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*Research Protocol*  
for  
**SOCIAL INDICATOR ANALYSIS STUDY (SIAS) OF THE DEMAND FOR  
SUBSTANCE ABUSE TREATMENT IN MISSISSIPPI**

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**SOCIAL INDICATOR AND INTEGRATED ANALYSIS OF THE DEMAND FOR SUBSTANCE ABUSE  
TREATMENT IN MISSISSIPPI**

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The major purpose of the Social Indicator Analysis Study (SIAS) is to develop a method of estimating the levels of need for substance abuse treatment within substate (community) areas, and, secondarily, to determine when the levels of need are changing so that treatment levels can be adjusted accordingly. The approach to accomplish these tasks is through the collection and analysis of a wide range of existing data from numerous sources within the state. These data, termed *social indicators*, have ordinarily been collected administratively by various agencies around the state, either for their own internal purposes or for reporting to the executive or legislative branches of state government. However, it has only been in recent years that accountability and evaluation standards have required that social indicators models be used to meet these criteria.

The SIAS will generally follow the model recommended by the National Technical Center for Substance Abuse Needs Assessment (through documents distributed at the State Needs Assessment & Resource Allocation Workshop, November 13-14, 1996 in Washington, D.C.), as well as the recommendations made by numerous others who have done such studies in their own states. Of particular benefit to researchers currently doing these studies is the recent publication of Gruenewald et al. (1997). It is more current, has materials integrated throughout, and has a stronger social science base than most previous work in this field which has relied perhaps too heavily on psychological paradigms for social planning (see also Duncan 1969 on this issue).

The purpose of the SIA project is to utilize readily available information on communities to produce a composite measure of the need for treatment services within the Mississippi Department of Mental Health service regions of the state. In this document, we overview the relevant social indicators literature, disclose our procedures for identifying the appropriate set of substate social indicators for our study, outline the prospective sources and technical elements of the set of social indicators we intend to utilize, and discuss the methods of analysis and reporting that will be used to construct the final report and ancillary deliverable products.

## LITERATURE REVIEW

Almost any observable behavioral phenomenon could conceivably be called a “social indicator.” However, as the behavioral sciences, especially sociology, have become more sophisticated and systematic in their data collection, the definition of social indicators has also narrowed. Within the social sciences in recent decades, the term has come to refer more specifically to a class of data that (1) reflect a wide range of activities within a society, (2) are often collected for purposes *other* than social science analysis, (3) are numerical in nature and thus amenable to statistical analysis, (4) are specific with respect to time and geography, and (5) are usually archival in nature, that is, they tend to accumulate over a period of years.

Gruenewald et al. (1997) described what some have termed the “social indicator movement,” which began in the 1960s according to Land and Spilerman (1975). Actually, the use of this type of data in the social sciences goes even further back into the 1950s or earlier, being the major data for work in the then-emerging field of social and occupational stratification (see e.g., Rogoff, 1953; or Blau and Duncan, 1967). This type of data were then referred to as social statistics and later as demographic data. The move to develop social indicators for wider uses was given a considerable boost by the work of Sheldon and Moore (1968) and Duncan (1969). The term “social indicator” did not come into wide usage until Ferris’ work in this area (see e.g., Ferris, 1969; 1970). He was attempting to develop the use of social indicators that could parallel the economic indicators that economists has used for many years.

More specific to the purposes of this project, a small but significant body of literature has arisen that speaks directly to the use of social indicators in helping to determine what the levels of substance abuse are and, thus, what the needs for intervention and treatment are for specific geographic areas. Dembling (1993) traced the history of attempts to measure levels of drug abuse, beginning with a 1973 attempt to delineate indicators of the heroine problem in Washington, D.C., followed in 1977 by a more simplified scale to measure the size of the addict population in a given area. He also describes some more recent attempts, citing the work done in several states to

assess their needs for treatment.

Wilson (1993) describes the evolution of alcohol treatment planning through several eras, beginning around 1960. Several methods were developed, relying on alcohol mortality as the major indicator.

More recently, a body of literature has arisen out of specific federally-directed programs of states and local areas to develop their own measures of treatment needs. Often cited is the work of Simeone et al (1993), that offers a fairly comprehensive coverage of the entire area of collecting and treating social indicator data for the purposes substance abuse needs assessment. Among a number of suggestions, Simeone et al. recommend their Social Dysfunction Scale as a means of objectively using social indicators to determine the level of need for treatment.

Mammo and French (1996a) found problems of equitable allocation with the Simeone scale, and offered their "Relative Needs Assessment Scale," as an improvement. This work attempts to standardize the relative occurrence of alcohol or drug abuse burden into a revised scale that segments population counts into proportional shares. Taken together, these "shares" of the population are estimates of the demand for drug and alcohol treatment interventions.

Much of this new needs assessment literature deals with the use of social indicators as states and large cities attempt to do their own assessment projects (e.g., Sherman, et al., 1996; Michigan Public Health Institute, 1996; Mammo and French, 1996b). Some of these reports have been published in the scholarly literature but many have not and remain somewhat fugitive to a broader audience. (This is one of the virtues of the recent book by Gruenewald et al. 1997) They are somewhat similar to one another in that each describes the process through which a local area has gone in the assessment of their own needs for treatment, based upon their own collection and analysis of local social indicators. This literature is rich with advice and counsel for those coming along later who need to accomplish these same kinds of tasks for their own states, service regions, and local cities.

The issues and difficulties which this literature attributes to the use of social indicators for needs assessment may be summarized as follows (most are attributable to Gruenewald *et al.*, 1997):

- (1) *There are too many variables from which to choose.* This leaves the researcher with the difficulty of determining which ones will best reflect the behaviors being measured or predicted;
- (2) *Few direct indicators exist;* that, of course, is one of the main reasons these studies

are being done. If direct indicators existed there would be little need to collect these indirect indicators;

(3) *Most social indicators are not collected specifically for research purposes.* Most are collected for other purposes, and users must therefore be very careful in the conclusions they draw that go beyond the data;

(4) *Most social indicators are either national or statewide in nature.* Very little data is collected at the local level, although some state data is delineated by county. Sub-county level data is almost non-existent;

(5) *Much data lacks a common spatial and temporal frame;*

(6) A continuing problem is the *lack of correspondence* between the researchers' theoretical and analytical models and the realities of life in the local communities.

There is much of benefit in this growing body of literature. However, Mississippi is a state that, in some ways, is quite different from those from which most of this research has been generated. The major differences are those of population size, density, and demographic diversity. Furthermore, with a few possible exceptions, Mississippi's state government has not had long-term investments in agency-directed data collections of high quality and known reliability, particularly at the substate levels. It behooves us, then to plow some new ground in the accumulation and interpretation of social indicator data for the purposes of this study. It would be scientifically irresponsible to not obtain some grasp of the temporal dynamics of the indicators that we utilize in the Mississippi SIAS. That is, due to the risk of capturing some very transient "quirk" in the data simply because we did not take the time to examine more than a two or three-year period of a longer time-series, we plan to conduct some of the descriptive work that has never been conducted in the state as a precursor to the social indicator modeling activity that parallels many other states in the CSAT program.

Nevertheless, we will depend most heavily on the procedures used by Gruenewald and his associates (1997) as well as those identified in the workshop cosponsored by CSAT and NTC during 1996. The work by Gruenewald et al. (1996) is important because it is the most timely work in this area which also seems to have a greater appreciation for the broader social science tradition in the use of social indicators.

## **SOCIAL INDICATOR SELECTION**

We begin with the broadest collection of potential indicators, including in our search any data that might directly or indirectly relate to alcohol and drug abuse throughout the state. This is called the “theoretical set of SIAS indicators,” because it is constructed without regard to whether or not the indicator is even collected in the state. We are aware that some researchers — including those at the National Technical Center — advise against a “large” set of indicators in favor of the selection of a few “good” indicators. However, given the fact that the Mississippi Department of Mental Health has not conducted previous research of this type before, we feel that this is a better approach. If this were compared to a conventional psychometric analogy, we are using more of a “domain sampling model” in that we begin with a larger set of possible indicators (*read items*) and work toward a smaller set of final social indicators. The converse, starting with a small set of indicators which are effectively “borrowed” from the work published in other states, runs the risk of not being as valid or as reliable when applied in this “new” population of Mississippi counties and substate regions (see Carmines and Zeller 1979; Land and Spilerman 1975 ).

Most of the data will come from state agencies and will be in the form of statistical reports, usually compiled on an annual basis, although some will be transmitted to us in electronic form. Furthermore, we will attempt to include as many as a ten year series of the data on each specific indicator from each source. We are already aware that many agencies have fewer years of data than this, although a few may have more. Data are in such forms as numbers of events, areal composite scores, areal rates, as well as general population data from substate regions.

Table 1 represents many of the types and sources of data searched for in our initial assessment. Beside each specific social indicator shown in this table, we have include a bibliographic citation for one or more studies which have provided either a theoretical rationale for its use or has make actual use of it in an empirical investigation. In some cases, these sources provide reviews of other sources which meet one or both of these criteria. This table contains the more obvious high face validity indicators as well as many indicators which might prove to be useful indirect measures. We recognize the difficulties in using and interpreting the indirect measures, as discussed with respect to the NTC recommended guidelines. However, indirect measures in social indicators models are quite frequently more readily available and more reliably collected than are some direct measures (Gruenewald et al., 1997). The validity of these measures will nonetheless be carefully scrutinized during the process of final indicator selection (see below).

*Potential Direct Measures of Alcohol Abuse* (Table 1, Panel I) include per capita sales of alcohol, the numbers of licensed liquor stores, DUI arrests, alcohol-related deaths, and so forth. The admissions and discharge data from private hospitals in the state are not known to be available through any source. The *only* admissions-and-discharge data

that we are likely to have available to us will be through the Mississippi Department of Mental Health and the Department of Vocational Rehabilitation. Attendance at self-help groups, such as Alcoholics-Anonymous, is not likely to be available at the substate-level. Other than the CSAT-sponsored contract for the household survey of alcohol and drug abuse, we are also unaware of any publically-available survey data on the adult population that would yield substate estimates.

*Potential Direct Measure of Drug Abuse* (Table 1, Panel III) tends to parallel those for direct measures for alcohol involving arrests, mortality, and admissions-and-discharge indicators. We face similar issues, too, regarding indicators for self-help group attendance, private hospital admissions-and-discharge data, and individual survey data that would yield substate-level estimates.

*Potential Indirect Measures of Alcohol Abuse* (Table 1, Panel II) include several conventional domestic crime rates, taken from both the FBI Uniform Crime Reports (UCR) database as well as from the Mississippi Youth Court System. We will construct occurrence and rate indicators regarding standard categories of alcohol violations and attempt to make parallel measurements for the adult and youth populations. Some additional potential indicators in this group include low birth weight infants and per-capita cigarette consumption.

*Potential Indirect Measures of Drug Abuse* (Table 1, Panel IV) also tends to parallel those indirect measures for alcohol, with some exceptions. HIV-incidence is a sensitive topic when it involves the release of local-area occurrence data (witness the controversy among states in their participation in the NIH/NCHS mortality reporting data system) and Mississippi is no exception. While we will attempt to obtain county-level, or at least Mental Health service area, data on HIV morbidity, it is likely that we will be unable to do so. The incidence of hepatitis should be available through the state Department of Health and it is a prospective indirect indicator, as well. Data from both the UCR and the Youth Court system on property crime rates are also included in this indirect indicator group.

*Less Direct Measures of Alcohol or Drug Abuse* (Table 1, Panel V) include a range of indicators that might prove to be both valid and useful. There is a published literature supporting the consideration of each one and, given that Mississippi's lack of previous social indicators work has not shown them to be redundant, we will evaluate them. These include vital statistics indicators – such as the suicide rate, infant mortality rate, proportion of annual births to teens, the incidence of STDs as well as tuberculosis – and a variety of demographic variables, such as poverty, percentage of racial minorities, unemployment, housing density, the “deteriorated” character of neighborhoods, and the age structure of the local population.

An additional segment of these less direct measures involves the school and the educational process. Work outside the realm of psychology, reflecting more social processes and phenomena, suggests that social control mechanisms surrounding the school may play an important role in the onset of substance abuse among adolescents. Social indicators such as the dropout rate, school suspensions, performance measures like mean ACT scores, pupil-to-teacher ratios, and the financial support for local education, as captured in per-pupil expenditures and assessed property values, have all been linked to substance abuse behaviors. We briefly address this literature due to the issues raised by NTC personnel who are unfamiliar with these studies.

High school dropout rates are indicative of a lack of investment in and commitment to conventional society at the individual-level (Hirschi 1969), without definitively arguing for an ecological inference from the aggregate to the micro-level of abstraction. The lower the public investment in education, the freer the individual is to deviate from the norms of social control mechanisms which direct young persons toward pro-social behavior patterns. In general, truancy, school drop-outs, low school performance, and school suspensions represent a lack of commitment and belief in conventional institutions such as the school.

High school drop-outs are also indicative of social disorganization or distressed neighborhoods (Wilson 1987; 1996). First, a lack of education severely limits opportunities and contributes to unemployment and poverty which in turn provides a social climate conducive to drug activity (see Wilson 1986: pp. 51-86 for a discussion). Second, youth “hanging-out” on street corners with nothing constructive to do may engage in illicit activity (Wilson 1987; 1996). The two arguments relate to a decline in social control at *both* the individual (Hirschi 1969) and the community level (Wilson 1996). The lack of competitive educational expenditures by state and local governments are indicative of a social climate which has shown to be consistently related to drug and alcohol abuse as well as violent behavior (Wilson 1996). Wilson (1996) puts all these factors together as indicators of socially “distressed areas” which are, in turn, areas where drug and alcohol use and sales are more likely to occur.

The pupil-teacher ratio represents the time that teachers have to invest in individual students. Some students are more in need of instruction than other students. High student-to-teacher ratios may lead to a decline in achievement (e.g., ACT) scores. In addition, as the number of students per teacher increases, supervision becomes problematic, resulting in low formal control (Gottfredson and Hirschi 1990). Thus, at the school district-level, the average ACT score may serve as a proxy for attachment, commitment, and involvement on school. Some studies have shown that attachment, commitment, and involvement in school reduce delinquency (e.g., Cernkovich and Giordano 1992). Quite a few years ago, Robins (1966: 306-7) asserted that poor school performance and truancy can be used to predict children requiring treatment for

various problematic behaviors, in what is today used to aid in identifying the “at risk” student population. Moreover, truancy has shown to be consistently associated with various criminal and delinquent behaviors among youth (Gavin 1997).

Thus, there is some significant basis for social indicator analyses of the demand for substance abuse treatment consider a range of variables related to the educational enterprise and the school process itself. Schools are significant social institutions within the community and the structured activities surrounding these institutions may constitute important elements for the development of social indicator systems with which to identify the demand for treatment for alcohol and drug abuse treatment. We plan to include the assessment of some of these indicators as part of our investigation of social indicators in Mississippi.

As voluminous as the list in Table 1 appears to be, it may not be exhaustive because other useful data might well be identified as data at different levels of substate geography might prove useful (Gruenewald et al. 1997). The rationale for indicator choice in the beginning is to include any variable which has a theoretical rationale for being useful in gauging or reflecting the level of substance abuse. However, only those indicators found to be the most informative and non-redundant will be included in the final social indicators model.

Our many years of experience with many of these same social indicators in Mississippi, which we have used for other studies and for other goals and purposes, assure us that, for several reasons, many of them will ultimately be excluded from final consideration. The initial interrogation of potential data-providing agencies produced the reduced list of indicators shown in Table 2. This table contains a reduced list of indicators that are available to us, organized by agency source.

Many potential indicators were found simply not to exist, that is, the data is not collected or archived by agencies that one might expect would be collecting such data (e.g., aggregated private hospital admissions for substance abuse treatment). In other cases, the data is either very disorganized, or only covers the most recent few years. Those indicators still included in Table 2 will be further reduced as the project proceeds through the process of data acquisition, documentation, screening, and descriptive analyses. We know that some have serious problems of both validity and reliability. For instance, the FBI indicates that as many as 30 percent of the potential “reporting agencies” in Mississippi do not file crime statistics data summaries through the Uniform Crime Reporting system each year, largely because this is a voluntary program. Consequently, the UCR Program has developed methods for interpolating the data temporally so that some of the data for these non-reporting counties are estimated. At this point in the study, most of the other indicators in this list have been found to be available and fairly reliable on face value.

Most all of the indicators currently included in Table 2 are available at the county level, and in a few cases, such as alcohol sales, morbidity, mortality, and education data, are available at sub-county levels (city). However, our analysis will begin at the county level (or lower) so that important variations within the planning districts will not be missed. Nevertheless, most data will ultimately be applied to multi-county planning districts.

At this point in the study, and based upon the literature reviewed above, we believe that our focus will be on indicators from the following general areas:

- (1) mortality and morbidity data;
- (2) auto crash and DUI data;
- (3) alcohol and drug crime data;
- (4) education data, particularly drop-out data; and
- (5) alcohol distribution and sales data.

This conjecture is based upon the work of others, known availability of data, and some preliminary examination of the spatial distributions of some of these indicators. (Some of these preliminary analyses were transmitted to previous Project Officers at the MS Department of Mental Health; Jennie Hillman and Dorothy McGill.)

Care will be taken to insure that the measures used are relevant to the populations in question. For example, some measures might be more appropriate for young people (such as drop-out rates), while others are more appropriate for older persons (such as cirrhosis disease). We may experiment with age- and sex-specific rates, if data, time, and resources allow so that more optimal planning indices may be constructed. However, in general, (crude) rates for the total population will be computed, where rates themselves are relevant, and attempts will be made to capture the optimal definition of the “at risk” population where rates of occurrence are constructed.

Major problems can arise from the fact that data will be delivered in a variety of forms, both on paper and electronically. Good electronic data is best because it does not have to be reentered into our databases mechanically. Data keying is a major source of introduction of new errors. Nevertheless, much of the data will be in this form; so we will follow the best practices recommended for controlling problems that may arise at this phase of the data conversion. In the case of electronic data, most can be easily converted to the formats that will be used in our analysis. One exception is with traffic data emanating from the MS Governors’ Highway Safety Program (GHSP). Due to some administrative transitions in their Management Information Systems department, the only means for us to obtain critical data pertaining to alcohol-related arrests and

accidents is through our processing the entire master files from GHSP. These datasets will be transferred to us on twenty (20) 9-track reels of tapes for processing on mainframe computer systems. Moreover, the database software used to archive these databases at GHSP underwent a major transition a short time ago. Thus, we will have to invest some considerable resources in acquiring and processing these databases in order to obtain the indicators needed for this study. Again, however, best management practices in large-scale data processing will be employed to avoid errors in transition and maintain the integrity of data sources.

### **SOCIAL INDICATOR INDEX DEVELOPMENT**

The procedures of analysis for the SAIS will parallel most of the other investigations conducted by states contributing to the CSAT planning studies. There will be three major components to our methods of analysis. The analysis will focus on an intended data-series of 1990-most currently available data but may involve either a longer or shorter series, depending upon the availability of data (see above).

First, we will conduct a descriptive phase of analysis for each indicator that meetings the above criteria of consistency and data-processing reliability. This will involve constructing a table of county data (and city, were available), organized by mental health service region, showing the data values for each geographical entity. A companion box-and-whisker graph will also be constructed for each indicator, or relevant set of indicators, to illustrate the distributional characteristics of each indicator. This will greatly assist us in ascertaining and communicating to Department of Mental Health officials which counties in the state have extreme values on each social indicator. It will also facilitate the understanding of the diversity within each service region in the state. A description of the spatial distribution of each indicator will be conveyed through a geographic information system (GIS) display, or map, of each indicator. Taken together, the table, boxplot, and map of each social indicator for each year, as well as similar displays for the change in each indicator over the period covered by the data-series will yield an accurate description of the univariate behavior of each distribution as well as changes in this distribution over the length of the data-series.

Second, the patterns of covariation among these social indicators will be examined through a variety of procedures. It is important to understand how these indicators relate to one another so that we may make inferences about each one's validity and redundancy for inclusion into a linear composite measure (e.g., index of severity or relative need). While some writers in this area (including the critique by NTC) use psychometric terminology involving Campbell and Fiske's "multi-method, multi-trait" procedures to discuss the reliability and validity issues of social indicator models of substance abuse treatment, there is a significant segment of both the broader

social indicators literature and the contemporary social measurement literature that would caution against this approach.

For instance, the use of “true-score” theory (Carmines and Zeller 1979) in social indicator models assumes that there is an underlying, unobserved common construct which “causes” variation, and therefore covariation, in the observed indicators. A good example of this conceptualization in the social indicators heritage (e.g., Blau and Duncan 1967) is socioeconomic status (SES) as measured by a linear composite comprised of years of schooling, occupational prestige, and annual earnings. A critical question is whether or not an unobserved construct, SES, “causes” individuals to obtain more or less years of schooling, occupational prestige, or earnings? Most would think not! Rather, it is the opposite relationship, that researchers may form a composite measure of SES, based upon the external validity of each indicator for relating it to other constructs in the model (see Bollen 1989). These “formative” measurement models are distinguished from “causative” indicator models, as reflected in True-Score Theory, so as to further delineate our understanding of the covariation of observed indicators for unobserved constructs.

In the work on social indicator models of substance abuse demand, this type of recognition has apparently not yet taken place as the advice from NTC to incorporate the “causative” model-based work on MTMM by Campbell and Fiske into our study in Mississippi illustrates. We do wish our work to be comparable to the work of others in the CSAT program of state studies, since that it a central goal of the enterprise. However, we would be remiss if we did not point out this critical issue in this phase of the analysis. In one sense, as Bollen (1989) describes, there is no *a priori* need for two specific indicators to have any covariation at all in a formative measurement model, as long as other criteria are met. We plan to keep this in mind as we conduct this portion of the study.

The second phase will make use of traditional principal-components factor analysis to ascertain the patterns of shared covariation among county-level indicators. We will also check the pattern matrix for similarity to the county-level solution among city-level indicators, among those that we are able to obtain at this sub-county level of geography. Principal components analysis, in contrast to principal-axes factor analysis, will also not require us to assume that there is an underlying construct causing covariation in the observed indicators but will yield similar results for our purposes. The main goal in this phase is to ascertain the redundancy of specific indicators and to examine each one’s criterion-validity with direct measures of the demand for substance abuse treatment. We will use the MS Department of Mental Health’s admissions-and-discharge database to construct admission rates (based on unduplicated counts) for use as one of the external criteria. An additional indicator will be constructed from the MS Department of Vocational Rehabilitation’s database on alcohol and drug treatment

program participation. From these two procedures, the principal components analysis and regression-based modeling of external criteria, we will make judgements on a “final” set of social indicators to be used in the third phase.

Third, two complementary sets of procedures will be used to determine the relative need for substance abuse treatment demand for counties and service delivery regions. The first procedure follows the approach described by Mammo and French (1996a) and Bogie (1997). The index of relative need or severity will be constructed in three steps, as follows, and replicated separately for alcohol and drug abuse:

- (1) For each of the indicators used in the alcohol (or drug) abuse index, the rate or ratio for each county will be divided by the data value for the county with the highest value, resulting in a proportion, and multiplied by 100 to yield a percentage of relative need on each indicator;
- (2) The individual indicator scores, in percentage form, will then be averaged across all indicators to produce a combined relative need score for each county. This combined index score for each county will then be divided by the index score for the county with the highest value on the index and multiplied by 100, again creating a relative (combined) index in percentage form;
- (3) A “resource allocation percentage” for each county is constructed in the third step by multiplying the estimated county population by the combined index score from the second step. This product will be divided by the sum of the values of products for all counties and multiplied by 100. The percentage value for each individual county will sum to 100 percent for all 82 counties. The resulting percentage will represent the each county’s share of the total alcohol (or drug) abuse “problem” in the state, after differences in a county’s population is taken into account.

We will experiment with a combined alcohol and drug “resource allocation percentage” for Mississippi counties and present those results if they appear to be consistent and complementary.

The purpose of this portion of the analysis is to estimate which counties, and service delivery regions, are in greatest need for substance abuse treatment. The procedure outlined above (based upon Mammo and French 1996a, and Bogie 1997) treats each social indicator’s percentile distribution as the key element upon which to allocate treatment resources. That is, by dividing each county’s score on an indicator by the highest score is, in

effect, creating a decending percentile distribution beginning with 100 percent and moving downward. It is important to realize that this does not identify an absolute percentage of the target population that is truly in "need" of treatment. Instead, the creation of a percentile distribution with which to allocate resources to a population produces, at best, a relative need measure.

If the procedure illustrated by Mammo and French (1996a,b) produces a valid portrait of the relative treatment needs in Mississippi counties, then we should be able to replicate the identification of a county's relative need ranking using alternate methods. We will attempt to cross-validate the Mammo-French ranking of counties through procedures of taxonomic classification. This consists of a combination of principal components analysis of the individual social indicators into a simple structure of dimensions, a hierarchical cluster analysis of the principal components into relatively homogeneous discrete groups which are optimized through analysis-of-variance and discriminant analysis of the discrete groupings with the initial social indicators themselves. The resulting taxonomic classification of counties into *k*-groups should represent relatively homogeneous "clusters" of counties which have similar scores on the Mammo-French index of relative need for substance abuse treatment. The extent to which this holds true and the indicators based on the admissions-and-discharge data tend to corroborate the ranking of resource allocation needs, then the SAIS ranking of Mississippi counties and service delivery regions will be more more authentic.

## **PROJECT TASK-MANAGEMENT PLAN**

A projected task-management plan is shown in Figure 1. While these are general estimates for the management of the SIAS activities, some elements are inherently ambiguous (e.g., data acquisition from agencies and data-preparation). Where elements are off-target, the Principal Investigator will modify this time-management plan accordingly.

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Wilson, William Julius. (1996). *When Work Disappears: The World of the New Urban Poor*. New York: Alfred A. Knopf.

**Table 1: Types and Sources of Potential Social Indicators to be Considered for Inclusion in Mississippi SIAS of Alcohol and Drug Abuse**

Potential Indicator	Possible Source
<b>I. Direct Measures (High Face Validity) of Alcohol Abuse:</b>	
1. Per capita sales of alcohol <sup>1,2,4,5,6</sup>	[ABC]
2. Numbers and rates of liquor licenses <sup>1,2,3,4,5,6</sup>	[ABC]
3. DUI/DWI arrests <sup>1,2,3,4,6</sup>	[GHSP]
	]
4. Alcohol-related deaths <sup>2,3,4,5</sup>	[MDH]
5. Alcohol-related hospital/other admissions/ discharges <sup>1,2,5</sup>	[?]
6. Alcohol-related out-patient admissions/discharges <sup>1,2,5</sup>	[?]
7. Alcohol-related vocational rehabilitation services <sup>1</sup>	[VR]
8. Alcohol-related accidents (auto, in-home, etc.) [MDH]	
a. Fatal auto crashes <sup>1,2,4,5</sup>	
[GHSP]	
9. Alcohol-related arrests such as disorderly conduct (other than DUI) <sup>1,2,5,6</sup>	[GHSP]
	]
10. Vagrancy arrests <sup>2</sup>	[?]
11. Attendance at AA meetings <sup>1,2,5</sup>	[?]
12. Use of other alcohol treatment programs <sup>1,5</sup>	[?]
13. Survey data (refers generally to any survey data that might be available) <sup>2,5</sup>	[?]
14. Maternal alcohol syndrome births <sup>5</sup>	[MDH]
<b>II. Indirect Measures of Alcohol Abuse:</b>	
15. Domestic crime rates <sup>2,3,5</sup>	[UCR]
16. Low birth weight infants <sup>2,5</sup>	[MDH]
17. Homicide rates <sup>2</sup>	[UCR]
18. Cigarette consumption <sup>2,5,6</sup>	[MS TC]
19. Liquor Law Violations <sup>1</sup>	[ABC, UCR]
<b>III. Direct Measures of Drug Abuse:</b>	
20. Drug offense numbers and rates <sup>1,2,3,4,5,6</sup>	[UCR]
21. Drug-related deaths <sup>1,2,3,4,5</sup>	[MDH]
22. IV drug-related AIDS <sup>2,3</sup>	[MDH]
23. Drug-related hospital/other admissions/discharges <sup>1,2,5</sup>	

[?]		
24.	Drug-related out-patient admissions/discharges <sup>1,2,5</sup>	[?]
25.	Drug-related vocational rehabilitation services <sup>1</sup>	[VR]
26.	Survey data (refers generally to any survey data that might be available) <sup>2,5</sup>	[?]
27.	Drug-related births <sup>5</sup>	[MDH]
28.	Use of drug treatment programs <sup>1,5</sup>	[?]
29.	Waiting lists for treatment programs <sup>1</sup>	[?]
30.	Attendance at NA meetings <sup>1,5</sup>	[?]
<b>IV.</b>	<i>Indirect Measures of Drug Abuse:</i>	
31.	Total AIDS/HIV cases <sup>2,5,6</sup>	[MDH]
32.	Hepatitis cases <sup>2,5,6</sup>	[MDH]
33.	Property crime rates <sup>2</sup>	[UCR]
<b>V.</b>	<i>Much Less Direct Measures (both alcohol and drugs):</i>	
34.	STD cases <sup>2,5,6</sup>	[MDH]
35.	TB cases <sup>1,2,5,6</sup>	[MDH]
36.	Race (percent non-white) <sup>2</sup>	[Census]
37.	Poverty (income) <sup>1,2,4</sup>	[Census]
38.	Suicide rates <sup>2</sup>	[MDH]
39.	Infant mortality rates <sup>2,5</sup>	[MDH]
40.	Unemployment <sup>1,2,4</sup>	[ESC]
41.	Housing density <sup>2</sup>	[Census]
42.	Deteriorated neighborhoods <sup>2,7</sup>	[?]
43.	Teen pregnancy <sup>2,6</sup>	[MDH]
44.	High school drop-out rates <sup>2,7</sup>	[SDE]
45.	Population aged 12 to 29 <sup>4</sup>	[Census]
46.	Violent crime <sup>4,5</sup>	[UCR]
47.	Expenditures for treatment and/or prevention <sup>5</sup>	[?]
48.	Advertising expenditures (alcohol) <sup>5</sup>	[?]
49.	Child abuse cases <sup>5</sup>	[UCR, DHS]
50.	Literacy rates <sup>6</sup>	[SDE]
51.	Educational expenditures <sup>7</sup>	[SDE]
52.	School suspensions <sup>8</sup>	[SDE]
53.	Mean ACT scores <sup>9,10,12</sup>	[SDE]
54.	Truancy rates <sup>7,11</sup>	[SDE]
55.	Pupil-teacher ratios <sup>12</sup>	[SDE]
56.	Assessed property values <sup>4</sup>	[SDE]

Note: ABC = MS Alcohol Beverage Control; GHSP = Governor's Highway Safety Patrol; MDH = MS Dept. Of Health; UCR = FBI Uniform Crime Report series; MS TC = MS Tax Commission; Census = U.S. Bureau of the Census; ESC = MS Employment Security Commission; SDE = MS State Dept. Of Education; VR = State Vocational Rehabilitation; DHS = MS Dept. of Human Services; ? = availability unknown at this time.

Table References: Superscript numbers refer to the following list of sources

which specify a relationship between the indicator and substance abuse problems.

<sup>1</sup>Gruenewald, P.J., Treno, A.J., Taff, G., and Klitzner, M. (1997).

*Measuring Community Indicators: A Systems Approach to Drug and Alcohol Problems*. Thousand Oaks, Ca.: Sage Publications.

<sup>2</sup>Holloway, Angela. (No date). "Extending the Family of Studies Using Social Indicators: Developing the Social Indicator Model and Integrating the Studies." Indiana University: Bowen Research Center.

<sup>3</sup>Mammo, Abate, and French, John. 1996. "Social Indicators for Substance Abuse Treatment Needs Assessment." New Jersey Department of Health.

<sup>4</sup>Mendelson, Bruce. 1984. "Prevention Planning Paper #3: An Analysis of Risk Factors in the Sixty-Three Colorado Counties." Colorado Department of Health.

<sup>5</sup>Michigan Public Health Institute. 1996. Substance Abuse Indicators for Community Health Assessment." Community Health Profiles Project.

<sup>6</sup>Sherman, Richard E., Gillespie, Sam, and Diaz, Jose A. 1996. "Use of Social Indicators in Assessment of Local Community Alcohol and Other Drug Dependence Treatment Needs Within Chicago." *Substance Use and Abuse*, 31(6):691-728.

<sup>7</sup>Wilson, William Julius. 1996. *When Work Disappears: the World of the New Urban Poor*. New York: Alfred A. Knopf.

<sup>8</sup>Hirschi, Travis. 1969. *Causes of Delinquency*. Berkeley: University of California Press.

<sup>9</sup>Cernkovich, Stephan A. and Peggy C. Giordano. 1992. "School Bonding, Race, and Delinquency." *Criminology* 30(2): 261-291.

<sup>10</sup>Robins, Lee. 1966. *Deviant Children Grown Up*. Baltimore: Williams and Wilkins.

<sup>11</sup>Gavin, Tom. 1997. "Truancy: not Just Kids' Stuff Anymore." *FBI Law Enforcement Bulletin* 66(1): 8-15.

<sup>12</sup>Gottfredson, Michael R. and Travis Hirschi. 1990. *A General Theory of Crime*. Stanford: Stanford University Press.

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**Table 2. Social Indicators Certified to be Available for SIAS and Organized by Agency Source**

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**I. Alcohol Beverage Control**

1. Retail sales permits with locations and sales volume per outlet, annualized (1992-1997)

**II. State Department of Education**

2. Enrollments by grade
3. Drop-outs by grade
4. Average daily attendance
5. Functional Literacy test scores
6. ACT scores
7. Expenditures per pupil for instruction
8. Pupil-teacher ratios
9. Average class size
10. District assessed property values
11. District tax rates

**III. State Department of Health**

12. Alcohol related mortality
13. Drug related mortality
14. Maternal alcohol addiction
15. Fetal alcohol syndrome
16. Births where maternal drug use a factor
17. Suicide rates
18. Homicide rates
19. Motor vehicle mortality
20. HIV-AIDS mortality and morbidity \*\*
21. Hepatitis mortality and morbidity \*\*
22. STD morbidity
23. Tuberculosis mortality and morbidity

**IV. State Department of Mental Health \***

24. Alcohol admissions by county, age, race, sex
25. Drug admissions by county, age, race, sex
26. Presenting problems
27. Diagnoses
28. Types of disabilities
29. Types/modality of treatment(s), duration of treatment

**V. Office of Vocational Rehabilitation \***

30. Clients with drug problems by county
31. Clients with alcohol problems by county
32. Client outcomes

**VI. Governor's Highway Safety Program**

33. DUI arrests by age and sex
34. Alcohol-related crashes by age and sex
35. Alcohol-related auto fatalities by age and sex
36. Late-night single-vehicle crashes by age and sex

**VII. Uniform Crime Reports**

37. Arrests for alcohol offenses
38. Arrests for drug offenses
39. Domestic crime rates
40. Liquor law violations
41. Rates of violent crimes

**VIII. Youth Courts**

42. Driving under the influence (DUI)
43. Drunkenness
44. Liquor law violations
45. Drug violations
46. Possession of marijuana
47. Sale of marijuana

**IX. Mississippi Tax Commission**

48. Sales volume of beer

**X. Demographic Data**

49. Annual estimates of county populations by age, race and sex from Woods and Poole Economics, Inc. (Proprietary)

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\* Agency agreed to supply data but not received as of February 1, 1998.

\*\* Agency refused to supply data for project at a county or Mental Health Planning Region level of geography.

Project Schedule for November 1996 through March 1998

Tasks	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M
1. Review of literature on Social Indicators	X	X															
2. Development of initial list of indicators		X	X														
3. Location of sources of data		X	X	X													
4. Contacting and working with agencies to obtain data				X	X	X	X	X	X	X							
5. Initial assessment and preliminary processing of data (documentation and checks of validity)					X	X	X	X	X	X							
6. Initial analysis and description of data (some use of consultants)							X	X	X	X	X	X	X				
7. Construction of Social Indicator Needs Assessment Scale												X	X	X	X		
8. Write final report														X	X	X	