk indicators and constructs.

At the Local Level

Utilizing the context of the ecological risk and protective domain approach to planning and evaluation, training materials for county decision makers that incorporate the results of this study are being developed. Beginning in March of this year, the training is being provided by the OASAS Prevention Bureau with assistance from Planning Bureau staff at the county and regional levels. This training is intended to improve local needs assessment by providing county planners with more evidence of the inter-relationship between youth, family, school and community problems and levels of youth AOD problems (from NYS and other needs assessment study results). The

training will provide county planners and local prevention service coalitions with assistance in using quantitative needs assessment data (from this study and the NYS School AOD Prevalence Survey). The county risk data will be provided in the form of County Risk Profiles that contain county demographic data, quantitative Risk Indice scores and individual Risk Construct scores to indicate which ecological domains are contributing to higher or lower risk, and the State, regional and county rates for each risk indicator (see Appendix B). The ultimate goal for NYS AOD prevention needs assessment is to help county planners in making decisions between: intensive, *indicated* prevention strategies for highest risk groups (e.g., non-diagnosable AOD users with multiple biopsychosocial characteristics that place them at imminent risk of diagnosable abuse), less intensive *selected* strategies aimed at youth exhibiting more distal risk factors for AOD abuse (e.g., 5th-6th grade boys failing academically and exhibiting long-term aggression and school conduct problems), and *universal* prevention strategies aimed at the entire population or demographic subgroups (e.g., all 8th graders) and intended to change community norms, institutional policies, or the knowledge, attitudes or behavior of the entire subgroup.

Providing county planners and local prevention service coalitions with better data on the levels of AOD risks and related problems in their county will promote:

1. Better targeting of local AOD abuse prevention resources to high risk domains;
2. Improved linkage between prevention services Workplan objectives and county domains of highest risk; and
3. Greater local services coordination, improving the degree to which individual prevention programs operate within a planned and comprehensive county or multi-county prevention services network.

RESOURCE ALLOCATION

The NYS Department of Social Services used the County Risk Profile data to target approximately 8.5 million dollars in competitive, discretionary funding for two new initiatives. In 1995, an innovative program to bring intensive case management services to families with an AOD abusing parent who had been indicated for child abuse/neglect and were receiving child welfare services. The goals of this 3.5 million dollar initiative were to significantly reduce the rate of child abuse and out of home placements among these families and improve coordination between drug treatment, child welfare and community support services. County Risk Profile data was used by DSS planners to determine eligibility for the program. Eighteen counties were selected using the Community Risk Index scores and rates of foster care placement. OASAS funded service providers within the targeted counties were eligible and many competed for this initiative.

DISSEMINATION OF INFORMATION

ACROSS STATE AGENCIES

A summary of preliminary study results was shared with all data source agencies using a sample County Risk Profile and a request for comment. Needs Assessment and other OASAS Planning staff are also working with the "Touchstones Committee", an interagency taskforce, comprised of the 13 state agency members of the Governor's Council on Children and Families. The Touchstones project is charged by the Council to recommend a set of interagency goals and outcome statements for NYS families and children. The OASAS Commissioner presented the results of this study to representatives of the Governor's Office and 10 state agency Commissioners at one of the Touchstone meetings. A technical subcommittee of planning and data experts have been identifying outcome measures that can be employed in a social indicator based monitoring system for integrated evaluation and planning of children's policies and services in New York State. The risk indicators tested for the OASAS County Risk Profiles were shared with the subcommittee and dialogue regarding availability, reliability and validity of social measures is continuing. Most promising is the subcommittee's recommendations for addressing the lack of adequate data to measure many of the outcomes deemed important to State policy makers. As OASAS embarks upon demonstrations of county block granting for AOD services, the need (and desirability) for timely and valid indicator based measurement of AOD related risk factors and impact measures is increasing.

Finally, study results and applications are being highlighted in the NYS OASAS 1997 Five Year Plan Update, which is under review by the Governor's Office and will be disseminated to all State agencies, counties and OASAS funded service providers this year.

TO LOCAL JURISDICTIONS AND PROVIDERS

The County Risk Profiles (Appendix B) were disseminated along with training presentation materials for county decision makers to help local planners interpret and utilize their County Risk Profile beginning in April 1997. The Profiles contain county demographic data, quantitative Risk Indices scores and Risk Construct scores to indicate which ecological domains are contributing to higher or lower risk, and the State, regional and county rates for each risk indicator. As each county is trained, they will be given their County Risk Profile. This labor intensive form of dissemination could take up to a year to complete, but was necessary due to constraints on implementation resources and the need to ensure that study results are understood and applied within the proper context. Finally, several counties and service providers were given their County Risk Profiles on an ad hoc, as needed basis for their use in local initiatives, grant writing and local prevention network planning.

FUTURE/CONTINUED EFFORTS IN NEEDS ASSESSMENT PROJECTS

PERFORMANCE AND IMPACT EVALUATION FOR COMMUNITY FOCUSED PREVENTION STRATEGIES

Recent studies provide evidence that macro-level initiatives, undertaken by local governments and coalitions of community prevention services providers, can be effective in reducing alcohol and other drug (AOD) use and abuse among target populations. Coordinated strategies targeted to high risk populations or to entire demographic sub-groups of a population (e.g., parents) have shown great promise, but have been difficult to evaluate due to the greater number of stakeholders involved, the larger scope of the problems addressed and the need to measure changes in community-level rather than individual behavior.

OASAS is competing for government and foundation funding to test a social indicator based system of targeting and evaluating the macro-level impacts of community prevention efforts. OASAS hopes to develop and field test a county AOD prevention risk indicator/services monitoring system for measuring the impacts of prevention services on community wide alcoholism, other drug abuse and related problems. The project will provide county and local AOD prevention services professionals with a model service performance and impact evaluation system to help them answer funding sources, regulatory authorities and members of their communities when asked: does it make a difference? Process data would be collected through an OASAS services activity form that has been piloted successfully and would be electronically distributed to local interagency/community prevention networks. The project would identify the prerequisites and conditions that favor successful community impact evaluation. The project would also help State planners explore the advantages and limitations of AOD risk indicator methods as they apply to coordinated prevention services impact assessment.

1996 CSAT NEEDS-DEMAND ASSESSMENT STUDIES

The Federal DHHS, Center for Substance Abuse Treatment is supporting RFMH Inc. and OASAS with a competitive contract award of \$1.09 million for the continuation of needs assessment improvement studies. The project, "State Demand and Needs Assessment Studies: Heroin and Other Illicit Drugs", start up activities are underway in Albany and NYC for three studies that will run through September 1999:

- Study 1: NYS Heroin Addiction Prevalence Estimation;
- Study 2: NYS County Indicators of Drug Treatment Need;
- Study 3: New York City Indicators of Drug Treatment Need.

Due to the large number of heroin addicts in New York State, a recent surge in new narcotic abusers during a period of shrinking public resources, and the high costs to society of untreated addiction, OASAS needs to know how many heroin addicts reside in NYS. We need to know how many heroin addicts have not sought treatment and why, and finally, we need better estimates of the demand for heroin treatment services in NYS.

Given the difficulties and prohibitive expense of conducting annual statewide drug abuse surveys, OASAS will be testing methods that use indirect social indicators of drug abuse and related problems to estimate levels of potential treatment demand. These methods could help to improve county and NYC needs assessments, helping NYS better plan for the deployment of drug treatment resources.

COLLABORATIVE EFFORTS INTRA AND INTERSTATE

OASAS Needs Assessment staff are exploring the feasibility of conducting interstate risk indicator studies with other large population states with high proportions of urbanization and substance abuse problems. Florida and Illinois have expressed interest in a county-level study that would have a large enough sample size (number of counties) to investigate interactions between risk constructs.

Intrastate efforts to promote interagency planning for youth prevention services at the state level are underway in New York (see Touchstone Initiative above). As part of this effort, State agency planners are recommending a consolidated county-level youth risk/protective survey methodology to State policy makers. Such a survey would provide needs assessment data to multiple agencies and greatly assist in the validation of county-level risk indicator methods. State agencies that serve youth are also engaged in a process to select broad interagency set of outcome objectives with county-level indicator measures to monitor and evaluate the performance of state agencies in promoting the health and well-being of New York's children and families. The Touchstones Technical Subcommittee has agreed to propose using Youth AOD Consequences indicators as Statewide measures of the goal that youth will be free from health risk behaviors.

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APPENDIX A

CORRELATIONS BETWEEN RISK CONSTRUCTS

CRI Risk Construct Correlations								
	Urbanicity	Poverty	Violence	Crime	Alcohol Accessibility	Alcohol Health & Treatment	Alcohol Probation Population	Drug Exposure - Adult
Urbanicity	1.00	** -.60	** .49	* -.30	** -.59	0.24	**-.44	** .43
Poverty		1.00	-0.23	** .35	** .45	0.07	** .48	**-.48
Violence			1.00	0.11	-0.18	** .36	-0.20	** .68
Crime				1.00	** .36	0.21	** .53	0.13
Alcohol Accessibility					1.00	0.12	** .44	-0.16
Alcohol Health & Treatment						1.00	-0.04	** .46
Alcohol Probation Population							1.00	-0.06
Drug Exposure - Adult								1.00

* p < .05; ** p < .01

YRI Risk Construct Correlations						
	Intrapersonal Problems	Family Dysfunction	Academic Failure	School Separation	Problem Behavior-Delinquency	Problem Behavior-Sexual
Intrapersonal Problems	1.00	0.20	* .31	-0.17	0.22	0.13
Family Dysfunction		1.00	0.17	0.21	** .50	0.15
Academic Failure			1.00	0.16	** .44	** .41
School Separation				1.00	** .36	-0.16
Problem Behavior-Delinquency					1.00	** .36
Problem Behavior-Sexual						1.00

* p < .05; ** p < .01

Correlations Between CRI Risk Constructs and YRI Risk Construct †						
	Intrapersonal Problems	Family Dysfunction	Academic Failure	School Separation	Problem Behavior-Delinquency	Problem Behavior-Sexual
Urbanicity	* .29	-0.11	0.24	** -.57	-0.04	** .62
Poverty	* -.34	** .39	-0.04	** .59	-0.19	-0.17
Violence	** .50	0.05	** .41	-0.01	** .39	** .65
Crime	0.20	** .56	0.24	* .32	** .74	0.10
Alcohol Accessibility	-0.11	0.08	-0.11	** .41	0.10	** -.40
Alcohol Health & Treatment	* .32	0.19	** .48	-0.04	** .37	** .42
Alcohol Probation Population	-0.07	** .44	0.07	** .43	** .40	-0.17
Drug Exposure - Adult	** .70	0.03	** .56	-0.11	* .29	** .46

* $p < .05$; ** $p < .01$

† Note: Some of the Risk Constructs in the CRI are made up of indicators that contain some of the same data as indicators in the YRI Risk Constructs. Therefore, they are not independent. For example: The construct CRIME contains arrest data for the entire population, which includes the youth arrests that appear as an indicator in the PROBLEM BEHAVIOR - DELINQUENCY construct.

APPENDIX B

SAMPLE COUNTY RISK PROFILE