

## **2006 Behavioral Health Prevalence Estimates in Alaska: Serious Behavioral Health Disorders by Household**

---

This project was sponsored by the

Division of Behavioral Health  
Department of Health and Social Services  
and the  
Mental Health Trust Authority  
State of Alaska

This Report was produced by the  
WICHE Mental Health Program  
contact Chuck McGee, M.S. [cmcgee@wiche.edu](mailto:cmcgee@wiche.edu)  
In collaboration with  
Charles Holzer, PhD, University of Texas Medical Branch

January 15, 2008

## Main Points

---

- The total state household population in 2006 was 647,894.
- 51,430 Alaskans in households were estimated to have serious behavioral health disorders in 2006 (7.9% of the household population).

*Estimates for adults were based on the most recent national epidemiological survey administered in the lower 48. The survey was conducted by trained personnel using a structured diagnostic survey in face to face interviews. Findings from the survey were adjusted for detailed demographics of Alaskan Boroughs and Census Areas. Prevalence estimates developed by the epidemiologist using this synthetic estimation technology have been used in ten western states. Alaska is the first State to use substance use estimates.*

*The estimates are conservative. The report provides evidence the estimates are conservative, especially for Alaskan Natives and Native Americans and particularly for substance use mental disorders. (Compared nationally, Alaskan Natives and Native Americans have three times the suicide death rate, 50% more drug-induced deaths, and are two times more likely to die of cirrhosis.) The estimates are also conservative in being limited to households: a considerable number of people experiencing disorders have other living arrangements including being homeless, in the military, in prisons or jails, seasonal workers, etc... And finally they are conservative because 'serious' disorders exclude acute psychiatric situations such as suicidal behavior.*

The focus in this report is Alaskans least able to afford services. Most estimates in the report are for persons in low income households (defined as below 240% of Federal Poverty Guidelines).

- 28,684 Alaskans in low income households were estimated to have serious behavioral health disorders. This is 10.9% of persons in low income households (amounting to 4.4% of the entire household population). Alaskans with serious disorders were further divided into four mutually exclusive groups:
  - 7,339 youths with serious emotional disturbances (SED)<sup>1</sup> (25.6% of the total)
  - 10,948 adults with a serious mental illness only (SMI Only) (38.2% of the total)
  - 7,256 adults with substance use disorders (SUD Only) (25.3% of the total)
  - 3,141 adults with co-occurring disorders (SMI and SUD) (10.9% of the total)
  - 28,684 total individuals with a serious behavioral health disorder
- Prevalence rates did not vary significantly across service regions of the State
- Rates for adults did vary consistent with the research literature across sex and age groups
  - Females were overrepresented among adults with SMI while males were overrepresented among adults with SUD
  - Rates for SMI start low with ages 18-20, increase to highs with ages 25-44 then go down; rates for SUD Only started high and went down with each age group

---

<sup>1</sup> Note that figures for Serious Emotional Disturbance (SED) exclude youths with only substance use disorders.

These estimates provide a standardized basis for defining the need in a household population. They conservatively proxy the need for services and provide information on target groups, geographic areas, and demographic groups. The estimates are useful when combined with service utilization data to generate indicators of the equitability of services and indicators of (un)met need. The report describes how these indicators would be generated. The final indicators could be used for:

- **Planning.** They may be used to help target needed services for individuals in regions and subpopulations (age, sex, and race/ethnicity)
- **Advocacy** for individuals with serious behavioral health disorders who are not served
- **Policy discussion**

*The report was funded by the Mental Health Trust and the Division of Behavioral Health through the Outcome Identification and System Performance Project (OISPP). It was written by a consultant from the WICHE Mental Health Program. The OISPP has a broad group of stakeholders who reviewed drafts, and provided feedback and direction.*

## EXECUTIVE SUMMARY

This report provides prevalence estimates of serious behavioral health disorders in Alaskan households. Prevalence estimates provide a standardized basis for defining the need for services in a population. They are useful when combined with service utilization data to generate indicators of the equitability of services and indicators of (un)met need.

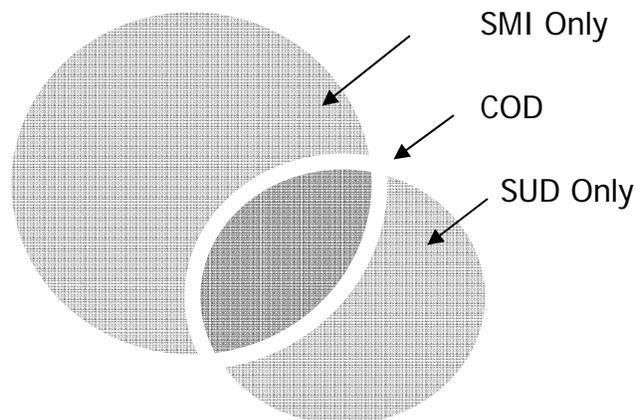
Estimates for adults were based on the most recent national epidemiological survey. The survey was conducted by trained personnel using a structured diagnostic survey in face to face interviews. Findings from the survey were applied to detailed demographics of Alaskan Boroughs and Census Areas. Prevalence estimates developed by the epidemiologist using this synthetic estimation technology have been used in ten western states. Alaska is the first State to use substance use estimates.

Prevalence estimates are provided for the total household population and for individuals most likely to qualify for some level of public support for services, i.e., those with a low income. The total 2006 household population was 647,894 and 262,461 were in low-income households.<sup>2</sup>

Serious disorders were defined for four groups by a combination of diagnosis, disability, and duration. Prevalence estimates are presented for these four mutually exclusive target groups, the sum of which is a total estimate of individuals with serious behavioral health disorders:

- youth with serious emotional disturbance (SED),
- adults with serious mental illness only (SMI Only)
- adults with substance use disorders only (SUD Only), and
- adults with co-occurring disorders mental health and substance (COD).

**Figure 1: Visual of the Three Adult Target Groups**



<sup>2</sup> Low-income households were defined as below 240% of HHS Federal Poverty guidelines. See Appendix C. for poverty incomes. The total 2006 population in Alaska was 670,053 (households exclude institutions and group quarters)

---

### ***Findings in Total Household Population***

---

- 51,430 individuals in households had serious behavioral health disorders (SBHD) in 2006
- 7.9% of the total household population had a SBHD

### ***Findings in Low Income Households***

---

- 28,684 individuals in low income households had serious behavioral health disorders
    - 7,339 youths with serious emotional disturbances (SED)<sup>3</sup> (25.6% of the total)
    - 10,948 adults with a serious mental illness only (SMI Only) (38.2% of the total)
    - 7,256 adults with substance use disorders (SUD Only) (25.3% of the total)
    - 3,141 adults with co-occurring disorders (SMI and SUD) (10.9% of the total)
    - 28,684 total individuals with a serious behavioral health disorder
  - This is 10.9% of persons in low income households (amounting to 4.4% of the total Alaska household population)
  - 78% of individuals with SBHD were adults; 22% youths with SED
  - Geographic overview:
    - Estimates generally followed population density with almost 70% of individuals in two regions (Anchorage and the South Central), 21% in the Northern regions and 10% in Southeast
    - Overall prevalence rates for SBHD ranged from a low of 10.4% in Southeast to a high of 11.2% in South Central, a small difference
    - Prevalence rates for SUD ranged from a low of 5.4% in Southeast to a high of 6.3% in the Northern region, a small difference
    - Prevalence rates for SMI ranged from a low of 7.8% in Southeast to a high of 8.6% in the South Central, a small difference
  - Demographic differences found were consistent with research literature
    - Adults with SMI Only had a relatively high proportion of females; rates start low with ages 18-20, increase to highs with ages 25-44 then go down
    - Adults with SUD Only had a relatively high proportion of males; rates start relatively high with young adults and goes down with increasing age
- 

While these prevalence estimates have a solid base and are adjusted for Alaska there is reason to believe they are conservative. The estimates were based on national data and adjusted for demographic characteristics in Alaska however there are unique characteristics in Alaska. Alaska data are significantly different, particularly for Alaska Natives on three indicators: suicide rate,

---

<sup>3</sup> Note that figures for Serious Emotional Disturbance (SED) exclude youths with only substance use disorders.

drug induced deaths, and cirrhosis deaths. Compared nationally, Alaskan Natives and Native Americans have three times the suicide death rate, 50% more drug induced deaths, and are two times more likely to die of cirrhosis. The estimates are also conservative because they are limited to households: a considerable number of people experiencing disorders are not in households but are homeless, are seasonal workers, or live in institutions such as prisons and jails that were not included in this estimation. And finally they are conservative in that estimates for ‘serious’ behavioral health disorders exclude many conditions the public would consider a concern of the state, such as many acute psychiatric situations such as suicidal behavior.

Findings in this report should be interpreted with caution and should be integrated with other data and knowledge from stakeholders to identify unique local characteristics that affect these estimates. These prevalence estimates:

- proxy the need services to individuals with serious behavioral health disorders
- further divide need into target groups SED, SMI only, SUD only, and COD
- show the need in geographic areas
- provide detail on the need for services by age, sex, and race/ethnicity

The use of synthetic prevalence estimates to estimate individuals with serious disorders has a significant history with western States. Ten western states have contracted for estimates of serious mental illness prior to 2007. The technology for estimating substance use disorders is new and Alaska was the first State to use them.

This report provides the foundation for a larger project described in the report. The ultimate goal is to have quantifiable data to build indicators of unmet need and disparities in care for the various target groups across demographic groups in all areas of the State. The final indicators generated in this project may be used for:

- Planning to help target needed services for individuals in geographic areas and for demographic sub-populations (age, sex, race/ethnicity)
- Advocacy for individuals with serious behavioral health disorders who are not served
- Policy discussion

*The report was funded by the Mental Health Trust and the Division of Behavioral Health through the Outcome Identification and System Performance Project (OISPP). It was written by a consultant from the WICHE Mental Health Program. Prevalence estimates were developed by an epidemiologist using the synthetic estimation technology. The OISPP has a broad group of stakeholders who reviewed drafts, and provided feedback.*

## Table of Contents

<b>MAIN POINTS .....</b>	<b>2</b>
<b>EXECUTIVE SUMMARY .....</b>	<b>4</b>
<b>TABLE OF CONTENTS .....</b>	<b>7</b>
<b>INTRODUCTION .....</b>	<b>9</b>
<b>BACKGROUND .....</b>	<b>11</b>
GROUPS INCLUDED AND EXCLUDED .....	11
REASON FOR ESTIMATING NEED FOR SERVICES .....	12
DEFINITIONS .....	13
NATIONAL PREVALENCE INFORMATION AVAILABLE .....	14
SYNTHETIC ESTIMATION METHODOLOGY .....	15
CAUTIONS .....	16
<b>ALASKA HOUSEHOLD DEMOGRAPHICS 2006.....</b>	<b>17</b>
LOW INCOME HOUSEHOLDS .....	19
<b>ESTIMATES OF PERSONS WITH SERIOUS BEHAVIORAL HEALTH DISORDERS .....</b>	<b>22</b>
PREVALENCE ESTIMATES IN ALL HOUSEHOLDS .....	22
PREVALENCE ESTIMATES IN LOW INCOME HOUSEHOLDS .....	25
<b>NEXT STEPS.....</b>	<b>31</b>
<b>APPENDIX A DEFINITIONS OF SERIOUS BEHAVIORAL HEALTH DISORDERS .....</b>	<b>33</b>
SERIOUS BEHAVIORAL HEALTH DISORDER: DEFINITIONS .....	33
<i>Serious Emotional Disturbance (SED)</i> .....	33
<i>Serious Mental Illness (SMI) (Federal Definition)</i> .....	34
<i>Substance Use Disorders (SUD)</i> .....	35
IMPLEMENTATION OF THE DEFINITIONS.....	35
<i>Serious Emotional Disturbance</i> .....	35
<i>Serious Mental Illness (Implementation of SMI Definition)</i> .....	35
<i>Substance Use Disorders (SUD)</i> .....	36
<i>Co-Occurring Disorders (SMI and SUD)</i> .....	36
<b>APPENDIX B PREVALENCE ESTIMATION .....</b>	<b>37</b>
CHAPTER 2. OVERVIEW OF PREVALENCE ESTIMATION.....	37
CHAPTER 4. THE NATIONAL COMORBIDITY STUDY AND ESTIMATED PREVALENCE.....	43
CHAPTER 5. ESTIMATION PROCEDURES FOR ADULTS AGE 18 TO 54.....	47
CHAPTER 6. ESTIMATION PROCEDURES FOR OLDER ADULTS.....	49
CHAPTER 7. ESTIMATION PROCEDURES FOR CHILDREN AND ADOLESCENTS .....	52
<b>APPENDIX C LOW INCOME HOUSEHOLDS .....</b>	<b>55</b>

Table 1: Household Population of Regions by Age Group ..... 18

Table 2: Regions and Boroughs/Census Areas ..... 18

Table 3: Populations by Age Group and Poverty Guideline..... 20

Table 4: Low Income Households by Region..... 21

Table 5: Serious Behavioral Health Disorders in Total Households Statewide ..... 22

Table 6: Serious Behavioral Health Disorders in Total Households by Region..... 24

Table 7: Prevalence in Low Income Households Statewide..... 25

Table 8: Prevalence in Low Income Households by Region..... 26

Table 9: Prevalence in Low Income Households by Age for Adults ..... 28

Table 10: Prevalence in Low Income Households by Sex for Adults ..... 29

Table 11: Prevalence in Low Income Households by Race/Ethnicity for Adults ..... 30

## Introduction

---

This report is the first phase of a larger project to generate indicators of disparities in care and unmet need in Alaska. It provides prevalence estimates of serious behavioral health disorders. Prevalence estimates provide a standardized basis for defining the need for services in a population. The second phase of this larger project assesses the number of individuals who actually receive services. The third phase combines the information to generate indicators of unmet need and disparities in care.

The project is an initiative of the Division of Behavioral Health (the Division) of the Alaska Department of Health and Social Services. The Division contracted with the Western Interstate Commission for Higher Education (WICHE) Mental Health Program to facilitate the project. Phase I prevalence estimates were generated by an epidemiologist who has developed a technology specifically for this purpose.<sup>4</sup> The synthetic estimation technology has been used for mental disorders by ten western states; Alaska is the first to use the substance use estimates. The technology is being considered for use in identifying mental health professional shortage areas by SAMHSA.<sup>5</sup>

### Serious Disorders and Four Subpopulations

Serious disorders include 1) youths with serious emotional disturbance (SED), 2) adults with serious mental illness only (SMI Only), 3) adults with substance use disorders only (SUD Only), and 4) adults with co-occurring mental health and substance use disorders. These four groups sum to a total serious behavioral health disorder.<sup>6</sup>

In order to obtain the total estimate of adults with serious mental illness one would add the estimates for 'SMI Only' and 'COD'. Likewise, one would add the estimates for 'SUD Only' and 'COD' to obtain the total estimate of adults with substance use disorders.

Broader prevalence estimates are provided for the total household population for public health planning purposes. More detailed prevalence estimates are provided for individuals in low income households. Both sets of estimates are shown at a regional level. The tables for low income households also show demographic breakdowns for age, sex, and race/ethnicity.

### Exclusions

The report starts with a background section. A section on the broad context of diagnosable disorders shows not only what is included in this report but also what are not included, notably excluded are 1) youths with only substance use disorders and 2) adults and youths with acute psychiatric needs without serious disorders. The background includes also definitions of target

---

<sup>4</sup> The epidemiologist is Dr. Charles Holzer at the University of Texas Medical Branch

<sup>5</sup> Cecil G. Shep Center for Health Services Research. Refer to:  
[http://www.shepscenter.unc.edu/research\\_programs/mental\\_health/projects/current/mhpsa.html](http://www.shepscenter.unc.edu/research_programs/mental_health/projects/current/mhpsa.html)

<sup>6</sup> Please see Appendix A for definitions and the way these groups were operationalized for this project. Note SUD excludes nicotine addiction and coffee intoxication for the purposed of these estimates.

groups and describes the synthetic estimation methodology used in the project. The background section ends with cautions in using the prevalence estimates in this report.

The report goes on to present information on Alaska demographics. The State total household of 647,894 individuals is shown by region and age groups. Note this excludes individuals in institutions and group homes, an exclusion made to keep the project manageable. The total household population is then separated to show those most likely to qualify for some level of public support for services, i.e., 'low-income-households'. This report provides prevalence estimates for the total household population and the low income population of 262,461.

### Regions

The Division divides the 27 Boroughs and Census Areas into four regions, Northern, South Central, Anchorage, and Southeast. Most tables in the report are organized by these geographic areas. For low income households three tables are presented for each subpopulation group, a table each for age, sex, and race/ethnicity. In all, ten prevalence tables are in the report.

The remainder of this report includes the following sections: 1) background, 2) Alaska household demographics, 3) prevalence estimates of serious behavioral health disorders in all household, 4) prevalence estimates in low income households, 5) and next phases of the project. The Appendices provide more detailed information on a) definitions, b) the prevalence estimation methodology, and c) poverty incomes.

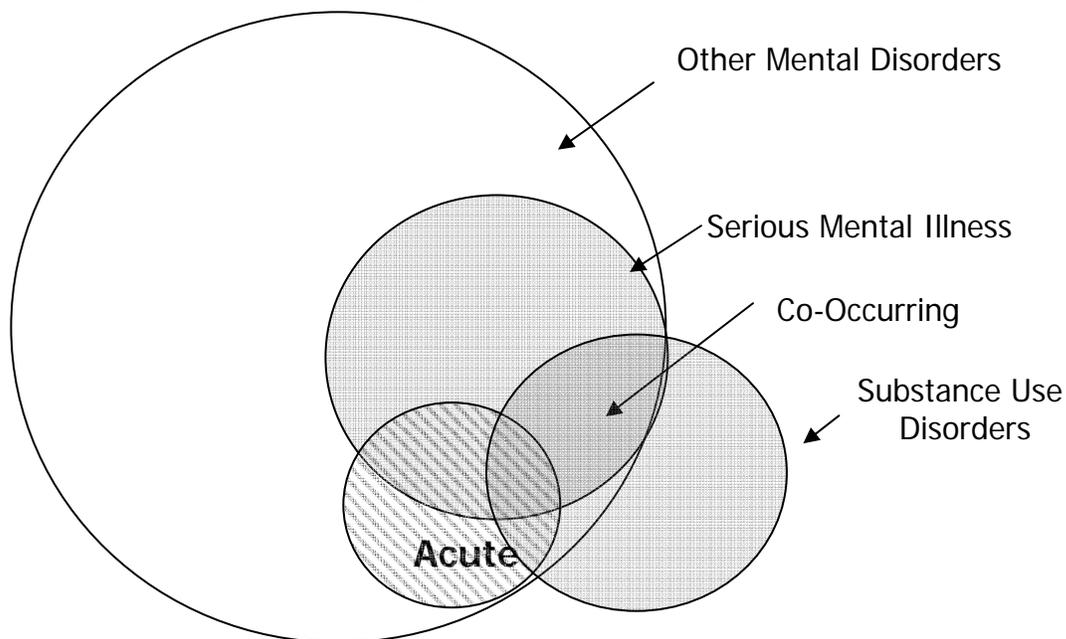
## Background

### Groups Included and Excluded

Health may be viewed on a continuum ranging from individuals who are healthy to individuals with serious chronic disorders and impaired functioning. From a public health frame of reference all individual are of interest. Focusing more narrowly approximately 30% of adults have a diagnosable mental or substance use disorder in a year. This project is even narrower, focusing on individuals with serious behavioral health disorders or about 8% of the total household population. This section shows what is included in the project and excluded.

Figure 1 below shows a visual representation of the total population of adults with different types of mental health and substance use disorders. The two medium sized shaded circles represent individuals with serious disorders as defined in this report: 1) serious mental illness and 2) substance use disorders. The overlap of these circles represents individuals with 3) co-occurring substance use and serious mental illness. These three groups are included in this report.

**Figure 2: Visual of the Different Types of Behavioral Health Disorders**



The largest and smallest circles outside the two medium circles represent groups not included in this report. The largest circle represents all individuals with diagnosable mental disorders, most of whom do not have serious disorders. The smallest circle represents individuals with acute

psychiatric needs including people with suicidal behavior. People represented by these two circles outside SMI and SUD are not included in this report.

Also excluded from this report are youths with only a substance use disorder. Included are youths with serious emotional disturbances (SED), some of whom would have a substance use disorder. Excluded are youths with a substance use disorder only. Solid epidemiologic data on this group has not been available.

This broad context demonstrates the conservative nature of the project. The model focuses on individuals with serious mental health and substance use disorders. This excludes other groups of public interest, particularly youths with only substance use disorders, and youths and adults with acute treatment needs.

## **Reason for Estimating Need for Services**

---

Prevalence estimates are the basis for estimating need for services. Estimates of the need for services may be combined with counts of individuals served to provide indicators in two areas:

- 1) Indicators of the equitability of services (penetration rates).
- 2) Indicators of unmet need.

Indicators of the equitability of services may be assessed by comparing penetration rates for demographic and geographic areas. Penetration rates are calculated by dividing the number served by the number in need. A large discrepancy in the penetration rates for males versus females for instance would lead to discussion among stakeholders and possible analysis of other indicators to validate the discrepancy. This could then potentially lead to some changes to the service system.

Such prevalence rates would be difficult to interpret without having a good understanding of the amount of services provided to clients in addition to the number served. A region might conduct a large number of evaluations but provide very limited services and have a high prevalence rate. Without assessing the amount of services an inaccurate opinion could be formed. The preferred approach is to add to prevalence estimates either an estimate of the amount of services needed in various groups or a minimum amount that might be considered adequate on average for the group. Then the next phase looking at the number of clients served would also include the amount of services received. Comparing the data on estimated amount of services needed with the amount received then would provide more valid indicators of disparities in care.

Indicators of unmet need would be calculated by subtracting the number served from the number in need. These indicators would also be calculated for various demographic and geographic groups. Large discrepancies would lead to actions similar to discrepancies in penetration rates. These indicators would be greatly improved by the addition of the amount of services similar to the value for penetration rates.

The prevalence estimates in this report are just the first step in the project. The next phase will add information developing the two indicators identified. Two noteworthy additions being

considered include an assessment of the demand for services and the addition of estimates of the amount of services needed.

A word of caution is in order prior to any consideration of making changes to the service system. Indicators are only what the word says; they 'indicate' what is going on in the service system. A set of indicators from one source may be supplemented with indicators from other sources and they should always be reviewed and discussed by a knowledgeable group of stakeholders prior to deciding on any action steps.

The ultimate goal is to have quantifiable data to build indicators of unmet need and disparities in care for the various target groups across demographic groups in all areas of the State. The final indicators generated in this project may be used for:

- Planning to help target needed services for individuals in geographic areas and for demographic sub-populations (age, sex, race/ethnicity)
- Advocacy for individuals with serious behavioral health disorders who are not served
- Policy discussion

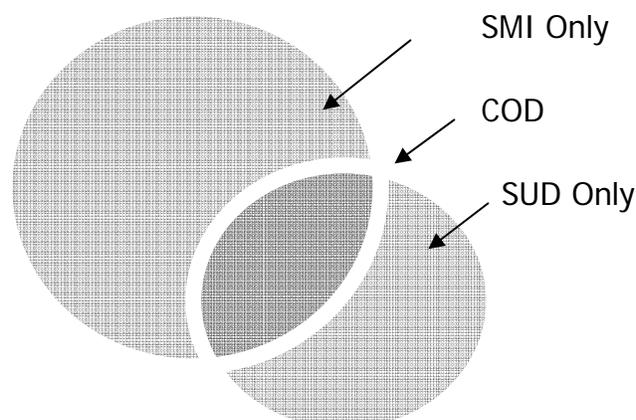
Findings should be integrated with other data and knowledge from stakeholders to inform decision-making. Limitations of findings should be recognized.

## Definitions

---

Serious behavioral health disorders are defined for children and adolescents as serious emotional disturbances (SED). Serious disorder for adults include serious mental illness only (SMI Only), substance use disorders only (SUD Only), and co-occurring disorders SMI and SUD disorders (COD) as shown in the chart below. The project will focus on the 12-month prevalence of these disorders. Detailed definitions are described in Appendix A.

**Figure 3: Visual of the Three Target Groups**



## National Prevalence Information Available

---

This project estimated the prevalence of persons with serious disorders building on a technique with a history of use nationally and with states. National data on adults in households is relatively rich. Data on youths and data on individuals in institutions and group homes is available from research studies.

There have been three national epidemiologic surveys of adults over the past thirty years. The most recent has been the National Comorbidity Survey - Replication (NCS-R). The NCS-R was a survey of a nationally representative sample of adults conducted in 2001–2002. It assessed the prevalence of DSM–IV disorders in a national sample of over 9,000 adults using a structured instrument in face-to-face interviews. The NCS-R represented a significant improvement over the original NCS designed to assist estimating adults with serious mental illness. In addition to establishing criteria for a diagnosis and the length of time the criteria were met, it added questions on the effect of the diagnosis on functioning of the individual in the home, in the community, and at work or school.

This more detailed description of the NCS-R was taken from Dr. Holzer's website:<sup>7</sup>

The National Comorbidity Survey Replication (NCS-R) is a probability sample of the US carried out a decade after the original NCS (Kessler et al., 1994). The NCS-R repeats many of the questions from the NCS and expands the questioning to include assessments based on the more recent DSM-IV diagnostics system (American Psychiatric Association, 1994). The methods and procedures used in the NCS-R are described in a separate paper (Kessler, Berglund, Chiu, Demler, Heeringa, Hiripi, Jin, Pennell, Walter, Zaslavsky, and Zheng, 2004). The two major aims of the NCS-R were: (1) to investigate time trends and their correlates over the decade of the 1990s; and (2) to expand the assessment of the prevalence and correlates of mental disorders beyond the assessment in the baseline NCS in order to address a number of important substantive and methodological issues that were raised by the NCS.

The NCS-R is a nationally representative survey of English-speaking household residents aged 18 years and older in the coterminous United States. Face-to-face interviews were carried out by professional interviewers from the Institute for Social Research at the University of Michigan, Ann Arbor, between February 2001 and April 2003. The response rate was 70.9%. The survey was administered in two parts. Part I included a core diagnostic assessment of all respondents (n=9282) that took an average of about 1 hour to administer. Part II included questions about risk factors, consequences, other correlates, and additional disorders. In an effort to reduce respondent burden and control study costs, part II was administered only to 5,692 of the 9,282 part I respondents, including all part I respondents with a lifetime disorder plus a probability subsample of other respondents. Interviewers explained the study and obtained verbal informed consent prior to beginning each interview. Recruitment and consent were approved by the Human Subjects Committees of Harvard Medical School, Boston, Mass, and the University of Michigan.

The definition of serious mental illness for adults subsumes a relatively wide range of disorders. The NCS-R made improvements on the original NCS to better assess SMI by adding questions on the effect of each disorder on the functioning of the individual in the home, community, and at work or school. The definition of substance use disorders (SUD) is defined fairly strictly by DSM-IV criteria in the NCS-R. More specifically, it uses the DSM-IV criteria for substance abuse and substance dependence. Thus, there are fundamentally only two diagnoses, which is

---

<sup>7</sup> <http://psy.utmb.edu/estimation/documentation/ncsr/pdf/04438-0001-Codebook.pdf>

much less complex than the multiple diagnoses and related symptoms that fall under SMI criteria.

There has been no national epidemiologic study of youth comparable to the NCS-R for adults. In addition, diagnosis of a mental health disorder in children is more complicated than for adults. The base for prevalence estimates for youth is research studies and expert opinion. Serious emotional disturbance (SED) is the broad term used to talk about the population of interest and it includes a wide range of disorders.

There is a research base of the prevalence of serious disorders of individuals in many types of institutions and group homes. This base provides the rates to apply to Census figures in Colorado.

## Synthetic Estimation Methodology

---

The synthetic estimation methodology was developed due to the lack of local data available for planning. There have been several sophisticated national epidemiological surveys for adults in households. In these surveys, a number of variables have been strongly associated with differential prevalence rates among socio-demographic groups. The main strategy in the synthetic model is to use what is known from the national surveys and apply it to local areas. Applying the differential rates shown in national surveys improves the local rates better than applying flat rates to local areas that do not take into consideration different socio-demographic characteristics between the nation and local areas. This section describes briefly the basis for estimating prevalence rates in different populations.

Serious disorders were defined by a combination of diagnosis, disability, and duration. Prevalence estimates of serious disorders were generated by Dr. Charles Holzer, an epidemiologist at the University of Texas Medical Branch with a long history of this research. Ten of the fifteen western states have contracted with WICHE for prevalence estimates using this synthetic estimation model.

The most valid prevalence estimates are for adults in households. They were derived from national epidemiological survey data, the NCS-R. Prevalence rates for adults in specific socio-demographic groups from a national survey were applied to the same cells from the 2000 Census to generate county estimates. The 2000 Census has sample population data for very specific socio-demographic groups including poverty, marital status, and education, each of which was associated with different prevalence rates in the NCS-R.<sup>8</sup> These rates were then inflated to 2006 Census data, which allows adjusting for age, sex, and race/ethnicity. County estimates were aggregated to geographic areas and the State as a whole.

The methodology for household resident children in the present set of estimates is based solely on the poverty status of the child. Said differently, we see the population as consisting of a mix

---

<sup>8</sup> In all, some 8,100 cells were generated as the basic demographic matrix for the project. The matrix was generated from the Public Use Microsample or PUMS data from Census. Recognizing that the detailed long form data represent a 5% sample, the matrix was adjusted to reflect tables generated from the 100% Census.

of youth with risk of SED depending on their level of poverty. Estimates of SED for youth (i.e., children and adolescents age 0-17 in this report) are based on the rates and methods in a Center for Mental Health Services (CMHS) report Estimation Methodology for Children With a Serious Emotional Disturbance (SED), Federal Register: October 6, 1997 (Volume 62, Number 193) (fr06oc97-78), and Children With Serious Emotional Disturbance; Estimation Methodology, Federal Register: July 17, 1998 (Volume 63, Number 137)(fr17jy98-81). (The reader is referred to “Chapter 7: Estimation Procedures for Children and Adolescents” in Appendix B for information on prevalence estimates with this population).

Prevalence estimates for individuals in institutions and group quarters were taken from a variety of research studies. State specific data may be available in some cases and should be used. For instance, the state may screen individuals in corrections for behavioral health issues and information from this source would be more valid than rates provided here. The reason for reporting data separately for households vs. institutions and group quarters is the difference in the source data available.

A more detailed description of the synthetic estimation method may be found in the prevalence estimates section and in Appendix B. While these descriptions are specific to the NCS and not the NCS-R, the chapters will provide a basic background in the methodology. The NCS-R (used for this report) used a similar methodology as the NCS with two noteworthy exceptions. First, the NCS-R included older adults so the same procedures were used as other adults. Second, the NCS-R was designed to more accurately assess serious mental illness than the original NCS.

Information in Appendix B covers several background topics related to prevalence estimates, including: 1) an overview of the estimation of prevalence; 2) the National Comorbidity Study and Estimated Prevalence; 3) estimation procedures for adults aged 18-54; 4) estimation procedures for older adults; 5) estimation procedures for children and adolescents; and 6) estimation procedures for institutions and group quarters.

## Cautions

---

Caution should be used when relying on prevalence estimates for a variety of reasons. Any survey conducted in a different time and place may not accurately reflect what is happening locally. There may be economic or social changes, or even local cultural issues that affect the presence of the disorders being estimated. Historical issues are also important, particularly the historical effectiveness of the mental health system itself.

When viewing the estimates for specific service areas in a subsequent section of this report, it is important to hold these issues in mind. A final step prior to use of prevalence estimates is consultation with stakeholders. It is valuable to develop an understanding of local issues potentially affecting these prevalence estimates.

While these estimates should be viewed cautiously, they represent a considerable improvement from previous methodologies. Based on the studies conducted, and especially the National Comorbidity Survey – Replication study, we know enough to make significant improvements estimating SED, SMI, and SUD based on socio-demographic characteristics in a population.

## Alaska Household Demographics 2006

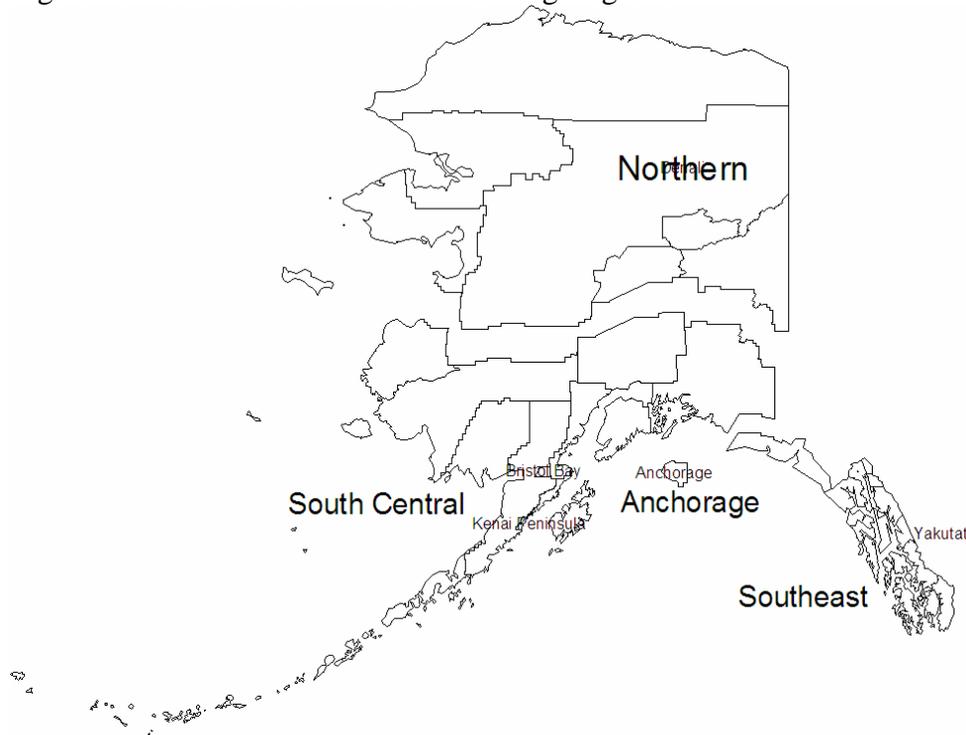
This section presents demographic data for Alaskans living in households from the 2006 Census. Population data serve as a foundation of the project and were used in calculating prevalence estimates (refer to the section on the Synthetic Estimation Methodology for details). This section describes the household population by regions used by the Division for planning and includes counts of individuals by poverty guideline. Individuals in institutions and group quarters were excluded from the project for two reasons 1) the research base is less substantial than household surveys available and 2) the public interest in these individuals is more mixed. The OISPP Committee agreed to focus on the household population to keep the project less complex. Some data are provided for the total household population; more for low income households.

The 2006 population in Alaska was

- 670,053 total
- 647,901 in households
- 262,461 in low-income households

The population is centered in the Anchorage region with 42% of the State total household population. Anchorage is followed in size by South Central (27%), Northern (19%), and Southeast (with 12% of the State total household population). Figure 1 below shows the 4 planning regions and Table 1 shows the population of each region for youths and adults by age.

Figure 1. Visual of Four Division Planning Regions



The household population of 647,901 was spread across 27 Boroughs and Census Areas. The data throughout this report are aggregated into these 4 Regions.

**Table 1: Household Population of Regions by Age Group**

Youths (age < 18)					
Region	00-05	06-11	12-17	Youths	% Total
1. Northern	12,765	11,429	11,904	36,098	20%
2. South Central	16,289	16,907	18,688	51,884	29%
3. Anchorage	24,682	23,970	24,418	73,070	41%
4. Southeast	5,044	5,492	5,970	16,506	9%
Youth Total	58,780	57,798	60,980	177,558	100%

Adults					
Region	18-20	21-64	65+	Adults	% Total
1. Northern	5,450	71,338	7,042	83,830	18%
2. South Central	8,221	114,470	13,572	136,263	29%
3. Anchorage	11,227	169,148	17,086	197,461	42%
4. Southeast	2,837	43,976	5,976	52,789	11%
Adult Total	27,735	398,932	43,676	470,343	100%

State Total		
Region	Total	% State
1. Northern	119,928	19%
2. South Central	188,147	29%
3. Anchorage	270,531	42%
4. Southeast	69,295	11%
State Total	647,901	100%

**Table 2: Regions and Boroughs/Census Areas**

Region	Borough/Census Area	
1. Northern	Denali Borough (068)	
	Fairbanks North Star Borough (090)	
	Nome Census Area (180)	
	North Slope Borough (185)	
	North Star Borough (090)	
	Northwest Arctic Borough (188)	
	Southeast Fairbanks Census Area	
	Yukon-Koyukuk Census Area (290)	
	2. South Central	Aleutians East Borough (013)
		Aleutians West Census Area (016)
Bethel Census Area (050)		
Bristol Bay Borough (060)		
Dillingham		
3. Anchorage	Kenai Peninsula	
	Kodiak Island Borough (150)	
	Lake and Peninsula Borough (164)	
	Matanuska-Susitna Borough (170)	
	Valdez-Cordova Census Area (261)	
	Wade Hampton Census Area (270)	
	4. Southeast	Haines Borough (100)
		Juneau City and Borough (110)
		Ketchikan Gateway Borough (130)
		Prince of Wales-Outer Ketchikan Census
Sitka City and Borough (220)		
Skagway-Hoonah-Angoon Census Area		
Wrangell-Petersburg Census Area (280)		
Yakutat City and Borough (28)		

## Low Income Households

---

Low income households are of interest because they represent individuals who would qualify for public support of services. Providers of public services operate on a sliding fee scale such that the greater the income of the family, the less public financial support for services. Individuals in families above some cutoff would likely pay entirely for their services. Individuals in families immediately below that cutoff would pay for most of the cost but would get some financial support. Individuals with lower incomes might receive full financial support for services. A cutoff of 240% of Federal Poverty Guidelines was used for this project. Appendix C. shows household incomes that would qualify for different size households.

Figure 3 below presents a visual representation of population density of low income households. This map shows that population density is most concentrated in the south and south-central areas. The distribution is similar to the entire household population.

Figure 3: Population Density

(Each dot on the map represents 500 people.)

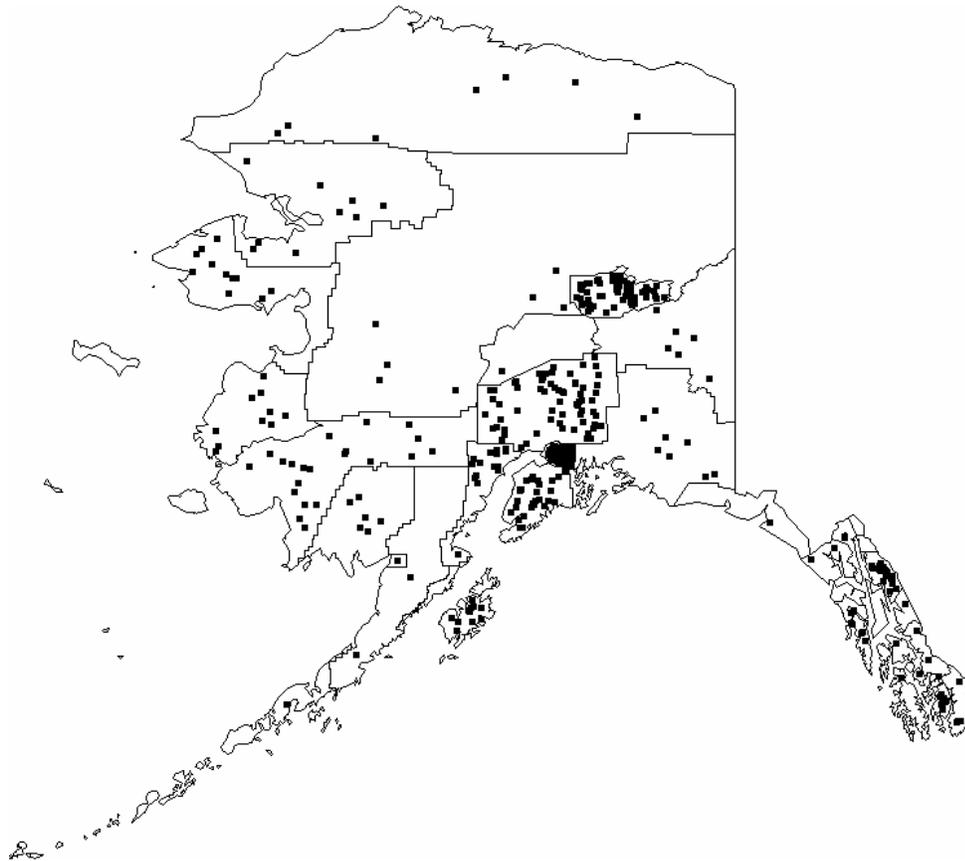


Table 3 shows the total population of the State and the Household population by age group and poverty guideline. The low income population includes 262,461 individuals in households amounting to 40 percent of the total population. The low income population is made up of 51% of Alaskan youths and 35% of adults in households.

**Table 3: Populations by Age Group and Poverty Guideline**

Poverty guideline	Household		Low Income	
	Population	%	Households	%
<b>Youths (&lt; 18)</b>				
1. Below 80%	20,581	12%	20,581	23%
2. 80%-160%	37,334	21%	37,331	41%
3. 160%-240%	32,760	18%	32,760	36%
4. 240%+ pov	82,559	46%		
5. Undefined	4,327	2%		
State	177,558	100%	90,672	100%
<b>Adults</b>				
1. Below 80%	36,848	8%	36,848	21%
2. 80%-160%	68,448	15%	68,448	40%
3. 160%-240%	66,493	14%	66,489	39%
4. 240%+ pov	298,487	63%		
5. Undefined	67	0%		
State	470,343	100%	171,786	100%
<b>Total</b>				
1. Below 80%	57,429	9%	57,429	22%
2. 80%-160%	105,779	16%	105,779	40%
3. 160%-240%	99,253	15%	99,253	38%
4. 240%+ pov	381,046	59%	-	
5. Undefined	4,394	1%	-	
State	647,901	100%	262,461	100%

Table 4 shows the low income population in households by region and age group. Overall, there were 262,461 people, 90,672 youth and 171,789 adults.

**Table 4: Low Income Households by Region**

Youths					
Region	00-05	06-11	12-17	Total	% <i>Total</i>
1. Northern	7,351	6,492	5,884	19,727	22%
2. South Central	9,788	9,314	9,405	28,507	31%
3. Anchorage	13,256	11,995	8,846	34,097	38%
4. Southeast	2,742	2,906	2,693	8,341	9%
Statewide	33,137	30,707	26,828	90,672	100%
Adults					
Region	18-20	21-64	65+	Total	% <i>Total</i>
1. Northern	2,853	28,595	2,844	34,292	20%
2. South Central	4,397	46,898	5,659	56,954	33%
3. Anchorage	5,655	50,959	5,420	62,034	36%
4. Southeast	1,326	14,892	2,291	18,509	11%
Statewide	14,231	141,344	16,214	171,789	100%
Statewide					
Region	Total	% <i>State</i>			
1. Northern	54,019	21%			
2. South Central	85,461	33%			
3. Anchorage	96,131	37%			
4. Southeast	26,850	10%			
Statewide	262,461	100%			

The highest number of people in low income households were in the Anchorage Region (37% of the population), followed by South Central (33%), Northern (21%), and Southeast (10%). The distribution of people is more rural in low income households than in all households.

## Estimates of Persons with Serious Behavioral Health Disorders

This section provides prevalence estimates in Alaskan households. Estimates for all individuals in households are covered before estimates for individuals in low income households. Estimates are provided for each of the four target groups and summed in a final table to represent a total prevalence estimate of serious behavioral health disorders. Additional estimates for demographic groups are provided for low income households.

### Prevalence Estimates in All Households

51,430 Alaskans in households were estimated to have serious behavioral health disorders in 2006 (7.9% of the household population). This includes 12,725 youths with a serious emotional disturbance (SED) and 38,705 adults. This section shows prevalence estimates in a statewide summary first followed by a regional breakdown.

Table 5 shows the statewide summary of prevalence estimates and rates for the four diagnostic groups defined as serious behavioral health disorders. The numbers in the table represent 1) persons with only a serious mental illness (SMI Only) and exclude individuals with both an SMI and a substance use disorder, 2) only a substance use disorder (SUD Only), excluding individuals who also have a serious mental illness and 3) persons with both a serious mental illness and a substance use disorder (co-occurring disorders or COD) are presented. Thus, there are no duplicated counts of persons with co-occurring diagnoses in either the mental health or substance use diagnoses groups. This ensures that when all the prevalence numbers are added up for each of the three groups, they are equal to 100% of the population estimated to have a behavioral health diagnosis.

The table presents two types of numbers. The first type is prevalence *estimates* and the second type is prevalence *rates*. A prevalence estimate is the number of individuals or cases estimated to qualify for the diagnostic group. A prevalence rate is percentage of the population qualifying for the diagnostic group (calculated by dividing the estimated cases by the population).

**Table 5: Serious Behavioral Health Disorders in Total Households Statewide**

Diagnostic Group	Prevalence Estimate	Household Population	Prevalence Rate
Youths with (SED)	12,725	177,558	7.2%
Adults with		470,343	
SMI Only	17,390		3.7%
SUD Only	16,951		3.6%
COD Only	<u>4,364</u>	_____	0.9%
Total Serious Behavioral Health Disorders	51,430	647,901	7.9%

## Prevalence Report

The prevalence rate for adults with SMI Only was 3.7% of the household population. Adding in co-occurring disorders makes the total SMI rate 4.6%.

The prevalence rate for adults with SUD was 3.6% of the household population. Adding in co-occurring disorders makes the total SMI rate 4.5%.

There is evidence all prevalence estimates are low and the prevalence rate is actually higher in Alaska than show in the tables. The estimates were based on national survey data. While these prevalence estimates have a solid base and are adjusted for Alaska there is reason to believe they are conservative. Alaska data are significantly different, particularly for Alaska Natives on three indicators: suicide rate, drug induced deaths, and cirrhosis deaths.

	US	AK	Alaskan Native
○ Suicide rate (deaths per 100,000 population)	10.6	17.2	32.6
○ Drug induced deaths (per 100,000)	6.8	7.5	9.4
○ Cirrhosis deaths (deaths per 100,000)	9.6	10.3	18.7

These prevalence rates are also conservative in being limited to households: a considerable number of people experiencing disorders have other living arrangements including being homeless, in the military, in prisons or jails, seasonal workers, etc... And finally they are conservative because 'serious' disorders exclude acute psychiatric situations such as suicidal behavior.

Table 6 shows serious behavioral health disorders in the total household population by Region. There were 51,430 persons in households with SBHD in Alaska in 2006 amounting to 7.9% of the total household population.

The highest prevalence number of individuals with SBHD was in Anchorage (n=270,532) followed by South Central, Northern, and Southeast (n= 188,140, 119,926, and 69,296 respectively). The highest prevalence rates were in South Central and Northern (8.4% and 8.3% of persons in households respectively) followed by Anchorage and Southeast (7.6% and 7.5% respectively).

**Table 6: Serious Behavioral Health Disorders in Total Households by Region**

Region	Diagnostic Group	Prevalence Estimate	Household Population	Prevalence Rate
<b>1. Northern</b>	Youths with SED	2,614	36,098	7.2%
	Adults with			
	SMI Only	3,267		3.9%
	SUD Only	3,161		3.8%
	COD	924		1.1%
	Adult Total	7,352	83,830	8.8%
<b>1. Northern Total</b>	Total Serious Behavioral Health Disorders	9,966	119,928	8.3%
<b>2. South Central</b>	Youths with SED	3,798	51,884	7.3%
	Adults with			
	SMI Only	5,551		4.1%
	SUD Only	4,988		3.7%
	COD	1,399		1.0%
	Adult Total	11,938	136,263	8.8%
<b>2. South Central Total</b>	Total Serious Behavioral Health Disorders	15,736	188,147	8.4%
<b>3. Anchorage</b>	Youths with SED	5,127	73,070	7.0%
	Adults with			
	SMI Only	6,728		3.4%
	SUD Only	7,094		3.6%
	COD	1,587		0.8%
	Adult Total	15,409	197,461	7.8%
<b>3. Anchorage Total</b>	Total Serious Behavioral Health Disorders	20,536	270,531	7.6%
<b>4. Southeast</b>	Youths with SED	1,186	16,506	7.2%
	Adults with			
	SMI Only	1,844		3.5%
	SUD Only	1,708		3.2%
	COD	454		0.9%
	Adult Total	4,006	52,789	7.6%
<b>4. Southeast Total</b>	Total Serious Behavioral Health Disorders	5,192	69,295	7.5%
<b>Statewide Total</b>	Total Serious Behavioral Health Disorders	51,430	647,901	7.9%

## Prevalence Estimates in Low Income Households

Prevalence rates in low income households are presented in more detail than for total households. First an overall summary and regional summaries are presented comparable to the total household tables. Then more tables are provided showing estimates by age, sex, and race/ethnicity for adults.

Table 7 shows prevalence in low income households Statewide. There were 28,684 individuals with serious behavioral health disorders. This amounts to approximately 11% of the low income population (or 4.4% of the total population). Note the higher prevalence rates than found in the total household population. The 10.9% overall prevalence rate for serious behavioral health disorders in low income households was significantly higher than the 7.9% in all households.

**Table 7: Prevalence in Low Income Households Statewide**

<b>Target Group</b>	<b>A. Prevalence Estimate</b>	<b>B. Population</b>	<b>Prevalence Rate = A/B</b>	<b>C. Total HH Population</b>	<b>Prevalence as % of Total HH Pop. (A/C)</b>
Children and Adolescents SED	7,339	90,672	8.1%	177,558	
Adults		171,789		470,343	
SMI Only	10,948		6.4%		
SUD Only	7,256		4.2%		
COD Only	3,141		1.8%		
Total Serious Behavioral Health Disorders	28,684	262,461	10.9%	647,901	4.4%

7,339 of the total 28,684 were children and adolescents with serious emotional disturbances (26% of the total).

The number of adults with only serious mental illness was 10,984. The total number with SMI includes the 10,984 plus 3,141 with co-occurring disorders or 14,089 adults (8.2% of low income adults).

The number of adults with only substance use disorders was 7,256. The total number with SUD includes the 7,256 plus 3,141 with co-occurring disorders or 10,397 adults (6.1% of low income adults).

Table 8 shows these estimates by Region. Prevalence estimates follow the general household population figures. Differences between prevalence rates in Regions were small. South Central had the highest total SBHD rate (11.2%) and Southeast the lowest (10.4%). South Central also

had the highest rate for SMI Only (6.7%); Anchorage and Southeast tied for lows (6.1%). The Northern Region had the high rate for SUD Only (4.2%) and Southeast the low (3.7%).

**Table 8: Prevalence in Low Income Households by Region**

Region	Diagnostic Group	Prevalence Estimate	Household Population	Prevalence Rate
<b>1. Northern</b>	Youths with SED	1,603	19,727	8.1%
	Adults with SMI Only	2,203		6.4%
	SUD Only	1,457		4.2%
	COD	706		2.1%
	Adult Total	4,366	34,292	12.7%
<b>1. N. Total</b>	Total SBDH	5,969	54,019	11.0%
<b>2. South Central</b>	Youths with SED	2,336	28,507	8.2%
	Adults with SMI Only	3,824		6.7%
	SUD Only	2,311		4.1%
	COD	1,072		1.9%
	Adult Total	7,207	56,954	12.7%
<b>2. SC. Total</b>	Total SBDH	9,543	85,461	11.2%
<b>3. Anchorage</b>	Youths with SED	2,734	34,097	8.0%
	Adults with SMI Only	3,794		6.1%
	SUD Only	2,794		4.5%
	COD	1,049		1.7%
	Adult Total	7,637	62,034	12.3%
<b>3. A. Total</b>	Total SBDH	10,371	96,131	10.8%
<b>4. Southeast</b>	Youths with SED	666	8,341	8.0%
	Adults with SMI Only	1,127		6.1%
	SUD Only	694		3.7%
	COD	314		1.7%
	Adult Total	2,135	18,509	11.5%
<b>4. SE Total</b>	Total SBDH	2,801	26,850	10.4%
<b>Statewide Total</b>	Total Serious Behavioral Health Disorders	28,684	262,461	10.9%

The following three tables show prevalence estimates for adults by the three demographic groups of age, sex, and race/ethnicity. Prevalence estimates are of interest for Regional planning. Prevalence rates are interesting in themselves to compare among target groups. (A prevalence **estimate** is the number of individuals or cases estimated to qualify for the target group. A prevalence **rate** is the percentage of the population qualifying for the target group calculated by dividing the estimated cases by the population.) Tables were not generated for youths with SED because the method of generating estimates was not sensitive to differences in demographic groups.

Table 9 shows prevalence estimates and rates by age group. Prevalence rates for age groups follow very different patterns for SMI and SUD. Rates for adults with SMI Only start low ages 18-20 (1.7%) raise to a high at ages 35-44 (9.1%) then reverse direction to a low at ages 65+ (2.3%). Rates for SUD Only start high at ages 18-20 (8.9%) and go down to a low at ages 65+ (.1%).

Table 10 shows prevalence estimates and rates by sex. Again, prevalence rates follow very different patterns for SMI and SUD. For adults with SMI Only females have almost twice the prevalence rate of males (48% v 25% respectively). For adults with SUD Only males have almost three times the rate as females (35% v 11% respectively).

An explanation of race/ethnic categories is in order. The epidemiologist generated prevalence estimate for eight groups in the low income household population. The adult low income household population was 171,792. The household population in each group was:

White-NH	African Am-NH	Asian-NH	Pacific I-NH	Native-NH	Other-NH	Multi-NH	Hispanic
99,488	6,848	8,742	1,722	38,738	0	6,358	9,896

Two groups were kept intact (White-Non-Hispanic and Native-NH) and the remaining six groups were collapsed into on 'Other' category. The analysis then included three groups:

- o 99,488 White and not Hispanic (58%)
- o 38,738 Native and not Hispanic (23%)
- o 33,566 Other (including other races, multi-race, and Hispanic) (20%)

Table 11 shows prevalence estimates and rates for adults by race/ethnicity. Native-Non-Hispanics had the highest rate for SMI Only (7.0%, followed by White-Non-Hispanics (6.4%) and Other (5.7%). White-Non-Hispanics had the highest prevalence rate for SUD Only (4.9%, considerably higher than the other two groups (Other at 3.7% and Native-NH at 3.0%). Native-Non-Hispanics also had the highest rate for Co-Occurring disorders (3.6%) followed by Other (1.7%) and White-NH (1.2%).

**Table 9: Prevalence in Low Income Households by Age for Adults**

Target Group		Age Group							Total
		18-20	21-24	25-34	35-44	45-54	55-64	65+	
<b>SMI Only</b>	Region								
	1. Northern	49	200	684	587	431	184	68	2,203
	2. South C.	74	327	949	1,052	913	379	130	3,824
	3. Anchorage	104	392	1,161	1,161	594	256	126	3,794
	4. Southeast	22	91	257	325	259	121	52	1,127
SMI Only Total		249	1,010	3,051	3,125	2,197	940	376	10,948
<i>Prevalence Rate</i>		<i>1.7%</i>	<i>4.5%</i>	<i>7.2%</i>	<i>9.1%</i>	<i>8.9%</i>	<i>5.4%</i>	<i>2.3%</i>	<i>6.4%</i>
<b>SUD Only</b>	Region								
	1. Northern	255	383	544	193	62	17	3	1,457
	2. South C.	424	622	726	342	154	35	8	2,311
	3. Anchorage	471	770	1,009	425	97	17	5	2,794
	4. Southeast	120	203	204	110	40	13	4	694
SUD Only Total		1,270	1,978	2,483	1,070	353	82	20	7,256
<i>Prevalence Rate</i>		<i>8.9%</i>	<i>8.8%</i>	<i>5.9%</i>	<i>3.1%</i>	<i>1.4%</i>	<i>0.5%</i>	<i>0.1%</i>	<i>4.2%</i>
<b>COD Only</b>	Region								
	1. Northern	55	126	255	170	75	21	4	706
	2. South C.	85	203	337	273	135	32	7	1,072
	3. Anchorage	73	183	392	283	89	23	6	1,049
	4. Southeast	23	59	97	87	37	9	2	314
COD Only Total		236	571	1,081	813	336	85	19	3,141
<i>Prevalence Rate</i>		<i>1.7%</i>	<i>2.5%</i>	<i>2.5%</i>	<i>2.4%</i>	<i>1.4%</i>	<i>0.5%</i>	<i>0.1%</i>	<i>1.8%</i>

**Table 10: Prevalence in Low Income Households by Sex for Adults**

Target Group		Sex		
		Female	Male	Total
<b>SMI Only</b>	<b>Region</b>			
	1. Northern	1,343	860	2,203
	2. South C.	2,349	1,475	3,824
	3. Anchorage	2,470	1,324	3,794
	4. Southeast	718	409	1,127
SMI Only Total		6,880	4,068	10,948
<i>Prevalence Rate</i>		<i>48.3%</i>	<i>25.1%</i>	<i>6.4%</i>
<b>SUD Only</b>				
	1. Northern	308	1,149	1,457
	2. South C.	489	1,822	2,311
	3. Anchorage	652	2,142	2,794
	4. Southeast	160	534	694
SUD Only Total		1,609	5,647	7,256
<i>Prevalence Rate</i>		<i>11.3%</i>	<i>34.8%</i>	<i>4.2%</i>
<b>COD Only</b>				
	1. Northern	327	379	706
	2. South C.	519	553	1,072
	3. Anchorage	563	486	1,049
	4. Southeast	159	155	314
COD Only Total		1,568	1,573	3,141
<i>Prevalence Rate</i>		<i>11.0%</i>	<i>9.7%</i>	<i>1.8%</i>

**Table 11: Prevalence in Low Income Households by Race/Ethnicity for Adults**

Target Group		Race/Ethnicity			Total
		White-NH	Native-NH	Other	
<b>SMI Only</b>	<b>Region</b>				
	1. Northern	1,134	802	267	2,203
	2. South C.	2,418	1,091	315	3,824
	3. Anchorage	2,134	497	1,163	3,794
	4. Southeast	663	306	158	1,127
	SMI Only Total	6,349	2,696	1,903	10,948
<i>Prevalence Rate</i>	<i>6.4%</i>	<i>7.0%</i>	<i>5.7%</i>	<i>6.4%</i>	
<b>SUD Only</b>		White-NH	Native-NH	Other	Total
	1. Northern	893	396	168	1,457
	2. South C.	1,610	502	199	2,311
	3. Anchorage	1,893	133	768	2,794
	4. Southeast	478	122	94	694
	SUD Only Total	4,874	1,153	1,229	7,256
<i>Prevalence Rate</i>	<i>4.9%</i>	<i>3.0%</i>	<i>3.7%</i>	<i>4.2%</i>	
<b>COD Only</b>		White-NH	Native-NH	Other	Total
	1. Northern	211	430	65	706
	2. South C.	419	540	113	1,072
	3. Anchorage	435	273	341	1,049
	4. Southeast	119	140	55	314
	COD Only Total	1,184	1,383	574	3,141
<i>Prevalence Rate</i>	<i>1.2%</i>	<i>3.6%</i>	<i>1.7%</i>	<i>1.8%</i>	

## Next Steps

---

This report provides estimates of need for public services among individuals with serious behavioral health disorders in the low-income household population. In the future these estimates of need for services should be combined with the number of individuals served to provide indicators in two areas:

- Disparities in care (across regions and subpopulations)
- Unmet need for services.

This report is the first phase of five as follows:

- Phase 1: Generate the prevalence indicators (this report)
- Phase 2: Generate counts of individuals receiving state funded behavioral health services
- Phase 3: Compare prevalence to those receiving services (i.e. combine Phase 1 and 2 data).
- Phase 4: Determine other public funding outside of DHSS/Behavioral Health used to provide behavioral health services to Alaskans, e.g. Indian Health Service.
- Phase 5: Estimate the average level of services needed

The prevalence estimates in this report are the first phase (Phase 1) in generating the indicators. Phase 2 would be generating counts of individuals receiving funding support from public sources. A reasonable starting place would be data from the Division. These data include at a minimum individuals receiving services from grantees/contracts from the Division, but should also include individuals receiving grantee/contractor behavioral health services from other funding sources.

At a minimum the counts of individuals served should be generated at the same level of detail provided in this report, i.e., by region by age group, and by diagnostic group. It would be preferable to add breakouts by additional groupings including age groups, gender, and race/ethnicity.

Phase 3 would combine the data from the first two steps. This would be done in two ways: 1) the ratio of the number of individuals served to the prevalence estimate generates penetration rates and 2) difference between the prevalence rate and the number served generates unmet need.

Penetration rates are indicators of disparities in care. An analysis of discrepancies in penetration rates across regions or subpopulations might lead to collecting additional data and stakeholder discussion of the reason for the discrepancy. This might lead to significant action steps to improve the situation.

It is expected there will be fewer people served than are identified as in need of services. If so, there is an unmet need for services. Stakeholder analysis of the situation should assess if the problem is a lack of outreach, stigma about receiving services, or a shortage of funding. This kind of information provides a solid basis for advocacy.

Phase 4 would enhance Phase 2 by inquiring about publicly funded behavioral health services outside the Division, such as the tribal service delivery system. It may be possible to actually combine data bases in some cases to count clients served. Or this may be done without using public health information via the Probabilistic Population Estimation technique. Alternatively this may be done with reports from agencies.

Phase 5 would be to estimate the average amount and range of services received by consumers/clients in Phases 1 and 2. Then the data generated initially in Phase 3 could be enhanced significantly. For example, there may be no disparities in penetration rates and still be disparities in the amount of services received. All clients who need services may get admitted but may not receive an adequate amount of services.

There is a model for doing such an analysis published by the World Health Organization in 2003 entitled **PLANNING AND BUDGETING TO DELIVER SERVICES FOR MENTAL HEALTH**. The document covers four planning steps

- Step A: Situation analysis of current mental health services and service funding.
  - Step B: Assessment of needs for mental health services.
  - Step C: Target-setting for mental health services.
  - Step D: Implementation of service targets through budget management, monitoring and evaluation.
- [www.who.int/entity/mental\\_health/resources/en/Planning\\_budgeting.pdf](http://www.who.int/entity/mental_health/resources/en/Planning_budgeting.pdf)

## Appendix A

# Definitions of Serious Behavioral Health Disorders

Serious behavioral health disorders are defined in this project as children and adolescents with serious emotional disturbances (SED), adults with serious mental illness (SMI), and adults with substance use disorders (SUD). Definitions are provided in this section followed by how the definitions have been operationalized and implemented in this project. Appendix B describes the synthetic prevalence model used with the original NCS survey data.

Use of the term ‘serious mental illness (SMI)’ for adults requires special clarification given the history of its use. The term was defined in 1999 Federal Regulations (see Serious Mental Illness: Federal Definition below). The term has been operationalized in different ways using the original National Comorbidity Survey (NCS) data. NCS investigators have published national prevalence estimates.<sup>9</sup> The precise way estimates were generated in these publications is not available. Synthetic prevalence estimates were also generated for states using original NCS data including the 2002 Alaska project.

The new synthetic prevalence estimates reported in this project uses a different data source than the earlier project as well as a different model. The NCS- Replication study used the new DSM IV instead of the previous DSM-III-R. New typologies were developed using the three criteria to identify serious mental illness, diagnosis, disability, and duration. Consideration was given to using a different term than ‘serious mental illness (SMI)’ however it was decided that would be more confusing than helpful.

### **Serious Behavioral Health Disorder: Definitions**

Serious behavioral health disorders are defined as children and adolescents with serious emotional disturbances (SED), adults with serious mental illness (SMI), and adults with substance use disorders (SUD). Definitions of these groups are provided in this section. The next section describes the synthetic prevalence model and how these definitions were implemented for the current set of estimates.

Definitions were based on the federal populations of interest including youths with serious emotional disturbances (SED) and adults with serious mental illness (SMI). The following two sections provide the definitions of serious mental illness and serious emotional disturbance published by the Center for Mental Health Services (CMHS) in the Federal Register. This project defines SED and implements the definition in the same way as CMHS. The issue for adults with SMI is more complex and will be dealt with in the section describing implementation of the definition of serious mental illness.

### **Serious Emotional Disturbance (SED)**

The CMHS definition of “children with serious emotional disturbance” includes persons:

- 1) From birth up to age 18
- 2) Who currently or at any time during the past year

---

<sup>9</sup> E.g., Kessler et al., Estimating the Prevalence and Correlates of Serious Mental Illness in Community Epidemiological Surveys. Mental Health United States, Chapter 12. 2002.

- 3) Have had a diagnosable mental, behavioral, or emotional disorder of sufficient duration to meet diagnostic criteria specified within DSM- III-R
- 4) That resulted in functional impairment, which substantially interferes with or limits the child's role or functioning in family, school, or community activities (p.29425).

The definition goes on to indicate that “these disorders include any mental disorder (including those of biological etiology) listed in DSM-III-R or their ICD-9-CM equivalent (and subsequent revisions) with the exception of DSM-III-R ‘V’ codes, substance use, and developmental disorders, which are excluded, unless they co-occur with another diagnosable serious emotional disturbance....” (p. 29425).

Further, the definition indicates that: “Functional impairment is defined as difficulties that substantially interfere with or limit a child or adolescent from achieving or maintaining one or more developmentally-appropriate social, behavioral, cognitive, communicative, or adaptive skills. Functional impairments of episodic, recurrent, and continuous duration are included unless they are temporary and expected responses to stressful events in their environment. Children who would have met functional impairment criteria during the referenced year without the benefit of treatment or other support services are included in this definition....” (p. 29425).

*Federal Register: Volume 58, Number 96. Pages 29422-29425.*

As noted earlier the data available for estimating serious emotional disturbances is limited. The CMHS implemented this definition using flat rates for various poverty thresholds.

#### **Serious Mental Illness (SMI) (Federal Definition)**

“As previously defined by CMHS, adults with a serious mental illness are persons 18 years and older who, at any time during a given year, had a diagnosable mental, behavioral, or emotional disorder that met the criteria of DSM-III-R and ... that has resulted in functional impairment which substantially interferes with or limits one or more major life activities....” The definition states that “adults who would have met functional impairment criteria during the referenced year without the benefit of treatment or other support services are considered to have serious mental illnesses....DSM-III-R ‘V’ codes, substance use disorders, and developmental disorders are excluded from this definition....”

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Substance Abuse and Mental Health Services Administration

Estimation Methodology for Adults with Serious Mental Illness (SMI)

AGENCY: Center for Mental Health Services, Substance Abuse and Mental Health Services Administration, HHS.

*Federal Register: June 24, 1999 (Volume 64, Number 121). Pages 33890-33897*

*Online via GPO Access [wais.access.gpo.gov][DOCID: fr24jn99-67]*

Comment for the preliminary draft. The federal definition is very broad. In practice, Kessler limited the diagnoses when publishing estimates. The synthetic estimates also limit diagnoses included.

Comment for the preliminary draft. Alaska has a comparable target population that is not identical. Do we need to get into “Major Mental Illness” and/or “Chronic” or “Persistent” Mental Illness?

### **Substance Use Disorders (SUD)**

Inclusion of individuals with substance use disorders is new. Substance use disorders (SUD) were defined by a diagnosis of abuse or dependence for alcohol or drugs.

### **Implementation of the Definitions**

The use of synthetic prevalence estimates to estimate two of the groups has a significant history with States. Seven western states have contracted for prevalence estimates of children and adolescents with serious emotional disturbances (SED), adults with serious mental illness (SMI) prior to 2007. Estimates of adults with substance use disorders are new, as are the estimates of co-occurring disorders.

### **Serious Emotional Disturbance**

CMHS has published national estimates for adolescents based solely on three levels of poverty status. Estimates for children in this report follow the same method as for adolescents.

### **Serious Mental Illness (Implementation of SMI Definition)**

An enhancement to the most recent set of prevalence estimates is use of data from the most recent national epidemiological survey, the National Comorbidity Survey Replication (NCS-R). The NCS-R was an epidemiologic survey conducted in 2001-2 and based on the updated Diagnostic and Statistical Manual IV.

The epidemiologist generated several alternative typologies of need based on diagnoses, chronicity, impairment, and/or days off work. The model selected included individuals from the NCS-R using these criteria:

- The individual qualified for a major or minor diagnosis
- the diagnosis persisted into the past year (i.e., excluding the past month alone)
- the individual displayed either an average impairment of 7 or more days or took 120 days off work in the past year.

Major disorders were operationalized based on: bipolar I and II, manic episode, major depression with hierarchy, major depressive episode. Minor disorders included: agoraphobia with and without panic, dysthymia, generalized anxiety, hypomania, panic attack, panic disorder, post traumatic stress disorder, social phobia, and specific phobia. The list excludes psychoses because they were left off the NCS-R however many individuals would be included due to qualification through one of the other disorders listed and the overall impact is small.

Impairment was assessed using responses to four questions below. The questions were introduced with a reference to the past 12 months when the episode was most severe and the respondent was asked how much the episode interfered with:

- home management, like cleaning, shopping, and taking care of the house
- ability to work
- ability to form and maintain close relationships with other people
- social life

Documentation may be found on the website generated by the epidemiologist:

<http://psy.utmb.edu/estimation/documentation/ncsr/ncsr.htm>.

**Substance Use Disorders (SUD)**

National Comorbidity Survey Replication (NCS-R) established criteria to identify individuals with substance use disorders (SU). Adults qualifying for a diagnosis of abuse or dependence for alcohol or drugs in the NCS-R are included.

**Co-Occurring Disorders (SMI and SUD)**

Adults qualifying for a both a diagnosis of serious mental illness (SMI) and substance use disorder (SUD) are included in co-occurring disorders. Note also the restricted definition excluding individuals with mental disorders other than serious disorders who also have a substance use disorder. These restrictions were described in the Background section under the Broad Context.

## **Appendix B**

### **Prevalence Estimation**

The information in this section is taken from a larger report that can be found at <http://psy.utmb.edu/estimation/washdc/html2k/project.htm>. Only those chapters from the report that are relevant to this project are included here. Furthermore, not all sections of chapters are included, such as tables of statistical output.

## **Chapter 2. Overview of Prevalence Estimation**

### **Purpose**

This chapter provides an overview of alternative estimation methods and outlines the specific synthetic estimation method used in this report. This chapter has been adapted from a report done for Washington State.

### **Estimation of need for mental health services**

The estimation of need for mental health services requires a definition of need, a source of data about that need, and a statistical method to complete the estimates. Historically, need was a projection based on utilization of services, but that approach is somewhat circular in that it does not allow for unmet need without assuming parity among groups. In monograph edited by Goldsmith and colleagues (1988), entitled Needs Assessment: Its Future, the distinction is made between Direct and Indirect Needs Assessment. Direct assessment presumes that data about need are collected in the place for which estimates are required. Ideally this would be a survey with appropriate assessments. Unfortunately no prevalence survey for Washington D.C. is available, and thus we cannot provide direct estimates of need. Therefore Washington D.C. requires a different estimation approach which in the Goldsmith monograph would be called "Indirect Estimation". The task for indirect estimation is to make use of the information known about need from one source, such as the NCS sample, and to project it on to other populations, such as the city, regions, and wards of Washington D.C. Our methods for making those projections are presented below.

### **Indirect Estimation**

An estimation method is considered indirect if it estimates need without making an adequate number of direct assessments, i.e. interviews, in the target population. Two situations arise. In the first, a direct estimate is available for one population but must be applied to another. That approach is our present focus. Sometimes estimates of need are made when there are no direct assessments from which to work, so variables such as risk factors, socioeconomic status, and related social problems are used to make an estimate. For example one might project that mental health services are needed in areas with high crime, poverty, divorce, teenage pregnancy, and child abuse. That approach is called the social indicators approach, and is not the method being used here.

## Ecological versus Individual Approaches

Estimates of need are often desired for catchment areas of various service providers. This tends to have one think about estimation as a geographic problem. Indeed the social indicators approach discussed above is usually focused on geography. The analysis of relationships among geographic areas is called ecological analysis. Issues in ecological analysis are the size of geographic unit selected, and the fact that geographical units are not uniform in size, shape or composition. This in part leads to inconsistencies in relationships for differing levels of geography. Further, the relationships among geographic units do not necessarily parallel the relationships found among individual people. This has been discussed by Robinson (1950) as the "ecological fallacy".

Taking the individual person as the unit of analysis has advantages and disadvantages. The disadvantage is that one must always deal with the demographic composition of an area for which estimates are to be made, but the detailed composition of areas is not usually available in datasets such as the Census. Thus additional analyses must be performed to generate a dataset which identified both geography and demographic composition. That issue is the focus of Chapter 6 of this report.

## Overview of the indirect estimation approach

The basic assumption underlying indirect needs assessment is that demographic characteristics have a consistent general relationship to psychiatric disorder throughout the U.S. That is to say, persons with particular demographic characteristics are more likely than others to need mental health services, regardless of where they live. Thus, through use of indirect standardization one should be able to apply average estimates of need for persons of a particular type to other people of that type. This approach assumes that demographic variation is more important than geographic variation. By making estimates for specific demographic subgroups and then summing the estimates across all demographic subgroups, an overall estimate of the numbers of people in need of mental health services can be calculated. Figure 1 illustrates the concept of indirect estimation in general.

**Figure 1. Illustration of Extrapolation Paradigm**

<b>1. Determine relationships in NCS survey and develop a model</b>		
Socio-demographic characteristics (age, sex, race, marital, education, poverty, residence)	Empirical relationships =====>	Assessed need for services, Direct estimation
<b>2. Apply relationship locally using the model</b>		
Socio-demographic characteristics (age, sex, race, marital, education, poverty, group quarters)	Assumed relationships =====>	Estimated need for services, Indirect estimation

While the basic idea is a simple one, the actual procedures for indirect estimation are somewhat complex. The remainder of this section provides details for the various steps in this technique.

### **Step 1: Analysis of survey data rates for demographic cells.**

Our first step was to divide the NCS survey sample into an optimal set of demographic sub-groups or cells, defined by those variables that are predictors of psychiatric disorder, including "control" variables that define the conditions under which the predictors operate. To determine the best set of variables that are significant in the definition of these cells, a multivariate model was developed. Initially, it was anticipated that estimates would initially be developed for each cell in an age by sex by race by marital status by education population matrix. These had been used in prior analyses elsewhere. For these analyses we also added poverty status and residential setting. Residential setting applies the NCS survey rates for those in households, but special adjustments are applied for those in institutions or group quarters.

The final model specifies the effects of seven categorical variables: age, sex, race/ethnicity, marital status, education and poverty, with adjustments for institutions and group quarters.

#### **Details for demographic cells**

**Age:** Age is available in the census and the survey, and has been shown to be strongly related to prevalence of mental disorders. We divided age into ten categories corresponding to 0-6, 7-12, 13-17, 18-24, 25-34, 35-44, 45-54, 55-59, 60-64 and 65+. These categories were attainable from the census, and particularly were available in various cross tabs with other variables. Note that children are identified in the demographic matrix but are not estimated from the NCS survey.

**Sex:** Sex is an important risk factor for psychiatric disorder and is available from the census.

**Race and ethnicity:** Based on availability in the Census we have combined race and ethnicity into five categories. These are: 1) White-not Hispanic, 2) Black-not Hispanic, 3) Asian & Pacific Islander, 4) Native American, Eskimo, or Aleut, or 5) Hispanic. To obtain these categories requires combining the separate tabulations for race and for Hispanic origin used in the U.S. Census STF1 and STF3. Note that the numbers of NCS respondents in the Asian and Native categories are small, so these estimates are less reliable than others.

**Marital Status:** Marital status is defined in the census for persons age 15 or older. It differentiates married, separated, widowed, divorced, and never married. To reduce the numbers of cells we have combined separated, widowed, and divorced.

**Education:** For the present analyses we have dichotomized education into less than high school graduation, high school graduate through some college, and college graduate. This is available for age 18 years or older.

**Poverty:** Poverty status is identified in three categories relating to below 100% of the federal poverty threshold, between 100 and 200%, and above 200%. Census reports poverty levels in some tabulation, but for the most part this information was obtained from the PUMS dataset. These poverty levels were adjusted to Federal Poverty Guidelines of the SAMHSA/HHS.

Residential setting: The NCS survey included only persons in residential households. We have maintained residences, institutions, and group quarters as separate strata in the demographic matrix. Estimates for group quarters were based on the residential population. Institutional and group quarter's estimates are based on combinations of the residential rates and census institutional and group quarters data.

### Summary for demographic cells

<b>Definitions of Cells for Demographic Model</b>			
<b>Variable</b>	<b>Definition</b>	<b>Potential cells</b>	<b>NCS cells</b>
Age:	0-6, 7-12,13-17,18-24, 25-34, 35-44, 45-54, 55-59, 60-64, 65+	10	4
Sex:	Male, Female	2	2
Race:	White+, Black, Asian, Native, Hispanic	5	5
Marital:	Married, (Sep/Wid/Div), Single	3	3
Education:	Not H. S. grad., H. S. grad., College grad.	3	3
Poverty:	0-99%,100-199%, 200+% of federal poverty threshold	3	3
Residence:	Residential, institution, group quarters	3	(Res.)1
Total cells:	10 x 2 x 5 x 3 x 3 x 3 x 3	8100	1080

It is essential for the NCS cell classification to be identical to the cell classification available in the census data for our "target areas" for indirect needs assessment. Also, the cell structure had to capture a substantial portion of the socio-demographic variance in the prevalence rates.

### Step 2. Determine cell specific rates of disorder for each cell

Crosstabulation of all the demographic variables with the specified diagnostic variables produced crude rates of the various disorders for each of the NCS cells. Some of the resulting cells had very small sample sizes, even in a database as large as the WANAHS (N=7001). The crude prevalence rates for small cells are unstable and therefore likely to give misleading estimates when used for extrapolation. This is especially true for psychiatric disorders, which have low prevalence rates.

### Step 3. Use survey regression estimates for cells

We used logistic regression to analyze the distribution of rates among the 480 cells defined by the six survey variables plus residential setting = 1 (i.e. households). Logistic regression is designed to handle dichotomous dependent variables, with either categorical or continuous predictors. It yields coefficients that can be interpreted in terms of relative risk or odds ratios. It also gives an overall measure of the fit between crude cell rates and values predicted by a model. We used logistic regression to examine the strength and significance of demographic predictors and to generate estimates of the "true" prevalence for each of the cells. When higher order

interactions (3, 4, and 5 way) are removed from the model, the estimated rates for each cell are constrained to follow the general patterns of demographic relationship from the entire dataset. Large cells have a major influence on those trends while small cells are "smoothed" to fit the trend. This approach also provides reasonable estimates for cells which may be very small or even empty in the original database.

#### **Step 4. Estimate local population structure (city, region, ward) for demographic cells, or subgroups, from census projections.**

The next step in the estimation procedure was to obtain population counts for each of the 8100 demographic cells in the district, areas, and wards. This section includes census data for 1990 and for projections up through 2000. It also includes the Census data from the 2000 Decennial Census of Population and Housing, which were used for the new 2000 estimates.

In previous estimation projects we had used data from the 1980 Mental Health Demographic Profile System (Goldsmith et al) and combined two sets of tables, one providing age by sex by race, and another providing age by sex by marital status. At the time this project began some of the initial Census data were available, but the more complete tabulations from the U.S. Census, i.e. STF4C were not available. Further, NIMH had not funded a project like the Mental Health Demographic Profile System, for 1990. Therefore an alternative approach to estimating the demographic matrix had to be devised.

The estimation of the demographic matrix made use of four datasets from the U.S. Census. The first of these was the STF1a file on CD-ROM which contained a table of Age by Sex by Race, with a supplemental table for Hispanics. It also contained information on residence in households, institutions, or non-institutional group quarters. These tables provide the small area information for four of the seven major demographics used in the estimation process. These are all based on the census short form questionnaire and items which covered 100% of the population. The equivalent year 2000 file, SF1 had the same variables but handled race in a new and innovative way, which permitted respondents to identify multiple race categories in addition to being Hispanic. Therefore it was necessary to allocate people into the original five race/Hispanic categories to maintain consistency with the original report.

The second file used was the STF3a file on CD-ROM, which adds additional information of socioeconomic characteristics such as marital status, education and poverty. Many of these tables also included age, sex, and/or race which improved the fitting of these marginals to the seven variable matrix. The Census 2000 version of this file is SF3.

The third file used was the Public Use Microdata Sample (PUMS). This contains the detailed census long form records for a 5% sample of all the population, with appropriate variables provided to weight the sample up to the full population count. The method used to preserve confidentiality of these individual records is to restrict the geographic identification provided to areas of about 100,000 persons or more. These areas, designated PUM Areas (PUMAs), are often larger than rural counties, and definitely larger than the census tracts and wards use as geography within the District of Columbia. For 1990 about 5 PUMA areas were available but for 2000, only the 1% PUMS sample is available at this time. The 1% file uses Super-PUM areas which have a

population of about 500,000, so only one covers the entire District. However that was sufficient for generating the seven variable crosstabulation which was then adjusted by the tables in SF1 and SF3.

The fourth file used was based on the U.S. Census projections for age, sex, and race, for 1997 through 2000. How the Census Bureau generates those projections is beyond the present report, but takes into account births, deaths, and other local data. These estimates and projections are available for single years, but only for the city/county as a whole. Therefore we were unable to make projections for areas and wards for the years between 1990 and 1999 or for the estimates for 2000 prior to the release of the 2000 decennial data. The 1997 -2000 estimates for age, sex, and race were then used to inflate the 1990 estimates for the city. The newer 2000 data have permitted estimates for wards and areas within the District.

**Step 5. Apply disorder or need rates from survey to each population cell.**

The smoothed risk, or rates of disorder, from the logistic regression analysis are multiplied by the corresponding cells in the updated demographic matrix for each census tract or region.

For all demographic variables i, j, k, ... : cell rate(i,j,k,...) x cell population(i,j,k,...)	=====>	Estimated cases, e(i,j,k,...) in each demographic cell
---	--------	---

Estimates were prepared by multiplying the smoothed risk rates from the logistic regression analysis by the corresponding cells in the updated demographic matrix for each census tract or region. This provided an estimate for each of the 480 specific demographic cells. This is too many cells to examine, so in the next step the rates were summarized by demographic marginal.

**Step 6. Combine cell counts for total estimates of disorder or need**

Once the estimated number of cases is obtained for each of the demographic cells, sum the estimated cases to get the total cases of disorder or need.

For all i,j,k,... Sum: e(i,j,k,..)	=====>	Total need
---------------------------------------	--------	------------

**Step 7. Summary rates for aggregated demographic subgroups or for a specific area**

Dividing the sum of the estimated number of cases by the sum of the population denominators provides an overall estimated *rate* of disorder or need for a group in the specific area.

For all i,j,k,... Sum: e(i,j,k,..) ----- = Sum: population(i,j,k,..)	Total cases ----- = Population	prevalence rate
---	--------------------------------------	-----------------

## Step 8. Estimate local rates for specific population groups

In order to provide a summary rate, or percentage of the population estimated to have each specific disorder or to need services, the estimated numerators in step 6 were divided by their corresponding denominators and presented as percentages. The details of implementation of these procedures are provided in Chapter 5.

### Additional estimation procedures

The above steps are the basic elements of the estimation process, assuming the availability of a reference survey database such as the National Comorbidity Study. Unfortunately, the NCS covered only the ages 15 to 54 and provides SMI or SPMI rates only for ages 18 to 54. Thus there are some additional steps in the estimation process used in this project. The NCS did not provide a reference survey for persons age 55 and older, so additional procedures for persons age 55 and older are presented in Chapter 6. Procedures for children and adolescents below age 18 are discussed in Chapter 7. These are required because SMI and SPMI are not defined for those ages. Instead, we have used estimates of Serious Emotional Disturbance (SED) which is the youthful equivalent of SMI, based in part on information published in the federal register. The survey data from NCS and other sources is primarily from persons who are resident in community households, such as in houses or apartments. There are additional persons in Washington, D.C. who are resident in institutions or group Quarters, or homeless visible on the street. Procedures for including them in the estimates are provided in Chapter 8.

## Chapter 4. The National Comorbidity Study and Estimated Prevalence

### Background

The Epidemiologic Catchment Area Study (ECA) which was conducted in the early 1980's grew out three major elements in the field of psychiatric epidemiology. The first was the increasing use of large community surveys of psychiatric symptoms to estimate the prevalence of mental illness. The second was the development of the Diagnostic and Statistical Manual of the American Psychiatric Association (DSM), which by the third edition (DSM-III) provided sufficient diagnostic guidelines that specificity that structured diagnostic interviews same into increasing use. The third influence was the President's Commission on Mental Illness, directed by Mrs. Carter, which inquired into the prevalence of mental disorders in order to influence national legislation, and finding the available information lacking or unreliable, requested NIMH to conduct appropriate studies to determine the prevalence of disorders. The Epidemiologic Catchment Area Study used an instrument called the Diagnostic Interview Schedule (DIS) which was developed by Lee Robins and colleagues as a fully structured interview to be used by lay interviewers in community surveys. The National Institute of Mental Health (NIMH) funded investigators at five sites to conduct a prevalence survey of over 18,000 respondents age 18 and older, with follow-up interviews after one year, and an effort to relate prevalence to the utilization of services in those areas. The ECA also included samples of persons in prisons, nursing homes, and mental institutions. The ECA is described at length in the volume by Robins and Regier (1991) Psychiatric Disorders in America.

## **The first NCS Survey**

The National Comorbidity Survey (NCS) was conducted around 1990-1992 to assess the relationship of substance abuse and mental illness. This led to the inclusion of youth age 15 and older and the omission of adults age 55 and older, where rates of drug abuse are generally lower than in younger persons.

The important element in the design of the NCS was to provide a true national sample of persons age 15-54. This was a contrast to the ECA project which was based in only five locations which were not representative of the entire country. The NCS sample included 8098 persons sampled from the non-institutional population of the 48 contiguous states.

The interview instrument used in the NCS was the Composite International Diagnostic Instrument (CIDI). The CIDI was an instrument which had evolved from the DIS under NIMH and World Health Organization Support. Although the initial DIS had attempted to capture both DSM and International Classification of Disease (ICD) criteria, the additional items had proved cumbersome and were mostly dropped from the ECA. Further, with international participation, the CIDI was adapted to the evolving ICD criteria with support from the WHO and had field trials in numerous countries. The specific version used in the NCS was the University of Michigan version (UM-CIDI) which had additional adaptations to deal with perceived limitations in the DIS. The most salient of these was the relocation of screening questions to the beginning of the instrument so that respondents would not as easily be able to deny symptoms at the beginning of the diagnostic sections and thus shorten their interviews. This had been a problem in the DIS and in other structured instruments with major section skip outs.

The details of the NCS methodology and initial results were reported by Kessler and colleagues (1994) and are not presented in this report. The NCS results used in the present study were not obtained through the above publication, but instead were obtained through direct analysis of data provided on the NCS web sites, which permit downloading of a majority of the NCS data for analysis. The National Comorbidity Study web site is <http://www.umich.edu/~ncsum/> and the Harvard site is <http://www.hcp.med.harvard.edu/ncs/>. Additional data on SMI and SPMI were provided by Dr. Kessler.

## **Serious Mental Illness (SMI) and Serious and Persistent Mental Illness (SPMI)**

Although the NCS and the ECA initially provided prevalence data for the major psychiatric disorders assessed by their diagnostic instruments, the specification of disorders alone is not considered sufficient as a definition of need for mental health services for use in planning or for documentation of need for Federal Block Grant funding. The problem was that if one included all possible disorders from DSM, the resulting prevalence was too high to be considered a reasonable target for publicly funded mental health services. While schizophrenia is considered to be a major illness for most, other disorders such as simple phobias were not seen as sufficiently severe or disabling to justify public funding. Yet some of the "minor" disorders are completely disabling for some individuals but not for all.

A desire for priority thresholds is evident in recent work at the federal level by SAMHSA where measures of a more inclusive Serious Mental Illness (SMI) and a more restrictive Serious and Persistent Mental Illness (SPMI) are being developed.

The ADAMHA Reorganization Act of 1992, or Public Law (PL) 102-321, stipulated that the Substance Abuse and Mental Health Services Administration would create a definition of SMI and establish a group of technical experts to develop an estimation methodology based on that definition. Estimates of SMI at the State and possibly county levels would then be used to influence the allocation of Block Grant funds from SAMHSA or congress. A summary of the work of the group of technical experts, led by Dr. Ronald Kessler, was published for comment in the Federal Register (March 28, 1997 - Volume 62, Number 60, pages 14928-14932). A more detailed document on the methodology and results, including county-level estimates (Kessler et al. 1997), is cited at points with permission from Dr. Ronald Manderscheid, Chief, Survey and Analysis Branch, Center for Mental Health Statistics, SAMHSA.

The amount and tone of comments provided to SAMHSA is unknown, but a May 27, 1997 letter from the National Association of Mental Health Program Directors to Dr. Arons of the Center for Mental Health Services indicated substantial concern by states about the definitions proposed, the methodology for making estimates, and the intended use of the resulting estimates. The relatively high estimate for SMI, 5.4% nationally, is an explicit concern since services are typically provided to a much smaller percentage of the population. To date the estimation method and results have yet to be formally adopted.

Estimates of SMI are based on results from the Epidemiologic Catchment Area surveys in the early 1980s and the National Comorbidity Survey conducted in the early 1990s. The measurement of SMI first includes persons with Serious and Persistent Mental Illness (SPMI) and then adds several other measures that would suggest SMI but not necessarily SPMI. SPMI attempts to measure what NIMHAC calls Severe Mental Illness and includes (i.e. is limited to): "schizophrenia, schizoaffective disorder, manic depressive disorder, autism, and severe forms of depression, panic disorder, and obsessive compulsive disorder." (Kessler et al. 1997)

The operationalization of SPMI for the 1997 report used variables from the National Comorbidity Study (NCS) and included disorders with differing evidence for duration. Specifically included were (a) 12 month prevalence of non-affective psychosis or mania; (b) lifetime prevalence of non-affective psychosis or mania if accompanied by evidence that the respondent would have been symptomatic if it were not for treatment (defined by either use of medication or any professional treatment in the past 12 months); or (c) 12 month prevalence of either major depression or panic disorder with evidence of severity indicated either by hospitalization or use of major psychotropic medications."

Comment: This operationalization of SPMI uses 12 month prevalence as a criterion which may not be an exact fit to the original NIMHAC definition of Severe Mental Illness. In most published work on the NCS, ECA, and other epidemiological studies, "12 month prevalence" generally indicates that an individual had met the diagnostic criteria for a specific disorder at any time within the past year. That excludes persons with a past disorder, i.e. lifetime disorder with no recurrence in the past year with the exception is for those who are currently in treatment or on

medication, suggesting that the disorder is present but symptoms are suppressed by the treatment. On the other hand, "12 month prevalence" explicitly does not imply 12 month duration in any of the conventional usage. Twelve months duration or some other substantial duration criterion is an explicit part of the NIMHAC definition of severe mental illness.

This definition for SPMI also does not specify that functional limitations are present beyond those included in the specific diagnosis, and most of the disorders listed do not formally require functional limitations to meet criteria. Moreover, while the argument that past (lifetime) disorder with current medication or service use may indicate ongoing disorder, it also makes the definition a bit circular such that even low level of utilization becomes an indication of need (SPMI). Regardless, the definition for SPMI appears on its face to be less restrictive than past definitions of chronic mental illness (CMI) or possibly Severe Mental Illness.

That said, Kessler's (1996) paper operationalizes SMI in four parts which are alternative means for identifying an NCS respondent as having SMI:

- (1) all respondents meeting the SPMI definition given above.
- (2) respondents who "had a 12-month DSM-III-R mental disorder and either planned or attempted suicide at some time during the past 12 months."
- (3) respondents "with a 12-month DSM-III-R mental disorder that substantially interferes with their vocational capacity." Two such groups are described, although it is unclear whether those are exclusive definitions: (a) those who are unemployed or working part for reasons not explained by being physically disabled, a student, or being a primary caregiver of pre-school children; or (b) those with a DSM-III-R disorder who missed at least a day a month for reasons that they perceived (reported) related to the mental illness. The duration of this interference is not defined in the text.
- (4) respondents with a DSM-III-R disorder " who had serious interpersonal difficulty" demonstrated by: (a) the lack of: marriage, an intimate relationship, confiding relationships, or affiliative interactions more frequent than once a month; or (b) reported lack of intimacy, ability to confide, and sense of being cared for or supported in all social relationships. [[reformatted for clarity]]

### **Prevalence rates for SMI and SPMI**

Publications in the Federal register provide estimates for states. These include "Estimation Methodology for Adults with Serious Mental Illness (SMI)", Federal Register: March 28, 1997 (Volume 62, Number 60) (fr28mr97), and Estimation Methodology for Adults With Serious Mental Illness (SMI), Federal Register: June 24, 1999 (Volume 64, Number 121) (fr24jn99-67). Overall these estimate that 2.6% of the U.S. population has Severe and Persistent Mental Illness (SPMI), and that 5.4% have Serious Mental Illness (SMI). This contrasts with the NCS estimate that 23.9% of the U.S. population has at least one DSM-III-R mental disorder during a 12 month period. CMHS (Kessler and colleagues) have provided estimates for SMI and SPMI for adults in the U.S. at the county by county level, but their methodology has not been used to provide estimates below the county level, nor have they updated their estimates using demographics

since 1990. The present report addresses both issues, albeit separately, as well as inclusion of estimates for Severe Emotional Disturbance among children below age 18, based on the demographics and information provided in other CMHS reports.

### **The New National Comorbidity Surveys**

Over the past few years NIMH and other agencies have funded a series of epidemiologic surveys which will update and extend the results of the original NCS. The backbone of this is a new national survey administering the CIDI instrument to a broader age range sample. There is also a reinterview survey of the original NCS respondents. There are additional separate but coordinated surveys addressing the mental health of the major minority groups. These use the same core instrumentation as the NCS but add sections addressing the specific ethnic groups. We look forward to the available of these data for updating the present estimates.

## **Chapter 5. Estimation Procedures for Adults Age 18 to 54**

### **Overview**

The primary source of data for the household resident adults age 18 to 54 is the National Comorbidity Study (NCS). The basic procedure involves 1) creation of the dependent variables, SMI and SPMI, 2) creation of the independent variables, age, sex, race, etc, 3) examination of tabulations of dependent variables by the demographics, 4) construction of logistic regression models, 5) application of the models to generate a table of rates.

### **Creation of the dependent variables**

The general definitions of SMI and SPMI are provided in the previous chapter. The specific definitions in terms the items which went into the definitions are not available because the variables were provided Dr. Dr. Kessler in a dataset to be merged into the larger NCS datasets. The specific values for SMI and SPMI are provided only for persons age 18 to 54, along with a set of weights to be used in analysis of these variables.

### **Tabulations**

The following table presents the marginal distributions for SMI and SPMI by each of the demographic variables used in the estimation.

<b>NCS Based Estimates of SMI and SPMI by Demographics</b>						
	<b>SMI</b>			<b>SPMI</b>		
	<b>N</b>	<b>Weighted N</b>	<b>Percent</b>	<b>N</b>	<b>Weighted N</b>	<b>Percent</b>
<b>AGE</b>						
18-24	1272	968	8.6%	1272	968	4.0%
25-34	1784	1786	5.6%	1784	1786	2.8%
35-44	1463	1628	6.3%	1463	1628	3.7%
45-54	869	1002	4.8%	869	1002	2.7%
<b>GENDER</b>						
Male	2583	2697	4.8%	2583	2697	2.5%
Female	2810	2696	7.6%	2810	2696	4.0%
<b>RACE</b>						
White-NH	4185	4131	6.1%	4185	4131	3.4%
African Am-NH	592	611	6.4%	592	611	2.8%
Asian	85	101	5.0%	85	101	0.4%
Native	67	54	5.7%	67	54	3.4%
Hispanic	431	458	6.7%	431	458	3.4%
<b>MARITAL</b>						
Married	2542	3169	4.6%	2542	3169	2.8%
Div/Sep/Wid	1038	812	11%	1038	812	5.7%
Never Mar.	1813	1412	6.8%	1813	1412	2.8%
<b>EDUCATION</b>						
Below HS	745	800	10%	745	800	5.6%
HS Grad	3459	3399	6.4%	3459	3399	3.4%
College Grad	1183	1188	3.0%	1183	1188	1.4%
<b>POVERTY</b>						
Below 100%	698	570	13%	698	570	6.5%
100-199%	959	945	8.1%	959	945	4.0%
200% & Above	3736	3878	4.8%	3736	3878	2.6%

## Models

For SMI and SPMI a series of logistic regression models were considered, including models with main effects and a number of interactions. In the end, we restricted the model to main effects without interaction terms, because that was most parsimonious while providing a reasonable fit to the data. During the search for the model we increased two of the terms from being dichotomous to trichotomous. We have used three levels of education and three levels of

poverty, which seemed to work better than the two level variables with interactions. The alternative models considered are available in the web version of the report. ([Models](#))...

Because the survey did not provide instances for every combination of the demographic variables, the logistic regression models were used to construct a mathematical function to generate a rate for each of the combinations of the demographics within the NCS sample range of adults age 18 to 54 in household residences.. These rates were then applied to the demographic matrix for the District as a whole and for the wards and regions. Because the NCS data cover only ages 18 to 54, other methods were needed to make estimates for the elderly, children, and non-household populations.

## Chapter 6. Estimation procedures for Older Adults

### Overview

This chapter presents the method used to generate estimates for persons age 55 to 59, 60 to 64, and 65 or older. The National Comorbidity Study does not include persons age 55 or older and thus no direct means was available for generating the rates from those data. When confronted with this problem for the CMHS national estimates, Kessler and colleagues went to the Baltimore ECA, which had an oversample of the elderly persons and used those ECA data to project the NCS SMI estimates for younger persons into the older age groups.

"The prevalence ratio among ECA respondents ages 55-64 and 65 years and above were found to be .84 and .32 respectively, as the prevalence estimate for NCS respondents age 18-54 years old, after controlling for differences in gender and race. NCS rates were extrapolated using these ratios. These ratios did not differ significantly by sex or race. A factor of .81 was applied to state-level SMI estimates for the age range 18-54 to derive the rate for the age range 55-64, and .31 was used to arrive at the estimate for person 65 and older." Federal Register Vol 62, No. 60, page 14929, March 28, 1997.

The particular disorders used in the calculation of these ratios is not specified, but it is assumed that no precise equivalent of SMI or SPMI was available or those rates might have been used directly. One is left to wonder whether these ratios would be the same if Cognitive Impairment, a surrogate for dementia was included in the ratios, and whether the ratios would apply equally well for SPMI as for SMI. We attempt to address those questions and come up with alternative ratios for use in the present project.

### What is the age distribution of SMI among the elderly?

We have no direct evidence from the NCS for the age distribution among the elderly of either SMI or SPMI because the NCS stops at age 55 and SMI and SPMI are not equivalently defined in any other dataset. Therefore we need to examine the age distributions of disorder in other sources which may be available.

### ECA Based Estimates For Washington DC for 1990

In order to consider the age distribution past the age of 54, we initially examined a set of estimates made for Washington DC using an alternative demographic model and data from the full Epidemiologic Catchment Area dataset, not just Baltimore. The definitions used do not

include the current versions of SMI and SPMI but instead include broad and narrow definitions ranging from having any disorder through restrictive definitions developed for use in Ohio (Jarjoura et al, ). These are presented in the table below.

<b>ECA Based Estimates for Washington DC for 1990</b>												
<b>&lt; estimation earlier an on&gt;</b>												
	<b>Age 18-24</b>			<b>25-44</b>			<b>45-64</b>			<b>65 or older</b>		
<b>Definition</b>	<b>Cases</b>	<b>Tot Pop</b>	<b>Tot Rate</b>	<b>Cases</b>	<b>Tot Pop</b>	<b>Tot Rate</b>	<b>Cases</b>	<b>Tot Pop</b>	<b>Tot Rate</b>	<b>Cases</b>	<b>Tot Pop</b>	<b>Tot Rate</b>
Any disorder	24014	82558	29.09	62286	216472	28.77	21989	112931	19.47	10693	77847	13.74
Any dx except phobia	16899	82558	20.47	42797	216472	19.77	12306	112931	10.90	4966	77847	6.38
Any dx except CI and phobia	16548	82558	20.04	42072	216472	19.44	11652	112931	10.32	3436	77847	4.41
Severe Cognitive Impairment	349	82558	0.42	839	216472	0.39	1582	112931	1.40	3517	77847	4.52
Ohio priority definition	1570	82558	1.90	6807	216472	3.14	3060	112931	2.71	873	77847	1.12
Ohio SSI definition	853	82558	1.03	2987	216472	1.38	1204	112931	1.07	462	77847	0.59

In most of these estimates it can be seen that there is some degree of decrease in the estimated prevalence with the notable exception of Severe Cognitive Impairment which increases with age. For the definitions without Cognitive Impairment, however, a decline equivalent to the .31 used in the Federal Register appears to be for the broader (high prevalence) definitions, with lesser decline for the more restrictive definitions such as those developed for Ohio. Because most of the definitions do not include Cognitive Impairment, there should be some policy consideration concerning the liability of excluding impairment which arises in the presence of Cognitive Impairment whether or not another disorder is present. Some consideration should also be given to the frequently discussed methodological reasons for the decline in prevalence seen in the survey based assessments of the DIS and the CIDI instruments. There is some uncertainty whether these declines are reflective of declines in true prevalence versus being indications of the assessment methodology, which relies on self report, being less sensitive to illness in older persons. It also enters into discussion of the "age, period, cohort effects" observed in the data, in which the elderly report lower prevalence of not only current disorder but also past disorder. The full treatment of these issues is beyond the present report, but it gives some pause to deflating the estimates for the elderly by as much as the 0.31 ratio would suggest.

## Washington State Findings

In another recent estimation project in Washington State, based on a more recent survey conducted in that state, a decline in prevalence was also observed for the elderly. Discussion there led to the provision of an alternative set of estimates which included an adjustment for the increasing Cognitive Impairment (a surrogate for dementia) in the elderly. The age distributions before and after the adjustment for cognitive impairment are presented below for a medium breadth definition of need for services, which is similar in purpose and construction to the SMI definitions used nationally, although they are not highly correlated. By providing alternative definitions including cognitive impairment the elderly remain visible in the estimation and planning process.

Estimates of Need for Mental Health Services by Age For Washington State for 1998 from WANAHHS Survey												
	Age 18-24			25-44			45-64			65 or older		
Definition	Cases	Tot Pop	Tot Rate	Cases	Tot Pop	Tot Rate	Cases	Tot Pop	Tot Rate	Cases	Tot Pop	Tot Rate
Medium need	21214	505263	4.20	96018	1792828	5.36	42680	1231976	3.46	11995	650714	1.84
Medium+CI	22294	505263	4.41	98801	1792828	5.51	48431	1231976	3.93	27379	650714	4.21
Narrow need	3335	505263	0.66	29689	1792828	1.66	15605	1231976	1.27	4239	650714	0.65
Narrow+CI	4417	505263	0.87	32478	1792828	1.81	21454	1231976	1.74	19623	650714	3.02

## Procedures used for Washington D. C.

The procedures used in the present estimation process are driven by several elements in the overall estimation model and by some broader assumptions discussed above.

First, the present demographic model identifies more age groups than previous models of either CMHS or previous work with ECA or WANAHHS. This was needed to provide estimates for the age groups requested for this report, which matched neither the NCS nor the U.S. Census. Thus of the ten age groups in the model, adults are identified as 18-25, 25-34, 35-44, 45-54 in the NCS, with older groups being 55-59, 60-64, and 65+. For each of the three older age groups we have presently used a ratio relative to the NCS rate for the 45-54 age group. The rate is 0.9 for age 55-59 compared to 45-59. It is 0.8 for ages 60-64 compared to 45-59. The rate is 0.6 for age 65+ compared to ages 55-59. These ratios are numerically similar to that used for the 55-64 age group in the CMHS estimates (see the quote above), but it refers only to the adjacent age group of 45-54, rather than to the whole sample. Further, the age group referenced is specific to the other demographics identified in the entire demographic model. Thus the age projection is specific for sex, race, marital status, education and poverty within the household population, with an additional adjustment for institutional or group quarters residence. Adjustments for residential type are discussed in a later chapter.

Alternative ratios might be considered, and could be made as a direct adjustment to the rates for the age summaries presented in the estimation tables, because the other factors have already been applied.

## Chapter 7. Estimation procedures for Children and Adolescents

### Overview

The methodology for conducting prevalence surveys for children and adolescents has progressed greatly over the last decade, with improvements in diagnostic assessment instruments as well as field survey methods. There have been a number of studies of the mental health of children and adolescents although these fall far short of the massive scope of surveys such as the ECA and the NCS. The limited availability of prevalence data makes it difficult to create estimation models for this population taking into account the range of demographic variables. Therefore for the present report we have relied heavily on the rates and methods of the CMHS reports Estimation Methodology for Children With a Serious Emotional Disturbance (SED), Federal Register: October 6, 1997 (Volume 62, Number 193) (fr06oc97-78), and Children With Serious Emotional Disturbance; Estimation Methodology, Federal Register: July 17, 1998 (Volume 63, Number 137)(fr17jy98-81).

### Definition of Serious Emotional Disturbance (SED)

A definition for Serious Emotional Disturbance has been provided in the Center for Mental Health Services notice in the federal register 58(96), 29422-29425.

The CMHS definition is that "children with serious emotional disturbance" are persons:

- From birth up to age 18;
- Who currently or at any time during the past year;
- Have had a diagnosable mental, behavioral, or emotional disorder of sufficient duration to meet diagnostic criteria specified within DSM- III-R
- That resulted in functional impairment which substantially interferes with or limits the child's role or functioning in family, school, or community activities (p.29425).

The definition goes on to indicate that, "these disorders include any mental disorder (including those of biological etiology) listed in DSM-III-R or their ICD-9-CM equivalent (and subsequent revisions) with the exception of DSM-III-R 'V' codes, substance use, and developmental disorders, which are excluded, unless they co-occur with another diagnosable serious emotional disturbance" (p. 29425).

Further, the definition indicates that, "Functional impairment is defined as difficulties that substantially interfere with or limit a child or adolescent from achieving or maintaining one or more developmentally-appropriate social, behavioral, cognitive, communicative, or adaptive skills. Functional impairments of episodic, recurrent, and continuous duration are included unless they are temporary and expected responses to stressful events in their environment. Children who would have met functional impairment criteria during the referenced year without the benefit of treatment or other support services are included in this definition" (p. 29425).

A brief review of available studies was presented in Table One, of the Federal Register, Vol 62, No 193, page 52140, October 6, 1997. These were largely based on the Diagnostic Interview for Children (DISC), in various versions. The largest study was the MECA study presented by Lahey et al, 1996, and Shaffer et al, 1996. Also included was Kessler's NCS sample from ages 15-17.

Through procedures discussed in the Federal Register, states were classified as having high (22.14%-37.03%), medium (15.79%-21.25%), or low (4.07%-15.57%) percentages of youth age 9-17 living in poverty for 1995. For reference, Washington, D.C. is listed as having 35.33% of these youth in poverty, for an over ranking of 49 out of 51 states. No additional demographic differentiation was made, and it was stated that "Presently, the data are inadequate to estimate prevalence rates for children under the age of none.

The next two steps identified prevalence rates for the three levels of statewide poverty, with differentiation between a strict criterion for lack of function, i.e. below 50 on the Child Global Assessment Scale (CGAS) or a less stringent definition including youth below 60 on the CGAS. These rates are presented in "Table 2" below.

Table 2.--1995 Estimates of Children and Adolescents With Serious Emotional Disturbance; State Estimates Algorithms

```

-----
Estimated population
-----
LOF*=50 LOF*=60
States -----
Lower limit Upper limit Lower limit Upper limit
(percent) (percent) (percent) (percent)
-----
Group A,
Lowest percent in poverty..... 5 7 9 11
Group B,
Medium percent in poverty..... 6 8 10 12
Group C,
Highest percent in poverty..... 7 9 11 13
-----

```

\*LOF=Level of functioning from the Children's Global Assessment Scale.

In the Federal Register, these rates were applied to the states to generate estimated numbers of youth age 9-17 with SED. For Washington D.C. these numbers were 3386 (7%) to 4353 (9%) for a low level of functioning (CGAS=50), and 5320 (11%) to 6287 (13%) for a higher level of function (CGAS=60). These numbers were for 1995, but adjustment for other years would only require substitution of the revised number of children in that age group. As shown in Chapter 3 of this report, ages 7-17 appear to be the main area of population growth in the District, and thus current estimates of the numbers of youth with SED are likely to increase.

**Poverty based rates of SED for use in the present report**

The rates presented above were designated for application to areas rather than subpopulations within areas. In our demographic matrices we have estimated the numbers of children at three levels corresponding to 0-99% 100-199%, and over 200% of the federal poverty guidelines. Said differently, we see the population as consisting of a mix of youth with risk of SED depending on their level of poverty. For the percentage of persons in poverty in the above tables to provide different rates of SED, the rates for youth above 100% of the poverty level must be lower than for those below 100% of the poverty level, and the rates are probably even lower for those above 200% of the poverty level. Working backward, one asks what levels of individual risk would it take to produce the aggregate relationships used in the Federal Register. If the overall rate of

SED increases about one percentage point for an increase in about 8 poverty points, then the individual rate for persons in poverty must be substantially more than one point higher for those in poverty than those between 100 and 200% of poverty, and probably more than one point higher than for those above 200% of poverty.

For the purposed of this estimation, therefore, we have rather arbitrarily chosen to use the rate of 10% for those below 100% of poverty, 8% for those between 100 and 200% of poverty, and 6% for those above 200% of poverty. This is a lower percentage range than would have come from the broader level of functioning criteria (CGAS=60). We suspect that this range is also narrower than a more direct assessment of prevalence in the community would provide. For adults, the NCS rates were 13% for those below poverty, 8.1% for 100-200% of poverty, and only 4.8% for those over 200% of the poverty guideline.

### **How young is too young for the rates above?**

On page 52141 of the Federal Register, October 6, 1997, the authors indicate, "Presently the data are inadequate to estimate prevalence rates for children under the age of none." As a consequence the CMHS estimates were provided only for the age range 9-17. This leaves a hole in the overall estimation process. While we agree that it is risky to project the above rates downward solely from the data used in the Federal Register, there are some other data which suggest that this might be more reasonable than omitting the younger children from a needs assessment analysis.

Achenbach (1991) has used his Child Behavior Checklist with children ages 4 to 18. In the Scoring Manual and 1991 profile, he reports age distributions for the various scales. For some of the scales the scores are lower for younger children than for older youth, but for others, the scores are as high or higher for the younger children. Generally, internalizing scores are lower for the younger children, with relative larger decreases for the scales Withdrawn and Anxious/Depressed. For Externalizing, and particularly Aggressive Behavior, there are slightly higher scores for the younger children. For the Total Problems score, the age distribution is nearly flat from ages 4 through 18. For the Competence scores, which are scored starting at age 6, the younger groups do not show significantly lower scores than the older children. Thus we argue that it is reasonable to project the rates of SED downward, at least until a better assessment of SED in younger children can be obtained.

### **Estimation methods for the present project**

Therefore, the methodology for household resident children in the present set of estimates is based solely on the poverty status of the child with children living below 100% of the Federal poverty guideline are assigned a risk of 0.10, or 10%. Those between 100% and 200% pf the poverty guideline are assigned 0.80 or 8%. Those above 200% of the poverty guidelines are assigned 0.6 or 6%. These rates are assigned disregarding any other demographic information other than institutional or group quarters residence. Those are discussed in the next chapter.

## Appendix C

### Low Income Households

The focus in this report is Alaskans least able to afford services. States often support funding for at least some part of services to individuals with incomes up to 240% of poverty or higher. Most estimates in the report are for individuals with incomes below 240% of Federal Poverty Guidelines. These poverty guidelines are updated periodically in the Federal Register by the U.S. Department of Health and Human Services under the authority of 42 U.S.C. 9902(2).<sup>10</sup>

This cutoff for low income families as defined in this report is higher than the family income cutoff for eligibility for SCHIP and some Medicaid programs (185% of poverty). The Division makes grants to providers enabling them to provide services to more people than Medicaid allows.

The household incomes qualifying for poverty using the federal poverty guidelines depend on family size and are shown in the table below. The income qualifying for poverty in Alaska is twenty-five percent higher than the lower 48 States.

Poverty Incomes			
Size of Family Unit	48 Contiguous States and D.C.	Alaska	Hawaii
1	\$ 8,240	\$10,320	\$ 9,490
2	11,060	13,840	12,730
3	13,880	17,360	15,970
4	16,700	20,880	19,610
5	19,520	24,400	22,450
6	22,340	27,920	25,690
7	25,160	31,440	28,930
8	27,980	34,960	32,170

Poverty in 2006, i.e., 100% of federal poverty guidelines for a single individual in the lower 48 States was defined by the U.S. Department of Health and Social Services as \$8,240. The ratio of the lower 48 income to the Alaska income of \$10,320 is 80% ( $\$8,240/\$10,320=.80$ ): 100% of poverty in the lower 48 is equivalent to 80% of poverty in Alaska.

Synthetic prevalence estimates were generated using the Census poverty thresholds which do not take into consideration the differences in incomes in the table above using federal poverty guidelines.<sup>11</sup> The prevalence tables on the web used Census poverty thresholds not HHS guidelines. This report converts the Census thresholds to HHS poverty guidelines.

<sup>10</sup> <http://aspe.hhs.gov/poverty/06poverty.shtml> (Note: these guidelines differ slightly from Census poverty thresholds which were used to generate the synthetic prevalence estimates.)

<sup>11</sup> Refer to this Census description of the difference between Guidelines and thresholds:  
<http://aspe.hhs.gov/poverty/faq.shtml#differences>.

